

**COAL COMBUSTION RESIDUAL RULE  
2017 ANNUAL GROUNDWATER MONITORING REPORT**

**MONTICELLO STEAM ELECTRIC STATION  
ASH PONDS  
MOUNT PLEASANT, TEXAS**

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## 1.0 INTRODUCTION

Luminant Generation Company LLC (Luminant) operated the Monticello Steam Electric Station (MOSES) located approximately six miles southwest of Mount Pleasant, Titus County, Texas (Figure 1). The three power generation units at the MOSES burned lignite and Powder River Basin coal. Coal Combustion Residuals (CCRs) including fly ash, bottom ash, and scrubber sludge are generated as part of MOSES unit operations. The CCRs are currently stored, treated, and disposed of in surface impoundments on-site, or at other Luminant facilities. Three surface impoundments are located within the MOSES operations, the West Ash Settling Pond, the Southwest Ash Settling Pond, and Northeast Ash Water Retention Pond (Ash Ponds). These ponds are collectively referred to as the Ash Ponds and are evaluated as one CCR unit.

The CCR Rule (40 CFR 257 Subpart D - *Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments*) has been promulgated by the EPA to regulate the management and disposal of CCRs as solid waste under Resource Conservation and Recovery Act (RCRA) Subtitle D. The final CCR Rule was published in the Federal Register on April 17, 2015. The effective date of the CCR Rule was October 19, 2015. The Ash Ponds meet the definition of a CCR surface impoundment and are subject to groundwater monitoring system requirements of the CCR Rule.

### 1.1 CCR Unit Groundwater Monitoring Applicability

Section 257.90 of the CCR Rule requires that existing CCR landfills and surface impoundments be in compliance with the following groundwater monitoring requirements no later than October 17, 2017:

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



Pastor, Behling & Wheeler, LLC (PBW) was retained by Luminant to evaluate the CCR groundwater monitoring system and develop and implement a CCR groundwater sampling and analysis program at the Site. To document these activities, PBW prepared the following reports, which were placed in the facility's operating record to comply with Section 257.105(h) of the CCR Rule:

- CCR Groundwater Monitoring System Certification (PBW, 2017a);
- CCR Monitoring Well Design, Installation, Development, and Decommissioning Report (PBW, 2017b); and
- CCR Statistical Analysis Plan (PBW, 2017c).

For existing CCR landfills and surface impoundments, the owner or operator must prepare an annual groundwater monitoring and corrective action report to document the status of the groundwater monitoring and corrective action program for the CCR unit for the previous calendar year. The CCR Rule requires that the owner or operator of a CCR unit prepare the initial annual groundwater monitoring and corrective action report for the unit no later than January 31, 2018, and annually thereafter. Per Section 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.

## 1.2 Groundwater Sampling and Analysis Requirements

### 1.2.1 Background Monitoring Requirements

The CCR Rule requires that background groundwater quality be established in hydraulically upgradient or background well(s) for each of the groundwater constituents required in the detection monitoring or assessment monitoring program that applies to the CCR unit. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if the samples accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit. Section 257.94(b) of the CCR Rule requires that a minimum of eight independent samples from each background and downgradient well associated with a CCR unit be collected and analyzed for the constituents listed in Appendix III and Appendix IV to Part 257 CCR Rule no later than October 17, 2017.

PBW was retained by Luminant to collect and analyze the required background well samples at the Site. Eight background groundwater monitoring events were performed using the Ash Ponds CCR monitoring well system from October 2015 to December 2016. The background groundwater monitoring program is described in detail in Section 2 of this report.

### 1.2.2 Detection Monitoring Requirements

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

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

The monitoring frequency for these constituents must be at least semi-annual during the active life of the CCR unit and post-closure period. The reported concentrations of the detection monitoring constituents must be compared to the respective CCR unit background concentration developed for each constituent. If a statistically significant increase over background is determined for one or more of the constituents

listed above at any monitoring well at the CCR unit waste boundary, within 90 days the owner or operator must:

- Establish an assessment monitoring program as described in Section 257.95 of the Rule; or
- Demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with the detection monitoring program. If at the end of the 90-day period in 257.94(e)(2), the owner or operator is unable to successfully make an alternate source demonstration, the assessment monitoring program is triggered and the owner or operator has 90 days to complete the sampling required under 257.95(d).

Detection monitoring performed at the Site is discussed in Section 4.0 of this report.

### 1.2.3 Assessment Monitoring Requirements

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

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

Assessment monitoring performed at the Site is discussed in Section 5.0 of this report.

## **2.0 GROUNDWATER MONITORING SYSTEM**

### **2.1 Description of the Ash Pond Area**

Bottom ash is sluiced to the NE and West Ash Ponds, and the SW Ash Pond is used for overflow from the other two ponds. In addition to the sluiced ash, overflow from the dewatering bins is also sent to these ponds. Based on as-built drawings provided by Luminant, these ponds have compacted clay liners consisting of three feet of clay soil, and are considered existing lined surface impoundments under the CCR Rule. The clay soil is covered by a four-inch concrete revetment mat.

### **2.2 Local Geology and Hydrogeology**

The Ash Ponds are located in the outcrop area of the Eocene-aged Wilcox Group (Barnes, 1966). Based on soil borings completed at the Site, the geology in this area generally consists of an upper clay and silt unit that extends from ground surface to about 5 to 25 feet below ground surface (bgs). The upper clay and silt unit is underlain by an approximately 20-foot to 40-foot thick unit of silty sand, which is underlain by a lower clay unit that ranged in thickness from less than 5 feet to about 15 feet (PBW, 2017a). The uppermost aquifer at the Site occurs under unconfined to semi-confined conditions within the intermediate silty sand unit.

### **2.3 Ash Pond Groundwater Monitoring System**

The CCR groundwater monitoring well system at the Ash Ponds consists of seven monitoring wells (W-29, W-30, W-31, W-32, W-33, W-34, and W-35) that are each screened in the uppermost aquifer at the Site. The locations of the CCR monitoring wells are shown on Figure 2. Well construction information and survey data for the CCR wells are summarized in Table 1. The wells were installed in 2015. No wells were removed from the CCR groundwater monitoring system in the past year.

### **2.4 Groundwater Potentiometric Surface**

Static water levels measured during the background monitoring period and 2017 detection monitoring event indicated water elevations ranging from 354.80 feet above mean sea level (amsl) to 367.20 feet amsl, and depths to water ranging from 11.33 feet bgs to 25.74 feet bgs (Table 2).

Groundwater elevations were generally highest on the east side of the Ash Ponds, with an inferred groundwater flow direction to the west toward Lake Monticello (Figure 3). Based on the inferred

direction of groundwater flow, the location of each CCR monitoring well relative to the Ash Ponds is as follows:

<b>Upgradient Wells</b>	<b>Downgradient Wells</b>
W-31	W-29
W-32	W-30
W-33	W-34
	W-35

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### **3.0 BACKGROUND GROUNDWATER MONITORING PROGRAM**

Eight background groundwater monitoring events were performed using the Ash Pond CCR monitoring well system from October 2015 to December 2016. The results of the background monitoring events are described in this section.

#### **3.1 Background Groundwater Monitoring Results**

The Ash Pond CCR groundwater monitoring wells were sampled approximately every two months from October 2015 to December 2016 (eight sampling events) to fulfill the background monitoring period sampling requirements of the CCR Rule. Background sample data are summarized in Table 3 (Appendix III) and Table 4 (Appendix IV). Laboratory analytical reports for the data are presented in Appendix A.

#### **3.2 Background Statistical Evaluation Procedures**

Statistical analysis of groundwater monitoring data is required as part of detection monitoring and assessment monitoring under Section 257.93 of the CCR Rule. Section 257.93 of the CCR Rule provides several options for statistically evaluating the groundwater data. The owner or operator of the CCR unit must select one of the following statistical methods specified in paragraphs (f)(1) through (5) of Section 257.93 to be use in evaluating groundwater monitoring data for each specified constituent:

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

The following statistical evaluation approaches were selected to demonstrate groundwater compliance for

the Ash Ponds under the CCR Rule:

- Use of interwell data evaluations, which compare new sample data to sample data from upgradient background well(s).
- Use of prediction limits for data comparisons. This approach is a common statistical method used to evaluate groundwater compliance for Subtitle D landfill facilities and is one of the approved options for groundwater quality data statistical evaluation under the CCR Rule.

The evaluation procedures used for the Ash Pond background groundwater data conforms with the Rule requirements shown above, as well as EPA's *Unified Guidance: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (EPA, 2009) and the American Society for Testing and Materials (ASTM) standard D6312-17, *Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at waste Disposal Facilities* (ASTM, 2017). The statistical approach used for establishing prediction limits based on the background data are described in detail in the Statistical Analysis Plan for the Site (PBW, 2017c).

#### **4.0 DETECTION GROUNDWATER MONITORING PROGRAM**

In accordance with CCR Rule Section 257.94, detection monitoring groundwater samples are collected on a semi-annual basis from the Ash Pond CCR groundwater monitoring network.

##### **4.1 Detection Monitoring Results**

PBW collected the initial detection monitoring groundwater samples from the Ash Pond CCR monitoring wells in September 2017 and evaluation of the data commenced by October 17, 2017. The detection monitoring results are summarized in Table 5. Laboratory analytical reports for the detection monitoring samples are included in Appendix B. The evaluation of these data will be completed in 2018, and the evaluation will be summarized in the 2018 Annual Groundwater Monitoring Report.

##### **4.2 CCR Detection Monitoring Activities Planned for 2018**

In accordance with CCR Rule Section 257.94, detection monitoring groundwater samples will be collected on a semi-annual basis in 2018 and the analytical data from both sampling events will be included in the 2018 Annual Groundwater Monitoring Report. A statistical evaluation of the 2017 detection monitoring data and the first semi-annual 2018 detection monitoring data will be summarized in the 2018 Annual Groundwater Monitoring Report. If a statistically significant increase over background is determined for one or more of the detection monitoring constituents at any monitoring well at the CCR unit waste boundary, Luminant will comply with the applicable CCR Rule requirements in 257.94(e)(2).



## **5.0 ASSESSMENT GROUNDWATER MONITORING PROGRAM**

Assessment groundwater monitoring was not performed at the Site during 2017. Assessment monitoring will be performed during 2018 if required based on the 2017/2018 detection monitoring results.

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## 6.0 REFERENCES

- ASTM, 2017. Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities - D6312-17.
- Barnes, Virgil E., 1966. Geologic Atlas of Texas, Texarkana Sheet. Texas Bureau of Economic Geology.
- Environmental Protection Agency (EPA), 2009. Unified Guidance Document: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, EPA 530-R-09-007, March 2009.
- Pastor, Behling & Wheeler, LLC, 2017a. Coal Combustion Residual Rule Groundwater Monitoring System Certification, Monticello Steam Electric Station, Ash Ponds, Mount Pleasant, Texas. October 16, 2017.
- Pastor, Behling & Wheeler, LLC, 2017b. Coal Combustion Residual Rule Monitoring Well Design, Installation, Development, and Decommissioning Report, Monticello Steam Electric Station, Ash Ponds, Mount Pleasant, Texas. October 13, 2017.
- Pastor, Behling & Wheeler, LLC, 2017c. Coal Combustion Residual Rule Statistical Analysis Plan, Monticello Steam Electric Station, Ash Ponds, Mount Pleasant, Texas. October 11, 2017.

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**Tables**

**TABLE 1**  
**WELL CONSTRUCTION SUMMARY**  
**MONTICELLO STEAM ELECTRIC STATION ASH PONDS**

<b>Well ID</b>	<b>Date Installed</b>	<b>Northing</b>	<b>Easting</b>	<b>Screen Interval (feet bgs)</b>	<b>Top of Pad Elev. (feet amsl)</b>	<b>TOC Elev. (feet amsl)</b>	<b>Casing Diameter (inches)</b>
W-29	8/26/2015	527058	2754498	27-37	374.94	377.59	2
W-30	8/26/2015	527358	2755059	32-42	373.53	376.95	2
W-31	8/25/2015	526969	2755498	33-43	372.99	376.33	2
W-32	8/25/2015	526491	2755763	23-33	375.41	378.96	2
W-33	8/25/2015	525819	2755454	20-30	383.69	387.16	2
W-34	8/27/2015	525962	2754790	17-27	375.84	379.16	2
W-35	8/27/2015	526365	2754542	25-35	377.86	381.15	2

Notes:

1. Abbreviations: bgs - below ground surface; amsl - above mean sea level; TOC - top of casing.

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**TABLE 2**  
**GROUNDWATER ELEVATION SUMMARY**  
**MONTICELLO STEAM ELECTRIC STATION ASH PONDS**

<b>Well ID</b>	<b>TOC Elevation (ft amsl)</b>	<b>Date</b>	<b>Depth to Water (ft btoc)</b>	<b>Water Elevation (ft amsl)</b>
W-29	377.59	10/15/15	20.97	356.62
		12/07/15	18.46	359.13
		02/22/16	20.34	357.25
		04/04/16	20.13	357.46
		06/06/16	20.01	357.58
		08/08/16	20.72	356.87
		10/12/16	20.51	357.08
		12/29/16	20.93	356.66
W-30	376.95	10/15/15	19.49	357.46
		12/07/15	14.91	362.04
		02/22/16	17.19	359.76
		04/04/16	16.04	360.91
		06/06/16	14.77	362.18
		08/08/16	14.98	361.97
		10/12/16	17.62	359.33
		12/29/16	16.14	360.81
W-31	376.33	10/15/15	14.97	361.36
		12/07/15	13.12	363.21
		02/22/16	12.97	363.36
		04/04/16	12.74	363.59
		06/06/16	11.33	365.00
		08/08/16	13.56	362.77
		10/12/16	13.12	363.21
		12/29/16	12.98	363.35
W-32	378.96	10/15/15	15.46	363.50
		12/07/15	13.99	364.97
		02/22/16	13.49	365.47
		04/04/16	13.26	365.70
		06/06/16	11.76	367.20
		08/08/16	14.31	364.65
		10/12/16	13.72	365.24
		12/29/16	13.77	365.19
W-33	387.16	10/15/15	25.74	361.42
		12/07/15	23.54	363.62
		02/22/16	23.77	363.39
		04/04/16	23.01	364.15
		06/06/16	21.94	365.22
		08/08/16	23.78	363.38
		10/12/16	23.61	363.55
		12/29/16	24.25	362.91
W-34	379.16	10/15/15	24.36	354.80
		12/07/15	23.03	356.13
		02/22/16	22.51	356.65
		04/04/16	22.68	356.48
		06/06/16	24.09	355.07
		08/08/16	22.22	356.94
		10/12/16	22.58	356.58
		12/29/16	23.04	356.12

**TABLE 2**  
**GROUNDWATER ELEVATION SUMMARY**  
**MONTICELLO STEAM ELECTRIC STATION ASH PONDS**

<b>Well ID</b>	<b>TOC Elevation (ft amsl)</b>	<b>Date</b>	<b>Depth to Water (ft btoc)</b>	<b>Water Elevation (ft amsl)</b>
W-35	381.15	10/15/15	24.11	357.04
		12/07/15	22.33	358.82
		02/22/16	23.17	357.98
		04/04/16	22.93	358.22
		06/06/16	22.16	358.99
		08/08/16	23.47	357.68
		10/12/16	23.31	357.84
		12/29/16	23.65	357.50

Notes:

1. Abbreviations: TOC - top of casing; ft - feet; amsl - above mean sea level.

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**TABLE 3**  
**APPENDIX III BACKGROUND GROUNDWATER ANALYTICAL DATA**  
**MONTICELLO STEAM ELECTRIC ASH POND AREA**

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	Fl (mg/L)	pH (s.u.)	SO <sub>4</sub> (mg/L)	TDS (mg/L)
W-29	10/15/15	4.58	111	101	0.317 J	6.21	861	1,680
	12/07/15	3.47	86.6	81.1	0.358 J	6.22	501	1,020
	02/22/16	4.98	114	82.3	0.24	6.27	909	1,840
	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	1,230
	08/08/16	5.70	153	85.6	<0.1	6.32	1,100	1,850
	10/12/16	6.42	174	82.4	0.4	6.19	1,140	1,720
	12/29/16	6.52	185	82.5	0.23 J	6.14	1,150	1,860
W-30	10/15/15	6.06	133	106	0.58	5.78	919	1,490
	12/07/15	7.04	135	98.3	0.809	5.95	875	1,530
	02/22/16	6.83	138	96.3	0.721	5.94	873	1,790
	04/04/16	6.28	141	95.2	0.961	5.93	925	1,460
	06/06/16	6.89	132	94.9	0.359 J	5.96	884	1,460
	08/08/16	5.94	136	85.7	0.451	6.23	848	1,550
	10/12/16	6.51	130	79.9	0.788	6.02	817	1,300
	12/29/16	8.54	192	85.3	0.501	5.34	863	1,510
W-31	10/15/15	3.74	130	66.2	0.136 J	5.67	808	1,510
	12/07/15	3.81	136	51.2	0.275 J	5.86	714	1,250
	02/22/16	3.65	130	49.2	0.124	5.79	694	1,500
	04/04/16	3.80	119	48.9	0.22 J	6.06	737	1,220
	06/06/16	3.84	104	47.8	<0.1	6.17	701	1,150
	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	1,150
W-32	10/15/15	5.85	282	160	0.44	6.72	1,040	1,970
	12/07/15	6.76	260	122	1.19	6.74	872	1,610
	02/22/16	6.95	247	124	0.79	6.74	850	1,870
	04/04/16	6.50	239	139	1.01	6.73	844	1,380
	06/06/16	6.18	192	105	0.758	6.71	694	1,440
	08/08/16	4.43	261	110	0.544	6.71	945	1,650
	10/12/16	6.32	284	134	0.339	6.19	986	1,820
	12/29/16	6.38	310	147	0.573	6.46	1,210	1,950
W-33	10/15/15	6.36	311	162	2.01	7.14	1,080	1,630
	12/07/15	6.68	252	120	2.8	7.12	853	1,680
	02/22/16	7.52	243	124	2.4	7.11	790	1,960
	04/04/16	7.24	278	171	2.5	7.14	935	1,540
	06/06/16	7.08	229	120	2.12	7.10	700	1,490
	08/08/16	6.37	215	108	1.92	6.97	655	1,300
	10/12/16	5.15	237	111	2.43	6.84	797	1,540
	12/29/16	5.23	275	125	2.25	6.82	965	1,730

**TABLE 3**  
**APPENDIX III BACKGROUND GROUNDWATER ANALYTICAL DATA**  
**MONTICELLO STEAM ELECTRIC ASH POND AREA**

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	Fl (mg/L)	pH (s.u.)	SO <sub>4</sub> (mg/L)	TDS (mg/L)
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	1,500
	02/22/16	3.44	117	85.9	0.422	6.59	641	1,570
	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	1,030
	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	1,620
W-35	10/15/15	5.58	175	98.2	<0.1	6.05	893	1,720
	12/07/15	6.13	177	90.2	0.128 J	6.16	861	1,580
	02/22/16	6.29	160	85.4	<0.1	6.12	824	1,650
	04/04/16	6.16	169	91.3	<0.1	6.09	835	1,310
	06/06/16	6.17	158	98.5	<0.1	6.36	858	1,460
	08/08/16	6.07	159	97.8	<0.1	6.41	810	1,470
	10/12/16	6.25	150	97.8	0.1	6.12	793	1,320
	12/29/16	6.89	151	110	<0.1	5.06	839	1,370

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.





**TABLE 4**  
**APPENDIX IV BACKGROUND GROUNDWATER ANALYTICAL DATA**  
**MONTICELLO STEAM ELECTRIC ASH POND AREA**

Sample Location	Date Sampled	Sb (mg/L)	As (mg/L)	Ba (mg/L)	Be (mg/L)	Cd (mg/L)	Cr (mg/L)	Co (mg/L)	Fl (mg/L)	Pb (mg/L)	Li (mg/L)	Hg (mg/L)	Mo (mg/L)	Se (mg/L)	Th (mg/L)	Ra 226 (pCi/L)	Ra 228 (pCi/L)	Ra 226/228 Combined <sup>^</sup> (pCi/L)
W-35	10/15/15	<0.0008	0.00756	0.0373	<0.0003	<0.0003	<0.002	0.192	<0.1	<0.0003	0.0191	<0.00008	<0.002	0.00408 J	<0.0005	0.915	1.45	2.37
	12/07/15	<0.0008	0.0057	0.0265	0.00032 J	<0.0003	<0.002	0.232	0.128 J	<0.0003	0.0273	<0.00008	<0.002	0.00206 J	<0.0005	0.312	<1.64	1.95
	02/22/16	<0.0008	0.00295	0.0194	0.000389	0.000405	<0.002	0.251	<0.1	<0.0003	0.0244	<0.00008	<0.002	<0.002	<0.0005	0.907	<2.15	3.06
	04/04/16	<0.0008	0.002 J	0.0167	0.000392 J	0.000371 J	<0.002	0.238	<0.1	<0.0003	0.0227	<0.00008	<0.002	<0.002	<0.0005	0.377	3.84	4.22
	06/06/16	<0.0008	0.00305 J	0.0161	0.00064 J	0.00068 J	<0.002	0.243	<0.1	0.00065 J	0.0283	<0.00008	<0.002	<0.002	<0.0005	0.350	2.59	2.94
	08/08/16	<0.0008	<0.002	0.0154	0.00042 J	0.00063 J	<0.002	0.232	<0.1	0.00034 J	0.0246	<0.00008	<0.002	<0.002	<0.0005	0.357	1.39	1.75
	10/12/16	<0.0008	<0.002	0.0165	<0.0003	0.00082 J	<0.002	0.248	<0.1	<0.0003	0.0261	<0.00008	<0.002	<0.002	<0.0005	0.328	2.32	2.65
	12/29/16	<0.0008	<0.002	0.0154	0.00046 J	0.00357	<0.002	0.254	<0.1	0.00032 J	0.0277	<0.00008	0.00229 J	<0.002	<0.0005	<0.197	2.63	2.83

Notes:

1. Abbreviations: mg/L - milligrams per liter; pCi/L - picocuries per liter.
2. ^ - Sum of Ra 226 and Ra 228 concentrations. Non-detect isotope results were assigned a value equal to the minimum detectable concentration.
3. J - concentration is below method quantitation limit; result is an estimate.

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**TABLE 5**  
**APPENDIX III DETECTION MONITORING GROUNDWATER ANALYTICAL DATA**  
**MONTICELLO STEAM ELECTRIC ASH POND AREA**

<b>Sample Location</b>	<b>Date Sampled</b>	<b>B (mg/L)</b>	<b>Ca (mg/L)</b>	<b>Cl (mg/L)</b>	<b>Fl (mg/L)</b>	<b>pH (s.u.)</b>	<b>SO<sub>4</sub> (mg/L)</b>	<b>TDS (mg/L)</b>
W-29	09/20/17	4.84	128	80.6	<0.100	6.85	882	1,540
W-30	09/20/17	5.76	127	76.5	0.394 J	6.85	734	1,570
W-31	09/20/17	3.88	96.3	49.8	<0.100	6.72	316	696
W-32	09/20/17	5.81	270	118	0.375 J	6.79	901	1,920
W-33	09/20/17	5.89	271	112	2.04	6.73	863	1,970
W-34	09/20/17	5.36	181	117	0.244 J	6.75	873	1,720
W-35	09/20/17	6.27	186	120	<0.100	6.74	854	1,650

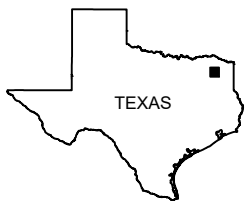
Notes:

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.

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**Figures**



PHOTOGRAPH LOCATION



Scale in Feet  
 0 1000 2000

**MONTICELLO STEAM ELECTRIC STATION**  
 MONTICELLO, TEXAS

Figure 1

**SITE LOCATION MAP**

PROJECT: 5164C

BY: AJD

REVISIONS

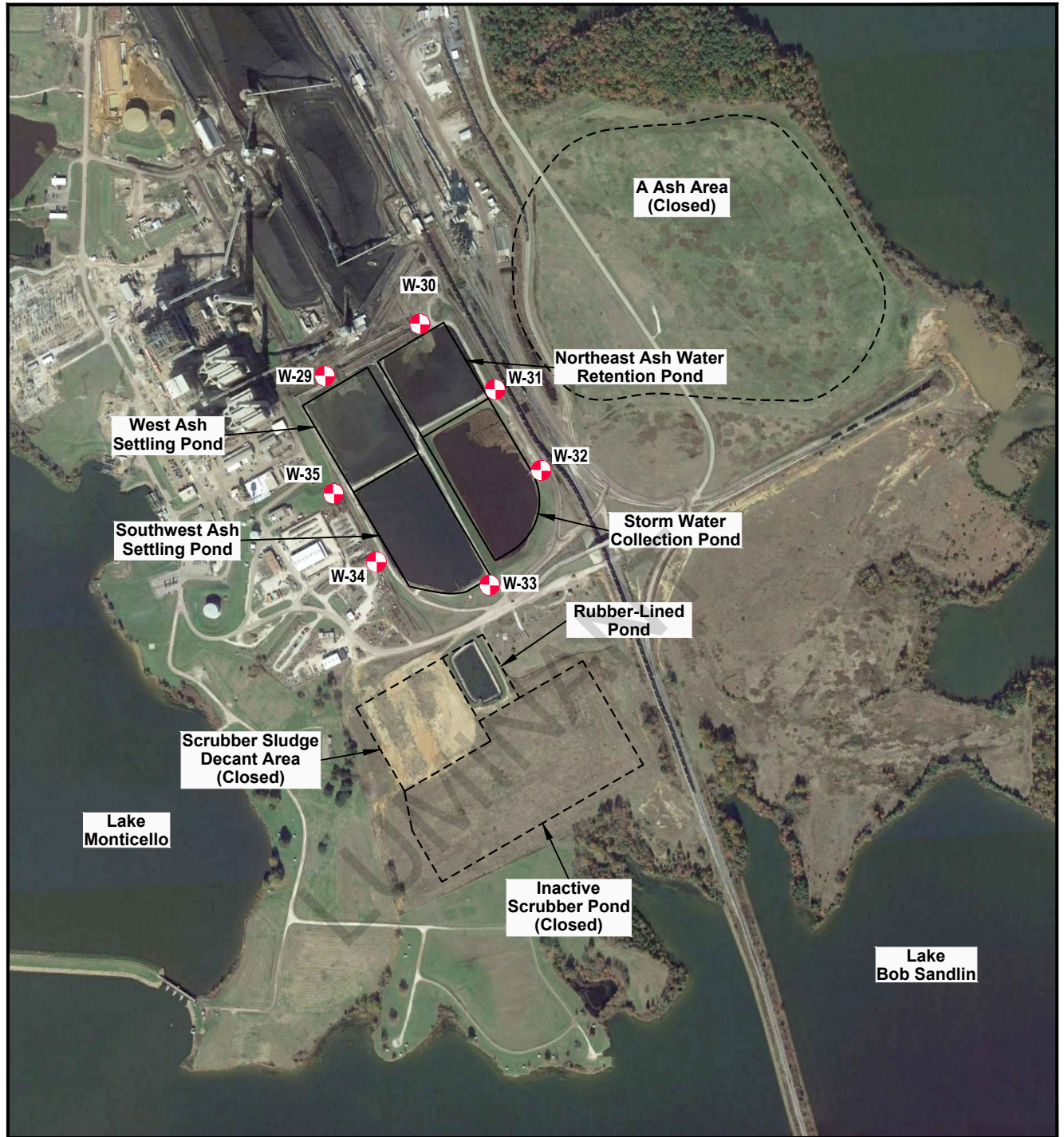
DATE: JAN., 2018

CHECKED: PJB

**PASTOR, BEHLING & WHEELER, LLC**  
 CONSULTING ENGINEERS AND SCIENTISTS

SOURCE:  
 Imagery from Google Earth dated 12/2/2015.



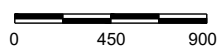


**EXPLANATION**

 CCR Monitoring Well Location



Scale in Feet



SOURCE:  
Imagery from Google Earth dated 12/2/2015.

**MONTICELLO STEAM ELECTRIC STATION**  
MT. PLEASANT, TEXAS

Figure 2

**DETAILED SITE PLAN**

PROJECT: 5164C

BY: AJD

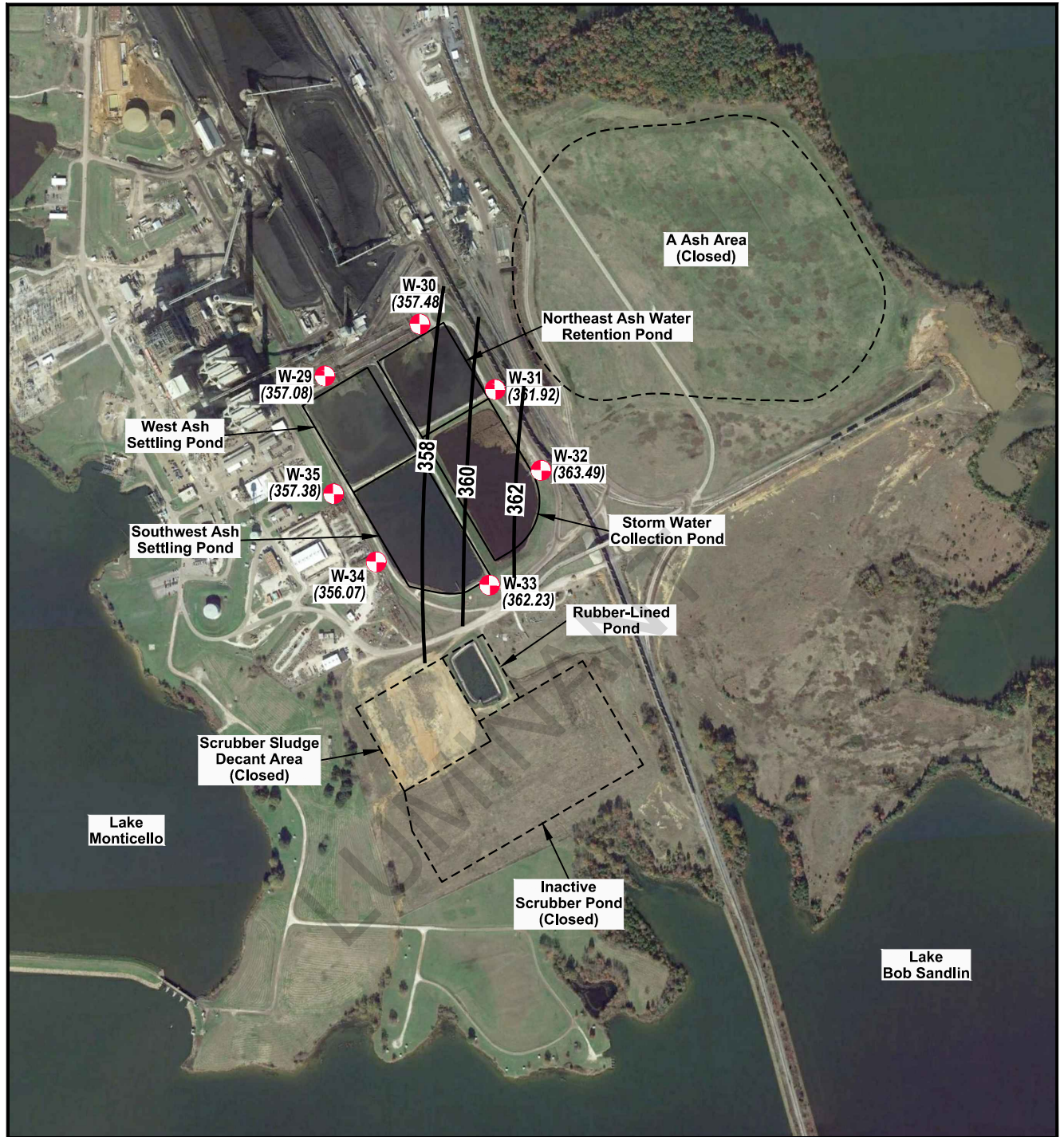
REVISIONS

DATE: SEPT., 2017




CHECKED: PJB

**PASTOR, BEHLING & WHEELER, LLC**  
CONSULTING ENGINEERS AND SCIENTISTS



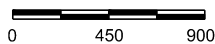


**EXPLANATION**

-  CCR Monitoring Well Location
-  Groundwater Potentiometric Surface (ft. AMSL)
-  Groundwater Potentiometric Surface Contour (C.I. = 2 ft.)



Scale in Feet



SOURCE:  
Imagery from Google Earth dated 12/2/2015.

**MONTICELLO STEAM ELECTRIC STATION**  
MT. PLEASANT, TEXAS

Figure 3  
**ASH SETTLING PONDS AND  
ASH WATER RETENTION POND  
GROUNDWATER POTENTIOMETRIC  
SURFACE MAP - SEPTEMBER 20, 2017**

PROJECT: 5347B	BY: AJD	REVISIONS
DATE: JAN., 2018	CHECKED: PJB	

**PASTOR, BEHLING & WHEELER, LLC**  
CONSULTING ENGINEERS AND SCIENTISTS

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**Appendix A**

**Laboratory Analytical Reports – Background Data**





November 16, 2015

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

Order No.: 1510154

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 10/16/2015 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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", is written over a large, light grey watermark that says "LUMINA".

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-15



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<b>WorkOrderSampleSummary 1510154</b> .....	<b>8</b>
<b>PrepDatesReport 1510154</b> .....	<b>9</b>
<b>AnalyticalDatesReport 1510154</b> .....	<b>11</b>
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2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 68677  
**CHAIN-OF-CUSTODY**

CLIENT: PBW  
 ADDRESS: 2201 DOUBLE CREEK DR ROUND ROCK, TX 78664  
 PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
 DATA REPORTED TO: WILL VIENNE  
 ADDITIONAL REPORT COPIES TO:

DATE: 10-15-15 PAGE 1 OF 1  
 PO #: 5164-C DHL WORK ORDER #: 1570104  
 PROJECT LOCATION OR NAME: MOSES  
 CLIENT PROJECT #: 5164-C COLLECTOR: JOHN BRAYTON

Authorize 5% surcharge for TRRP Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT		P=PAINT SL=SLUDGE O=OTHER SO=SOLID		PRESERVATION HCl <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> ICE <input type="checkbox"/> UNPRESERVED <input type="checkbox"/>					ANALYSES BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> [METHOD 8021] TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> HOLD 1006 <input type="checkbox"/> GRO [METHOD 8015] <input type="checkbox"/> BRO [METHOD 8105] <input type="checkbox"/> VOC 8260 <input type="checkbox"/> VOC 624 <input type="checkbox"/> VOC 8260/8095 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLD PAH <input type="checkbox"/> SVOC 623 <input type="checkbox"/> 8270 PEST <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLD PEST <input type="checkbox"/> 608 PCB <input type="checkbox"/> 8270 OP PEST <input type="checkbox"/> 8082 PCB <input type="checkbox"/> B270 PCB <input type="checkbox"/> 8321 HERB <input type="checkbox"/> 1 PHOS. AMMONIA <input type="checkbox"/> METALS 8020 <input type="checkbox"/> METALS 7008 <input type="checkbox"/> DIS. METALS <input type="checkbox"/> PH <input type="checkbox"/> HEX CHROM <input type="checkbox"/> ALKALINITY <input type="checkbox"/> COD <input type="checkbox"/> CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> TCLP METALS <input type="checkbox"/> TOC <input type="checkbox"/> PEST <input type="checkbox"/> HERB <input type="checkbox"/> RCRA <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> RCRA 8 <input type="checkbox"/> TK-11 <input type="checkbox"/> Pb <input type="checkbox"/> TDS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> Bismuth <u>228</u> Cadmium <u>228</u>	FIELD NOTES
	Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>		

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	ICE	UNPRESERVED	ANALYSES													FIELD NOTES						
W-34	01	10-15-15	0945	W	P	4							X	X			X	X	X												
W-33	02		1035	W	P	4							X	X			X	X	X												
W-32	07		1125	W	P	4							X	X			X	X	X												
W-31	04		1215	W	P	4							X	X			X	X	X												
W-30	05		1300	W	P	4							X	X			X	X	X												
W-29	06		1340	W	P	4							X	X			X	X	X												
W-35	07		1425	W	P	4							X	X			X	X	X												

RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>10/15/15</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	TURN AROUND TIME RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY: RECEIVING TEMP: <u>38/41</u> THERM #: <u>73</u> CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED CARRIER: <input type="checkbox"/> LONE STAR <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>10/16/15 9:05</u>	RECEIVED BY: (Signature) <u>[Signature]</u>		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		

DHL DISPOSAL @ \$5.00 each  .Return

ORIGIN ID:FWHA (903) 794-0625  
PASTOR, BEHLING & WHEELER, LLC  
2201 DOUBLE CREEK DR STE 4004  
ROUND ROCK, TX 786643843  
UNITED STATES US

SHIP DATE: 15OCT15  
ACTWGT: 40.90 LB  
CAD: /DFFC1621  
DIMS: 21x16x13 IN  
BILL SENDER

TO:

DHL  
2300 DOUBLE CREEK DR

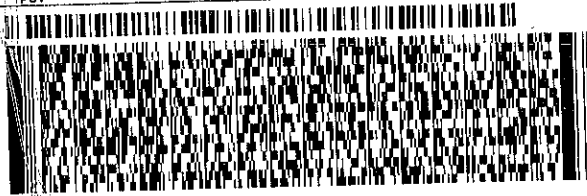
ROUND ROCK TX 78664

(512) 388-8222

REF:

INU:  
PO:

DEPT:



FedEx  
Express



TRK# 8086 3024 0012  
0200

FRI - 16 OCT 10:30A  
PRIORITY OVERNIGHT

44 BSMA

78664  
TX-US AUS



ORIGIN ID:FMHA (903) 794-0625  
PASTOR, BEHLING & WHEELER, LLC

2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 786643843  
UNITED STATES US

SHIP DATE: 15OCT15

ACTWGT: 34.00 LB

CAD: /OFFC1621

DIMS: 19x13x13 IN

BILL SENDER

Part # 156297-435 RTT20875  
DUPLICATE/REPLACEMENT  
BY 10/16/15 12:11:42PM

TO

**DHL**  
**2300 DOUBLE CREEK DR**

**ROUND ROCK TX 78664**

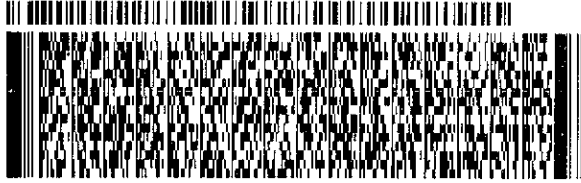
(512) 388-8222

REF:

INU:

PO:

DEPT:



**FedEx**  
Express



BY 10/16/15 10:01:59AM

TRK# 8086 3024 0023  
0200

**FRI - 16 OCT 10:30A**  
**PRIORITY OVERNIGHT**

**44 BSMA**

**78664**

**TX-US AUS**



Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 10/16/2015

Work Order Number 1510154

Received by MB

Checklist completed by: [Signature] 10/16/2015  
Signature Date

Reviewed by: [Initials] 10/16/2015  
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  3.8 °C .4.1
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086  
Adjusted? NO Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Lab Order:** 1510154

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis

**LOG IN**

The samples were received and log-in performed on 10/16/15. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 11/3/15 the matrix spike and matrix spike duplicate recoveries were out of control limits for Antimony and/or Calcium. In addition, the matrix spike and matrix spike duplicate had the RPD above control limits for Antimony. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 11/3/15 CCV3-151103 and LCVL3-151103 were above control limits for Boron and Calcium. This was due to sample carryover. The affected samples were the matrix spike and matrix spike duplicate. No further corrective actions were taken.

**ANIONS ANALYSIS**

For Anions analysis performed on 10/19/15 the matrix spike and matrix spike duplicate recoveries were slightly above control limits for Sulfate. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

---

---

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Lab Order:** 1510154

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1510154-01	W-34		10/15/15 09:45 AM	10/16/2015
1510154-02	W-33		10/15/15 10:35 AM	10/16/2015
1510154-03	W-32		10/15/15 11:25 AM	10/16/2015
1510154-04	W-31		10/15/15 12:15 PM	10/16/2015
1510154-05	W-30		10/15/15 01:00 PM	10/16/2015
1510154-06	W-29		10/15/15 01:40 PM	10/16/2015
1510154-07	W-35		10/15/15 02:25 PM	10/16/2015

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Lab Order: 1510154  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1510154-01A	W-34	10/15/15 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-34	10/15/15 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-34	10/15/15 09:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-01D	W-34	10/15/15 09:45 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-34	10/15/15 09:45 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-34	10/15/15 09:45 AM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-34	10/15/15 09:45 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
1510154-02A	W-33	10/15/15 10:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-33	10/15/15 10:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-33	10/15/15 10:35 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-02D	W-33	10/15/15 10:35 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-33	10/15/15 10:35 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-33	10/15/15 10:35 AM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-33	10/15/15 10:35 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
1510154-03A	W-32	10/15/15 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-32	10/15/15 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-32	10/15/15 11:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-03D	W-32	10/15/15 11:25 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-32	10/15/15 11:25 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-32	10/15/15 11:25 AM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-32	10/15/15 11:25 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
	W-32	10/15/15 11:25 AM	Aqueous	M2540C	TDS Preparation	10/21/15 02:22 PM	71957
1510154-04A	W-31	10/15/15 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-31	10/15/15 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-31	10/15/15 12:15 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-04D	W-31	10/15/15 12:15 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-31	10/15/15 12:15 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-31	10/15/15 12:15 PM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882

Lab Order: 1510154  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1510154-04D	W-31	10/15/15 12:15 PM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
	W-31	10/15/15 12:15 PM	Aqueous	M2540C	TDS Preparation	10/21/15 02:22 PM	71957
1510154-05A	W-30	10/15/15 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-30	10/15/15 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-30	10/15/15 01:00 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-05D	W-30	10/15/15 01:00 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-30	10/15/15 01:00 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-30	10/15/15 01:00 PM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-30	10/15/15 01:00 PM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
	W-30	10/15/15 01:00 PM	Aqueous	M2540C	TDS Preparation	10/21/15 02:22 PM	71957
1510154-06A	W-29	10/15/15 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-29	10/15/15 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-29	10/15/15 01:40 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-06D	W-29	10/15/15 01:40 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-29	10/15/15 01:40 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-29	10/15/15 01:40 PM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-29	10/15/15 01:40 PM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
	W-29	10/15/15 01:40 PM	Aqueous	M2540C	TDS Preparation	10/21/15 02:22 PM	71957
1510154-07A	W-35	10/15/15 02:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-35	10/15/15 02:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/28/15 08:56 AM	72050
	W-35	10/15/15 02:25 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/28/15 11:22 AM	72064
1510154-07D	W-35	10/15/15 02:25 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-35	10/15/15 02:25 PM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	W-35	10/15/15 02:25 PM	Aqueous	M4500-H+ B	pH Preparation	10/16/15 08:51 AM	71882
	W-35	10/15/15 02:25 PM	Aqueous	M2540C	TDS Preparation	10/21/15 02:22 PM	71957
	W-35	10/15/15 02:25 PM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924

Lab Order: 1510154  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1510154-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 01:38 PM	CETAC2_HG_151029 B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	10	11/03/15 11:53 AM	ICP-MS3_151103A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:07 PM	ICP-MS3_151103A
1510154-01D	W-34	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 11:33 AM	IC2_151019A
	W-34	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 02:57 PM	IC2_151019A
	W-34	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:26 PM	TITRATOR_151016A
	W-34	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
1510154-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:02 PM	CETAC2_HG_151029 B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	50	11/03/15 12:05 PM	ICP-MS3_151103A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:13 PM	ICP-MS3_151103A
1510154-02D	W-33	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 11:48 AM	IC2_151019A
	W-33	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 03:14 PM	IC2_151019A
	W-33	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:29 PM	TITRATOR_151016A
	W-33	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
1510154-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:04 PM	CETAC2_HG_151029 B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	50	11/03/15 12:11 PM	ICP-MS3_151103A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:19 PM	ICP-MS3_151103A
1510154-03D	W-32	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 12:02 PM	IC2_151019A
	W-32	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 03:28 PM	IC2_151019A
	W-32	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:31 PM	TITRATOR_151016A
	W-32	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
	W-32	Aqueous	M2540C	Total Dissolved Solids	71957	1	10/22/15 08:30 AM	WC_151021A
1510154-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:09 PM	CETAC2_HG_151029 B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	10	11/03/15 12:17 PM	ICP-MS3_151103A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:25 PM	ICP-MS3_151103A
1510154-04D	W-31	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 12:17 PM	IC2_151019A

Lab Order: 1510154  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1510154-04D	W-31	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 03:43 PM	IC2_151019A
	W-31	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:33 PM	TITRATOR_151016A
	W-31	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
	W-31	Aqueous	M2540C	Total Dissolved Solids	71957	1	10/22/15 08:30 AM	WC_151021A
1510154-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:16 PM	CETAC2_HG_151029 B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	50	11/03/15 12:23 PM	ICP-MS3_151103A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:31 PM	ICP-MS3_151103A
1510154-05D	W-30	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 12:32 PM	IC2_151019A
	W-30	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 03:58 PM	IC2_151019A
	W-30	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:34 PM	TITRATOR_151016A
	W-30	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
	W-30	Aqueous	M2540C	Total Dissolved Solids	71957	1	10/22/15 08:30 AM	WC_151021A
1510154-06A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:19 PM	CETAC2_HG_151029 B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	10	11/03/15 12:29 PM	ICP-MS3_151103A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:37 PM	ICP-MS3_151103A
1510154-06D	W-29	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 04:12 PM	IC2_151019A
	W-29	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 12:46 PM	IC2_151019A
	W-29	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:37 PM	TITRATOR_151016A
	W-29	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
	W-29	Aqueous	M2540C	Total Dissolved Solids	71957	1	10/22/15 08:30 AM	WC_151021A
1510154-07A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	72064	1	10/29/15 02:21 PM	CETAC2_HG_151029 B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	50	11/03/15 12:35 PM	ICP-MS3_151103A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72050	1	11/03/15 03:43 PM	ICP-MS3_151103A
1510154-07D	W-35	Aqueous	E300	Anions by IC method - Water	71912	1	10/19/15 01:01 PM	IC2_151019A
	W-35	Aqueous	E300	Anions by IC method - Water	71912	10	10/19/15 04:27 PM	IC2_151019A
	W-35	Aqueous	M4500-H+ B	pH	71882	1	10/16/15 01:39 PM	TITRATOR_151016A

Lab Order: 1510154  
Client: Pastor, Behling & Wheeler  
Project: MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1510154-07D	W-35	Aqueous	M2540C	Total Dissolved Solids	71957	1	10/22/15 08:30 AM	WC_151021A
	W-35	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F

LUMINANT

**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-34  
**Lab ID:** 1510154-01  
**Collection Date:** 10/15/15 09:45 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 01:38 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:07 PM
Arsenic	0.0156	0.00200	0.00500		mg/L	1	11/03/15 03:07 PM
Barium	0.0960	0.00300	0.0100		mg/L	1	11/03/15 03:07 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:07 PM
Boron	2.38	0.100	0.300		mg/L	10	11/03/15 11:53 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:07 PM
Calcium	124	1.00	3.00		mg/L	10	11/03/15 11:53 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:07 PM
Cobalt	0.128	0.00300	0.00500		mg/L	1	11/03/15 03:07 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:07 PM
Lithium	0.00740	0.00500	0.0100	J	mg/L	1	11/03/15 03:07 PM
Molybdenum	0.00301	0.00200	0.00500	J	mg/L	1	11/03/15 03:07 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:07 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:07 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	87.1	3.00	10.0		mg/L	10	10/19/15 02:57 PM
Fluoride	0.380	0.100	0.400	J	mg/L	1	10/19/15 11:33 AM
Sulfate	453	10.0	30.0		mg/L	10	10/19/15 02:57 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.40	0	0		pH Units@16.8°C	1	10/16/15 01:26 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	878	10.0	10.0		mg/L	1	10/20/15 08:00 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-33  
**Lab ID:** 1510154-02  
**Collection Date:** 10/15/15 10:35 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>ABO</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:02 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>SW</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:13 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:13 PM
Barium	0.0291	0.00300	0.0100		mg/L	1	11/03/15 03:13 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:13 PM
Boron	6.36	0.500	1.50		mg/L	50	11/03/15 12:05 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:13 PM
Calcium	311	5.00	15.0		mg/L	50	11/03/15 12:05 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:13 PM
Cobalt	0.00504	0.00300	0.00500		mg/L	1	11/03/15 03:13 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:13 PM
Lithium	0.00935	0.00500	0.0100	J	mg/L	1	11/03/15 03:13 PM
Molybdenum	0.0406	0.00200	0.00500		mg/L	1	11/03/15 03:13 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:13 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:13 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	162	3.00	10.0		mg/L	10	10/19/15 03:14 PM
Fluoride	2.01	0.100	0.400		mg/L	1	10/19/15 11:48 AM
Sulfate	1080	10.0	30.0		mg/L	10	10/19/15 03:14 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>LM</b>		
pH	7.19	0	0		pH Units@16.4°C	1	10/16/15 01:29 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>BJT</b>		
Total Dissolved Solids (Residue, Filterable)	1630	50.0	50.0		mg/L	1	10/20/15 08:00 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-32  
**Lab ID:** 1510154-03  
**Collection Date:** 10/15/15 11:25 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:04 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:19 PM
Arsenic	0.00546	0.00200	0.00500		mg/L	1	11/03/15 03:19 PM
Barium	0.0406	0.00300	0.0100		mg/L	1	11/03/15 03:19 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:19 PM
Boron	5.85	0.500	1.50		mg/L	50	11/03/15 12:11 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:19 PM
Calcium	282	5.00	15.0		mg/L	50	11/03/15 12:11 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:19 PM
Cobalt	0.00757	0.00300	0.00500		mg/L	1	11/03/15 03:19 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:19 PM
Lithium	0.00887	0.00500	0.0100	J	mg/L	1	11/03/15 03:19 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:19 PM
Selenium	0.00219	0.00200	0.00500	J	mg/L	1	11/03/15 03:19 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:19 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	160	3.00	10.0		mg/L	10	10/19/15 03:28 PM
Fluoride	0.440	0.100	0.400		mg/L	1	10/19/15 12:02 PM
Sulfate	1040	10.0	30.0		mg/L	10	10/19/15 03:28 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.83	0	0		pH Units@17.4°C	1	10/16/15 01:31 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1970	50.0	50.0		mg/L	1	10/22/15 08:30 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-31  
**Lab ID:** 1510154-04  
**Collection Date:** 10/15/15 12:15 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:09 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:25 PM
Arsenic	0.00602	0.00200	0.00500		mg/L	1	11/03/15 03:25 PM
Barium	0.0271	0.00300	0.0100		mg/L	1	11/03/15 03:25 PM
Beryllium	0.00531	0.000300	0.00100		mg/L	1	11/03/15 03:25 PM
Boron	3.74	0.100	0.300		mg/L	10	11/03/15 12:17 PM
Cadmium	0.000417	0.000300	0.00100	J	mg/L	1	11/03/15 03:25 PM
Calcium	130	1.00	3.00		mg/L	10	11/03/15 12:17 PM
Chromium	0.00456	0.00200	0.00500	J	mg/L	1	11/03/15 03:25 PM
Cobalt	0.369	0.00300	0.00500		mg/L	1	11/03/15 03:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:25 PM
Lithium	0.0220	0.00500	0.0100		mg/L	1	11/03/15 03:25 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:25 PM
Selenium	0.0350	0.00200	0.00500		mg/L	1	11/03/15 03:25 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:25 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	66.2	3.00	10.0		mg/L	10	10/19/15 03:43 PM
Fluoride	0.136	0.100	0.400	J	mg/L	1	10/19/15 12:17 PM
Sulfate	.808	10.0	30.0		mg/L	10	10/19/15 03:43 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	5.54	0	0		pH Units@17.2°C	1	10/16/15 01:33 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1510	50.0	50.0		mg/L	1	10/22/15 08:30 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-30  
**Lab ID:** 1510154-05  
**Collection Date:** 10/15/15 01:00 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:16 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:31 PM
Arsenic	0.0107	0.00200	0.00500		mg/L	1	11/03/15 03:31 PM
Barium	0.0215	0.00300	0.0100		mg/L	1	11/03/15 03:31 PM
Beryllium	0.0220	0.000300	0.00100		mg/L	1	11/03/15 03:31 PM
Boron	6.06	0.500	1.50		mg/L	50	11/03/15 12:23 PM
Cadmium	0.00657	0.000300	0.00100		mg/L	1	11/03/15 03:31 PM
Calcium	133	5.00	15.0		mg/L	50	11/03/15 12:23 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:31 PM
Cobalt	0.354	0.00300	0.00500		mg/L	1	11/03/15 03:31 PM
Lead	0.00417	0.000300	0.00100		mg/L	1	11/03/15 03:31 PM
Lithium	0.0251	0.00500	0.0100		mg/L	1	11/03/15 03:31 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:31 PM
Selenium	0.0990	0.00200	0.00500		mg/L	1	11/03/15 03:31 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:31 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	106	3.00	10.0		mg/L	10	10/19/15 03:58 PM
Fluoride	0.580	0.100	0.400		mg/L	1	10/19/15 12:32 PM
Sulfate	919	10.0	30.0		mg/L	10	10/19/15 03:58 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	5.42	0	0		pH Units@16.9°C	1	10/16/15 01:34 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1490	50.0	50.0		mg/L	1	10/22/15 08:30 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-29  
**Lab ID:** 1510154-06  
**Collection Date:** 10/15/15 01:40 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:19 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:37 PM
Arsenic	0.00527	0.00200	0.00500		mg/L	1	11/03/15 03:37 PM
Barium	0.0518	0.00300	0.0100		mg/L	1	11/03/15 03:37 PM
Beryllium	0.00268	0.000300	0.00100		mg/L	1	11/03/15 03:37 PM
Boron	4.58	0.100	0.300		mg/L	10	11/03/15 12:29 PM
Cadmium	0.000336	0.000300	0.00100	J	mg/L	1	11/03/15 03:37 PM
Calcium	111	1.00	3.00		mg/L	10	11/03/15 12:29 PM
Chromium	0.00704	0.00200	0.00500		mg/L	1	11/03/15 03:37 PM
Cobalt	0.145	0.00300	0.00500		mg/L	1	11/03/15 03:37 PM
Lead	0.000443	0.000300	0.00100	J	mg/L	1	11/03/15 03:37 PM
Lithium	0.0491	0.00500	0.0100		mg/L	1	11/03/15 03:37 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:37 PM
Selenium	0.0228	0.00200	0.00500		mg/L	1	11/03/15 03:37 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:37 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	101	3.00	10.0		mg/L	10	10/19/15 04:12 PM
Fluoride	0.317	0.100	0.400	J	mg/L	1	10/19/15 12:46 PM
Sulfate	861	10.0	30.0		mg/L	10	10/19/15 04:12 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.19	0	0		pH Units@18.1°C	1	10/16/15 01:37 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1680	50.0	50.0		mg/L	1	10/22/15 08:30 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 16-Nov-15

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES  
**Project No:** 5164-C  
**Lab Order:** 1510154

**Client Sample ID:** W-35  
**Lab ID:** 1510154-07  
**Collection Date:** 10/15/15 02:25 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>ABO</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/29/15 02:21 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>SW</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	11/03/15 03:43 PM
Arsenic	0.00756	0.00200	0.00500		mg/L	1	11/03/15 03:43 PM
Barium	0.0373	0.00300	0.0100		mg/L	1	11/03/15 03:43 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:43 PM
Boron	5.58	0.500	1.50		mg/L	50	11/03/15 12:35 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:43 PM
Calcium	175	5.00	15.0		mg/L	50	11/03/15 12:35 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:43 PM
Cobalt	0.192	0.00300	0.00500		mg/L	1	11/03/15 03:43 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	11/03/15 03:43 PM
Lithium	0.0191	0.00500	0.0100		mg/L	1	11/03/15 03:43 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	11/03/15 03:43 PM
Selenium	0.00408	0.00200	0.00500	J	mg/L	1	11/03/15 03:43 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	11/03/15 03:43 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	98.2	3.00	10.0		mg/L	10	10/19/15 04:27 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	10/19/15 01:01 PM
Sulfate	893	10.0	30.0		mg/L	10	10/19/15 04:27 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>LM</b>		
pH	5.99	0	0		pH Units@17.9°C	1	10/16/15 01:39 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>BJT</b>		
Total Dissolved Solids (Residue, Filterable)	1720	50.0	50.0		mg/L	1	10/22/15 08:30 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

**ANALYTICAL QC SUMMARY REPORT**

**RunID: CETAC2\_HG\_151029B**

The QC data in batch 72064 applies to the following samples: 1510154-01A, 1510154-02A, 1510154-03A, 1510154-04A, 1510154-05A, 1510154-06A, 1510154-07A

Sample ID <b>MB-72064</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:31:41 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID <b>LCS-72064</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:33:59 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00222 0.000200 0.00200 0 111 85 115

Sample ID <b>LCSD-72064</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:36:16 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00202 0.000200 0.00200 0 101 85 115 9.43 15

Sample ID <b>1510154-01A SD</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:40:52 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0 0 0 10

Sample ID <b>1510154-01A PDS</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:43:10 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00190 0.000200 0.00250 0 76.0 85 115 S

Sample ID <b>1510154-01A MS</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:45:28 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00170 0.000200 0.00200 0 85.0 80 120

Sample ID <b>1510154-01A MSD</b>	Batch ID: <b>72064</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:47:46 PM</b>	Prep Date: <b>10/28/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00182 0.000200 0.00200 0 91.0 80 120 6.82 15

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: CETAC2\_HG\_151029B**

Sample ID <b>ICV-151029</b>	Batch ID: <b>R82414</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 11:25:42 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00406	0.000200	0.00400	0	102	90	110			

Sample ID <b>CCV3-151029</b>	Batch ID: <b>R82414</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 1:24:47 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00201	0.000200	0.00200	0	101	90	110			

Sample ID <b>CCV4-151029</b>	Batch ID: <b>R82414</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 2:12:20 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00202	0.000200	0.00200	0	101	90	110			

Sample ID <b>CCV5-151029</b>	Batch ID: <b>R82414</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151029B</b>	Analysis Date: <b>10/29/2015 2:35:04 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00203	0.000200	0.00200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

The QC data in batch 72050 applies to the following samples: 1510154-01A, 1510154-02A, 1510154-03A, 1510154-04A, 1510154-05A, 1510154-06A, 1510154-07A

Sample ID <b>MB-72050</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:29:00 AM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Boron	<0.0100	0.0300								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-72050</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:35:00 AM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.181	0.00250	0.200	0	90.4	80	120			
Arsenic	0.199	0.00500	0.200	0	99.4	80	120			
Barium	0.193	0.0100	0.200	0	96.6	80	120			
Beryllium	0.202	0.00100	0.200	0	101	80	120			
Boron	0.182	0.0300	0.200	0	91.0	80	120			
Cadmium	0.189	0.00100	0.200	0	94.6	80	120			
Calcium	4.80	0.300	5.00	0	96.0	80	120			
Chromium	0.197	0.00500	0.200	0	98.6	80	120			
Cobalt	0.194	0.00500	0.200	0	97.2	80	120			
Lead	0.191	0.00100	0.200	0	95.7	80	120			
Lithium	0.185	0.0100	0.200	0	92.6	80	120			
Molybdenum	0.179	0.00500	0.200	0	89.3	80	120			
Selenium	0.200	0.00500	0.200	0	100	80	120			
Thallium	0.205	0.00150	0.200	0	102	80	120			

Sample ID <b>LCSD-72050</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:41:00 AM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.178	0.00250	0.200	0	89.0	80	120	1.50	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID: <b>LCSD-72050</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:41:00 AM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.195	0.00500	0.200	0	97.6	80	120	1.93	15	
Barium	0.186	0.0100	0.200	0	93.2	80	120	3.53	15	
Beryllium	0.199	0.00100	0.200	0	99.5	80	120	1.45	15	
Boron	0.181	0.0300	0.200	0	90.6	80	120	0.386	15	
Cadmium	0.186	0.00100	0.200	0	93.2	80	120	1.49	15	
Calcium	4.64	0.300	5.00	0	92.8	80	120	3.43	15	
Chromium	0.192	0.00500	0.200	0	96.2	80	120	2.57	15	
Cobalt	0.193	0.00500	0.200	0	96.4	80	120	0.826	15	
Lead	0.187	0.00100	0.200	0	93.4	80	120	2.38	15	
Lithium	0.186	0.0100	0.200	0	93.0	80	120	0.485	15	
Molybdenum	0.175	0.00500	0.200	0	87.4	80	120	2.09	15	
Selenium	0.197	0.00500	0.200	0	98.6	80	120	1.61	15	
Thallium	0.195	0.00150	0.200	0	97.3	80	120	5.06	15	

Sample ID: <b>1510154-01A SD</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:59:00 AM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.0400	0.125	0	0				0	10	
Arsenic	<0.100	0.250	0	0				0	10	
Barium	<0.150	0.500	0	0.0922				0	10	
Beryllium	<0.0150	0.0500	0	0				0	10	
Boron	2.21	1.50	0	2.38				7.21	10	
Cadmium	<0.0150	0.0500	0	0				0	10	
Calcium	124	15.0	0	124				0.565	10	
Chromium	<0.100	0.250	0	0				0	10	
Cobalt	<0.150	0.250	0	0.134				0	10	
Lead	<0.0150	0.0500	0	0				0	10	
Lithium	<0.250	0.500	0	0				0	10	
Molybdenum	<0.100	0.250	0	0				0	10	
Selenium	<0.100	0.250	0	0				0	10	
Thallium	<0.0250	0.0750	0	0				0	10	

Sample ID: <b>1510154-01A PDS</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 1:24:00 PM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	2.15	0.0250	2.00	0	107	80	120			
Arsenic	2.05	0.0500	2.00	0	103	80	120			
Barium	2.01	0.100	2.00	0.0922	95.7	80	120			
Beryllium	2.10	0.0100	2.00	0	105	80	120			

**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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID: <b>1510154-01A PDS</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 1:24:00 PM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	4.32	0.300	2.00	2.38	97.1	80	120			
Cadmium	1.93	0.0100	2.00	0	96.5	80	120			
Calcium	169	3.00	50.0	124	89.8	80	120			
Chromium	2.03	0.0500	2.00	0	102	80	120			
Cobalt	2.12	0.0500	2.00	0.134	99.0	80	120			
Lead	2.00	0.0100	2.00	0	100	80	120			
Lithium	1.90	0.100	2.00	0	95.2	80	120			
Molybdenum	1.83	0.0500	2.00	0	91.4	80	120			
Selenium	2.05	0.0500	2.00	0	102	80	120			
Thallium	2.05	0.0150	2.00	0	103	80	120			

Sample ID: <b>1510154-01A MS</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:07:00 PM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0	95.3	80	120			
Arsenic	0.224	0.00500	0.200	0.0156	104	80	120			
Barium	0.303	0.0100	0.200	0.0960	103	80	120			
Beryllium	0.189	0.00100	0.200	0	94.7	80	120			
Boron	2.48	0.0300	0.200	2.28	99.0	80	120			
Cadmium	0.193	0.00100	0.200	0	96.4	80	120			
Calcium	136	0.300	5.00	122	280	80	120			S
Chromium	0.193	0.00500	0.200	0	96.6	80	120			
Cobalt	0.331	0.00500	0.200	0.128	102	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
Lithium	0.177	0.0100	0.200	0.00740	85.0	80	120			
Molybdenum	0.196	0.00500	0.200	0.00301	96.6	80	120			
Selenium	0.207	0.00500	0.200	0	103	80	120			
Thallium	0.208	0.00150	0.200	0	104	80	120			

Sample ID: <b>1510154-01A MSD</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:13:00 PM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.136	0.00250	0.200	0	68.0	80	120	33.5	15	SR
Arsenic	0.223	0.00500	0.200	0.0156	104	80	120	0.268	15	
Barium	0.297	0.0100	0.200	0.0960	100	80	120	2.13	15	
Beryllium	0.188	0.00100	0.200	0	94.2	80	120	0.476	15	
Boron	2.45	0.0300	0.200	2.28	83.0	80	120	1.30	15	
Cadmium	0.193	0.00100	0.200	0	96.6	80	120	0.311	15	
Calcium	136	0.300	5.00	122	280	80	120	0	15	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID: <b>1510154-01A MSD</b>	Batch ID: <b>72050</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:13:00 PM</b>	Prep Date: <b>10/28/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.196	0.00500	0.200	0	98.1	80	120	1.49	15	
Cobalt	0.334	0.00500	0.200	0.128	103	80	120	0.662	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.409	15	
Lithium	0.174	0.0100	0.200	0.00740	83.5	80	120	1.65	15	
Molybdenum	0.200	0.00500	0.200	0.00301	98.2	80	120	1.67	15	
Selenium	0.206	0.00500	0.200	0	103	80	120	0.194	15	
Thallium	0.208	0.00150	0.200	0	104	80	120	0.048	15	

LUMINANT

<b>Qualifiers:</b> 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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID: <b>ICV1-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:04:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0976	0.00250	0.100	0	97.6	90	110			
Arsenic	0.101	0.00500	0.100	0	101	90	110			
Barium	0.101	0.0100	0.100	0	101	90	110			
Beryllium	0.103	0.00100	0.100	0	103	90	110			
Boron	0.0900	0.0300	0.100	0	90.0	90	110			
Cadmium	0.100	0.00100	0.100	0	100	90	110			
Calcium	2.35	0.300	2.50	0	93.8	90	110			
Chromium	0.109	0.00500	0.100	0	109	90	110			
Cobalt	0.106	0.00500	0.100	0	106	90	110			
Lead	0.103	0.00100	0.100	0	103	90	110			
Lithium	0.0911	0.0100	0.100	0	91.1	90	110			
Molybdenum	0.0932	0.00500	0.100	0	93.2	90	110			
Selenium	0.0981	0.00500	0.100	0	98.1	90	110			
Thallium	0.0999	0.00150	0.100	0	99.9	90	110			

Sample ID: <b>ILCVL-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 11:16:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00197	0.00250	0.00200	0	98.7	70	130			
Arsenic	0.00540	0.00500	0.00500	0	108	70	130			
Barium	0.00528	0.0100	0.00500	0	106	70	130			
Beryllium	0.00111	0.00100	0.00100	0	111	70	130			
Boron	0.0179	0.0300	0.0200	0	89.4	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.107	0.300	0.100	0	107	70	130			
Chromium	0.00559	0.00500	0.00500	0	112	70	130			
Cobalt	0.00546	0.00500	0.00500	0	109	70	130			
Lead	0.00113	0.00100	0.00100	0	113	70	130			
Lithium	0.00920	0.0100	0.0100	0	92.0	70	130			
Molybdenum	0.00494	0.00500	0.00500	0	98.9	70	130			
Selenium	0.00604	0.00500	0.00500	0	121	70	130			
Thallium	0.00111	0.00150	0.00100	0	111	70	130			

Sample ID: <b>CCV1-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 1:30:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Barium	0.204	0.0100	0.200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS3\_151103A

Sample ID <b>CCV1-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 1:30:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.218	0.00100	0.200	0	109	90	110			
Boron	0.204	0.0300	0.200	0	102	90	110			
Cadmium	0.202	0.00100	0.200	0	101	90	110			
Calcium	5.43	0.300	5.00	0	109	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Cobalt	0.207	0.00500	0.200	0	104	90	110			
Lead	0.204	0.00100	0.200	0	102	90	110			
Lithium	0.198	0.0100	0.200	0	99.2	90	110			
Molybdenum	0.198	0.00500	0.200	0	98.8	90	110			
Selenium	0.217	0.00500	0.200	0	109	90	110			
Thallium	0.211	0.00150	0.200	0	106	90	110			

Sample ID <b>LCVL1-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 1:54:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00193	0.00250	0.00200	0	96.5	70	130			
Arsenic	0.00532	0.00500	0.00500	0	106	70	130			
Barium	0.00520	0.0100	0.00500	0	104	70	130			
Beryllium	0.00112	0.00100	0.00100	0	112	70	130			
Boron	0.0193	0.0300	0.0200	0	96.6	70	130			
Cadmium	0.000985	0.00100	0.00100	0	98.5	70	130			
Calcium	0.0999	0.300	0.100	0	99.9	70	130			
Chromium	0.00526	0.00500	0.00500	0	105	70	130			
Cobalt	0.00525	0.00500	0.00500	0	105	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
Lithium	0.0105	0.0100	0.0100	0	104	70	130			
Molybdenum	0.00479	0.00500	0.00500	0	95.8	70	130			
Selenium	0.00541	0.00500	0.00500	0	108	70	130			
Thallium	0.00104	0.00150	0.00100	0	104	70	130			

Sample ID <b>CCV2-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 2:30:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	96.8	90	110			
Arsenic	0.209	0.00500	0.200	0	104	90	110			
Barium	0.197	0.0100	0.200	0	98.4	90	110			
Beryllium	0.210	0.00100	0.200	0	105	90	110			
Boron	0.194	0.0300	0.200	0	97.1	90	110			
Cadmium	0.198	0.00100	0.200	0	98.8	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID <b>CCV2-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 2:30:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.36	0.300	5.00	0	107	90	110			
Chromium	0.200	0.00500	0.200	0	100	90	110			
Cobalt	0.203	0.00500	0.200	0	102	90	110			
Lead	0.201	0.00100	0.200	0	100	90	110			
Lithium	0.193	0.0100	0.200	0	96.4	90	110			
Molybdenum	0.191	0.00500	0.200	0	95.5	90	110			
Selenium	0.215	0.00500	0.200	0	107	90	110			
Thallium	0.211	0.00150	0.200	0	105	90	110			

Sample ID <b>LCVL2-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 2:49:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00190	0.00250	0.00200	0	95.0	70	130			
Arsenic	0.00535	0.00500	0.00500	0	107	70	130			
Barium	0.00495	0.0100	0.00500	0	99.0	70	130			
Beryllium	0.00106	0.00100	0.00100	0	106	70	130			
Boron	0.0195	0.0300	0.0200	0	97.6	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.108	0.300	0.100	0	108	70	130			
Chromium	0.00509	0.00500	0.00500	0	102	70	130			
Cobalt	0.00520	0.00500	0.00500	0	104	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
Lithium	0.00999	0.0100	0.0100	0	99.9	70	130			
Molybdenum	0.00470	0.00500	0.00500	0	94.0	70	130			
Selenium	0.00584	0.00500	0.00500	0	117	70	130			
Thallium	0.00102	0.00150	0.00100	0	102	70	130			

Sample ID <b>CCV3-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:19:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	100	90	110			
Arsenic	0.216	0.00500	0.200	0	108	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			
Beryllium	0.205	0.00100	0.200	0	102	90	110			
Boron	0.242	0.0300	0.200	0	121	90	110			S
Cadmium	0.202	0.00100	0.200	0	101	90	110			
Calcium	5.64	0.300	5.00	0	113	90	110			S
Chromium	0.211	0.00500	0.200	0	105	90	110			
Cobalt	0.211	0.00500	0.200	0	106	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151103A**

Sample ID <b>CCV3-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:19:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
Lithium	0.182	0.0100	0.200	0	91.2	90	110			
Molybdenum	0.196	0.00500	0.200	0	98.2	90	110			
Selenium	0.216	0.00500	0.200	0	108	90	110			
Thallium	0.214	0.00150	0.200	0	107	90	110			

Sample ID <b>LCVL3-151103</b>	Batch ID: <b>R82492</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151103A</b>	Analysis Date: <b>11/3/2015 4:55:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00201	0.00250	0.00200	0	100	70	130			
Arsenic	0.00551	0.00500	0.00500	0	110	70	130			
Barium	0.00535	0.0100	0.00500	0	107	70	130			
Beryllium	0.00112	0.00100	0.00100	0	112	70	130			
Boron	0.0309	0.0300	0.0200	0	154	70	130			S
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Calcium	0.144	0.300	0.100	0	144	70	130			S
Chromium	0.00538	0.00500	0.00500	0	108	70	130			
Cobalt	0.00549	0.00500	0.00500	0	110	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
Lithium	0.0106	0.0100	0.0100	0	106	70	130			
Molybdenum	0.00514	0.00500	0.00500	0	103	70	130			
Selenium	0.00548	0.00500	0.00500	0	110	70	130			
Thallium	0.00105	0.00150	0.00100	0	105	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_151019A**

The QC data in batch 71912 applies to the following samples: 1510154-01D, 1510154-02D, 1510154-03D, 1510154-04D, 1510154-05D, 1510154-06D, 1510154-07D

Sample ID: <b>LCS-71912</b>	Batch ID: <b>71912</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 10:02:48 A</b>	Prep Date: <b>10/19/2015</b>

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	3.69	0.400	4.000	0	92.3	90	110			
Sulfate	31.2	3.00	30.00	0	104	90	110			

Sample ID: <b>LCSD-71912</b>	Batch ID: <b>71912</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 10:17:22 A</b>	Prep Date: <b>10/19/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110	0.261	20	
Fluoride	3.79	0.400	4.000	0	94.7	90	110	2.49	20	
Sulfate	30.1	3.00	30.00	0	100	90	110	3.76	20	

Sample ID: <b>MB-71912</b>	Batch ID: <b>71912</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 10:31:57 A</b>	Prep Date: <b>10/19/2015</b>

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: <b>1510147-02AMS</b>	Batch ID: <b>71912</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 4:41:47 PM</b>	Prep Date: <b>10/19/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26600	1000	20000	5590	105	90	110			
Fluoride	20700	400	20000	0	104	90	110			
Sulfate	25100	3000	20000	2878	111	90	110			S

Sample ID: <b>1510147-02AMSD</b>	Batch ID: <b>71912</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 4:56:22 PM</b>	Prep Date: <b>10/19/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26200	1000	20000	5590	103	90	110	1.54	20	
Fluoride	20600	400	20000	0	103	90	110	0.753	20	
Sulfate	25000	3000	20000	2878	111	90	110	0.149	20	S

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_151019A**

Sample ID <b>ICV-151019</b>	Batch ID: <b>R82252</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 9:10:28 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.9	1.00	25.00	0	99.7	90	110			
Fluoride	9.97	0.400	10.00	0	99.7	90	110			
Sulfate	78.2	3.00	75.00	0	104	90	110			

Sample ID <b>CCV1-151019</b>	Batch ID: <b>R82252</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 1:40:28 PM</b>	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	3.99	0.400	4.000	0	99.8	90	110			
Sulfate	31.3	3.00	30.00	0	104	90	110			

Sample ID <b>CCV2-151019</b>	Batch ID: <b>R82252</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_151019A</b>	Analysis Date: <b>10/19/2015 5:10:56 PM</b>	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	4.14	0.400	4.000	0	103	90	110			
Sulfate	30.8	3.00	30.00	0	103	90	110			

**Qualifiers:**

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



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_151016A**

The QC data in batch 71882 applies to the following samples: 1510154-01D, 1510154-02D, 1510154-03D, 1510154-04D, 1510154-05D, 1510154-06D, 1510154-07D

Sample ID	1510129-02B DUP	Batch ID:	71882	TestNo:	M4500-H+ B	Units:	pH Units@19°C			
SampType:	DUP	Run ID:	TITRATOR_151016A	Analysis Date:	10/16/2015 10:39:00 A	Prep Date:	10/16/2015			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.00	0	0	9.000				0	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_151016A**

Sample ID <b>ICV-151016</b>	Batch ID: <b>R82228</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.9°C</b>
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_151016A</b>	Analysis Date: <b>10/16/2015 10:33:00 A</b>	Prep Date: <b>10/16/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.96	0	10.00	0	99.6	99	101			

Sample ID <b>CCV1-151016</b>	Batch ID: <b>R82228</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.3°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_151016A</b>	Analysis Date: <b>10/16/2015 10:44:00 A</b>	Prep Date: <b>10/16/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.99	0	7.000	0	99.9	97.1	102.9			

Sample ID <b>CCV2-151016</b>	Batch ID: <b>R82228</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22.3°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_151016A</b>	Analysis Date: <b>10/16/2015 2:10:00 PM</b>	Prep Date: <b>10/16/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.98	0	7.000	0	99.7	97.1	102.9			

LUMINANANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_151019F**

The QC data in batch 71924 applies to the following samples: 1510154-01D, 1510154-02D, 1510154-03D, 1510154-04D, 1510154-05D, 1510154-06D, 1510154-07D

Sample ID <b>MB-71924</b>	Batch ID: <b>71924</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_151019F</b>	Analysis Date: <b>10/20/2015 8:00:00 AM</b>	Prep Date: <b>10/19/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID <b>LCS-71924</b>	Batch ID: <b>71924</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_151019F</b>	Analysis Date: <b>10/20/2015 8:00:00 AM</b>	Prep Date: <b>10/19/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	741	10.0	745.6	0	99.4	90	113			

Sample ID <b>1510126-01C-DUP</b>	Batch ID: <b>71924</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_151019F</b>	Analysis Date: <b>10/20/2015 8:00:00 AM</b>	Prep Date: <b>10/19/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	2820	50.0	0	2845				0.883	5	

LUMINA

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1510154  
**Project:** MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_151021A**

The QC data in batch 71957 applies to the following samples: 1510154-03D, 1510154-04D, 1510154-05D, 1510154-06D, 1510154-07D

Sample ID <b>MB-71957</b>	Batch ID: <b>71957</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_151021A</b>	Analysis Date: <b>10/22/2015 8:30:00 AM</b>	Prep Date: <b>10/21/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID <b>LCS-71957</b>	Batch ID: <b>71957</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_151021A</b>	Analysis Date: <b>10/22/2015 8:30:00 AM</b>	Prep Date: <b>10/21/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	756	10.0	745.6	0	101	90	113			

Sample ID <b>1510150-03C-DUP</b>	Batch ID: <b>71957</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_151021A</b>	Analysis Date: <b>10/22/2015 8:30:00 AM</b>	Prep Date: <b>10/21/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	718	10.0	0	718.0				0	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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November 12, 2015

Mr. John DuPont  
DHL Analytical  
2300 Double Creek Drive  
Round Rock, Texas 78664

Re: Routine Analysis  
Work Order: 383809

Dear Mr. DuPont:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 22, 2015. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Anna Day  
Project Manager

Enclosures



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

## Certificate of Analysis Report for

DHLA002 DHL Analytical

Client SDG: 383809 GEL Work Order: 383809

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Anna Day.

Reviewed by \_\_\_\_\_

*Anna C Day*

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-34	Project: DHLA00112
Sample ID: 383809001	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 09:45	
Receive Date: 22-OCT-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Ra228, Liquid "As Received"											
Radium-228		2.70	+/-1.10	1.46	3.00	pCi/L		AXM6	11/11/15	1506 1519753	1
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226	U	0.524	+/-0.485	0.769	1.00	pCi/L		CXP3	10/29/15	0655 1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			88.9	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-33	Project: DHLA00112
Sample ID: 383809002	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 10:35	
Receive Date: 22-OCT-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.70	+/-1.13	1.77	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.524	+/-0.326	0.386	1.00	pCi/L		CXP3	10/29/15	0655	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.2	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-32	Project: DHLA00112
Sample ID: 383809003	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 11:25	
Receive Date: 22-OCT-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.28	+/-0.815	1.20	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.299	+/-0.359	0.604	1.00	pCi/L		CXP3	10/29/15	0655	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.2	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-31	Project: DHLA00112
Sample ID: 383809004	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 12:15	
Receive Date: 22-OCT-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.86	+/-1.07	1.49	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.839	+/-0.465	0.604	1.00	pCi/L		CXP3	10/29/15	0740	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			92.1	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-30	Project: DHLA00112
Sample ID: 383809005	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 13:00	
Receive Date: 22-OCT-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.31	+/-1.18	1.93	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.952	+/-0.492	0.641	1.00	pCi/L		CXP3	10/29/15	0740	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.3	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-29	Project: DHLA00112
Sample ID: 383809006	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 13:40	
Receive Date: 22-OCT-15	
Collector: Client	

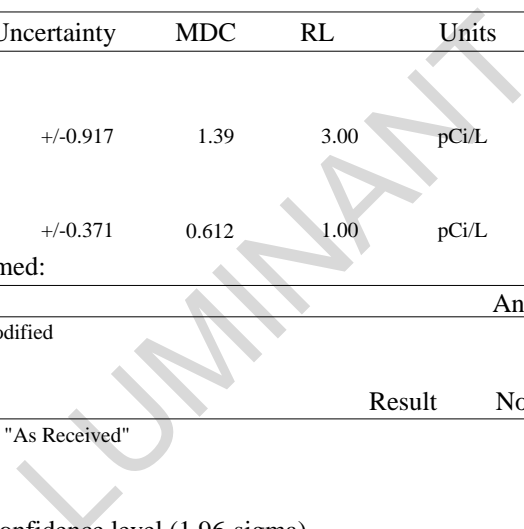
Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.47	+/-0.917	1.39	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.341	+/-0.371	0.612	1.00	pCi/L		CXP3	10/29/15	0740	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.3	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: November 12, 2015

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-35	Project: DHLA00112
Sample ID: 383809007	Client ID: DHLA002
Matrix: Water	
Collect Date: 15-OCT-15 14:25	
Receive Date: 22-OCT-15	
Collector: Client	

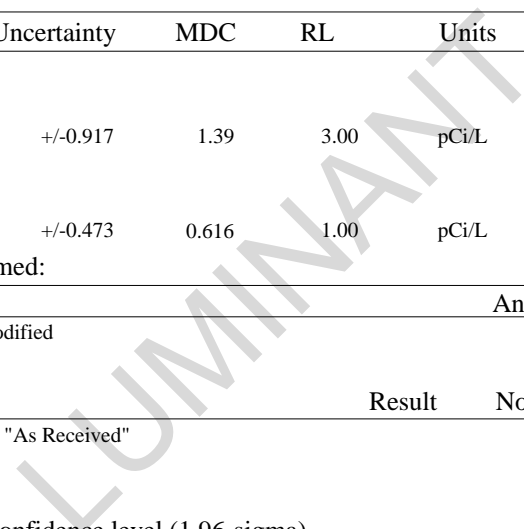
Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.45	+/-0.917	1.39	3.00	pCi/L		AXM6	11/11/15	1506	1519753	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.915	+/-0.473	0.616	1.00	pCi/L		CXP3	10/29/15	0820	1517317	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			91.8	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).



# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: November 12, 2015

Page 1 of 2

**DHL Analytical**  
**2300 Double Creek Drive**  
**Round Rock, Texas**

**Contact: Mr. John DuPont**

**Workorder: 383809**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	1519753										
QC1203424141	383809004	DUP									
Radium-228		1.86	U	1.60	pCi/L	15		(0% - 100%)	AXM6	11/11/15	15:07
	Uncertainty	+/-1.07		+/-1.10							
QC1203424142	LCS										
Radium-228		29.4		30.9	pCi/L		105	(75%-125%)		11/11/15	15:09
	Uncertainty			+/-2.63							
QC1203424140	MB										
Radium-228			U	-0.132	pCi/L					11/11/15	15:07
	Uncertainty			+/-0.626							
<b>Rad Ra-226</b>											
Batch	1517317										
QC1203417628	383807001	DUP									
Radium-226		1.16		2.09	pCi/L	57.5		(0% - 100%)	CXP3	10/29/15	08:55
	Uncertainty	+/-0.616		+/-0.721							
QC1203417630	LCS										
Radium-226		24.4		27.2	pCi/L		112	(75%-125%)		10/29/15	09:25
	Uncertainty			+/-2.07							
QC1203417627	MB										
Radium-226			U	0.499	pCi/L					10/29/15	08:55
	Uncertainty			+/-0.399							
QC1203417629	383807001	MS									
Radium-226		122	1.16	129	pCi/L		105	(75%-125%)		10/29/15	08:55
	Uncertainty	+/-0.616		+/-9.87							

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N/A RPD or %Recovery limits do not apply.

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 383809

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

LUMINANT



DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222

FAX: (512) 388-8229

383809

Work Order: 1510154

**Subcontractor:**

GEL Laboratories  
 PO Box 30712  
 Charleston, SC 29417

TEL: (843) 556-8171

FAX:

Acct #:

16-Oct-15

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests						
					E903.1	E904.0					
W-34	Aqueous	-01B	10/15/15 09:45 AM	500HDPEHNO3	1						
W-34	Aqueous	-01C	10/15/15 09:45 AM	500HDPEHNO3		1					
W-33	Aqueous	-02B	10/15/15 10:35 AM	500HDPEHNO3	1						
W-33	Aqueous	-02C	10/15/15 10:35 AM	500HDPEHNO3		1					
W-32	Aqueous	-03B	10/15/15 11:25 AM	500HDPEHNO3	1						
W-32	Aqueous	-03C	10/15/15 11:25 AM	500HDPEHNO3		1					
W-31	Aqueous	-04B	10/15/15 12:15 PM	500HDPEHNO3	1						
W-31	Aqueous	-04C	10/15/15 12:15 PM	500HDPEHNO3		1					
W-30	Aqueous	-05B	10/15/15 01:00 PM	500HDPEHNO3	1						
W-30	Aqueous	-05C	10/15/15 01:00 PM	500HDPEHNO3		1					
W-29	Aqueous	-06B	10/15/15 01:40 PM	500HDPEHNO3	1						
W-29	Aqueous	-06C	10/15/15 01:40 PM	500HDPEHNO3		1					
W-35	Aqueous	-07B	10/15/15 02:25 PM	500HDPEHNO3	1						
W-35	Aqueous	-07C	10/15/15 02:25 PM	500HDPEHNO3		1					

**General Comments:**

Please analyze these samples with a Standard Turnaround Time.  
 Call John DuPont if you have questions.  
 Quality Control Package Needed: Standard / \_\_\_\_\_  
 EMAIL report to both cac@dhlanalytical.com & dupont@dhlanalytical.com

Relinquished by: <u>[Signature]</u>	Date/Time: <u>10/16/15 1700</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10/16/15 1730</u>
Relinquished by: _____	Date/Time: _____	Received by: <u>[Signature]</u>	Date/Time: <u>10/22/15 0905</u>

SAMPLE RECEIPT & REVIEW FORM

Client: <b>DHLA</b>		SDG/AR/COC/Work Order: <b>383809</b>	
Received By: <b>Shanta Mack</b>		Date Received: <b>10/22/15 9:05</b>	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <b>46m</b>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			<input checked="" type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice <u>None</u> Other (describe) *all temperatures are recorded in Celsius <b>20°</b>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <b>E5032015835</b>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?			<input checked="" type="checkbox"/>	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
9	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16	Carrier and tracking number.				Circle Applicable: FedEx Air <u>FedEx Ground</u> UPS Field Services Courier Other  <b>7747 5874 5846</b>

Comments (Use Continuation Form if needed):

**List of current GEL Certifications as of 12 November 2015**

<b>State</b>	<b>Certification</b>
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404



January 28, 2016

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

Order No.: 1512100

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 12/8/2015 for the analyses presented in the following report.

REVISION#1: This revision consists of including the Radium-226 result for sample W-32 via the sub-contract report. Please replace the original report with this revised report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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', written over a large, faint, diagonal watermark that says 'LUMINANT'.

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-15



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LUMINANT



2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 69342  
**CHAIN-OF-CUSTODY**

CLIENT: PBW  
 ADDRESS: 2201 DOUBLE CREEK DR ROUND ROCK, TX 78664  
 PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
 DATA REPORTED TO: WILL VIENNE  
 ADDITIONAL REPORT COPIES TO: \_\_\_\_\_

DATE: 12-7-15 PAGE 1 OF 1  
 PO #: 5164-C DHL WORK ORDER #: 1572100  
 PROJECT LOCATION OR NAME: LUMINANT-MOSE S  
 CLIENT PROJECT #: 5164-C COLLECTOR: J. BRAYTON

Authorize 5% surcharge for TRRP Report?  
 Yes  No

S=SOIL P=PAINT  
 W=WATER SL=SLUDGE  
 A=AIR O=OTHER  
 L=LIQUID SO=SOLID  
 SE=SEDIMENT

PRESERVATION  
 HCl HNO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub> NaOH ICE UNPRESERVED

**ANALYSES**

BTEX  MTBE  (METHOD 8021)  
 TPH 1005  TPH 1006  HOLD 1006   
 GRO (METHOD 8015)  DRO (METHOD 8105)   
 VOC 8260  VOC 624  VOC 8260/5035   
 SVOC 8270  PAH 8270  HOLD PAH  SVOC 625   
 8270 PEST  625 PEST PCB  608 PCB   
 8270 O-P PEST  8082 PCB  8270 PCB   
 8321 HERB  T PHOS. AMMONIA   
 METALS 8020  METALS 2008  DISS. METALS   
 PH  HEX CHROM  ALKALINITY  COD   
 CHLORIDE  ANIONS   
 TCLP-SVOC  VOC  PEST  HERB   
 RCRA-METALS  RCRA 8  TX-11  Pb   
 TDS  TSS  % MOISTURE  CYANIDE   
**SEE ATTACHED**

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
W-34	01	12-7-15	0859	W	P	4								X
W-33	02		0945	W	P	4								X
W-32	03		1025	W	P	4								X
W-31	04		1110	W	P	4								X
W-30	05		1155	W	P	4								X
W-29	06		1240	W	P	4								X
W-35	07		1330	W	P	4								X

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-7-15 1800 RECEIVED BY: (Signature) [Signature]

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-8-15 1345 RECEIVED BY: (Signature) [Signature]

RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY: (Signature) \_\_\_\_\_

DHL DISPOSAL @ \$5.00 each  Return 3

**TURN AROUND TIME**  
 RUSH  CALL FIRST  
 1 DAY  CALL FIRST  
 2 DAY   
 NORMAL   
 OTHER

**LABORATORY USE ONLY:**  
 RECEIVING TEMP: 2.1 THERM #: 78  
 CUSTODY SEALS:  BROKEN  INTACT  NOT USED  
 CARRIER:  LONE STAR  FEDEX  UPS  OTHER  
 COURIER DELIVERY  
 HAND DELIVERED

**John Dupont**

---

**From:** Sara Taube [Sara.Taube@pbwffc.com]  
**Sent:** Wednesday, July 22, 2015 12:05 PM  
**To:** John Dupont  
**Subject:** CCR Appendix III and IV  
**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 12/8/2015

Work Order Number 1512100

Received by MB

Checklist completed by: [Signature] 12/8/2015
Signature Date

Reviewed by [Initials] 12/8/2015
Initials Date

Carrier name Hand Delivered

- Shipping container/cooler in good condition? Yes [checked] No [ ] Not Present [ ]
Custody seals intact on shipping container/cooler? Yes [ ] No [ ] Not Present [checked]
Custody seals intact on sample bottles? Yes [ ] No [ ] Not Present [checked]
Chain of custody present? Yes [checked] No [ ]
Chain of custody signed when relinquished and received? Yes [checked] No [ ]
Chain of custody agrees with sample labels? Yes [checked] No [ ]
Samples in proper container/bottle? Yes [checked] No [ ]
Sample containers intact? Yes [checked] No [ ]
Sufficient sample volume for indicated test? Yes [checked] No [ ]
All samples received within holding time? Yes [checked] No [ ]
Container/Temp Blank temperature in compliance? Yes [checked] No [ ] 2.1 °C
Water - VOA vials have zero headspace? Yes [ ] No [ ] No VOA vials submitted [checked]
Water - pH<2 acceptable upon receipt? Yes [checked] No [ ] NA [ ] LOT # 8086
Adjusted? [initials] Checked by [initials]
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt? Yes [ ] No [ ] NA [checked] 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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1512100

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis  
Sub-contract - Radium-228 and Radium-226 analyses by methods E904.0/SW8469320 Modified and E903.1 Modified. Analyzed at GEL Laboratory.

**LOG IN**

The samples were received and log-in performed on 12/8/15. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 12/16/15 Boron was detected below the reporting limit in the method blank (MB-72705). All samples were detected greater than 10 times the amount in the blank for this analyte. No further corrective actions were taken.

For Metals analysis performed on 12/16/15 the matrix spike and matrix spike duplicate recoveries were below control limits for Boron and/or Calcium. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 12/16/15 the RPD for the serial dilution was above control limits for Boron. This is flagged accordingly. The PDS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 12/16/15 LCVL1-151216 and LCVL2-151216 were out of control limits for Boron or Calcium. These are flagged accordingly. The associated CCV1-151216 and CCV2-151216 were within control limits for these analytes. No further corrective actions were taken.

---

---

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1512100

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1512100-01	W-34		12/07/15 08:55 AM	12/8/2015
1512100-02	W-33		12/07/15 09:45 AM	12/8/2015
1512100-03	W-32		12/07/15 10:25 AM	12/8/2015
1512100-04	W-31		12/07/15 11:10 AM	12/8/2015
1512100-05	W-30		12/07/15 11:55 AM	12/8/2015
1512100-06	W-29		12/07/15 12:40 PM	12/8/2015
1512100-07	W-35		12/07/15 01:30 PM	12/8/2015

LUMINANT

Lab Order: 1512100  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512100-01A	W-34	12/07/15 08:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-34	12/07/15 08:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-34	12/07/15 08:55 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-01D	W-34	12/07/15 08:55 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-34	12/07/15 08:55 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-34	12/07/15 08:55 AM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-34	12/07/15 08:55 AM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665
1512100-02A	W-33	12/07/15 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-33	12/07/15 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-33	12/07/15 09:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-02D	W-33	12/07/15 09:45 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-33	12/07/15 09:45 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-33	12/07/15 09:45 AM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-33	12/07/15 09:45 AM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665
1512100-03A	W-32	12/07/15 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-32	12/07/15 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-32	12/07/15 10:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-03D	W-32	12/07/15 10:25 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-32	12/07/15 10:25 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-32	12/07/15 10:25 AM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-32	12/07/15 10:25 AM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665
1512100-04A	W-31	12/07/15 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-31	12/07/15 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-31	12/07/15 11:10 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-04D	W-31	12/07/15 11:10 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-31	12/07/15 11:10 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-31	12/07/15 11:10 AM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-31	12/07/15 11:10 AM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665

Lab Order: 1512100  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512100-05A	W-30	12/07/15 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-30	12/07/15 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-30	12/07/15 11:55 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-05D	W-30	12/07/15 11:55 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-30	12/07/15 11:55 AM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-30	12/07/15 11:55 AM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-30	12/07/15 11:55 AM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665
1512100-06A	W-29	12/07/15 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-29	12/07/15 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-29	12/07/15 12:40 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-06D	W-29	12/07/15 12:40 PM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-29	12/07/15 12:40 PM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-29	12/07/15 12:40 PM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-29	12/07/15 12:40 PM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665
1512100-07A	W-35	12/07/15 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-35	12/07/15 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	12/14/15 09:14 AM	72705
	W-35	12/07/15 01:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/09/15 12:14 PM	72637
1512100-07D	W-35	12/07/15 01:30 PM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-35	12/07/15 01:30 PM	Aqueous	E300	Anion Preparation	12/15/15 09:56 AM	72727
	W-35	12/07/15 01:30 PM	Aqueous	M4500-H+ B	pH Preparation	12/09/15 08:33 AM	72623
	W-35	12/07/15 01:30 PM	Aqueous	M2540C	TDS Preparation	12/10/15 03:32 PM	72665

Lab Order: 1512100  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512100-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:01 PM	CETAC2_HG_151210 B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:05 PM	ICP-MS3_151216B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 05:43 PM	ICP-MS3_151216B
1512100-01D	W-34	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 04:29 PM	IC3_151215A
	W-34	Aqueous	E300	Anions by IC method - Water	72727	10	12/15/15 11:25 PM	IC3_151215A
	W-34	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:09 AM	TITRATOR_151209A
	W-34	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:04 PM	CETAC2_HG_151210 B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 01:47 PM	ICP-MS3_151216B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	100	12/16/15 05:31 PM	ICP-MS3_151216B
1512100-02D	W-33	Aqueous	E300	Anions by IC method - Water	72727	10	12/15/15 11:45 PM	IC3_151215A
	W-33	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 04:53 PM	IC3_151215A
	W-33	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:12 AM	TITRATOR_151209A
	W-33	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:06 PM	CETAC2_HG_151210 B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:11 PM	ICP-MS3_151216B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 05:49 PM	ICP-MS3_151216B
1512100-03D	W-32	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 05:13 PM	IC3_151215A
	W-32	Aqueous	E300	Anions by IC method - Water	72727	10	12/16/15 12:06 AM	IC3_151215A
	W-32	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:14 AM	TITRATOR_151209A
	W-32	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:13 PM	CETAC2_HG_151210 B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 05:55 PM	ICP-MS3_151216B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:23 PM	ICP-MS3_151216B
1512100-04D	W-31	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 05:34 PM	IC3_151215A
	W-31	Aqueous	E300	Anions by IC method - Water	72727	10	12/16/15 12:27 AM	IC3_151215A

**Lab Order:** 1512100  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512100-04D	W-31	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:16 AM	TITRATOR_151209A
	W-31	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:18 PM	CETAC2_HG_151210 B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:29 PM	ICP-MS3_151216B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 06:01 PM	ICP-MS3_151216B
1512100-05D	W-30	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 05:55 PM	IC3_151215A
	W-30	Aqueous	E300	Anions by IC method - Water	72727	10	12/16/15 12:47 AM	IC3_151215A
	W-30	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:22 AM	TITRATOR_151209A
	W-30	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-06A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:20 PM	CETAC2_HG_151210 B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:41 PM	ICP-MS3_151216B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 06:07 PM	ICP-MS3_151216B
1512100-06D	W-29	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 06:15 PM	IC3_151215A
	W-29	Aqueous	E300	Anions by IC method - Water	72727	10	12/16/15 01:08 AM	IC3_151215A
	W-29	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:24 AM	TITRATOR_151209A
	W-29	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C
1512100-07A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	72637	1	12/10/15 03:26 PM	CETAC2_HG_151210 B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	1	12/16/15 02:47 PM	ICP-MS3_151216B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	72705	50	12/16/15 06:13 PM	ICP-MS3_151216B
1512100-07D	W-35	Aqueous	E300	Anions by IC method - Water	72727	1	12/15/15 06:36 PM	IC3_151215A
	W-35	Aqueous	E300	Anions by IC method - Water	72727	10	12/16/15 01:29 AM	IC3_151215A
	W-35	Aqueous	M4500-H+ B	pH	72623	1	12/09/15 10:26 AM	TITRATOR_151209A
	W-35	Aqueous	M2540C	Total Dissolved Solids	72665	1	12/11/15 07:50 AM	WC_151210C

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-34  
**Lab ID:** 1512100-01  
**Collection Date:** 12/07/15 08:55 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	12/10/15 03:01 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:05 PM
Arsenic	0.0408	0.00200	0.00500		mg/L	1	12/16/15 02:05 PM
Barium	0.0436	0.00300	0.0100		mg/L	1	12/16/15 02:05 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:05 PM
Boron	4.10	0.500	1.50		mg/L	50	12/16/15 05:43 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:05 PM
Calcium	153	5.00	15.0		mg/L	50	12/16/15 05:43 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:05 PM
Cobalt	0.229	0.00300	0.00500		mg/L	1	12/16/15 02:05 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:05 PM
Lithium	0.00950	0.00500	0.0100	J	mg/L	1	12/16/15 02:05 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:05 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:05 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:05 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	82.2	3.00	10.0		mg/L	10	12/15/15 11:25 PM
Fluoride	0.494	0.100	0.400		mg/L	1	12/15/15 04:29 PM
Sulfate	671	10.0	30.0		mg/L	10	12/15/15 11:25 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.34	0	0		pH Units@14.9°C	1	12/09/15 10:09 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1500	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-33  
**Lab ID:** 1512100-02  
**Collection Date:** 12/07/15 09:45 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	12/10/15 03:04 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 01:47 PM
Arsenic	0.00215	0.00200	0.00500	J	mg/L	1	12/16/15 01:47 PM
Barium	0.0271	0.00300	0.0100		mg/L	1	12/16/15 01:47 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 01:47 PM
Boron	6.68	1.00	3.00		mg/L	100	12/16/15 05:31 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 01:47 PM
Calcium	252	10.0	30.0		mg/L	100	12/16/15 05:31 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 01:47 PM
Cobalt	0.00403	0.00300	0.00500	J	mg/L	1	12/16/15 01:47 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 01:47 PM
Lithium	0.0101	0.00500	0.0100		mg/L	1	12/16/15 01:47 PM
Molybdenum	0.0376	0.00200	0.00500		mg/L	1	12/16/15 01:47 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 01:47 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 01:47 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	120	3.00	10.0		mg/L	10	12/15/15 11:45 PM
Fluoride	2.80	0.100	0.400		mg/L	1	12/15/15 04:53 PM
Sulfate	853	10.0	30.0		mg/L	10	12/15/15 11:45 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	7.04	0	0		pH Units@15.5°C	1	12/09/15 10:12 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1680	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-32  
**Lab ID:** 1512100-03  
**Collection Date:** 12/07/15 10:25 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	12/10/15 03:06 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:11 PM
Arsenic	0.00343	0.00200	0.00500	J	mg/L	1	12/16/15 02:11 PM
Barium	0.0346	0.00300	0.0100		mg/L	1	12/16/15 02:11 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:11 PM
Boron	6.76	0.500	1.50		mg/L	50	12/16/15 05:49 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:11 PM
Calcium	260	5.00	15.0		mg/L	50	12/16/15 05:49 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:11 PM
Cobalt	0.00608	0.00300	0.00500		mg/L	1	12/16/15 02:11 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:11 PM
Lithium	0.0107	0.00500	0.0100		mg/L	1	12/16/15 02:11 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:11 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:11 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:11 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	122	3.00	10.0		mg/L	10	12/16/15 12:06 AM
Fluoride	1.19	0.100	0.400		mg/L	1	12/15/15 05:13 PM
Sulfate	872	10.0	30.0		mg/L	10	12/16/15 12:06 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.89	0	0		pH Units@15.1°C	1	12/09/15 10:14 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1610	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-31  
**Lab ID:** 1512100-04  
**Collection Date:** 12/07/15 11:10 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	12/10/15 03:13 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:23 PM
Arsenic	0.00478	0.00200	0.00500	J	mg/L	1	12/16/15 02:23 PM
Barium	0.134	0.00300	0.0100		mg/L	1	12/16/15 02:23 PM
Beryllium	0.00686	0.000300	0.00100		mg/L	1	12/16/15 02:23 PM
Boron	3.81	0.500	1.50		mg/L	50	12/16/15 05:55 PM
Cadmium	0.000468	0.000300	0.00100	J	mg/L	1	12/16/15 02:23 PM
Calcium	136	5.00	15.0		mg/L	50	12/16/15 05:55 PM
Chromium	0.0144	0.00200	0.00500		mg/L	1	12/16/15 02:23 PM
Cobalt	0.307	0.00300	0.00500		mg/L	1	12/16/15 02:23 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:23 PM
Lithium	0.0843	0.00500	0.0100		mg/L	1	12/16/15 02:23 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:23 PM
Selenium	0.0133	0.00200	0.00500		mg/L	1	12/16/15 02:23 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:23 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	51.2	3.00	10.0		mg/L	10	12/16/15 12:27 AM
Fluoride	0.275	0.100	0.400	J	mg/L	1	12/15/15 05:34 PM
Sulfate	714	10.0	30.0		mg/L	10	12/16/15 12:27 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.28	0	0		pH Units@16.1°C	1	12/09/15 10:16 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1250	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-30  
**Lab ID:** 1512100-05  
**Collection Date:** 12/07/15 11:55 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	12/10/15 03:18 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:29 PM
Arsenic	0.0147	0.00200	0.00500		mg/L	1	12/16/15 02:29 PM
Barium	0.0176	0.00300	0.0100		mg/L	1	12/16/15 02:29 PM
Beryllium	0.0813	0.000300	0.00100		mg/L	1	12/16/15 02:29 PM
Boron	7.04	0.500	1.50		mg/L	50	12/16/15 06:01 PM
Cadmium	0.0715	0.000300	0.00100		mg/L	1	12/16/15 02:29 PM
Calcium	135	5.00	15.0		mg/L	50	12/16/15 06:01 PM
Chromium	0.0167	0.00200	0.00500		mg/L	1	12/16/15 02:29 PM
Cobalt	0.311	0.00300	0.00500		mg/L	1	12/16/15 02:29 PM
Lead	0.0306	0.000300	0.00100		mg/L	1	12/16/15 02:29 PM
Lithium	0.0288	0.00500	0.0100		mg/L	1	12/16/15 02:29 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:29 PM
Selenium	0.177	0.00200	0.00500		mg/L	1	12/16/15 02:29 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:29 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	98.3	3.00	10.0		mg/L	10	12/16/15 12:47 AM
Fluoride	0.809	0.100	0.400		mg/L	1	12/15/15 05:55 PM
Sulfate	.875	10.0	30.0		mg/L	10	12/16/15 12:47 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	5.63	0	0		pH Units@17.2°C	1	12/09/15 10:22 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1530	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-29  
**Lab ID:** 1512100-06  
**Collection Date:** 12/07/15 12:40 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	12/10/15 03:20 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:41 PM
Arsenic	0.00432	0.00200	0.00500	J	mg/L	1	12/16/15 02:41 PM
Barium	0.0510	0.00300	0.0100		mg/L	1	12/16/15 02:41 PM
Beryllium	0.00313	0.000300	0.00100		mg/L	1	12/16/15 02:41 PM
Boron	3.47	0.500	1.50		mg/L	50	12/16/15 06:07 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:41 PM
Calcium	86.6	5.00	15.0		mg/L	50	12/16/15 06:07 PM
Chromium	0.0125	0.00200	0.00500		mg/L	1	12/16/15 02:41 PM
Cobalt	0.0975	0.00300	0.00500		mg/L	1	12/16/15 02:41 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:41 PM
Lithium	0.0484	0.00500	0.0100		mg/L	1	12/16/15 02:41 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:41 PM
Selenium	0.00622	0.00200	0.00500		mg/L	1	12/16/15 02:41 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:41 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	81.1	3.00	10.0		mg/L	10	12/16/15 01:08 AM
Fluoride	0.358	0.100	0.400	J	mg/L	1	12/15/15 06:15 PM
Sulfate	501	10.0	30.0		mg/L	10	12/16/15 01:08 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	6.24	0	0		pH Units@16.5°C	1	12/09/15 10:24 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1020	10.0	10.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 12-Jan-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1512100

**Client Sample ID:** W-35  
**Lab ID:** 1512100-07  
**Collection Date:** 12/07/15 01:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>ABO</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	12/10/15 03:26 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>KL</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	12/16/15 02:47 PM
Arsenic	0.00570	0.00200	0.00500		mg/L	1	12/16/15 02:47 PM
Barium	0.0265	0.00300	0.0100		mg/L	1	12/16/15 02:47 PM
Beryllium	0.000315	0.000300	0.00100	J	mg/L	1	12/16/15 02:47 PM
Boron	6.13	0.500	1.50		mg/L	50	12/16/15 06:13 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:47 PM
Calcium	177	5.00	15.0		mg/L	50	12/16/15 06:13 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:47 PM
Cobalt	0.232	0.00300	0.00500		mg/L	1	12/16/15 02:47 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	12/16/15 02:47 PM
Lithium	0.0273	0.00500	0.0100		mg/L	1	12/16/15 02:47 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	12/16/15 02:47 PM
Selenium	0.00206	0.00200	0.00500	J	mg/L	1	12/16/15 02:47 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	12/16/15 02:47 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	90.2	3.00	10.0		mg/L	10	12/16/15 01:29 AM
Fluoride	0.128	0.100	0.400	J	mg/L	1	12/15/15 06:36 PM
Sulfate	861	10.0	30.0		mg/L	10	12/16/15 01:29 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>LM</b>			
pH	5.84	0	0		pH Units@16.7°C	1	12/09/15 10:26 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BJT</b>			
Total Dissolved Solids (Residue, Filterable)	1580	50.0	50.0		mg/L	1	12/11/15 07:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler

**ANALYTICAL QC SUMMARY REPORT**

**Work Order:** 1512100

**Project:** Luminant - MOSES

**RunID:** CETAC2\_HG\_151210B

The QC data in batch 72637 applies to the following samples: 1512100-01A, 1512100-02A, 1512100-03A, 1512100-04A, 1512100-05A, 1512100-06A, 1512100-07A

Sample ID <b>MB-72637</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:32:24 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID <b>LCS-72637</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:36:55 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00194 0.000200 0.00200 0 97.0 85 115

Sample ID <b>LCSD-72637</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:39:12 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00193 0.000200 0.00200 0 96.5 85 115 0.517 15

Sample ID <b>1512087-01B SD</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:43:44 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0 0 0 10

Sample ID <b>1512087-01B PDS</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:45:59 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00245 0.000200 0.00250 0 98.0 85 115

Sample ID <b>1512087-01B MS</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:48:15 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00194 0.000200 0.00200 0 97.0 80 120

Sample ID <b>1512087-01B MSD</b>	Batch ID: <b>72637</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:50:31 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00193 0.000200 0.00200 0 96.5 80 120 0.517 15

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_151210B

Sample ID <b>ICV-151210</b>	Batch ID: <b>R83068</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 2:27:50 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00394	0.000200	0.00400	0	98.5	90	110			
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Sample ID <b>CCV1-151210</b>	Batch ID: <b>R83068</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 3:08:41 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00204	0.000200	0.00200	0	102	90	110			
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Sample ID <b>CCV2-151210</b>	Batch ID: <b>R83068</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151210B</b>	Analysis Date: <b>12/10/2015 3:37:40 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00201	0.000200	0.00200	0	101	90	110			
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LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

The QC data in batch 72705 applies to the following samples: 1512100-01A, 1512100-02A, 1512100-03A, 1512100-04A, 1512100-05A, 1512100-06A, 1512100-07A

Sample ID <b>MB-72705</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:17:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Boron	0.0108	0.0300								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-72705</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:29:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	80	120			
Arsenic	0.207	0.00500	0.200	0	103	80	120			
Barium	0.200	0.0100	0.200	0	100	80	120			
Beryllium	0.214	0.00100	0.200	0	107	80	120			
Boron	0.219	0.0300	0.200	0	110	80	120			
Cadmium	0.202	0.00100	0.200	0	101	80	120			
Calcium	5.13	0.300	5.00	0	103	80	120			
Chromium	0.202	0.00500	0.200	0	101	80	120			
Cobalt	0.208	0.00500	0.200	0	104	80	120			
Lead	0.205	0.00100	0.200	0	103	80	120			
Lithium	0.218	0.0100	0.200	0	109	80	120			
Molybdenum	0.195	0.00500	0.200	0	97.3	80	120			
Selenium	0.215	0.00500	0.200	0	108	80	120			
Thallium	0.209	0.00150	0.200	0	104	80	120			

Sample ID <b>LCSD-72705</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:35:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.0	80	120	0.454	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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID: <b>LCSD-72705</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:35:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.204	0.00500	0.200	0	102	80	120	1.17	15	
Barium	0.201	0.0100	0.200	0	100	80	120	0.150	15	
Beryllium	0.216	0.00100	0.200	0	108	80	120	1.30	15	
Boron	0.222	0.0300	0.200	0	111	80	120	1.40	15	
Cadmium	0.201	0.00100	0.200	0	101	80	120	0.645	15	
Calcium	5.07	0.300	5.00	0	101	80	120	1.04	15	
Chromium	0.200	0.00500	0.200	0	100	80	120	0.894	15	
Cobalt	0.205	0.00500	0.200	0	103	80	120	1.21	15	
Lead	0.204	0.00100	0.200	0	102	80	120	0.685	15	
Lithium	0.218	0.0100	0.200	0	109	80	120	0.138	15	
Molybdenum	0.193	0.00500	0.200	0	96.4	80	120	0.877	15	
Selenium	0.212	0.00500	0.200	0	106	80	120	1.69	15	
Thallium	0.206	0.00150	0.200	0	103	80	120	1.50	15	

Sample ID: <b>1512100-02A SD</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:53:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0.00215				0	10	
Barium	0.0264	0.0500	0	0.0271				2.69	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	<0.0150	0.0250	0	0.00403				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
Lithium	<0.0250	0.0500	0	0.0101				0	10	
Molybdenum	0.0368	0.0250	0	0.0376				2.28	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1512100-02A PDS</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 3:11:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	80	120			
Arsenic	0.214	0.00500	0.200	0.00215	106	80	120			
Barium	0.233	0.0100	0.200	0.0271	103	80	120			
Beryllium	0.210	0.00100	0.200	0	105	80	120			
Cadmium	0.198	0.00100	0.200	0	98.8	80	120			
Chromium	0.205	0.00500	0.200	0	102	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID <b>1512100-02A PDS</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 3:11:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.208	0.00500	0.200	0.00403	102	80	120			
Lead	0.214	0.00100	0.200	0	107	80	120			
Lithium	0.224	0.0100	0.200	0.0101	107	80	120			
Molybdenum	0.237	0.00500	0.200	0.0376	99.8	80	120			
Selenium	0.213	0.00500	0.200	0	106	80	120			
Thallium	0.215	0.00150	0.200	0	107	80	120			

Sample ID <b>1512100-02A MS</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 3:17:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.2	80	120			
Arsenic	0.207	0.00500	0.200	0.00215	103	80	120			
Barium	0.224	0.0100	0.200	0.0271	98.3	80	120			
Beryllium	0.200	0.00100	0.200	0	100	80	120			
Boron	6.28	0.0300	0.200	6.21	35.0	80	120			S
Cadmium	0.191	0.00100	0.200	0	95.3	80	120			
Calcium	250	0.300	5.00	248	44.0	80	120			S
Chromium	0.196	0.00500	0.200	0	98.2	80	120			
Cobalt	0.199	0.00500	0.200	0.00403	97.4	80	120			
Lead	0.202	0.00100	0.200	0	101	80	120			
Lithium	0.219	0.0100	0.200	0.0101	105	80	120			
Molybdenum	0.230	0.00500	0.200	0.0376	96.3	80	120			
Selenium	0.203	0.00500	0.200	0	102	80	120			
Thallium	0.208	0.00150	0.200	0	104	80	120			

Sample ID <b>1512100-02A MSD</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 3:23:00 PM</b>	Prep Date: <b>12/14/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.0	80	120	0.206	15	
Arsenic	0.205	0.00500	0.200	0.00215	101	80	120	1.12	15	
Barium	0.224	0.0100	0.200	0.0271	98.7	80	120	0.357	15	
Beryllium	0.197	0.00100	0.200	0	98.4	80	120	1.81	15	
Boron	6.34	0.0300	0.200	6.21	63.0	80	120	0.888	15	S
Cadmium	0.189	0.00100	0.200	0	94.4	80	120	1.00	15	
Calcium	252	0.300	5.00	248	82.0	80	120	0.756	15	
Chromium	0.195	0.00500	0.200	0	97.5	80	120	0.766	15	
Cobalt	0.196	0.00500	0.200	0.00403	95.9	80	120	1.52	15	
Lead	0.201	0.00100	0.200	0	101	80	120	0.348	15	
Lithium	0.214	0.0100	0.200	0.0101	102	80	120	2.54	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID: <b>1512100-02A MSD</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 3:23:00 PM</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.230	0.00500	0.200	0.0376	96.2	80	120	0.086	15	
Selenium	0.203	0.00500	0.200	0	102	80	120	0.049	15	
Thallium	0.205	0.00150	0.200	0	103	80	120	1.40	15	

Sample ID: <b>1512100-02A SD</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 5:37:00 PM</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	8.38	15.0	0	6.68				22.5	10	R
Calcium	240	150	0	252				5.04	10	

Sample ID: <b>1512100-02A PDS</b>	Batch ID: <b>72705</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 6:19:00 PM</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	27.4	3.00	20.0	6.68	104	80	120			
Calcium	762	30.0	500	252	102	80	120			

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**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID: <b>ICV1-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 12:53:00 P</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0970	0.00250	0.100	0	97.0	90	110			
Arsenic	0.102	0.00500	0.100	0	102	90	110			
Barium	0.0994	0.0100	0.100	0	99.4	90	110			
Beryllium	0.106	0.00100	0.100	0	106	90	110			
Boron	0.110	0.0300	0.100	0	110	90	110			
Cadmium	0.0990	0.00100	0.100	0	99.0	90	110			
Calcium	2.38	0.300	2.50	0	95.2	90	110			
Chromium	0.105	0.00500	0.100	0	105	90	110			
Cobalt	0.108	0.00500	0.100	0	108	90	110			
Lead	0.103	0.00100	0.100	0	103	90	110			
Lithium	0.110	0.0100	0.100	0	110	90	110			
Molybdenum	0.0956	0.00500	0.100	0	95.6	90	110			
Selenium	0.103	0.00500	0.100	0	103	90	110			
Thallium	0.104	0.00150	0.100	0	104	90	110			

Sample ID: <b>ILCVL-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 1:11:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00193	0.00250	0.00200	0	96.4	70	130			
Arsenic	0.00507	0.00500	0.00500	0	101	70	130			
Barium	0.00493	0.0100	0.00500	0	98.6	70	130			
Beryllium	0.00108	0.00100	0.00100	0	108	70	130			
Boron	0.0229	0.0300	0.0200	0	115	70	130			
Cadmium	0.00109	0.00100	0.00100	0	109	70	130			
Calcium	0.0782	0.300	0.100	0	78.2	70	130			
Chromium	0.00512	0.00500	0.00500	0	102	70	130			
Cobalt	0.00526	0.00500	0.00500	0	105	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
Lithium	0.0114	0.0100	0.0100	0	114	70	130			
Molybdenum	0.00492	0.00500	0.00500	0	98.3	70	130			
Selenium	0.00499	0.00500	0.00500	0	99.7	70	130			
Thallium	0.00105	0.00150	0.00100	0	105	70	130			

Sample ID: <b>CCV1-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 4:54:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.197	0.00250	0.200	0	98.6	90	110			
Arsenic	0.205	0.00500	0.200	0	102	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID <b>CCV1-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 4:54:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.211	0.00100	0.200	0	106	90	110			
Boron	0.220	0.0300	0.200	0	110	90	110			
Cadmium	0.200	0.00100	0.200	0	99.9	90	110			
Calcium	5.21	0.300	5.00	0	104	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Cobalt	0.207	0.00500	0.200	0	103	90	110			
Lead	0.207	0.00100	0.200	0	103	90	110			
Lithium	0.219	0.0100	0.200	0	109	90	110			
Molybdenum	0.196	0.00500	0.200	0	98.0	90	110			
Selenium	0.206	0.00500	0.200	0	103	90	110			
Thallium	0.210	0.00150	0.200	0	105	90	110			

Sample ID <b>LCVL1-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 5:18:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00203	0.00250	0.00200	0	101	70	130			
Arsenic	0.00509	0.00500	0.00500	0	102	70	130			
Barium	0.00502	0.0100	0.00500	0	100	70	130			
Beryllium	0.00104	0.00100	0.00100	0	104	70	130			
Boron	0.0272	0.0300	0.0200	0	136	70	130			S
Cadmium	0.00102	0.00100	0.00100	0	102	70	130			
Calcium	0.0743	0.300	0.100	0	74.3	70	130			
Chromium	0.00516	0.00500	0.00500	0	103	70	130			
Cobalt	0.00512	0.00500	0.00500	0	102	70	130			
Lead	0.00102	0.00100	0.00100	0	102	70	130			
Lithium	0.0113	0.0100	0.0100	0	113	70	130			
Molybdenum	0.00482	0.00500	0.00500	0	96.4	70	130			
Selenium	0.00507	0.00500	0.00500	0	101	70	130			
Thallium	0.00107	0.00150	0.00100	0	107	70	130			

Sample ID <b>CCV2-151216</b>	Batch ID: <b>R83171</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS3_151216B</b>	Analysis Date: <b>12/16/2015 6:32:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.213	0.0300	0.200	0	106	90	110			
Calcium	5.28	0.300	5.00	0	106	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS3\_151216B**

Sample ID	LCVL2-151216	Batch ID:	R83171	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS3_151216B	Analysis Date:	12/16/2015 6:56:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0237	0.0300	0.0200	0	118	70	130			
Calcium	0.0668	0.300	0.100	0	66.8	70	130			S

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC3\_151215A**

The QC data in batch 72727 applies to the following samples: 1512100-01D, 1512100-02D, 1512100-03D, 1512100-04D, 1512100-05D, 1512100-06D, 1512100-07D

Sample ID <b>MB-72727</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 10:18:50 A</b>	Prep Date: <b>12/15/2015</b>							
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 <b>LCS-72727</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 10:42:20 A</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.60	1.00	10.00	0	96.0	90	110			
Fluoride	3.99	0.400	4.000	0	99.6	90	110			
Sulfate	30.2	3.00	30.00	0	101	90	110			

Sample ID <b>LCS-D-72727</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS-D</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 11:02:58 A</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.63	1.00	10.00	0	96.3	90	110	0.291	20	
Fluoride	3.97	0.400	4.000	0	99.3	90	110	0.352	20	
Sulfate	30.2	3.00	30.00	0	101	90	110	0.082	20	

Sample ID <b>1512157-01CMS</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 10:02:37 P</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	2870	100	2000	931.0	96.8	90	110			
Fluoride	1920	40.0	2000	0	95.8	90	110			
Sulfate	2050	300	2000	0	103	90	110			

Sample ID <b>1512157-01CMS-D</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS-D</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 10:23:17 P</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	2860	100	2000	931.0	96.6	90	110	0.157	20	
Fluoride	1930	40.0	2000	0	96.4	90	110	0.676	20	
Sulfate	2070	300	2000	0	103	90	110	0.568	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC3\_151215A**

Sample ID: <b>1512157-05CMS</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 10:43:56 P</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	403	10.0	200.0	209.5	96.8	90	110			
Fluoride	194	4.00	200.0	0	97.0	90	110			
Sulfate	201	30.0	200.0	0	101	90	110			

Sample ID: <b>1512157-05CMSD</b>	Batch ID: <b>72727</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 11:04:36 P</b>	Prep Date: <b>12/15/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	404	10.0	200.0	209.5	97.3	90	110	0.248	20	
Fluoride	194	4.00	200.0	0	96.9	90	110	0.030	20	
Sulfate	205	30.0	200.0	0	102	90	110	1.81	20	

LUMINANT

**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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC3\_151215A**

Sample ID <b>ICV-151215</b>	Batch ID: <b>R83156</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 9:34:57 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.3	1.00	25.00	0	97.1	90	110			
Fluoride	9.78	0.400	10.00	0	97.8	90	110			
Sulfate	74.8	3.00	75.00	0	99.7	90	110			

Sample ID <b>CCV1-151215</b>	Batch ID: <b>R83156</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 3:23:07 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.59	1.00	10.00	0	95.9	90	110			
Fluoride	3.94	0.400	4.000	0	98.6	90	110			
Sulfate	31.9	3.00	30.00	0	106	90	110			

Sample ID <b>CCV2-151215</b>	Batch ID: <b>R83156</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/15/2015 8:40:07 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.62	1.00	10.00	0	96.2	90	110			
Fluoride	3.98	0.400	4.000	0	99.5	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

Sample ID <b>CCV3-151215</b>	Batch ID: <b>R83156</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC3_151215A</b>	Analysis Date: <b>12/16/2015 2:30:54 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.57	1.00	10.00	0	95.7	90	110			
Fluoride	3.96	0.400	4.000	0	99.0	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_151209A**

The QC data in batch 72623 applies to the following samples: 1512100-01D, 1512100-02D, 1512100-03D, 1512100-04D, 1512100-05D, 1512100-06D, 1512100-07D

Sample ID	1512100-04D DUP	Batch ID:	72623	TestNo:	M4500-H+ B	Units:	pH Units@16.2°C
SampType:	DUP	Run ID:	TITRATOR_151209A	Analysis Date:	12/9/2015 10:18:00 AM	Prep Date:	12/9/2015

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.27	0	0	6.280				0.159	5	

Sample ID	1512100-07D DUP	Batch ID:	72623	TestNo:	M4500-H+ B	Units:	pH Units@17°C
SampType:	DUP	Run ID:	TITRATOR_151209A	Analysis Date:	12/9/2015 10:28:00 AM	Prep Date:	12/9/2015

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	5.85	0	0	5.840				0.171	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_151209A**

Sample ID <b>ICV-151209</b>	Batch ID: <b>R83023</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22.3°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_151209A</b>	Analysis Date: <b>12/9/2015 9:56:00 AM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	9.96	0	10.00	0	99.6	99	101			
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Sample ID <b>CCV1-151209</b>	Batch ID: <b>R83023</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.2°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_151209A</b>	Analysis Date: <b>12/9/2015 10:20:00 AM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.97	0	7.000	0	99.6	97.1	102.9			
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Sample ID <b>CCV2-151209</b>	Batch ID: <b>R83023</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.8°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_151209A</b>	Analysis Date: <b>12/9/2015 10:42:00 AM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.98	0	7.000	0	99.7	97.1	102.9			
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LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1512100  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_151210C**

The QC data in batch 72665 applies to the following samples: 1512100-01D, 1512100-02D, 1512100-03D, 1512100-04D, 1512100-05D, 1512100-06D, 1512100-07D

Sample ID <b>MB-72665</b>	Batch ID: <b>72665</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>								
SampType: <b>MBLK</b>	Run ID: <b>WC_151210C</b>	Analysis Date: <b>12/11/2015 7:50:00 AM</b>	Prep Date: <b>12/10/2015</b>								
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids (Residue, Filtera		<10.0	10.0								

Sample ID <b>LCS-72665</b>	Batch ID: <b>72665</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_151210C</b>	Analysis Date: <b>12/11/2015 7:50:00 AM</b>	Prep Date: <b>12/10/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		750	10.0	745.6	0	101	90	113		

Sample ID <b>1512120-01E-DUP</b>	Batch ID: <b>72665</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_151210C</b>	Analysis Date: <b>12/11/2015 7:50:00 AM</b>	Prep Date: <b>12/10/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		44000	1000	0	44100			0.227	5	

Sample ID <b>1512104-01B-DUP</b>	Batch ID: <b>72665</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_151210C</b>	Analysis Date: <b>12/11/2015 7:50:00 AM</b>	Prep Date: <b>12/10/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		554	10.0	0	549.0			0.907	5	

<b>Qualifiers:</b>	<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 NELAC certified</p>
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January 28, 2016

Mr. John DuPont  
DHL Analytical  
2300 Double Creek Drive  
Round Rock, Texas 78664

Re: Routine Analysis  
Work Order: 387466  
SDG: 1512100

Dear Mr. DuPont:

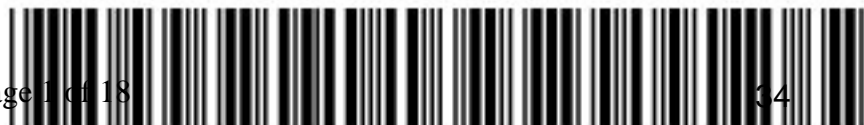
GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 14, 2015. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Anna Day  
Project Manager

Purchase Order: 14059  
Enclosures



**GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

**Certificate of Analysis Report  
for**

DHLA002 DHL Analytical

Client SDG: 1512100 GEL Work Order: 387466

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Anna Day.

LUMINANT

*Anna C Day*

Reviewed by \_\_\_\_\_

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-34	Project: DHLA00112
Sample ID: 387466001	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 08:55	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.880	+/-1.37	2.36	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.448	+/-0.274	0.381	1.00	pCi/L		CXP3	01/06/16	0845	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.3	(15%-125%)

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-33	Project: DHLA00112
Sample ID: 387466002	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 09:45	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.696	+/-1.03	1.78	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.380	+/-0.251	0.361	1.00	pCi/L		CXP3	01/06/16	0845	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			83.6	(15%-125%)

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-32	Project: DHLA00112
Sample ID: 387466003	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 10:25	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-0.14	+/-1.27	2.34	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.02	+/-0.499	0.635	1.00	pCi/L		CXP3	01/28/16	0750	1539627	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			85.1	(15%-125%)

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-31	Project: DHLA00112
Sample ID: 387466004	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 11:10	
Receive Date: 14-DEC-15	
Collector: Client	

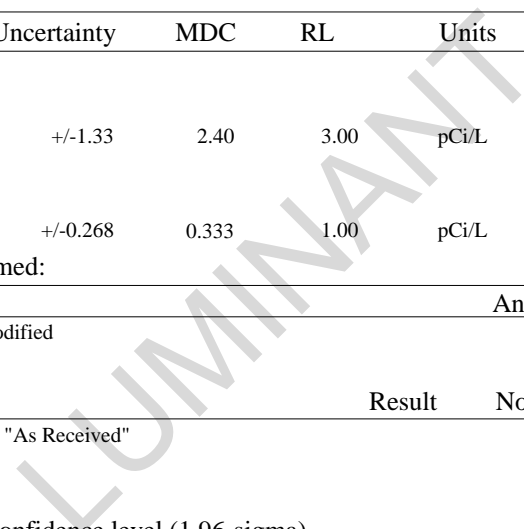
Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.403	+/-1.33	2.40	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.532	+/-0.268	0.333	1.00	pCi/L		CXP3	01/06/16	0920	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			83.6	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-30	Project: DHLA00112
Sample ID: 387466005	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 11:55	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.743	+/-1.32	2.28	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.659	+/-0.269	0.313	1.00	pCi/L		CXP3	01/06/16	0920	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			82.4	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-29	Project: DHLA00112
Sample ID: 387466006	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 12:40	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.07	+/-0.864	1.37	3.00	pCi/L		AXM6	01/05/16	1351	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.849	+/-0.340	0.392	1.00	pCi/L		CXP3	01/06/16	0920	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.3	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: January 28, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-35	Project: DHLA00112
Sample ID: 387466007	Client ID: DHLA002
Matrix: Water	
Collect Date: 07-DEC-15 13:30	
Receive Date: 14-DEC-15	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-0.997	+/-0.706	1.64	3.00	pCi/L		AXM6	01/05/16	1353	1533829	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.312	+/-0.202	0.281	1.00	pCi/L		CXP3	01/06/16	0920	1531139	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			85	(15%-125%)

### Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: January 28, 2016

Page 1 of 2

**DHL Analytical**  
**2300 Double Creek Drive**  
**Round Rock, Texas**

**Contact: Mr. John DuPont**

**Workorder: 387466**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	1533829										
QC1203460229	387466004 DUP										
Radium-228	U	0.403	U	0.700	pCi/L	N/A		N/A	AXM6	01/05/16	15:46
	Uncertainty	+/-1.33		+/-1.45							
QC1203460230	LCS										
Radium-228		28.8		29.1	pCi/L		101	(75%-125%)		01/05/16	15:46
	Uncertainty			+/-2.99							
QC1203460228	MB										
Radium-228			U	-0.966	pCi/L					01/05/16	13:53
	Uncertainty			+/-0.649							
<b>Rad Ra-226</b>											
Batch	1531139										
QC1203452907	387735001 DUP										
Radium-226		0.524	U	0.281	pCi/L	60.2		(0% - 100%)	CXP3	01/06/16	09:55
	Uncertainty	+/-0.320		+/-0.234							
QC1203452909	LCS										
Radium-226		24.4		27.5	pCi/L		113	(75%-125%)		01/06/16	09:55
	Uncertainty			+/-1.53							
QC1203452906	MB										
Radium-226			U	0.233	pCi/L					01/06/16	09:55
	Uncertainty			+/-0.233							
QC1203452908	387735001 MS										
Radium-226		122		0.524	pCi/L		106	(75%-125%)		01/06/16	09:55
	Uncertainty	+/-0.320		+/-7.22							
Batch	1539627										
QC1203474500	389868001 DUP										
Radium-226		0.719	U	0.623	pCi/L	14.3		(0% - 100%)	CXP3	01/28/16	09:15
	Uncertainty	+/-0.409		+/-0.519							
QC1203474502	LCS										
Radium-226		24.4		25.7	pCi/L		106	(75%-125%)		01/28/16	09:15
	Uncertainty			+/-1.96							
QC1203474499	MB										
Radium-226			U	0.512	pCi/L					01/28/16	09:15
	Uncertainty			+/-0.443							
QC1203474501	389868001 MS										
Radium-226		122		0.719	pCi/L		110	(75%-125%)		01/28/16	09:15
	Uncertainty	+/-0.409		+/-11.2							

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 387466

Page 2 of 2

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
>											
BD											
FA											
H											
J											
K											
L											
M											
M											
N/A											
NI											
ND											
NJ											
Q											
R											
U											
UI											
UJ											
UL											
X											
Y											
^											
h											

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

LUMINANT



DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222 FAX: (512) 388-8229  
 Work Order: 1512100

397466

**Subcontractor:**

GEL Laboratories  
 PO Box 30712  
 Charleston, SC 29417

TEL: (843) 556-8171  
 FAX:  
 Acct #:

08-Dec-15

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					27c E903.1	27b E904.0				
W-34	Aqueous	-01B	12/07/15 08:55 AM	500HDPEHNO3		1				
W-34	Aqueous	-01C	12/07/15 08:55 AM	500HDPEHNO3	1					
W-33	Aqueous	-02B	12/07/15 09:45 AM	500HDPEHNO3		1				
W-33	Aqueous	-02C	12/07/15 09:45 AM	500HDPEHNO3	1					
W-32	Aqueous	-03B	12/07/15 10:25 AM	500HDPEHNO3		1				
W-32	Aqueous	-03C	12/07/15 10:25 AM	500HDPEHNO3	1					
W-31	Aqueous	-04B	12/07/15 11:10 AM	500HDPEHNO3		1				
W-31	Aqueous	-04C	12/07/15 11:10 AM	500HDPEHNO3	1					
W-30	Aqueous	-05B	12/07/15 11:55 AM	500HDPEHNO3		1				
W-30	Aqueous	-05C	12/07/15 11:55 AM	500HDPEHNO3	1					
W-29	Aqueous	-06B	12/07/15 12:40 PM	500HDPEHNO3		1				
W-29	Aqueous	-06C	12/07/15 12:40 PM	500HDPEHNO3	1					
W-35	Aqueous	-07B	12/07/15 01:30 PM	500HDPEHNO3		1				
W-35	Aqueous	-07C	12/07/15 01:30 PM	500HDPEHNO3	1					

**General Comments:**

Please analyze these samples with a standard Turnaround Time.  
 Call John DuPont if you have questions.  
 Quality Control Package Needed: Standard / \_\_\_\_\_  
 EMAIL report to both cac@dhlanalytical.com & dupont@dhlanalytical.com

Relinquished by: <u>[Signature]</u>	Date/Time: <u>12/9/15 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>12/9/15 1730</u>
Relinquished by: _____	Date/Time: _____	Received by: <u>[Signature]</u>	Date/Time: <u>12/14/15 855</u>

**Subject:** RE: Samples Received Today - Please Advise

**From:** John Dupont <dupont@dhlanalytical.com>

**Date:** 12/14/2015 12:19 PM

**To:** Anna Claire Day <Anna.Day@gel.com>

**CC:** Jennifer Barker <login@dhlanalytical.com>, Mike Brown <mike@dhlanalytical.com>

Anna Claire:

1. a 500ml HDPE-HNO3 preserved container will be sent to you to replace the compromised container for W-32. Question, when the sample arrived, was the container split open or had the lid been knocked off? This will help us to prevent this for future shipments.
2. The COC is the correct time of collection and the sample collector wrote the incorrect time on the sample label.
3. Do you know when you will be able to forward me the blanket discussion on the nomenclature used in the reports? That was the item we discussed about a week ago or so.

Please let us know if you have any questions.

Thanks for using DHL Analytical.

John DuPont  
General Manager  
DHL Analytical, Inc.  
2300 Double Creek  
Round Rock, Texas 78664  
(512)388-8222  
(512)388-8229 fax  
[dupont@dhlanalytical.com](mailto:dupont@dhlanalytical.com)

-----Original Message-----

From: Anna Claire Day [<mailto:Anna.Day@gel.com>]  
Sent: Monday, December 14, 2015 9:22 AM  
To: John Dupont  
Subject: Samples Received Today - Please Advise

John,

The Ra226 container for sample W-32 arrived broken. We could not save any sample. Are you able to send us another container?

Also, can you confirm the collection time for sample W-30? The containers have 1110.

--

Anna Claire Day  
Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
Direct: 843.852.5814

**SAMPLE RECEIPT & REVIEW FORM**

Client: <b>DHLA</b>		SDG/AR/COC/Work Order: <b>307460</b>
Received By: <b>Shanta Mack</b>		Date Received: <b>12/14/15 8:55</b>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <b>30 cpm</b>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) <b>BOX WAS RECEIVED WET.</b>
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <b>19C</b>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <b>CS032015835</b>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) <b>W-32</b> <b>top came off 1 bottle during transit</b>
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9 Are Encore containers present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected: <b>W-32 time on samples is 11:10</b>
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16 Carrier and tracking number.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air <u>FedEx Ground</u> UPS Field Services Courier Other <b>7751 5429 3470</b>

RA 226 container

Comments (Use Continuation Form if needed):

DHL Analytical, Inc.  
2300 Double Creek Drive  
Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222

FAX: (512) 388-8229

387460

Work Order: 1512100

**Subcontractor:**

GEL Laboratories  
PO Box 30712  
Charleston, SC 29417

TEL: (843) 556-8171  
FAX:  
Acct #:

14-Dec-15

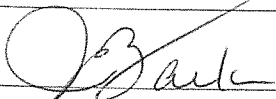

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					E903.1					
W-32	Aqueous	-03C	12/07/15 10:25 AM	500HDPEHNO3	1					

LUMINANT

Replacement for one that broke

**General Comments:**

Please analyze these samples with a \_\_\_\_\_ Turnaround Time.  
Call John DuPont if you have questions.  
Quality Control Package Needed: Standard / \_\_\_\_\_  
EMAIL report to both cac@dhlanalytical.com & dupont@dhlanalytical.com

Relinquished by: 	Date/Time: 12/14/15 1730	Received by: Fred up	Date/Time: 12/14/15 1730
Relinquished by: _____	Date/Time: _____	Received by: 	Date/Time: 12/15/15 9:30



SAMPLE RECEIPT & REVIEW FORM

Client: <u>DHLA</u>		SDG/AR/COC/Work Order: <u>387466</u>	
Received By: <u>Shanta Mack</u>		Date Received: <u>12/15/15 9:30</u>	
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>30cpm</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			<input checked="" type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>19C</u>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>ES032015835</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?			<input checked="" type="checkbox"/>	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
9	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>7751 9560 7413</u>

Comments (Use Continuation Form if needed):

**List of current GEL Certifications as of 28 January 2016**

<b>State</b>	<b>Certification</b>
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA150001
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-15-10
Utah NELAP	SC000122015-19
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404



March 29, 2016

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

Order No.: 1602270

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 2/25/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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', written over a large, light grey watermark that says 'LUMINANT' diagonally across the page.

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-15



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LUMINANT





2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



Nº 70378

CHAIN-OF-CUSTODY

CLIENT: PBW  
 ADDRESS: 2201 DOUBLECREEK DR. ROUND ROCK, TX 781664  
 PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
 DATA REPORTED TO: WILL VIENNE  
 ADDITIONAL REPORT COPIES TO:

DATE: 2-24-16 PAGE 1 OF 1  
 PO #: 5164-C DHL WORK ORDER #: 11602270  
 PROJECT LOCATION OR NAME: LUMINANT- MOSES  
 CLIENT PROJECT #: 5164-C COLLECTOR: J. BRAYTON

Authorize 5% surcharge for TRRP Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT	P=PAINT SL=SLUDGE O=OTHER SO=SOLID	PRESERVATION					ANALYSES BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> (METHOD 8021) TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> HOLD 1006 <input type="checkbox"/> GRO (METHOD 8015) <input type="checkbox"/> DRO (METHOD 8105) <input type="checkbox"/> VOC 8260 <input type="checkbox"/> VOC 624 <input type="checkbox"/> VOC 8260/5035 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLD PAH <input type="checkbox"/> SVOC 6235 <input type="checkbox"/> 8270 PEST <input type="checkbox"/> 625 PEST/PCB <input type="checkbox"/> 608 PCB <input type="checkbox"/> 8270 O-P PEST <input type="checkbox"/> 8082 PCB <input type="checkbox"/> 8270 PCB <input type="checkbox"/> 8321 HERB <input type="checkbox"/> T PHOS, AMMONIA <input type="checkbox"/> METALS 6020 <input type="checkbox"/> METALS 2008 <input type="checkbox"/> DIS. METALS <input type="checkbox"/> PH <input type="checkbox"/> HEX CHROM <input type="checkbox"/> CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> TCLP-SVOC <input type="checkbox"/> VOC <input type="checkbox"/> ALKALINITY <input type="checkbox"/> COD <input type="checkbox"/> TCLP-METALS <input type="checkbox"/> RCRA 8 <input type="checkbox"/> PEST <input type="checkbox"/> HERB <input type="checkbox"/> RCLE <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> TK-11 <input type="checkbox"/> Pb <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/> <b>SEE ATTACHED</b>	FIELD NOTES		
Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl			HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> NaOH

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> NaOH	ICE	UNPRESERVED	ANALYSES												FIELD NOTES						
W-34	01	2-22-16	0840	W	P	4																						X		
W-33	02		0930	W	P	4																							X	
W-32	03		1015	W	P	4																							X	
W-31	01		1100	W	P	4																							X	
W-30	05		1150	W	P	4																							X	
W-29	04		1240	W	P	4																							X	
W-35	07		1325	W	P	4																							X	

RELINQUISHED BY: (Signature) <i>Will Vienn</i>	DATE/TIME 2-24-16 1830	RECEIVED BY: (Signature) <i>Fred</i>	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP: 3.0 THERM #: 79 CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED CARRIER: <input type="checkbox"/> LONE STAR <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <i>Jesus</i>	DATE/TIME 2/25/16 930	RECEIVED BY: (Signature) <i>Paula</i>		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		

DHL DISPOSAL @ \$5.00 each  Return

**John Dupont**

---

**From:** Sara Taube [Sara.Taube@pbw/lc.com]  
**Sent:** Wednesday, July 22, 2015 12:05 PM  
**To:** John Dupont  
**Subject:** CCR Appendix III and IV  
**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

ORIGIN ID:66GA (903) 794-0625  
PASTOR, BEHLING & WHEELER, LLC  
2201 DOUBLE CREEK DR STE 4004  
ROUND ROCK, TX 786643843  
UNITED STATES US

SHIP DATE: 24FEB16  
ACTWGT: 54.00 LB  
CAD: /POS1621  
DIMS: 24x13x13 IN  
BILL SENDER

Part # 158297

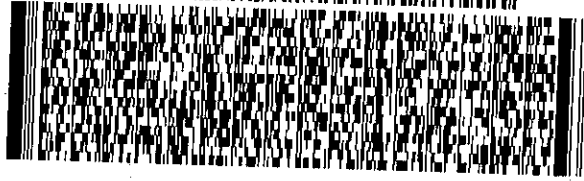
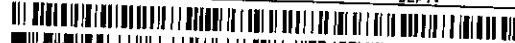
TO  
**DHL ANALYTICAL**  
**2300 DOUBLE CREEK DR**  
**ROUND ROCK TX 78664**

RT 512  
FZ

(512) 388-8222  
INU:  
PO:

REF:

DEPT:



**FedEx**  
Express



1108020101011

2 of 4

MPS# 7824 5489 3157  
0681

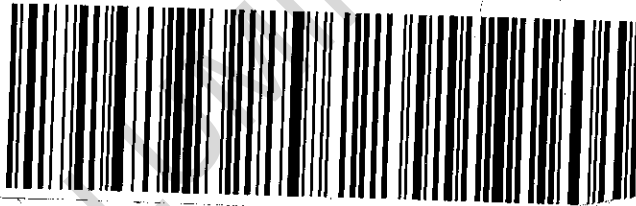
Mstr# 8083 7896 6268

0200

**THU - 25 FEB 10:30A**  
**PRIORITY OVERNIGHT**

**A8 BSMA**

**78664**  
**TX-US AUS**



Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 2/25/2016

Work Order Number 1602270

Received by JB

Checklist completed by: Bark 2/25/2016  
Signature Date

Reviewed by: [Initials] 2/25/2016  
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  3.8 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086
- Adjusted? NO Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1602270

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis  
Sub-contract - Radium-228 and Radium-226 analyses by methods E904.0/SW8469320 Modified and E903.1 Modified. Analyzed at GEL Laboratory.

**LOG IN**

The samples were received and log-in performed on 2/25/16. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 3/7/16 Boron was detected below the reporting limit in the method blank (MB-73869). All associated samples were detected greater than 10 times the amount in the blank for this analyte. No further corrective actions were taken.

For Metals analysis performed on 3/7/16 the matrix spike and matrix spike duplicate recoveries were above control limits for Boron. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 3/4/16 the RPD for the serial dilution was above control limits for Lead. This is flagged accordingly. The PDS was within control limits for this analyte. No further corrective actions were taken.

**TDS ANALYSIS**

For TDS analysis performed on 2/26/16 TDS was detected below the reporting limit in the method blank (MB-73878). All associated samples were detected greater than 10 times the amount in the blank. No further corrective actions were taken.

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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1602270

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1602270-01	W-34		02/22/16 08:40 AM	2/25/2016
1602270-02	W-33		02/22/16 09:30 AM	2/25/2016
1602270-03	W-32		02/22/16 10:15 AM	2/25/2016
1602270-04	W-31		02/22/16 11:00 AM	2/25/2016
1602270-05	W-30		02/22/16 11:50 AM	2/25/2016
1602270-06	W-29		02/22/16 12:40 PM	2/25/2016
1602270-07	W-35		02/22/16 01:25 PM	2/25/2016

LUMINANT

**Lab Order:** 1602270  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1602270-01A	W-34	02/22/16 08:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-34	02/22/16 08:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-34	02/22/16 08:40 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	02/26/16 09:12 AM	73935
1602270-01D	W-34	02/22/16 08:40 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-34	02/22/16 08:40 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-34	02/22/16 08:40 AM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-34	02/22/16 08:40 AM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878
1602270-02A	W-33	02/22/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-33	02/22/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-33	02/22/16 09:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	02/26/16 09:12 AM	73935
1602270-02D	W-33	02/22/16 09:30 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-33	02/22/16 09:30 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-33	02/22/16 09:30 AM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-33	02/22/16 09:30 AM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878
1602270-03A	W-32	02/22/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-32	02/22/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-32	02/22/16 10:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	02/26/16 09:12 AM	73935
1602270-03D	W-32	02/22/16 10:15 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-32	02/22/16 10:15 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-32	02/22/16 10:15 AM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-32	02/22/16 10:15 AM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878
1602270-04A	W-31	02/22/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-31	02/22/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-31	02/22/16 11:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	02/26/16 09:12 AM	73935
1602270-04D	W-31	02/22/16 11:00 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-31	02/22/16 11:00 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-31	02/22/16 11:00 AM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-31	02/22/16 11:00 AM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878

**Lab Order:** 1602270  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1602270-05A	W-30	02/22/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-30	02/22/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-30	02/22/16 11:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	02/26/16 09:12 AM	73935
1602270-05D	W-30	02/22/16 11:50 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-30	02/22/16 11:50 AM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-30	02/22/16 11:50 AM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-30	02/22/16 11:50 AM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878
1602270-06A	W-29	02/22/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-29	02/22/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-29	02/22/16 12:40 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	03/02/16 09:00 AM	73940
1602270-06D	W-29	02/22/16 12:40 PM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-29	02/22/16 12:40 PM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-29	02/22/16 12:40 PM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-29	02/22/16 12:40 PM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878
1602270-07A	W-35	02/22/16 01:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-35	02/22/16 01:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	02/26/16 08:39 AM	73869
	W-35	02/22/16 01:25 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	03/02/16 09:00 AM	73940
1602270-07D	W-35	02/22/16 01:25 PM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-35	02/22/16 01:25 PM	Aqueous	E300	Anion Preparation	03/01/16 09:15 AM	73916
	W-35	02/22/16 01:25 PM	Aqueous	M4500-H+ B	pH Preparation	02/26/16 10:40 AM	73880
	W-35	02/22/16 01:25 PM	Aqueous	M2540C	TDS Preparation	02/26/16 10:17 AM	73878



Lab Order: 1602270  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1602270-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	73935	1	03/02/16 12:16 PM	CETAC2_HG_160302 A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:03 PM	ICP-MS4_160304C
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	10	03/07/16 07:52 PM	ICP-MS4_160307A
1602270-01D	W-34	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 10:28 AM	IC2_160301A
	W-34	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 04:29 PM	IC2_160301A
	W-34	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:13 AM	TITRATOR_160226B
	W-34	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	73935	1	03/02/16 12:18 PM	CETAC2_HG_160302 A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:05 PM	ICP-MS4_160304C
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	20	03/07/16 07:54 PM	ICP-MS4_160307A
1602270-02D	W-33	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 04:44 PM	IC2_160301A
	W-33	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 10:43 AM	IC2_160301A
	W-33	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:16 AM	TITRATOR_160226B
	W-33	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	73935	1	03/02/16 12:20 PM	CETAC2_HG_160302 A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:21 PM	ICP-MS4_160304C
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	20	03/07/16 08:33 PM	ICP-MS4_160307A
1602270-03D	W-32	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 10:57 AM	IC2_160301A
	W-32	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 04:58 PM	IC2_160301A
	W-32	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:17 AM	TITRATOR_160226B
	W-32	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	73935	1	03/02/16 12:23 PM	CETAC2_HG_160302 A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	10	03/07/16 08:35 PM	ICP-MS4_160307A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:22 PM	ICP-MS4_160304C
1602270-04D	W-31	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 11:12 AM	IC2_160301A
	W-31	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 05:27 PM	IC2_160301A

**Lab Order:** 1602270  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1602270-04D	W-31	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:19 AM	TITRATOR_160226B
	W-31	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	73935	1	03/02/16 12:25 PM	CETAC2_HG_160302 A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:24 PM	ICP-MS4_160304C
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	10	03/07/16 08:37 PM	ICP-MS4_160307A
1602270-05D	W-30	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 11:27 AM	IC2_160301A
	W-30	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 05:42 PM	IC2_160301A
	W-30	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:22 AM	TITRATOR_160226B
	W-30	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-06A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	73940	1	03/03/16 12:24 PM	CETAC2_HG_160303 A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:26 PM	ICP-MS4_160304C
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	10	03/07/16 08:39 PM	ICP-MS4_160307A
1602270-06D	W-29	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 11:49 AM	IC2_160301A
	W-29	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 06:11 PM	IC2_160301A
	W-29	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:25 AM	TITRATOR_160226B
	W-29	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B
1602270-07A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	73940	1	03/03/16 12:26 PM	CETAC2_HG_160303 A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	1	03/04/16 09:28 PM	ICP-MS4_160304C
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	73869	10	03/07/16 08:41 PM	ICP-MS4_160307A
1602270-07D	W-35	Aqueous	E300	Anions by IC method - Water	73916	1	03/01/16 12:04 PM	IC2_160301A
	W-35	Aqueous	E300	Anions by IC method - Water	73916	10	03/01/16 06:40 PM	IC2_160301A
	W-35	Aqueous	M4500-H+ B	pH	73880	1	02/26/16 11:27 AM	TITRATOR_160226B
	W-35	Aqueous	M2540C	Total Dissolved Solids	73878	1	02/29/16 08:55 AM	WC_160226B

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-34  
**Lab ID:** 1602270-01  
**Collection Date:** 02/22/16 08:40 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/02/16 12:16 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:03 PM
Arsenic	0.0287	0.00200	0.00500		mg/L	1	03/04/16 09:03 PM
Barium	0.0484	0.00300	0.0100		mg/L	1	03/04/16 09:03 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:03 PM
Boron	3.44	0.100	0.300		mg/L	10	03/07/16 07:52 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:03 PM
Calcium	117	1.00	3.00		mg/L	10	03/07/16 07:52 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:03 PM
Cobalt	0.153	0.00300	0.00500		mg/L	1	03/04/16 09:03 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:03 PM
Lithium	0.00922	0.00500	0.0100	J	mg/L	1	03/04/16 09:03 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:03 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:03 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:03 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.9	3.00	10.0		mg/L	10	03/01/16 04:29 PM
Fluoride	0.422	0.100	0.400		mg/L	1	03/01/16 10:28 AM
Sulfate	641	10.0	30.0		mg/L	10	03/01/16 04:29 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.36	0	0		pH Units@14.6°C	1	02/26/16 11:13 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1570	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-33  
**Lab ID:** 1602270-02  
**Collection Date:** 02/22/16 09:30 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/02/16 12:18 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:05 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:05 PM
Barium	0.0239	0.00300	0.0100		mg/L	1	03/04/16 09:05 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:05 PM
Boron	7.52	0.200	0.600		mg/L	20	03/07/16 07:54 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:05 PM
Calcium	243	2.00	6.00		mg/L	20	03/07/16 07:54 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:05 PM
Cobalt	0.00439	0.00300	0.00500	J	mg/L	1	03/04/16 09:05 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:05 PM
Lithium	0.00963	0.00500	0.0100	J	mg/L	1	03/04/16 09:05 PM
Molybdenum	0.0388	0.00200	0.00500		mg/L	1	03/04/16 09:05 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:05 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:05 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	124	3.00	10.0		mg/L	10	03/01/16 04:44 PM
Fluoride	2.40	0.100	0.400		mg/L	1	03/01/16 10:43 AM
Sulfate	790	10.0	30.0		mg/L	10	03/01/16 04:44 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	7.27	0	0		pH Units@14.8°C	1	02/26/16 11:16 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1960	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-32  
**Lab ID:** 1602270-03  
**Collection Date:** 02/22/16 10:15 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>KL</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/02/16 12:20 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:21 PM
Arsenic	0.00253	0.00200	0.00500	J	mg/L	1	03/04/16 09:21 PM
Barium	0.0302	0.00300	0.0100		mg/L	1	03/04/16 09:21 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:21 PM
Boron	6.95	0.200	0.600		mg/L	20	03/07/16 08:33 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:21 PM
Calcium	247	2.00	6.00		mg/L	20	03/07/16 08:33 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:21 PM
Cobalt	0.00436	0.00300	0.00500	J	mg/L	1	03/04/16 09:21 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:21 PM
Lithium	0.00966	0.00500	0.0100	J	mg/L	1	03/04/16 09:21 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:21 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:21 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:21 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	124	3.00	10.0		mg/L	10	03/01/16 04:58 PM
Fluoride	0.790	0.100	0.400		mg/L	1	03/01/16 10:57 AM
Sulfate	850	10.0	30.0		mg/L	10	03/01/16 04:58 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	6.91	0	0		pH Units@14.7°C	1	02/26/16 11:17 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1870	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-31  
**Lab ID:** 1602270-04  
**Collection Date:** 02/22/16 11:00 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/02/16 12:23 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:22 PM
Arsenic	0.00544	0.00200	0.00500		mg/L	1	03/04/16 09:22 PM
Barium	0.0525	0.00300	0.0100		mg/L	1	03/04/16 09:22 PM
Beryllium	0.00859	0.000300	0.00100		mg/L	1	03/04/16 09:22 PM
Boron	3.65	0.100	0.300		mg/L	10	03/07/16 08:35 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:22 PM
Calcium	130	1.00	3.00		mg/L	10	03/07/16 08:35 PM
Chromium	0.0187	0.00200	0.00500		mg/L	1	03/04/16 09:22 PM
Cobalt	0.403	0.00300	0.00500		mg/L	1	03/04/16 09:22 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:22 PM
Lithium	0.0407	0.00500	0.0100		mg/L	1	03/04/16 09:22 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:22 PM
Selenium	0.00406	0.00200	0.00500	J	mg/L	1	03/04/16 09:22 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:22 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	49.2	0.300	1.00		mg/L	1	03/01/16 11:12 AM
Fluoride	0.124	0.100	0.400	J	mg/L	1	03/01/16 11:12 AM
Sulfate	694	10.0	30.0		mg/L	10	03/01/16 05:27 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.10	0	0		pH Units@15.1°C	1	02/26/16 11:19 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1500	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-30  
**Lab ID:** 1602270-05  
**Collection Date:** 02/22/16 11:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/02/16 12:25 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:24 PM
Arsenic	0.00315	0.00200	0.00500	J	mg/L	1	03/04/16 09:24 PM
Barium	0.0163	0.00300	0.0100		mg/L	1	03/04/16 09:24 PM
Beryllium	0.0274	0.000300	0.00100		mg/L	1	03/04/16 09:24 PM
Boron	6.83	0.100	0.300		mg/L	10	03/07/16 08:37 PM
Cadmium	0.0247	0.000300	0.00100		mg/L	1	03/04/16 09:24 PM
Calcium	138	1.00	3.00		mg/L	10	03/07/16 08:37 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:24 PM
Cobalt	0.357	0.00300	0.00500		mg/L	1	03/04/16 09:24 PM
Lead	0.0121	0.000300	0.00100		mg/L	1	03/04/16 09:24 PM
Lithium	0.0283	0.00500	0.0100		mg/L	1	03/04/16 09:24 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:24 PM
Selenium	0.0555	0.00200	0.00500		mg/L	1	03/04/16 09:24 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:24 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	96.3	3.00	10.0		mg/L	10	03/01/16 05:42 PM
Fluoride	0.721	0.100	0.400		mg/L	1	03/01/16 11:27 AM
Sulfate	.873	10.0	30.0		mg/L	10	03/01/16 05:42 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.60	0	0		pH Units@15.7°C	1	02/26/16 11:22 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1790	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-29  
**Lab ID:** 1602270-06  
**Collection Date:** 02/22/16 12:40 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	03/03/16 12:24 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:26 PM
Arsenic	0.00653	0.00200	0.00500		mg/L	1	03/04/16 09:26 PM
Barium	0.0386	0.00300	0.0100		mg/L	1	03/04/16 09:26 PM
Beryllium	0.00373	0.000300	0.00100		mg/L	1	03/04/16 09:26 PM
Boron	4.98	0.100	0.300		mg/L	10	03/07/16 08:39 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:26 PM
Calcium	114	1.00	3.00		mg/L	10	03/07/16 08:39 PM
Chromium	0.0346	0.00200	0.00500		mg/L	1	03/04/16 09:26 PM
Cobalt	0.240	0.00300	0.00500		mg/L	1	03/04/16 09:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:26 PM
Lithium	0.0511	0.00500	0.0100		mg/L	1	03/04/16 09:26 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:26 PM
Selenium	0.00367	0.00200	0.00500	J	mg/L	1	03/04/16 09:26 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:26 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	82.3	3.00	10.0		mg/L	10	03/01/16 06:11 PM
Fluoride	0.240	0.100	0.400	J	mg/L	1	03/01/16 11:49 AM
Sulfate	909	10.0	30.0		mg/L	10	03/01/16 06:11 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.27	0	0		pH Units@16.3°C	1	02/26/16 11:25 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1840	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1602270

**Client Sample ID:** W-35  
**Lab ID:** 1602270-07  
**Collection Date:** 02/22/16 01:25 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	03/03/16 12:26 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/04/16 09:28 PM
Arsenic	0.00295	0.00200	0.00500	J	mg/L	1	03/04/16 09:28 PM
Barium	0.0194	0.00300	0.0100		mg/L	1	03/04/16 09:28 PM
Beryllium	0.000389	0.000300	0.00100	J	mg/L	1	03/04/16 09:28 PM
Boron	6.29	0.100	0.300		mg/L	10	03/07/16 08:41 PM
Cadmium	0.000405	0.000300	0.00100	J	mg/L	1	03/04/16 09:28 PM
Calcium	160	1.00	3.00		mg/L	10	03/07/16 08:41 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:28 PM
Cobalt	0.251	0.00300	0.00500		mg/L	1	03/04/16 09:28 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/04/16 09:28 PM
Lithium	0.0244	0.00500	0.0100		mg/L	1	03/04/16 09:28 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:28 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	03/04/16 09:28 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	03/04/16 09:28 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.4	3.00	10.0		mg/L	10	03/01/16 06:40 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	03/01/16 12:04 PM
Sulfate	824	10.0	30.0		mg/L	10	03/01/16 06:40 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.49	0	0		pH Units@16.4°C	1	02/26/16 11:27 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1650	50.0	50.0		mg/L	1	02/29/16 08:55 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

CLIENT: Pastor, Behling & Wheeler

**ANALYTICAL QC SUMMARY REPORT**

Work Order: 1602270

Project: Luminant - MOSES

RunID: CETAC2\_HG\_160302A

The QC data in batch 73935 applies to the following samples: 1602270-01A, 1602270-02A, 1602270-03A, 1602270-04A, 1602270-05A

Sample ID	<b>MB-73935</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MBLK</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:21:57 AM</b>	Prep Date:	<b>3/2/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID	<b>LCS-73935</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCS</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:24:13 AM</b>	Prep Date:	<b>3/2/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00215	0.000200	0.00200	0	108	85	115			

Sample ID	<b>LCSD-73935</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCSD</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:26:29 AM</b>	Prep Date:	<b>3/2/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00213	0.000200	0.00200	0	106	85	115	0.935	15	

Sample ID	<b>1602239-01B SD</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>SD</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:31:02 AM</b>	Prep Date:	<b>2/26/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000400	0.00100	0	0				0	10	

Sample ID	<b>1602239-01B PDS</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>PDS</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:33:17 AM</b>	Prep Date:	<b>2/26/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00226	0.000200	0.00250	0	90.4	85	115			

Sample ID	<b>1602239-01B MS</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MS</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:35:32 AM</b>	Prep Date:	<b>2/26/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00204	0.000200	0.00200	0	102	80	120			

Sample ID	<b>1602239-01B MSD</b>	Batch ID:	<b>73935</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MSD</b>	Run ID:	<b>CETAC2_HG_160302A</b>	Analysis Date:	<b>3/2/2016 11:37:48 AM</b>	Prep Date:	<b>2/26/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00204	0.000200	0.00200	0	102	80	120	0	15	

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160302A

Sample ID <b>ICV-160302</b>	Batch ID: <b>R84459</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_160302A</b>	Analysis Date: <b>3/2/2016 11:17:23 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00406	0.000200	0.00400	0	102	90	110			
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Sample ID <b>CCV1-160302</b>	Batch ID: <b>R84459</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160302A</b>	Analysis Date: <b>3/2/2016 12:00:30 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00199	0.000200	0.00200	0	99.5	90	110			
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Sample ID <b>CCV2-160302</b>	Batch ID: <b>R84459</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160302A</b>	Analysis Date: <b>3/2/2016 12:27:49 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00200	0.000200	0.00200	0	100	90	110			
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LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160303A

The QC data in batch 73940 applies to the following samples: 1602270-06A, 1602270-07A

Sample ID <b>MB-73940</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 11:52:24 AM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID <b>LCS-73940</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 11:54:39 AM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00198 0.000200 0.00200 0 99.0 85 115

Sample ID <b>LCSD-73940</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 11:56:55 AM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00201 0.000200 0.00200 0 101 85 115 1.50 15

Sample ID <b>1602269-02A SD</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 12:01:28 PM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0 0 0 10

Sample ID <b>1602269-02A PDS</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 12:03:43 PM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00218 0.000200 0.00250 0 87.2 85 115

Sample ID <b>1602269-02A MS</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 12:05:59 PM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00177 0.000200 0.00200 0 88.5 80 120

Sample ID <b>1602269-02A MSD</b>	Batch ID: <b>73940</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 12:08:14 PM</b>	Prep Date: <b>3/2/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00181 0.000200 0.00200 0 90.5 80 120 2.23 15

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|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
|--|---|

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160303A

Sample ID <b>ICV-160303</b>	Batch ID: <b>R84495</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 10:37:24 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00395	0.000200	0.00400	0	98.8	90	110			
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Sample ID <b>CCV2-160303</b>	Batch ID: <b>R84495</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 11:47:50 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00199	0.000200	0.00200	0	99.5	90	110			
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Sample ID <b>CCV3-160303</b>	Batch ID: <b>R84495</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160303A</b>	Analysis Date: <b>3/3/2016 12:30:56 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00202	0.000200	0.00200	0	101	90	110			
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LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

The QC data in batch 73869 applies to the following samples: 1602270-01A, 1602270-02A, 1602270-03A, 1602270-04A, 1602270-05A, 1602270-06A, 1602270-07A

Sample ID <b>MB-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:36:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:38:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	98.8	80	120			
Arsenic	0.201	0.00500	0.200	0	101	80	120			
Barium	0.200	0.0100	0.200	0	100	80	120			
Beryllium	0.210	0.00100	0.200	0	105	80	120			
Cadmium	0.202	0.00100	0.200	0	101	80	120			
Calcium	4.80	0.300	5.00	0	96.0	80	120			
Chromium	0.206	0.00500	0.200	0	103	80	120			
Cobalt	0.210	0.00500	0.200	0	105	80	120			
Lead	0.203	0.00100	0.200	0	101	80	120			
Lithium	0.211	0.0100	0.200	0	106	80	120			
Molybdenum	0.199	0.00500	0.200	0	99.7	80	120			
Selenium	0.202	0.00500	0.200	0	101	80	120			
Thallium	0.204	0.00150	0.200	0	102	80	120			

Sample ID <b>LCSD-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:40:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	96.9	80	120	1.92	15	
Arsenic	0.202	0.00500	0.200	0	101	80	120	0.158	15	
Barium	0.200	0.0100	0.200	0	100	80	120	0.014	15	

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|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
|--|---|

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

Sample ID: <b>LCSD-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:40:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.209	0.00100	0.200	0	105	80	120	0.197	15	
Cadmium	0.202	0.00100	0.200	0	101	80	120	0.080	15	
Calcium	4.82	0.300	5.00	0	96.4	80	120	0.428	15	
Chromium	0.205	0.00500	0.200	0	103	80	120	0.584	15	
Cobalt	0.211	0.00500	0.200	0	105	80	120	0.480	15	
Lead	0.203	0.00100	0.200	0	101	80	120	0.065	15	
Lithium	0.210	0.0100	0.200	0	105	80	120	0.784	15	
Molybdenum	0.198	0.00500	0.200	0	98.9	80	120	0.823	15	
Selenium	0.204	0.00500	0.200	0	102	80	120	0.985	15	
Thallium	0.204	0.00150	0.200	0	102	80	120	0.218	15	

Sample ID: <b>1602265-08A SD</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:47:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Barium	0.0466	0.0500	0	0.0460				1.24	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	<0.0150	0.0250	0	0				0	10	
Lead	0.00272	0.00500	0	0.00338				21.5	10	R
Lithium	0.144	0.0500	0	0.135				6.58	10	
Molybdenum	<0.0100	0.0250	0	0				0	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1602265-08A PDS</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:07:00 PM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	80	120			
Arsenic	0.195	0.00500	0.200	0	97.6	80	120			
Barium	0.241	0.0100	0.200	0.0460	97.3	80	120			
Beryllium	0.199	0.00100	0.200	0	99.4	80	120			
Cadmium	0.191	0.00100	0.200	0	95.3	80	120			
Chromium	0.199	0.00500	0.200	0	99.6	80	120			
Cobalt	0.198	0.00500	0.200	0	99.0	80	120			
Lead	0.203	0.00100	0.200	0.00338	99.8	80	120			
Lithium	0.320	0.0100	0.200	0.135	92.8	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160304C

Sample ID <b>1602265-08A PDS</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:07:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.198	0.00500	0.200	0	98.9	80	120			
Selenium	0.194	0.00500	0.200	0	97.2	80	120			
Thallium	0.199	0.00150	0.200	0	99.3	80	120			

Sample ID <b>1602265-08AMS</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:08:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	80	120			
Arsenic	0.201	0.00500	0.200	0	100	80	120			
Barium	0.244	0.0100	0.200	0.0460	98.9	80	120			
Beryllium	0.204	0.00100	0.200	0	102	80	120			
Cadmium	0.194	0.00100	0.200	0	97.2	80	120			
Calcium	207	0.300	5.00	203	87.0	80	120			
Chromium	0.200	0.00500	0.200	0	99.8	80	120			
Cobalt	0.200	0.00500	0.200	0	99.8	80	120			
Lead	0.207	0.00100	0.200	0.00338	102	80	120			
Lithium	0.334	0.0100	0.200	0.135	99.4	80	120			
Molybdenum	0.202	0.00500	0.200	0	101	80	120			
Selenium	0.200	0.00500	0.200	0	100	80	120			
Thallium	0.203	0.00150	0.200	0	101	80	120			

Sample ID <b>1602265-08AMSD</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:10:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.5	80	120	1.95	15	
Arsenic	0.199	0.00500	0.200	0	99.7	80	120	0.635	15	
Barium	0.249	0.0100	0.200	0.0460	101	80	120	1.90	15	
Beryllium	0.202	0.00100	0.200	0	101	80	120	1.33	15	
Cadmium	0.198	0.00100	0.200	0	98.9	80	120	1.74	15	
Calcium	208	0.300	5.00	203	107	80	120	0.478	15	
Chromium	0.200	0.00500	0.200	0	100	80	120	0.215	15	
Cobalt	0.199	0.00500	0.200	0	99.5	80	120	0.315	15	
Lead	0.202	0.00100	0.200	0.00338	99.5	80	120	2.10	15	
Lithium	0.337	0.0100	0.200	0.135	101	80	120	1.13	15	
Molybdenum	0.205	0.00500	0.200	0	102	80	120	1.26	15	
Selenium	0.194	0.00500	0.200	0	97.2	80	120	2.95	15	
Thallium	0.200	0.00150	0.200	0	100	80	120	1.16	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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

Sample ID <b>ICV2-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 7:22:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0990	0.00250	0.100	0	99.0	90	110			
Arsenic	0.101	0.00500	0.100	0	101	90	110			
Barium	0.0993	0.0100	0.100	0	99.3	90	110			
Beryllium	0.101	0.00100	0.100	0	101	90	110			
Cadmium	0.0986	0.00100	0.100	0	98.6	90	110			
Calcium	2.30	0.300	2.50	0	92.1	90	110			
Chromium	0.104	0.00500	0.100	0	104	90	110			
Cobalt	0.105	0.00500	0.100	0	105	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
Lithium	0.102	0.0100	0.100	0	102	90	110			
Molybdenum	0.0968	0.00500	0.100	0	96.8	90	110			
Selenium	0.101	0.00500	0.100	0	101	90	110			
Thallium	0.0988	0.00150	0.100	0	98.8	90	110			

Sample ID <b>ILCVL2-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 7:27:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.4	70	130			
Arsenic	0.00514	0.00500	0.00500	0	103	70	130			
Barium	0.00517	0.0100	0.00500	0	103	70	130			
Beryllium	0.000955	0.00100	0.00100	0	95.5	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.107	0.300	0.100	0	107	70	130			
Chromium	0.00527	0.00500	0.00500	0	105	70	130			
Cobalt	0.00540	0.00500	0.00500	0	108	70	130			
Lead	0.000898	0.00100	0.00100	0	89.8	70	130			
Lithium	0.0113	0.0100	0.0100	0	113	70	130			
Molybdenum	0.00507	0.00500	0.00500	0	101	70	130			
Selenium	0.00580	0.00500	0.00500	0	116	70	130			
Thallium	0.00101	0.00150	0.00100	0	101	70	130			

Sample ID <b>CCV2-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:28:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.1	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Barium	0.203	0.0100	0.200	0	101	90	110			
Beryllium	0.210	0.00100	0.200	0	105	90	110			
Cadmium	0.204	0.00100	0.200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

Sample ID <b>CCV2-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:28:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.82	0.300	5.00	0	96.4	90	110			
Chromium	0.208	0.00500	0.200	0	104	90	110			
Cobalt	0.209	0.00500	0.200	0	104	90	110			
Lead	0.204	0.00100	0.200	0	102	90	110			
Lithium	0.213	0.0100	0.200	0	107	90	110			
Molybdenum	0.200	0.00500	0.200	0	99.8	90	110			
Selenium	0.201	0.00500	0.200	0	100	90	110			
Thallium	0.204	0.00150	0.200	0	102	90	110			

Sample ID <b>LCVL2-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 8:32:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00205	0.00250	0.00200	0	102	70	130			
Arsenic	0.00515	0.00500	0.00500	0	103	70	130			
Barium	0.00503	0.0100	0.00500	0	101	70	130			
Beryllium	0.00104	0.00100	0.00100	0	104	70	130			
Cadmium	0.00106	0.00100	0.00100	0	106	70	130			
Calcium	0.101	0.300	0.100	0	101	70	130			
Chromium	0.00522	0.00500	0.00500	0	104	70	130			
Cobalt	0.00536	0.00500	0.00500	0	107	70	130			
Lead	0.000910	0.00100	0.00100	0	91.0	70	130			
Lithium	0.0111	0.0100	0.0100	0	111	70	130			
Molybdenum	0.00490	0.00500	0.00500	0	98.0	70	130			
Selenium	0.00547	0.00500	0.00500	0	109	70	130			
Thallium	0.00103	0.00150	0.00100	0	103	70	130			

Sample ID <b>CCV3-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:12:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.197	0.00250	0.200	0	98.7	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			
Beryllium	0.211	0.00100	0.200	0	105	90	110			
Cadmium	0.203	0.00100	0.200	0	101	90	110			
Calcium	4.82	0.300	5.00	0	96.4	90	110			
Chromium	0.209	0.00500	0.200	0	105	90	110			
Cobalt	0.212	0.00500	0.200	0	106	90	110			
Lead	0.207	0.00100	0.200	0	104	90	110			
Lithium	0.216	0.0100	0.200	0	108	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

Sample ID <b>CCV3-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:12:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.199	0.00500	0.200	0	99.6	90	110			
Selenium	0.203	0.00500	0.200	0	102	90	110			
Thallium	0.208	0.00150	0.200	0	104	90	110			

Sample ID <b>LCVL3-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:16:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00205	0.00250	0.00200	0	103	70	130			
Arsenic	0.00507	0.00500	0.00500	0	101	70	130			
Barium	0.00522	0.0100	0.00500	0	104	70	130			
Beryllium	0.00112	0.00100	0.00100	0	112	70	130			
Cadmium	0.000999	0.00100	0.00100	0	99.9	70	130			
Calcium	0.100	0.300	0.100	0	100	70	130			
Chromium	0.00528	0.00500	0.00500	0	106	70	130			
Cobalt	0.00536	0.00500	0.00500	0	107	70	130			
Lead	0.000897	0.00100	0.00100	0	89.7	70	130			
Lithium	0.0112	0.0100	0.0100	0	112	70	130			
Molybdenum	0.00512	0.00500	0.00500	0	102	70	130			
Selenium	0.00535	0.00500	0.00500	0	107	70	130			
Thallium	0.00100	0.00150	0.00100	0	100	70	130			

Sample ID <b>CCV4-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:40:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	98.9	90	110			
Arsenic	0.203	0.00500	0.200	0	101	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			
Beryllium	0.218	0.00100	0.200	0	109	90	110			
Cadmium	0.205	0.00100	0.200	0	103	90	110			
Chromium	0.209	0.00500	0.200	0	105	90	110			
Cobalt	0.211	0.00500	0.200	0	106	90	110			
Lead	0.204	0.00100	0.200	0	102	90	110			
Lithium	0.221	0.0100	0.200	0	110	90	110			
Molybdenum	0.202	0.00500	0.200	0	101	90	110			
Selenium	0.203	0.00500	0.200	0	102	90	110			
Thallium	0.204	0.00150	0.200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160304C**

Sample ID: <b>LCVL4-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 9:44:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00198	0.00250	0.00200	0	99.2	70	130			
Arsenic	0.00505	0.00500	0.00500	0	101	70	130			
Barium	0.00518	0.0100	0.00500	0	104	70	130			
Beryllium	0.00120	0.00100	0.00100	0	120	70	130			
Cadmium	0.000971	0.00100	0.00100	0	97.1	70	130			
Chromium	0.00527	0.00500	0.00500	0	105	70	130			
Cobalt	0.00536	0.00500	0.00500	0	107	70	130			
Lead	0.000888	0.00100	0.00100	0	88.8	70	130			
Lithium	0.0119	0.0100	0.0100	0	119	70	130			
Molybdenum	0.00506	0.00500	0.00500	0	101	70	130			
Selenium	0.00502	0.00500	0.00500	0	100	70	130			
Thallium	0.00103	0.00150	0.00100	0	103	70	130			

Sample ID: <b>CCV6-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 10:46:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	100	90	110			
Arsenic	0.205	0.00500	0.200	0	103	90	110			
Barium	0.205	0.0100	0.200	0	102	90	110			
Cadmium	0.203	0.00100	0.200	0	101	90	110			
Chromium	0.205	0.00500	0.200	0	103	90	110			
Cobalt	0.207	0.00500	0.200	0	104	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
Molybdenum	0.197	0.00500	0.200	0	98.6	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Thallium	0.199	0.00150	0.200	0	99.7	90	110			

Sample ID: <b>LCVL6-160304</b>	Batch ID: <b>R84540</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160304C</b>	Analysis Date: <b>3/4/2016 10:50:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00206	0.00250	0.00200	0	103	70	130			
Arsenic	0.00521	0.00500	0.00500	0	104	70	130			
Barium	0.00532	0.0100	0.00500	0	106	70	130			
Cadmium	0.000951	0.00100	0.00100	0	95.1	70	130			
Chromium	0.00516	0.00500	0.00500	0	103	70	130			
Cobalt	0.00529	0.00500	0.00500	0	106	70	130			
Lead	0.000879	0.00100	0.00100	0	87.9	70	130			
Molybdenum	0.00500	0.00500	0.00500	0	100	70	130			
Selenium	0.00559	0.00500	0.00500	0	112	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160304C

Sample ID	LCVL6-160304	Batch ID:	R84540	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160304C	Analysis Date:	3/4/2016 10:50:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00104	0.00150	0.00100	0	104	70	130			

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified	

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160307A**

The QC data in batch 73869 applies to the following samples: 1602270-01A, 1602270-02A, 1602270-03A, 1602270-04A, 1602270-05A, 1602270-06A, 1602270-07A

Sample ID <b>MB-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:26:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0214	0.0300								

Sample ID <b>LCS-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:28:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.218	0.0300	0.200	0	109	80	120			

Sample ID <b>LCS-73869</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:30:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.229	0.0300	0.200	0	115	80	120	5.28	15	

Sample ID <b>1602265-08A SD</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:36:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<2.50	7.50	0	1.18				0	10	
Calcium	207	75.0	0	207				0.002	10	

Sample ID <b>1602265-08A PDS</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:57:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	12.0	1.50	10.0	1.18	108	80	120			
Calcium	438	15.0	250	207	92.1	80	120			

Sample ID <b>1602265-08AMS</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:59:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	1.88	1.50	0.200	1.18	347	80	120			S

Sample ID <b>1602265-08AMSD</b>	Batch ID: <b>73869</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 8:01:00 PM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	1.96	1.50	0.200	1.18	389	80	120	4.42	15	S

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160307A**

Sample ID <b>ICV-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 11:53:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.103	0.0300	0.100	0	103	90	110			
Calcium	2.32	0.300	2.50	0	93.0	90	110			

Sample ID <b>LCVL-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 11:58:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0240	0.0300	0.0200	0	120	70	130			
Calcium	0.101	0.300	0.100	0	101	70	130			

Sample ID <b>CCV7-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:08:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.194	0.0300	0.200	0	97.2	90	110			
Calcium	4.77	0.300	5.00	0	95.4	90	110			

Sample ID <b>LCVL7-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 7:22:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0228	0.0300	0.0200	0	114	70	130			
Calcium	0.103	0.300	0.100	0	103	70	130			

Sample ID <b>CCV8-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 8:15:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.206	0.0300	0.200	0	103	90	110			
Calcium	4.78	0.300	5.00	0	95.7	90	110			

Sample ID <b>LCVL8-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 8:29:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0222	0.0300	0.0200	0	111	70	130			
Calcium	0.101	0.300	0.100	0	101	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160307A

Sample ID: <b>CCV9-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 9:06:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.205	0.0300	0.200	0	103	90	110			
Calcium	4.76	0.300	5.00	0	95.2	90	110			

Sample ID: <b>LCVL9-160307</b>	Batch ID: <b>R84569</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160307A</b>	Analysis Date: <b>3/7/2016 9:20:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0213	0.0300	0.0200	0	106	70	130			
Calcium	0.0999	0.300	0.100	0	99.9	70	130			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160301A**

The QC data in batch 73916 applies to the following samples: 1602270-01D, 1602270-02D, 1602270-03D, 1602270-04D, 1602270-05D, 1602270-06D, 1602270-07D

Sample ID <b>MB-73916</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 9:36:32 AM</b>	Prep Date: <b>3/1/2016</b>							
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 <b>LCS-73916</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 9:51:09 AM</b>	Prep Date: <b>3/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.51	1.00	10.00	0	95.1	90	110			
Fluoride	3.76	0.400	4.000	0	94.0	90	110			
Sulfate	30.2	3.00	30.00	0	101	90	110			

Sample ID <b>LCSD-73916</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 10:05:45 AM</b>	Prep Date: <b>3/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.38	1.00	10.00	0	93.8	90	110	1.39	20	
Fluoride	3.78	0.400	4.000	0	94.6	90	110	0.669	20	
Sulfate	29.8	3.00	30.00	0	99.5	90	110	1.15	20	

Sample ID <b>1603013-04DMS</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 9:21:41 PM</b>	Prep Date: <b>3/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	2210	100	2000	227.4	98.9	90	110			
Fluoride	2000	40.0	2000	0	99.9	90	110			
Sulfate	2520	300	2000	432.7	105	90	110			

Sample ID <b>1603013-04DMSD</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 9:36:18 PM</b>	Prep Date: <b>3/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	2200	100	2000	227.4	98.7	90	110	0.139	20	
Fluoride	2000	40.0	2000	0	99.9	90	110	0.029	20	
Sulfate	2510	300	2000	432.7	104	90	110	0.437	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160301A**

Sample ID: <b>1603013-05DMS</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 10:05:36 PM</b>	Prep Date: <b>3/1/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2210	100	2000	223.7	99.5	90	110			
Fluoride	2010	40.0	2000	0	101	90	110			
Sulfate	2750	300	2000	648.8	105	90	110			

Sample ID: <b>1603013-05DMSD</b>	Batch ID: <b>73916</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 10:20:12 PM</b>	Prep Date: <b>3/1/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2220	100	2000	223.7	99.9	90	110	0.382	20	
Fluoride	2030	40.0	2000	0	101	90	110	0.770	20	
Sulfate	2760	300	2000	648.8	106	90	110	0.554	20	

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160301A**

Sample ID <b>ICV-160301</b>	Batch ID: <b>R84449</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 8:55:48 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	23.7	1.00	25.00	0	94.9	90	110			
Fluoride	9.46	0.400	10.00	0	94.6	90	110			
Sulfate	75.0	3.00	75.00	0	100	90	110			

Sample ID <b>CCV1-160301</b>	Batch ID: <b>R84449</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 1:05:46 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.42	1.00	10.00	0	94.2	90	110			
Fluoride	3.89	0.400	4.000	0	97.1	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

Sample ID <b>CCV2-160301</b>	Batch ID: <b>R84449</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 3:51:15 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.51	1.00	10.00	0	95.1	90	110			
Fluoride	3.92	0.400	4.000	0	98.0	90	110			
Sulfate	31.2	3.00	30.00	0	104	90	110			

Sample ID <b>CCV3-160301</b>	Batch ID: <b>R84449</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 6:55:35 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.37	1.00	10.00	0	93.7	90	110			
Fluoride	3.95	0.400	4.000	0	98.8	90	110			
Sulfate	30.0	3.00	30.00	0	99.9	90	110			

Sample ID <b>CCV4-160301</b>	Batch ID: <b>R84449</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160301A</b>	Analysis Date: <b>3/1/2016 10:34:49 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.35	1.00	10.00	0	93.5	90	110			
Fluoride	3.97	0.400	4.000	0	99.4	90	110			
Sulfate	30.0	3.00	30.00	0	100	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160226B**

The QC data in batch 73880 applies to the following samples: 1602270-01D, 1602270-02D, 1602270-03D, 1602270-04D, 1602270-05D, 1602270-06D, 1602270-07D

Sample ID: <b>1602269-14D-DUP</b>	Batch ID: <b>73880</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@16.2°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160226B</b>	Analysis Date: <b>2/26/2016 11:04:00 AM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	5.75	0	0	5.760				0.174	5	

Sample ID: <b>1602270-07D-DUP</b>	Batch ID: <b>73880</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@17°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160226B</b>	Analysis Date: <b>2/26/2016 11:29:00 AM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	5.47	0	0	5.490				0.365	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160226B**

Sample ID <b>ICV-160226</b>	Batch ID: <b>R84386</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.9°C</b>
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160226B</b>	Analysis Date: <b>2/26/2016 8:43:00 AM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	10.0	0	10.00	0	100	99	101			

Sample ID <b>CCV5-160226</b>	Batch ID: <b>R84386</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.6°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160226B</b>	Analysis Date: <b>2/26/2016 11:23:00 AM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.03	0	7.000	0	100	97.1	102.9			

Sample ID <b>CCV6-160226</b>	Batch ID: <b>R84386</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.6°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160226B</b>	Analysis Date: <b>2/26/2016 11:30:00 AM</b>	Prep Date: <b>2/26/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.02	0	7.000	0	100	97.1	102.9			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1602270  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_160226B**

The QC data in batch 73878 applies to the following samples: 1602270-01D, 1602270-02D, 1602270-03D, 1602270-04D, 1602270-05D, 1602270-06D, 1602270-07D

Sample ID <b>MB-73878</b>	Batch ID: <b>73878</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_160226B</b>	Analysis Date: <b>2/29/2016 8:55:00 AM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	10.0	10.0								

Sample ID <b>LCS-73878</b>	Batch ID: <b>73878</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_160226B</b>	Analysis Date: <b>2/29/2016 8:55:00 AM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	802	10.0	745.6	0	108	90	113			

Sample ID <b>1602262-01D-DUP</b>	Batch ID: <b>73878</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160226B</b>	Analysis Date: <b>2/29/2016 8:55:00 AM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	2010	50.0	0	2025				0.743	5	

Sample ID <b>1602270-01D-DUP</b>	Batch ID: <b>73878</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160226B</b>	Analysis Date: <b>2/29/2016 8:55:00 AM</b>	Prep Date: <b>2/26/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1610	50.0	0	1570				2.52	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 NELAC certified



March 25, 2016

Mr. John DuPont  
DHL Analytical  
2300 Double Creek Drive  
Round Rock, Texas 78664

Re: Routine Analysis  
Work Order: 392227  
SDG: 1602270

Dear Mr. DuPont:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 01, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Hope Taylor for  
Anna Day  
Project Manager

Purchase Order: 14274  
Chain of Custody: 1602270  
Enclosures



**GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

**Certificate of Analysis Report  
for**

DHLA002 DHL Analytical

Client SDG: 1602270 GEL Work Order: 392227

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Anna Day.

LUMINANT

*top ad*

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-34	Project: DHLA00112
Sample ID: 392227001	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 08:40	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-0.275	+/-0.748	1.49	3.00	pCi/L		AXM6	03/24/16	1137	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.671	+/-0.435	0.603	1.00	pCi/L		CXP3	03/11/16	0700	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			93.1	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-33	Project: DHLA00112
Sample ID: 392227002	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 09:30	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228		2.00	+/-1.22	1.87	3.00	pCi/L		AXM6	03/24/16	1137	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.43	+/-0.596	0.703	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			85.1	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-32	Project: DHLA00112
Sample ID: 392227003	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 10:15	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.718	+/-0.929	1.58	3.00	pCi/L		AXM6	03/24/16	1137	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.395	+/-0.306	0.378	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			81	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-31	Project: DHLA00112
Sample ID: 392227004	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 11:00	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-0.236	+/-0.839	1.65	3.00	pCi/L		AXM6	03/24/16	1137	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.767	+/-0.531	0.774	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			83.3	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-30	Project: DHLA00112
Sample ID: 392227005	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 11:50	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.097	+/-1.11	2.04	3.00	pCi/L		AXM6	03/24/16	1138	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.29	+/-0.614	0.772	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			82.2	(15%-125%)

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-29	Project: DHLA00112
Sample ID: 392227006	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 12:40	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.798	+/-0.929	1.56	3.00	pCi/L		AXM6	03/24/16	1138	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.309	+/-0.415	0.714	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89	(15%-125%)

**Notes:**  
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: March 25, 2016

Company : DHL Analytical  
Address : 2300 Double Creek Drive

Round Rock, Texas 78664

Contact: Mr. John DuPont  
Project: Routine Analysis

Client Sample ID: W-35	Project: DHLA00112
Sample ID: 392227007	Client ID: DHLA002
Matrix: Water	
Collect Date: 22-FEB-16 13:25	
Receive Date: 01-MAR-16	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	0.842	+/-1.24	2.15	3.00	pCi/L		AXM6	03/24/16	1138	1550812	1
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.907	+/-0.498	0.666	1.00	pCi/L		CXP3	03/11/16	0740	1547657	2

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			95.6	(15%-125%)

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: March 25, 2016

Page 1 of 2

**DHL Analytical**  
**2300 Double Creek Drive**  
**Round Rock, Texas**

**Contact: Mr. John DuPont**

**Workorder: 392227**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	1550812										
QC1203504566	392227007	DUP									
Radium-228	U	0.842	U	2.84	pCi/L	N/A		N/A	AXM6	03/24/16	11:39
	Uncertainty	+/-1.24		+/-1.90							
QC1203504567	LCS										
Radium-228		47.0		40.2	pCi/L		85.6	(75%-125%)		03/24/16	11:39
	Uncertainty			+/-3.33							
QC1203504565	MB										
Radium-228			U	0.412	pCi/L					03/24/16	11:38
	Uncertainty			+/-0.972							
<b>Rad Ra-226</b>											
Batch	1547657										
QC1203496541	391810001	DUP									
Radium-226		1.08		0.689	pCi/L	44.1		(0% - 100%)	CXP3	03/11/16	08:10
	Uncertainty	+/-0.579		+/-0.450							
QC1203496543	LCS										
Radium-226		24.4		25.6	pCi/L		105	(75%-125%)		03/11/16	08:10
	Uncertainty			+/-2.14							
QC1203496540	MB										
Radium-226			U	0.301	pCi/L					03/11/16	08:10
	Uncertainty			+/-0.405							
QC1203496542	391810001	MS									
Radium-226		122	1.08	111	pCi/L		89.9	(75%-125%)		03/11/16	08:10
	Uncertainty	+/-0.579		+/-8.88							

**Notes:**

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N/A RPD or %Recovery limits do not apply.



# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 392227

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

There are no "Data Exception Reports" associated with this analytical report.

LUMINANT

392227

DHL Analytical, Inc.  
2300 Double Creek Drive  
Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222 FAX: (512) 388-8229  
Work Order: 1602270

**Subcontractor:**

GEL Laboratories  
PO Box 30712  
Charleston, SC 29417

TEL: (843) 556-8171  
FAX:  
Acct #:

25-Feb-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					E903.1	E904.0				
W-34	Aqueous	-01B	02/22/16 08:40 AM	500HDPEHNO3		1				
W-34	Aqueous	-01C	02/22/16 08:40 AM	500HDPEHNO3	1					
W-33	Aqueous	-02B	02/22/16 09:30 AM	500HDPEHNO3		1				
W-33	Aqueous	-02C	02/22/16 09:30 AM	500HDPEHNO3	1					
W-32	Aqueous	-03B	02/22/16 10:15 AM	500HDPEHNO3		1				
W-32	Aqueous	-03C	02/22/16 10:15 AM	500HDPEHNO3	1					
W-31	Aqueous	-04B	02/22/16 11:00 AM	500HDPEHNO3		1				
W-31	Aqueous	-04C	02/22/16 11:00 AM	500HDPEHNO3	1					
W-30	Aqueous	-05B	02/22/16 11:50 AM	500HDPEHNO3		1				
W-30	Aqueous	-05C	02/22/16 11:50 AM	500HDPEHNO3	1					
W-29	Aqueous	-06B	02/22/16 12:40 PM	500HDPEHNO3		1				
W-29	Aqueous	-06C	02/22/16 12:40 PM	500HDPEHNO3	1					
W-35	Aqueous	-07B	02/22/16 01:25 PM	500HDPEHNO3		1				
W-35	Aqueous	-07C	02/22/16 01:25 PM	500HDPEHNO3	1					

**General Comments:**

Please analyze these samples with a Standard Turnaround Time.  
Call John DuPont if you have questions.  
Quality Control Package Needed: Standard / \_\_\_\_\_  
EMAIL report to both cac@dhlanalytical.com & dupont@dhlanalytical.com

Relinquished by: <u>[Signature]</u>	Date/Time: <u>2/25/16 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>2/25/16 1730</u>
Relinquished by: _____	Date/Time: _____	Received by: <u>[Signature]</u>	Date/Time: <u>3-1-16 8:50</u>

**SAMPLE RECEIPT & REVIEW FORM**

Client: <b>DHLA</b>		SDG/AR/COC/Work Order: <b>392227</b>
Received By: <b>Shanta Mack</b>		Date Received: <b>3-1-16 8:50</b>
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <b>0.4m</b>
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>	
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)*?			<input checked="" type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice <u>None</u> Other (describe) *all temperatures are recorded in Celsius <b>16C</b>
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <b>65032015835</b>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7	VOA vials contain acid preservation?			<input checked="" type="checkbox"/>	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
9	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
13	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			<input checked="" type="checkbox"/>	
15	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
16	Carrier and tracking number.				Circle Applicable: FedEx Air <u>FedEx Ground</u> UPS Field Services Courier Other <b>7757 3717 4367</b> <b>7757 3716 0138</b>

Comments (Use Continuation Form if needed):

**List of current GEL Certifications as of 25 March 2016**

<b>State</b>	<b>Certification</b>
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404



May 09, 2016

Will Vienne  
Pastor, Behling & Wheeler  
2201 Double Creek Dr #4004  
Round Rock, Texas 78664  
TEL: (512) 671-3434  
FAX (512) 671-3446  
RE: Luminant-Moses

Order No.: 1604049

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 4/6/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-16



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LUMINANT





John Dupont

---

From: Sara Taube [Sara.Taube@pbwffc.com]  
Sent: Wednesday, July 22, 2015 12:05 PM  
To: John Dupont  
Subject: CCR Appendix III and IV  
Follow Up Flag: Follow up  
Flag Status: Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

ORIGIN ID:GGGA (555) 555-5555

PBW  
2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 05APR16  
ACTWGT: 30.00 LB  
CAD: 006994166/SSFE1621  
DIMS: 16x16x11 IN

BILL THIRD PARTY

Part # 156297-433 RIT2 10/15

TO **DHL ANALYTICAL**  
**DHL ANALYTICAL**  
**2300 DOUBLE CREEK DR**

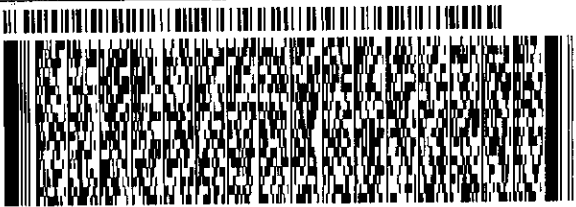
**ROUND ROCK TX 78664**

(512) 388-8222

REF:

INU:

DEPT:

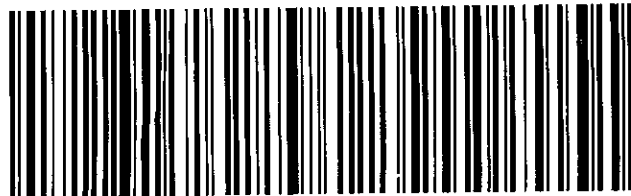


**WED - 06 APR 10:30A**  
**PRIORITY OVERNIGHT**

TRK# 7827 5525 3655  
0201

**A8 BSMA**

78664  
TX-US AUS



ORIGIN ID:GGGA (555) 555-5555

PBW  
2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 05APR16  
ACTWGT: 50.00 LB  
CAD: 006994166/SSFE1621  
DIMS: 24x14x13 IN

BILL THIRD PARTY

Part # 156297-433 RIT2 10/15

TO **DHL ANALYTICAL**  
**DHL ANALYTICAL**  
**2300 DOUBLE CREEK DR**

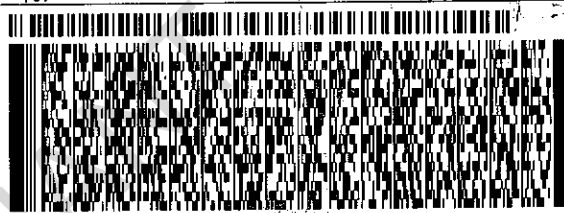
**ROUND ROCK TX 78664**

(512) 388-8222

REF:

INU:

DEPT:

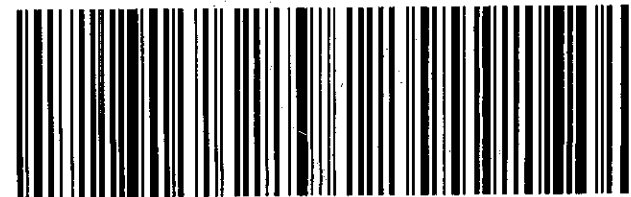


**WED - 06 APR 10:30A**  
**PRIORITY OVERNIGHT**

TRK# 7827 5524 1890  
0201

**A8 BSMA**

78664  
TX-US AUS



Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 4/6/2016

Work Order Number 1604049

Received by JB

Checklist completed by: [Signature] 4/6/2016  
Signature Date

Reviewed by: [Initials] 4/6/2016  
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  2.1 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086
- Adjusted? no Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Lab Order:** 1604049

**CASE NARRATIVE**

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

- Method SW6020A - Metals Analysis
- Method SW7470A - Mercury Analysis
- Method E300 - Anions Analysis
- Method M4500-H+ B - pH of a Water Analysis
- Method M2540C - TDS Analysis
- Sub-contract - Radium-228 and Radium-226 analyses by methods E904/9320 and SM 7500 Ra B
- M. Analyzed at ESC Lab Sciences.

LOG IN

The samples were received and log-in performed on 4/6/16. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

METALS ANALYSIS

For Metals analysis performed on 4/8/16 the matrix spike and matrix spike duplicate recoveries were above control limits for Boron. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

MERCURY ANALYSIS

For Mercury analysis performed on 4/7/16 the LCS/LCSD had the RPD slightly above control limits. This is flagged accordingly in the QC summary report. The percent recoveries were within control limits. No further corrective actions were taken.

For Mercury analysis performed on 4/7/16 the PDS recovery was slightly below control limits. This is flagged accordingly. The serial dilution was within control limits. No further corrective actions were taken.

TDS ANALYSIS

For TDS analysis performed on 4/7/16 the sample and sample duplicate (1604067-01 & 1604067-01 DUP) had the RPD slightly above control limits. This is flagged accordingly in the QC summary report. No further corrective actions were taken.

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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Lab Order:** 1604049

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1604049-01	W-34		04/04/16 08:00 AM	4/6/2016
1604049-02	W-33		04/04/16 08:45 AM	4/6/2016
1604049-03	W-32		04/04/16 09:30 AM	4/6/2016
1604049-04	W-31		04/04/16 10:20 AM	4/6/2016
1604049-05	W-30		04/04/16 11:20 AM	4/6/2016
1604049-06	DUP-1		04/04/16 11:20 AM	4/6/2016
1604049-07	W-29		04/04/16 12:15 PM	4/6/2016
1604049-08	W-35		04/04/16 01:05 PM	4/6/2016

LUMINANT

Lab Order: 1604049  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant-Moses

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604049-01A	W-34	04/04/16 08:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-34	04/04/16 08:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-34	04/04/16 08:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-01D	W-34	04/04/16 08:00 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-34	04/04/16 08:00 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-34	04/04/16 08:00 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-34	04/04/16 08:00 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-02A	W-33	04/04/16 08:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-33	04/04/16 08:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-33	04/04/16 08:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-02D	W-33	04/04/16 08:45 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-33	04/04/16 08:45 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-33	04/04/16 08:45 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-33	04/04/16 08:45 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-03A	W-32	04/04/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-32	04/04/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-32	04/04/16 09:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-03D	W-32	04/04/16 09:30 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-32	04/04/16 09:30 AM	Aqueous	E300	Anion Preparation	04/07/16 08:55 AM	74474
	W-32	04/04/16 09:30 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-32	04/04/16 09:30 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-04A	W-31	04/04/16 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-31	04/04/16 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-31	04/04/16 10:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-04D	W-31	04/04/16 10:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-31	04/04/16 10:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-31	04/04/16 10:20 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-31	04/04/16 10:20 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491

**Lab Order:** 1604049  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604049-05A	W-30	04/04/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-30	04/04/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-30	04/04/16 11:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-05D	W-30	04/04/16 11:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-30	04/04/16 11:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-30	04/04/16 11:20 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-30	04/04/16 11:20 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-06A	DUP-1	04/04/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	DUP-1	04/04/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	DUP-1	04/04/16 11:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-06D	DUP-1	04/04/16 11:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	DUP-1	04/04/16 11:20 AM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	DUP-1	04/04/16 11:20 AM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	DUP-1	04/04/16 11:20 AM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-07A	W-29	04/04/16 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-29	04/04/16 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-29	04/04/16 12:15 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-07D	W-29	04/04/16 12:15 PM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-29	04/04/16 12:15 PM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-29	04/04/16 12:15 PM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-29	04/04/16 12:15 PM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491
1604049-08A	W-35	04/04/16 01:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-35	04/04/16 01:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	04/06/16 12:07 PM	74461
	W-35	04/04/16 01:05 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/06/16 01:29 PM	74463
1604049-08D	W-35	04/04/16 01:05 PM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-35	04/04/16 01:05 PM	Aqueous	E300	Anion Preparation	04/12/16 10:20 AM	74558
	W-35	04/04/16 01:05 PM	Aqueous	M4500-H+ B	pH Preparation	04/07/16 09:53 AM	74479
	W-35	04/04/16 01:05 PM	Aqueous	M2540C	TDS Preparation	04/07/16 03:20 PM	74491

Lab Order: 1604049  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant-Moses

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604049-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:45 PM	CETAC2_HG_160407 C
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:01 PM	ICP-MS4_160407C
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:14 PM	ICP-MS4_160408C
1604049-01D	W-34	Aqueous	E300	Anions by IC method - Water	74474	1	04/07/16 12:52 PM	IC2_160407A
	W-34	Aqueous	E300	Anions by IC method - Water	74474	10	04/07/16 02:41 PM	IC2_160407A
	W-34	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:12 AM	TITRATOR_160407A
	W-34	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:47 PM	CETAC2_HG_160407 C
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:03 PM	ICP-MS4_160407C
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	50	04/08/16 12:16 PM	ICP-MS4_160408C
1604049-02D	W-33	Aqueous	E300	Anions by IC method - Water	74474	1	04/07/16 01:07 PM	IC2_160407A
	W-33	Aqueous	E300	Anions by IC method - Water	74474	100	04/07/16 02:56 PM	IC2_160407A
	W-33	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:15 AM	TITRATOR_160407A
	W-33	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:50 PM	CETAC2_HG_160407 C
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	50	04/08/16 12:18 PM	ICP-MS4_160408C
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:30 PM	ICP-MS4_160407C
1604049-03D	W-32	Aqueous	E300	Anions by IC method - Water	74474	1	04/07/16 01:21 PM	IC2_160407A
	W-32	Aqueous	E300	Anions by IC method - Water	74474	100	04/07/16 03:32 PM	IC2_160407A
	W-32	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:18 AM	TITRATOR_160407A
	W-32	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:52 PM	CETAC2_HG_160407 C
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:32 PM	ICP-MS4_160407C
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:20 PM	ICP-MS4_160408C
1604049-04D	W-31	Aqueous	E300	Anions by IC method - Water	74558	1	04/12/16 01:18 PM	IC3_160412A
	W-31	Aqueous	E300	Anions by IC method - Water	74558	10	04/12/16 05:00 PM	IC3_160412A



Lab Order: 1604049  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant-Moses

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604049-04D	W-31	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:19 AM	TITRATOR_160407A
	W-31	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:54 PM	CETAC2_HG_160407C
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:33 PM	ICP-MS4_160407C
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:56 PM	ICP-MS4_160408C
1604049-05D	W-30	Aqueous	E300	Anions by IC method - Water	74558	1	04/12/16 01:39 PM	IC3_160412A
	W-30	Aqueous	E300	Anions by IC method - Water	74558	10	04/12/16 05:21 PM	IC3_160412A
	W-30	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:21 AM	TITRATOR_160407A
	W-30	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-06A	DUP-1	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 04:56 PM	CETAC2_HG_160407C
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:35 PM	ICP-MS4_160407C
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:25 PM	ICP-MS4_160408C
1604049-06D	DUP-1	Aqueous	E300	Anions by IC method - Water	74558	1	04/12/16 01:59 PM	IC3_160412A
	DUP-1	Aqueous	E300	Anions by IC method - Water	74558	10	04/12/16 05:42 PM	IC3_160412A
	DUP-1	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:23 AM	TITRATOR_160407A
	DUP-1	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-07A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 05:03 PM	CETAC2_HG_160407C
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:27 PM	ICP-MS4_160408C
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:37 PM	ICP-MS4_160407C
1604049-07D	W-29	Aqueous	E300	Anions by IC method - Water	74558	1	04/12/16 02:20 PM	IC3_160412A
	W-29	Aqueous	E300	Anions by IC method - Water	74558	10	04/12/16 06:02 PM	IC3_160412A
	W-29	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:25 AM	TITRATOR_160407A
	W-29	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A
1604049-08A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	74463	1	04/07/16 05:06 PM	CETAC2_HG_160407C
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	1	04/07/16 02:39 PM	ICP-MS4_160407C
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	74461	10	04/08/16 12:29 PM	ICP-MS4_160408C

**Lab Order:** 1604049  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604049-08D	W-35	Aqueous	E300	Anions by IC method - Water	74558	1	04/12/16 02:41 PM	IC3_160412A
	W-35	Aqueous	E300	Anions by IC method - Water	74558	10	04/12/16 06:23 PM	IC3_160412A
	W-35	Aqueous	M4500-H+ B	pH	74479	1	04/07/16 11:27 AM	TITRATOR_160407A
	W-35	Aqueous	M2540C	Total Dissolved Solids	74491	1	04/08/16 08:45 AM	WC_160407A

LUMINANT

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-34  
**Lab ID:** 1604049-01  
**Collection Date:** 04/04/16 08:00 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	04/07/16 04:45 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:01 PM
Arsenic	0.0169	0.00200	0.00500		mg/L	1	04/07/16 02:01 PM
Barium	0.0873	0.00300	0.0100		mg/L	1	04/07/16 02:01 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:01 PM
Boron	2.09	0.100	0.300		mg/L	10	04/08/16 12:14 PM
Cadmium	0.000460	0.000300	0.00100	J	mg/L	1	04/07/16 02:01 PM
Calcium	86.9	1.00	3.00		mg/L	10	04/08/16 12:14 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:01 PM
Cobalt	0.0859	0.00300	0.00500		mg/L	1	04/07/16 02:01 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:01 PM
Lithium	0.0112	0.00500	0.0100		mg/L	1	04/07/16 02:01 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:01 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:01 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:01 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	80.7	3.00	10.0		mg/L	10	04/07/16 02:41 PM
Fluoride	0.287	0.100	0.400	J	mg/L	1	04/07/16 12:52 PM
Sulfate	378	10.0	30.0		mg/L	10	04/07/16 02:41 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>JL</b>		
pH	6.29	0	0		pH Units@19.4°C	1	04/07/16 11:12 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	817	10.0	10.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-33  
**Lab ID:** 1604049-02  
**Collection Date:** 04/04/16 08:45 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	04/07/16 04:47 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:03 PM
Barium	0.0237	0.00300	0.0100		mg/L	1	04/07/16 02:03 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:03 PM
Boron	7.24	0.500	1.50		mg/L	50	04/08/16 12:16 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:03 PM
Calcium	278	5.00	15.0		mg/L	50	04/08/16 12:16 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:03 PM
Cobalt	0.00478	0.00300	0.00500	J	mg/L	1	04/07/16 02:03 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:03 PM
Lithium	0.00946	0.00500	0.0100	J	mg/L	1	04/07/16 02:03 PM
Molybdenum	0.0393	0.00200	0.00500		mg/L	1	04/07/16 02:03 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:03 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:03 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	171	30.0	100		mg/L	100	04/07/16 02:56 PM
Fluoride	2.50	0.100	0.400		mg/L	1	04/07/16 01:07 PM
Sulfate	935	100	300		mg/L	100	04/07/16 02:56 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>JL</b>		
pH	7.22	0	0		pH Units@19°C	1	04/07/16 11:15 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1540	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-32  
**Lab ID:** 1604049-03  
**Collection Date:** 04/04/16 09:30 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	04/07/16 04:50 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:30 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:30 PM
Barium	0.0258	0.00300	0.0100		mg/L	1	04/07/16 02:30 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:30 PM
Boron	6.50	0.500	1.50		mg/L	50	04/08/16 12:18 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:30 PM
Calcium	239	5.00	15.0		mg/L	50	04/08/16 12:18 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:30 PM
Cobalt	0.00305	0.00300	0.00500	J	mg/L	1	04/07/16 02:30 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:30 PM
Lithium	0.0101	0.00500	0.0100		mg/L	1	04/07/16 02:30 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:30 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:30 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:30 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	139	30.0	100		mg/L	100	04/07/16 03:32 PM
Fluoride	1.01	0.100	0.400		mg/L	1	04/07/16 01:21 PM
Sulfate	844	100	300		mg/L	100	04/07/16 03:32 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>JL</b>		
pH	7.01	0	0		pH Units@19.3°C	1	04/07/16 11:18 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1380	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-31  
**Lab ID:** 1604049-04  
**Collection Date:** 04/04/16 10:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	04/07/16 04:52 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:32 PM
Arsenic	0.00368	0.00200	0.00500	J	mg/L	1	04/07/16 02:32 PM
Barium	0.0270	0.00300	0.0100		mg/L	1	04/07/16 02:32 PM
Beryllium	0.00803	0.000300	0.00100		mg/L	1	04/07/16 02:32 PM
Boron	3.80	0.100	0.300		mg/L	10	04/08/16 12:20 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:32 PM
Calcium	119	1.00	3.00		mg/L	10	04/08/16 12:20 PM
Chromium	0.00285	0.00200	0.00500	J	mg/L	1	04/07/16 02:32 PM
Cobalt	0.371	0.00300	0.00500		mg/L	1	04/07/16 02:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:32 PM
Lithium	0.0297	0.00500	0.0100		mg/L	1	04/07/16 02:32 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:32 PM
Selenium	0.00370	0.00200	0.00500	J	mg/L	1	04/07/16 02:32 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:32 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	48.9	0.300	1.00		mg/L	1	04/12/16 01:18 PM
Fluoride	0.220	0.100	0.400	J	mg/L	1	04/12/16 01:18 PM
Sulfate	737	10.0	30.0		mg/L	10	04/12/16 05:00 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>JL</b>			
pH	5.86	0	0		pH Units@19.3°C	1	04/07/16 11:19 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1220	10.0	10.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-30  
**Lab ID:** 1604049-05  
**Collection Date:** 04/04/16 11:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	04/07/16 04:54 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:33 PM
Arsenic	0.00320	0.00200	0.00500	J	mg/L	1	04/07/16 02:33 PM
Barium	0.0142	0.00300	0.0100		mg/L	1	04/07/16 02:33 PM
Beryllium	0.0251	0.000300	0.00100		mg/L	1	04/07/16 02:33 PM
Boron	6.28	0.100	0.300		mg/L	10	04/08/16 12:56 PM
Cadmium	0.0117	0.000300	0.00100		mg/L	1	04/07/16 02:33 PM
Calcium	141	1.00	3.00		mg/L	10	04/08/16 12:56 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:33 PM
Cobalt	0.345	0.00300	0.00500		mg/L	1	04/07/16 02:33 PM
Lead	0.00571	0.000300	0.00100		mg/L	1	04/07/16 02:33 PM
Lithium	0.0264	0.00500	0.0100		mg/L	1	04/07/16 02:33 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:33 PM
Selenium	0.0537	0.00200	0.00500		mg/L	1	04/07/16 02:33 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:33 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	95.2	3.00	10.0		mg/L	10	04/12/16 05:21 PM
Fluoride	0.961	0.100	0.400		mg/L	1	04/12/16 01:39 PM
Sulfate	925	10.0	30.0		mg/L	10	04/12/16 05:21 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>JL</b>			
pH	5.00	0	0		pH Units@19.4°C	1	04/07/16 11:21 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1460	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** DUP-1  
**Lab ID:** 1604049-06  
**Collection Date:** 04/04/16 11:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	04/07/16 04:56 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:35 PM
Arsenic	0.00331	0.00200	0.00500	J	mg/L	1	04/07/16 02:35 PM
Barium	0.0149	0.00300	0.0100		mg/L	1	04/07/16 02:35 PM
Beryllium	0.0249	0.000300	0.00100		mg/L	1	04/07/16 02:35 PM
Boron	6.43	0.100	0.300		mg/L	10	04/08/16 12:25 PM
Cadmium	0.0129	0.000300	0.00100		mg/L	1	04/07/16 02:35 PM
Calcium	142	1.00	3.00		mg/L	10	04/08/16 12:25 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:35 PM
Cobalt	0.348	0.00300	0.00500		mg/L	1	04/07/16 02:35 PM
Lead	0.00612	0.000300	0.00100		mg/L	1	04/07/16 02:35 PM
Lithium	0.0270	0.00500	0.0100		mg/L	1	04/07/16 02:35 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:35 PM
Selenium	0.0518	0.00200	0.00500		mg/L	1	04/07/16 02:35 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:35 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	95.5	3.00	10.0		mg/L	10	04/12/16 05:42 PM
Fluoride	0.959	0.100	0.400		mg/L	1	04/12/16 01:59 PM
Sulfate	934	10.0	30.0		mg/L	10	04/12/16 05:42 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>JL</b>			
pH	4.94	0	0		pH Units@19.4°C	1	04/07/16 11:23 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1460	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-29  
**Lab ID:** 1604049-07  
**Collection Date:** 04/04/16 12:15 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	04/07/16 05:03 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:37 PM
Arsenic	0.00396	0.00200	0.00500	J	mg/L	1	04/07/16 02:37 PM
Barium	0.0410	0.00300	0.0100		mg/L	1	04/07/16 02:37 PM
Beryllium	0.00154	0.000300	0.00100		mg/L	1	04/07/16 02:37 PM
Boron	3.32	0.100	0.300		mg/L	10	04/08/16 12:27 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:37 PM
Calcium	169	1.00	3.00		mg/L	10	04/08/16 12:27 PM
Chromium	0.109	0.00200	0.00500		mg/L	1	04/07/16 02:37 PM
Cobalt	0.133	0.00300	0.00500		mg/L	1	04/07/16 02:37 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:37 PM
Lithium	0.0262	0.00500	0.0100		mg/L	1	04/07/16 02:37 PM
Molybdenum	0.0147	0.00200	0.00500		mg/L	1	04/07/16 02:37 PM
Selenium	0.00257	0.00200	0.00500	J	mg/L	1	04/07/16 02:37 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:37 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	75.9	3.00	10.0		mg/L	10	04/12/16 06:02 PM
Fluoride	0.229	0.100	0.400	J	mg/L	1	04/12/16 02:20 PM
Sulfate	465	10.0	30.0		mg/L	10	04/12/16 06:02 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>JL</b>			
pH	11.2	0	0		pH Units@19.2°C	1	04/07/16 11:25 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	850	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-May-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant-Moses  
**Project No:** 5164-C  
**Lab Order:** 1604049

**Client Sample ID:** W-35  
**Lab ID:** 1604049-08  
**Collection Date:** 04/04/16 01:05 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	04/07/16 05:06 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	04/07/16 02:39 PM
Arsenic	0.00200	0.00200	0.00500	J	mg/L	1	04/07/16 02:39 PM
Barium	0.0167	0.00300	0.0100		mg/L	1	04/07/16 02:39 PM
Beryllium	0.000392	0.000300	0.00100	J	mg/L	1	04/07/16 02:39 PM
Boron	6.16	0.100	0.300		mg/L	10	04/08/16 12:29 PM
Cadmium	0.000371	0.000300	0.00100	J	mg/L	1	04/07/16 02:39 PM
Calcium	169	1.00	3.00		mg/L	10	04/08/16 12:29 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:39 PM
Cobalt	0.238	0.00300	0.00500		mg/L	1	04/07/16 02:39 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	04/07/16 02:39 PM
Lithium	0.0227	0.00500	0.0100		mg/L	1	04/07/16 02:39 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:39 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	04/07/16 02:39 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	04/07/16 02:39 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	91.3	3.00	10.0		mg/L	10	04/12/16 06:23 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	04/12/16 02:41 PM
Sulfate	835	10.0	30.0		mg/L	10	04/12/16 06:23 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>JL</b>			
pH	3.83	0	0		pH Units@19.3°C	1	04/07/16 11:27 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1310	50.0	50.0		mg/L	1	04/08/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

**ANALYTICAL QC SUMMARY REPORT**

**RunID: CETAC2\_HG\_160407C**

The QC data in batch 74463 applies to the following samples: 1604049-01A, 1604049-02A, 1604049-03A, 1604049-04A, 1604049-05A, 1604049-06A, 1604049-07A, 1604049-08A

Sample ID <b>MB-74463</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 4:24:08 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID <b>LCS-74463</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 4:28:40 PM</b>	Prep Date: <b>4/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00169	0.000200	0.00200	0	84.5	85	115			

Sample ID <b>LCSD-74463</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 4:30:57 PM</b>	Prep Date: <b>4/1/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00203	0.000200	0.00200	0	102	85	115	18.3	15	R

Sample ID <b>1604052-07A SD</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 5:24:15 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000400	0.00100	0	0				0	10	

Sample ID <b>1604052-07A PDS</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 5:26:31 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00206	0.000200	0.00250	0	82.4	85	115			S

Sample ID <b>1604052-07A MS</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 5:28:48 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00166	0.000200	0.00200	0	83.0	80	120			

Sample ID <b>1604052-07A MSD</b>	Batch ID: <b>74463</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 5:31:04 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00168	0.000200	0.00200	0	84.0	80	120	1.20	15	

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160407C

Sample ID <b>ICV-160407</b>	Batch ID: <b>R85117</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 4:19:34 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00386	0.000200	0.00400	0	96.5	90	110			
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Sample ID <b>CCV1-160407</b>	Batch ID: <b>R85117</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 4:59:15 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00194	0.000200	0.00200	0	97.0	90	110			
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Sample ID <b>CCV2-160407</b>	Batch ID: <b>R85117</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160407C</b>	Analysis Date: <b>4/7/2016 5:33:22 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00198	0.000200	0.00200	0	99.0	90	110			
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LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

The QC data in batch 74461 applies to the following samples: 1604049-01A, 1604049-02A, 1604049-03A, 1604049-04A, 1604049-05A, 1604049-06A, 1604049-07A, 1604049-08A

Sample ID <b>MB-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:35:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:37:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	80	120			
Arsenic	0.196	0.00500	0.200	0	98.1	80	120			
Barium	0.193	0.0100	0.200	0	96.4	80	120			
Beryllium	0.196	0.00100	0.200	0	98.1	80	120			
Cadmium	0.192	0.00100	0.200	0	96.0	80	120			
Calcium	4.83	0.300	5.00	0	96.6	80	120			
Chromium	0.195	0.00500	0.200	0	97.7	80	120			
Cobalt	0.198	0.00500	0.200	0	99.0	80	120			
Lead	0.192	0.00100	0.200	0	96.0	80	120			
Lithium	0.194	0.0100	0.200	0	96.9	80	120			
Molybdenum	0.190	0.00500	0.200	0	95.0	80	120			
Selenium	0.201	0.00500	0.200	0	100	80	120			
Thallium	0.194	0.00150	0.200	0	97.0	80	120			

Sample ID <b>LCSD-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:39:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	80	120	1.81	15	
Arsenic	0.198	0.00500	0.200	0	98.8	80	120	0.723	15	
Barium	0.196	0.0100	0.200	0	98.1	80	120	1.69	15	

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160407C

Sample ID: <b>LCSD-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:39:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.198	0.00100	0.200	0	98.8	80	120	0.751	15	
Cadmium	0.195	0.00100	0.200	0	97.4	80	120	1.44	15	
Calcium	4.85	0.300	5.00	0	97.1	80	120	0.439	15	
Chromium	0.196	0.00500	0.200	0	98.1	80	120	0.446	15	
Cobalt	0.200	0.00500	0.200	0	100	80	120	1.05	15	
Lead	0.192	0.00100	0.200	0	95.9	80	120	0.056	15	
Lithium	0.198	0.0100	0.200	0	98.9	80	120	1.99	15	
Molybdenum	0.192	0.00500	0.200	0	95.8	80	120	0.839	15	
Selenium	0.199	0.00500	0.200	0	99.4	80	120	1.06	15	
Thallium	0.194	0.00150	0.200	0	96.8	80	120	0.181	15	

Sample ID: <b>1604046-01A SD</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:45:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Barium	0.0646	0.0500	0	0.0648				0.294	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	<0.0150	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
Lithium	0.0340	0.0500	0	0.0346				1.90	10	
Molybdenum	<0.0100	0.0250	0	0				0	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1604046-01A PDS</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:05:00 PM</b>	Prep Date: <b>4/6/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.181	0.00250	0.200	0	90.6	80	120			
Arsenic	0.203	0.00500	0.200	0	102	80	120			
Barium	0.258	0.0100	0.200	0.0648	96.4	80	120			
Beryllium	0.196	0.00100	0.200	0	98.2	80	120			
Cadmium	0.191	0.00100	0.200	0	95.6	80	120			
Chromium	0.202	0.00500	0.200	0	101	80	120			
Cobalt	0.198	0.00500	0.200	0	99.2	80	120			
Lead	0.198	0.00100	0.200	0	99.2	80	120			
Lithium	0.222	0.0100	0.200	0.0346	93.5	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

Sample ID <b>1604046-01A PDS</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:05:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.192	0.00500	0.200	0	96.0	80	120			
Selenium	0.204	0.00500	0.200	0	102	80	120			
Thallium	0.199	0.00150	0.200	0	99.7	80	120			

Sample ID <b>1604046-01A MS</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:07:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	102	80	120			
Arsenic	0.199	0.00500	0.200	0	99.6	80	120			
Barium	0.264	0.0100	0.200	0.0648	99.6	80	120			
Beryllium	0.191	0.00100	0.200	0	95.7	80	120			
Cadmium	0.193	0.00100	0.200	0	96.5	80	120			
Calcium	59.0	0.300	5.00	54.3	93.3	80	120			
Chromium	0.193	0.00500	0.200	0	96.4	80	120			
Cobalt	0.192	0.00500	0.200	0	95.9	80	120			
Lead	0.192	0.00100	0.200	0	95.9	80	120			
Lithium	0.222	0.0100	0.200	0.0346	93.6	80	120			
Molybdenum	0.195	0.00500	0.200	0	97.7	80	120			
Selenium	0.196	0.00500	0.200	0	98.1	80	120			
Thallium	0.194	0.00150	0.200	0	97.1	80	120			

Sample ID <b>1604046-01A MSD</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:09:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.9	80	120	2.52	15	
Arsenic	0.198	0.00500	0.200	0	99.0	80	120	0.585	15	
Barium	0.260	0.0100	0.200	0.0648	97.5	80	120	1.57	15	
Beryllium	0.193	0.00100	0.200	0	96.3	80	120	0.697	15	
Cadmium	0.191	0.00100	0.200	0	95.6	80	120	0.932	15	
Calcium	60.0	0.300	5.00	54.3	113	80	120	1.63	15	
Chromium	0.192	0.00500	0.200	0	96.2	80	120	0.213	15	
Cobalt	0.191	0.00500	0.200	0	95.4	80	120	0.465	15	
Lead	0.191	0.00100	0.200	0	95.4	80	120	0.499	15	
Lithium	0.223	0.0100	0.200	0.0346	94.2	80	120	0.517	15	
Molybdenum	0.194	0.00500	0.200	0	96.9	80	120	0.847	15	
Selenium	0.195	0.00500	0.200	0	97.4	80	120	0.727	15	
Thallium	0.194	0.00150	0.200	0	97.2	80	120	0.025	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

Sample ID <b>ICV-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 10:13:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0988	0.00250	0.100	0	98.8	90	110			
Arsenic	0.0993	0.00500	0.100	0	99.3	90	110			
Barium	0.0985	0.0100	0.100	0	98.5	90	110			
Beryllium	0.0984	0.00100	0.100	0	98.4	90	110			
Cadmium	0.0977	0.00100	0.100	0	97.7	90	110			
Calcium	2.33	0.300	2.50	0	93.2	90	110			
Chromium	0.107	0.00500	0.100	0	107	90	110			
Cobalt	0.103	0.00500	0.100	0	103	90	110			
Lead	0.0991	0.00100	0.100	0	99.1	90	110			
Lithium	0.0993	0.0100	0.100	0	99.3	90	110			
Molybdenum	0.0956	0.00500	0.100	0	95.6	90	110			
Selenium	0.0994	0.00500	0.100	0	99.4	90	110			
Thallium	0.0983	0.00150	0.100	0	98.3	90	110			

Sample ID <b>LCVL-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 10:29:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00208	0.00250	0.00200	0	104	70	130			
Arsenic	0.00539	0.00500	0.00500	0	108	70	130			
Barium	0.00514	0.0100	0.00500	0	103	70	130			
Beryllium	0.000974	0.00100	0.00100	0	97.4	70	130			
Cadmium	0.00102	0.00100	0.00100	0	102	70	130			
Calcium	0.0978	0.300	0.100	0	97.8	70	130			
Chromium	0.00543	0.00500	0.00500	0	109	70	130			
Cobalt	0.00542	0.00500	0.00500	0	108	70	130			
Lead	0.000953	0.00100	0.00100	0	95.3	70	130			
Lithium	0.0110	0.0100	0.0100	0	110	70	130			
Molybdenum	0.00510	0.00500	0.00500	0	102	70	130			
Selenium	0.00538	0.00500	0.00500	0	108	70	130			
Thallium	0.00104	0.00150	0.00100	0	104	70	130			

Sample ID <b>CCV3-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:14:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	100	90	110			
Arsenic	0.206	0.00500	0.200	0	103	90	110			
Barium	0.203	0.0100	0.200	0	101	90	110			
Beryllium	0.206	0.00100	0.200	0	103	90	110			
Cadmium	0.203	0.00100	0.200	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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

Sample ID <b>CCV3-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:14:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.91	0.300	5.00	0	98.1	90	110			
Chromium	0.207	0.00500	0.200	0	103	90	110			
Cobalt	0.209	0.00500	0.200	0	105	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
Lithium	0.206	0.0100	0.200	0	103	90	110			
Molybdenum	0.196	0.00500	0.200	0	98.1	90	110			
Selenium	0.205	0.00500	0.200	0	103	90	110			
Thallium	0.202	0.00150	0.200	0	101	90	110			

Sample ID <b>LCVL3-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 1:24:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00200	0.00250	0.00200	0	100	70	130			
Arsenic	0.00535	0.00500	0.00500	0	107	70	130			
Barium	0.00509	0.0100	0.00500	0	102	70	130			
Beryllium	0.00115	0.00100	0.00100	0	115	70	130			
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Calcium	0.0999	0.300	0.100	0	99.9	70	130			
Chromium	0.00530	0.00500	0.00500	0	106	70	130			
Cobalt	0.00541	0.00500	0.00500	0	108	70	130			
Lead	0.000905	0.00100	0.00100	0	90.5	70	130			
Lithium	0.0108	0.0100	0.0100	0	108	70	130			
Molybdenum	0.00507	0.00500	0.00500	0	101	70	130			
Selenium	0.00568	0.00500	0.00500	0	114	70	130			
Thallium	0.00101	0.00150	0.00100	0	101	70	130			

Sample ID <b>CCV4-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:11:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
Arsenic	0.209	0.00500	0.200	0	104	90	110			
Barium	0.201	0.0100	0.200	0	101	90	110			
Beryllium	0.201	0.00100	0.200	0	101	90	110			
Cadmium	0.199	0.00100	0.200	0	99.5	90	110			
Calcium	4.96	0.300	5.00	0	99.2	90	110			
Chromium	0.205	0.00500	0.200	0	103	90	110			
Cobalt	0.211	0.00500	0.200	0	106	90	110			
Lead	0.201	0.00100	0.200	0	100	90	110			
Lithium	0.204	0.0100	0.200	0	102	90	110			

- |  |   |
|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
|--|---|

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

Sample ID <b>CCV4-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:11:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.194	0.00500	0.200	0	97.2	90	110			
Selenium	0.206	0.00500	0.200	0	103	90	110			
Thallium	0.202	0.00150	0.200	0	101	90	110			

Sample ID <b>LCVL4-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:25:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00214	0.00250	0.00200	0	107	70	130			
Arsenic	0.00528	0.00500	0.00500	0	106	70	130			
Barium	0.00528	0.0100	0.00500	0	106	70	130			
Beryllium	0.000975	0.00100	0.00100	0	97.5	70	130			
Cadmium	0.000973	0.00100	0.00100	0	97.3	70	130			
Calcium	0.101	0.300	0.100	0	101	70	130			
Chromium	0.00516	0.00500	0.00500	0	103	70	130			
Cobalt	0.00530	0.00500	0.00500	0	106	70	130			
Lead	0.000908	0.00100	0.00100	0	90.8	70	130			
Lithium	0.0104	0.0100	0.0100	0	104	70	130			
Molybdenum	0.00510	0.00500	0.00500	0	102	70	130			
Selenium	0.00559	0.00500	0.00500	0	112	70	130			
Thallium	0.00100	0.00150	0.00100	0	100	70	130			

Sample ID <b>CCV5-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 2:49:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.9	90	110			
Arsenic	0.208	0.00500	0.200	0	104	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			
Beryllium	0.203	0.00100	0.200	0	102	90	110			
Cadmium	0.201	0.00100	0.200	0	101	90	110			
Chromium	0.205	0.00500	0.200	0	103	90	110			
Cobalt	0.210	0.00500	0.200	0	105	90	110			
Lead	0.203	0.00100	0.200	0	102	90	110			
Lithium	0.206	0.0100	0.200	0	103	90	110			
Molybdenum	0.195	0.00500	0.200	0	97.5	90	110			
Selenium	0.208	0.00500	0.200	0	104	90	110			
Thallium	0.206	0.00150	0.200	0	103	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160407C**

Sample ID: <b>LCVL5-160407</b>	Batch ID: <b>R85109</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160407C</b>	Analysis Date: <b>4/7/2016 3:01:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00207	0.00250	0.00200	0	104	70	130			
Arsenic	0.00546	0.00500	0.00500	0	109	70	130			
Barium	0.00527	0.0100	0.00500	0	105	70	130			
Beryllium	0.00106	0.00100	0.00100	0	106	70	130			
Cadmium	0.00105	0.00100	0.00100	0	104	70	130			
Chromium	0.00525	0.00500	0.00500	0	105	70	130			
Cobalt	0.00546	0.00500	0.00500	0	109	70	130			
Lead	0.000907	0.00100	0.00100	0	90.7	70	130			
Lithium	0.0104	0.0100	0.0100	0	104	70	130			
Molybdenum	0.00506	0.00500	0.00500	0	101	70	130			
Selenium	0.00590	0.00500	0.00500	0	118	70	130			
Thallium	0.00101	0.00150	0.00100	0	101	70	130			

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160408C**

The QC data in batch 74461 applies to the following samples: 1604049-01A, 1604049-02A, 1604049-03A, 1604049-04A, 1604049-05A, 1604049-06A, 1604049-07A, 1604049-08A

Sample ID <b>MB-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:02:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	<0.0100	0.0300								
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Sample ID <b>LCS-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:04:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.197	0.0300	0.200	0	98.4	80	120			
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Sample ID <b>LCSD-74461</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:06:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.195	0.0300	0.200	0	97.5	80	120	0.941	15	
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Sample ID <b>1604046-01A SD</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:12:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	<0.500	1.50	0	0.333				0	10	
Calcium	56.5	15.0	0	57.3				1.35	10	

Sample ID <b>1604046-01A PDS</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:33:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	2.43	0.300	2.00	0.333	105	80	120			
Calcium	107	3.00	50.0	57.3	98.7	80	120			

Sample ID <b>1604046-01A MS</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:35:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.662	0.300	0.200	0.333	164	80	120			S
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Sample ID <b>1604046-01A MSD</b>	Batch ID: <b>74461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:37:00 PM</b>	Prep Date: <b>4/6/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.621	0.300	0.200	0.333	144	80	120	6.40	15	S
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**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160408C**

Sample ID <b>ICV-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 11:00:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0999	0.0300	0.100	0	99.9	90	110			
Calcium	2.42	0.300	2.50	0	96.9	90	110			

Sample ID <b>LCVL-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 11:06:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0216	0.0300	0.0200	0	108	70	130			
Calcium	0.118	0.300	0.100	0	118	70	130			

Sample ID <b>CCV2-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 11:54:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.193	0.0300	0.200	0	96.7	90	110			
Calcium	4.74	0.300	5.00	0	94.7	90	110			

Sample ID <b>LCVL2-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 11:58:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0201	0.0300	0.0200	0	101	70	130			
Calcium	0.113	0.300	0.100	0	113	70	130			

Sample ID <b>CCV3-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:43:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.201	0.0300	0.200	0	100	90	110			
Calcium	4.80	0.300	5.00	0	95.9	90	110			

Sample ID <b>LCVL3-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 12:49:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0225	0.0300	0.0200	0	113	70	130			
Calcium	0.110	0.300	0.100	0	110	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160408C**

Sample ID: <b>CCV4-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 1:24:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.187	0.0300	0.200	0	93.7	90	110			
Calcium	4.76	0.300	5.00	0	95.2	90	110			

Sample ID: <b>LCVL4-160408</b>	Batch ID: <b>R85142</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160408C</b>	Analysis Date: <b>4/8/2016 1:31:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0188	0.0300	0.0200	0	94.1	70	130			
Calcium	0.106	0.300	0.100	0	106	70	130			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160407A**

The QC data in batch 74474 applies to the following samples: 1604049-01D, 1604049-02D, 1604049-03D

Sample ID <b>MB-74474</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 9:35:37 AM</b>	Prep Date: <b>4/7/2016</b>
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 <b>LCS-74474</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 9:50:13 AM</b>	Prep Date: <b>4/7/2016</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	9.88	1.00	10.00 0 98.8 90 110
Fluoride	3.87	0.400	4.000 0 96.8 90 110
Sulfate	31.5	3.00	30.00 0 105 90 110

Sample ID <b>LCSD-74474</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 10:04:50 AM</b>	Prep Date: <b>4/7/2016</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	9.82	1.00	10.00 0 98.2 90 110 0.596 20
Fluoride	3.91	0.400	4.000 0 97.8 90 110 1.08 20
Sulfate	31.3	3.00	30.00 0 104 90 110 0.454 20

Sample ID <b>1604036-01BMS</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 12:23:27 PM</b>	Prep Date: <b>4/7/2016</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	2470	100	2000 376.8 104 90 110
Fluoride	2070	40.0	2000 39.63 101 90 110
Sulfate	3500	300	2000 1557 97.1 90 110

Sample ID <b>1604036-01BMSD</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 12:38:04 PM</b>	Prep Date: <b>4/7/2016</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	2480	100	2000 376.8 105 90 110 0.749 20
Fluoride	2090	40.0	2000 39.63 103 90 110 1.18 20
Sulfate	3510	300	2000 1557 97.8 90 110 0.413 20

Sample ID <b>1604073-05CMS</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 4:48:30 PM</b>	Prep Date: <b>4/7/2016</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160407A**

Sample ID: <b>1604073-05CMS</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 4:48:30 PM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2960	100	2000	873.6	104	90	110			
Fluoride	2080	40.0	2000	0	104	90	110			
Sulfate	3500	300	2000	1379	106	90	110			

Sample ID: <b>1604073-05CMSD</b>	Batch ID: <b>74474</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 5:03:07 PM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2960	100	2000	873.6	104	90	110	0.016	20	
Fluoride	2080	40.0	2000	0	104	90	110	0.142	20	
Sulfate	3510	300	2000	1379	106	90	110	0.271	20	

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160407A**

Sample ID <b>ICV-160407</b>	Batch ID: <b>R85132</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 8:57:11 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.0	1.00	25.00	0	100	90	110			
Fluoride	9.93	0.400	10.00	0	99.3	90	110			
Sulfate	79.1	3.00	75.00	0	105	90	110			

Sample ID <b>CCV1-160407</b>	Batch ID: <b>R85132</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 1:36:30 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			
Fluoride	4.11	0.400	4.000	0	103	90	110			
Sulfate	32.4	3.00	30.00	0	108	90	110			

Sample ID <b>CCV2-160407</b>	Batch ID: <b>R85132</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_160407A</b>	Analysis Date: <b>4/7/2016 5:40:06 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			
Fluoride	4.14	0.400	4.000	0	103	90	110			
Sulfate	32.0	3.00	30.00	0	107	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC3\_160412A**

The QC data in batch 74558 applies to the following samples: 1604049-04D, 1604049-05D, 1604049-06D, 1604049-07D, 1604049-08D

Sample ID <b>MB-74558</b>	Batch ID: <b>74558</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 10:23:06 AM</b>	Prep Date: <b>4/12/2016</b>							
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 <b>LCS-74558</b>	Batch ID: <b>74558</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 10:46:35 AM</b>	Prep Date: <b>4/12/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.61	1.00	10.00	0	96.1	90	110			
Fluoride	4.26	0.400	4.000	0	107	90	110			
Sulfate	31.1	3.00	30.00	0	104	90	110			

Sample ID <b>LCSD-74558</b>	Batch ID: <b>74558</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 11:07:15 AM</b>	Prep Date: <b>4/12/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.60	1.00	10.00	0	96.0	90	110	0.086	20	
Fluoride	4.16	0.400	4.000	0	104	90	110	2.55	20	
Sulfate	30.8	3.00	30.00	0	103	90	110	0.902	20	

Sample ID <b>1604073-01CMS</b>	Batch ID: <b>74558</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 4:16:34 PM</b>	Prep Date: <b>4/12/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	250	10.0	200.0	51.89	99.1	90	110			
Fluoride	198	4.00	200.0	0	98.9	90	110			
Sulfate	317	30.0	200.0	108.6	104	90	110			

Sample ID <b>1604073-01CMSD</b>	Batch ID: <b>74558</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 4:40:11 PM</b>	Prep Date: <b>4/12/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	252	10.0	200.0	51.89	100	90	110	0.704	20	
Fluoride	201	4.00	200.0	0	100	90	110	1.43	20	
Sulfate	327	30.0	200.0	108.6	109	90	110	3.06	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC3\_160412A**

Sample ID <b>ICV-160412</b>	Batch ID: <b>R85212</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 9:36:35 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.3	1.00	25.00	0	97.3	90	110			
Fluoride	10.1	0.400	10.00	0	101	90	110			
Sulfate	76.0	3.00	75.00	0	101	90	110			

Sample ID <b>CCV1-160412</b>	Batch ID: <b>R85212</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 3:26:05 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.74	1.00	10.00	0	97.4	90	110			
Fluoride	4.22	0.400	4.000	0	106	90	110			
Sulfate	31.3	3.00	30.00	0	104	90	110			

Sample ID <b>CCV2-160412</b>	Batch ID: <b>R85212</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC3_160412A</b>	Analysis Date: <b>4/12/2016 7:04:43 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.59	1.00	10.00	0	95.9	90	110			
Fluoride	4.08	0.400	4.000	0	102	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160407A**

The QC data in batch 74479 applies to the following samples: 1604049-01D, 1604049-02D, 1604049-03D, 1604049-04D, 1604049-05D, 1604049-06D, 1604049-07D, 1604049-08D

Sample ID <b>1604052-01D-DUP</b>	Batch ID: <b>74479</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@19.7°C</b>							
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160407A</b>	Analysis Date: <b>4/7/2016 11:30:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	11.4	0	0	11.36				0.088	5	

Sample ID <b>1604052-07D-DUP</b>	Batch ID: <b>74479</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.6°C</b>							
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160407A</b>	Analysis Date: <b>4/7/2016 11:47:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	5.27	0	0	5.250				0.380	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160407A**

Sample ID <b>ICV-160407</b>	Batch ID: <b>R85104</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160407A</b>	Analysis Date: <b>4/7/2016 11:11:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	9.99	0	10.00	0	99.9	99	101			
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Sample ID <b>CCV1-160407</b>	Batch ID: <b>R85104</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.2°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160407A</b>	Analysis Date: <b>4/7/2016 11:32:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	7.03	0	7.000	0	100	97.1	102.9			
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Sample ID <b>CCV2-160407</b>	Batch ID: <b>R85104</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.5°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160407A</b>	Analysis Date: <b>4/7/2016 11:48:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	7.00	0	7.000	0	100	97.1	102.9			
----	------	---	-------	---	-----	------	-------	--	--	--

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
--------------------	---	--

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1604049  
**Project:** Luminant-Moses

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_160407A**

The QC data in batch 74491 applies to the following samples: 1604049-01D, 1604049-02D, 1604049-03D, 1604049-04D, 1604049-05D, 1604049-06D, 1604049-07D, 1604049-08D

Sample ID <b>MB-74491</b>	Batch ID: <b>74491</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_160407A</b>	Analysis Date: <b>4/8/2016 8:45:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	<10.0	10.0								

Sample ID <b>LCS-74491</b>	Batch ID: <b>74491</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_160407A</b>	Analysis Date: <b>4/8/2016 8:45:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	748	10.0	745.6	0	100	90	113			

Sample ID <b>1604046-01C-DUP</b>	Batch ID: <b>74491</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160407A</b>	Analysis Date: <b>4/8/2016 8:45:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	462	10.0	0	457.0				1.09	5	

Sample ID <b>1604067-01C-DUP</b>	Batch ID: <b>74491</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160407A</b>	Analysis Date: <b>4/8/2016 8:45:00 AM</b>	Prep Date: <b>4/7/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	11000	200	0	10300				6.39	5	R

**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 NELAC certified

## Case Narrative

### Lab No: 20160334

This report contains the analytical results for the 8 sample(s) received under chain of custody by ESC Lab Sciences on 04/08/16 15:56:42. These samples are associated with your 1604049 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### Observations / Nonconformances

---



Client : DHL Analytical, Inc.  
 Client Project : 1604049  
 Lab Number : 20160334  
 Date Reported : 05/06/16  
 Date Received : 04/08/16  
 Page Number : 2 of 4

## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20160334-01  
**Client ID** : W-34  
**Date Sampled** : 04/04/16 08:00:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.30 +/- 0.867	1.10	pCi/l				
Radium-226	SM 7500 Ra B M*	0.136 +/- 0.148	0.215	pCi/l		04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	1.16 +/- 0.719	0.881	pCi/l		04/14/16	04/18/16	JR

**Lab ID** : 20160334-02  
**Client ID** : W-33  
**Date Sampled** : 04/04/16 08:45:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.16 +/- 0.995	1.13	pCi/l				
Radium-226	SM 7500 Ra B M*	0.193 +/- 0.133	0.146	pCi/l		04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	0.965 +/- 0.862	0.985	pCi/l		04/14/16	04/18/16	JR

**Lab ID** : 20160334-03  
**Client ID** : W-32  
**Date Sampled** : 04/04/16 09:30:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.80 +/- 0.887	1.09	pCi/l				
Radium-226	SM 7500 Ra B M*	0.170 +/- 0.133	0.168	pCi/l		04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	1.63 +/- 0.754	0.923	pCi/l		04/14/16	04/18/16	JR

**Lab ID** : 20160334-04  
**Client ID** : W-31  
**Date Sampled** : 04/04/16 10:20:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.489 +/- 0.779	1.05	pCi/l				
Radium-226	SM 7500 Ra B M*	0.099 +/- 0.151	0.239	pCi/l		04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	0.390 +/- 0.628	0.815	pCi/l		04/14/16	04/18/16	JR





Client : DHL Analytical, Inc.  
 Client Project : 1604049  
 Lab Number : 20160334  
 Date Reported : 05/06/16  
 Date Received : 04/08/16  
 Page Number : 3 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20160334-05  
**Client ID** : W-30  
**Date Sampled** : 04/04/16 11:20:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	0.978 +/- 0.769	1.02	pCi/l				
Radium-226	SM 7500 Ra B M*	0.148 +/- 0.143	0.201	pCi/l	04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	0.830 +/- 0.626	0.820	pCi/l	04/14/16	04/18/16	JR

**Lab ID** : 20160334-06  
**Client ID** : DUP-1  
**Date Sampled** : 04/04/16 11:20:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	0.242 +/- 0.848	1.08	pCi/l				
Radium-226	SM 7500 Ra B M*	0.242 +/- 0.168	0.204	pCi/l	04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	-0.851 +/- 0.680	0.875	pCi/l	04/14/16	04/18/16	JR

**Lab ID** : 20160334-07  
**Client ID** : W-29  
**Date Sampled** : 04/04/16 12:15:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	0.178 +/- 0.702	0.908	pCi/l				
Radium-226	SM 7500 Ra B M*	0.148 +/- 0.125	0.164	pCi/l	04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	-0.339 +/- 0.577	0.744	pCi/l	04/14/16	04/18/16	JR

**Lab ID** : 20160334-08  
**Client ID** : W-35  
**Date Sampled** : 04/04/16 13:05:00  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	4.22 +/- 1.09	1.20	pCi/l				
Radium-226	SM 7500 Ra B M*	0.377 +/- 0.194	0.191	pCi/l	04/13/16	04/15/16	AK
Radium-228	EPA 904*/9320*	3.84 +/- 0.894	1.01	pCi/l	04/14/16	04/19/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1604049  
 Lab Number : 20160334  
 Date Reported : 05/06/16  
 Date Received : 04/08/16  
 Page Number : 4 of 4

### QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Date
Radium-226	0.016	116.0			11.8	0.750	119.0			04/15/16
Radium-226	0.033	117.0			42.8	1.060	106.0	82.7	23.3	04/14/16
Radium-228	0.105	101.0			NC	0.429	114.0	95.7	17.0	04/18/16

Lab Approval: \_\_\_\_\_

LUMINANT

DHL Analytical, Inc.  
2300 Double Creek Drive  
Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222 FAX: (512) 388-8229  
Work Order: 1604049

**Subcontractor:**

ESC Laboratory  
311 North Aspen  
Broken Arrow, Oklahoma 74012

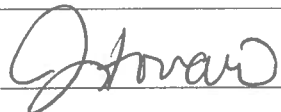
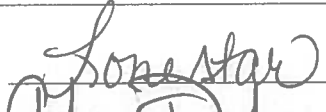
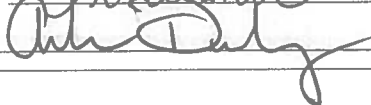
TEL: (918) 251-2515  
FAX:  
Acct #: DHLRRTX

06-Apr-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					E904.0	SM7500Ra-B M				
W-34	Aqueous	-01B	04/04/16 08:00 AM	500HDPEHNO3	1					
W-34	Aqueous	-01C	04/04/16 08:00 AM	500HDPEHNO3		1				
W-33	Aqueous	-02B	04/04/16 08:45 AM	500HDPEHNO3	1					
W-33	Aqueous	-02C	04/04/16 08:45 AM	500HDPEHNO3		1				
W-32	Aqueous	-03B	04/04/16 09:30 AM	500HDPEHNO3	1					
W-32	Aqueous	-03C	04/04/16 09:30 AM	500HDPEHNO3		1				
W-31	Aqueous	-04B	04/04/16 10:20 AM	500HDPEHNO3	1					
W-31	Aqueous	-04C	04/04/16 10:20 AM	500HDPEHNO3		1				
W-30	Aqueous	-05B	04/04/16 11:20 AM	500HDPEHNO3	1					
W-30	Aqueous	-05C	04/04/16 11:20 AM	500HDPEHNO3		1				
DUP-1	Aqueous	-06B	04/04/16 11:20 AM	500HDPEHNO3	1					
DUP-1	Aqueous	-06C	04/04/16 11:20 AM	500HDPEHNO3		1				
W-29	Aqueous	-07B	04/04/16 12:15 PM	500HDPEHNO3	1					
W-29	Aqueous	-07C	04/04/16 12:15 PM	500HDPEHNO3		1				
W-35	Aqueous	-08B	04/04/16 01:05 PM	500HDPEHNO3	1					
W-35	Aqueous	-08C	04/04/16 01:05 PM	500HDPEHNO3		1				

**General Comments:**

Please analyze these samples with Normal Turnaround Time.  
Report RA-226, Ra-228 & Combined per Specs DHLRRTX033116S.  
Quality Control Package Needed: Standard - NELAC Rad Test compliant  
Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

Relinquished by: 	Date/Time: 4/16/16 17:35	Received by: 	Date/Time: 4/16/16 17:35
Relinquished by: _____	Date/Time: _____	Received by: 	Date/Time: 4/8/16 15:52e

# SAMPLE LOGIN

Date Received: 04/08/16 15:56:42

Lab Number: 20160334

Due: 05/06/16

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160334-01 B	W-34	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160334-01 A	W-34	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-02 A	W-33	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-02 B	W-33	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-03 A	W-32	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-03 B	W-32	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-04 B	W-31	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-04 A	W-31	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-05 B	W-30	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-05 A	W-30	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-06 A	DUP-1	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-06 B	DUP-1	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-07 A	W-29	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160334-07 B	W-29	NPW	04/04/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160334-08 B	W-35	NPW	04/04/16	Plastic 47	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes

20160334-08 A  
Radium-226  
Radium-228

W-35

NPW

04/04/16  
SM 7500 Ra B M\*  
EPA 904\*/9320\*

Plastic

500 ml

HNO<sub>3</sub>, pH < 2

Yes

Yes

**CONTAINER INSPECTION**

# Coolers 1

Custody Seals Broken

*NO*

Temperature:

C

Ice

Radiation Survey:

*<300 cpm*

**SAMPLE INSPECTION**

Sample Seal Broken

No

Chain of Custody Record

Labels in Tact

Radiation Survey Complete

Anomalles

Inspected By:

*[Signature]*

DATE

*4/8/16*

QA or Designee Review:

*[Signature]*

DATE

*04/09/16*

Sample Custodian Review:

DATE

LUMINANT

Project Notes:



July 13, 2016

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

Order No.: 1606078

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 6/8/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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: T104704211-16-16



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LUMINANT



CLIENT: PBW  
ADDRESS: 2201 DOUBLE CREEK DR ROUND ROCK, TX 78664  
PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
DATA REPORTED TO: WILL VIENE  
ADDITIONAL REPORT COPIES TO: \_\_\_\_\_

DATE: 6-6-16 PAGE 1 OF 1  
PO #: 5164-C DHL WORK ORDER #: 1606078  
PROJECT LOCATION OR NAME: LUMINANT- MOSES  
CLIENT PROJECT #: 5164-C COLLECTOR: J. BRAYTON

Authorize 5% surcharge for TRRP Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT	P=PAINT SL=SLUDGE O=OTHER SO=SOLID	PRESERVATION									
	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/>	NaOH <input type="checkbox"/>	ICE	UNPRESERVED

ANALYSES	FIELD NOTES
<input type="checkbox"/> BTEX <input type="checkbox"/> MYBE <input type="checkbox"/> METH/8211 <input type="checkbox"/> HOLD 1006 <input type="checkbox"/> <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> DRO (METH/8105) <input type="checkbox"/> <input type="checkbox"/> GRO (METH/8015) <input type="checkbox"/> VOC 624 <input type="checkbox"/> VOC 8260/5035 <input type="checkbox"/> <input type="checkbox"/> VOC 8260 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLD PAH <input type="checkbox"/> SVOC 625 <input type="checkbox"/> <input type="checkbox"/> 8270 PEST <input type="checkbox"/> 623 PEST/PCB <input type="checkbox"/> 8082 PCB <input type="checkbox"/> 808 PCB <input type="checkbox"/> <input type="checkbox"/> 8270 O-P PEST <input type="checkbox"/> 8092 PCB <input type="checkbox"/> 8270 PCB <input type="checkbox"/> <input type="checkbox"/> 8271 HERB <input type="checkbox"/> T PHS AMMONIA <input type="checkbox"/> <input type="checkbox"/> METALS 6020 <input type="checkbox"/> METALS 2008 <input type="checkbox"/> DISS-METALS <input type="checkbox"/> <input type="checkbox"/> RCRA <input type="checkbox"/> TX11 <input type="checkbox"/> <input type="checkbox"/> PH <input type="checkbox"/> HEX CHROM <input type="checkbox"/> ALKALINITY <input type="checkbox"/> METALS <input type="checkbox"/> <input type="checkbox"/> TCLP-SVOC <input type="checkbox"/> ANIONS <input type="checkbox"/> <input type="checkbox"/> TCLP-METALS <input type="checkbox"/> VOC <input type="checkbox"/> PEST <input type="checkbox"/> HERB <input type="checkbox"/> <input type="checkbox"/> RCI <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> RCRA 810 <input type="checkbox"/> TX11 <input type="checkbox"/> Pb <input type="checkbox"/> <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/> <b>SEE ATTACHED</b>	

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/>	NaOH <input type="checkbox"/>	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
W-34	01	6-6-16	0805	W	P	4					X			X
W-33	02		0850	W	P	4					X			X
W-32	03		0935	W	P	4					X			X
W-31	04		1025	W	P	4					X			X
W-30	05		1115	W	P	4					X			X
W-36	06		0950	W	P	4					X			X
W-29	07		1205	W	P	4					X			X
W-35	08		1250	W	P	4					X			X

RELINQUISHED BY: (Signature) <u>John Brog</u>	DATE/TIME <u>6-7-16 1830</u>	RECEIVED BY: (Signature) <u>Fedex</u>	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> <u>X</u> OTHER <input type="checkbox"/>	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP: <u>1.4/3.8</u> OTHER #: <u>78</u> CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED CARRIER: <input type="checkbox"/> LONE STAR <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <u>Fedex</u>	DATE/TIME <u>6/8/16 9:15</u>	RECEIVED BY: (Signature) <u>Estevan</u>		
RELINQUISHED BY: (Signature) _____	DATE/TIME _____	RECEIVED BY: (Signature) _____		
□ DHL DISPOSAL @ \$5.00 each      □ Return			3	



John Dupont

---

From: Sara Taube [Sara.Taube@pbwlic.com]  
Sent: Wednesday, July 22, 2015 12:06 PM  
To: John Dupont  
Subject: CCR Appendix III and IV  
Follow Up Flag: Follow up  
Flag Status: Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

ORIGIN ID:GGGA (512) 671-3434  
JOHN BRAYTON  
PBM  
2201 DOUBLE CREEK DR STE 4004  
ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 07JUN16  
ACTWGT: 53.90 LB  
CAD: 006994167/SSFE1704  
DIMS: 23x13x13 IN  
BILL THIRD PARTY

ORIGIN ID:GGGA (512) 671-3434  
JOHN BRAYTON  
PBM  
2201 DOUBLE CREEK DR STE 4004  
ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 07JUN16  
ACTWGT: 49.90 LB  
CAD: 006994167/SSFE1704  
DIMS: 19x13x15 IN  
BILL THIRD PARTY

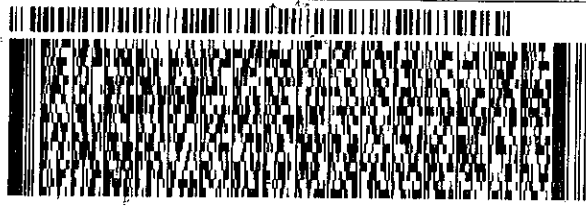
TO DHL

2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF: DEPT:  
IHU: PO:

RT 517  
FZ



1 of 4

WED - 08 JUN 10:30A  
PRIORITY OVERNIGHT

TRK# 7833 0407 0061  
D201  
## MASTER ##

A8 BSMA

78664  
TX-US AUS

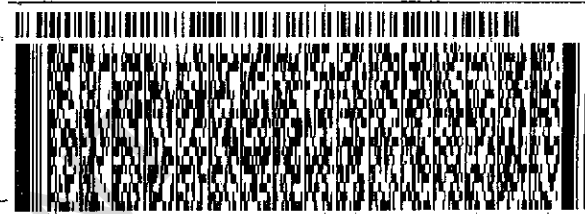


TO DHL

2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF: DEPT:  
IHU: PO:



4 of 4

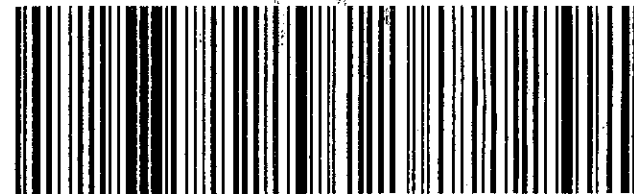
WED - 08 JUN 10:30A  
PRIORITY OVERNIGHT

MPS# 7833 0407 0094  
0263  
Matr# 7833 0407 0061

0201

A8 BSMA

78664  
TX-US AUS



Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 6/8/2016

Work Order Number 1606078

Received by JT

Checklist completed by: [Signature] 6/8/2016
Signature Date

Reviewed by: [Initials] 6/8/2016
Initials Date

Carrier name FedEx 1day

- Shipping container/cooler in good condition? Yes [X] No [ ] Not Present [ ]
Custody seals intact on shipping container/cooler? Yes [ ] No [ ] Not Present [X]
Custody seals intact on sample bottles? Yes [ ] No [ ] Not Present [X]
Chain of custody present? Yes [X] No [ ]
Chain of custody signed when relinquished and received? Yes [X] No [ ]
Chain of custody agrees with sample labels? Yes [X] No [ ]
Samples in proper container/bottle? Yes [X] No [ ]
Sample containers intact? Yes [X] No [ ]
Sufficient sample volume for indicated test? Yes [X] No [ ]
All samples received within holding time? Yes [X] No [ ]
Container/Temp Blank temperature in compliance? Yes [X] No [ ] 1.4 °C, 3.8
Water - VOA vials have zero headspace? Yes [ ] No [ ] No VOA vials submitted [X]
Water - pH<2 acceptable upon receipt? Yes [X] No [ ] NA [ ] LOT # 8086
Adjusted? [ ] Checked by [Signature]
Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes [ ] No [ ] NA [X] 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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1606078

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis

**LOG IN**

The samples were received and log-in performed on 6/8/16. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 6/10/16 the matrix spike and matrix spike duplicate had the RPD slightly above control limits for Antimony. This is flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The percent recovery was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 6/14/16 the RPD for the serial dilution was slightly above control limits for Boron. This is flagged accordingly. The PDS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 6/10/16 and 6/14/16 LCVL-160610 and LCVL5-160614 were slightly below control limits for Beryllium or Boron. These are flagged accordingly. The associated CCV-160610 and CCV5-160614 were within control limits for these analytes. No further corrective actions were taken.

**MERCURY ANALYSIS**

For Mercury analysis performed on 6/17/16 the matrix spike and matrix spike duplicate recoveries were below control limits. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits. No further corrective actions were taken.

For Mercury analysis performed on 6/17/16 the PDS recovery was below control limits. This is flagged accordingly. The serial dilution was within control limits. No further corrective actions were taken.

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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1606078

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1606078-01	W-34		06/06/16 08:05 AM	6/8/2016
1606078-02	W-33		06/06/16 08:50 AM	6/8/2016
1606078-03	W-32		06/06/16 09:35 AM	6/8/2016
1606078-04	W-31		06/06/16 10:25 AM	6/8/2016
1606078-05	W-30		06/06/16 11:15 AM	6/8/2016
1606078-06	W-36		06/06/16 09:50 AM	6/8/2016
1606078-07	W-29		06/06/16 12:05 PM	6/8/2016
1606078-08	W-35		06/06/16 12:50 PM	6/8/2016

LUMINANT

Lab Order: 1606078  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1606078-01A	W-34	06/06/16 08:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-34	06/06/16 08:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-34	06/06/16 08:05 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-01D	W-34	06/06/16 08:05 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-34	06/06/16 08:05 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-34	06/06/16 08:05 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-34	06/06/16 08:05 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550
1606078-02A	W-33	06/06/16 08:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-33	06/06/16 08:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-33	06/06/16 08:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-02D	W-33	06/06/16 08:50 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-33	06/06/16 08:50 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-33	06/06/16 08:50 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-33	06/06/16 08:50 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550
1606078-03A	W-32	06/06/16 09:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-32	06/06/16 09:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-32	06/06/16 09:35 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-03D	W-32	06/06/16 09:35 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-32	06/06/16 09:35 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-32	06/06/16 09:35 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-32	06/06/16 09:35 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550
1606078-04A	W-31	06/06/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-31	06/06/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-31	06/06/16 10:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-04D	W-31	06/06/16 10:25 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-31	06/06/16 10:25 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-31	06/06/16 10:25 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-31	06/06/16 10:25 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550

Lab Order: 1606078  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1606078-05A	W-30	06/06/16 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-30	06/06/16 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-30	06/06/16 11:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-05D	W-30	06/06/16 11:15 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-30	06/06/16 11:15 AM	Aqueous	E300	Anion Preparation	06/10/16 09:10 AM	75561
	W-30	06/06/16 11:15 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-30	06/06/16 11:15 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550
1606078-06A	W-36	06/06/16 09:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-36	06/06/16 09:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-36	06/06/16 09:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-06D	W-36	06/06/16 09:50 AM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-36	06/06/16 09:50 AM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-36	06/06/16 09:50 AM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-36	06/06/16 09:50 AM	Aqueous	M2540C	TDS Preparation	06/09/16 01:30 PM	75550
1606078-07A	W-29	06/06/16 12:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-29	06/06/16 12:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-29	06/06/16 12:05 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-07D	W-29	06/06/16 12:05 PM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-29	06/06/16 12:05 PM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-29	06/06/16 12:05 PM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 08:03 AM	75528
	W-29	06/06/16 12:05 PM	Aqueous	M2540C	TDS Preparation	06/10/16 11:35 AM	75574
1606078-08A	W-35	06/06/16 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-35	06/06/16 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/09/16 09:12 AM	75531
	W-35	06/06/16 12:50 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	06/16/16 10:00 AM	75688
1606078-08D	W-35	06/06/16 12:50 PM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-35	06/06/16 12:50 PM	Aqueous	E300	Anion Preparation	06/13/16 09:38 AM	75598
	W-35	06/06/16 12:50 PM	Aqueous	M4500-H+ B	pH Preparation	06/09/16 10:32 AM	75542
	W-35	06/06/16 12:50 PM	Aqueous	M2540C	TDS Preparation	06/10/16 11:35 AM	75574

Lab Order: 1606078  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606078-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:09 AM	CETAC2_HG_160617 A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:37 PM	ICP-MS4_160610C
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 01:58 PM	ICP-MS4_160614B
1606078-01D	W-34	Aqueous	E300	Anions by IC method - Water	75561	1	06/10/16 11:01 AM	IC2_160610A
	W-34	Aqueous	E300	Anions by IC method - Water	75561	10	06/10/16 12:25 PM	IC2_160610A
	W-34	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 09:59 AM	TITRATOR_160609A
	W-34	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:12 AM	CETAC2_HG_160617 A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:21 PM	ICP-MS4_160610C
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:00 PM	ICP-MS4_160614B
1606078-02D	W-33	Aqueous	E300	Anions by IC method - Water	75561	1	06/10/16 11:15 AM	IC2_160610A
	W-33	Aqueous	E300	Anions by IC method - Water	75561	10	06/10/16 12:39 PM	IC2_160610A
	W-33	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:04 AM	TITRATOR_160609A
	W-33	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:14 AM	CETAC2_HG_160617 A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:02 PM	ICP-MS4_160614B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:23 PM	ICP-MS4_160610C
1606078-03D	W-32	Aqueous	E300	Anions by IC method - Water	75561	1	06/10/16 11:30 AM	IC2_160610A
	W-32	Aqueous	E300	Anions by IC method - Water	75561	10	06/10/16 12:54 PM	IC2_160610A
	W-32	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:05 AM	TITRATOR_160609A
	W-32	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:16 AM	CETAC2_HG_160617 A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:25 PM	ICP-MS4_160610C
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:04 PM	ICP-MS4_160614B
1606078-04D	W-31	Aqueous	E300	Anions by IC method - Water	75561	1	06/10/16 11:44 AM	IC2_160610A
	W-31	Aqueous	E300	Anions by IC method - Water	75561	10	06/10/16 01:09 PM	IC2_160610A



Lab Order: 1606078  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606078-04D	W-31	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:08 AM	TITRATOR_160609A
	W-31	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:18 AM	CETAC2_HG_160617 A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:27 PM	ICP-MS4_160610C
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:06 PM	ICP-MS4_160614B
1606078-05D	W-30	Aqueous	E300	Anions by IC method - Water	75561	1	06/10/16 02:46 PM	IC2_160610A
	W-30	Aqueous	E300	Anions by IC method - Water	75561	10	06/10/16 03:01 PM	IC2_160610A
	W-30	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:10 AM	TITRATOR_160609A
	W-30	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-06A	W-36	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:21 AM	CETAC2_HG_160617 A
	W-36	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:29 PM	ICP-MS4_160610C
	W-36	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:08 PM	ICP-MS4_160614B
1606078-06D	W-36	Aqueous	E300	Anions by IC method - Water	75598	1	06/13/16 11:12 AM	IC4_160613A
	W-36	Aqueous	E300	Anions by IC method - Water	75598	10	06/13/16 05:22 PM	IC4_160613A
	W-36	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:31 AM	TITRATOR_160609A
	W-36	Aqueous	M2540C	Total Dissolved Solids	75550	1	06/10/16 08:46 AM	WC_160609E
1606078-07A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:23 AM	CETAC2_HG_160617 A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 02:10 PM	ICP-MS4_160614B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:31 PM	ICP-MS4_160610C
1606078-07D	W-29	Aqueous	E300	Anions by IC method - Water	75598	1	06/13/16 11:27 AM	IC4_160613A
	W-29	Aqueous	E300	Anions by IC method - Water	75598	10	06/13/16 05:37 PM	IC4_160613A
	W-29	Aqueous	M4500-H+ B	pH	75528	1	06/09/16 10:33 AM	TITRATOR_160609A
	W-29	Aqueous	M2540C	Total Dissolved Solids	75574	1	06/13/16 08:45 AM	WC_160610C
1606078-08A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	75688	1	06/17/16 11:25 AM	CETAC2_HG_160617 A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	1	06/10/16 02:33 PM	ICP-MS4_160610C
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	75531	10	06/14/16 04:54 PM	ICP-MS4_160614B

**Lab Order:** 1606078  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606078-08D	W-35	Aqueous	E300	Anions by IC method - Water	75598	1	06/13/16 11:42 AM	IC4_160613A
	W-35	Aqueous	E300	Anions by IC method - Water	75598	10	06/13/16 05:52 PM	IC4_160613A
	W-35	Aqueous	M4500-H+ B	pH	75542	1	06/09/16 11:02 AM	TITRATOR_160609B
	W-35	Aqueous	M2540C	Total Dissolved Solids	75574	1	06/13/16 08:45 AM	WC_160610C

LUMINANT

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-34  
**Lab ID:** 1606078-01  
**Collection Date:** 06/06/16 08:05 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:09 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:37 PM
Arsenic	0.0158	0.00200	0.00500		mg/L	1	06/10/16 02:37 PM
Barium	0.0604	0.00300	0.0100		mg/L	1	06/10/16 02:37 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:37 PM
Boron	2.12	0.100	0.300		mg/L	10	06/14/16 01:58 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:37 PM
Calcium	66.2	1.00	3.00		mg/L	10	06/14/16 01:58 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:37 PM
Cobalt	0.0971	0.00300	0.00500		mg/L	1	06/10/16 02:37 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:37 PM
Lithium	0.0132	0.00500	0.0100		mg/L	1	06/10/16 02:37 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:37 PM
Selenium	0.00502	0.00200	0.00500		mg/L	1	06/10/16 02:37 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:37 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	73.0	3.00	10.0		mg/L	10	06/10/16 12:25 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	06/10/16 11:01 AM
Sulfate	343	10.0	30.0		mg/L	10	06/10/16 12:25 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.16	0	0		pH Units@19.4°C	1	06/09/16 09:59 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	795	10.0	10.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-33  
**Lab ID:** 1606078-02  
**Collection Date:** 06/06/16 08:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:12 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:21 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:21 PM
Barium	0.0217	0.00300	0.0100		mg/L	1	06/10/16 02:21 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:21 PM
Boron	7.08	0.100	0.300		mg/L	10	06/14/16 02:00 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:21 PM
Calcium	229	1.00	3.00		mg/L	10	06/14/16 02:00 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:21 PM
Cobalt	0.00484	0.00300	0.00500	J	mg/L	1	06/10/16 02:21 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:21 PM
Lithium	0.00987	0.00500	0.0100	J	mg/L	1	06/10/16 02:21 PM
Molybdenum	0.0498	0.00200	0.00500		mg/L	1	06/10/16 02:21 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:21 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:21 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	120	3.00	10.0		mg/L	10	06/10/16 12:39 PM
Fluoride	2.12	0.100	0.400		mg/L	1	06/10/16 11:15 AM
Sulfate	700	10.0	30.0		mg/L	10	06/10/16 12:39 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	7.30	0	0		pH Units@20.1°C	1	06/09/16 10:04 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1490	50.0	50.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-32  
**Lab ID:** 1606078-03  
**Collection Date:** 06/06/16 09:35 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	06/17/16 11:14 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:23 PM
Arsenic	0.00211	0.00200	0.00500	J	mg/L	1	06/10/16 02:23 PM
Barium	0.0253	0.00300	0.0100		mg/L	1	06/10/16 02:23 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:23 PM
Boron	6.18	0.100	0.300		mg/L	10	06/14/16 02:02 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:23 PM
Calcium	192	1.00	3.00		mg/L	10	06/14/16 02:02 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:23 PM
Cobalt	0.00325	0.00300	0.00500	J	mg/L	1	06/10/16 02:23 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:23 PM
Lithium	0.00903	0.00500	0.0100	J	mg/L	1	06/10/16 02:23 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:23 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:23 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:23 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	105	3.00	10.0		mg/L	10	06/10/16 12:54 PM
Fluoride	0.758	0.100	0.400		mg/L	1	06/10/16 11:30 AM
Sulfate	694	10.0	30.0		mg/L	10	06/10/16 12:54 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	7.06	0	0		pH Units@20.2°C	1	06/09/16 10:05 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1440	50.0	50.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-31  
**Lab ID:** 1606078-04  
**Collection Date:** 06/06/16 10:25 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:16 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:25 PM
Arsenic	0.00381	0.00200	0.00500	J	mg/L	1	06/10/16 02:25 PM
Barium	0.0241	0.00300	0.0100		mg/L	1	06/10/16 02:25 PM
Beryllium	0.00898	0.000300	0.00100		mg/L	1	06/10/16 02:25 PM
Boron	3.84	0.100	0.300		mg/L	10	06/14/16 02:04 PM
Cadmium	0.000491	0.000300	0.00100	J	mg/L	1	06/10/16 02:25 PM
Calcium	104	1.00	3.00		mg/L	10	06/14/16 02:04 PM
Chromium	0.00225	0.00200	0.00500	J	mg/L	1	06/10/16 02:25 PM
Cobalt	0.356	0.00300	0.00500		mg/L	1	06/10/16 02:25 PM
Lead	0.00126	0.000300	0.00100		mg/L	1	06/10/16 02:25 PM
Lithium	0.0306	0.00500	0.0100		mg/L	1	06/10/16 02:25 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:25 PM
Selenium	0.00670	0.00200	0.00500		mg/L	1	06/10/16 02:25 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:25 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	47.8	0.300	1.00		mg/L	1	06/10/16 11:44 AM
Fluoride	<0.100	0.100	0.400		mg/L	1	06/10/16 11:44 AM
Sulfate	701	10.0	30.0		mg/L	10	06/10/16 01:09 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.67	0	0		pH Units@20.4°C	1	06/09/16 10:08 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1150	50.0	50.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-30  
**Lab ID:** 1606078-05  
**Collection Date:** 06/06/16 11:15 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>KL</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:18 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>CVD</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:27 PM
Arsenic	0.00362	0.00200	0.00500	J	mg/L	1	06/10/16 02:27 PM
Barium	0.0143	0.00300	0.0100		mg/L	1	06/10/16 02:27 PM
Beryllium	0.0244	0.000300	0.00100		mg/L	1	06/10/16 02:27 PM
Boron	6.89	0.100	0.300		mg/L	10	06/14/16 02:06 PM
Cadmium	0.00859	0.000300	0.00100		mg/L	1	06/10/16 02:27 PM
Calcium	132	1.00	3.00		mg/L	10	06/14/16 02:06 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:27 PM
Cobalt	0.361	0.00300	0.00500		mg/L	1	06/10/16 02:27 PM
Lead	0.00528	0.000300	0.00100		mg/L	1	06/10/16 02:27 PM
Lithium	0.0296	0.00500	0.0100		mg/L	1	06/10/16 02:27 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:27 PM
Selenium	0.0638	0.00200	0.00500		mg/L	1	06/10/16 02:27 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:27 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	94.9	3.00	10.0		mg/L	10	06/10/16 03:01 PM
Fluoride	0.359	0.100	0.400	J	mg/L	1	06/10/16 02:46 PM
Sulfate	884	10.0	30.0		mg/L	10	06/10/16 03:01 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	5.07	0	0		pH Units@20.7°C	1	06/09/16 10:10 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1460	50.0	50.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-36  
**Lab ID:** 1606078-06  
**Collection Date:** 06/06/16 09:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:21 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:29 PM
Arsenic	0.00474	0.00200	0.00500	J	mg/L	1	06/10/16 02:29 PM
Barium	0.0149	0.00300	0.0100		mg/L	1	06/10/16 02:29 PM
Beryllium	0.0317	0.000300	0.00100		mg/L	1	06/10/16 02:29 PM
Boron	6.77	0.100	0.300		mg/L	10	06/14/16 02:08 PM
Cadmium	0.00833	0.000300	0.00100		mg/L	1	06/10/16 02:29 PM
Calcium	131	1.00	3.00		mg/L	10	06/14/16 02:08 PM
Chromium	0.00308	0.00200	0.00500	J	mg/L	1	06/10/16 02:29 PM
Cobalt	0.339	0.00300	0.00500		mg/L	1	06/10/16 02:29 PM
Lead	0.0111	0.000300	0.00100		mg/L	1	06/10/16 02:29 PM
Lithium	0.0255	0.00500	0.0100		mg/L	1	06/10/16 02:29 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:29 PM
Selenium	0.0679	0.00200	0.00500		mg/L	1	06/10/16 02:29 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:29 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	97.6	3.00	10.0		mg/L	10	06/13/16 05:22 PM
Fluoride	0.678	0.100	0.400		mg/L	1	06/13/16 11:12 AM
Sulfate	950	10.0	30.0		mg/L	10	06/13/16 05:22 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.14	0	0		pH Units@19.8°C	1	06/09/16 10:31 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1240	50.0	50.0		mg/L	1	06/10/16 08:46 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-29  
**Lab ID:** 1606078-07  
**Collection Date:** 06/06/16 12:05 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/17/16 11:23 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:31 PM
Arsenic	0.00771	0.00200	0.00500		mg/L	1	06/10/16 02:31 PM
Barium	0.0462	0.00300	0.0100		mg/L	1	06/10/16 02:31 PM
Beryllium	0.00356	0.000300	0.00100		mg/L	1	06/10/16 02:31 PM
Boron	5.77	0.100	0.300		mg/L	10	06/14/16 02:10 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/10/16 02:31 PM
Calcium	162	1.00	3.00		mg/L	10	06/14/16 02:10 PM
Chromium	0.101	0.00200	0.00500		mg/L	1	06/10/16 02:31 PM
Cobalt	0.342	0.00300	0.00500		mg/L	1	06/10/16 02:31 PM
Lead	0.000397	0.000300	0.00100	J	mg/L	1	06/10/16 02:31 PM
Lithium	0.0511	0.00500	0.0100		mg/L	1	06/10/16 02:31 PM
Molybdenum	0.00687	0.00200	0.00500		mg/L	1	06/10/16 02:31 PM
Selenium	0.00568	0.00200	0.00500		mg/L	1	06/10/16 02:31 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:31 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.5	3.00	10.0		mg/L	10	06/13/16 05:37 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	06/13/16 11:27 AM
Sulfate	696	10.0	30.0		mg/L	10	06/13/16 05:37 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	9.58	0	0		pH Units@19.9°C	1	06/09/16 10:33 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1230	10.0	10.0		mg/L	1	06/13/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 13-Jul-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1606078

**Client Sample ID:** W-35  
**Lab ID:** 1606078-08  
**Collection Date:** 06/06/16 12:50 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>KL</b>			
Mercury	<0.000800	0.000800	0.000200		mg/L	1	06/17/16 11:25 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/10/16 02:33 PM
Arsenic	0.00305	0.00200	0.00500	J	mg/L	1	06/10/16 02:33 PM
Barium	0.0161	0.00300	0.0100		mg/L	1	06/10/16 02:33 PM
Beryllium	0.000638	0.000300	0.00100	J	mg/L	1	06/10/16 02:33 PM
Boron	6.17	0.100	0.300		mg/L	10	06/14/16 04:54 PM
Cadmium	0.000679	0.000300	0.00100	J	mg/L	1	06/10/16 02:33 PM
Calcium	158	1.00	3.00		mg/L	10	06/14/16 04:54 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:33 PM
Cobalt	0.243	0.00300	0.00500		mg/L	1	06/10/16 02:33 PM
Lead	0.000650	0.000300	0.00100	J	mg/L	1	06/10/16 02:33 PM
Lithium	0.0283	0.00500	0.0100		mg/L	1	06/10/16 02:33 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:33 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/10/16 02:33 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/10/16 02:33 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	98.5	3.00	10.0		mg/L	10	06/13/16 05:52 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	06/13/16 11:42 AM
Sulfate	858	10.0	30.0		mg/L	10	06/13/16 05:52 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	3.76	0	0		pH Units@18°C	1	06/09/16 11:02 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1460	50.0	50.0		mg/L	1	06/13/16 08:45 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

CLIENT: Pastor, Behling & Wheeler

**ANALYTICAL QC SUMMARY REPORT**

Work Order: 1606078

Project: Luminant - MOSES

RunID: CETAC2\_HG\_160617A

The QC data in batch 75688 applies to the following samples: 1606078-01A, 1606078-02A, 1606078-03A, 1606078-04A, 1606078-05A, 1606078-06A, 1606078-07A, 1606078-08A

Sample ID	<b>MB-75688</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MBLK</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:22:10 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID	<b>LCS-75688</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCS</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:24:25 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00195 0.000200 0.00200 0 97.5 85 115

Sample ID	<b>LCSD-75688</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCSD</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:26:41 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00195 0.000200 0.00200 0 97.5 85 115 0 15

Sample ID	<b>1606075-02A SD</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>SD</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:33:29 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0 0 0 10

Sample ID	<b>1606075-02A PDS</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>PDS</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:35:45 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00178 0.000200 0.00250 0 71.2 85 115 S

Sample ID	<b>1606075-02A MS</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MS</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:38:00 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00138 0.000200 0.00200 0 69.0 80 120 S

Sample ID	<b>1606075-02A MSD</b>	Batch ID:	<b>75688</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MSD</b>	Run ID:	<b>CETAC2_HG_160617A</b>	Analysis Date:	<b>6/17/2016 10:40:16 AM</b>	Prep Date:	<b>6/16/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00136 0.000200 0.00200 0 68.0 80 120 1.46 15 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160617A

Sample ID <b>ICV-160617</b>	Batch ID: <b>R86398</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_160617A</b>	Analysis Date: <b>6/17/2016 10:17:36 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00406	0.000200	0.00400	0	102	90	110			
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Sample ID <b>CCV1-160617</b>	Batch ID: <b>R86398</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160617A</b>	Analysis Date: <b>6/17/2016 11:00:42 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00201	0.000200	0.00200	0	101	90	110			
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Sample ID <b>CCV2-160617</b>	Batch ID: <b>R86398</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160617A</b>	Analysis Date: <b>6/17/2016 11:28:01 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00200	0.000200	0.00200	0	100	90	110			
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LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160610C**

The QC data in batch 75531 applies to the following samples: 1606078-01A, 1606078-02A, 1606078-03A, 1606078-04A, 1606078-05A, 1606078-06A, 1606078-07A, 1606078-08A

Sample ID <b>MB-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:12:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:14:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	80	120			
Arsenic	0.199	0.00500	0.200	0	99.3	80	120			
Barium	0.199	0.0100	0.200	0	99.5	80	120			
Beryllium	0.204	0.00100	0.200	0	102	80	120			
Cadmium	0.201	0.00100	0.200	0	100	80	120			
Calcium	4.67	0.300	5.00	0	93.5	80	120			
Chromium	0.205	0.00500	0.200	0	103	80	120			
Cobalt	0.206	0.00500	0.200	0	103	80	120			
Lead	0.200	0.00100	0.200	0	100	80	120			
Lithium	0.205	0.0100	0.200	0	102	80	120			
Molybdenum	0.195	0.00500	0.200	0	97.3	80	120			
Selenium	0.202	0.00500	0.200	0	101	80	120			
Thallium	0.200	0.00150	0.200	0	100	80	120			

Sample ID <b>LCSD-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:16:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	80	120	0.131	15	
Arsenic	0.195	0.00500	0.200	0	97.7	80	120	1.65	15	
Barium	0.198	0.0100	0.200	0	98.8	80	120	0.694	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160610C

Sample ID: <b>LCSD-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:16:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.205	0.00100	0.200	0	103	80	120	0.753	15	
Cadmium	0.199	0.00100	0.200	0	99.6	80	120	0.863	15	
Calcium	4.54	0.300	5.00	0	90.8	80	120	2.96	15	
Chromium	0.202	0.00500	0.200	0	101	80	120	1.41	15	
Cobalt	0.204	0.00500	0.200	0	102	80	120	0.976	15	
Lead	0.196	0.00100	0.200	0	98.2	80	120	1.98	15	
Lithium	0.212	0.0100	0.200	0	106	80	120	3.29	15	
Molybdenum	0.195	0.00500	0.200	0	97.5	80	120	0.210	15	
Selenium	0.203	0.00500	0.200	0	101	80	120	0.226	15	
Thallium	0.197	0.00150	0.200	0	98.4	80	120	1.83	15	

Sample ID: <b>1606075-01A SD</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:22:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Barium	0.136	0.0500	0	0.136				0.087	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Chromium	0.0275	0.0250	0	0.0274				0.230	10	
Cobalt	<0.0150	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
Lithium	<0.0250	0.0500	0	0.0188				0	10	
Molybdenum	<0.0100	0.0250	0	0.00551				0	10	
Selenium	0.0140	0.0250	0	0.0152				8.12	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1606075-01A PDS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:42:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.212	0.00250	0.200	0	106	80	120			
Arsenic	0.198	0.00500	0.200	0	99.2	80	120			
Barium	0.334	0.0100	0.200	0.136	99.1	80	120			
Beryllium	0.201	0.00100	0.200	0	101	80	120			
Cadmium	0.200	0.00100	0.200	0	99.8	80	120			
Chromium	0.233	0.00500	0.200	0.0274	103	80	120			
Cobalt	0.207	0.00500	0.200	0	104	80	120			
Lead	0.201	0.00100	0.200	0	101	80	120			
Lithium	0.223	0.0100	0.200	0.0188	102	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160610C

Sample ID <b>1606075-01A PDS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:42:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.201	0.00500	0.200	0.00551	97.8	80	120			
Selenium	0.216	0.00500	0.200	0.0152	100	80	120			
Thallium	0.198	0.00150	0.200	0	99.2	80	120			

Sample ID <b>1606075-01A MS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:44:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.171	0.00250	0.200	0	85.7	80	120			
Arsenic	0.194	0.00500	0.200	0	97.2	80	120			
Barium	0.336	0.0100	0.200	0.136	100	80	120			
Beryllium	0.199	0.00100	0.200	0	99.3	80	120			
Cadmium	0.196	0.00100	0.200	0	98.0	80	120			
Calcium	35.2	0.300	5.00	30.2	99.9	80	120			
Chromium	0.228	0.00500	0.200	0.0274	100	80	120			
Cobalt	0.199	0.00500	0.200	0	99.4	80	120			
Lead	0.200	0.00100	0.200	0	99.8	80	120			
Lithium	0.227	0.0100	0.200	0.0188	104	80	120			
Molybdenum	0.197	0.00500	0.200	0.00551	95.7	80	120			
Selenium	0.212	0.00500	0.200	0.0152	98.5	80	120			
Thallium	0.200	0.00150	0.200	0	99.9	80	120			

Sample ID <b>1606075-01A MSD</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:46:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	103	80	120	18.8	15	R
Arsenic	0.195	0.00500	0.200	0	97.3	80	120	0.105	15	
Barium	0.344	0.0100	0.200	0.136	104	80	120	2.24	15	
Beryllium	0.205	0.00100	0.200	0	102	80	120	3.02	15	
Cadmium	0.199	0.00100	0.200	0	99.4	80	120	1.42	15	
Calcium	35.1	0.300	5.00	30.2	97.9	80	120	0.288	15	
Chromium	0.226	0.00500	0.200	0.0274	99.2	80	120	0.798	15	
Cobalt	0.198	0.00500	0.200	0	98.8	80	120	0.539	15	
Lead	0.197	0.00100	0.200	0	98.7	80	120	1.11	15	
Lithium	0.227	0.0100	0.200	0.0188	104	80	120	0.131	15	
Molybdenum	0.203	0.00500	0.200	0.00551	98.6	80	120	2.96	15	
Selenium	0.210	0.00500	0.200	0.0152	97.2	80	120	1.22	15	
Thallium	0.196	0.00150	0.200	0	97.9	80	120	1.98	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160610C

Sample ID <b>ICV-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 11:12:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.102	0.00250	0.100	0	102	90	110			
Arsenic	0.0989	0.00500	0.100	0	98.9	90	110			
Barium	0.0993	0.0100	0.100	0	99.3	90	110			
Beryllium	0.0988	0.00100	0.100	0	98.8	90	110			
Cadmium	0.0996	0.00100	0.100	0	99.6	90	110			
Calcium	2.30	0.300	2.50	0	92.2	90	110			
Chromium	0.105	0.00500	0.100	0	105	90	110			
Cobalt	0.105	0.00500	0.100	0	105	90	110			
Lead	0.0992	0.00100	0.100	0	99.2	90	110			
Lithium	0.0970	0.0100	0.100	0	97.0	90	110			
Molybdenum	0.0975	0.00500	0.100	0	97.5	90	110			
Selenium	0.101	0.00500	0.100	0	101	90	110			
Thallium	0.0972	0.00150	0.100	0	97.2	90	110			

Sample ID <b>LCVL-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 11:30:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00198	0.00250	0.00200	0	99.2	70	130			
Arsenic	0.00496	0.00500	0.00500	0	99.2	70	130			
Barium	0.00488	0.0100	0.00500	0	97.7	70	130			
Beryllium	0.000665	0.00100	0.00100	0	66.5	70	130			S
Cadmium	0.00102	0.00100	0.00100	0	102	70	130			
Calcium	0.0969	0.300	0.100	0	96.9	70	130			
Chromium	0.00511	0.00500	0.00500	0	102	70	130			
Cobalt	0.00513	0.00500	0.00500	0	103	70	130			
Lead	0.000970	0.00100	0.00100	0	97.0	70	130			
Lithium	0.00812	0.0100	0.0100	0	81.2	70	130			
Molybdenum	0.00485	0.00500	0.00500	0	96.9	70	130			
Selenium	0.00534	0.00500	0.00500	0	107	70	130			
Thallium	0.000972	0.00150	0.00100	0	97.2	70	130			

Sample ID <b>CCV2-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 12:40:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
Arsenic	0.198	0.00500	0.200	0	99.0	90	110			
Barium	0.199	0.0100	0.200	0	99.4	90	110			
Beryllium	0.197	0.00100	0.200	0	98.7	90	110			
Cadmium	0.200	0.00100	0.200	0	100	90	110			

**Qualifiers:**

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



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS4\_160610C

Sample ID <b>CCV2-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 12:40:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.56	0.300	5.00	0	91.1	90	110			
Chromium	0.200	0.00500	0.200	0	100	90	110			
Cobalt	0.205	0.00500	0.200	0	102	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
Lithium	0.207	0.0100	0.200	0	103	90	110			
Molybdenum	0.195	0.00500	0.200	0	97.5	90	110			
Selenium	0.202	0.00500	0.200	0	101	90	110			
Thallium	0.199	0.00150	0.200	0	99.7	90	110			

Sample ID <b>LCVL2-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 12:59:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00200	0.00250	0.00200	0	100	70	130			
Arsenic	0.00496	0.00500	0.00500	0	99.2	70	130			
Barium	0.00499	0.0100	0.00500	0	99.8	70	130			
Beryllium	0.000814	0.00100	0.00100	0	81.4	70	130			
Cadmium	0.000965	0.00100	0.00100	0	96.5	70	130			
Calcium	0.0953	0.300	0.100	0	95.3	70	130			
Chromium	0.00526	0.00500	0.00500	0	105	70	130			
Cobalt	0.00516	0.00500	0.00500	0	103	70	130			
Lead	0.000965	0.00100	0.00100	0	96.5	70	130			
Lithium	0.00960	0.0100	0.0100	0	96.0	70	130			
Molybdenum	0.00474	0.00500	0.00500	0	94.9	70	130			
Selenium	0.00503	0.00500	0.00500	0	101	70	130			
Thallium	0.000981	0.00150	0.00100	0	98.1	70	130			

Sample ID <b>CCV3-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:48:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	102	90	110			
Arsenic	0.199	0.00500	0.200	0	99.3	90	110			
Barium	0.203	0.0100	0.200	0	102	90	110			
Beryllium	0.207	0.00100	0.200	0	104	90	110			
Cadmium	0.204	0.00100	0.200	0	102	90	110			
Calcium	4.57	0.300	5.00	0	91.3	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Cobalt	0.207	0.00500	0.200	0	103	90	110			
Lead	0.200	0.00100	0.200	0	99.9	90	110			
Lithium	0.220	0.0100	0.200	0	110	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160610C**

Sample ID <b>CCV3-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:48:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.197	0.00500	0.200	0	98.7	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Thallium	0.200	0.00150	0.200	0	99.9	90	110			

Sample ID <b>LCVL3-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 1:57:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00204	0.00250	0.00200	0	102	70	130			
Arsenic	0.00515	0.00500	0.00500	0	103	70	130			
Barium	0.00497	0.0100	0.00500	0	99.4	70	130			
Beryllium	0.000961	0.00100	0.00100	0	96.1	70	130			
Cadmium	0.00100	0.00100	0.00100	0	100	70	130			
Calcium	0.0939	0.300	0.100	0	93.9	70	130			
Chromium	0.00516	0.00500	0.00500	0	103	70	130			
Cobalt	0.00517	0.00500	0.00500	0	103	70	130			
Lead	0.000982	0.00100	0.00100	0	98.2	70	130			
Lithium	0.0108	0.0100	0.0100	0	108	70	130			
Molybdenum	0.00478	0.00500	0.00500	0	95.6	70	130			
Selenium	0.00544	0.00500	0.00500	0	109	70	130			
Thallium	0.000995	0.00150	0.00100	0	99.5	70	130			

Sample ID <b>CCV4-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 2:48:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	90	110			
Arsenic	0.197	0.00500	0.200	0	98.3	90	110			
Barium	0.203	0.0100	0.200	0	102	90	110			
Beryllium	0.206	0.00100	0.200	0	103	90	110			
Cadmium	0.200	0.00100	0.200	0	100	90	110			
Chromium	0.203	0.00500	0.200	0	102	90	110			
Cobalt	0.203	0.00500	0.200	0	101	90	110			
Lead	0.199	0.00100	0.200	0	99.7	90	110			
Lithium	0.220	0.0100	0.200	0	110	90	110			
Molybdenum	0.195	0.00500	0.200	0	97.6	90	110			
Selenium	0.200	0.00500	0.200	0	99.9	90	110			
Thallium	0.198	0.00150	0.200	0	99.0	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160610C**

Sample ID: <b>LCVL4-160610</b>	Batch ID: <b>R86262</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160610C</b>	Analysis Date: <b>6/10/2016 2:54:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00203	0.00250	0.00200	0	102	70	130			
Arsenic	0.00489	0.00500	0.00500	0	97.8	70	130			
Barium	0.00525	0.0100	0.00500	0	105	70	130			
Beryllium	0.00105	0.00100	0.00100	0	104	70	130			
Cadmium	0.000963	0.00100	0.00100	0	96.3	70	130			
Chromium	0.00516	0.00500	0.00500	0	103	70	130			
Cobalt	0.00507	0.00500	0.00500	0	101	70	130			
Lead	0.000972	0.00100	0.00100	0	97.2	70	130			
Lithium	0.0117	0.0100	0.0100	0	117	70	130			
Molybdenum	0.00471	0.00500	0.00500	0	94.2	70	130			
Selenium	0.00511	0.00500	0.00500	0	102	70	130			
Thallium	0.000980	0.00150	0.00100	0	98.0	70	130			

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<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160614B**

The QC data in batch 75531 applies to the following samples: 1606078-01A, 1606078-02A, 1606078-03A, 1606078-04A, 1606078-05A, 1606078-06A, 1606078-07A, 1606078-08A

Sample ID <b>MB-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 12:49:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	<0.0100	0.0300								
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Sample ID <b>LCS-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 12:52:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.185	0.0300	0.200	0	92.5	80	120			
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Sample ID <b>LCSD-75531</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 12:54:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.183	0.0300	0.200	0	91.5	80	120	1.08	15	
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Sample ID <b>1606075-01A SD</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:00:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	29.9	15.0	0	29.8				0.133	10	
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Sample ID <b>1606075-01A PDS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:20:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	75.0	3.00	50.0	29.8	90.3	80	120			
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Sample ID <b>1606075-01A MS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:22:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.509	0.0300	0.200	0.311	98.9	80	120			
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Sample ID <b>1606075-01A MSD</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:24:00 PM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.521	0.0300	0.200	0.311	105	80	120	2.33	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160614B**

Sample ID <b>1606075-01A SD</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:52:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.367	0.150	0	0.311				16.5	10	R

Sample ID <b>1606075-01A PDS</b>	Batch ID: <b>75531</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 2:12:00 PM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.540	0.0300	0.200	0.311	114	80	120			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160614B**

Sample ID <b>ICV-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 12:16:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.100	0.0300	0.100	0	100	90	110			
Calcium	2.26	0.300	2.50	0	90.2	90	110			

Sample ID <b>LCVL-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 12:42:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0171	0.0300	0.0200	0	85.3	70	130			
Calcium	0.0889	0.300	0.100	0	88.9	70	130			

Sample ID <b>CCV1-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:34:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.197	0.0300	0.200	0	98.7	90	110			
Calcium	4.62	0.300	5.00	0	92.5	90	110			

Sample ID <b>LCVL1-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 1:46:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0159	0.0300	0.0200	0	79.4	70	130			
Calcium	0.0858	0.300	0.100	0	85.8	70	130			

Sample ID <b>CCV2-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 2:22:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.198	0.0300	0.200	0	99.1	90	110			
Calcium	4.65	0.300	5.00	0	93.1	90	110			

Sample ID <b>LCVL2-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 2:51:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0210	0.0300	0.0200	0	105	70	130			
Calcium	0.0920	0.300	0.100	0	92.0	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160614B**

Sample ID <b>CCV5-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 4:39:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.184	0.0300	0.200	0	92.1	90	110			
Calcium	4.74	0.300	5.00	0	94.8	90	110			

Sample ID <b>LCVL5-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 4:50:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0132	0.0300	0.0200	0	66.1	70	130			S
Calcium	0.0964	0.300	0.100	0	96.4	70	130			

Sample ID <b>CCV6-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 5:06:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.216	0.0300	0.200	0	108	90	110			
Calcium	4.76	0.300	5.00	0	95.2	90	110			

Sample ID <b>LCVL6-160614</b>	Batch ID: <b>R86319</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160614B</b>	Analysis Date: <b>6/14/2016 5:10:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0251	0.0300	0.0200	0	125	70	130			
Calcium	0.106	0.300	0.100	0	106	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160610A**

The QC data in batch 75561 applies to the following samples: 1606078-01D, 1606078-02D, 1606078-03D, 1606078-04D, 1606078-05D

Sample ID <b>MB-75561</b>	Batch ID: <b>75561</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 9:46:51 AM</b>	Prep Date: <b>6/10/2016</b>							
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 <b>LCS-75561</b>	Batch ID: <b>75561</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 10:01:28 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.71	1.00	10.00	0	97.1	90	110			
Fluoride	3.76	0.400	4.000	0	93.9	90	110			
Sulfate	29.2	3.00	30.00	0	97.4	90	110			

Sample ID <b>LCSD-75561</b>	Batch ID: <b>75561</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 10:16:04 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.80	1.00	10.00	0	98.0	90	110	0.903	20	
Fluoride	3.80	0.400	4.000	0	94.9	90	110	1.04	20	
Sulfate	29.4	3.00	30.00	0	97.9	90	110	0.480	20	

Sample ID <b>1606078-01DMS</b>	Batch ID: <b>75561</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 3:15:49 PM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	272	10.0	200.0	73.00	99.7	90	110			
Fluoride	203	4.00	200.0	0	102	90	110			
Sulfate	562	30.0	200.0	342.7	110	90	110			

Sample ID <b>1606078-01DMSD</b>	Batch ID: <b>75561</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 3:30:26 PM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	271	10.0	200.0	73.00	99.1	90	110	0.414	20	
Fluoride	204	4.00	200.0	0	102	90	110	0.290	20	
Sulfate	563	30.0	200.0	342.7	110	90	110	0.068	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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160610A**

Sample ID <b>ICV-160610</b>	Batch ID: <b>R86256</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 8:58:12 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	23.5	1.00	25.00	0	94.0	90	110			
Fluoride	9.24	0.400	10.00	0	92.4	90	110			
Sulfate	73.0	3.00	75.00	0	97.3	90	110			

Sample ID <b>CCV1-160610</b>	Batch ID: <b>R86256</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 1:31:39 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.63	1.00	10.00	0	96.3	90	110			
Fluoride	3.84	0.400	4.000	0	96.0	90	110			
Sulfate	29.0	3.00	30.00	0	96.7	90	110			

Sample ID <b>CCV2-160610</b>	Batch ID: <b>R86256</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_160610A</b>	Analysis Date: <b>6/10/2016 3:46:03 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.74	1.00	10.00	0	97.4	90	110			
Fluoride	4.00	0.400	4.000	0	99.9	90	110			
Sulfate	29.7	3.00	30.00	0	98.9	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_160613A**

The QC data in batch 75598 applies to the following samples: 1606078-06D, 1606078-07D, 1606078-08D

Sample ID <b>MB-75598</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 10:19:50 AM</b>	Prep Date: <b>6/13/2016</b>							
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 <b>LCS-75598</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 10:34:50 AM</b>	Prep Date: <b>6/13/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			
Fluoride	3.95	0.400	4.000	0	98.7	90	110			
Sulfate	30.6	3.00	30.00	0	102	90	110			

Sample ID <b>LCSD-75598</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 10:49:50 AM</b>	Prep Date: <b>6/13/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110	0.572	20	
Fluoride	3.97	0.400	4.000	0	99.1	90	110	0.395	20	
Sulfate	30.7	3.00	30.00	0	102	90	110	0.428	20	

Sample ID <b>1606075-01DMS</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 9:07:41 PM</b>	Prep Date: <b>6/13/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	231	10.0	200.0	18.93	106	90	110			
Fluoride	209	4.00	200.0	0	104	90	110			
Sulfate	383	30.0	200.0	165.7	109	90	110			

Sample ID <b>1606075-01DMSD</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 9:22:41 PM</b>	Prep Date: <b>6/13/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	232	10.0	200.0	18.93	106	90	110	0.260	20	
Fluoride	209	4.00	200.0	0	105	90	110	0.285	20	
Sulfate	382	30.0	200.0	165.7	108	90	110	0.399	20	

Sample ID <b>1606075-08DMS</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 11:07:41 PM</b>	Prep Date: <b>6/13/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_160613A**

Sample ID: <b>1606075-08DMS</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 11:07:41 PM</b>	Prep Date: <b>6/13/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	281	10.0	200.0	67.47	107	90	110			
Fluoride	210	4.00	200.0	0	105	90	110			
Sulfate	340	30.0	200.0	122.3	109	90	110			

Sample ID: <b>1606075-08DMSD</b>	Batch ID: <b>75598</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 11:22:41 PM</b>	Prep Date: <b>6/13/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	279	10.0	200.0	67.47	106	90	110	0.720	20	
Fluoride	209	4.00	200.0	0	105	90	110	0.564	20	
Sulfate	340	30.0	200.0	122.3	109	90	110	0.011	20	

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_160613A**

Sample ID <b>ICV-160613</b>	Batch ID: <b>R86308</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 9:39:31 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.0	1.00	25.00	0	100	90	110			
Fluoride	9.91	0.400	10.00	0	99.1	90	110			
Sulfate	76.8	3.00	75.00	0	102	90	110			

Sample ID <b>CCV1-160613</b>	Batch ID: <b>R86308</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 1:57:05 PM</b>	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	4.04	0.400	4.000	0	101	90	110			
Sulfate	31.9	3.00	30.00	0	106	90	110			

Sample ID <b>CCV2-160613</b>	Batch ID: <b>R86308</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 6:37:41 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.5	1.00	10.00	0	105	90	110			
Fluoride	4.11	0.400	4.000	0	103	90	110			
Sulfate	31.8	3.00	30.00	0	106	90	110			

Sample ID <b>CCV3-160613</b>	Batch ID: <b>R86308</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_160613A</b>	Analysis Date: <b>6/13/2016 11:52:41 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.6	1.00	10.00	0	106	90	110			
Fluoride	4.20	0.400	4.000	0	105	90	110			
Sulfate	32.1	3.00	30.00	0	107	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160609A**

The QC data in batch 75528 applies to the following samples: 1606078-01D, 1606078-02D, 1606078-03D, 1606078-04D, 1606078-05D, 1606078-06D, 1606078-07D

Sample ID <b>1606075-01D-DUP</b>	Batch ID: <b>75528</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@18.7°C</b>							
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 9:31:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.81	0	0	9.790				0.204	5	

Sample ID <b>1606078-01D-DUP</b>	Batch ID: <b>75528</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@19.8°C</b>							
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 10:01:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.12	0	0	6.160				0.651	5	

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160609A**

Sample ID <b>ICV-160609</b>	Batch ID: <b>R86216</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 8:40:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	9.97	0	10.00	0	99.7	99	101			
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Sample ID <b>CCV1-160609</b>	Batch ID: <b>R86216</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.9°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 9:48:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	7.00	0	7.000	0	100	97.1	102.9			
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Sample ID <b>CCV2-160609</b>	Batch ID: <b>R86216</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.5°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 10:29:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	7.00	0	7.000	0	100	97.1	102.9			
----	------	---	-------	---	-----	------	-------	--	--	--

Sample ID <b>CCV3-160609</b>	Batch ID: <b>R86216</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.6°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160609A</b>	Analysis Date: <b>6/9/2016 10:35:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	7.01	0	7.000	0	100	97.1	102.9			
----	------	---	-------	---	-----	------	-------	--	--	--

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160609B**

The QC data in batch 75542 applies to the following samples: 1606078-08D

Sample ID	1606055-03D-DUP	Batch ID:	75542	TestNo:	M4500-H+ B	Units:	pH Units@18.5°C			
SampType:	DUP	Run ID:	TITRATOR_160609B	Analysis Date:	6/9/2016 11:00:00 AM	Prep Date:	6/9/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.21	0	0	7.220				0.139	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160609B**

Sample ID <b>ICV-160609</b>	Batch ID: <b>R86220</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160609B</b>	Analysis Date: <b>6/9/2016 8:40:00 AM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.97	0	10.00	0	99.7	99	101			

Sample ID <b>CCV3-160609</b>	Batch ID: <b>R86220</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.6°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160609B</b>	Analysis Date: <b>6/9/2016 10:35:00 AM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.01	0	7.000	0	100	97.1	102.9			

Sample ID <b>CCV4-160609</b>	Batch ID: <b>R86220</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.8°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160609B</b>	Analysis Date: <b>6/9/2016 11:13:00 AM</b>	Prep Date: <b>6/9/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.01	0	7.000	0	100	97.1	102.9			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_160609E**

The QC data in batch 75550 applies to the following samples: 1606078-01D, 1606078-02D, 1606078-03D, 1606078-04D, 1606078-05D, 1606078-06D

Sample ID <b>MB-75550</b>	Batch ID: <b>75550</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_160609E</b>	Analysis Date: <b>6/10/2016 8:46:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	<10.0	10.0								

Sample ID <b>LCS-75550</b>	Batch ID: <b>75550</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_160609E</b>	Analysis Date: <b>6/10/2016 8:46:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	751	10.0	745.6	0	101	90	113			

Sample ID <b>1606055-02D-DUP</b>	Batch ID: <b>75550</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160609E</b>	Analysis Date: <b>6/10/2016 8:46:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	13600	200	0	14280				4.58	5	

Sample ID <b>1606078-06D-DUP</b>	Batch ID: <b>75550</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160609E</b>	Analysis Date: <b>6/10/2016 8:46:00 AM</b>	Prep Date: <b>6/9/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1210	50.0	0	1240				2.45	5	

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1606078  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_160610C**

The QC data in batch 75574 applies to the following samples: 1606078-07D, 1606078-08D

Sample ID <b>MB-75574</b>	Batch ID: <b>75574</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_160610C</b>	Analysis Date: <b>6/13/2016 8:45:00 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera <10.0 10.0

Sample ID <b>LCS-75574</b>	Batch ID: <b>75574</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_160610C</b>	Analysis Date: <b>6/13/2016 8:45:00 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 748 10.0 745.6 0 100 90 113

Sample ID <b>1606078-08D-DUP</b>	Batch ID: <b>75574</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160610C</b>	Analysis Date: <b>6/13/2016 8:45:00 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 1490 50.0 0 1460 2.03 5

Sample ID <b>1606098-01D-DUP</b>	Batch ID: <b>75574</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160610C</b>	Analysis Date: <b>6/13/2016 8:45:00 AM</b>	Prep Date: <b>6/10/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 161 10.0 0 164.0 1.85 5

<p><b>Qualifiers:</b></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 NELAC certified</p>
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## Case Narrative

### Lab No: 20160557

This report contains the analytical results for the 8 sample(s) received under chain of custody by ESC Lab Sciences on 6/10/2016 11:08:31 AM. These samples are associated with your 1606078 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### Observations / Nonconformances

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Client : DHL Analytical, Inc.  
 Client Project : 1606078  
 Lab Number : 20160557  
 Date Reported : 07/12/16  
 Date Received : 06/10/16  
 Page Number : 2 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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**Lab ID** : 20160557-01  
**Client ID** : W-34  
**Date Sampled** : 6/6/2016 8:05:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	1.06 +/- 0.706	0.999	pCi/l				
Radium-226	SM 7500 Ra B M*	0.110 +/- 0.124	0.183	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	0.947 +/- 0.582	0.816	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-02  
**Client ID** : W-33  
**Date Sampled** : 6/6/2016 8:50:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	2.57 +/- 0.962	1.63	pCi/l				
Radium-226	SM 7500 Ra B M*	0.095 +/- 0.154	0.243	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	2.47 +/- 0.808	1.39	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-03  
**Client ID** : W-32  
**Date Sampled** : 6/6/2016 9:35:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	1.86 +/- 0.860	1.06	pCi/l				
Radium-226	SM 7500 Ra B M*	0.101 +/- 0.092	0.107	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	1.76 +/- 0.768	0.949	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-04  
**Client ID** : W-31  
**Date Sampled** : 6/6/2016 10:25:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	1.93 +/- 0.740	0.959	pCi/l				
Radium-226	SM 7500 Ra B M*	0.114 +/- 0.106	0.143	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	1.82 +/- 0.634	0.816	pCi/l	06/30/16	07/09/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1606078  
 Lab Number : 20160557  
 Date Reported : 07/12/16  
 Date Received : 06/10/16  
 Page Number : 3 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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**Lab ID** : 20160557-05  
**Client ID** : W-30  
**Date Sampled** : 6/6/2016 11:15:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	2.51 +/- 0.877	1.15	pCi/l				
Radium-226	SM 7500 Ra B M*	0.214 +/- 0.235	0.345	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	2.30 +/- 0.642	0.802	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-06  
**Client ID** : W-36  
**Date Sampled** : 6/6/2016 9:50:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	2.17 +/- 1.15	1.50	pCi/l				
Radium-226	SM 7500 Ra B M*	0.229 +/- 0.251	0.368	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	1.94 +/- 0.894	1.13	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-07  
**Client ID** : W-29  
**Date Sampled** : 6/6/2016 12:05:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	0.514 +/- 0.767	1.04	pCi/l				
Radium-226	SM 7500 Ra B M*	0.135 +/- 0.175	0.266	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	0.379 +/- 0.592	0.771	pCi/l	06/30/16	07/09/16	JR

**Lab ID** : 20160557-08  
**Client ID** : W-35  
**Date Sampled** : 6/6/2016 12:50:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium	2.94 +/- 1.14	1.54	pCi/l				
Radium-226	SM 7500 Ra B M*	0.350 +/- 0.226	0.295	pCi/l	06/13/16	06/14/16	AK
Radium-228	EPA 904*/9320*	2.59 +/- 0.910	1.24	pCi/l	06/30/16	07/09/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1606078  
 Lab Number : 20160557  
 Date Reported : 07/12/16  
 Date Received : 06/10/16  
 Page Number : 4 of 4

### QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.000	95.3			NC	0.542	102.0	99.0	3.2	
Radium-228	-0.202	105.0			NC	0.378	104.0	91.2	12.1	

Lab Approval: \_\_\_\_\_

LUMINANT

DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222 FAX: (512) 388-8229  
 Work Order: 1606078

**Subcontractor:**

ESC Laboratory  
 311 North Aspen  
 Broken Arrow, Oklahoma 74012

TEL: (918) 251-2515  
 FAX:  
 Acct #: DHLRRTX

08-Jun-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests			
					E904.0	SM7500Ra-B M		
1 W-34	Aqueous	-01B	06/06/16 08:05 AM	500HDPEHNO3	1			
2 W-34	Aqueous	-01C	06/06/16 08:05 AM	500HDPEHNO3		1		
3 W-33	Aqueous	-02B	06/06/16 08:50 AM	500HDPEHNO3	1			
4 W-33	Aqueous	-02C	06/06/16 08:50 AM	500HDPEHNO3		1		
5 W-32	Aqueous	-03B	06/06/16 09:35 AM	500HDPEHNO3	1			
6 W-32	Aqueous	-03C	06/06/16 09:35 AM	500HDPEHNO3		1		
7 W-31	Aqueous	-04B	06/06/16 10:25 AM	500HDPEHNO3	1			
8 W-31	Aqueous	-04C	06/06/16 10:25 AM	500HDPEHNO3		1		
9 W-30	Aqueous	-05B	06/06/16 11:15 AM	500HDPEHNO3	1			
10 W-30	Aqueous	-05C	06/06/16 11:15 AM	500HDPEHNO3		1		
11 W-36	Aqueous	-06B	06/06/16 09:50 AM	500HDPEHNO3	1			
12 W-36	Aqueous	-06C	06/06/16 09:50 AM	500HDPEHNO3		1		
13 W-29	Aqueous	-07B	06/06/16 12:05 PM	500HDPEHNO3	1			
14 W-29	Aqueous	-07C	06/06/16 12:05 PM	500HDPEHNO3		1		
15 W-35	Aqueous	-08B	06/06/16 12:50 PM	500HDPEHNO3	1			
16 W-35	Aqueous	-08C	06/06/16 12:50 PM	500HDPEHNO3		1		

**General Comments:**

Please analyze these samples with Normal Turnaround Time.  
 Report RA-226, Ra-228 & Combined per Specs DHLRRTX033116S.  
 Quality Control Package Needed: Standard - NELAC Rad Test compliant  
 Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

C 840919  
 20/60537

Relinquished by: <u><i>[Signature]</i></u>	Date/Time: <u>6/8/16 1730</u>	Received by: <u><i>[Signature]</i></u>	Date/Time: <u>6/8/16 1730</u>
Relinquished by: _____	Date/Time: _____	Received by: <u>Ben Mahony</u>	Date/Time: <u>06-10-16</u>

# SAMPLE LOGIN

Date Received: 06/10/16 11:08:31

Lab Number: 20160557

Due: 07/08/16

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160557-01 B	W-34	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160557-01 A	W-34	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-02 A	W-33	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160557-02 B	W-33	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-03 A	W-32	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160557-03 B	W-32	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-04 B	W-31	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160557-04 A	W-31	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-05 B	W-30	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160557-05 A	W-30	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-06 A	W-36	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160557-06 B	W-36	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20160557-07 A	W-29	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160557-07 B	W-29	NPW	06/06/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						



20160557-08 B	W-35	NPW	06/06/16	Plastic	500 ml	HNO <sub>3</sub> , pH < 2
20160557-08 A	W-35	NPW	06/06/16	Plastic	500 ml	HNO <sub>3</sub> , pH < 2
	Radium-226		SM 7500 Ra B M*			
	Radium-228		EPA 904*/9320*			



Yes	Yes
Yes	Yes

**CONTAINER INSPECTION**

# Coolers      Custody Seals Broken       Temperature:    C      Ice      Radiation Survey: <300 cpm

**SAMPLE INSPECTION**

Sample Seal Broken      Chain of Custody Record       Labels in Tact       Radiation Survey Complete

Anomalles

Inspected By: *PSL*      DATE *06/06/16*  
 QA or Designee Review: *Russell Thomas*      DATE *06/14/16*  
 Sample Custodian Review: *Ben Mahony*      DATE *06-10-16*

LUMINANT

Project Notes:



September 09, 2016

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

Order No.: 1608119

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 8/11/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-16



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<b>AnalyticalQCSummaryReport 1608119 .....</b>	<b>22</b>
<b>Subcontract Report 1608119 .....</b>	<b>40</b>

LUMINANT



2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 72451  
**CHAIN-OF-CUSTODY**

CLIENT: PBW  
 ADDRESS: 2201 DOUBLE CREEK DR ROUND ROCK, TX 78664  
 PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
 DATA REPORTED TO: WILL VIENNE  
 ADDITIONAL REPORT COPIES TO: \_\_\_\_\_

DATE: 8-10-16 PAGE 1 OF 1  
 PO #: 5164-C DHL WORK ORDER #: 1608119  
 PROJECT LOCATION OR NAME: LUMINANT- MOSES  
 CLIENT PROJECT #: 5164-C COLLECTOR: JOHN BRAYTON

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION					FIELD NOTES	
							HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> / NaOH	ICE	UNPRESERVED		
W-34	01	8-8-16	0920	W	P	4	X	X	X				
W-33	02	↓	1010	W	P	4	X	X	X				
W-32	03		1045	W	P	4	X	X	X				
W-31	04		1130	W	P	4	X	X	X				
W-30	05		1230	W	P	4	X	X	X				
DUP-01	06		1230	W	P	4	X	X	X				
W-29	07		1315	W	P	4	X	X	X				
W-35	08		1435	W	P	4	X	X	X				

- ANALYSES**
- BTEX  MTBE  (METHOD 8021)
  - TPH 1005  TPH 1006  HOLD 1006
  - GRO (METHOD 8015)  DRO (METHOD 8105)
  - VOC 8260  VOC 624  VOC 8260/5035
  - SVOC 8270  PAH 8270  HOLD PAH  SVOC 623
  - 8270 PEST  625 PEST  608 PCB
  - 8270 OP PEST  8082 PCB  8270 PCB
  - 821 HERB  T PHOS, AMMONIA
  - METALS 8020  METALS 2008  DIS. METALS
  - PH  HEX CHROM  ALKALINITY  COD
  - CHLORIDE  ANIONS
  - TCLP-METALS  VOC  PEST  HERB
  - REL  FLASHPOINT  TK-11  Pb
  - TDS  TSS  % MOISTURE  CYANIDE
- SEE ATTACHED**

RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>8-10-16</u>	RECEIVED BY: (Signature) <u>Fedex</u>	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP <u>85/0.5</u> THERM #: <u>78</u> CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED CARRIER: <input type="checkbox"/> LONE STAR <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <u>Fedex</u>	DATE/TIME <u>8-11-16 9:15</u>	RECEIVED BY: (Signature) <u>[Signature]</u>		
RELINQUISHED BY: (Signature) _____	DATE/TIME _____	RECEIVED BY: (Signature) _____		

DHL DISPOSAL @ \$5.00 each     Return    3

John Dupont

---

From: Sara Taube [Sara.Taube@pbwfo.com]  
Sent: Wednesday, July 22, 2015 12:05 PM  
To: John Dupont  
Subject: CCR Appendix III and IV  
Follow Up Flag: Follow up  
Flag Status: Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

ORIGIN ID:GGGA (555) 555-5555

PBW  
2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 10AUG16  
ACTWGT: 51.90 LB  
CAD: 006994167/SSFE1704  
DIMS: 23x14x14 IN

BILL THIRD PARTY

TO DHL ANALYTICAL  
DHL ANALYTICAL  
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

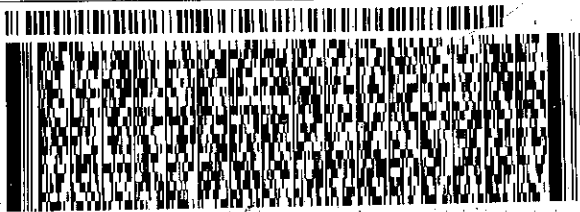
(512) 785-7280

INU:

PO:

REF:

DEPT:



FedEx  
Express



1 of 3

TRK# 7837 9633 4497  
0201

## MASTER ##

**A8 BSMA**

THU - 11 AUG 10:30A  
PRIORITY OVERNIGHT

78664  
TX-US AUS



Part # 156297V-435 RITE EXP 03/17

ORIGIN ID:GGGA (555) 555-5555

PBW  
2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 10AUG16  
ACTWGT: 47.80 LB  
CAD: 006994167/SSFE1704  
DIMS: 22x16x16 IN

BILL THIRD PARTY

TO DHL ANALYTICAL  
DHL ANALYTICAL  
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

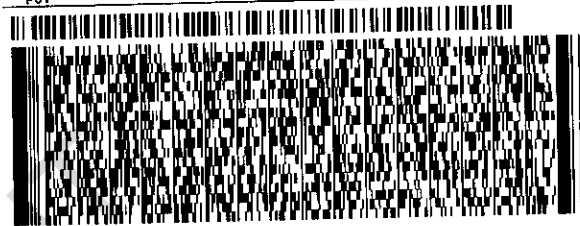
(512) 785-7280

INU:

PO:

REF:

DEPT:



FedEx  
Express



3 of 3

MPS# 7837 9633 4512  
0263

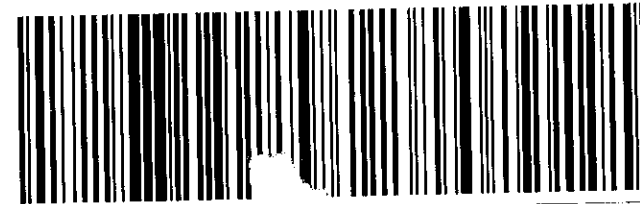
Mstr# 7837 9633 4497

0201

THU - 11 AUG 10:30A  
PRIORITY OVERNIGHT

**A8 BSMA**

78664  
TX-US AUS



Part # 156297V-435 RITE EXP 03/17

Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 8/11/2016

Work Order Number 1608119

Received by JT

Checklist completed by: [Signature] 8/11/2016  
Signature Date

Reviewed by: [Initials] 8/11/2016  
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  0.5 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086  
Adjusted? no Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1608119

**CASE NARRATIVE**

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

- Method SW6020A - Metals Analysis
- Method SW7470A - Mercury Analysis
- Method E300 - Anions Analysis
- Method M4500-H+ B - pH of a Water Analysis
- Method M2540C - TDS Analysis

Sub-contract - Radium-228 and Radium-226 analyses by methods E904/9320 and SM 7500 Ra B M. Analyzed at ESC Lab Sciences.

LOG IN

The samples were received and log-in performed on 8/11/16. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

METALS ANALYSIS

For Metals analysis performed on 8/17/16 and 8/18/16 the matrix spike and matrix spike duplicate recoveries were above control limits for Molybdenum or Boron. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 8/18/16 LCVL3-160818 was below control limits for Boron. This is flagged accordingly. The associated CCV3-160818 was within control limits for this analyte. No further corrective actions were taken.



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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1608119

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1608119-01	W-34		08/08/16 09:20 AM	8/11/2016
1608119-02	W-33		08/08/16 10:10 AM	8/11/2016
1608119-03	W-32		08/08/16 10:45 AM	8/11/2016
1608119-04	W-31		08/08/16 11:30 AM	8/11/2016
1608119-05	W-30		08/08/16 12:30 PM	8/11/2016
1608119-06	DUP-01		08/08/16 12:30 PM	8/11/2016
1608119-07	W-29		08/08/16 01:15 PM	8/11/2016
1608119-08	W-35		08/08/16 02:35 PM	8/11/2016

LUMINANT

Lab Order: 1608119  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1608119-01A	W-34	08/08/16 09:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-34	08/08/16 09:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-34	08/08/16 09:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-01D	W-34	08/08/16 09:20 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-34	08/08/16 09:20 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-34	08/08/16 09:20 AM	Aqueous	M4500-H+ B	pH Preparation	08/15/16 08:23 AM	76798
	W-34	08/08/16 09:20 AM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-02A	W-33	08/08/16 10:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-33	08/08/16 10:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-33	08/08/16 10:10 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-02D	W-33	08/08/16 10:10 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-33	08/08/16 10:10 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-33	08/08/16 10:10 AM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-33	08/08/16 10:10 AM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-03A	W-32	08/08/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-32	08/08/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-32	08/08/16 10:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-03D	W-32	08/08/16 10:45 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-32	08/08/16 10:45 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-32	08/08/16 10:45 AM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-32	08/08/16 10:45 AM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-04A	W-31	08/08/16 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-31	08/08/16 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-31	08/08/16 11:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-04D	W-31	08/08/16 11:30 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-31	08/08/16 11:30 AM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-31	08/08/16 11:30 AM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-31	08/08/16 11:30 AM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803

Lab Order: 1608119  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1608119-05A	W-30	08/08/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-30	08/08/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-30	08/08/16 12:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-05D	W-30	08/08/16 12:30 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-30	08/08/16 12:30 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-30	08/08/16 12:30 PM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-30	08/08/16 12:30 PM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-06A	DUP-01	08/08/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	DUP-01	08/08/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	DUP-01	08/08/16 12:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-06D	DUP-01	08/08/16 12:30 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	DUP-01	08/08/16 12:30 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	DUP-01	08/08/16 12:30 PM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	DUP-01	08/08/16 12:30 PM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-07A	W-29	08/08/16 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-29	08/08/16 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-29	08/08/16 01:15 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-07D	W-29	08/08/16 01:15 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-29	08/08/16 01:15 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-29	08/08/16 01:15 PM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-29	08/08/16 01:15 PM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803
1608119-08A	W-35	08/08/16 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-35	08/08/16 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/16/16 07:53 AM	76816
	W-35	08/08/16 02:35 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	08/17/16 09:07 AM	76835
1608119-08D	W-35	08/08/16 02:35 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-35	08/08/16 02:35 PM	Aqueous	E300	Anion Preparation	08/15/16 09:19 AM	76801
	W-35	08/08/16 02:35 PM	Aqueous	M4500-H+ B	pH Preparation	08/16/16 08:41 AM	76818
	W-35	08/08/16 02:35 PM	Aqueous	M2540C	TDS Preparation	08/15/16 03:45 PM	76803

Lab Order: 1608119  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1608119-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:07 AM	CETAC2_HG_160818 B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:23 PM	ICP-MS4_160817A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	10	08/18/16 02:52 PM	ICP-MS4_160818B
1608119-01D	W-34	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 10:47 AM	IC2_160815A
	W-34	Aqueous	E300	Anions by IC method - Water	76801	10	08/15/16 03:35 PM	IC2_160815A
	W-34	Aqueous	M4500-H+ B	pH	76798	1	08/15/16 12:15 PM	TITRATOR_160815A
	W-34	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:09 AM	CETAC2_HG_160818 B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:51 PM	ICP-MS4_160817A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	50	08/18/16 02:54 PM	ICP-MS4_160818B
1608119-02D	W-33	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 11:01 AM	IC2_160815A
	W-33	Aqueous	E300	Anions by IC method - Water	76801	10	08/15/16 03:50 PM	IC2_160815A
	W-33	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 09:52 AM	TITRATOR_160816A
	W-33	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:20 AM	CETAC2_HG_160818 B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	50	08/18/16 02:56 PM	ICP-MS4_160818B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:53 PM	ICP-MS4_160817A
1608119-03D	W-32	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 11:16 AM	IC2_160815A
	W-32	Aqueous	E300	Anions by IC method - Water	76801	10	08/15/16 04:58 PM	IC2_160815A
	W-32	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 09:55 AM	TITRATOR_160816A
	W-32	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:23 AM	CETAC2_HG_160818 B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:55 PM	ICP-MS4_160817A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	10	08/18/16 02:58 PM	ICP-MS4_160818B
1608119-04D	W-31	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 11:31 AM	IC2_160815A
	W-31	Aqueous	E300	Anions by IC method - Water	76801	10	08/15/16 05:13 PM	IC2_160815A

Lab Order: 1608119  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1608119-04D	W-31	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 09:58 AM	TITRATOR_160816A
	W-31	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:25 AM	CETAC2_HG_160818 B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:57 PM	ICP-MS4_160817A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	10	08/18/16 03:00 PM	ICP-MS4_160818B
1608119-05D	W-30	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 11:45 AM	IC2_160815A
	W-30	Aqueous	E300	Anions by IC method - Water	76801	10	08/15/16 05:28 PM	IC2_160815A
	W-30	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 10:00 AM	TITRATOR_160816A
	W-30	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-06A	DUP-01	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:27 AM	CETAC2_HG_160818 B
	DUP-01	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 01:59 PM	ICP-MS4_160817A
	DUP-01	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	10	08/18/16 03:02 PM	ICP-MS4_160818B
1608119-06D	DUP-01	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 12:00 PM	IC2_160815A
	DUP-01	Aqueous	E300	Anions by IC method - Water	76801	10	08/16/16 09:07 AM	IC2_160815A
	DUP-01	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 10:02 AM	TITRATOR_160816A
	DUP-01	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-07A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:29 AM	CETAC2_HG_160818 B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	50	08/18/16 03:32 PM	ICP-MS4_160818B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 02:01 PM	ICP-MS4_160817A
1608119-07D	W-29	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 12:14 PM	IC2_160815A
	W-29	Aqueous	E300	Anions by IC method - Water	76801	10	08/16/16 09:21 AM	IC2_160815A
	W-29	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 10:05 AM	TITRATOR_160816A
	W-29	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A
1608119-08A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	76835	1	08/18/16 10:32 AM	CETAC2_HG_160818 B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	1	08/17/16 02:03 PM	ICP-MS4_160817A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	76816	50	08/18/16 03:34 PM	ICP-MS4_160818B

**Lab Order:** 1608119  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1608119-08D	W-35	Aqueous	E300	Anions by IC method - Water	76801	1	08/15/16 12:29 PM	IC2_160815A
	W-35	Aqueous	E300	Anions by IC method - Water	76801	10	08/16/16 09:36 AM	IC2_160815A
	W-35	Aqueous	M4500-H+ B	pH	76818	1	08/16/16 10:06 AM	TITRATOR_160816A
	W-35	Aqueous	M2540C	Total Dissolved Solids	76803	1	08/16/16 08:42 AM	WC_160815A

LUMINANT

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-34  
**Lab ID:** 1608119-01  
**Collection Date:** 08/08/16 09:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:07 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:23 PM
Arsenic	0.0390	0.00200	0.00500		mg/L	1	08/17/16 01:23 PM
Barium	0.0403	0.00300	0.0100		mg/L	1	08/17/16 01:23 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:23 PM
Boron	3.56	0.100	0.300		mg/L	10	08/18/16 02:52 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:23 PM
Calcium	121	1.00	3.00		mg/L	10	08/18/16 02:52 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:23 PM
Cobalt	0.191	0.00300	0.00500		mg/L	1	08/17/16 01:23 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:23 PM
Lithium	0.0122	0.00500	0.0100		mg/L	1	08/17/16 01:23 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:23 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:23 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:23 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	98.4	3.00	10.0		mg/L	10	08/15/16 03:35 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	08/15/16 10:47 AM
Sulfate	634	10.0	30.0		mg/L	10	08/15/16 03:35 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.20	0	0		pH Units@19.1°C	1	08/15/16 12:15 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1030	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-33  
**Lab ID:** 1608119-02  
**Collection Date:** 08/08/16 10:10 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:09 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:51 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:51 PM
Barium	0.0214	0.00300	0.0100		mg/L	1	08/17/16 01:51 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:51 PM
Boron	6.37	0.500	1.50		mg/L	50	08/18/16 02:54 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:51 PM
Calcium	215	5.00	15.0		mg/L	50	08/18/16 02:54 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:51 PM
Cobalt	0.00394	0.00300	0.00500	J	mg/L	1	08/17/16 01:51 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:51 PM
Lithium	0.00773	0.00500	0.0100	J	mg/L	1	08/17/16 01:51 PM
Molybdenum	0.0444	0.00200	0.00500		mg/L	1	08/17/16 01:51 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:51 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:51 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	108	3.00	10.0		mg/L	10	08/15/16 03:50 PM
Fluoride	1.92	0.100	0.400		mg/L	1	08/15/16 11:01 AM
Sulfate	655	10.0	30.0		mg/L	10	08/15/16 03:50 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	7.36	0	0		pH Units@19.2°C	1	08/16/16 09:52 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1300	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-32  
**Lab ID:** 1608119-03  
**Collection Date:** 08/08/16 10:45 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:20 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:53 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:53 PM
Barium	0.0229	0.00300	0.0100		mg/L	1	08/17/16 01:53 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:53 PM
Boron	4.43	0.500	1.50		mg/L	50	08/18/16 02:56 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:53 PM
Calcium	261	5.00	15.0		mg/L	50	08/18/16 02:56 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:53 PM
Cobalt	0.00332	0.00300	0.00500	J	mg/L	1	08/17/16 01:53 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:53 PM
Lithium	0.0116	0.00500	0.0100		mg/L	1	08/17/16 01:53 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:53 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:53 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:53 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	110	3.00	10.0		mg/L	10	08/15/16 04:58 PM
Fluoride	0.544	0.100	0.400		mg/L	1	08/15/16 11:16 AM
Sulfate	945	10.0	30.0		mg/L	10	08/15/16 04:58 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	7.11	0	0		pH Units@19.2°C	1	08/16/16 09:55 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1650	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-31  
**Lab ID:** 1608119-04  
**Collection Date:** 08/08/16 11:30 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:23 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:55 PM
Arsenic	0.00308	0.00200	0.00500	J	mg/L	1	08/17/16 01:55 PM
Barium	0.0388	0.00300	0.0100		mg/L	1	08/17/16 01:55 PM
Beryllium	0.00512	0.000300	0.00100		mg/L	1	08/17/16 01:55 PM
Boron	2.67	0.100	0.300		mg/L	10	08/18/16 02:58 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 01:55 PM
Calcium	92.4	1.00	3.00		mg/L	10	08/18/16 02:58 PM
Chromium	0.00255	0.00200	0.00500	J	mg/L	1	08/17/16 01:55 PM
Cobalt	0.254	0.00300	0.00500		mg/L	1	08/17/16 01:55 PM
Lead	0.000807	0.000300	0.00100	J	mg/L	1	08/17/16 01:55 PM
Lithium	0.0265	0.00500	0.0100		mg/L	1	08/17/16 01:55 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:55 PM
Selenium	0.00435	0.00200	0.00500	J	mg/L	1	08/17/16 01:55 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:55 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	58.4	3.00	10.0		mg/L	10	08/15/16 05:13 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	08/15/16 11:31 AM
Sulfate	396	10.0	30.0		mg/L	10	08/15/16 05:13 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.26	0	0		pH Units@19.3°C	1	08/16/16 09:58 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	862	10.0	10.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-30  
**Lab ID:** 1608119-05  
**Collection Date:** 08/08/16 12:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	0.0000964	0.0000800	0.000200	J	mg/L	1	08/18/16 10:25 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:57 PM
Arsenic	0.00551	0.00200	0.00500		mg/L	1	08/17/16 01:57 PM
Barium	0.0147	0.00300	0.0100		mg/L	1	08/17/16 01:57 PM
Beryllium	0.0424	0.000300	0.00100		mg/L	1	08/17/16 01:57 PM
Boron	5.94	0.100	0.300		mg/L	10	08/18/16 03:00 PM
Cadmium	0.0127	0.000300	0.00100		mg/L	1	08/17/16 01:57 PM
Calcium	136	1.00	3.00		mg/L	10	08/18/16 03:00 PM
Chromium	0.00427	0.00200	0.00500	J	mg/L	1	08/17/16 01:57 PM
Cobalt	0.308	0.00300	0.00500		mg/L	1	08/17/16 01:57 PM
Lead	0.0306	0.000300	0.00100		mg/L	1	08/17/16 01:57 PM
Lithium	0.0223	0.00500	0.0100		mg/L	1	08/17/16 01:57 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:57 PM
Selenium	0.112	0.00200	0.00500		mg/L	1	08/17/16 01:57 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:57 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.7	3.00	10.0		mg/L	10	08/15/16 05:28 PM
Fluoride	0.451	0.100	0.400		mg/L	1	08/15/16 11:45 AM
Sulfate	848	10.0	30.0		mg/L	10	08/15/16 05:28 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.25	0	0		pH Units@20°C	1	08/16/16 10:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1550	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** DUP-01  
**Lab ID:** 1608119-06  
**Collection Date:** 08/08/16 12:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:27 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 01:59 PM
Arsenic	0.00431	0.00200	0.00500	J	mg/L	1	08/17/16 01:59 PM
Barium	0.0145	0.00300	0.0100		mg/L	1	08/17/16 01:59 PM
Beryllium	0.0324	0.000300	0.00100		mg/L	1	08/17/16 01:59 PM
Boron	5.84	0.100	0.300		mg/L	10	08/18/16 03:02 PM
Cadmium	0.0121	0.000300	0.00100		mg/L	1	08/17/16 01:59 PM
Calcium	136	1.00	3.00		mg/L	10	08/18/16 03:02 PM
Chromium	0.00271	0.00200	0.00500	J	mg/L	1	08/17/16 01:59 PM
Cobalt	0.316	0.00300	0.00500		mg/L	1	08/17/16 01:59 PM
Lead	0.0197	0.000300	0.00100		mg/L	1	08/17/16 01:59 PM
Lithium	0.0235	0.00500	0.0100		mg/L	1	08/17/16 01:59 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 01:59 PM
Selenium	0.0838	0.00200	0.00500		mg/L	1	08/17/16 01:59 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 01:59 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.7	3.00	10.0		mg/L	10	08/16/16 09:07 AM
Fluoride	0.453	0.100	0.400		mg/L	1	08/15/16 12:00 PM
Sulfate	842	10.0	30.0		mg/L	10	08/16/16 09:07 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.22	0	0		pH Units@19.3°C	1	08/16/16 10:02 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1590	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-29  
**Lab ID:** 1608119-07  
**Collection Date:** 08/08/16 01:15 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:29 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 02:01 PM
Arsenic	0.00664	0.00200	0.00500		mg/L	1	08/17/16 02:01 PM
Barium	0.0418	0.00300	0.0100		mg/L	1	08/17/16 02:01 PM
Beryllium	0.00676	0.000300	0.00100		mg/L	1	08/17/16 02:01 PM
Boron	5.70	0.500	1.50		mg/L	50	08/18/16 03:32 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 02:01 PM
Calcium	153	5.00	15.0		mg/L	50	08/18/16 03:32 PM
Chromium	0.0315	0.00200	0.00500		mg/L	1	08/17/16 02:01 PM
Cobalt	0.403	0.00300	0.00500		mg/L	1	08/17/16 02:01 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/17/16 02:01 PM
Lithium	0.0618	0.00500	0.0100		mg/L	1	08/17/16 02:01 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 02:01 PM
Selenium	0.00681	0.00200	0.00500		mg/L	1	08/17/16 02:01 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 02:01 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.6	3.00	10.0		mg/L	10	08/16/16 09:21 AM
Fluoride	<0.100	0.100	0.400		mg/L	1	08/15/16 12:14 PM
Sulfate	1100	10.0	30.0		mg/L	10	08/16/16 09:21 AM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.76	0	0		pH Units@19.2°C	1	08/16/16 10:05 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1850	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 09-Sep-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1608119

**Client Sample ID:** W-35  
**Lab ID:** 1608119-08  
**Collection Date:** 08/08/16 02:35 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	08/18/16 10:32 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/17/16 02:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 02:03 PM
Barium	0.0154	0.00300	0.0100		mg/L	1	08/17/16 02:03 PM
Beryllium	0.000423	0.000300	0.00100	J	mg/L	1	08/17/16 02:03 PM
Boron	6.07	0.500	1.50		mg/L	50	08/18/16 03:34 PM
Cadmium	0.000625	0.000300	0.00100	J	mg/L	1	08/17/16 02:03 PM
Calcium	159	5.00	15.0		mg/L	50	08/18/16 03:34 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 02:03 PM
Cobalt	0.232	0.00300	0.00500		mg/L	1	08/17/16 02:03 PM
Lead	0.000335	0.000300	0.00100	J	mg/L	1	08/17/16 02:03 PM
Lithium	0.0246	0.00500	0.0100		mg/L	1	08/17/16 02:03 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 02:03 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	08/17/16 02:03 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	08/17/16 02:03 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	97.8	3.00	10.0		mg/L	10	08/16/16 09:36 AM
Fluoride	<0.100	0.100	0.400		mg/L	1	08/15/16 12:29 PM
Sulfate	810	10.0	30.0		mg/L	10	08/16/16 09:36 AM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	3.95	0	0		pH Units@19.3°C	1	08/16/16 10:06 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1470	50.0	50.0		mg/L	1	08/16/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

CLIENT: Pastor, Behling & Wheeler

**ANALYTICAL QC SUMMARY REPORT**

Work Order: 1608119

Project: Luminant - MOSES

RunID: CETAC2\_HG\_160818B

The QC data in batch 76835 applies to the following samples: 1608119-01A, 1608119-02A, 1608119-03A, 1608119-04A , 1608119-05A, 1608119-06A, 1608119-07A, 1608119-08A

Sample ID	<b>MB-76835</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MBLK</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 9:58:12 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID	<b>LCS-76835</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCS</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:02:44 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00192 0.000200 0.00200 0 96.0 85 115

Sample ID	<b>LCSD-76835</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCSD</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:05:00 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00197 0.000200 0.00200 0 98.5 85 115 2.57 15

Sample ID	<b>1608119-02A SD</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>SD</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:11:47 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0 0 0 10

Sample ID	<b>1608119-02A PDS</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>PDS</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:14:03 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00235 0.000200 0.00250 0 94.0 85 115

Sample ID	<b>1608119-02A MS</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MS</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:16:19 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00199 0.000200 0.00200 0 99.5 80 120

Sample ID	<b>1608119-02A MSD</b>	Batch ID:	<b>76835</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MSD</b>	Run ID:	<b>CETAC2_HG_160818B</b>	Analysis Date:	<b>8/18/2016 10:18:35 AM</b>	Prep Date:	<b>8/17/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00199 0.000200 0.00200 0 99.5 80 120 0 15

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_160818B

Sample ID <b>ICV-160818</b>	Batch ID: <b>R87672</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_160818B</b>	Analysis Date: <b>8/18/2016 9:53:38 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00388	0.000200	0.00400	0	97.0	90	110			

Sample ID <b>CCV1-160818</b>	Batch ID: <b>R87672</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_160818B</b>	Analysis Date: <b>8/18/2016 10:39:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00190	0.000200	0.00200	0	95.0	90	110			

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

The QC data in batch 76816 applies to the following samples: 1608119-01A, 1608119-02A, 1608119-03A, 1608119-04A, 1608119-05A, 1608119-06A, 1608119-07A, 1608119-08A

Sample ID: <b>MB-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:55:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID: <b>LCS-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:57:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.209	0.00250	0.200	0	105	80	120			
Arsenic	0.184	0.00500	0.200	0	91.9	80	120			
Barium	0.197	0.0100	0.200	0	98.5	80	120			
Beryllium	0.200	0.00100	0.200	0	100	80	120			
Cadmium	0.200	0.00100	0.200	0	99.8	80	120			
Calcium	4.73	0.300	5.00	0	94.5	80	120			
Chromium	0.198	0.00500	0.200	0	99.1	80	120			
Cobalt	0.180	0.00500	0.200	0	89.8	80	120			
Lead	0.196	0.00100	0.200	0	97.9	80	120			
Lithium	0.199	0.0100	0.200	0	99.4	80	120			
Molybdenum	0.194	0.00500	0.200	0	96.9	80	120			
Selenium	0.180	0.00500	0.200	0	90.0	80	120			
Thallium	0.202	0.00150	0.200	0	101	80	120			

Sample ID: <b>LCSD-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:59:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.210	0.00250	0.200	0	105	80	120	0.364	15	
Arsenic	0.192	0.00500	0.200	0	96.2	80	120	4.61	15	
Barium	0.194	0.0100	0.200	0	97.2	80	120	1.39	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID: <b>LCSD-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:59:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.199	0.00100	0.200	0	99.6	80	120	0.495	15	
Cadmium	0.197	0.00100	0.200	0	98.5	80	120	1.30	15	
Calcium	4.70	0.300	5.00	0	94.0	80	120	0.549	15	
Chromium	0.196	0.00500	0.200	0	98.2	80	120	0.920	15	
Cobalt	0.186	0.00500	0.200	0	93.0	80	120	3.45	15	
Lead	0.191	0.00100	0.200	0	95.5	80	120	2.54	15	
Lithium	0.197	0.0100	0.200	0	98.5	80	120	0.885	15	
Molybdenum	0.193	0.00500	0.200	0	96.6	80	120	0.298	15	
Selenium	0.189	0.00500	0.200	0	94.3	80	120	4.76	15	
Thallium	0.194	0.00150	0.200	0	96.9	80	120	4.14	15	

Sample ID: <b>1608135-04A SD</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:05:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.0400	0.125	0	0				0	10	
Arsenic	0.667	0.250	0	0.668				0.086	10	
Barium	<0.150	0.500	0	0				0	10	
Beryllium	<0.0150	0.0500	0	0				0	10	
Cadmium	<0.0150	0.0500	0	0				0	10	
Calcium	5.38	15.0	0	5.68				5.39	10	
Chromium	<0.100	0.250	0	0				0	10	
Cobalt	<0.150	0.250	0	0				0	10	
Lead	<0.0150	0.0500	0	0				0	10	
Lithium	<0.250	0.500	0	0				0	10	
Molybdenum	1.25	0.250	0	1.21				3.01	10	
Selenium	<0.100	0.250	0	0				0	10	
Thallium	<0.0250	0.0750	0	0				0	10	

Sample ID: <b>1608135-04A PDS</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:25:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	2.10	0.0250	2.00	0	105	80	120			
Arsenic	2.66	0.0500	2.00	0.668	99.7	80	120			
Barium	1.97	0.100	2.00	0	98.6	80	120			
Beryllium	1.86	0.0100	2.00	0	93.2	80	120			
Cadmium	1.87	0.0100	2.00	0	93.7	80	120			
Calcium	50.3	3.00	50.0	5.68	89.2	80	120			
Chromium	1.93	0.0500	2.00	0	96.7	80	120			
Cobalt	1.90	0.0500	2.00	0	95.1	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID <b>1608135-04A PDS</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:25:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	1.97	0.0100	2.00	0	98.7	80	120			
Lithium	1.81	0.100	2.00	0	90.4	80	120			
Molybdenum	3.08	0.0500	2.00	1.21	93.4	80	120			
Selenium	1.94	0.0500	2.00	0	96.8	80	120			
Thallium	1.97	0.0150	2.00	0	98.3	80	120			

Sample ID <b>1608135-04A MS</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:27:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.219	0.0250	0.200	0	110	80	120			
Arsenic	0.891	0.0500	0.200	0.668	112	80	120			
Barium	0.215	0.100	0.200	0	107	80	120			
Beryllium	0.186	0.0100	0.200	0	92.9	80	120			
Cadmium	0.196	0.0100	0.200	0	97.9	80	120			
Calcium	10.3	3.00	5.00	5.68	92.9	80	120			
Chromium	0.191	0.0500	0.200	0	95.6	80	120			
Cobalt	0.195	0.0500	0.200	0	97.4	80	120			
Lead	0.204	0.0100	0.200	0	102	80	120			
Lithium	0.215	0.100	0.200	0	108	80	120			
Molybdenum	1.48	0.0500	0.200	1.21	135	80	120			S
Selenium	0.175	0.0500	0.200	0	87.3	80	120			
Thallium	0.199	0.0150	0.200	0	99.5	80	120			

Sample ID <b>1608135-04A MSD</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:29:00 PM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.213	0.0250	0.200	0	106	80	120	3.19	15	
Arsenic	0.873	0.0500	0.200	0.668	103	80	120	2.08	15	
Barium	0.213	0.100	0.200	0	106	80	120	0.965	15	
Beryllium	0.184	0.0100	0.200	0	91.8	80	120	1.18	15	
Cadmium	0.192	0.0100	0.200	0	95.9	80	120	2.08	15	
Calcium	10.3	3.00	5.00	5.68	91.6	80	120	0.674	15	
Chromium	0.189	0.0500	0.200	0	94.7	80	120	0.972	15	
Cobalt	0.192	0.0500	0.200	0	95.8	80	120	1.70	15	
Lead	0.199	0.0100	0.200	0	99.4	80	120	2.38	15	
Lithium	0.206	0.100	0.200	0	103	80	120	4.42	15	
Molybdenum	1.48	0.0500	0.200	1.21	134	80	120	0.179	15	S
Selenium	0.164	0.0500	0.200	0	82.1	80	120	6.17	15	
Thallium	0.200	0.0150	0.200	0	99.8	80	120	0.341	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID <b>ICV-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 10:42:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.104	0.00250	0.100	0	104	90	110			
Arsenic	0.101	0.00500	0.100	0	101	90	110			
Barium	0.0993	0.0100	0.100	0	99.3	90	110			
Beryllium	0.100	0.00100	0.100	0	100	90	110			
Cadmium	0.0985	0.00100	0.100	0	98.5	90	110			
Calcium	2.34	0.300	2.50	0	93.8	90	110			
Chromium	0.104	0.00500	0.100	0	104	90	110			
Cobalt	0.103	0.00500	0.100	0	103	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
Lithium	0.0976	0.0100	0.100	0	97.6	90	110			
Molybdenum	0.0952	0.00500	0.100	0	95.2	90	110			
Selenium	0.101	0.00500	0.100	0	101	90	110			
Thallium	0.101	0.00150	0.100	0	101	90	110			

Sample ID <b>LCVL-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 10:46:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00221	0.00250	0.00200	0	110	70	130			
Arsenic	0.00526	0.00500	0.00500	0	105	70	130			
Barium	0.00513	0.0100	0.00500	0	103	70	130			
Beryllium	0.000783	0.00100	0.00100	0	78.3	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.105	0.300	0.100	0	105	70	130			
Chromium	0.00526	0.00500	0.00500	0	105	70	130			
Cobalt	0.00522	0.00500	0.00500	0	104	70	130			
Lead	0.00111	0.00100	0.00100	0	110	70	130			
Lithium	0.0100	0.0100	0.0100	0	100	70	130			
Molybdenum	0.00524	0.00500	0.00500	0	105	70	130			
Selenium	0.00555	0.00500	0.00500	0	111	70	130			
Thallium	0.00105	0.00150	0.00100	0	105	70	130			

Sample ID <b>CCV2-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:28:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	103	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Barium	0.204	0.0100	0.200	0	102	90	110			
Beryllium	0.210	0.00100	0.200	0	105	90	110			
Cadmium	0.208	0.00100	0.200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID <b>CCV2-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:28:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.66	0.300	5.00	0	93.1	90	110			
Chromium	0.208	0.00500	0.200	0	104	90	110			
Cobalt	0.211	0.00500	0.200	0	106	90	110			
Lead	0.210	0.00100	0.200	0	105	90	110			
Lithium	0.215	0.0100	0.200	0	107	90	110			
Molybdenum	0.207	0.00500	0.200	0	103	90	110			
Selenium	0.212	0.00500	0.200	0	106	90	110			
Thallium	0.217	0.00150	0.200	0	108	90	110			

Sample ID <b>LCVL2-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 12:38:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00214	0.00250	0.00200	0	107	70	130			
Arsenic	0.00520	0.00500	0.00500	0	104	70	130			
Barium	0.00517	0.0100	0.00500	0	103	70	130			
Beryllium	0.00109	0.00100	0.00100	0	109	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.0990	0.300	0.100	0	99.0	70	130			
Chromium	0.00514	0.00500	0.00500	0	103	70	130			
Cobalt	0.00494	0.00500	0.00500	0	98.9	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
Lithium	0.0104	0.0100	0.0100	0	104	70	130			
Molybdenum	0.00489	0.00500	0.00500	0	97.8	70	130			
Selenium	0.00491	0.00500	0.00500	0	98.1	70	130			
Thallium	0.00105	0.00150	0.00100	0	105	70	130			

Sample ID <b>CCV3-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:39:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	90	110			
Arsenic	0.210	0.00500	0.200	0	105	90	110			
Barium	0.203	0.0100	0.200	0	102	90	110			
Beryllium	0.209	0.00100	0.200	0	104	90	110			
Cadmium	0.206	0.00100	0.200	0	103	90	110			
Calcium	4.76	0.300	5.00	0	95.3	90	110			
Chromium	0.209	0.00500	0.200	0	105	90	110			
Cobalt	0.206	0.00500	0.200	0	103	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
Lithium	0.217	0.0100	0.200	0	109	90	110			

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID <b>CCV3-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:39:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.202	0.00500	0.200	0	101	90	110			
Selenium	0.205	0.00500	0.200	0	103	90	110			
Thallium	0.208	0.00150	0.200	0	104	90	110			

Sample ID <b>LCVL3-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 1:46:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00226	0.00250	0.00200	0	113	70	130			
Arsenic	0.00537	0.00500	0.00500	0	107	70	130			
Barium	0.00514	0.0100	0.00500	0	103	70	130			
Beryllium	0.000885	0.00100	0.00100	0	88.5	70	130			
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Calcium	0.103	0.300	0.100	0	103	70	130			
Chromium	0.00517	0.00500	0.00500	0	103	70	130			
Cobalt	0.00528	0.00500	0.00500	0	106	70	130			
Lead	0.000995	0.00100	0.00100	0	99.5	70	130			
Lithium	0.0101	0.0100	0.0100	0	101	70	130			
Molybdenum	0.00491	0.00500	0.00500	0	98.2	70	130			
Selenium	0.00497	0.00500	0.00500	0	99.5	70	130			
Thallium	0.00101	0.00150	0.00100	0	101	70	130			

Sample ID <b>CCV4-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 2:11:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	103	90	110			
Arsenic	0.209	0.00500	0.200	0	105	90	110			
Barium	0.208	0.0100	0.200	0	104	90	110			
Beryllium	0.207	0.00100	0.200	0	103	90	110			
Cadmium	0.208	0.00100	0.200	0	104	90	110			
Chromium	0.207	0.00500	0.200	0	103	90	110			
Cobalt	0.208	0.00500	0.200	0	104	90	110			
Lead	0.204	0.00100	0.200	0	102	90	110			
Lithium	0.214	0.0100	0.200	0	107	90	110			
Molybdenum	0.205	0.00500	0.200	0	103	90	110			
Selenium	0.203	0.00500	0.200	0	101	90	110			
Thallium	0.210	0.00150	0.200	0	105	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160817A**

Sample ID: <b>LCVL4-160817</b>	Batch ID: <b>R87663</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160817A</b>	Analysis Date: <b>8/17/2016 2:15:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00226	0.00250	0.00200	0	113	70	130			
Arsenic	0.00509	0.00500	0.00500	0	102	70	130			
Barium	0.00516	0.0100	0.00500	0	103	70	130			
Beryllium	0.00123	0.00100	0.00100	0	123	70	130			
Cadmium	0.00108	0.00100	0.00100	0	108	70	130			
Chromium	0.00521	0.00500	0.00500	0	104	70	130			
Cobalt	0.00503	0.00500	0.00500	0	101	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
Lithium	0.0104	0.0100	0.0100	0	104	70	130			
Molybdenum	0.00495	0.00500	0.00500	0	99.0	70	130			
Selenium	0.00460	0.00500	0.00500	0	91.9	70	130			
Thallium	0.00104	0.00150	0.00100	0	104	70	130			

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160818B**

The QC data in batch 76816 applies to the following samples: 1608119-01A, 1608119-02A, 1608119-03A, 1608119-04A, 1608119-05A, 1608119-06A, 1608119-07A, 1608119-08A

Sample ID <b>MB-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:32:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron <0.0100 0.0300

Sample ID <b>LCS-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:34:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 0.193 0.0300 0.200 0 96.3 80 120

Sample ID <b>LCS-76816</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:36:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 0.185 0.0300 0.200 0 92.7 80 120 3.82 15

Sample ID <b>1608135-04A SD</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:42:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 1.97 1.50 0 1.87 5.13 10

Sample ID <b>1608135-04A PDS</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:44:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 3.60 0.300 2.00 1.87 86.7 80 120

Sample ID <b>1608135-04A MS</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:04:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 2.18 0.300 0.200 1.87 158 80 120 S

Sample ID <b>1608135-04A MSD</b>	Batch ID: <b>76816</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:06:00 PM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 2.07 0.300 0.200 1.87 102 80 120 5.26 15

- 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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160818B**

Sample ID <b>ICV2-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:06:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0920	0.0300	0.100	0	92.0	90	110			
Calcium	2.39	0.300	2.50	0	95.8	90	110			

Sample ID <b>ILCVL2-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 2:11:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0190	0.0300	0.0200	0	95.0	70	130			
Calcium	0.102	0.300	0.100	0	102	70	130			

Sample ID <b>CCV2-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:08:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.195	0.0300	0.200	0	97.6	90	110			
Calcium	4.88	0.300	5.00	0	97.6	90	110			

Sample ID <b>LCVL2-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:16:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0176	0.0300	0.0200	0	87.8	70	130			
Calcium	0.0995	0.300	0.100	0	99.5	70	130			

Sample ID <b>CCV3-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:42:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.193	0.0300	0.200	0	96.6	90	110			
Calcium	4.89	0.300	5.00	0	97.8	90	110			

Sample ID <b>LCVL3-160818</b>	Batch ID: <b>R87690</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160818B</b>	Analysis Date: <b>8/18/2016 3:54:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.00902	0.0300	0.0200	0	45.1	70	130			S
Calcium	0.100	0.300	0.100	0	100	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160815A**

The QC data in batch 76801 applies to the following samples: 1608119-01D, 1608119-02D, 1608119-03D, 1608119-04D, 1608119-05D, 1608119-06D, 1608119-07D, 1608119-08D

Sample ID <b>MB-76801</b>	Batch ID: <b>76801</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 10:00:51 AM</b>	Prep Date: <b>8/15/2016</b>							
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 <b>LCS-76801</b>	Batch ID: <b>76801</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 10:15:27 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.45	1.00	10.00	0	94.5	90	110			
Fluoride	3.62	0.400	4.000	0	90.6	90	110			
Sulfate	29.6	3.00	30.00	0	98.5	90	110			

Sample ID <b>LCSD-76801</b>	Batch ID: <b>76801</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 10:30:04 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.57	1.00	10.00	0	95.7	90	110	1.36	20	
Fluoride	3.71	0.400	4.000	0	92.9	90	110	2.48	20	
Sulfate	30.0	3.00	30.00	0	100	90	110	1.42	20	

Sample ID <b>1608119-02DMS</b>	Batch ID: <b>76801</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 4:29:39 PM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	294	10.0	200.0	107.6	93.0	90	110			
Fluoride	192	4.00	200.0	2.201	95.0	90	110			
Sulfate	864	30.0	200.0	654.7	104	90	110			

Sample ID <b>1608119-02DMSD</b>	Batch ID: <b>76801</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 4:44:15 PM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	299	10.0	200.0	107.6	95.5	90	110	1.70	20	
Fluoride	195	4.00	200.0	2.201	96.5	90	110	1.49	20	
Sulfate	868	30.0	200.0	654.7	107	90	110	0.520	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_160815A**

Sample ID <b>ICV-160815</b>	Batch ID: <b>R87627</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 9:13:17 AM</b>	Prep Date:

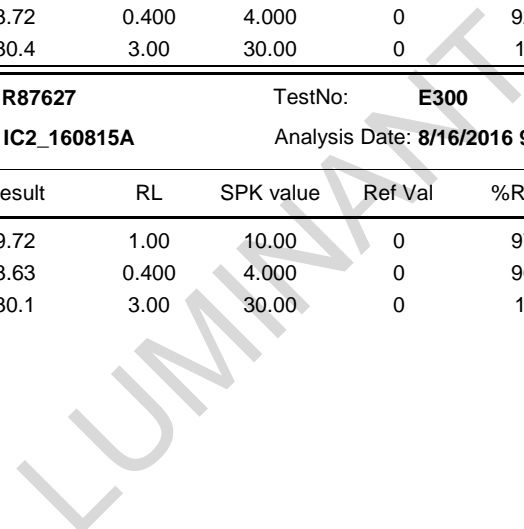
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	23.5	1.00	25.00	0	94.2	90	110			
Fluoride	9.30	0.400	10.00	0	93.0	90	110			
Sulfate	74.6	3.00	75.00	0	99.5	90	110			

Sample ID <b>CCV1-160815</b>	Batch ID: <b>R87627</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/15/2016 2:30:38 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.43	1.00	10.00	0	94.3	90	110			
Fluoride	3.72	0.400	4.000	0	92.9	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

Sample ID <b>CCV2-160815</b>	Batch ID: <b>R87627</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_160815A</b>	Analysis Date: <b>8/16/2016 9:50:51 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.72	1.00	10.00	0	97.2	90	110			
Fluoride	3.63	0.400	4.000	0	90.7	90	110			
Sulfate	30.1	3.00	30.00	0	100	90	110			



**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160815A**

The QC data in batch 76798 applies to the following samples: 1608119-01D

Sample ID: <b>1608095-01D-DUP</b>	Batch ID: <b>76798</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 10:39:00 AM</b>	Prep Date: <b>8/15/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.62	0	0	6.570				0.758	5	

Sample ID: <b>1608095-11D-DUP</b>	Batch ID: <b>76798</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.7°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 11:02:00 AM</b>	Prep Date: <b>8/15/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.39	0	0	6.430				0.624	5	

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160815A**

Sample ID <b>ICV-160815</b>	Batch ID: <b>R87598</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.3°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 9:21:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	9.90	0	10.00	0	99.0	99	101			
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Sample ID <b>CCV1-160815</b>	Batch ID: <b>R87598</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.9°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 10:56:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

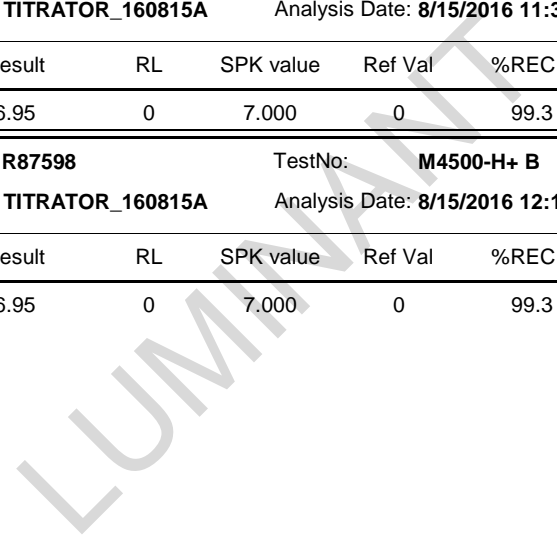
pH	6.95	0	7.000	0	99.3	97.1	102.9			
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Sample ID <b>CCV2-160815</b>	Batch ID: <b>R87598</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.2°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 11:35:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.95	0	7.000	0	99.3	97.1	102.9			
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Sample ID <b>CCV3-160815</b>	Batch ID: <b>R87598</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.7°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160815A</b>	Analysis Date: <b>8/15/2016 12:16:00 PM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.95	0	7.000	0	99.3	97.1	102.9			
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**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160816A**

The QC data in batch 76818 applies to the following samples: 1608119-02D, 1608119-03D, 1608119-04D, 1608119-05D, 1608119-06D, 1608119-07D, 1608119-08D

Sample ID: <b>1608119-02D-DUP</b>	Batch ID: <b>76818</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@18.9°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 9:53:00 AM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.34	0	0	7.360				0.272	5	

Sample ID: <b>1608133-10D-DUP</b>	Batch ID: <b>76818</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@17.7°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 10:55:00 AM</b>	Prep Date: <b>8/16/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.18	0	0	6.190				0.162	5	

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_160816A**

Sample ID <b>ICV-160816</b>	Batch ID: <b>R87635</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 8:52:00 AM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	9.93	0	10.00	0	99.3	99	101			
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Sample ID <b>CCV1-160816</b>	Batch ID: <b>R87635</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.6°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 10:11:00 AM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.97	0	7.000	0	99.6	97.1	102.9			
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Sample ID <b>CCV2-160816</b>	Batch ID: <b>R87635</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 10:45:00 AM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.96	0	7.000	0	99.4	97.1	102.9			
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Sample ID <b>CCV3-160816</b>	Batch ID: <b>R87635</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.4°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_160816A</b>	Analysis Date: <b>8/16/2016 10:56:00 AM</b>	Prep Date: <b>8/16/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pH	6.96	0	7.000	0	99.4	97.1	102.9			
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<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1608119  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_160815A**

The QC data in batch 76803 applies to the following samples: 1608119-01D, 1608119-02D, 1608119-03D, 1608119-04D, 1608119-05D, 1608119-06D, 1608119-07D, 1608119-08D

Sample ID <b>MB-76803</b>	Batch ID: <b>76803</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_160815A</b>	Analysis Date: <b>8/16/2016 8:42:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	<10.0	10.0								

Sample ID <b>LCS-76803</b>	Batch ID: <b>76803</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_160815A</b>	Analysis Date: <b>8/16/2016 8:42:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	761	10.0	745.6	0	102	90	113			

Sample ID <b>1608117-05C-DUP</b>	Batch ID: <b>76803</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160815A</b>	Analysis Date: <b>8/16/2016 8:42:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	782	10.0	0	801.0				2.40	5	

Sample ID <b>1608117-06C-DUP</b>	Batch ID: <b>76803</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_160815A</b>	Analysis Date: <b>8/16/2016 8:42:00 AM</b>	Prep Date: <b>8/15/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1590	50.0	0	1600				0.627	5	

**Qualifiers:**

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



## Case Narrative

### Lab No: 20160783

This report contains the analytical results for the 8 sample(s) received under chain of custody by ESC Lab Sciences on 8/15/2016 3:25:00 PM. These samples are associated with your 1608119 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### Observations / Nonconformances

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LUMINA



Client : DHL Analytical, Inc.  
 Client Project : 1608119  
 Lab Number : 20160783  
 Date Reported : 09/06/16  
 Date Received : 08/15/16  
 Page Number : 2 of 4

## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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**Lab ID** : 20160783-01  
**Client ID** : W-34  
**Date Sampled** : 8/8/2016 9:20:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.200 +/- 1.33	0.959	pCi/l				
Radium-226	SM 7500 Ra B M*	0.035 +/- 0.120	0.249	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.165 +/- 1.21	0.710	pCi/l		08/25/16	08/30/16	JR

**Lab ID** : 20160783-02  
**Client ID** : W-33  
**Date Sampled** : 8/8/2016 10:10:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.184 +/- 1.30	1.06	pCi/l				
Radium-226	SM 7500 Ra B M*	0.184 +/- 0.297	0.469	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	-0.400 +/- 1.01	0.591	pCi/l		08/25/16	08/30/16	JR

**Lab ID** : 20160783-03  
**Client ID** : W-32  
**Date Sampled** : 8/8/2016 10:45:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.723 +/- 1.45	0.941	pCi/l				
Radium-226	SM 7500 Ra B M*	0.414 +/- 0.213	0.210	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.309 +/- 1.24	0.731	pCi/l		08/25/16	08/30/16	JR

**Lab ID** : 20160783-04  
**Client ID** : W-31  
**Date Sampled** : 8/8/2016 11:30:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.099 +/- 1.19	0.906	pCi/l				
Radium-226	SM 7500 Ra B M*	0.099 +/- 0.162	0.265	pCi/l		08/22/16	08/25/16	AK
Radium-228	EPA 904*/9320*	-0.402 +/- 1.03	0.641	pCi/l		08/25/16	08/30/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1608119  
 Lab Number : 20160783  
 Date Reported : 09/06/16  
 Date Received : 08/15/16  
 Page Number : 3 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20160783-05  
**Client ID** : W-30  
**Date Sampled** : 8/8/2016 12:30:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.80 +/- 1.40	0.954	pCi/l			
Radium-226	SM 7500 Ra B M*	0.314 +/- 0.189	0.160	pCi/l	08/22/16	08/25/16	AK
Radium-228	EPA 904*/9320*	1.49 +/- 1.21	0.795	pCi/l	08/25/16	08/30/16	JR

**Lab ID** : 20160783-06  
**Client ID** : DUP-01  
**Date Sampled** : 8/8/2016 12:30:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.06 +/- 2.55	1.64	pCi/l			
Radium-226	SM 7500 Ra B M*	0.147 +/- 0.148	0.209	pCi/l	08/22/16	08/25/16	AK
Radium-228	EPA 904*/9320*	1.91 +/- 2.40	1.43	pCi/l	08/25/16	08/30/16	JR

**Lab ID** : 20160783-07  
**Client ID** : W-29  
**Date Sampled** : 8/8/2016 1:15:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.886 +/- 1.25	1.02	pCi/l			
Radium-226	SM 7500 Ra B M*	0.102 +/- 0.241	0.410	pCi/l	08/22/16	08/25/16	AK
Radium-228	EPA 904*/9320*	0.784 +/- 1.00	0.615	pCi/l	08/25/16	08/31/16	JR

**Lab ID** : 20160783-08  
**Client ID** : W-35  
**Date Sampled** : 8/8/2016 2:35:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.75 +/- 0.992	0.686	pCi/l			
Radium-226	SM 7500 Ra B M*	0.357 +/- 0.184	0.188	pCi/l	08/22/16	08/25/16	AK
Radium-228	EPA 904*/9320*	1.39 +/- 0.807	0.498	pCi/l	08/25/16	08/31/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1608119  
 Lab Number : 20160783  
 Date Reported : 09/06/16  
 Date Received : 08/15/16  
 Page Number : 4 of 4

### QC Report

Parameter	Blank	LCS %REC	LCSD %REC RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC RPD	Batch ID
Radium-226	0.033	94.4		NC	0.312	90.5	102.0 11.8	R1124
Radium-228	-0.353	83.9		NC	0.174	84.7	81.6 17.8	R3847

Lab Approval:

Ron Eidson  
 Director of Radiochemistry

LUMINANT

DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222

FAX: (512) 388-8229

Work Order: 1608119

**Subcontractor:**

ESC Laboratory  
 311 North Aspen  
 Broken Arrow, Oklahoma 74012

TEL: (918) 251-2515  
 FAX:  
 Acct #: DHLRRTX

11-Aug-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests				
					E904.0	SM7500Ra-B M			
W-34	Aqueous	-01B	08/08/16 09:20 AM	500HDPEHNO3	1				
W-34	Aqueous	-01C	08/08/16 09:20 AM	500HDPEHNO3		1			
W-33	Aqueous	-02B	08/08/16 10:10 AM	500HDPEHNO3	1				
W-33	Aqueous	-02C	08/08/16 10:10 AM	500HDPEHNO3		1			
W-32	Aqueous	-03B	08/08/16 10:45 AM	500HDPEHNO3	1				
W-32	Aqueous	-03C	08/08/16 10:45 AM	500HDPEHNO3		1			
W-31	Aqueous	-04B	08/08/16 11:30 AM	500HDPEHNO3	1				
W-31	Aqueous	-04C	08/08/16 11:30 AM	500HDPEHNO3		1			
W-30	Aqueous	-05B	08/08/16 12:30 PM	500HDPEHNO3	1				
W-30	Aqueous	-05C	08/08/16 12:30 PM	500HDPEHNO3		1			
DUP-01	Aqueous	-06B	08/08/16 12:30 PM	500HDPEHNO3	1				
DUP-01	Aqueous	-06C	08/08/16 12:30 PM	500HDPEHNO3		1			
W-29	Aqueous	-07B	08/08/16 01:15 PM	500HDPEHNO3	1				
W-29	Aqueous	-07C	08/08/16 01:15 PM	500HDPEHNO3		1			
W-35	Aqueous	-08B	08/08/16 02:35 PM	500HDPEHNO3	1				
W-35	Aqueous	-08C	08/08/16 02:35 PM	500HDPEHNO3		1			

**General Comments:**

Please analyze these samples with Normal Turnaround Time.  
 Report RA-226, Ra-228 & Combined per Specs DHLRRTX033116S.  
 Quality Control Package Needed: Standard - NELAC Rad Test compliant  
 Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

4853667  
 2060703

Relinquished by: <u>[Signature]</u>	Date/Time: <u>8/11/16 1730</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8/11/16 1730</u>
Relinquished by: _____	Date/Time: _____	Received by: <u>[Signature]</u>	Date/Time: <u>8/15/16 1525</u>

### SAMPLE LOGIN

Date Received: 8/15/2016 3:25:00

Lab Number: 20160783

Due: 9/12/2016

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160783-01 B	W-34	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-01 A	W-34	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-02 A	W-33	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-02 B	W-33	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-03 A	W-32	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-03 B	W-32	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-04 B	W-31	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-04 A	W-31	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-05 B	W-30	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-05 A	W-30	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-06 A	DUP-01	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-06 B	DUP-01	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			
20160783-07 A	W-29	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20160783-07 B	W-29	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
						SM 7500 Ra B M*			
						EPA 904*/9320*			



20160783-08 B	W-35	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	-	Yes	Yes
20160783-08 A	W-35	NPW	08/08/16	Plastic	500 ml	HNO3, pH < 2	-	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

**CONTAINER INSPECTION**

# Coolers 1 Custody Seals Broken 0 Temperature: Amb Ice  Radiation Survey: <300 cpm

**SAMPLE INSPECTION**

Sample Seal Broken 0 Chain of Custody Record  Labels in Tact  Radiation Survey Complete N/A

**Anomalles**

Inspected By: Andrew Taylor DATE 8/15/16  
 QA or Designee Review: Layne Thomas DATE 08/15/16  
 Sample Custodian Review: Ben M DATE 8/15/16

**Project Notes:**

LUMINANT



November 14, 2016

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

Order No.: 1610116

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 10/14/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-17





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LUMINANT



2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 72863

CHAIN-OF-CUSTODY

CLIENT: PBW  
 ADDRESS: 2201 DOUBLE CREEK DR ROUND ROCK, TX 78664  
 PHONE: 512-671-3434 FAX/E-MAIL: 512-671-3446  
 DATA REPORTED TO: WILL VIENNE  
 ADDITIONAL REPORT COPIES TO:

DATE: 10-12-16 PAGE 1 OF 1  
 PO #: 5164-C DHL WORK ORDER #: 1161116  
 PROJECT LOCATION OR NAME: LUMINANT - MOSES  
 CLIENT PROJECT #: 5164-C COLLECTOR: J. BRAYTON

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION				ANALYSES	FIELD NOTES	
							HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> □ NaOH □	UNPRESERVED			
							S=SOIL P=PAINT W=WATER SL=SLUDGE A=AIR O=OTHER L=LIQUID SO=SOLID SE=SEDIMENT						
W-34	01	10-12-16	0820	W	P	4	X	X	X				
W-33	02		0910	W	P	4	X	X	X				
W-32	03		1000	W	P	4	X	X	X				
W-31	04		1050	W	P	4	X	X	X				
W-30	05		1150	W	P	4	X	X	X				
DVP-01	06		1150	W	P	4	X	X	X				
W-29	07		1240	W	P	4	X	X	X				
W-35	08		1330	W	P	4	X	X	X				

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 10/13/16 1700 RECEIVED BY: (Signature) [Signature]  
 RELINQUISHED BY: (Signature) [Signature] DATE/TIME 10/13/16 930 RECEIVED BY: (Signature) [Signature]  
 RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

**TURN AROUND TIME**  
 RUSH  CALL FIRST  
 1 DAY  CALL FIRST  
 2 DAY   
 NORMAL   
 OTHER

**LABORATORY USE ONLY:**  
 RECEIVING TEMP: 22.38 THERM #: 73  
 CUSTODY SEALS:  BROKEN  INTACT  NOT USED  
 CARRIER:  LONE STAR  FEDEX  UPS  OTHER  
 COURIER DELIVERY  
 HAND DELIVERED

DHL DISPOSAL @ \$5.00 each  Return

John Dupont

---

From: Sara Taube [Sara.Taube@pbwfo.com]  
Sent: Wednesday, July 22, 2015 12:05 PM  
To: John Dupont  
Subject: CCR Appendix III and IV  
Follow Up Flag: Follow up  
Flag Status: Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

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

SHIP DATE: 13OCT16  
ACTWGT: 46.70 LB  
CAD: 6995323/SSF01704  
DIMS: 23x14x14 IN  
BILL THIRD PARTY

TO DHL

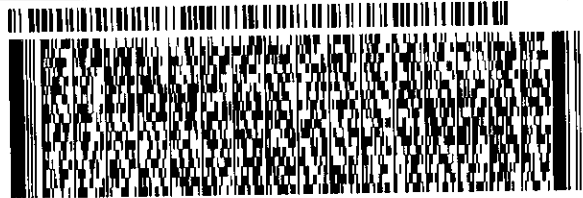
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222  
PO:

REF:

DEPT:



FedEx  
Express



101059160709102914

1 of 2

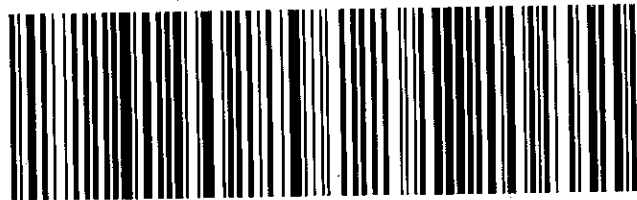
TRK# 7843 4818 5669  
0201

## MASTER ##

44 BSMA

FRI - 14 OCT 10:30A  
PRIORITY OVERNIGHT

78664  
TX-US AUS



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

SHIP DATE: 13OCT16  
ACTWGT: 49.00 LB  
CAD: 6995323/SSF01704  
DIMS: 23x14x14 IN  
BILL THIRD PARTY

TO DHL

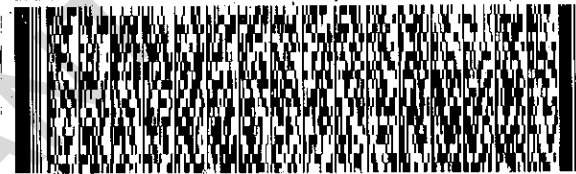
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222  
LNU:  
PO:

REF:

DEPT:



FedEx  
Express



101059160709102914

2 of 2

MPS# 7843 4818 5670  
0263

Mstr# 7843 4818 5669

0201

44 BSMA

FRI - 14 OCT 10:30A  
PRIORITY OVERNIGHT

78664  
TX-US AUS



Part #: 15929TV-0357

RT 512  
FZ  
1 10:30  
C 5670  
10.14

Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 10/14/2016

Work Order Number 1610116

Received by JB

Checklist completed by: [Signature] 10/14/2016  
Signature Date

Reviewed by [Initials] 10/14/2016  
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  3.8 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086
- Adjusted? no Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1610116

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis  
Sub-contract - Radium-228 and Radium-226 analyses by methods E904/9320 and SM 7500 Ra B M.  
Analyzed at ESC Lab Sciences.

**LOG IN**

The samples were added on and log-in performed on 10/14/16. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 10/27/16 and 10/28/16 the matrix spike and matrix spike duplicate recoveries were out of control limits for three analytes. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 10/28/16 the RPD for the serial dilution was slightly above control limits for Boron. This is flagged accordingly. The PDS was within control limits for this analyte. No further corrective actions were taken.

**TDS ANALYSIS**

For TDS analysis performed on 10/19/16 the sample and sample duplicate (1610106-08 & 1610106-08 DUP) had the RPD slightly above control limits. This is flagged accordingly in the QC summary report. No further corrective actions were taken.

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---

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1610116

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1610116-01	W-34		10/12/16 08:20 AM	10/14/2016
1610116-02	W-33		10/12/16 09:10 AM	10/14/2016
1610116-03	W-32		10/12/16 10:00 AM	10/14/2016
1610116-04	W-31		10/12/16 10:50 AM	10/14/2016
1610116-05	W-30		10/12/16 11:50 AM	10/14/2016
1610116-06	DUP-01		10/12/16 11:50 AM	10/14/2016
1610116-07	W-29		10/12/16 12:40 PM	10/14/2016
1610116-08	W-35		10/12/16 01:30 PM	10/14/2016

LUMINANT

Lab Order: 1610116  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1610116-01A	W-34	10/12/16 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-34	10/12/16 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-34	10/12/16 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-34	10/12/16 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-34	10/12/16 08:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/20/16 12:16 PM	77631
1610116-01D	W-34	10/12/16 08:20 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-34	10/12/16 08:20 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-34	10/12/16 08:20 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-34	10/12/16 08:20 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-02A	W-33	10/12/16 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-33	10/12/16 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-33	10/12/16 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-33	10/12/16 09:10 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/20/16 12:16 PM	77631
1610116-02D	W-33	10/12/16 09:10 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-33	10/12/16 09:10 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-33	10/12/16 09:10 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-33	10/12/16 09:10 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-03A	W-32	10/12/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-32	10/12/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-32	10/12/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-32	10/12/16 10:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/20/16 12:16 PM	77631
1610116-03D	W-32	10/12/16 10:00 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-32	10/12/16 10:00 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-32	10/12/16 10:00 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-32	10/12/16 10:00 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-04A	W-31	10/12/16 10:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-31	10/12/16 10:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-31	10/12/16 10:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603



Lab Order: 1610116  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1610116-04A	W-31	10/12/16 10:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/20/16 12:16 PM	77631
1610116-04D	W-31	10/12/16 10:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-31	10/12/16 10:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-31	10/12/16 10:50 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-31	10/12/16 10:50 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-05A	W-30	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-30	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-30	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-30	10/12/16 11:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/20/16 12:16 PM	77631
1610116-05D	W-30	10/12/16 11:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-30	10/12/16 11:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-30	10/12/16 11:50 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-30	10/12/16 11:50 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-06A	DUP-01	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	DUP-01	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	DUP-01	10/12/16 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	DUP-01	10/12/16 11:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/24/16 10:00 AM	77655
1610116-06D	DUP-01	10/12/16 11:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	DUP-01	10/12/16 11:50 AM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	DUP-01	10/12/16 11:50 AM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	DUP-01	10/12/16 11:50 AM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-07A	W-29	10/12/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-29	10/12/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-29	10/12/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-29	10/12/16 12:40 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/24/16 10:00 AM	77655
1610116-07D	W-29	10/12/16 12:40 PM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-29	10/12/16 12:40 PM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-29	10/12/16 12:40 PM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568

**Lab Order:** 1610116  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1610116-07D	W-29	10/12/16 12:40 PM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599
1610116-08A	W-35	10/12/16 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-35	10/12/16 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-35	10/12/16 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	10/19/16 08:51 AM	77603
	W-35	10/12/16 01:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	10/24/16 10:00 AM	77655
1610116-08D	W-35	10/12/16 01:30 PM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-35	10/12/16 01:30 PM	Aqueous	E300	Anion Preparation	10/20/16 09:13 AM	77622
	W-35	10/12/16 01:30 PM	Aqueous	M4500-H+ B	pH Preparation	10/14/16 10:20 AM	77568
	W-35	10/12/16 01:30 PM	Aqueous	M2540C	TDS Preparation	10/19/16 03:49 PM	77599

LUMINANT

Lab Order: 1610116  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1610116-01A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	77631	1	10/24/16 10:25 AM	CETAC2_HG_161024 A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:20 PM	ICP-MS4_161027B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	10	10/28/16 12:14 PM	ICP-MS4_161028B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	20	10/28/16 02:57 PM	ICP-MS4_161028B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 03:59 PM	ICP-MS4_161028B
1610116-01D	W-34	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 10:35 AM	IC2_161020A
	W-34	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 02:02 PM	IC2_161020A
	W-34	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:14 PM	TITRATOR_161014A
	W-34	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-02A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	77631	1	10/24/16 10:27 AM	CETAC2_HG_161024 A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:04 PM	ICP-MS4_161027B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:08 PM	ICP-MS4_161028B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 03:55 PM	ICP-MS4_161028B
1610116-02D	W-33	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 10:50 AM	IC2_161020A
	W-33	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 02:16 PM	IC2_161020A
	W-33	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:17 PM	TITRATOR_161014A
	W-33	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-03A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	77631	1	10/24/16 10:38 AM	CETAC2_HG_161024 A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:22 PM	ICP-MS4_161027B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:16 PM	ICP-MS4_161028B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:01 PM	ICP-MS4_161028B
1610116-03D	W-32	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 11:04 AM	IC2_161020A
	W-32	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 02:31 PM	IC2_161020A
	W-32	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:19 PM	TITRATOR_161014A
	W-32	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-04A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	77631	1	10/24/16 10:40 AM	CETAC2_HG_161024 A

Lab Order: 1610116  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1610116-04A	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:24 PM	ICP-MS4_161027B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	10	10/28/16 12:18 PM	ICP-MS4_161028B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:03 PM	ICP-MS4_161028B
1610116-04D	W-31	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 11:19 AM	IC2_161020A
	W-31	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 02:45 PM	IC2_161020A
	W-31	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:22 PM	TITRATOR_161014A
	W-31	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-05A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	77631	1	10/24/16 10:43 AM	CETAC2_HG_161024 A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:42 PM	ICP-MS4_161027B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:20 PM	ICP-MS4_161028B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:05 PM	ICP-MS4_161028B
1610116-05D	W-30	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 11:33 AM	IC2_161020A
	W-30	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 03:29 PM	IC2_161020A
	W-30	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:25 PM	TITRATOR_161014A
	W-30	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-06A	DUP-01	Aqueous	SW7470A	Mercury Total: Aqueous	77655	1	10/26/16 11:32 AM	CETAC2_HG_161026 A
	DUP-01	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:44 PM	ICP-MS4_161027B
	DUP-01	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:22 PM	ICP-MS4_161028B
	DUP-01	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:07 PM	ICP-MS4_161028B
1610116-06D	DUP-01	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 12:12 PM	IC2_161020A
	DUP-01	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 03:44 PM	IC2_161020A
	DUP-01	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:27 PM	TITRATOR_161014A
	DUP-01	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-07A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	77655	1	10/26/16 11:43 AM	CETAC2_HG_161026 A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:46 PM	ICP-MS4_161027B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:24 PM	ICP-MS4_161028B

**Lab Order:** 1610116  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1610116-07A	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:09 PM	ICP-MS4_161028B
1610116-07D	W-29	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 12:27 PM	IC2_161020A
	W-29	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 03:58 PM	IC2_161020A
	W-29	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:30 PM	TITRATOR_161014A
	W-29	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A
1610116-08A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	77655	1	10/26/16 11:46 AM	CETAC2_HG_161026 A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/27/16 02:48 PM	ICP-MS4_161027B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	50	10/28/16 12:26 PM	ICP-MS4_161028B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	77603	1	10/28/16 04:11 PM	ICP-MS4_161028B
1610116-08D	W-35	Aqueous	E300	Anions by IC method - Water	77622	1	10/20/16 12:41 PM	IC2_161020A
	W-35	Aqueous	E300	Anions by IC method - Water	77622	10	10/20/16 04:13 PM	IC2_161020A
	W-35	Aqueous	M4500-H+ B	pH	77568	1	10/14/16 12:33 PM	TITRATOR_161014A
	W-35	Aqueous	M2540C	Total Dissolved Solids	77599	1	10/20/16 08:42 AM	WC_161019A

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-34  
**Lab ID:** 1610116-01  
**Collection Date:** 10/12/16 08:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/24/16 10:25 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:20 PM
Arsenic	0.0279	0.00200	0.00500		mg/L	1	10/27/16 02:20 PM
Barium	0.0378	0.00300	0.0100		mg/L	1	10/27/16 02:20 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:20 PM
Boron	3.13	0.100	0.300		mg/L	10	10/28/16 12:14 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:20 PM
Calcium	110	2.00	6.00		mg/L	20	10/28/16 02:57 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:20 PM
Cobalt	0.144	0.00300	0.00500		mg/L	1	10/27/16 02:20 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:20 PM
Lithium	0.0104	0.00500	0.0100		mg/L	1	10/28/16 03:59 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:20 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:20 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:20 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	84.9	3.00	10.0		mg/L	10	10/20/16 02:02 PM
Fluoride	0.293	0.100	0.400	J	mg/L	1	10/20/16 10:35 AM
Sulfate	556	10.0	30.0		mg/L	10	10/20/16 02:02 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.13	0	0		pH Units@20.9°C	1	10/14/16 12:14 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	935	10.0	10.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-33  
**Lab ID:** 1610116-02  
**Collection Date:** 10/12/16 09:10 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.000800	0.000800	0.00200		mg/L	1	10/24/16 10:27 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:04 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:04 PM
Barium	0.0233	0.00300	0.0100		mg/L	1	10/27/16 02:04 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:04 PM
Boron	5.15	0.500	1.50		mg/L	50	10/28/16 12:08 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:04 PM
Calcium	237	5.00	15.0		mg/L	50	10/28/16 12:08 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:04 PM
Cobalt	0.00440	0.00300	0.00500	J	mg/L	1	10/27/16 02:04 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:04 PM
Lithium	0.00826	0.00500	0.0100	J	mg/L	1	10/28/16 03:55 PM
Molybdenum	0.0479	0.00200	0.00500		mg/L	1	10/27/16 02:04 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:04 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:04 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	111	3.00	10.0		mg/L	10	10/20/16 02:16 PM
Fluoride	2.43	0.100	0.400		mg/L	1	10/20/16 10:50 AM
Sulfate	797	10.0	30.0		mg/L	10	10/20/16 02:16 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	7.17	0	0		pH Units@21°C	1	10/14/16 12:17 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1540	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-32  
**Lab ID:** 1610116-03  
**Collection Date:** 10/12/16 10:00 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/24/16 10:38 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:22 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:22 PM
Barium	0.0246	0.00300	0.0100		mg/L	1	10/27/16 02:22 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:22 PM
Boron	6.32	0.500	1.50		mg/L	50	10/28/16 12:16 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:22 PM
Calcium	284	5.00	15.0		mg/L	50	10/28/16 12:16 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:22 PM
Cobalt	0.00550	0.00300	0.00500		mg/L	1	10/27/16 02:22 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:22 PM
Lithium	0.00854	0.00500	0.0100	J	mg/L	1	10/28/16 04:01 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:22 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:22 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:22 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	134	3.00	10.0		mg/L	10	10/20/16 02:31 PM
Fluoride	0.339	0.100	0.400	J	mg/L	1	10/20/16 11:04 AM
Sulfate	986	10.0	30.0		mg/L	10	10/20/16 02:31 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.86	0	0		pH Units@21.1°C	1	10/14/16 12:19 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1820	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-31  
**Lab ID:** 1610116-04  
**Collection Date:** 10/12/16 10:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/24/16 10:40 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:24 PM
Arsenic	0.00262	0.00200	0.00500	J	mg/L	1	10/27/16 02:24 PM
Barium	0.0708	0.00300	0.0100		mg/L	1	10/27/16 02:24 PM
Beryllium	0.00126	0.000300	0.00100		mg/L	1	10/27/16 02:24 PM
Boron	1.74	0.100	0.300		mg/L	10	10/28/16 12:18 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:24 PM
Calcium	71.7	1.00	3.00		mg/L	10	10/28/16 12:18 PM
Chromium	0.00278	0.00200	0.00500	J	mg/L	1	10/27/16 02:24 PM
Cobalt	0.108	0.00300	0.00500		mg/L	1	10/27/16 02:24 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:24 PM
Lithium	0.0238	0.00500	0.0100		mg/L	1	10/28/16 04:03 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:24 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:24 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:24 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	55.1	3.00	10.0		mg/L	10	10/20/16 02:45 PM
Fluoride	0.112	0.100	0.400	J	mg/L	1	10/20/16 11:19 AM
Sulfate	292	10.0	30.0		mg/L	10	10/20/16 02:45 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.01	0	0		pH Units@21.1°C	1	10/14/16 12:22 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	654	10.0	10.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-30  
**Lab ID:** 1610116-05  
**Collection Date:** 10/12/16 11:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	0.000116	0.0000800	0.000200	J	mg/L	1	10/24/16 10:43 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:42 PM
Arsenic	0.00348	0.00200	0.00500	J	mg/L	1	10/27/16 02:42 PM
Barium	0.0152	0.00300	0.0100		mg/L	1	10/27/16 02:42 PM
Beryllium	0.0263	0.000300	0.00100		mg/L	1	10/27/16 02:42 PM
Boron	6.51	0.500	1.50		mg/L	50	10/28/16 12:20 PM
Cadmium	0.00584	0.000300	0.00100		mg/L	1	10/27/16 02:42 PM
Calcium	130	5.00	15.0		mg/L	50	10/28/16 12:20 PM
Chromium	0.00228	0.00200	0.00500	J	mg/L	1	10/27/16 02:42 PM
Cobalt	0.296	0.00300	0.00500		mg/L	1	10/27/16 02:42 PM
Lead	0.0122	0.000300	0.00100		mg/L	1	10/27/16 02:42 PM
Lithium	0.0227	0.00500	0.0100		mg/L	1	10/28/16 04:05 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:42 PM
Selenium	0.0428	0.00200	0.00500		mg/L	1	10/27/16 02:42 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:42 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	79.9	3.00	10.0		mg/L	10	10/20/16 03:29 PM
Fluoride	0.788	0.100	0.400		mg/L	1	10/20/16 11:33 AM
Sulfate	.817	10.0	30.0		mg/L	10	10/20/16 03:29 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.61	0	0		pH Units@21.2°C	1	10/14/16 12:25 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1300	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** DUP-01  
**Lab ID:** 1610116-06  
**Collection Date:** 10/12/16 11:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	0.000126	0.0000800	0.000200	J	mg/L	1	10/26/16 11:32 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>RO</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:44 PM
Arsenic	0.00370	0.00200	0.00500	J	mg/L	1	10/27/16 02:44 PM
Barium	0.0154	0.00300	0.0100		mg/L	1	10/27/16 02:44 PM
Beryllium	0.0262	0.000300	0.00100		mg/L	1	10/27/16 02:44 PM
Boron	5.98	0.500	1.50		mg/L	50	10/28/16 12:22 PM
Cadmium	0.00647	0.000300	0.00100		mg/L	1	10/27/16 02:44 PM
Calcium	128	5.00	15.0		mg/L	50	10/28/16 12:22 PM
Chromium	0.00219	0.00200	0.00500	J	mg/L	1	10/27/16 02:44 PM
Cobalt	0.306	0.00300	0.00500		mg/L	1	10/27/16 02:44 PM
Lead	0.0114	0.000300	0.00100		mg/L	1	10/27/16 02:44 PM
Lithium	0.0225	0.00500	0.0100		mg/L	1	10/28/16 04:07 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:44 PM
Selenium	0.0439	0.00200	0.00500		mg/L	1	10/27/16 02:44 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:44 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	79.3	3.00	10.0		mg/L	10	10/20/16 03:44 PM
Fluoride	0.791	0.100	0.400		mg/L	1	10/20/16 12:12 PM
Sulfate	812	10.0	30.0		mg/L	10	10/20/16 03:44 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.44	0	0		pH Units@21.5°C	1	10/14/16 12:27 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1340	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-29  
**Lab ID:** 1610116-07  
**Collection Date:** 10/12/16 12:40 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/26/16 11:43 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:46 PM
Arsenic	0.00659	0.00200	0.00500		mg/L	1	10/27/16 02:46 PM
Barium	0.0456	0.00300	0.0100		mg/L	1	10/27/16 02:46 PM
Beryllium	0.00782	0.000300	0.00100		mg/L	1	10/27/16 02:46 PM
Boron	6.42	0.500	1.50		mg/L	50	10/28/16 12:24 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:46 PM
Calcium	174	5.00	15.0		mg/L	50	10/28/16 12:24 PM
Chromium	0.00626	0.00200	0.00500		mg/L	1	10/27/16 02:46 PM
Cobalt	0.468	0.00300	0.00500		mg/L	1	10/27/16 02:46 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:46 PM
Lithium	0.0622	0.00500	0.0100		mg/L	1	10/28/16 04:09 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:46 PM
Selenium	0.00919	0.00200	0.00500		mg/L	1	10/27/16 02:46 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:46 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	82.4	3.00	10.0		mg/L	10	10/20/16 03:58 PM
Fluoride	0.400	0.100	0.400		mg/L	1	10/20/16 12:27 PM
Sulfate	1140	10.0	30.0		mg/L	10	10/20/16 03:58 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	6.68	0	0		pH Units@21.6°C	1	10/14/16 12:30 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1720	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 14-Nov-16

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5164-C  
**Lab Order:** 1610116

**Client Sample ID:** W-35  
**Lab ID:** 1610116-08  
**Collection Date:** 10/12/16 01:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>			Analyst: <b>AH</b>		
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/26/16 11:46 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>			Analyst: <b>RO</b>		
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/27/16 02:48 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:48 PM
Barium	0.0165	0.00300	0.0100		mg/L	1	10/27/16 02:48 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:48 PM
Boron	6.25	0.500	1.50		mg/L	50	10/28/16 12:26 PM
Cadmium	0.000817	0.000300	0.00100	J	mg/L	1	10/27/16 02:48 PM
Calcium	150	5.00	15.0		mg/L	50	10/28/16 12:26 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:48 PM
Cobalt	0.248	0.00300	0.00500		mg/L	1	10/27/16 02:48 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/27/16 02:48 PM
Lithium	0.0261	0.00500	0.0100		mg/L	1	10/28/16 04:11 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:48 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/27/16 02:48 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/27/16 02:48 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	97.8	3.00	10.0		mg/L	10	10/20/16 04:13 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	10/20/16 12:41 PM
Sulfate	793	10.0	30.0		mg/L	10	10/20/16 04:13 PM
<b>PH</b>		<b>M4500-H+ B</b>			Analyst: <b>BJT</b>		
pH	5.71	0	0		pH Units@21.8°C	1	10/14/16 12:33 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>			Analyst: <b>AJH</b>		
Total Dissolved Solids (Residue, Filterable)	1320	50.0	50.0		mg/L	1	10/20/16 08:42 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

CLIENT: Pastor, Behling & Wheeler

**ANALYTICAL QC SUMMARY REPORT**

Work Order: 1610116

Project: Luminant - MOSES

RunID: CETAC2\_HG\_161024A

The QC data in batch 77631 applies to the following samples: 1610116-01A, 1610116-02A, 1610116-03A, 1610116-04A, 1610116-05A

Sample ID	<b>MB-77631</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MBLK</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:15:56 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID	<b>LCS-77631</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCS</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:20:28 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00220	0.000200	0.00200	0	110	85	115			

Sample ID	<b>LCSD-77631</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>LCSD</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:22:44 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00219	0.000200	0.00200	0	110	85	115	0.456	15	

Sample ID	<b>1610116-02A SD</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>SD</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:29:31 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000400	0.00100	0	0				0	10	

Sample ID	<b>1610116-02A PDS</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>PDS</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:31:47 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00242	0.000200	0.00250	0	96.8	85	115			

Sample ID	<b>1610116-02A MS</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MS</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:34:03 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00215	0.000200	0.00200	0	108	80	120			

Sample ID	<b>1610116-02A MSD</b>	Batch ID:	<b>77631</b>	TestNo:	<b>SW7470A</b>	Units:	<b>mg/L</b>			
SampType:	<b>MSD</b>	Run ID:	<b>CETAC2_HG_161024A</b>	Analysis Date:	<b>10/24/2016 10:36:19 A</b>	Prep Date:	<b>10/20/2016</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00215	0.000200	0.00200	0	108	80	120	0	15	

- 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_161024A

Sample ID <b>ICV-161024</b>	Batch ID: <b>R88677</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_161024A</b>	Analysis Date: <b>10/24/2016 10:11:22 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00398	0.000200	0.00400	0	99.5	90	110			

Sample ID <b>CCV1-161024</b>	Batch ID: <b>R88677</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_161024A</b>	Analysis Date: <b>10/24/2016 10:56:44 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00204	0.000200	0.00200	0	102	90	110			

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<b>Qualifiers:</b>	<p><b>B</b> Analyte detected in the associated Method Blank</p> <p><b>J</b> Analyte detected between MDL and RL</p> <p><b>ND</b> Not Detected at the Method Detection Limit</p> <p><b>RL</b> Reporting Limit</p> <p><b>J</b> Analyte detected between SDL and RL</p>	<p><b>DF</b> Dilution Factor</p> <p><b>MDL</b> Method Detection Limit</p> <p><b>R</b> RPD outside accepted control limits</p> <p><b>S</b> Spike Recovery outside control limits</p> <p><b>N</b> Parameter not NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_161026A

The QC data in batch 77655 applies to the following samples: 1610116-06A, 1610116-07A, 1610116-08A

Sample ID <b>MB-77655</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:23:30 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.0000800 0.000200

Sample ID <b>LCS-77655</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:25:46 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00214 0.000200 0.00200 0 107 85 115

Sample ID <b>LCSD-77655</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:28:02 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00222 0.000200 0.00200 0 111 85 115 3.67 15

Sample ID <b>1610116-06A SD</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:34:50 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000400 0.00100 0 0.000126 0 10

Sample ID <b>1610116-06A PDS</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:37:05 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00248 0.000200 0.00250 0.000126 94.2 85 115

Sample ID <b>1610116-06A MS</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:39:21 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00230 0.000200 0.00200 0.000126 109 80 120

Sample ID <b>1610116-06A MSD</b>	Batch ID: <b>77655</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:41:37 A</b>	Prep Date: <b>10/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00225 0.000200 0.00200 0.000126 106 80 120 2.20 15

- |  |   |
|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
|--|---|



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_161026A

Sample ID <b>ICV-161026</b>	Batch ID: <b>R88716</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 11:18:56 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00400	0.000200	0.00400	0	100	90	110			

Sample ID <b>CCV1-161026</b>	Batch ID: <b>R88716</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_161026A</b>	Analysis Date: <b>10/26/2016 12:04:19 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00199	0.000200	0.00200	0	99.5	90	110			

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<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

The QC data in batch 77603 applies to the following samples: 1610116-01A, 1610116-02A, 1610116-03A, 1610116-04A, 1610116-05A, 1610116-06A, 1610116-07A, 1610116-08A

Sample ID: <b>MB-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 1:56:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID: <b>LCS-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 1:58:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	80	120			
Arsenic	0.201	0.00500	0.200	0	100	80	120			
Barium	0.201	0.0100	0.200	0	100	80	120			
Beryllium	0.201	0.00100	0.200	0	100	80	120			
Cadmium	0.207	0.00100	0.200	0	103	80	120			
Calcium	4.88	0.300	5.00	0	97.6	80	120			
Chromium	0.213	0.00500	0.200	0	106	80	120			
Cobalt	0.211	0.00500	0.200	0	105	80	120			
Lead	0.204	0.00100	0.200	0	102	80	120			
Molybdenum	0.205	0.00500	0.200	0	103	80	120			
Selenium	0.200	0.00500	0.200	0	99.8	80	120			
Thallium	0.203	0.00150	0.200	0	102	80	120			

Sample ID: <b>LCSD-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:00:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	80	120	1.29	15	
Arsenic	0.201	0.00500	0.200	0	101	80	120	0.106	15	
Barium	0.203	0.0100	0.200	0	102	80	120	1.35	15	
Beryllium	0.200	0.00100	0.200	0	100	80	120	0.335	15	
Cadmium	0.210	0.00100	0.200	0	105	80	120	1.71	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID: <b>LCSD-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:00:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.85	0.300	5.00	0	97.0	80	120	0.578	15	
Chromium	0.212	0.00500	0.200	0	106	80	120	0.534	15	
Cobalt	0.212	0.00500	0.200	0	106	80	120	0.474	15	
Lead	0.207	0.00100	0.200	0	103	80	120	1.11	15	
Molybdenum	0.210	0.00500	0.200	0	105	80	120	2.26	15	
Selenium	0.202	0.00500	0.200	0	101	80	120	1.30	15	
Thallium	0.206	0.00150	0.200	0	103	80	120	1.10	15	

Sample ID: <b>1610116-02A SD</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:06:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Barium	0.0233	0.0500	0	0.0233				0.365	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	<0.0150	0.0250	0	0.00440				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
Molybdenum	0.0477	0.0250	0	0.0479				0.475	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1610116-02A PDS</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:25:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.185	0.00250	0.200	0	92.5	80	120			
Arsenic	0.196	0.00500	0.200	0	98.2	80	120			
Barium	0.218	0.0100	0.200	0.0233	97.1	80	120			
Beryllium	0.181	0.00100	0.200	0	90.7	80	120			
Cadmium	0.194	0.00100	0.200	0	96.9	80	120			
Chromium	0.210	0.00500	0.200	0	105	80	120			
Cobalt	0.198	0.00500	0.200	0.00440	96.9	80	120			
Lead	0.200	0.00100	0.200	0	100	80	120			
Molybdenum	0.243	0.00500	0.200	0.0479	97.8	80	120			
Selenium	0.190	0.00500	0.200	0	94.9	80	120			
Thallium	0.199	0.00150	0.200	0	99.4	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID: <b>1610116-02A MS</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:27:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.213	0.00250	0.200	0	107	80	120			
Arsenic	0.201	0.00500	0.200	0	100	80	120			
Barium	0.227	0.0100	0.200	0.0233	102	80	120			
Beryllium	0.187	0.00100	0.200	0	93.3	80	120			
Cadmium	0.206	0.00100	0.200	0	103	80	120			
Calcium	208	0.300	5.00	206	54.5	80	120			S
Chromium	0.206	0.00500	0.200	0	103	80	120			
Cobalt	0.202	0.00500	0.200	0.00440	99.0	80	120			
Lead	0.207	0.00100	0.200	0	103	80	120			
Molybdenum	0.265	0.00500	0.200	0.0479	108	80	120			
Selenium	0.194	0.00500	0.200	0	97.2	80	120			
Thallium	0.207	0.00150	0.200	0	104	80	120			

Sample ID: <b>1610116-02A MSD</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:29:00 PM</b>	Prep Date: <b>10/19/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.209	0.00250	0.200	0	104	80	120	2.15	15	
Arsenic	0.200	0.00500	0.200	0	100	80	120	0.098	15	
Barium	0.224	0.0100	0.200	0.0233	100	80	120	1.33	15	
Beryllium	0.186	0.00100	0.200	0	93.0	80	120	0.307	15	
Cadmium	0.204	0.00100	0.200	0	102	80	120	0.951	15	
Calcium	206	0.300	5.00	206	16.5	80	120	0.915	15	S
Chromium	0.206	0.00500	0.200	0	103	80	120	0.026	15	
Cobalt	0.202	0.00500	0.200	0.00440	98.9	80	120	0.044	15	
Lead	0.206	0.00100	0.200	0	103	80	120	0.249	15	
Molybdenum	0.263	0.00500	0.200	0.0479	107	80	120	0.657	15	
Selenium	0.191	0.00500	0.200	0	95.3	80	120	1.96	15	
Thallium	0.208	0.00150	0.200	0	104	80	120	0.122	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID <b>ICV-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 11:48:00 A</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.101	0.00250	0.100	0	101	90	110			
Arsenic	0.0962	0.00500	0.100	0	96.2	90	110			
Barium	0.0964	0.0100	0.100	0	96.4	90	110			
Beryllium	0.0974	0.00100	0.100	0	97.4	90	110			
Cadmium	0.0965	0.00100	0.100	0	96.5	90	110			
Calcium	2.32	0.300	2.50	0	92.8	90	110			
Chromium	0.103	0.00500	0.100	0	103	90	110			
Cobalt	0.102	0.00500	0.100	0	102	90	110			
Lead	0.0977	0.00100	0.100	0	97.7	90	110			
Molybdenum	0.0938	0.00500	0.100	0	93.8	90	110			
Selenium	0.0977	0.00500	0.100	0	97.6	90	110			
Thallium	0.0965	0.00150	0.100	0	96.5	90	110			

Sample ID <b>LCVL-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 11:57:00 A</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00202	0.00250	0.00200	0	101	70	130			
Arsenic	0.00525	0.00500	0.00500	0	105	70	130			
Barium	0.00516	0.0100	0.00500	0	103	70	130			
Beryllium	0.00108	0.00100	0.00100	0	108	70	130			
Cadmium	0.000959	0.00100	0.00100	0	95.9	70	130			
Calcium	0.0961	0.300	0.100	0	96.1	70	130			
Chromium	0.00547	0.00500	0.00500	0	109	70	130			
Cobalt	0.00542	0.00500	0.00500	0	108	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
Molybdenum	0.00521	0.00500	0.00500	0	104	70	130			
Selenium	0.00534	0.00500	0.00500	0	107	70	130			
Thallium	0.00103	0.00150	0.00100	0	103	70	130			

Sample ID <b>CCV3-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 1:45:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
Arsenic	0.200	0.00500	0.200	0	100	90	110			
Barium	0.200	0.0100	0.200	0	99.8	90	110			
Beryllium	0.196	0.00100	0.200	0	98.1	90	110			
Cadmium	0.207	0.00100	0.200	0	103	90	110			
Calcium	4.78	0.300	5.00	0	95.5	90	110			
Chromium	0.210	0.00500	0.200	0	105	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID <b>CCV3-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 1:45:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.210	0.00500	0.200	0	105	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
Molybdenum	0.204	0.00500	0.200	0	102	90	110			
Selenium	0.197	0.00500	0.200	0	98.3	90	110			
Thallium	0.207	0.00150	0.200	0	104	90	110			

Sample ID <b>LCVL3-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 1:49:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00215	0.00250	0.00200	0	108	70	130			
Arsenic	0.00521	0.00500	0.00500	0	104	70	130			
Barium	0.00514	0.0100	0.00500	0	103	70	130			
Beryllium	0.000950	0.00100	0.00100	0	95.0	70	130			
Cadmium	0.00110	0.00100	0.00100	0	110	70	130			
Calcium	0.0969	0.300	0.100	0	96.9	70	130			
Chromium	0.00555	0.00500	0.00500	0	111	70	130			
Cobalt	0.00550	0.00500	0.00500	0	110	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
Molybdenum	0.00525	0.00500	0.00500	0	105	70	130			
Selenium	0.00532	0.00500	0.00500	0	106	70	130			
Thallium	0.00108	0.00150	0.00100	0	108	70	130			

Sample ID <b>CCV4-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:31:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	104	90	110			
Arsenic	0.200	0.00500	0.200	0	100	90	110			
Barium	0.203	0.0100	0.200	0	101	90	110			
Beryllium	0.193	0.00100	0.200	0	96.7	90	110			
Cadmium	0.212	0.00100	0.200	0	106	90	110			
Calcium	4.85	0.300	5.00	0	97.1	90	110			
Chromium	0.211	0.00500	0.200	0	105	90	110			
Cobalt	0.209	0.00500	0.200	0	104	90	110			
Lead	0.208	0.00100	0.200	0	104	90	110			
Molybdenum	0.210	0.00500	0.200	0	105	90	110			
Selenium	0.196	0.00500	0.200	0	97.8	90	110			
Thallium	0.209	0.00150	0.200	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID: <b>LCVL4-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 2:37:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00231	0.00250	0.00200	0	116	70	130			
Arsenic	0.00523	0.00500	0.00500	0	105	70	130			
Barium	0.00530	0.0100	0.00500	0	106	70	130			
Beryllium	0.000983	0.00100	0.00100	0	98.3	70	130			
Cadmium	0.00113	0.00100	0.00100	0	113	70	130			
Calcium	0.102	0.300	0.100	0	102	70	130			
Chromium	0.00553	0.00500	0.00500	0	111	70	130			
Cobalt	0.00555	0.00500	0.00500	0	111	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
Molybdenum	0.00548	0.00500	0.00500	0	110	70	130			
Selenium	0.00525	0.00500	0.00500	0	105	70	130			
Thallium	0.00108	0.00150	0.00100	0	108	70	130			

Sample ID: <b>CCV5-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 3:01:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	90	110			
Arsenic	0.200	0.00500	0.200	0	100	90	110			
Barium	0.204	0.0100	0.200	0	102	90	110			
Beryllium	0.195	0.00100	0.200	0	97.6	90	110			
Cadmium	0.210	0.00100	0.200	0	105	90	110			
Chromium	0.210	0.00500	0.200	0	105	90	110			
Cobalt	0.210	0.00500	0.200	0	105	90	110			
Lead	0.207	0.00100	0.200	0	104	90	110			
Molybdenum	0.209	0.00500	0.200	0	104	90	110			
Selenium	0.196	0.00500	0.200	0	97.9	90	110			
Thallium	0.207	0.00150	0.200	0	103	90	110			

Sample ID: <b>LCVL5-161027</b>	Batch ID: <b>R88730</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161027B</b>	Analysis Date: <b>10/27/2016 3:05:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00221	0.00250	0.00200	0	111	70	130			
Arsenic	0.00517	0.00500	0.00500	0	103	70	130			
Barium	0.00533	0.0100	0.00500	0	107	70	130			
Beryllium	0.00114	0.00100	0.00100	0	114	70	130			
Cadmium	0.00110	0.00100	0.00100	0	110	70	130			
Chromium	0.00547	0.00500	0.00500	0	109	70	130			
Cobalt	0.00549	0.00500	0.00500	0	110	70	130			
Lead	0.00102	0.00100	0.00100	0	102	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161027B**

Sample ID	LCVL5-161027	Batch ID:	R88730	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_161027B	Analysis Date:	10/27/2016 3:05:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.00532	0.00500	0.00500	0	106	70	130			
Selenium	0.00524	0.00500	0.00500	0	105	70	130			
Thallium	0.00108	0.00150	0.00100	0	108	70	130			

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161028B**

The QC data in batch 77603 applies to the following samples: 1610116-01A, 1610116-02A, 1610116-03A, 1610116-04A, 1610116-05A, 1610116-06A, 1610116-07A, 1610116-08A

Sample ID <b>MB-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:01:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								
Lithium	<0.00500	0.0100								

Sample ID <b>LCS-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:02:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.198	0.0300	0.200	0	99.0	80	120			
Lithium	0.200	0.0100	0.200	0	99.8	80	120			

Sample ID <b>LCS-77603</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:04:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.198	0.0300	0.200	0	99.0	80	120	0.043	15	
Lithium	0.198	0.0100	0.200	0	99.2	80	120	0.662	15	

Sample ID <b>1610116-02A SD</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:10:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	6.05	7.50	0	5.15				16.1	10	R
Calcium	231	75.0	0	237				2.63	10	

Sample ID <b>1610116-02A PDS</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:30:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	14.2	1.50	10.0	5.15	90.9	80	120			
Calcium	471	15.0	250	237	93.4	80	120			

Sample ID <b>1610116-02A MS</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:32:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	5.66	1.50	0.200	5.15	256	80	120			S
Lithium	<0.250	0.500	0.200	0	0	80	120			S

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161028B**

Sample ID <b>1610116-02A MSD</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:34:00 P</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	5.73	1.50	0.200	5.15	291	80	120	1.24	15	S
Lithium	<0.250	0.500	0.200	0	0	80	120	0	15	S

Sample ID <b>1610116-02A SD</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 3:57:00 PM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	<0.0250	0.0500	0	0.00826				0	10	

Sample ID <b>1610116-02A PDS</b>	Batch ID: <b>77603</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 4:13:00 PM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.178	0.0100	0.200	0.00826	85.1	80	120			

LUMINANT

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161028B**

Sample ID <b>ICV-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 10:46:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0954	0.0300	0.100	0	95.4	90	110			
Calcium	2.37	0.300	2.50	0	94.9	90	110			
Lithium	0.0955	0.0100	0.100	0	95.5	90	110			

Sample ID <b>LCVL-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 11:02:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0206	0.0300	0.0200	0	103	70	130			
Calcium	0.0946	0.300	0.100	0	94.6	70	130			
Lithium	0.0106	0.0100	0.0100	0	106	70	130			

Sample ID <b>CCV1-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 11:29:00 A</b>	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	4.62	0.300	5.00	0	92.4	90	110			
Lithium	0.203	0.0100	0.200	0	101	90	110			

Sample ID <b>LCVL1-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 11:46:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0227	0.0300	0.0200	0	114	70	130			
Calcium	0.0930	0.300	0.100	0	93.0	70	130			
Lithium	0.0109	0.0100	0.0100	0	109	70	130			

Sample ID <b>CCV2-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:36:00 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.200	0.0300	0.200	0	99.8	90	110			
Calcium	4.66	0.300	5.00	0	93.1	90	110			
Lithium	0.202	0.0100	0.200	0	101	90	110			

Sample ID <b>LCVL2-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:49:00 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0198	0.0300	0.0200	0	98.9	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161028B**

Sample ID <b>LCVL2-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 12:49:00 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0944	0.300	0.100	0	94.4	70	130			
Lithium	0.00921	0.0100	0.0100	0	92.1	70	130			

Sample ID <b>CCV5-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 2:10:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.65	0.300	5.00	0	92.9	90	110			

Sample ID <b>LCVL5-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 2:15:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0932	0.300	0.100	0	93.2	70	130			

Sample ID <b>CCV6-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 3:11:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.72	0.300	5.00	0	94.4	90	110			

Sample ID <b>LCVL6-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 3:24:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0991	0.300	0.100	0	99.1	70	130			

Sample ID <b>CCV7-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 3:42:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.209	0.0100	0.200	0	104	90	110			

Sample ID <b>LCVL7-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 3:48:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.00995	0.0100	0.0100	0	99.5	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_161028B**

Sample ID <b>CCV8-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 4:14:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.199	0.0100	0.200	0	99.5	90	110			

Sample ID <b>LCVL8-161028</b>	Batch ID: <b>R88760</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_161028B</b>	Analysis Date: <b>10/28/2016 4:21:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.0104	0.0100	0.0100	0	104	70	130			

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_161020A**

The QC data in batch 77622 applies to the following samples: 1610116-01D, 1610116-02D, 1610116-03D, 1610116-04D, 1610116-05D, 1610116-06D, 1610116-07D, 1610116-08D

Sample ID <b>MB-77622</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 9:48:39 AM</b>	Prep Date: <b>10/20/2016</b>							
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 <b>LCS-77622</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 10:03:15 A</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.87	1.00	10.00	0	98.7	90	110			
Fluoride	3.78	0.400	4.000	0	94.6	90	110			
Sulfate	29.8	3.00	30.00	0	99.3	90	110			

Sample ID <b>LCSD-77622</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 10:17:51 A</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.85	1.00	10.00	0	98.5	90	110	0.147	20	
Fluoride	3.85	0.400	4.000	0	96.3	90	110	1.73	20	
Sulfate	29.5	3.00	30.00	0	98.4	90	110	0.849	20	

Sample ID <b>1610116-04DMS</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 3:00:27 PM</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	260	10.0	200.0	55.11	102	90	110			
Fluoride	199	4.00	200.0	0	99.4	90	110			
Sulfate	496	30.0	200.0	291.7	102	90	110			

Sample ID <b>1610116-04DMSD</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 3:15:03 PM</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	260	10.0	200.0	55.11	103	90	110	0.149	20	
Fluoride	200	4.00	200.0	0	100	90	110	0.649	20	
Sulfate	498	30.0	200.0	291.7	103	90	110	0.346	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_161020A**

Sample ID: <b>1610116-01DMS</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 5:06:48 PM</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	291	10.0	200.0	84.95	103	90	110			
Fluoride	199	4.00	200.0	0	99.6	90	110			
Sulfate	771	30.0	200.0	555.9	107	90	110			

Sample ID: <b>1610116-01DMSD</b>	Batch ID: <b>77622</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 5:23:25 PM</b>	Prep Date: <b>10/20/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	289	10.0	200.0	84.95	102	90	110	0.552	20	
Fluoride	199	4.00	200.0	0	99.5	90	110	0.099	20	
Sulfate	766	30.0	200.0	555.9	105	90	110	0.648	20	

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_161020A**

Sample ID <b>ICV-161020</b>	Batch ID: <b>R88645</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 9:01:56 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	24.9	1.00	25.00	0	99.8	90	110			
Fluoride	9.41	0.400	10.00	0	94.1	90	110			
Sulfate	75.5	3.00	75.00	0	101	90	110			

Sample ID <b>CCV1-161020</b>	Batch ID: <b>R88645</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 1:25:30 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.80	1.00	10.00	0	98.0	90	110			
Fluoride	3.95	0.400	4.000	0	98.7	90	110			
Sulfate	29.8	3.00	30.00	0	99.4	90	110			

Sample ID <b>CCV2-161020</b>	Batch ID: <b>R88645</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 4:31:30 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.79	1.00	10.00	0	97.9	90	110			
Fluoride	4.00	0.400	4.000	0	99.9	90	110			
Sulfate	29.8	3.00	30.00	0	99.2	90	110			

Sample ID <b>CCV3-161020</b>	Batch ID: <b>R88645</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>IC2_161020A</b>	Analysis Date: <b>10/20/2016 7:49:30 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.90	1.00	10.00	0	99.0	90	110			
Fluoride	4.08	0.400	4.000	0	102	90	110			
Sulfate	30.3	3.00	30.00	0	101	90	110			

**Qualifiers:**

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



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_161014A**

The QC data in batch 77568 applies to the following samples: 1610116-01D, 1610116-02D, 1610116-03D, 1610116-04D, 1610116-05D, 1610116-06D, 1610116-07D, 1610116-08D

Sample ID: <b>1610113-01B-DUP</b>	Batch ID: <b>77568</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@20.6°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_161014A</b>	Analysis Date: <b>10/14/2016 11:57:00 A</b>	Prep Date: <b>10/14/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.35	0	0	7.350				0	5	

Sample ID: <b>1610116-08D-DUP</b>	Batch ID: <b>77568</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_161014A</b>	Analysis Date: <b>10/14/2016 12:35:00 P</b>	Prep Date: <b>10/14/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	5.83	0	0	5.710				2.08	5	

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_161014A**

Sample ID <b>ICV-161014</b>	Batch ID: <b>R88573</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22°C</b>
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_161014A</b>	Analysis Date: <b>10/14/2016 10:35:00 A</b>	Prep Date: <b>10/14/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.92	0	10.00	0	99.2	99	101			

Sample ID <b>CCV1-161014</b>	Batch ID: <b>R88573</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.8°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_161014A</b>	Analysis Date: <b>10/14/2016 12:13:00 P</b>	Prep Date: <b>10/14/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.98	0	7.000	0	99.7	97.1	102.9			

Sample ID <b>CCV2-161014</b>	Batch ID: <b>R88573</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@22.1°C</b>
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_161014A</b>	Analysis Date: <b>10/14/2016 12:40:00 P</b>	Prep Date: <b>10/14/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.97	0	7.000	0	99.6	97.1	102.9			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1610116  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_161019A**

The QC data in batch 77599 applies to the following samples: 1610116-01D, 1610116-02D, 1610116-03D, 1610116-04D, 1610116-05D, 1610116-06D, 1610116-07D, 1610116-08D

Sample ID <b>MB-77599</b>	Batch ID: <b>77599</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_161019A</b>	Analysis Date: <b>10/20/2016 8:42:00 AM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera) <10.0 10.0

Sample ID <b>LCS-77599</b>	Batch ID: <b>77599</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_161019A</b>	Analysis Date: <b>10/20/2016 8:42:00 AM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera) 757 10.0 745.6 0 102 90 113

Sample ID <b>1610106-08C-DUP</b>	Batch ID: <b>77599</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_161019A</b>	Analysis Date: <b>10/20/2016 8:42:00 AM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera) 1530 50.0 0 1705 10.8 5 R

Sample ID <b>1610113-09B-DUP</b>	Batch ID: <b>77599</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_161019A</b>	Analysis Date: <b>10/20/2016 8:42:00 AM</b>	Prep Date: <b>10/19/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera) 735 10.0 0 716.0 2.62 5

- |  |   |
|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
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## Case Narrative

### Lab No: 20161015

This report contains the analytical results for the 8 sample(s) received under chain of custody by ESC Lab Sciences on 10/18/2016 9:46:47 AM. These samples are associated with your 1610116 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### Observations / Nonconformances

L866576



Client : DHL Analytical, Inc.  
 Client Project : 1610116  
 Lab Number : 20161015  
 Date Reported : 11/11/16  
 Date Received : 10/18/16  
 Page Number : 2 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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**Lab ID** : 20161015-01  
**Client ID** : W-34  
**Date Sampled** : 10/12/2016 8:20:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.13 +/- 0.969	0.654	pCi/l			
Radium-226	SM 7500 Ra B M*	0.134 +/- 0.125	0.167	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	0.996 +/- 0.844	0.487	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-02  
**Client ID** : W-33  
**Date Sampled** : 10/12/2016 9:10:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.660 +/- 0.807	0.544	pCi/l			
Radium-226	SM 7500 Ra B M*	0.075 +/- 0.088	0.130	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	0.585 +/- 0.719	0.414	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-03  
**Client ID** : W-32  
**Date Sampled** : 10/12/2016 10:00:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.230 +/- 1.17	0.719	pCi/l			
Radium-226	SM 7500 Ra B M*	0.230 +/- 0.118	0.087	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	-0.556 +/- 1.05	0.632	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-04  
**Client ID** : W-31  
**Date Sampled** : 10/12/2016 10:50:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.161 +/- 0.876	0.578	pCi/l			
Radium-226	SM 7500 Ra B M*	0.161 +/- 0.107	0.099	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	-0.105 +/- 0.769	0.479	pCi/l	10/26/16	10/31/16	JR



Client : DHL Analytical, Inc.  
 Client Project : 1610116  
 Lab Number : 20161015  
 Date Reported : 11/11/16  
 Date Received : 10/18/16  
 Page Number : 3 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20161015-05  
**Client ID** : W-30  
**Date Sampled** : 10/12/2016 11:50:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.30 +/- 1.30	0.804	pCi/l			
Radium-226	SM 7500 Ra B M*	0.545 +/- 0.187	0.122	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	1.75 +/- 1.11	0.682	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-06  
**Client ID** : DUP-01  
**Date Sampled** : 10/12/2016 11:50:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.27 +/- 0.973	0.635	pCi/l			
Radium-226	SM 7500 Ra B M*	0.161 +/- 0.118	0.146	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	2.11 +/- 0.855	0.489	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-07  
**Client ID** : W-29  
**Date Sampled** : 10/12/2016 12:40:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.04 +/- 1.23	0.822	pCi/l			
Radium-226	SM 7500 Ra B M*	0.060 +/- 0.088	0.141	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	0.983 +/- 1.14	0.681	pCi/l	10/26/16	10/31/16	JR

**Lab ID** : 20161015-08  
**Client ID** : W-35  
**Date Sampled** : 10/12/2016 1:30:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.65 +/- 0.974	0.701	pCi/l			
Radium-226	SM 7500 Ra B M*	0.328 +/- 0.170	0.196	pCi/l	11/03/16	11/08/16	AK
Radium-228	EPA 904*/9320*	2.32 +/- 0.804	0.505	pCi/l	10/26/16	10/31/16	JR



Client : DHL Analytical, Inc.  
Client Project : 1610116  
Lab Number : 20161015  
Date Reported : 11/11/16  
Date Received : 10/18/16  
Page Number : 4 of 4

### QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.024	98.0			NC	0.055	84.4	88.1	4.2	R1155
Radium-228	-0.097	94.5			NC	0.966	89.0	90.3	1.2	R3870

Lab Approval:

Ron Eidson  
Director of Radiochemistry

LUMINANT

DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222 FAX: (512) 388-8229

Work Order: 1610116

**Subcontractor:**

ESC Laboratory  
 311 North Aspen  
 Broken Arrow, Oklahoma 74012

TEL: (918) 251-2515  
 FAX:  
 Acct #: DHLRRTX

14-Oct-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests			
					E904.0	SM7500Ra-B M		
1	W-34	Aqueous -01B	10/12/16 08:20 AM	500HDPEHNO3	1			
	W-34	Aqueous -01C	10/12/16 08:20 AM	500HDPEHNO3		1		
2	W-33	Aqueous -02B	10/12/16 09:10 AM	500HDPEHNO3	1			
	W-33	Aqueous -02C	10/12/16 09:10 AM	500HDPEHNO3		1		
3	W-32	Aqueous -03B	10/12/16 10:00 AM	500HDPEHNO3	1			
	W-32	Aqueous -03C	10/12/16 10:00 AM	500HDPEHNO3		1		
4	W-31	Aqueous -04B	10/12/16 10:50 AM	500HDPEHNO3	1			
	W-31	Aqueous -04C	10/12/16 10:50 AM	500HDPEHNO3		1		
5	W-30	Aqueous -05B	10/12/16 11:50 AM	500HDPEHNO3	1			
	W-30	Aqueous -05C	10/12/16 11:50 AM	500HDPEHNO3		1		
6	DUP-01	Aqueous -06B	10/12/16 11:50 AM	500HDPEHNO3	1			
	DUP-01	Aqueous -06C	10/12/16 11:50 AM	500HDPEHNO3		1		
7	W-29	Aqueous -07B	10/12/16 12:40 PM	500HDPEHNO3	1			
	W-29	Aqueous -07C	10/12/16 12:40 PM	500HDPEHNO3		1		
8	W-35	Aqueous -08B	10/12/16 01:30 PM	500HDPEHNO3	1			
	W-35	Aqueous -08C	10/12/16 01:30 PM	500HDPEHNO3		1		

**General Comments:**

Please analyze these samples with Normal Turnaround Time.  
 Report RA-226, Ra-228 & Combined per Specs DHLRRTX033116S.  
 Quality Control Package Needed: Standard - NELAC Rad Test compliant  
 Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

CP66576

Relinquished by: <u>J. Toran</u>	Date/Time: <u>10/14/16 17:30</u>	Received by: <u>[Signature]</u>	Date/Time: <u>10/14/16 17:30</u>
Relinquished by: _____	_____	Received by: <u>[Signature]</u>	Date/Time: <u>10/18/16 9:40</u>

20161015



**SAMPLE LOGIN**

Date Received: 10/18/2016 9:46:4

Lab Number: 20161015

Due: 11/15/2016

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20161015-01 B	W-34	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-01 A	W-34	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-02 A	W-33	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-02 B	W-33	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-03 A	W-32	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-03 B	W-32	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-04 B	W-31	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-04 A	W-31	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-05 B	W-30	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-05 A	W-30	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-06 A	DUP-01	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-06 B	DUP-01	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20161015-07 A	W-29	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20161015-07 B	W-29	NPW	10/12/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						

20161015-08 B	W-35	NPW	10/12/16	Plastic	500 ml	HNO <sub>3</sub> , pH < 2
20161015-08 A	W-35	NPW	10/12/16	Plastic	500 ml	HNO <sub>3</sub> , pH < 2
	Radium-226		SM 7500 Ra B M*			
	Radium-228		EPA 904*/9320*			

Yes	Yes
Yes	Yes

**CONTAINER INSPECTION**

# Coolers 1 Custody Seals Broken 0 Temperature: Amb Ice \_\_\_\_\_ Radiation Survey: <300 cpm

**SAMPLE INSPECTION**

Sample Seal Broken 0 Chain of Custody Record ✓ Labels in Tact ✓ Radiation Survey Complete N/A

Anomalles \_\_\_\_\_

Inspected By: [Signature] DATE 10/18/16  
 QA or Designee Review: [Signature] DATE 10/18/16  
 Sample Custodian Review: [Signature] DATE 10/18/16

LUMINANT

Project Notes:



February 07, 2017

Will Vienne  
Pastor, Behling & Wheeler  
2201 Double Creek Dr #4004  
Round Rock, Texas 78664  
TEL: (512) 671-3434  
FAX (512) 671-3446  
RE: MOSES CCR

Order No.: 1612313

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 12/30/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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", is written over a large, light grey watermark that says "LUMINA".

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-17



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LUMINANT



John Dupont

---

From: Sara Taube [Sara.Taube@pbwffc.com]  
Sent: Wednesday, July 22, 2015 12:05 PM  
To: John Dupont  
Subject: CCR Appendix III and IV  
Follow Up Flag: Follow up  
Flag Status: Completed

Hi John,

Here are the Appendix III and Appendix IV constituents that we will need to have analyzed under the CCR Rule.

Appendix III

Boron  
Calcium  
Chloride  
Fluoride  
pH  
sulfate  
TDS

Appendix IV

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

We are looking to have approximately 74 wells sampled 8 times over the course of the next two years. Please let me know if there is any more information you might need.

Cheers,

Sara

10/26/2015

ORIGIN ID:TXKA (903) 794-0625  
BRIAN THOMAS  
PASTOR, BEHLING & WHEELER, LLC  
5416 PLAZA DRIVE

SHIP DATE: 29DEC16  
ACTWGT: 50.00 LB  
CAD: 2026420/NET3790  
DIMS: 24x14x20 IN

BILL SENDER

TEXARKANA, TX 75503  
UNITED STATES US

ORIGIN ID:TXKA (903) 794-0625  
BRIAN THOMAS  
PASTOR, BEHLING & WHEELER, LLC  
5416 PLAZA DRIVE

SHIP DATE: 29DEC16  
ACTWGT: 50.00 LB  
CAD: 2026420/NET3790  
DIMS: 24x14x20 IN

BILL SENDER

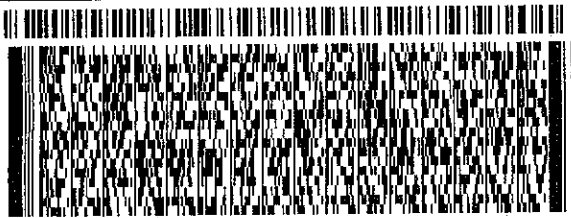
TEXARKANA, TX 75503  
UNITED STATES US

TO JENNIFER  
DHL  
2300 DOUBLE CREEK DRIVE

544,1110429/14FR

ROUND ROCK TX 78664

(512) 388-8222 REF:CCR MOSES  
INV PO DEPT

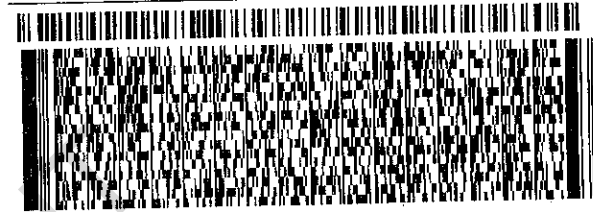


TO JENNIFER  
DHL  
2300 DOUBLE CREEK DRIVE

544,1110429/14FR

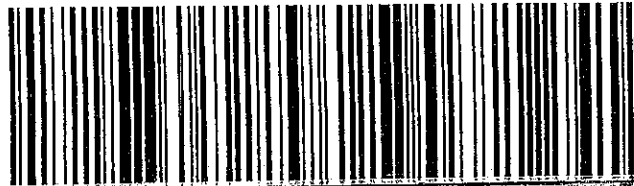
ROUND ROCK-TX 78664

(512) 388-8222 REF:CCR MOSES  
INV PO DEPT



2 of 2  
MPS# 7780 6904 3230  
0263  
Mstr# 7780 6904 3311 0201  
A8 BSMA  
TX-US 78664 AUS

FRI - 30 DEC 10:30A  
PRIORITY OVERNIGHT

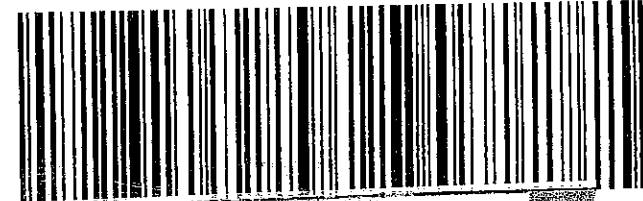


MASTERY SEAL  
DATE 12/29/16 1800  
SIGNATURE [Signature]

QEC  
Quality Environmental Containers  
800-255-3950 • 304-255-3900

1 of 2  
TRK# 7780 6904 3311  
0201  
## MASTER ##  
A8 BSMA  
TX-US 78664 AUS

FRI - 30 DEC 10:30A  
PRIORITY OVERNIGHT



MASTERY SEAL  
DATE 12/29/16 1800  
SIGNATURE [Signature]

QEC  
Quality Environmental Containers  
800-255-3950 • 304-255-3900

Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 12/30/2016

Work Order Number 1612313

Received by JT

Checklist completed by: [Signature] 12/30/2016  
Signature Date

Reviewed by [Signature] 12/30/2016  
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  1.1 °C, 10.9
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086
- Adjusted? no Checked by [Signature]
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Lab Order:** 1612313

**CASE NARRATIVE**

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

Method SW6020A - Metals Analysis  
Method SW7470A - Mercury Analysis  
Method E300 - Anions Analysis  
Method M4500-H+ B - pH of a Water Analysis  
Method M2540C - TDS Analysis

Sub-contract - Radium-228 and Radium-226 analyses by methods E904/9320 and SM 7500 Ra B M.  
Analyzed at ESC Lab Sciences.

**LOG IN**

The samples were received and log-in performed on 12/30/16. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 1/9/17, 1/12/17 and 1/13/17 (batches 78573 & 78629) the matrix spikes and/or matrix spike duplicate recoveries were out of control limits for Boron and/or Calcium. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate (batch 78573) was not from this work order. The sample selected for the matrix spike and matrix spike duplicate (batch 78629) was from this work order. The LCSs were within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 1/9/17 and 1/12/17 (batches 78573 & 78629) the PDS recoveries were out of control limits for Calcium. These are flagged accordingly. The serial dilutions were within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 1/13/17 (batches 78573 & 78629) the RPD for the serial dilutions were above control limits for Boron. These are flagged accordingly. The PDSs were within control limits for this analyte. No further corrective actions were taken.

**ANIONS ANALYSIS**

For Anions analysis performed on 1/5/17 the matrix spike and matrix spike duplicate recoveries were slightly above control limits for Chloride and/or Sulfate. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Lab Order:** 1612313

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1612313-01	W-29		12/29/16 03:30 PM	12/30/2016
1612313-02	W-30		12/29/16 02:30 PM	12/30/2016
1612313-03	W-31		12/29/16 01:45 PM	12/30/2016
1612313-04	W-32		12/29/16 01:03 PM	12/30/2016
1612313-05	W-33		12/29/16 12:20 PM	12/30/2016
1612313-06	W-34		12/29/16 11:40 AM	12/30/2016
1612313-07	W-35		12/29/16 10:25 AM	12/30/2016
1612313-08	DUP-1		12/29/16	12/30/2016

LUMINANT

Lab Order: 1612313  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES CCR

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612313-01A	W-29	12/29/16 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-29	12/29/16 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-29	12/29/16 03:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-01D	W-29	12/29/16 03:30 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-29	12/29/16 03:30 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-29	12/29/16 03:30 PM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-29	12/29/16 03:30 PM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-02A	W-30	12/29/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-30	12/29/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-30	12/29/16 02:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-02D	W-30	12/29/16 02:30 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-30	12/29/16 02:30 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-30	12/29/16 02:30 PM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-30	12/29/16 02:30 PM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-03A	W-31	12/29/16 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-31	12/29/16 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-31	12/29/16 01:45 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-03D	W-31	12/29/16 01:45 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-31	12/29/16 01:45 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-31	12/29/16 01:45 PM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-31	12/29/16 01:45 PM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-04A	W-32	12/29/16 01:03 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-32	12/29/16 01:03 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-32	12/29/16 01:03 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-04D	W-32	12/29/16 01:03 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-32	12/29/16 01:03 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-32	12/29/16 01:03 PM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-32	12/29/16 01:03 PM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570

**Lab Order:** 1612313  
**Client:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612313-05A	W-33	12/29/16 12:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-33	12/29/16 12:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/04/17 08:58 AM	78573
	W-33	12/29/16 12:20 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-05D	W-33	12/29/16 12:20 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-33	12/29/16 12:20 PM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-33	12/29/16 12:20 PM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-33	12/29/16 12:20 PM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-06A	W-34	12/29/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	W-34	12/29/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	W-34	12/29/16 11:40 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-06D	W-34	12/29/16 11:40 AM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-34	12/29/16 11:40 AM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-34	12/29/16 11:40 AM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-34	12/29/16 11:40 AM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-07A	W-35	12/29/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	W-35	12/29/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	W-35	12/29/16 10:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-07D	W-35	12/29/16 10:25 AM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-35	12/29/16 10:25 AM	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	W-35	12/29/16 10:25 AM	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	W-35	12/29/16 10:25 AM	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570
1612313-08A	DUP-1	12/29/16	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	DUP-1	12/29/16	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/09/17 09:54 AM	78629
	DUP-1	12/29/16	Aqueous	SW7470A	Mercury Aq Prep, Total	01/04/17 10:48 AM	78582
1612313-08D	DUP-1	12/29/16	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	DUP-1	12/29/16	Aqueous	E300	Anion Preparation	01/05/17 08:50 AM	78592
	DUP-1	12/29/16	Aqueous	M4500-H+ B	pH Preparation	01/03/17 08:57 AM	78555
	DUP-1	12/29/16	Aqueous	M2540C	TDS Preparation	01/03/17 02:44 PM	78570

Lab Order: 1612313  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES CCR

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612313-01A	W-29	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:37 AM	CETAC2_HG_170105 C
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	1	01/09/17 02:13 PM	ICP-MS4_170109B
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	50	01/11/17 03:36 PM	ICP-MS4_170111E
1612313-01D	W-29	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 10:42 AM	IC2_170105A
	W-29	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 01:38 PM	IC2_170105A
	W-29	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 10:50 AM	TITRATOR_170103A
	W-29	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-02A	W-30	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:39 AM	CETAC2_HG_170105 C
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	1	01/09/17 02:29 PM	ICP-MS4_170109B
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	50	01/11/17 03:38 PM	ICP-MS4_170111E
1612313-02D	W-30	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 10:57 AM	IC2_170105A
	W-30	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 01:52 PM	IC2_170105A
	W-30	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 10:53 AM	TITRATOR_170103A
	W-30	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-03A	W-31	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:46 AM	CETAC2_HG_170105 C
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	50	01/11/17 03:40 PM	ICP-MS4_170111E
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	1	01/09/17 02:31 PM	ICP-MS4_170109B
1612313-03D	W-31	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 11:12 AM	IC2_170105A
	W-31	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 02:07 PM	IC2_170105A
	W-31	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 10:55 AM	TITRATOR_170103A
	W-31	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-04A	W-32	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:48 AM	CETAC2_HG_170105 C
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	1	01/09/17 02:33 PM	ICP-MS4_170109B
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	100	01/11/17 03:42 PM	ICP-MS4_170111E
1612313-04D	W-32	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 11:26 AM	IC2_170105A
	W-32	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 02:21 PM	IC2_170105A

Lab Order: 1612313  
 Client: Pastor, Behling & Wheeler  
 Project: MOSES CCR

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612313-04D	W-32	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 10:58 AM	TITRATOR_170103A
	W-32	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-05A	W-33	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:50 AM	CETAC2_HG_170105 C
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	1	01/09/17 02:35 PM	ICP-MS4_170109B
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78573	100	01/11/17 03:45 PM	ICP-MS4_170111E
1612313-05D	W-33	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 11:41 AM	IC2_170105A
	W-33	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 02:36 PM	IC2_170105A
	W-33	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 11:01 AM	TITRATOR_170103A
	W-33	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-06A	W-34	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:53 AM	CETAC2_HG_170105 C
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	1	01/12/17 01:17 PM	ICP-MS4_170112B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	100	01/13/17 01:31 PM	ICP-MS4_170113B
1612313-06D	W-34	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 11:56 AM	IC2_170105A
	W-34	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 02:51 PM	IC2_170105A
	W-34	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 11:03 AM	TITRATOR_170103A
	W-34	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-07A	W-35	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:55 AM	CETAC2_HG_170105 C
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	100	01/13/17 01:39 PM	ICP-MS4_170113B
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	1	01/12/17 01:26 PM	ICP-MS4_170112B
1612313-07D	W-35	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 12:10 PM	IC2_170105A
	W-35	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 03:05 PM	IC2_170105A
	W-35	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 11:05 AM	TITRATOR_170103A
	W-35	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A
1612313-08A	DUP-1	Aqueous	SW7470A	Mercury Total: Aqueous	78582	1	01/05/17 11:57 AM	CETAC2_HG_170105 C
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	1	01/12/17 01:28 PM	ICP-MS4_170112B
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	78629	100	01/13/17 01:41 PM	ICP-MS4_170113B

**Lab Order:** 1612313  
**Client:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612313-08D	DUP-1	Aqueous	E300	Anions by IC method - Water	78592	1	01/05/17 12:25 PM	IC2_170105A
	DUP-1	Aqueous	E300	Anions by IC method - Water	78592	10	01/05/17 03:20 PM	IC2_170105A
	DUP-1	Aqueous	M4500-H+ B	pH	78555	1	01/03/17 11:07 AM	TITRATOR_170103A
	DUP-1	Aqueous	M2540C	Total Dissolved Solids	78570	1	01/04/17 08:48 AM	WC_170103A

LUMINANT

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-29  
**Lab ID:** 1612313-01  
**Collection Date:** 12/29/16 03:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	01/05/17 11:37 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/09/17 02:13 PM
Arsenic	0.00505	0.00200	0.00500		mg/L	1	01/09/17 02:13 PM
Barium	0.0311	0.00300	0.0100		mg/L	1	01/09/17 02:13 PM
Beryllium	0.00719	0.000300	0.00100		mg/L	1	01/09/17 02:13 PM
Boron	6.52	0.500	1.50		mg/L	50	01/11/17 03:36 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:13 PM
Calcium	185	5.00	15.0		mg/L	50	01/11/17 03:36 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:13 PM
Cobalt	0.398	0.00300	0.00500		mg/L	1	01/09/17 02:13 PM
Lead	0.000443	0.000300	0.00100	J	mg/L	1	01/09/17 02:13 PM
Lithium	0.0588	0.00500	0.0100		mg/L	1	01/09/17 02:13 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:13 PM
Selenium	0.00669	0.00200	0.00500		mg/L	1	01/09/17 02:13 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/09/17 02:13 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	82.5	3.00	10.0		mg/L	10	01/05/17 01:38 PM
Fluoride	0.230	0.100	0.400	J	mg/L	1	01/05/17 10:42 AM
Sulfate	1150	10.0	30.0		mg/L	10	01/05/17 01:38 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.47	0	0		pH Units@19.1°C	1	01/03/17 10:50 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1860	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		



**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-30  
**Lab ID:** 1612313-02  
**Collection Date:** 12/29/16 02:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	01/05/17 11:39 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/09/17 02:29 PM
Arsenic	0.00260	0.00200	0.00500	J	mg/L	1	01/09/17 02:29 PM
Barium	0.0151	0.00300	0.0100		mg/L	1	01/09/17 02:29 PM
Beryllium	0.0229	0.000300	0.00100		mg/L	1	01/09/17 02:29 PM
Boron	8.54	0.500	1.50		mg/L	50	01/11/17 03:38 PM
Cadmium	0.00609	0.000300	0.00100		mg/L	1	01/09/17 02:29 PM
Calcium	192	5.00	15.0		mg/L	50	01/11/17 03:38 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:29 PM
Cobalt	0.327	0.00300	0.00500		mg/L	1	01/09/17 02:29 PM
Lead	0.00338	0.000300	0.00100		mg/L	1	01/09/17 02:29 PM
Lithium	0.0266	0.00500	0.0100		mg/L	1	01/09/17 02:29 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:29 PM
Selenium	0.0448	0.00200	0.00500		mg/L	1	01/09/17 02:29 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/09/17 02:29 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.3	3.00	10.0		mg/L	10	01/05/17 01:52 PM
Fluoride	0.501	0.100	0.400		mg/L	1	01/05/17 10:57 AM
Sulfate	863	10.0	30.0		mg/L	10	01/05/17 01:52 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.52	0	0		pH Units@19.3°C	1	01/03/17 10:53 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1510	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-31  
**Lab ID:** 1612313-03  
**Collection Date:** 12/29/16 01:45 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	01/05/17 11:46 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/09/17 02:31 PM
Arsenic	0.00276	0.00200	0.00500	J	mg/L	1	01/09/17 02:31 PM
Barium	0.0176	0.00300	0.0100		mg/L	1	01/09/17 02:31 PM
Beryllium	0.0102	0.000300	0.00100		mg/L	1	01/09/17 02:31 PM
Boron	3.15	0.500	1.50		mg/L	50	01/11/17 03:40 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:31 PM
Calcium	89.7	5.00	15.0		mg/L	50	01/11/17 03:40 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:31 PM
Cobalt	0.370	0.00300	0.00500		mg/L	1	01/09/17 02:31 PM
Lead	0.000605	0.000300	0.00100	J	mg/L	1	01/09/17 02:31 PM
Lithium	0.0288	0.00500	0.0100		mg/L	1	01/09/17 02:31 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:31 PM
Selenium	0.00392	0.00200	0.00500	J	mg/L	1	01/09/17 02:31 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/09/17 02:31 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	49.3	0.300	1.00		mg/L	1	01/05/17 11:12 AM
Fluoride	<0.100	0.100	0.400		mg/L	1	01/05/17 11:12 AM
Sulfate	729	10.0	30.0		mg/L	10	01/05/17 02:07 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.44	0	0		pH Units@18.7°C	1	01/03/17 10:55 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1150	10.0	10.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-32  
**Lab ID:** 1612313-04  
**Collection Date:** 12/29/16 01:03 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	01/05/17 11:48 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/09/17 02:33 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:33 PM
Barium	0.0251	0.00300	0.0100		mg/L	1	01/09/17 02:33 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:33 PM
Boron	6.38	1.00	3.00		mg/L	100	01/11/17 03:42 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:33 PM
Calcium	310	10.0	30.0		mg/L	100	01/11/17 03:42 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:33 PM
Cobalt	0.00471	0.00300	0.00500	J	mg/L	1	01/09/17 02:33 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:33 PM
Lithium	0.0103	0.00500	0.0100		mg/L	1	01/09/17 02:33 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:33 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:33 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/09/17 02:33 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	147	3.00	10.0		mg/L	10	01/05/17 02:21 PM
Fluoride	0.573	0.100	0.400		mg/L	1	01/05/17 11:26 AM
Sulfate	1210	10.0	30.0		mg/L	10	01/05/17 02:21 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.72	0	0		pH Units@18.5°C	1	01/03/17 10:58 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1950	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-33  
**Lab ID:** 1612313-05  
**Collection Date:** 12/29/16 12:20 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	01/05/17 11:50 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/09/17 02:35 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:35 PM
Barium	0.0231	0.00300	0.0100		mg/L	1	01/09/17 02:35 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:35 PM
Boron	5.23	1.00	3.00		mg/L	100	01/11/17 03:45 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:35 PM
Calcium	275	10.0	30.0		mg/L	100	01/11/17 03:45 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:35 PM
Cobalt	0.00498	0.00300	0.00500	J	mg/L	1	01/09/17 02:35 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/09/17 02:35 PM
Lithium	0.00992	0.00500	0.0100	J	mg/L	1	01/09/17 02:35 PM
Molybdenum	0.0381	0.00200	0.00500		mg/L	1	01/09/17 02:35 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	01/09/17 02:35 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/09/17 02:35 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	125	3.00	10.0		mg/L	10	01/05/17 02:36 PM
Fluoride	2.25	0.100	0.400		mg/L	1	01/05/17 11:41 AM
Sulfate	965	10.0	30.0		mg/L	10	01/05/17 02:36 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	7.13	0	0		pH Units@19°C	1	01/03/17 11:01 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1730	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-34  
**Lab ID:** 1612313-06  
**Collection Date:** 12/29/16 11:40 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	01/05/17 11:53 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/12/17 01:17 PM
Arsenic	0.0618	0.00200	0.00500		mg/L	1	01/12/17 01:17 PM
Barium	0.0276	0.00300	0.0100		mg/L	1	01/12/17 01:17 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	01/12/17 01:17 PM
Boron	6.10	1.00	3.00		mg/L	100	01/13/17 01:31 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	01/12/17 01:17 PM
Calcium	158	10.0	30.0		mg/L	100	01/13/17 01:31 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:17 PM
Cobalt	0.230	0.00300	0.00500		mg/L	1	01/12/17 01:17 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/12/17 01:17 PM
Lithium	0.0130	0.00500	0.0100		mg/L	1	01/12/17 01:17 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:17 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:17 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/12/17 01:17 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	122	3.00	10.0		mg/L	10	01/05/17 02:51 PM
Fluoride	0.336	0.100	0.400	J	mg/L	1	01/05/17 11:56 AM
Sulfate	937	10.0	30.0		mg/L	10	01/05/17 02:51 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	6.27	0	0		pH Units@19.2°C	1	01/03/17 11:03 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1620	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** W-35  
**Lab ID:** 1612313-07  
**Collection Date:** 12/29/16 10:25 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	01/05/17 11:55 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/12/17 01:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:26 PM
Barium	0.0154	0.00300	0.0100		mg/L	1	01/12/17 01:26 PM
Beryllium	0.000458	0.000300	0.00100	J	mg/L	1	01/12/17 01:26 PM
Boron	6.89	1.00	3.00		mg/L	100	01/13/17 01:39 PM
Cadmium	0.00357	0.000300	0.00100		mg/L	1	01/12/17 01:26 PM
Calcium	151	10.0	30.0		mg/L	100	01/13/17 01:39 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:26 PM
Cobalt	0.254	0.00300	0.00500		mg/L	1	01/12/17 01:26 PM
Lead	0.000324	0.000300	0.00100	J	mg/L	1	01/12/17 01:26 PM
Lithium	0.0277	0.00500	0.0100		mg/L	1	01/12/17 01:26 PM
Molybdenum	0.00229	0.00200	0.00500	J	mg/L	1	01/12/17 01:26 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:26 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/12/17 01:26 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	110	3.00	10.0		mg/L	10	01/05/17 03:05 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	01/05/17 12:10 PM
Sulfate	839	10.0	30.0		mg/L	10	01/05/17 03:05 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.46	0	0		pH Units@19.2°C	1	01/03/17 11:05 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1370	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 07-Feb-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** MOSES CCR  
**Project No:** 5164-C  
**Lab Order:** 1612313

**Client Sample ID:** DUP-1  
**Lab ID:** 1612313-08  
**Collection Date:** 12/29/16  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>MERCURY TOTAL: AQUEOUS</b>		<b>SW7470A</b>		Analyst: <b>AH</b>			
Mercury	<0.000800	0.000800	0.00200		mg/L	1	01/05/17 11:57 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>CVD</b>			
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/12/17 01:28 PM
Arsenic	0.00246	0.00200	0.00500	J	mg/L	1	01/12/17 01:28 PM
Barium	0.0155	0.00300	0.0100		mg/L	1	01/12/17 01:28 PM
Beryllium	0.0203	0.000300	0.00100		mg/L	1	01/12/17 01:28 PM
Boron	6.80	1.00	3.00		mg/L	100	01/13/17 01:41 PM
Cadmium	0.00626	0.000300	0.00100		mg/L	1	01/12/17 01:28 PM
Calcium	130	10.0	30.0		mg/L	100	01/13/17 01:41 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:28 PM
Cobalt	0.326	0.00300	0.00500		mg/L	1	01/12/17 01:28 PM
Lead	0.00335	0.000300	0.00100		mg/L	1	01/12/17 01:28 PM
Lithium	0.0260	0.00500	0.0100		mg/L	1	01/12/17 01:28 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	01/12/17 01:28 PM
Selenium	0.0431	0.00200	0.00500		mg/L	1	01/12/17 01:28 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	01/12/17 01:28 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	85.8	3.00	10.0		mg/L	10	01/05/17 03:20 PM
Fluoride	0.489	0.100	0.400		mg/L	1	01/05/17 12:25 PM
Sulfate	866	10.0	30.0		mg/L	10	01/05/17 03:20 PM
<b>PH</b>		<b>M4500-H+ B</b>		Analyst: <b>BJT</b>			
pH	5.55	0	0		pH Units@20.3°C	1	01/03/17 11:07 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>AJH</b>			
Total Dissolved Solids (Residue, Filterable)	1310	50.0	50.0		mg/L	1	01/04/17 08:48 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

**ANALYTICAL QC SUMMARY REPORT**

**RunID: CETAC2\_HG\_170105C**

The QC data in batch 78582 applies to the following samples: 1612313-01A, 1612313-02A, 1612313-03A, 1612313-04A, 1612313-05A, 1612313-06A, 1612313-07A, 1612313-08A

Sample ID <b>MB-78582</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:03:12 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID <b>LCS-78582</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:05:28 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00214	0.000200	0.00200	0	107	85	115			

Sample ID <b>LCSD-78582</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:07:44 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00214	0.000200	0.00200	0	107	85	115	0	15	

Sample ID <b>1612306-06B SD</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:12:17 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000400	0.00100	0	0				0	10	

Sample ID <b>1612306-06B PDS</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:14:32 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00244	0.000200	0.00250	0	97.6	85	115			

Sample ID <b>1612306-06B MS</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:16:48 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00213	0.000200	0.00200	0	106	80	120			

Sample ID <b>1612306-06B MSD</b>	Batch ID: <b>78582</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:19:03 AM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00214	0.000200	0.00200	0	107	80	120	0.468	15	

- 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 NELAC certified



**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID:** CETAC2\_HG\_170105C

Sample ID <b>ICV-170105</b>	Batch ID: <b>R89790</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 9:48:12 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00398	0.000200	0.00400	0	99.5	90	110			
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Sample ID <b>CCV2-170105</b>	Batch ID: <b>R89790</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 10:45:00 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00200	0.000200	0.00200	0	100	90	110			
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Sample ID <b>CCV3-170105</b>	Batch ID: <b>R89790</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 11:41:45 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00202	0.000200	0.00200	0	101	90	110			
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Sample ID <b>CCV4-170105</b>	Batch ID: <b>R89790</b>	TestNo: <b>SW7470A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_170105</b>	Analysis Date: <b>1/5/2017 12:04:32 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury	0.00202	0.000200	0.00200	0	101	90	110			
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<b>Qualifiers:</b> 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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

The QC data in batch 78573 applies to the following samples: 1612313-01A, 1612313-02A, 1612313-03A, 1612313-04A, 1612313-05A

Sample ID <b>MB-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:45:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:47:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	80	120			
Arsenic	0.206	0.00500	0.200	0	103	80	120			
Barium	0.198	0.0100	0.200	0	99.1	80	120			
Beryllium	0.208	0.00100	0.200	0	104	80	120			
Cadmium	0.199	0.00100	0.200	0	99.3	80	120			
Calcium	4.99	0.300	5.00	0	99.9	80	120			
Chromium	0.205	0.00500	0.200	0	103	80	120			
Cobalt	0.204	0.00500	0.200	0	102	80	120			
Lead	0.200	0.00100	0.200	0	100	80	120			
Lithium	0.205	0.0100	0.200	0	102	80	120			
Molybdenum	0.196	0.00500	0.200	0	97.8	80	120			
Selenium	0.205	0.00500	0.200	0	102	80	120			
Thallium	0.198	0.00150	0.200	0	99.2	80	120			

Sample ID <b>LCSD-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:49:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	80	120	0.730	15	
Arsenic	0.205	0.00500	0.200	0	103	80	120	0.364	15	
Barium	0.197	0.0100	0.200	0	98.7	80	120	0.375	15	
Beryllium	0.205	0.00100	0.200	0	103	80	120	1.08	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID: <b>LCSD-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:49:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.198	0.00100	0.200	0	99.0	80	120	0.217	15	
Calcium	5.00	0.300	5.00	0	100	80	120	0.103	15	
Chromium	0.204	0.00500	0.200	0	102	80	120	0.381	15	
Cobalt	0.202	0.00500	0.200	0	101	80	120	1.06	15	
Lead	0.194	0.00100	0.200	0	97.2	80	120	2.78	15	
Lithium	0.207	0.0100	0.200	0	103	80	120	0.915	15	
Molybdenum	0.195	0.00500	0.200	0	97.5	80	120	0.263	15	
Selenium	0.205	0.00500	0.200	0	103	80	120	0.085	15	
Thallium	0.196	0.00150	0.200	0	97.9	80	120	1.39	15	

Sample ID: <b>1612306-06B SD</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:55:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0.00356				0	10	
Barium	0.185	0.0500	0	0.186				0.959	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Calcium	109	1.50	0	109				0.441	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	<0.0150	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0.000448				0	10	
Lithium	<0.0250	0.0500	0	0.0153				0	10	
Molybdenum	<0.0100	0.0250	0	0				0	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID: <b>1612306-06B PDS</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:15:00 PM</b>	Prep Date: <b>1/4/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.211	0.00250	0.200	0	106	80	120			
Arsenic	0.223	0.00500	0.200	0.00356	110	80	120			
Barium	0.389	0.0100	0.200	0.186	101	80	120			
Beryllium	0.222	0.00100	0.200	0	111	80	120			
Cadmium	0.209	0.00100	0.200	0	104	80	120			
Calcium	109	0.300	5.00	109	4.15	80	120			S
Chromium	0.226	0.00500	0.200	0	113	80	120			
Cobalt	0.212	0.00500	0.200	0	106	80	120			
Lead	0.212	0.00100	0.200	0.000448	106	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID <b>1612306-06B PDS</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:15:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.225	0.0100	0.200	0.0153	105	80	120			
Molybdenum	0.206	0.00500	0.200	0	103	80	120			
Selenium	0.214	0.00500	0.200	0	107	80	120			
Thallium	0.212	0.00150	0.200	0	106	80	120			

Sample ID <b>1612306-06B MS</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:17:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	103	80	120			
Arsenic	0.212	0.00500	0.200	0.00356	104	80	120			
Barium	0.385	0.0100	0.200	0.186	99.6	80	120			
Beryllium	0.208	0.00100	0.200	0	104	80	120			
Cadmium	0.197	0.00100	0.200	0	98.4	80	120			
Calcium	114	0.300	5.00	109	102	80	120			
Chromium	0.205	0.00500	0.200	0	102	80	120			
Cobalt	0.199	0.00500	0.200	0	99.3	80	120			
Lead	0.201	0.00100	0.200	0.000448	100	80	120			
Lithium	0.218	0.0100	0.200	0.0153	101	80	120			
Molybdenum	0.199	0.00500	0.200	0	99.7	80	120			
Selenium	0.204	0.00500	0.200	0	102	80	120			
Thallium	0.204	0.00150	0.200	0	102	80	120			

Sample ID <b>1612306-06B MSD</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:19:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	80	120	0.449	15	
Arsenic	0.211	0.00500	0.200	0.00356	104	80	120	0.325	15	
Barium	0.385	0.0100	0.200	0.186	99.5	80	120	0.067	15	
Beryllium	0.208	0.00100	0.200	0	104	80	120	0.078	15	
Cadmium	0.195	0.00100	0.200	0	97.4	80	120	1.01	15	
Calcium	115	0.300	5.00	109	127	80	120	1.10	15	S
Chromium	0.205	0.00500	0.200	0	103	80	120	0.052	15	
Cobalt	0.199	0.00500	0.200	0	99.7	80	120	0.343	15	
Lead	0.202	0.00100	0.200	0.000448	101	80	120	0.526	15	
Lithium	0.218	0.0100	0.200	0.0153	101	80	120	0.057	15	
Molybdenum	0.199	0.00500	0.200	0	99.6	80	120	0.179	15	
Selenium	0.206	0.00500	0.200	0	103	80	120	0.835	15	
Thallium	0.206	0.00150	0.200	0	103	80	120	0.919	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID <b>ICV-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 10:24:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.101	0.00250	0.100	0	101	90	110			
Arsenic	0.102	0.00500	0.100	0	102	90	110			
Barium	0.102	0.0100	0.100	0	102	90	110			
Beryllium	0.106	0.00100	0.100	0	106	90	110			
Cadmium	0.101	0.00100	0.100	0	101	90	110			
Calcium	2.38	0.300	2.50	0	95.2	90	110			
Chromium	0.109	0.00500	0.100	0	109	90	110			
Cobalt	0.105	0.00500	0.100	0	105	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
Lithium	0.0999	0.0100	0.100	0	99.9	90	110			
Molybdenum	0.0978	0.00500	0.100	0	97.8	90	110			
Selenium	0.102	0.00500	0.100	0	102	90	110			
Thallium	0.0996	0.00150	0.100	0	99.6	90	110			

Sample ID <b>LCVL-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 10:28:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00196	0.00250	0.00200	0	97.9	70	130			
Arsenic	0.00508	0.00500	0.00500	0	102	70	130			
Barium	0.00484	0.0100	0.00500	0	96.7	70	130			
Beryllium	0.00112	0.00100	0.00100	0	112	70	130			
Cadmium	0.000999	0.00100	0.00100	0	99.9	70	130			
Calcium	0.0978	0.300	0.100	0	97.8	70	130			
Chromium	0.00520	0.00500	0.00500	0	104	70	130			
Cobalt	0.00516	0.00500	0.00500	0	103	70	130			
Lead	0.00104	0.00100	0.00100	0	104	70	130			
Lithium	0.0100	0.0100	0.0100	0	100	70	130			
Molybdenum	0.00506	0.00500	0.00500	0	101	70	130			
Selenium	0.00528	0.00500	0.00500	0	106	70	130			
Thallium	0.00101	0.00150	0.00100	0	101	70	130			

Sample ID <b>CCV5-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:36:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	90	110			
Arsenic	0.210	0.00500	0.200	0	105	90	110			
Barium	0.200	0.0100	0.200	0	100	90	110			
Beryllium	0.212	0.00100	0.200	0	106	90	110			
Cadmium	0.201	0.00100	0.200	0	101	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID <b>CCV5-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:36:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.01	0.300	5.00	0	100	90	110			
Chromium	0.209	0.00500	0.200	0	104	90	110			
Cobalt	0.209	0.00500	0.200	0	105	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
Lithium	0.208	0.0100	0.200	0	104	90	110			
Molybdenum	0.197	0.00500	0.200	0	98.3	90	110			
Selenium	0.214	0.00500	0.200	0	107	90	110			
Thallium	0.203	0.00150	0.200	0	101	90	110			

Sample ID <b>LCVL5-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 1:40:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00207	0.00250	0.00200	0	104	70	130			
Arsenic	0.00519	0.00500	0.00500	0	104	70	130			
Barium	0.00495	0.0100	0.00500	0	99.1	70	130			
Beryllium	0.00108	0.00100	0.00100	0	108	70	130			
Cadmium	0.000978	0.00100	0.00100	0	97.8	70	130			
Calcium	0.0949	0.300	0.100	0	94.9	70	130			
Chromium	0.00507	0.00500	0.00500	0	101	70	130			
Cobalt	0.00509	0.00500	0.00500	0	102	70	130			
Lead	0.000989	0.00100	0.00100	0	98.9	70	130			
Lithium	0.0101	0.0100	0.0100	0	101	70	130			
Molybdenum	0.00477	0.00500	0.00500	0	95.4	70	130			
Selenium	0.00522	0.00500	0.00500	0	104	70	130			
Thallium	0.000995	0.00150	0.00100	0	99.5	70	130			

Sample ID <b>CCV6-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:21:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.211	0.00250	0.200	0	105	90	110			
Arsenic	0.211	0.00500	0.200	0	105	90	110			
Barium	0.206	0.0100	0.200	0	103	90	110			
Beryllium	0.214	0.00100	0.200	0	107	90	110			
Cadmium	0.205	0.00100	0.200	0	103	90	110			
Calcium	5.04	0.300	5.00	0	101	90	110			
Chromium	0.213	0.00500	0.200	0	107	90	110			
Cobalt	0.207	0.00500	0.200	0	103	90	110			
Lead	0.204	0.00100	0.200	0	102	90	110			
Lithium	0.211	0.0100	0.200	0	106	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID <b>CCV6-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:21:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.202	0.00500	0.200	0	101	90	110			
Selenium	0.211	0.00500	0.200	0	106	90	110			
Thallium	0.206	0.00150	0.200	0	103	90	110			

Sample ID <b>LCVL6-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:25:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00208	0.00250	0.00200	0	104	70	130			
Arsenic	0.00511	0.00500	0.00500	0	102	70	130			
Barium	0.00478	0.0100	0.00500	0	95.6	70	130			
Beryllium	0.00102	0.00100	0.00100	0	102	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Calcium	0.107	0.300	0.100	0	107	70	130			
Chromium	0.00520	0.00500	0.00500	0	104	70	130			
Cobalt	0.00508	0.00500	0.00500	0	102	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
Lithium	0.0105	0.0100	0.0100	0	105	70	130			
Molybdenum	0.00486	0.00500	0.00500	0	97.3	70	130			
Selenium	0.00545	0.00500	0.00500	0	109	70	130			
Thallium	0.00103	0.00150	0.00100	0	103	70	130			

Sample ID <b>CCV7-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 2:49:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.211	0.00250	0.200	0	105	90	110			
Arsenic	0.211	0.00500	0.200	0	105	90	110			
Barium	0.209	0.0100	0.200	0	104	90	110			
Beryllium	0.218	0.00100	0.200	0	109	90	110			
Cadmium	0.206	0.00100	0.200	0	103	90	110			
Chromium	0.213	0.00500	0.200	0	106	90	110			
Cobalt	0.208	0.00500	0.200	0	104	90	110			
Lead	0.201	0.00100	0.200	0	100	90	110			
Lithium	0.214	0.0100	0.200	0	107	90	110			
Molybdenum	0.204	0.00500	0.200	0	102	90	110			
Selenium	0.208	0.00500	0.200	0	104	90	110			
Thallium	0.203	0.00150	0.200	0	101	90	110			

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170109B**

Sample ID: <b>LCVL7-170109</b>	Batch ID: <b>R89854</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170109B</b>	Analysis Date: <b>1/9/2017 3:22:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00194	0.00250	0.00200	0	97.1	70	130			
Arsenic	0.00522	0.00500	0.00500	0	104	70	130			
Barium	0.00493	0.0100	0.00500	0	98.6	70	130			
Beryllium	0.000982	0.00100	0.00100	0	98.2	70	130			
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Chromium	0.00514	0.00500	0.00500	0	103	70	130			
Cobalt	0.00527	0.00500	0.00500	0	105	70	130			
Lead	0.000946	0.00100	0.00100	0	94.6	70	130			
Lithium	0.0102	0.0100	0.0100	0	103	70	130			
Molybdenum	0.00466	0.00500	0.00500	0	93.2	70	130			
Selenium	0.00521	0.00500	0.00500	0	104	70	130			
Thallium	0.000957	0.00150	0.00100	0	95.7	70	130			

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170111E**

The QC data in batch 78573 applies to the following samples: 1612313-01A, 1612313-02A, 1612313-03A, 1612313-04A, 1612313-05A

Sample ID <b>MB-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 3:00:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								

Sample ID <b>LCS-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 3:02:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.189	0.0300	0.200	0	94.3	80	120			

Sample ID <b>LCSD-78573</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 3:04:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.196	0.0300	0.200	0	98.1	80	120	4.02	15	

Sample ID <b>1612306-06B MS</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 3:57:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.452	0.0300	0.200	0.258	96.6	80	120			

Sample ID <b>1612306-06B MSD</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 3:59:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.460	0.0300	0.200	0.258	101	80	120	1.84	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170111E**

Sample ID <b>ICV-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 1:37:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0919	0.0300	0.100	0	91.9	90	110			
Calcium	2.31	0.300	2.50	0	92.6	90	110			

Sample ID <b>LCVL-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 1:41:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0156	0.0300	0.0200	0	78.2	70	130			
Calcium	0.0980	0.300	0.100	0	98.0	70	130			

Sample ID <b>CCV1-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 2:39:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.191	0.0300	0.200	0	95.3	90	110			
Calcium	4.98	0.300	5.00	0	99.5	90	110			

Sample ID <b>LCVL1-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 2:43:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0243	0.0300	0.0200	0	122	70	130			
Calcium	0.101	0.300	0.100	0	101	70	130			

Sample ID <b>CCV2-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 4:01:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.196	0.0300	0.200	0	98.2	90	110			
Calcium	5.00	0.300	5.00	0	99.9	90	110			

Sample ID <b>LCVL2-170111</b>	Batch ID: <b>R89913</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170111E</b>	Analysis Date: <b>1/11/2017 4:03:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0253	0.0300	0.0200	0	127	70	130			
Calcium	0.106	0.300	0.100	0	106	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170112B**

The QC data in batch 78629 applies to the following samples: 1612313-06A, 1612313-07A, 1612313-08A

Sample ID <b>MB-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:08:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID <b>LCS-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:10:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.5	80	120			
Arsenic	0.201	0.00500	0.200	0	101	80	120			
Barium	0.204	0.0100	0.200	0	102	80	120			
Beryllium	0.209	0.00100	0.200	0	105	80	120			
Cadmium	0.205	0.00100	0.200	0	103	80	120			
Calcium	4.98	0.300	5.00	0	99.7	80	120			
Chromium	0.214	0.00500	0.200	0	107	80	120			
Cobalt	0.210	0.00500	0.200	0	105	80	120			
Lead	0.207	0.00100	0.200	0	103	80	120			
Lithium	0.210	0.0100	0.200	0	105	80	120			
Molybdenum	0.206	0.00500	0.200	0	103	80	120			
Selenium	0.201	0.00500	0.200	0	100	80	120			
Thallium	0.208	0.00150	0.200	0	104	80	120			

Sample ID <b>LCSD-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:12:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.7	80	120	0.173	15	
Arsenic	0.202	0.00500	0.200	0	101	80	120	0.087	15	
Barium	0.204	0.0100	0.200	0	102	80	120	0.223	15	
Beryllium	0.203	0.00100	0.200	0	102	80	120	2.72	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170112B**

Sample ID <b>LCSD-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:12:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.207	0.00100	0.200	0	103	80	120	0.618	15	
Calcium	4.94	0.300	5.00	0	98.9	80	120	0.843	15	
Chromium	0.209	0.00500	0.200	0	105	80	120	2.10	15	
Cobalt	0.210	0.00500	0.200	0	105	80	120	0.007	15	
Lead	0.202	0.00100	0.200	0	101	80	120	2.23	15	
Lithium	0.207	0.0100	0.200	0	103	80	120	1.72	15	
Molybdenum	0.207	0.00500	0.200	0	104	80	120	0.596	15	
Selenium	0.202	0.00500	0.200	0	101	80	120	0.649	15	
Thallium	0.202	0.00150	0.200	0	101	80	120	2.99	15	

Sample ID <b>1612313-06A SD</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:18:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	0.0615	0.0250	0	0.0618				0.397	10	
Barium	0.0276	0.0500	0	0.0276				0.159	10	
Beryllium	<0.00150	0.00500	0	0				0	10	
Cadmium	<0.00150	0.00500	0	0				0	10	
Calcium	157	1.50	0	157				0.469	10	
Chromium	<0.0100	0.0250	0	0				0	10	
Cobalt	0.236	0.0250	0	0.230				2.86	10	
Lead	<0.00150	0.00500	0	0				0	10	
Lithium	<0.0250	0.0500	0	0.0130				0	10	
Molybdenum	<0.0100	0.0250	0	0				0	10	
Selenium	<0.0100	0.0250	0	0				0	10	
Thallium	<0.00250	0.00750	0	0				0	10	

Sample ID <b>1612313-06A PDS</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:39:00 PM</b>	Prep Date: <b>1/9/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.7	80	120			
Arsenic	0.258	0.00500	0.200	0.0618	98.0	80	120			
Barium	0.229	0.0100	0.200	0.0276	101	80	120			
Beryllium	0.195	0.00100	0.200	0	97.6	80	120			
Cadmium	0.198	0.00100	0.200	0	99.0	80	120			
Calcium	150	0.300	5.00	157	-128	80	120			S
Chromium	0.206	0.00500	0.200	0	103	80	120			
Cobalt	0.412	0.00500	0.200	0.230	91.2	80	120			
Lead	0.198	0.00100	0.200	0	98.8	80	120			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170112B**

Sample ID <b>1612313-06A PDS</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:39:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.200	0.0100	0.200	0.0130	93.6	80	120			
Molybdenum	0.200	0.00500	0.200	0	100	80	120			
Selenium	0.198	0.00500	0.200	0	99.2	80	120			
Thallium	0.198	0.00150	0.200	0	99.0	80	120			

Sample ID <b>1612313-06A MS</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:40:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.208	0.00250	0.200	0	104	80	120			
Arsenic	0.268	0.00500	0.200	0.0618	103	80	120			
Barium	0.238	0.0100	0.200	0.0276	105	80	120			
Beryllium	0.204	0.00100	0.200	0	102	80	120			
Cadmium	0.206	0.00100	0.200	0	103	80	120			
Calcium	159	0.300	5.00	157	35.6	80	120			S
Chromium	0.207	0.00500	0.200	0	104	80	120			
Cobalt	0.431	0.00500	0.200	0.230	101	80	120			
Lead	0.203	0.00100	0.200	0	101	80	120			
Lithium	0.212	0.0100	0.200	0.0130	99.4	80	120			
Molybdenum	0.216	0.00500	0.200	0	108	80	120			
Selenium	0.206	0.00500	0.200	0	103	80	120			
Thallium	0.203	0.00150	0.200	0	102	80	120			

Sample ID <b>1612313-06A MSD</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:42:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	104	80	120	0.459	15	
Arsenic	0.269	0.00500	0.200	0.0618	103	80	120	0.143	15	
Barium	0.237	0.0100	0.200	0.0276	105	80	120	0.513	15	
Beryllium	0.198	0.00100	0.200	0	98.9	80	120	3.28	15	
Cadmium	0.204	0.00100	0.200	0	102	80	120	1.02	15	
Calcium	161	0.300	5.00	157	92.9	80	120	1.79	15	
Chromium	0.205	0.00500	0.200	0	102	80	120	1.09	15	
Cobalt	0.435	0.00500	0.200	0.230	103	80	120	0.795	15	
Lead	0.203	0.00100	0.200	0	101	80	120	0.098	15	
Lithium	0.209	0.0100	0.200	0.0130	98.1	80	120	1.24	15	
Molybdenum	0.212	0.00500	0.200	0	106	80	120	1.71	15	
Selenium	0.207	0.00500	0.200	0	103	80	120	0.588	15	
Thallium	0.205	0.00150	0.200	0	102	80	120	0.649	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170112B**

Sample ID <b>ICV-170112</b>	Batch ID: <b>R89941</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 12:36:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0967	0.00250	0.100	0	96.7	90	110			
Arsenic	0.0980	0.00500	0.100	0	98.0	90	110			
Barium	0.0988	0.0100	0.100	0	98.8	90	110			
Beryllium	0.0993	0.00100	0.100	0	99.3	90	110			
Cadmium	0.0992	0.00100	0.100	0	99.2	90	110			
Calcium	2.30	0.300	2.50	0	92.1	90	110			
Chromium	0.107	0.00500	0.100	0	107	90	110			
Cobalt	0.104	0.00500	0.100	0	104	90	110			
Lead	0.0986	0.00100	0.100	0	98.6	90	110			
Lithium	0.101	0.0100	0.100	0	101	90	110			
Molybdenum	0.0973	0.00500	0.100	0	97.3	90	110			
Selenium	0.0983	0.00500	0.100	0	98.3	90	110			
Thallium	0.0989	0.00150	0.100	0	98.9	90	110			

Sample ID <b>LCVL-170112</b>	Batch ID: <b>R89941</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 12:40:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00195	0.00250	0.00200	0	97.4	70	130			
Arsenic	0.00496	0.00500	0.00500	0	99.3	70	130			
Barium	0.00510	0.0100	0.00500	0	102	70	130			
Beryllium	0.00102	0.00100	0.00100	0	102	70	130			
Cadmium	0.00101	0.00100	0.00100	0	101	70	130			
Calcium	0.105	0.300	0.100	0	105	70	130			
Chromium	0.00530	0.00500	0.00500	0	106	70	130			
Cobalt	0.00527	0.00500	0.00500	0	105	70	130			
Lead	0.00108	0.00100	0.00100	0	108	70	130			
Lithium	0.0103	0.0100	0.0100	0	103	70	130			
Molybdenum	0.00540	0.00500	0.00500	0	108	70	130			
Selenium	0.00568	0.00500	0.00500	0	114	70	130			
Thallium	0.00106	0.00150	0.00100	0	106	70	130			

Sample ID <b>CCV1-170112</b>	Batch ID: <b>R89941</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:44:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Barium	0.207	0.0100	0.200	0	103	90	110			
Beryllium	0.204	0.00100	0.200	0	102	90	110			
Cadmium	0.211	0.00100	0.200	0	105	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170112B**

Sample ID: <b>CCV1-170112</b>	Batch ID: <b>R89941</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 1:44:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.87	0.300	5.00	0	97.4	90	110			
Chromium	0.208	0.00500	0.200	0	104	90	110			
Cobalt	0.208	0.00500	0.200	0	104	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
Lithium	0.201	0.0100	0.200	0	100	90	110			
Molybdenum	0.209	0.00500	0.200	0	105	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Thallium	0.202	0.00150	0.200	0	101	90	110			

Sample ID: <b>LCVL1-170112</b>	Batch ID: <b>R89941</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170112B</b>	Analysis Date: <b>1/12/2017 2:04:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00196	0.00250	0.00200	0	97.8	70	130			
Arsenic	0.00504	0.00500	0.00500	0	101	70	130			
Barium	0.00505	0.0100	0.00500	0	101	70	130			
Beryllium	0.000982	0.00100	0.00100	0	98.2	70	130			
Cadmium	0.000988	0.00100	0.00100	0	98.8	70	130			
Calcium	0.0977	0.300	0.100	0	97.7	70	130			
Chromium	0.00536	0.00500	0.00500	0	107	70	130			
Cobalt	0.00540	0.00500	0.00500	0	108	70	130			
Lead	0.000987	0.00100	0.00100	0	98.7	70	130			
Lithium	0.0103	0.0100	0.0100	0	103	70	130			
Molybdenum	0.00508	0.00500	0.00500	0	102	70	130			
Selenium	0.00592	0.00500	0.00500	0	118	70	130			
Thallium	0.00102	0.00150	0.00100	0	102	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170113B**

The QC data in batch 78573 applies to the following samples: 1612313-01A, 1612313-02A, 1612313-03A, 1612313-04A, 1612313-05A

Sample ID <b>1612306-06B SD</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:06:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.310	0.150	0	0.271				13.5	10	R

Sample ID <b>1612306-06B PDS</b>	Batch ID: <b>78573</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:08:00 PM</b>	Prep Date: <b>1/4/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.448	0.0300	0.200	0.271	88.8	80	120			

LUMINANT

<b>Qualifiers:</b>	<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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170113B**

The QC data in batch 78629 applies to the following samples: 1612313-06A, 1612313-07A, 1612313-08A

Sample ID <b>MB-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:25:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron <0.0100 0.0300

Sample ID <b>LCS-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:27:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 0.205 0.0300 0.200 0 102 80 120

Sample ID <b>LCSD-78629</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:29:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 0.199 0.0300 0.200 0 99.7 80 120 2.59 15

Sample ID <b>1612313-06A SD</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:33:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 9.20 15.0 0 6.10 40.6 10 R

Sample ID <b>1612313-06A PDS</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:52:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 25.3 3.00 20.0 6.10 96.0 80 120

Sample ID <b>1612313-06A MS</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:54:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 6.04 3.00 0.200 6.10 -30.7 80 120 S

Sample ID <b>1612313-06A MSD</b>	Batch ID: <b>78629</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:56:00 PM</b>	Prep Date: <b>1/9/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron 6.16 3.00 0.200 6.10 30.8 80 120 2.02 15 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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_170113B**

Sample ID <b>ICV-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 12:24:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0977	0.0300	0.100	0	97.7	90	110			
Calcium	2.28	0.300	2.50	0	91.2	90	110			

Sample ID <b>LCVL-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 12:30:00 PM</b>	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	0.100	0.300	0.100	0	100	70	130			

Sample ID <b>CCV1-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:10:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.205	0.0300	0.200	0	103	90	110			
Calcium	4.82	0.300	5.00	0	96.4	90	110			

Sample ID <b>LCVL1-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:23:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0217	0.0300	0.0200	0	109	70	130			
Calcium	0.0941	0.300	0.100	0	94.1	70	130			

Sample ID <b>CCV2-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 1:58:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.203	0.0300	0.200	0	102	90	110			
Calcium	4.76	0.300	5.00	0	95.2	90	110			

Sample ID <b>LCVL2-170113</b>	Batch ID: <b>R89958</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_170113B</b>	Analysis Date: <b>1/13/2017 2:04:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0224	0.0300	0.0200	0	112	70	130			
Calcium	0.102	0.300	0.100	0	102	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_170105A**

The QC data in batch 78592 applies to the following samples: 1612313-01D, 1612313-02D, 1612313-03D, 1612313-04D, 1612313-05D, 1612313-06D, 1612313-07D, 1612313-08D

Sample ID: <b>MB-78592</b>	Batch ID: <b>78592</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MBLK</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 9:27:19 AM</b>	Prep Date: <b>1/5/2017</b>

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: <b>LCS-78592</b>	Batch ID: <b>78592</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 9:41:56 AM</b>	Prep Date: <b>1/5/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.64	1.00	10.00	0	96.4	90	110			
Fluoride	3.81	0.400	4.000	0	95.4	90	110			
Sulfate	29.7	3.00	30.00	0	98.9	90	110			

Sample ID: <b>LCS-78592</b>	Batch ID: <b>78592</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 9:56:32 AM</b>	Prep Date: <b>1/5/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110	6.07	20	
Fluoride	3.99	0.400	4.000	0	99.8	90	110	4.53	20	
Sulfate	31.5	3.00	30.00	0	105	90	110	5.91	20	

Sample ID: <b>1612313-08DMS</b>	Batch ID: <b>78592</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MS</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 3:41:36 PM</b>	Prep Date: <b>1/5/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	308	10.0	200.0	85.77	111	90	110			S
Fluoride	216	4.00	200.0	0	108	90	110			
Sulfate	1100	30.0	200.0	866.5	115	90	110			S

Sample ID: <b>1612313-08DMSD</b>	Batch ID: <b>78592</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 3:56:12 PM</b>	Prep Date: <b>1/5/2017</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	305	10.0	200.0	85.77	110	90	110	0.832	20	
Fluoride	215	4.00	200.0	0	107	90	110	0.569	20	
Sulfate	1100	30.0	200.0	866.5	119	90	110	0.625	20	S

**Qualifiers:**

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_170105A**

Sample ID <b>ICV-170105</b>	Batch ID: <b>R89798</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 8:53:02 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.2	1.00	25.00	0	96.8	90	110			
Fluoride	9.37	0.400	10.00	0	93.7	90	110			
Sulfate	74.7	3.00	75.00	0	99.6	90	110			

Sample ID <b>CCV1-170105</b>	Batch ID: <b>R89798</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 1:07:32 PM</b>	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	3.95	0.400	4.000	0	98.8	90	110			
Sulfate	31.5	3.00	30.00	0	105	90	110			

Sample ID <b>CCV2-170105</b>	Batch ID: <b>R89798</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC2_170105A</b>	Analysis Date: <b>1/5/2017 4:10:49 PM</b>	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	4.11	0.400	4.000	0	103	90	110			
Sulfate	31.4	3.00	30.00	0	105	90	110			

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_170103A**

The QC data in batch 78555 applies to the following samples: 1612313-01D, 1612313-02D, 1612313-03D, 1612313-04D, 1612313-05D, 1612313-06D, 1612313-07D, 1612313-08D

Sample ID	1612313-01D-DUP	Batch ID:	78555	TestNo:	M4500-H+ B	Units:	pH Units@18.4°C			
SampType:	DUP	Run ID:	TITRATOR_170103A	Analysis Date:	1/3/2017 10:51:00 AM	Prep Date:	1/3/2017			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.50	0	0	6.470				0.463	5	

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: TITRATOR\_170103A**

Sample ID <b>ICV-170103</b>	Batch ID: <b>R89764</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21.9°C</b>							
SampType: <b>ICV</b>	Run ID: <b>TITRATOR_170103A</b>	Analysis Date: <b>1/3/2017 9:29:00 AM</b>	Prep Date: <b>1/3/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	9.92	0	10.00	0	99.2	99	101			

Sample ID <b>CCV1-170103</b>	Batch ID: <b>R89764</b>	TestNo: <b>M4500-H+ B</b>	Units: <b>pH Units@21°C</b>							
SampType: <b>CCV</b>	Run ID: <b>TITRATOR_170103A</b>	Analysis Date: <b>1/3/2017 11:08:00 AM</b>	Prep Date: <b>1/3/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	6.97	0	7.000	0	99.6	97.1	102.9			

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
---	--

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1612313  
**Project:** MOSES CCR

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_170103A**

The QC data in batch 78570 applies to the following samples: 1612313-01D, 1612313-02D, 1612313-03D, 1612313-04D, 1612313-05D, 1612313-06D, 1612313-07D, 1612313-08D

Sample ID <b>MB-78570</b>	Batch ID: <b>78570</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_170103A</b>	Analysis Date: <b>1/4/2017 8:48:00 AM</b>	Prep Date: <b>1/3/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	<10.0	10.0								

Sample ID <b>LCS-78570</b>	Batch ID: <b>78570</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_170103A</b>	Analysis Date: <b>1/4/2017 8:48:00 AM</b>	Prep Date: <b>1/3/2017</b>							
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 <b>1612313-04D-DUP</b>	Batch ID: <b>78570</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_170103A</b>	Analysis Date: <b>1/4/2017 8:48:00 AM</b>	Prep Date: <b>1/3/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	2030	50.0	0	1945				4.28	5	

Sample ID <b>1612313-06D-DUP</b>	Batch ID: <b>78570</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_170103A</b>	Analysis Date: <b>1/4/2017 8:48:00 AM</b>	Prep Date: <b>1/3/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1610	50.0	0	1620				0.930	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 NELAC certified

## Case Narrative

### Lab No: 20170008

This report contains the analytical results for the 8 sample(s) received under chain of custody by ESC Lab Sciences on 1/4/2017 2:35:12 PM. These samples are associated with your 1612313 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### Observations / Nonconformances

L882071





Client : DHL Analytical, Inc.  
 Client Project : 1612313  
 Lab Number : 20170008  
 Date Reported : 02/07/17  
 Date Received : 01/04/17  
 Page Number : 2 of 4

## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20170008-01  
**Client ID** : W-29  
**Date Sampled** : 12/29/2016 3:30:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.17 +/- 0.592	1.02	pCi/l				
Radium-226	SM 7500 Ra B M*	0.064 +/- 0.116	0.192	pCi/l		01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	2.11 +/- 0.476	0.823	pCi/l		01/24/17	01/29/17	JR

**Lab ID** : 20170008-02  
**Client ID** : W-30  
**Date Sampled** : 12/29/2016 2:30:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.58 +/- 0.670	0.877	pCi/l				
Radium-226	SM 7500 Ra B M*	0.035 +/- 0.180	0.296	pCi/l		01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	1.54 +/- 0.490	0.581	pCi/l		01/24/17	01/29/17	JR

**Lab ID** : 20170008-03  
**Client ID** : W-31  
**Date Sampled** : 12/29/2016 1:45:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.613 +/- 0.651	1.00	pCi/l				
Radium-226	SM 7500 Ra B M*	-0.240 +/- 0.167	0.351	pCi/l		01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	0.613 +/- 0.484	0.649	pCi/l		01/24/17	01/29/17	JR

**Lab ID** : 20170008-04  
**Client ID** : W-32  
**Date Sampled** : 12/29/2016 1:03:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.94 +/- 0.734	0.956	pCi/l				
Radium-226	SM 7500 Ra B M*	0.215 +/- 0.181	0.238	pCi/l		01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	2.72 +/- 0.553	0.718	pCi/l		01/24/17	01/29/17	JR



Client : DHL Analytical, Inc.  
 Client Project : 1612313  
 Lab Number : 20170008  
 Date Reported : 02/07/17  
 Date Received : 01/04/17  
 Page Number : 3 of 4

## Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

**Lab ID** : 20170008-05  
**Client ID** : W-33  
**Date Sampled** : 12/29/2016 12:20:00 PM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.48 +/- 0.739	0.960	pCi/l			
Radium-226	SM 7500 Ra B M*	0.393 +/- 0.204	0.227	pCi/l	01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	2.09 +/- 0.535	0.733	pCi/l	01/24/17	01/29/17	JR

**Lab ID** : 20170008-06  
**Client ID** : W-34  
**Date Sampled** : 12/29/2016 11:40:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		1.50 +/- 0.598	0.791	pCi/l			
Radium-226	SM 7500 Ra B M*	0.102 +/- 0.102	0.144	pCi/l	01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	1.40 +/- 0.496	0.647	pCi/l	01/24/17	01/29/17	JR

**Lab ID** : 20170008-07  
**Client ID** : W-35  
**Date Sampled** : 12/29/2016 10:25:00 AM  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		2.82 +/- 0.699	0.925	pCi/l			
Radium-226	SM 7500 Ra B M*	0.187 +/- 0.147	0.197	pCi/l	01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	2.63 +/- 0.552	0.728	pCi/l	01/24/17	01/29/17	JR

**Lab ID** : 20170008-08  
**Client ID** : DUP-1  
**Date Sampled** : 12/29/2016  
**Matrix** : NPW

### Radiochemical Analyses

Combined Radium		0.903 +/- 0.608	0.846	pCi/l			
Radium-226	SM 7500 Ra B M*	0.049 +/- 0.117	0.195	pCi/l	01/26/17	01/29/17	AK
Radium-228	EPA 904*/9320*	0.854 +/- 0.491	0.651	pCi/l	01/24/17	01/29/17	JR



Client : DHL Analytical, Inc.  
Client Project : 1612313  
Lab Number : 20170008  
Date Reported : 02/07/17  
Date Received : 01/04/17  
Page Number : 4 of 4

### QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.018	108.0			10.1	1.280	107.0	111.0	3.1	R1185
Radium-228	-0.248	101.0			NC	0.099	109.0	108.0	0.6	R3913

Lab Approval:

Ron Eidson  
Director of Radiochemistry

LUMINANT

DHL Analytical, Inc.  
 2300 Double Creek Drive  
 Round Rock, TX 78664

# CHAIN-OF-CUSTODY RECORD

TEL: (512) 388-8222

FAX: (512) 388-8229

Work Order: 1612313

**Subcontractor:**

ESC Laboratory  
 311 North Aspen  
 Broken Arrow, Oklahoma 74012

TEL: (918) 251-2515

FAX:

Acct #: DHLRRTX



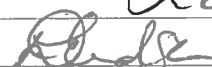
30-Dec-16

Sample Id	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests						
					E904.0	M7500Ra-B M					
1 W-29	Aqueous	-01B	12/29/16 03:30 PM	1LHDPEHNO3	1						
2 W-29	Aqueous	-01C	12/29/16 03:30 PM	500HDPEHNO3		1					
3 W-30	Aqueous	-02B	12/29/16 02:30 PM	1LHDPEHNO3	1						
4 W-30	Aqueous	-02C	12/29/16 02:30 PM	500HDPEHNO3		1					
5 W-31	Aqueous	-03B	12/29/16 01:45 PM	1LHDPEHNO3	1						
6 W-31	Aqueous	-03C	12/29/16 01:45 PM	500HDPEHNO3		1					
7 W-32	Aqueous	-04B	12/29/16 01:03 PM	1LHDPEHNO3	1						
8 W-32	Aqueous	-04C	12/29/16 01:03 PM	500HDPEHNO3		1					
9 W-33	Aqueous	-05B	12/29/16 12:20 PM	1LHDPEHNO3	1						
10 W-33	Aqueous	-05C	12/29/16 12:20 PM	500HDPEHNO3		1					
11 W-34	Aqueous	-06B	12/29/16 11:40 AM	1LHDPEHNO3	1						
12 W-34	Aqueous	-06C	12/29/16 11:40 AM	500HDPEHNO3		1					
13 W-35	Aqueous	-07B	12/29/16 10:25 AM	1LHDPEHNO3	1						
14 W-35	Aqueous	-07C	12/29/16 10:25 AM	500HDPEHNO3		1					
15 DUP-1	Aqueous	-08B	12/29/16	1LHDPEHNO3	1						
16 DUP-1	Aqueous	-08C	12/29/16	500HDPEHNO3		1					

**General Comments:**

Please analyze these samples with Normal Turnaround Time.  
 Report RA-226, Ra-228 & Combined per Specs.  
 Quality Control Package Needed: Standard - NELAC Rad Test compliant  
 Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

L 882071  
 20170208

Relinquished by: 	Date/Time: 12/30/16 1730	Received by: 	Date/Time: 12/30/16 1730
Relinquished by: _____	Date/Time: _____	Received by: 	Date/Time: 1/4/17 1433

### SAMPLE LOGIN

Date Received: 1/4/2017 2:35:12

Lab Number: 20170008

Due: 2/1/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170008-01 B	W-29	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-01 A	W-29	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-02 A	W-30	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-02 B	W-30	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-03 A	W-31	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-03 B	W-31	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-04 B	W-32	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-04 A	W-32	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-05 B	W-33	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-05 A	W-33	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-06 A	W-34	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-06 B	W-34	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						
20170008-07 A	W-35	NPW	12/29/16	Plastic	500 ml	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-07 B	W-35	NPW	12/29/16	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
			SM 7500 Ra B M*						
			EPA 904*/9320*						

20170008-08 B	DUP-01	NPW	12/29/17	Plastic	1 L	HNO <sub>3</sub> , pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
20170008-08 A	DUP-01	NPW	12/29/17	Plastic	500 ml	HNO <sub>3</sub> , pH < 2	<input checked="" type="checkbox"/>	Yes	Yes
	Radium-226			SM 7500 Ra B M*					
	Radium-228			EPA 904*/9320*					

**CONTAINER INSPECTION**

# Coolers 1 Custody Seals Broken  Temperature: NA Ice  Radiation Survey: <300 cpm

**SAMPLE INSPECTION**

Sample Seal Broken  Chain of Custody Record  Labels in Tact  Radiation Survey Complete  NA

**Anomalles**

Inspected By: [Signature] DATE 1/4/17  
 QA or Designee Review: [Signature] DATE 01/04/17  
 Sample Custodian Review: [Signature] DATE 1/4/17

**Project Notes:**

LUMINANT

LUMINANT

**Appendix B**

**Laboratory Analytical Reports – Detection Monitoring Data**



October 03, 2017

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

Order No.: 1709219

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 9/22/2017 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC 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", is written over a large, light grey watermark that says "LUMINANT".

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-17-19





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LUMINANT



ORIGIN ID:GGGA (512) 671-3434  
J. BRAYTON

2201 DOUBLE CREEK DR STE 4004

ROUND ROCK, TX 78664  
UNITED STATES US

SHIP DATE: 21SEP17  
ACTWGT: 51.20 LB  
CAD: 006994167/SSFE1802  
DIMS: 25x14x14 IN

BILL THIRD PARTY

NOV 15 10:43 AM '17

TO **DHL ANALYTICAL**  
**DHL ANALYTICAL**  
**2300 DOUBLE CREEK DR**

**ROUND ROCK TX 78664**

(512) 388-8222

REF:

THU:

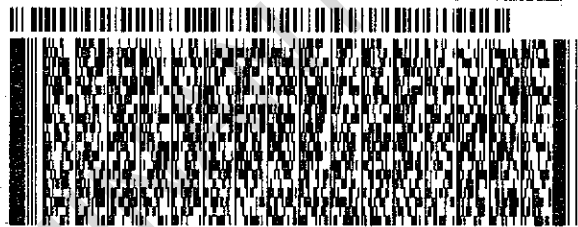
PO:

DEPT:

RT **512**

1  
10:30

FZ



**FedEx**  
Express



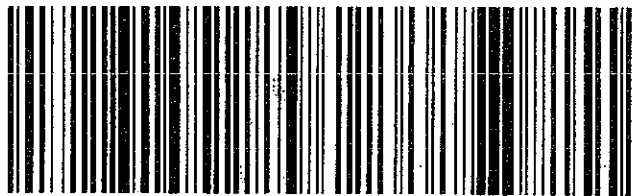
J1721170913010Y

TRK# 7878 1199 8703  
0201

**FRI - 22 SEP 10:30A**  
**PRIORITY OVERNIGHT**

**XH BSMA**

**78664**  
**TX-US AUS**



Sample Receipt Checklist

Client Name Pastor, Behling & Wheeler

Date Received: 9/22/2017

Work Order Number 1709219

Received by JMW

Checklist completed by: [Signature] 9/22/2017  
Signature Date

Reviewed by: [Initials] 9/22/2017  
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  1.6 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT # 8086  
Adjusted? no Checked by EL
- Water - pH>9 (S) or pH>12 (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:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1709219

**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 9/22/17. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

**METALS ANALYSIS**

For Metals analysis performed on 9/29/17 the matrix spike and matrix spike duplicate recoveries were above control limits for Boron and Calcium. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

For Metals analysis performed on 9/29/17 the RPD for the serial dilution was above control limits for Boron. This is flagged accordingly. The PDS was within control limits for this analyte. No further corrective actions were taken.

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**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Lab Order:** 1709219

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1709219-01	W-34		09/20/17 08:50 AM	9/22/2017
1709219-02	W-33		09/20/17 09:35 AM	9/22/2017
1709219-03	W-32		09/20/17 10:20 AM	9/22/2017
1709219-04	W-31		09/20/17 11:10 AM	9/22/2017
1709219-05	W-30		09/20/17 11:50 AM	9/22/2017
1709219-06	W-29		09/20/17 12:30 PM	9/22/2017
1709219-07	W-35		09/20/17 01:15 PM	9/22/2017

LUMINANT

**Lab Order:** 1709219  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1709219-01A	W-34	09/20/17 08:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-34	09/20/17 08:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-01B	W-34	09/20/17 08:50 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-34	09/20/17 08:50 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-34	09/20/17 08:50 AM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-02A	W-33	09/20/17 09:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-33	09/20/17 09:35 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-02B	W-33	09/20/17 09:35 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-33	09/20/17 09:35 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-33	09/20/17 09:35 AM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-03A	W-32	09/20/17 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-32	09/20/17 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-03B	W-32	09/20/17 10:20 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-32	09/20/17 10:20 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-32	09/20/17 10:20 AM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-04A	W-31	09/20/17 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-31	09/20/17 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-04B	W-31	09/20/17 11:10 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-31	09/20/17 11:10 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-31	09/20/17 11:10 AM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-05A	W-30	09/20/17 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-30	09/20/17 11:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-05B	W-30	09/20/17 11:50 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-30	09/20/17 11:50 AM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-30	09/20/17 11:50 AM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-06A	W-29	09/20/17 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-29	09/20/17 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-06B	W-29	09/20/17 12:30 PM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541

**Lab Order:** 1709219  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1709219-06B	W-29	09/20/17 12:30 PM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-29	09/20/17 12:30 PM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549
1709219-07A	W-35	09/20/17 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
	W-35	09/20/17 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/26/17 09:30 AM	82544
1709219-07B	W-35	09/20/17 01:15 PM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-35	09/20/17 01:15 PM	Aqueous	E300	Anion Preparation	09/26/17 09:12 AM	82541
	W-35	09/20/17 01:15 PM	Aqueous	M2540C	TDS Preparation	09/26/17 10:09 AM	82549

LUMINANT



Lab Order: 1709219  
 Client: Pastor, Behling & Wheeler  
 Project: Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1709219-01A	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:09 PM	ICP-MS5_170929A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	10	09/28/17 12:40 PM	ICP-MS5_170928A
1709219-01B	W-34	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 01:02 PM	IC4_170926A
	W-34	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 06:38 PM	IC4_170926A
	W-34	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-02A	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/28/17 12:42 PM	ICP-MS5_170928A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:11 PM	ICP-MS5_170929A
1709219-02B	W-33	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 01:14 PM	IC4_170926A
	W-33	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 06:50 PM	IC4_170926A
	W-33	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-03A	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/28/17 12:44 PM	ICP-MS5_170928A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:14 PM	ICP-MS5_170929A
1709219-03B	W-32	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 01:26 PM	IC4_170926A
	W-32	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 07:02 PM	IC4_170926A
	W-32	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-04A	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:16 PM	ICP-MS5_170929A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	10	09/28/17 12:46 PM	ICP-MS5_170928A
1709219-04B	W-31	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 01:38 PM	IC4_170926A
	W-31	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 07:14 PM	IC4_170926A
	W-31	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-05A	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/28/17 12:49 PM	ICP-MS5_170928A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:18 PM	ICP-MS5_170929A
1709219-05B	W-30	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 01:50 PM	IC4_170926A
	W-30	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 07:26 PM	IC4_170926A
	W-30	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-06A	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/28/17 12:51 PM	ICP-MS5_170928A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:21 PM	ICP-MS5_170929A
1709219-06B	W-29	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 07:38 PM	IC4_170926A

**Lab Order:** 1709219  
**Client:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1709219-06B	W-29	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 02:02 PM	IC4_170926A
	W-29	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C
1709219-07A	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/28/17 12:53 PM	ICP-MS5_170928A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	82544	50	09/29/17 02:23 PM	ICP-MS5_170929A
1709219-07B	W-35	Aqueous	E300	Anions by IC method - Water	82541	10	09/26/17 02:14 PM	IC4_170926A
	W-35	Aqueous	E300	Anions by IC method - Water	82541	1	09/26/17 07:50 PM	IC4_170926A
	W-35	Aqueous	M2540C	Total Dissolved Solids	82549	1	09/27/17 12:25 PM	WC_170926C

LUMINANT

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-34  
**Lab ID:** 1709219-01  
**Collection Date:** 09/20/17 08:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	5.36	0.500	1.50		mg/L	50	09/29/17 02:09 PM
Calcium	181	1.00	3.00		mg/L	10	09/28/17 12:40 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	117	3.00	10.0		mg/L	10	09/26/17 01:02 PM
Fluoride	0.244	0.100	0.400	J	mg/L	1	09/26/17 06:38 PM
Sulfate	873	10.0	30.0		mg/L	10	09/26/17 01:02 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1720	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-33  
**Lab ID:** 1709219-02  
**Collection Date:** 09/20/17 09:35 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	5.89	0.500	1.50		mg/L	50	09/29/17 02:11 PM
Calcium	271	5.00	15.0		mg/L	50	09/28/17 12:42 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	112	3.00	10.0		mg/L	10	09/26/17 01:14 PM
Fluoride	2.04	0.100	0.400		mg/L	1	09/26/17 06:50 PM
Sulfate	863	10.0	30.0		mg/L	10	09/26/17 01:14 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1970	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

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

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-32  
**Lab ID:** 1709219-03  
**Collection Date:** 09/20/17 10:20 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	5.81	0.500	1.50		mg/L	50	09/29/17 02:14 PM
Calcium	270	5.00	15.0		mg/L	50	09/28/17 12:44 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	118	3.00	10.0		mg/L	10	09/26/17 01:26 PM
Fluoride	0.375	0.100	0.400	J	mg/L	1	09/26/17 07:02 PM
Sulfate	901	10.0	30.0		mg/L	10	09/26/17 01:26 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1920	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-31  
**Lab ID:** 1709219-04  
**Collection Date:** 09/20/17 11:10 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	3.88	0.500	1.50		mg/L	50	09/29/17 02:16 PM
Calcium	96.3	1.00	3.00		mg/L	10	09/28/17 12:46 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	49.8	3.00	10.0		mg/L	10	09/26/17 01:38 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	09/26/17 07:14 PM
Sulfate	316	10.0	30.0		mg/L	10	09/26/17 01:38 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	696	10.0	10.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	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 NELAC certified	

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-30  
**Lab ID:** 1709219-05  
**Collection Date:** 09/20/17 11:50 AM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	5.76	0.500	1.50		mg/L	50	09/29/17 02:18 PM
Calcium	127	5.00	15.0		mg/L	50	09/28/17 12:49 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	76.5	3.00	10.0		mg/L	10	09/26/17 01:50 PM
Fluoride	0.394	0.100	0.400	J	mg/L	1	09/26/17 07:26 PM
Sulfate	734	10.0	30.0		mg/L	10	09/26/17 01:50 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1570	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	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 NELAC certified	

**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-29  
**Lab ID:** 1709219-06  
**Collection Date:** 09/20/17 12:30 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	4.84	0.500	1.50		mg/L	50	09/29/17 02:21 PM
Calcium	128	5.00	15.0		mg/L	50	09/28/17 12:51 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	80.6	3.00	10.0		mg/L	10	09/26/17 02:02 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	09/26/17 07:38 PM
Sulfate	882	10.0	30.0		mg/L	10	09/26/17 02:02 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1540	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

<p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>* Value exceeds TCLP Maximum Concentration Level</li> <li>C Sample Result or QC discussed in the Case Narrative</li> <li>E TPH pattern not Gas or Diesel Range Pattern</li> <li>MDL Method Detection Limit</li> <li>RL Reporting Limit</li> <li>N Parameter not NELAC certified</li> </ul>	<ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>DF Dilution Factor</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>S Spike Recovery outside control limits</li> </ul>
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**DHL Analytical, Inc.**

Date: 03-Oct-17

**CLIENT:** Pastor, Behling & Wheeler  
**Project:** Luminant - MOSES  
**Project No:** 5347-B  
**Lab Order:** 1709219

**Client Sample ID:** W-35  
**Lab ID:** 1709219-07  
**Collection Date:** 09/20/17 01:15 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SP</b>			
Boron	6.27	0.500	1.50		mg/L	50	09/29/17 02:23 PM
Calcium	186	5.00	15.0		mg/L	50	09/28/17 12:53 PM
<b>ANIONS BY IC METHOD - WATER</b>		<b>E300</b>		Analyst: <b>JL</b>			
Chloride	120	3.00	10.0		mg/L	10	09/26/17 02:14 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	09/26/17 07:50 PM
Sulfate	854	10.0	30.0		mg/L	10	09/26/17 02:14 PM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>M2540C</b>		Analyst: <b>BTJ</b>			
Total Dissolved Solids (Residue, Filterable)	1650	50.0	50.0		mg/L	1	09/27/17 12:25 PM

LUMINANT

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
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 NELAC certified		

**CLIENT:** Pastor, Behling & Wheeler

**Work Order:** 1709219

**Project:** Luminant - MOSES

**ANALYTICAL QC SUMMARY REPORT**

**RunID:** ICP-MS5\_170928A

The QC data in batch 82544 applies to the following samples: 1709219-01A, 1709219-02A, 1709219-03A, 1709219-04A, 1709219-05A, 1709219-06A, 1709219-07A

Sample ID <b>MB-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:30:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	<0.100	0.300								

Sample ID <b>LCS-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:33:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.04	0.300	5.00	0	101	80	120			

Sample ID <b>LCSD-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:35:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.08	0.300	5.00	0	102	80	120	0.912	15	

**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID:** ICP-MS5\_170928A

Sample ID <b>ICV-170928</b>	Batch ID: <b>R94446</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:12:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	2.37	0.300	2.50	0	94.7	90	110			
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Sample ID <b>LCVL-170928</b>	Batch ID: <b>R94446</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:23:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	0.0977	0.300	0.100	0	97.7	70	130			
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Sample ID <b>CCV1-170928</b>	Batch ID: <b>R94446</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 12:55:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	4.83	0.300	5.00	0	96.6	90	110			
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Sample ID <b>LCVL1-170928</b>	Batch ID: <b>R94446</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS5_170928A</b>	Analysis Date: <b>9/28/2017 1:00:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	0.0760	0.300	0.100	0	76.0	70	130			
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**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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS5\_170929A**

The QC data in batch 82544 applies to the following samples: 1709219-01A, 1709219-02A, 1709219-03A, 1709219-04A, 1709219-05A, 1709219-06A, 1709219-07A

Sample ID <b>MB-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 1:56:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								

Sample ID <b>LCS-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 1:58:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.201	0.0300	0.200	0	100	80	120			

Sample ID <b>LCS-82544</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:00:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.209	0.0300	0.200	0	105	80	120	4.16	15	

Sample ID <b>1709221-02A SD</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>SD</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:07:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	6.66	7.50	0	5.39				21.1	10	R
Calcium	295	75.0	0	285				3.48	10	

Sample ID <b>1709221-02A PDS</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>PDS</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:25:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	15.7	1.50	10.0	5.39	103	80	120			
Calcium	545	15.0	250	285	104	80	120			

Sample ID <b>1709221-02A MS</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:27:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	6.08	1.50	0.200	5.39	344	80	120			S
Calcium	297	15.0	5.00	285	226	80	120			S

Sample ID <b>1709221-02A MSD</b>	Batch ID: <b>82544</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:30:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS5\_170929A**

Sample ID	1709221-02A MSD	Batch ID:	82544	TestNo:	SW6020A	Units:	mg/L			
SampType:	MSD	Run ID:	ICP-MS5_170929A	Analysis Date:	9/29/2017 2:30:00 PM	Prep Date:	9/26/2017			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	6.04	1.50	0.200	5.39	326	80	120	0.582	15	S
Calcium	302	15.0	5.00	285	333	80	120	1.79	15	S

LUMINANT

<b>Qualifiers:</b>	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 NELAC certified
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS5\_170929A**

Sample ID <b>ICV-170929</b>	Batch ID: <b>R94461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>ICV</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 1:43:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0985	0.0300	0.100	0	98.5	90	110			
Calcium	2.38	0.300	2.50	0	95.3	90	110			

Sample ID <b>LCVL-170929</b>	Batch ID: <b>R94461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 1:47:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0231	0.0300	0.0200	0	116	70	130			
Calcium	0.0839	0.300	0.100	0	83.9	70	130			

Sample ID <b>CCV1-170929</b>	Batch ID: <b>R94461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:34:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.207	0.0300	0.200	0	104	90	110			
Calcium	4.62	0.300	5.00	0	92.5	90	110			

Sample ID <b>LCVL1-170929</b>	Batch ID: <b>R94461</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS5_170929A</b>	Analysis Date: <b>9/29/2017 2:41:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0242	0.0300	0.0200	0	121	70	130			
Calcium	0.0871	0.300	0.100	0	87.1	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_170926A**

The QC data in batch 82541 applies to the following samples: 1709219-01B, 1709219-02B, 1709219-03B, 1709219-04B, 1709219-05B, 1709219-06B, 1709219-07B

Sample ID <b>MB-82541</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 10:24:51 AM</b>	Prep Date: <b>9/26/2017</b>							
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 <b>LCS-82541</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 10:36:51 AM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.83	1.00	10.00	0	98.3	90	110			
Fluoride	3.99	0.400	4.000	0	99.8	90	110			
Sulfate	29.0	3.00	30.00	0	96.6	90	110			

Sample ID <b>LCS-82541</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 10:48:51 AM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.79	1.00	10.00	0	97.9	90	110	0.362	20	
Fluoride	4.01	0.400	4.000	0	100	90	110	0.405	20	
Sulfate	29.0	3.00	30.00	0	96.8	90	110	0.249	20	

Sample ID <b>1709236-01DMS</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 2:38:21 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	315	10.0	200.0	104.2	106	90	110			
Fluoride	207	4.00	200.0	0	103	90	110			
Sulfate	264	30.0	200.0	54.16	105	90	110			

Sample ID <b>1709236-01DMSD</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 2:50:21 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	315	10.0	200.0	104.2	105	90	110	0.288	20	
Fluoride	208	4.00	200.0	0	104	90	110	0.421	20	
Sulfate	265	30.0	200.0	54.16	105	90	110	0.054	20	

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_170926A**

Sample ID: <b>1709237-07BMS</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MS</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 5:38:21 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	218	10.0	200.0	16.46	101	90	110			
Fluoride	199	4.00	200.0	0	99.5	90	110			
Sulfate	230	30.0	200.0	34.78	97.6	90	110			

Sample ID: <b>1709237-07BMSD</b>	Batch ID: <b>82541</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>							
SampType: <b>MSD</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 5:50:21 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	228	10.0	200.0	16.46	106	90	110	4.30	20	
Fluoride	208	4.00	200.0	0	104	90	110	4.54	20	
Sulfate	238	30.0	200.0	34.78	102	90	110	3.36	20	

LUMINANT

<p><b>Qualifiers:</b></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 NELAC certified</p>
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**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_170926A**

Sample ID <b>ICV-170926</b>	Batch ID: <b>R94397</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 10:00:51 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.7	1.00	25.00	0	98.9	90	110			
Fluoride	9.78	0.400	10.00	0	97.8	90	110			
Sulfate	74.4	3.00	75.00	0	99.2	90	110			

Sample ID <b>CCV1-170926</b>	Batch ID: <b>R94397</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 3:14:21 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.93	1.00	10.00	0	99.3	90	110			
Fluoride	4.17	0.400	4.000	0	104	90	110			
Sulfate	29.6	3.00	30.00	0	98.7	90	110			

Sample ID <b>CCV2-170926</b>	Batch ID: <b>R94397</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 6:14:21 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.95	1.00	10.00	0	99.5	90	110			
Fluoride	4.36	0.400	4.000	0	109	90	110			
Sulfate	29.7	3.00	30.00	0	99.1	90	110			

Sample ID <b>CCV3-170926</b>	Batch ID: <b>R94397</b>	TestNo: <b>E300</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_170926A</b>	Analysis Date: <b>9/26/2017 8:26:21 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.19	0.400	4.000	0	105	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 NELAC certified

**CLIENT:** Pastor, Behling & Wheeler  
**Work Order:** 1709219  
**Project:** Luminant - MOSES

## ANALYTICAL QC SUMMARY REPORT

**RunID: WC\_170926C**

The QC data in batch 82549 applies to the following samples: 1709219-01B, 1709219-02B, 1709219-03B, 1709219-04B, 1709219-05B, 1709219-06B, 1709219-07B

Sample ID <b>MB-82549</b>	Batch ID: <b>82549</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>MBLK</b>	Run ID: <b>WC_170926C</b>	Analysis Date: <b>9/27/2017 12:25:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	<10.0	10.0								

Sample ID <b>LCS-82549</b>	Batch ID: <b>82549</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>LCS</b>	Run ID: <b>WC_170926C</b>	Analysis Date: <b>9/27/2017 12:25:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	744	10.0	745.6	0	99.8	90	113			

Sample ID <b>1709219-02B-DUP</b>	Batch ID: <b>82549</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_170926C</b>	Analysis Date: <b>9/27/2017 12:25:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1980	50.0	0	1970				0.506	5	

Sample ID <b>1709219-07B-DUP</b>	Batch ID: <b>82549</b>	TestNo: <b>M2540C</b>	Units: <b>mg/L</b>							
SampType: <b>DUP</b>	Run ID: <b>WC_170926C</b>	Analysis Date: <b>9/27/2017 12:25:00 PM</b>	Prep Date: <b>9/26/2017</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	1690	50.0	0	1650				2.40	5	

<b>Qualifiers:</b>	<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 NELAC certified</p>
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