2015
Annual Groundwater
Monitoring Report

Pardue "C" 8808 JVP Well #1

API No. 30-015-26341

NMOCD Case No. 14413

Eddy County, New Mexico

LAI Project No. 10-0101-02

March 3, 2016

Prepared for:
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1.0 EXECUTIVE SUMMARY

This report is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of BTA Oil Producers, LLC (BTA) for compliance with Stipulated Order & Settlement Agreement No. R-13218 (Case No. 14413). This report presents 2015 groundwater monitoring results of quarterly samples from recovery wells (RW-1, RW-2 and RW-3) and semi-annual samples from monitoring wells (MW-07 through MW-10). The seeps were not flowing during 2015 therefore were not sampled. The Site is located in Unit N (SE/4), (SW/4), Section 11, Township 23 South, Range 28 East NMPM in Eddy County, New Mexico.

The following activities were performed during 2015, as outlined in the groundwater remediation plan approved by the OCD:

	January 21st	April 15th	July 16th	October 15th
Recovery Well Sampling	X	X	X	X
Monitoring Well Sampling	X		X	
Recovery and Monitoring Wells Gauged	X	X	X	X

The following was observed during the 2015 monitoring period:

- Groundwater flow direction is from northwest to southeast at a gradient of 0.018 feet per foot.
- The background chloride concentration in well MW-07 (3,080 and 2,670 mg/L) was above the WQCC domestic water standard (250 mg/L) during 2015;
- Monitoring well MW-8, located north and upgradient of the Site reported chloride at 9,150 and 4,500 mg/L mg/L and appears to impact the northeast corner of the Site including monitoring well MW-15 (10,200 and 8,180 mg/L);
- Chloride was 8,520 mg/L and 3,600 mg/L in downgradient wells MW-10 and MW-11, respectively, on July 16, 2015;
- Sulfate was reported at 2,530 mg/L and 2,360 mg/L in the background (MW-7) well and exceeded the WQCC domestic water quality standard (600 mg/L) in all wells;
- The background TDS concentration was 9,580 and 8,240 mg/L in the background monitoring well (MW-7) and exceeded the WQCC domestic water quality standard of 1,000 mg/L;
- TDS was highest in well MW-8 (19,600 and 12,300 mg/L) and may be impacting the northeast corner of the Site including wells MW-15 (19,500 and 18,700 mg/L) and RW-1 (15,800 and 13,000 mg/L);
- TDS was near or below background in well MW-11 (7,060 and 9,660 mg/L) on January 21, 2015 and July 16, 2015, respectively.

The temporary appropriation approved by the Office of the State Engineer expired on December 31, 2014; therefore, no groundwater was pumped from the recovery wells (RW-1, RW-2 and RW-3) during 2015. Pumping from RW-1 and RW-2 (MW-15) will draw contaminated water onto the property from the area of MW-8. BTA respectfully requests permission to discontinue groundwater remediation and monitoring.

2.0 INTRODUCTION

This annual groundwater monitoring report is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of BTA Oil Producers, LLC (BTA) by Larson & Associates, Inc. (LAI) to present 2015 groundwater monitoring results for the Pardue "C" 8808 JV-P Well #1 (Site) located in Eddy County, New Mexico. The groundwater monitoring consisted of measuring depth to groundwater and collecting quarterly and semi-annual groundwater samples from recovery wells (RW-1, RW-2, and RW-3) and monitoring wells (MW-7 through MW-10), respectively. Six (6) wells (MW-1 through MW-6) installed in the alluvium adjacent to the Pecos River, as part of a previous investigation were removed by flooding in 2013. Samples are collected from four (4) seeps adjacent to the west bank of the Pecos River when flowing conditions were present, however, the seeps were not flowing during 2015 therefore no samples were collected. The remediation and monitoring was performed for compliance with Stipulated Order & Settlement Agreement (Order) No. R-13218 (Case No. 14413). The Site is located in Unit N (SE/4, SW/4), Section 11, Township 23 South, Range 28 East NMPM, in Eddy County, New Mexico. The geodetic position is north 32° 18' 46.9" and west 104° 03' 43.5". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

2.1 Background

On October 19, 2007, an OCD District 2 representative, while on location to witness a mechanical integrity test (MIT) of the salt water disposal (SWD) well, observed a buried overflow line from the injection pump that discharged into a closed pit located east of the well. The OCD issued a Notice of Violation (NOV) that required BTA to clean up the site and remove the buried line by January 22, 2008. On January 4, 2010, the SWD well was plugged and the final C-103 was submitted to the OCD.

Between February 24, 2010 and April 15, 2010, LAI performed investigations to delineate soil and groundwater contamination including electromagnetic terrain conductivity (EM) surveys, installing borings and monitoring wells for collecting soil and groundwater samples. The investigation results were submitted to the OCD in two (2) reports titled, "*Preliminary Investigation Report, Pardue "C" 8808 JV-P Well #1", May 7, 2010" and* "*Final Investigation Report and Remediation Plan, Pardue "C" 8808 JV-P Well #*1, July 15, 2010". The final report included a remediation plan.

Remediation was performed between August 26, 2010 and October 25, 2010, and included excavating approximately 11,104 cubic yards of soil, and installing an engineered cover over the area of excavated soil and conducting aquifer tests. On January 11, 2011, recovery well (RW-1) and monitoring well (MW-15) were installed near the down gradient (east) side of the Site. A temporary groundwater allocation was obtained from a water right holder (Julius Roberson) and approved by the New Mexico State Engineer. Groundwater remediation commenced on March 30, 2012, with groundwater recovery from RW-1. Groundwater recovery was enhanced by installing pumps and controls in monitoring wells MW-11 (RW-2) and MW-15 (RW-3), on December 7, 2012.

3.0 GROUNDWATER MONITORING

Groundwater monitoring was conducted during 2015 according to the remediation plan approved by the OCD on August 26, 2010. Quarterly (4 times per year) samples were collected from three (3) recovery wells (RW-1, RW-2, and RW-3) on January 21, 2015 (1st quarter), April 15, 2015 (2nd quarter), July 16, 2015 (3rd quarter) and October 15, 2015 (4th quarter). Semi-annual samples were collected from monitoring wells on January 21, 2015 (1st semi-annual) and July 16, 2015 (2nd semi-annual). The groundwater samples were analyzed by DHL Analytical, a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory, in Round Rock, Texas, for chloride, sulfate, and total dissolved solids (TDS).

3.1 Depth to Groundwater and Groundwater Flow

Depth to groundwater was gauged in the monitoring wells and recovery wells during each semi-annual monitoring event on January 21, 2015 and July 16, 2015. Table 1 presents a monitoring and recovery well completion and gauging summary. Figure 3 presents monitoring and recovery well locations.

3.1.1 January 21, 2015

On January 21, 2015, depth to groundwater ranged from approximately 36.10 (MW-7) to 40.85 (MW-10) feet below ground surface (bgs). The groundwater elevation ranged from 2,973.09 feet above mean sea level (MSL) at MW-7 (up gradient) to 2,963.19 feet above MSL at MW-10 (down gradient). The groundwater flow direction was from northwest to southeast at a gradient of about 0.018 feet per foot. Figure 4a presents a groundwater potentiometric map for January 21, 2015.

3.1.2 July 16, 2015

On July 16, 2015, depth to groundwater ranged from approximately 37.99 (MW-7) to 42.56 (MW-10) feet bgs. The groundwater elevation ranged from 2,971.20 feet above MSL at MW-07 (up gradient) to 2,961.48 feet above MSL at well MW-10 (down gradient). The groundwater flow direction was from northwest to southeast at a gradient of about 0.018 feet per foot. Figure 4b presents a groundwater potentiometric map for July 16, 2015.

3.2 Groundwater Samples

3.2.1 Quarterly (Recovery Well) Samples

Quarterly (four times per year) groundwater samples were collected from the recovery wells (RW-1, RW-2 and RW-3) on January 21, 2015, April 15, 2015, July 16, 2015 and October 15, 2015. The samples were collected from a spigot near each recovery well. DHL analyzed the samples for chloride and sulfate by Standard Method E300 and total dissolved solids (TDS) by Standard Method M2540. Table 2 presents an analytical data summary. Appendix A presents the analytical laboratory reports.

3.2.2 Semi-Annual Samples

Semi-annual (twice yearly) groundwater samples were collected from the monitoring wells (MW-7 through MW-10) on January 21, 2015 (1st semi-annual) and July 16, 2015 (2nd semi-annual). The samples were collected after removing approximately 3 casing volumes of groundwater from each well by pumping with a stainless steel electric environmental sampling pump and dedicated polyethylene tubing. The pump was cleaned internally and externally with a solution of potable water and Alconox® detergent and rinsed with commercially available distilled water before the event and between wells. The tubing was exchanged between wells and disposed. DHL analyzed the samples for chloride and sulfate (Standard Method E300) and TDS (Standard Method M2540). Duplicate samples for quality control (QC) purposes were submitted as blind samples to the laboratory. Table 2 presents a summary of the laboratory analysis. Appendix A presents the laboratory analytical reports.

3.2.2.1 January 21 2015

Chloride – The background chloride concentration **3,080 mg/L** in monitoring well MW-7 exceeded the New Mexico Water Quality control commission (WQCC) domestic water quality standard (250 mg/L). Monitoring well MW-8, reported chloride at 9,150 mg/L which suggests impacted groundwater is moving from northwest to southeast across the northeast corner of the Site. The elevated chloride appears to impact well MW-15 (10,200 mg/L). Wells MW-10 and MW-11 are located immediately downgradient of the Site and reported chloride at 3,880 mg/L and 2,500 mg/L, respectively. Figure 5a presents a chloride concentration map for January 21, 2015.

Sulfate – The background sulfate concentration **2,530 mg/L** in monitoring well MW-7 exceeded the WQCC domestic water quality standard of 600 mg/L. The laboratory reported sulfate in excess of the background concentration in all wells. The lowest sulfate concentrations were reported in samples from M-10 (1,720 mg/L) and MW-11 (1,740 mg/L) immediately downgradient of the Site. Figure 6a presents the sulfate concentration map for January 21, 2015.

TDS – The background TDS concentration **9,580 mg/L** in monitoring well MW-7 exceeded the WQCC domestic water quality standard of 1,000 mg/L. TDS was highest in well MW-8 (19,600 mg/L) and suggests impacted groundwater is migrating from northwest to southeast and impacting the northeast corner of the Site including wells MW-15 (19,500 mg/L) and RW-1 (15,800 mg/L). TDS was near or below background in wells MW-10 (9,700 mg/L) and MW-11 (7,060 mg/L). Figure 7a presents the TDS concentration map for January 21, 2015.

3.2.2.2 July 16, 2015

Chloride – The background chloride concentration **2,670 mg/L** in monitoring well MW-7 and exceeded the WQCC domestic water quality standard of 250 mg/L. Chloride was elevated above background in well MW-8 (4,500 mg/L) which suggests impacted groundwater is moving from northwest to southeast across the northeast corner of the Site and may be affecting groundwater in well MW-15 (8,180 mg/L). Chloride was 4,890 mg/L in recovery well RW-1, 8,520 mg/L in MW-10 and 3,600 mg/L in MW-11, located downgradient from the Site. Figure 5b presents the chloride concentration map for July 16, 2015. Figure 5c presents a chart with chloride concentrations in monitoring wells (MW-7, MW-8, MW-9 and MW-10) plotted over time. Figure 5d presents a chart with chloride concentrations for recovery wells (RW-1, RW-2 and RW-3) plotted over time.

Sulfate – The background sulfate concentration **(2,360 mg/L)** in monitoring well MW-7 exceeded the WQCC domestic water quality standard of 600 mg/L. The laboratory reported sulfate in excess of the background concentration in all wells. Figure 6b presents the sulfate concentration map for July 16, 2015.

TDS – The background TDS concentration **(8,240 mg/L)** in monitoring wells MW-7 exceeded the WQCC domestic water quality standard of 1,000 mg/L. TDS was elevated in well MW-8 (12,300 mg/L) which suggests that impacted groundwater is flowing from northwest to southeast and impacting the northeast corner of the Site including MW-15 (18,700 mg/L) Figure 7b presents the TDS concentration map for July 16, 2015. Figure 7c presents a chart with TDS concentrations for monitoring wells (MW-7, MW-8, MW-9 and MW-10) plotted over time. Figure 7d presents a chart with TDS concentrations for recovery wells (RW-1, RW-2 and RW-3) plotted over time.

Referring to Figure 5c and 7c, Chloride and TDS concentrations in well MW-8, north of the site and well MW-10, downgradient of the remediation area, spiked in January 2015. Referring to Figure 5d and 7d, the Chloride and TDS concentration in well MW-15 (RW-2) spiked in January 2015, in response to elevated Chloride and TDS in MW-8 and continues increasing during December 2015. Well RW-2 (MW-8) is located northeast of the remediation area.

4.0 GROUNDWATER RECOVERY

BTA acquired a temporary allocation from a water right holder (Julius Roberson) and approval from the New Mexico Office of the State Engineer (OSE) to pump groundwater from the Site. Groundwater recovery began on March 1, 2012 and terminated when the temporary allocation expired on December 31, 2014. Approximately 26,758 gallons of groundwater was recovered and disposed in the Pardue "D" Well #2 located in Section 11, Township 23 south, range 28 east in Eddy County, New Mexico. Approximately 1,154 pounds of chloride and 544 pounds of sulfate was removed. No groundwater was recovered in 2015. Table 3 presents a cumulative summary of groundwater recovery volumes.

5.0 CONCLUSIONS

- Groundwater flow direction is from northwest to southeast at a gradient of 0.018 feet per foot;
- The background chloride concentration in well MW-07 (3,080 and 2,670 mg/L) was above the WQCC domestic water standard (250 mg/L) during 2015;
- Monitoring well MW-8, located north and upgradient of the Site reported chloride at 9,150 and 4,500 mg/L mg/L and appears to impacts the northeast corner of the Site including monitoring well MW-15 (10, 200 and 8,180 mg/L);
- Chloride was 8,520 mg/L and 3,600 mg/L in downgradient wells MW-10 and MW-11, respectively, on July 16, 2015;
- Sulfate was reported at 2,530 mg/L and 2,360 mg/L in the background (MW-7) wells and exceeded the WQCC domestic water quality standard (600 mg/L) in all wells;
- The background TDS concentration was 9,580 and 8,240 mg/L in the background monitoring well (MW-7) exceeded the WQCC domestic water quality standard of 1,000 mg/L;
- TDS was highest in well MW-8 (19,600 and 12,300 mg/L) which is located north (up and cross gradient) of the Site and may be impacting the northeast corner of the Site including wells MW-15 (19,500 and 18,700 mg/L) and RW-1 (15,800 and 13,000 mg/L);
- TDS was near or below background in well MW-11 (7,060 and 9,660 mg/L) on January 21, 2015 and July 16, 2015, respectively.

6.0 RECOMMENDATIONS

Based on 2015 groundwater monitoring results, groundwater north of the Site (MW-8) appears impacted by chloride and TDS and may be impacting the northeast corner of the Site in the vicinity of wells MW-15 and RW-1. Pumping groundwater from the recovery wells will draw the contaminated groundwater onto the Site from the north. BTA respectfully requests OCD approval to discontinue groundwater remediation and monitoring.

Tables

Table 1

Monitoring and Recovery Well Completion and Gauging Summary
BTA Oil Producers, LLC, Pardue 'C' JV-P 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well Information											Groundwater Data		
Well ID	Date Drilled	Northing (Y)	Easting (X)	Drilled Depth (bgs)	Well Depth from TOC	Well Diameter (inches)	Surface Elevation	Screen Interval (bgs)	Casing Stickup	TOC Elevation	Date	Depth to Water	Corrected Water Elevation
*MW-01	11/17/2009	478400.4	625432.9	--	4.64	2	2,967.2	--	1.72	2,968.92	--	--	--
											04/26/10	3.71	2,965.21
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											Well Removed by Flood		
*MW-02	11/17/2009	478137.4	625358.8	--	4.90	2	2967.9	--	1.35	2,969.25	--	--	--
											04/26/10	3.31	2,965.94
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											01/25/13	Dry	
											04/25/13	Dry	
											07/22/13	Dry	
											10/24/13	4.9	2,964.35
											Well Removed by Flood		
*MW-03	11/17/2009	477965.2	625412.8	--	4.00	2	2,966.7	--	0.68	2,967.38	--	--	--
											04/26/10	2.08	2,965.30
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											Well Removed by Flood		
*MW-04	11/17/2009	477834.5	625495.0	--	4.12	2	2,961.4	--	1.26	2,962.66	--	--	--
											04/26/10	2.75	2,959.91
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											Well Removed by Flood		
*MW-05	11/17/2009	477754.2	625526.3	--	4.98	2	2,965.0	--	1.97	2,966.97	--	--	--
											04/26/10	4.04	2,962.93
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											Well Removed by Flood		
MW-06	11/17/2009	477504.3	625682.6	--	5.31	2	2,963.2	--	1.51	2,964.71	--	--	--
											04/26/10	5.17	2,959.54
											01/24/11	Bailer in Well	
											07/21/11	Bailer in Well	
											01/26/12	Bailer in Well	
											04/26/12	Bailer in Well	
											07/27/12	Dry	
											Well Removed by Flood		
MW-07 (BH-1)	4/9/2010	478014.1	624903.9	47	50.36	4	3,005.9	2.29-46.6	3.29	3,009.19	--	--	--
											04/26/10	38.24	2,970.95
											09/08/10	38.48	2,970.71
											01/24/11	36.86	2,972.33
											07/21/11	38.80	2,970.39
											01/26/12	40.34	2,968.85
											04/26/12	40.92	2,968.27
											07/27/12	41.58	2,967.61
											01/25/13	42.07	2,967.12
											04/25/13	42.2	2,966.99
											07/22/13	42.28	2,966.91
											10/24/13	42.4	2,966.79
											01/23/14	42.40	2,966.79
											04/21/14		
											07/24/14	42.73	2,966.46
											10/08/14	40.72	2,968.47
											01/05/15	36.75	2,972.44
											01/21/15	36.1	2,973.09
											04/15/15	36.58	2,972.61
											07/16/15	37.99	2,971.20
											10/15/15	38.15	2,971.04

Table 1

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BTA Oil Producers, LLC, Pardue 'C' JV-P 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well Information											Groundwater Data		
Well ID	Date Drilled	Northing (Y)	Easting (X)	Drilled Depth (bgs)	Well Depth from TOC	Well Diameter (inches)	Surface Elevation	Screen Interval (bgs)	Casing Stickup	TOC Elevation	Date	Depth to Water	Corrected Water Elevation
MW-08 (BH-5)	4/9/2010	477897.7	625329.4	47	50.73	4	3,001.9	2.61-47.5	3.03	3,004.93	--	--	--
											04/26/10	38.21	2,966.72
											09/08/10	38.54	2,966.39
											01/24/11	37.28	2,967.65
											07/21/11	38.86	2,966.07
											01/26/12	39.71	2,965.22
											04/26/12	40.28	2,964.65
											07/27/12	41.13	2,963.80
											01/25/13	42.65	2,962.28
											04/25/13	42.1	2,962.83
											07/22/13	42.44	2,962.49
											10/24/13	42.32	2,962.61
											01/23/14	--	--
											04/21/14		
											07/24/14	42.91	2,962.02
											10/08/14	40.1	2,964.83
											01/05/15	38.64	2,966.29
											01/21/15	38.17	2,966.76
											04/15/15	38.47	2,966.46
											07/16/15	39.29	2,965.64
											10/15/15	38.85	2,966.08
MW-09 (BH-6)	4/8/2010	477665.9	625277.8	53	49.65	4	3,001.3	1.62-46.0	3.00	3,004.30	--	--	--
											04/26/10	38.77	2,965.53
											09/08/10	38.40	2,965.90
											01/24/11	38.15	2,966.15
											07/21/11	38.78	2,965.52
											01/26/12	39.33	2,964.97
											04/26/12	39.54	2,964.76
											07/27/12	29.81	2,974.49
											01/25/13	40.18	2,964.12
											04/25/13	40.35	2963.95
											07/22/13	40.55	2,963.75
											10/24/13	40.66	2,963.64
											01/23/14	40.50	2,963.80
											04/21/14		
											07/24/14	40.94	2,963.36
											10/08/14	37.52	2,966.78
											01/05/15	39.19	2,965.11
											01/21/15	39.45	2,964.85
											04/15/15	39.26	2,965.04
											07/16/15	40.51	2,963.79
											10/15/15	50.2	2,954.10
MW-10 (BH-8)	4/14/2010	477746.1	625411.9	46	50.15	4	3,001.0	2.08-46.4	3.04	3,004.04	--	--	--
											04/26/10	40.36	2,963.68
											09/08/10	39.77	2,964.27
											01/24/11	39.07	2,964.97
											07/21/11	40.35	2,963.69
											01/26/12	42.06	2,961.98
											04/26/12	42.54	2,961.50
											07/27/12	42.97	2,961.07
											01/25/13	43.50	2,960.54
											04/25/13	43.65	2960.39
											07/22/13	45.96	2958.08
											10/24/13	44.14	2,959.90
											01/23/14	43.60	2,960.44
											04/21/14		
											07/24/14	44.84	2,959.20
											10/08/14	39.31	2,964.73
											01/05/15	40.52	2,963.52
											01/21/15	40.85	2,963.19
											04/15/15	42	2,962.04
											07/16/15	42.56	2,961.48
											10/15/15	42.53	2,961.51
MW-11													Refer to RW-3
MW-12 (BH-13)	4/13/2010	477832.3	625230.3	47	50.32	4	3,003.5	2.38-46.7	3.07	3,006.57	--	--	--
											04/26/10	39.36	2,967.21
											09/08/10	39.65	2,966.92
											10/29/10		Well Plugged
MW-13 (BH-14)	4/15/2010	477815.5	625277.1	47	49.85	4	3,003.0	1.78-46.1	3.20	3,003.38	--	--	--
											04/26/10	39.18	2,964.20
											09/08/10	39.51	2,963.87
											10/29/10		Well Plugged
MW-14 (BH-15)	4/14/2010	477774.5	625356.5	44	47.64	4	3.000.4	9.66-44.0	3.04	3,003.44	--	--	--
											04/26/10	36.93	2,966.51
											09/08/10	36.83	2,966.61

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Well Information											Groundwater Data		
Well ID	Date Drilled	Northing (Y)	Easting (X)	Drilled Depth (bgs)	Well Depth from TOC	Well Diameter (inches)	Surface Elevation	Screen Interval (bgs)	Casing Stickup	TOC Elevation	Date	Depth to Water	Corrected Water Elevation
MW-14											10/29/10	Well Plugged	
MW-15											Refer to RW-2		
RW-1	1/25/2011	477771.0	625413.2	65.97	68.3	5	3001.19	27.65	2.37	3003.56	--	--	--
											01/26/11	38.48	2,965.08
											02/10/11	38.55	2,965.01
											02/16/11	38.59	2,964.97
											07/21/11	39.75	2,963.81
											01/26/12	40.73	2,962.83
											04/26/12	--	
											07/27/12	62.20	2,941.36
											12/17/12	--	
	1/25/2011	477771.0	625413.2	65.97	68.3	5	3001.19	27.65	2.37	3,003.56	01/25/13	62.33	2,941.23
											04/25/13	62.57	2,940.99
											07/22/13	62.9	2,940.66
											10/24/13	61.82	2,941.74
											01/23/14	43.10	2,960.46
											04/21/14		3,003.56
											07/24/14	42.99	2,960.57
											10/08/14	38.74	2,964.82
											01/05/15	39.92	2,963.64
											01/21/15	40.21	2,963.35
											04/15/15	40.65	2,962.91
											07/16/15	40.91	2,962.65
											10/15/15	40.78	2,962.78
RW-2 (MW-15)	1/24/2011	477822.0	625389.4	47.65	50.65	4	3001.2	14.4	2.93	3,004.13	--	--	--
											01/25/11	36.31	2,967.82
											07/21/11	37.86	2,966.27
											01/26/12	38.68	2,965.45
											04/26/12	39.18	2,964.95
											07/27/12	40.00	2,964.13
											01/25/13	45.02	2,959.11
											04/25/13	46.75	2,957.38
											07/22/13	46.83	2,957.30
											10/24/13	46.6	2,957.53
											01/23/14	46.30	2,957.83
											04/21/14		
											07/24/14	41.51	2,962.62
											10/08/14	40.05	2,964.08
											01/05/15	49.03	2,955.10
											01/21/15	37.89	2,966.24
											04/15/15	37.84	2,966.29
											07/16/15	38.43	2,965.70
											10/15/15	37.91	2,966.22
RW-3 (MW-11) (BH-9)	4/5/2010	477677.2	625434.2	45	47.93	4	2,999.8	9.86-44.2	2.89	3,002.69	--	--	--
											04/26/10	38.95	2,963.74
											09/08/10	38.42	2,964.27
											01/24/11	37.69	2,965.00
											07/21/11	38.87	2,963.82
											01/26/12	40.64	2,962.05
											04/26/12	41.11	2,961.58
											07/27/12	41.55	2,961.14
											01/25/13	42.05	2,960.64
											04/25/13	42.4	2,960.29
											07/22/13	42.55	2,960.14
											10/24/13	42.86	2,959.83
											01/23/14	43.15	2,959.54
											04/21/14		
											07/24/14	43.46	2,959.23
											10/08/14	38.22	2,964.47
											01/05/15	39.32	2,963.37
											01/21/15	39.48	2,963.21
											04/15/15	37.84	2,964.85
											07/16/15	40.95	2,961.74
											10/15/15	41.19	2,961.50

Notes: Wells installed by Scarborough Drilling, Lamesa, Texas, using threaded 2- inch sch. 40 PVC, except RW-1, which is completed with 5 inch sch. 40 PVC and glue joints.

** - Well removed by glooding of Pecos River.*

All values are in feet, unless otherwise noted.

bgs - below ground surface

TOC - top of casing

Elevations are above mean sea level referenced to 1984 Geodetic Datum.

Table 2

Groundwater Smple Analytical Data Summary

BTA Oil Producers - Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well ID	Date	Chloride	Sulfate	TDS	Notes:
WQCC Standard:		**250**	**600**	**1,000**	
* MW-01	04/28/10	**3,380**	**2,830**	**9,230**	
	01/24/11	**3,870**	**2,910**	**10,700**	*Sample collected with bailer in well without purging*
	07/21/11	**3,210**	**2,920**	**8,990**	
	01/26/12	**3,760**	**2,800**	**11,500**	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
* MW-02	04/28/10	**3,650**	**2,950**	**10,000**	
	01/24/11	**3,500**	**2,820**	**9,660**	*sample taken from bailer in place, no purge*
	07/21/11	**4,370**	**3,260**	**10,000**	
	01/26/12	**3,420**	**2,760**	**10,100**	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
* MW-03	04/28/10	**2,670**	**2,630**	**7,840**	
	01/24/11	**3,920**	**3,010**	**10,700**	*sample taken from bailer in place, no purge*
	07/21/11	**3,500**	**2,810**	**8,200**	
	01/26/12	N/S	N/S	N/S	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
* MW-04	04/28/10	**10,000**	**2,630**	**20,500**	
	01/24/11	**19,000**	**3,330**	**36,800**	*sample taken from bailer in place, no purge*
	07/21/11	**11,200**	**3,270**	**33,200**	*sample taken from bailer in place, no purge*
	01/26/12	N/S	N/S	N/S	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
* MW-05	04/28/10				
	01/24/11	**3,290**	**2,230**	**8,930**	*sample taken from bailer in place, no purge*
	07/21/11	**3,700**	**2,640**	**8,930**	
	01/26/12	N/S	N/S	N/S	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
MW-06	04/28/10				
	01/24/11	**6,180**	**4,000**	**16,600**	*sample taken from bailer in place, no purge*
	07/21/11	N/S	N/S	N/S	
	01/26/12	N/S	N/S	N/S	
	07/27/12	N/S	N/S	N/S	
	01/25/13	N/S	N/S	N/S	
MW-07	04/27/10	**2,510**	**2,370**	**6,900**	
	01/24/11	**2,590**	**2,240**	**7,260**	
	07/21/11	**3,340**	**2,260**	**8,090**	
	01/26/12	**2,710**	**2,230**	**8,390**	
	04/26/12	**2,730**	**2,210**	**7,740**	
	07/27/12	**2,640**	**2,190**	**8,100**	
	01/25/13	**2,590**	**2,240**	**7,740**	
	07/22/13	**2,740**	**2,330**	**7,610**	
	01/23/14	**3,200**	**2,510**	**8,900**	
	07/10/14	**2,450**	**2,180**	**7,360**	
	01/21/15	**3,080**	**2,530**	**9,580**	
	07/16/15	**2,670**	**2,360**	**8,240**	
MW-08	04/27/10	**2,810**	**2,620**	**7,310**	
	01/24/11	**2,550**	**2,260**	**7,540**	
	07/21/11	**3,130**	**2,370**	**7,910**	
	01/26/12	**2,760**	**2,290**	**8,480**	
	04/26/12	**2,750**	**2,250**	**8,250**	

Table 2

Groundwater Smple Analytical Data Summary

BTA Oil Producers - Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well ID	Date	Chloride	Sulfate	TDS	Notes:
WQCC Standard:		**250**	**600**	**1,000**	
MW-08	07/27/12	**3,030**	**2,530**	**8,560**	
	01/25/13	**2,820**	**2,430**	**8,260**	
	07/22/13	**3,110**	**2,570**	**8,510**	
	01/23/14	**3,560**	**2,670**	**10,200**	
	07/10/14	**3,140**	**2,480**	**9,640**	
	01/21/15	**9,150**	**2,310**	**19,600**	
	07/16/15	**4,500**	**2,420**	**12,300**	
MW-09	04/27/10	**4,180**	**2,860**	**9,980**	
	01/24/11	**4,000**	**2,610**	**10,000**	*well was damaged by frontloader*
	02/10/11	**3,380**	--	**9,940**	*resampled well upon repair*
	07/21/11	**4,110**	**2,680**	**9,800**	
	04/26/12	**4,020**	**2,660**	**9,750**	
	07/27/12	**3,770**	**2,470**	**10,400**	
	01/25/13	**3,790**	**2,620**	**10,500**	
	07/22/13	**3,900**	**2,660**	**10,400**	
	01/23/14	**3,820**	**2,640**	**9,900**	
	07/10/14	**3,420**	**2,470**	**9,980**	
	01/21/15	**4,050**	**2,700**	**11,800**	
	07/16/15	**3,920**	**2,870**	**11,200**	
MW-10	04/28/10	**13,500**	**1,470**	**25,300**	
	01/25/11	**3,570**	**2,230**	**9,240**	
	07/21/11	**3,840**	**2,310**	**9,350**	
	01/26/12	**4,810**	**2,080**	**11,300**	
	04/26/12	**6,210**	**1,830**	**15,400**	
	07/27/12	**6,570**	**1,730**	**13,800**	
	01/25/13	**3,860**	**1,780**	**8,730**	
	07/22/13	**4,460**	**1,850**	**9,800**	
	01/23/14	**5,990**	**2,130**	**13,200**	
	07/10/14	**4,970**	**2,060**	**11,800**	
	01/21/15	**3,880**	**1,720**	**9,700**	
	07/16/15	**8,520**	**2,260**	**17,600**	
RW-3 (MW-11)	04/28/10	**3,150**	**2,630**	**8,780**	
	01/25/11	**3,010**	**2,360**	**8,340**	
	07/21/11	**3,580**	**2,460**	**8,370**	
	01/26/12	**3,470**	**2,420**	**9,640**	
	04/26/12	**3,620**	**2,450**	**9,040**	
	07/27/12	**3,530**	**2,430**	**9,600**	
	01/25/13	**3,400**	**2,500**	**9,470**	
	04/25/13	**2,650**	**2,320**	**8,780**	
	07/22/13	**3,310**	**2,410**	**8,500**	
	10/24/13	**3,430**	**2,390**	**8,200**	
	01/23/14	**3,770**	**2,610**	**9,760**	
	04/21/14	**3,080**	**2,410**	**7,700**	
	07/10/14	**2,940**	**2,310**	**7,880**	
	10/08/14	**2,640**	**1,970**	**7,340**	
	01/21/15	**2,500**	**1,740**	**7,060**	
	04/15/15	**3,730**	**2,590**	**10,900**	
	07/16/15	**3,600**	**2,530**	**9,660**	
	10/15/15	**3,900**	**2,550**	**9,800**	
**MW-12	04/27/10	**3,670**	**2,690**	**8,900**	
	10/20/10				
**MW-13	04/27/10	**8,060**	**3,050**	**13,500**	
	10/20/10				

Table 2

Groundwater Smple Analytical Data Summary

BTA Oil Producers - Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well ID	Date	Chloride	Sulfate	TDS	Notes:
WQCC Standard:		**250**	**600**	**1,000**	
**MW-14	04/28/10	**10,800**	**1,700**	**21,500**	
	10/20/10				
RW-2	01/26/11	**1,920**	**802**	**10,100**	
(MW-15)	07/21/11	**5,400**	**2,440**	**13,400**	
	01/25/12	**8,200**	**2,380**	**14,900**	
	04/26/12	**7,850**	**2,500**	**17,300**	
	04/15/15	**6,110**	**2,440**	**15,200**	
RW-2	07/27/12	**8,960**	**2,450**	**16,900**	
	01/25/13	**8,030**	**2,210**	**18,400**	
	04/25/13	**8,820**	**2,290**	**17,200**	
	07/22/13	**8,720**	**2,350**	**17,600**	
	10/24/13	**9,150**	**2,260**	**17,400**	
	01/23/14	**9,740**	**2,420**	**18,900**	
	04/21/14	**8,830**	**2,420**	**18,400**	
	07/24/14	**7,620**	**2,240**	**18,300**	
	10/08/14	**7,540**	**2,240**	**18,000**	
	01/21/15	**10,200**	**2,750**	**19,500**	
	07/16/15	**8,180**	**2,740**	**18,700**	
	10/15/15	**8,700**	**2,520**	**16,700**	
RW-1	01/26/11	**6,710**	**1,940**	**14,200**	
	06/21/11	**6,070**	--	--	
	07/21/11	**5,760**	**2,430**	**12,800**	
	10/27/11	**5,190**	--	--	
	01/26/12	**5,860**	**2,470**	**14,400**	
	04/26/12	**4,190**	**2,650**	**10,600**	
	07/27/12	**4,170**	**2,710**	**10,700**	
	12/17/12	**4,120**	**2,550**	**10,500**	
	01/25/13	**4,140**	**2,760**	**10,600**	
	04/25/13	**4,220**	**2,680**	**10,400**	
	07/22/13	**4,280**	**2,850**	**10,300**	
	10/24/13	**4,080**	**2,590**	**10,900**	
	07/24/14	**3,990**	**2,570**	**9,980**	
	10/08/14	**9,310**	**2,650**	**17,900**	
	01/21/15	**7,500**	**2,640**	**15,800**	
	04/15/15	**6,980**	**2,170**	**15,600**	
	07/16/15	**4,890**	**2,890**	**13,000**	
	10/15/15	**5,590**	**2,710**	**10,200**	
Seep-1	04/26/10	**2,580**	**2,350**	**7,750**	
	01/26/11	**6,610**	**2,230**	**14,200**	
	01/26/12	**1,340**	**1,510**	**4,480**	
	07/27/12	N/S	N/S	N/S	
	01/25/13	**1,130**	**1,380**	**3,810**	
Seep-2	04/26/10	**3,090**	**2,340**	**8,220**	
	01/26/11	**3,060**	**2,320**	**8,100**	
	01/26/12	**3,900**	**2,800**	**9,980**	
	04/26/12	**1,410**	**1,600**	**4,690**	
	07/27/12	N/S	N/S	N/S	
	01/25/13	**1,110**	**1,360**	**4,050**	
Seep-3	04/26/10	**3,350**	**2,540**	**9,070**	
	01/26/11	**3,490**	**2,700**	**9,050**	
	01/26/12	**7,580**	**4,090**	**15,700**	
	07/27/12	N/S	N/S	N/S	
	07/22/13	**4,510**	**3,020**	**11,200**	
Seep-4	04/26/10	**4,440**	**3,210**	**11,800**	

Table 2

Groundwater Smple Analytical Data Summary

BTA Oil Producers - Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI#: 10-0101-02

Well ID	Date	Chloride	Sulfate	TDS	Notes:
WQCC Standard:		**250**	**600**	**1,000**	
Duplicates					
MW-09	01/24/11	**4,080**	**2,670**	**9,930**	
MW-15	07/21/11	**5,680**	**2,470**	**12,800**	
MW-7	01/26/12	**2,710**	**2,240**	**7,750**	
MW-7	04/26/12	**2,790**	**2,300**	**7,830**	
RW-2	04/25/13	**8,920**	**2,350**	**17,200**	

Notes:

All results reported in milligrams per liter (mg/L)

* Monitoring well removed by flooding of Pecos River.

** Indicates plugged well

-- Denotes no data available

N/S No sample collected

Highlighted and bold indicates constituant exceeds background concentration (MW-7), and WQCC domesstic water quality standard.

Table 3

Cumulative Recovery Well Volumes

BTA Oil Producers, LLC, Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI# : 10-0101

Date	Meter Readings†			Total
	RW-1	RW-2	RW-3	
4/2/2012	174	--	--	174
4/9/2012	275	--	--	275
4/12/2012	318	--	--	318
4/26/2012	279	--	--	279
5/3/2012	614	--	--	614
5/14/2012	763	--	--	763
5/22/2012	876	--	--	876
6/1/2012	1,012	--	--	1,012
6/5/2012	1,067	--	--	1,067
6/11/2012	1,149	--	--	1,149
6/22/2012	1,300	--	--	1,300
7/6/2012	1,500	--	--	1,500
7/11/212	1,575	--	--	1,575
7/20/2012	1,700	--	--	1,700
7/27/2012	1,876	--	--	1,876
8/10/2012	1,900	--	--	1,900
8/17/2012	2,000	--	--	2,000
8/24/2012	2,100	--	--	2,100
8/31/2012	2,200	--	--	2,200
9/6/2012	2,300	--	--	2,300
9/21/2012	2,450	--	--	2,450
12/7/2012	3,419	331	290	4,040
12/14/2012	3,466	331	290	4,087
12/21/2012	3,466	501	357	4,324
12/28/2012	3,470	858	614	4,942
3/1/2013	4,146	2,501	1,105	7,752
3/8/2013	4,152	2,600	1,105	7,857
3/15/2013	4,230	2,601	1,105	7,935
3/23/2013	4,265	2,701	1,105	8,070
3/30/2013	4,266	2,914	1,105	8,285
4/5/2013	4,467	3,121	1,105	8,692
4/12/2013	4,558	3,256	1,115	8,929
4/19/2013	4,628	3,456	1,126	9,209
4/26/2013	4,721	3,584	1,137	9,442
5/3/2013	4,801	3,692	1,256	9,748
5/8/2013	4,847	3,755	1,321	9,923
5/17/2013	223	3,898	1,477	10,446
5/24/2013	397	3,984	1,571	10,800
5/31/13	482	4,081	1,777	11,188
6/7/13	566	4,174	1,881	11,467
6/14/13	549	4,165	1,881	11,442

Table 3

Cumulative Recovery Well Volumes

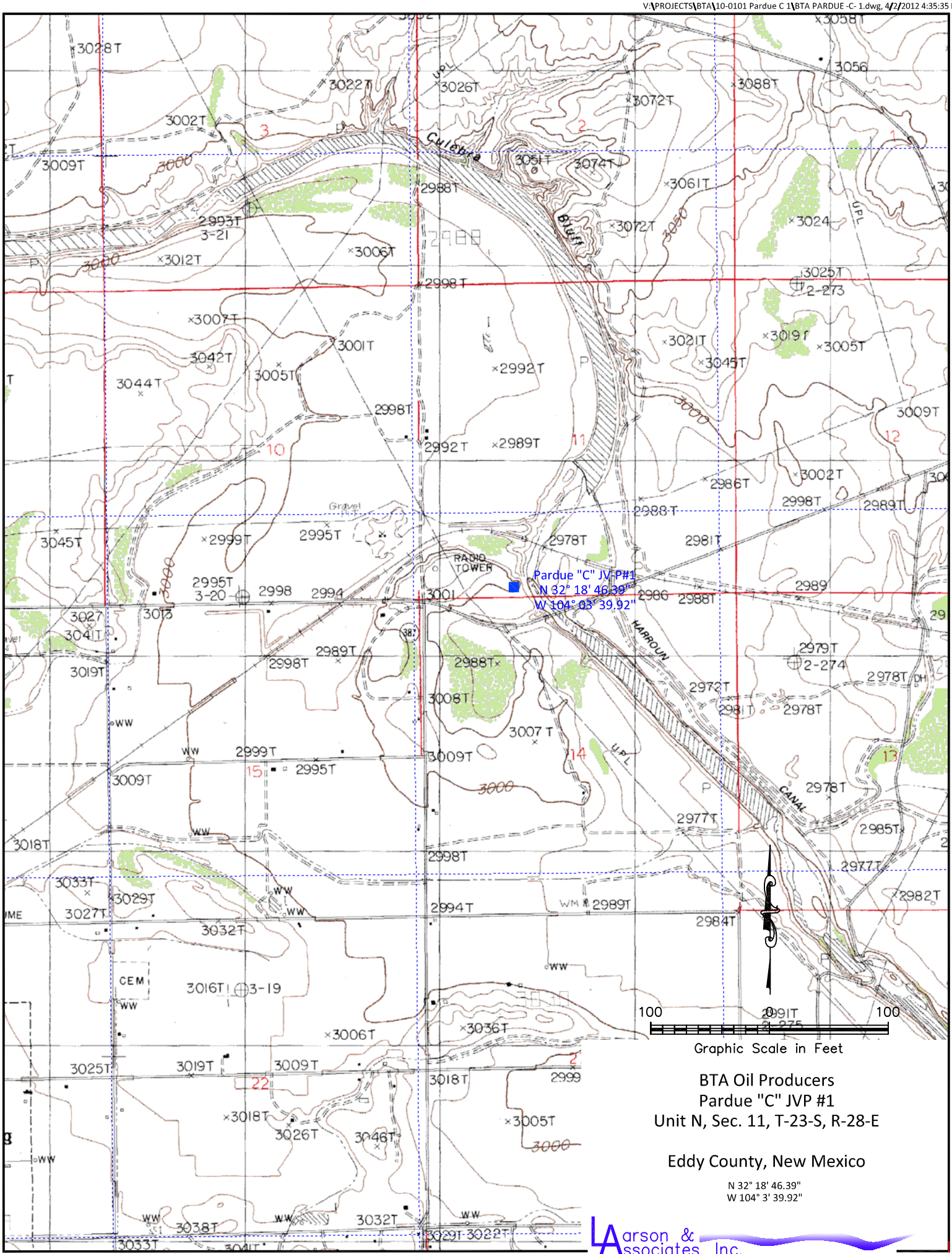
BTA Oil Producers, LLC, Pardue 'C' JVP 8808 Well #1 Eddy County, New Mexico LAI# : 10-0101

Date	Meter Readings†			Total
	RW-1	RW-2	RW-3	
6/21/13	633	4,254	1,998	11,732
6/28/13	739	4,354	2,103	12,043
7/5/13	801	4,427	2,187	12,262
7/12/13	1,000	4,522	2,302	12,671
7/19/13	1,004	4,576	2,368	12,794
7/26/13	1,007	4,629	2,433	12,916
8/2/13	1,186	4,710	2,591	13,334
8/9/13	1,160	4,890	2,583	13,481
8/16/13	1,233	4,958	2,671	13,708
8/23/13	1,331	4,949	2,884	14,011
8/30/2013	1,416	5,028	2,981	14,272
9/6/13	1,501	5,106	3,000	14,454
9/13/13	1,600	5,292	3,198	14,937
9/20/13	1,783	5,297	3,229	15,157
9/27/13	1,873	5,334	3,342	15,397
10/4/13	1,812	5,401	3,342	15,402
10/7/2013	1,904	5,445	3,500	15,695
11/8/2013	2,283	5,900	3,861	16,891
12/12/2013	2,282	6,137	3,861	17,128
1/23/2014	2,282	6,654	4,572	18,355
3/10/2014	2,282	6,852	5,080	19,061
4/24/2014	2,283	6,868	5,080	19,077
6/12/2014	2,283	7,349	5,080	19,559
7/10/2014	2,335	7,349	5,510	20,041
8/8/2014	2,335	7,504	5,520	20,206
9/4/2014	2,448	7,505	5,850	20,650
10/8/2014	2,447	7,505	6,356	21,154
11/13/2014	2,447	7,505	11,959	26,758
11/21/2014	2,447	7,505	11,959	26,758
Cumulative total:	2,447	7,505	11,959	26,758

† - *Recovery volumes in gallons.*

Figures

V:\PROJECTS\BTA\10-0101 Pardue C 1\BTA PARDUE -C- 1.dwg, 4/2/2012 4:35:35 PM



BTA Oil Producers
Pardue "C" JVP #1
Unit N, Sec. 11, T-23-S, R-28-E

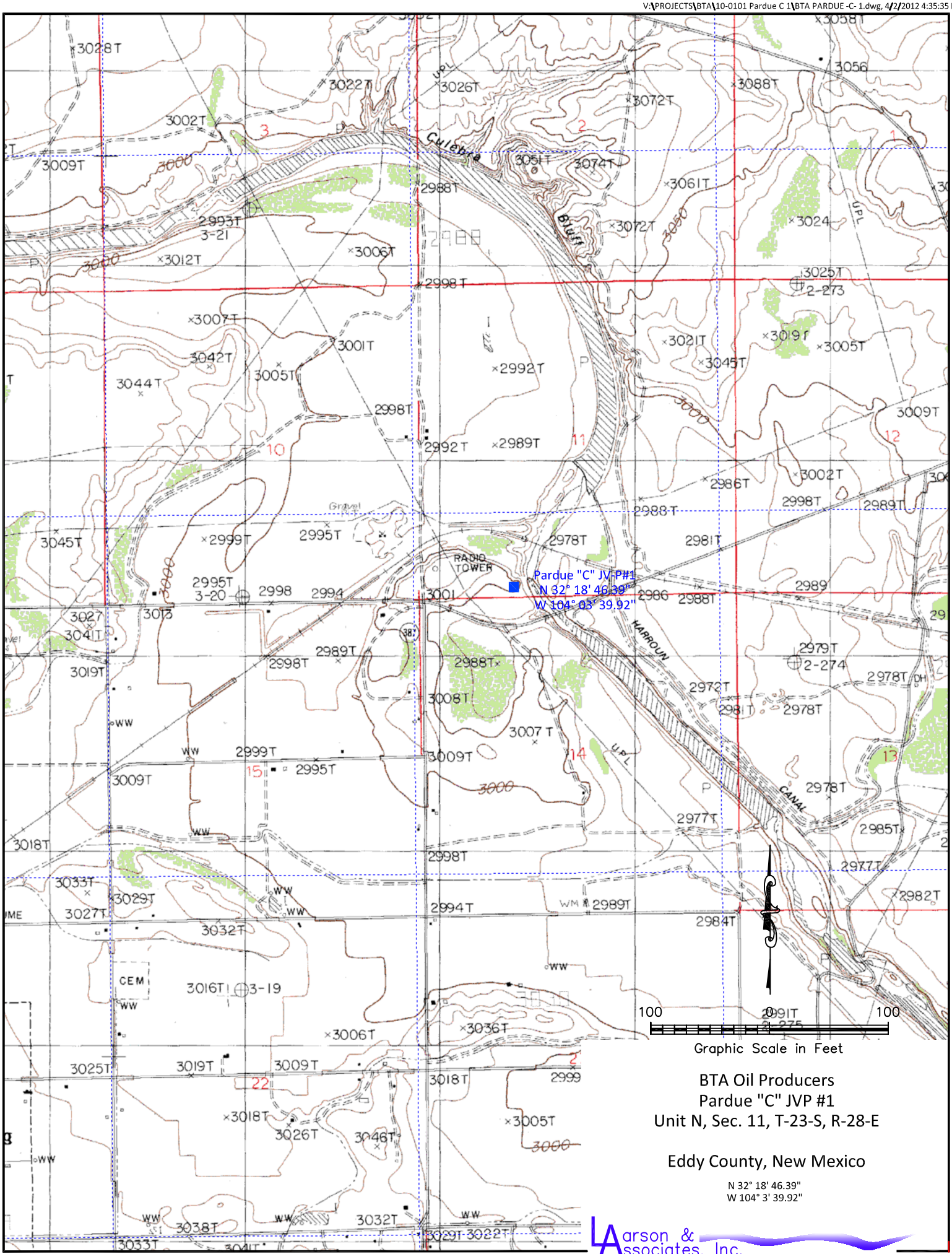
Eddy County, New Mexico

N 32° 18' 46.39"
W 104° 3' 39.92"

Larson & Associates, Inc.
Environmental Consultants

Figure 1 - Topographic Map

V:\PROJECTS\BTA\10-0101 Pardue C 1\BTA PARDUE -C- 1.dwg, 4/2/2012 4:35:35 PM



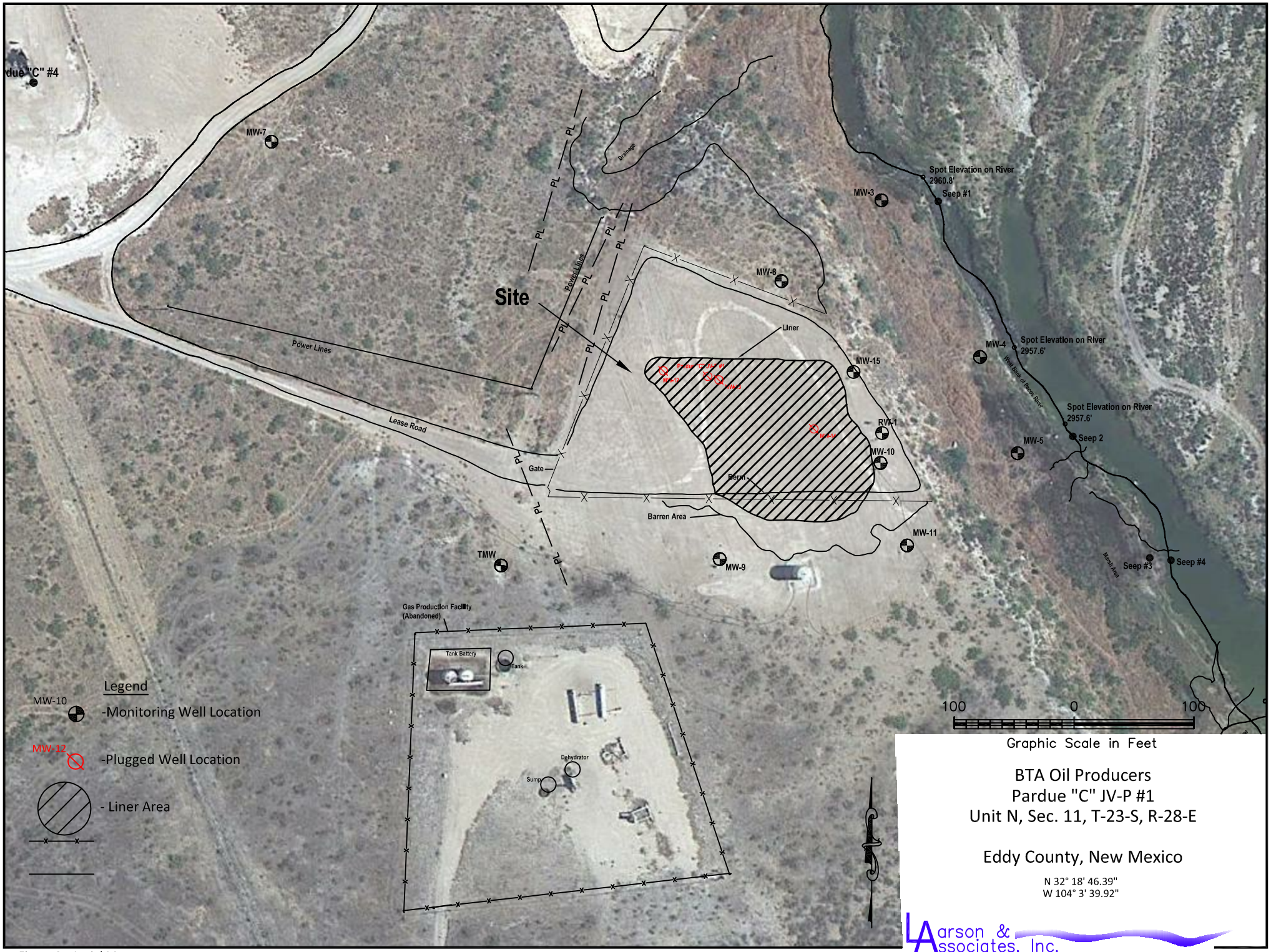
BTA Oil Producers
Pardue "C" JVP #1
Unit N, Sec. 11, T-23-S, R-28-E

Eddy County, New Mexico

N 32° 18' 46.39"
W 104° 3' 39.92"

Larson & Associates, Inc.
Environmental Consultants

Figure 1 - Topographic Map



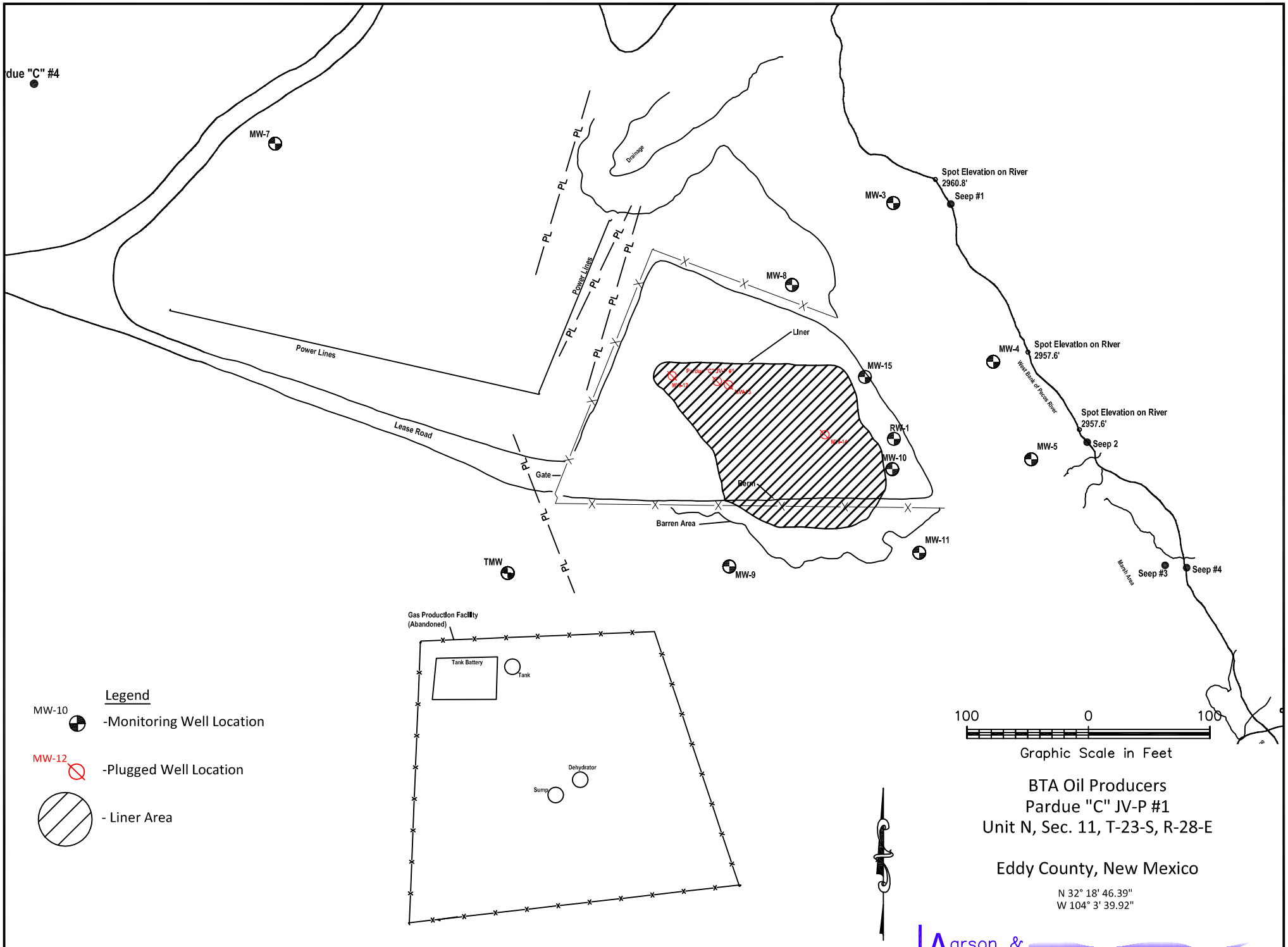
BTA Oil Producers
Pardue "C" JV-P #1
Unit N, Sec. 11, T-23-S, R-28-E

Eddy County, New Mexico

N 32° 18' 46.39"
W 104° 3' 39.92"

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map



BTA Oil Producers
Pardue "C" JV-P #1
Unit N, Sec. 11, T-23-S, R-28-E

Eddy County, New Mexico

N 32° 18' 46.39"
W 104° 3' 39.92"

Larson & Associates, Inc.
Environmental Consultants

Figure 3 - Site Map

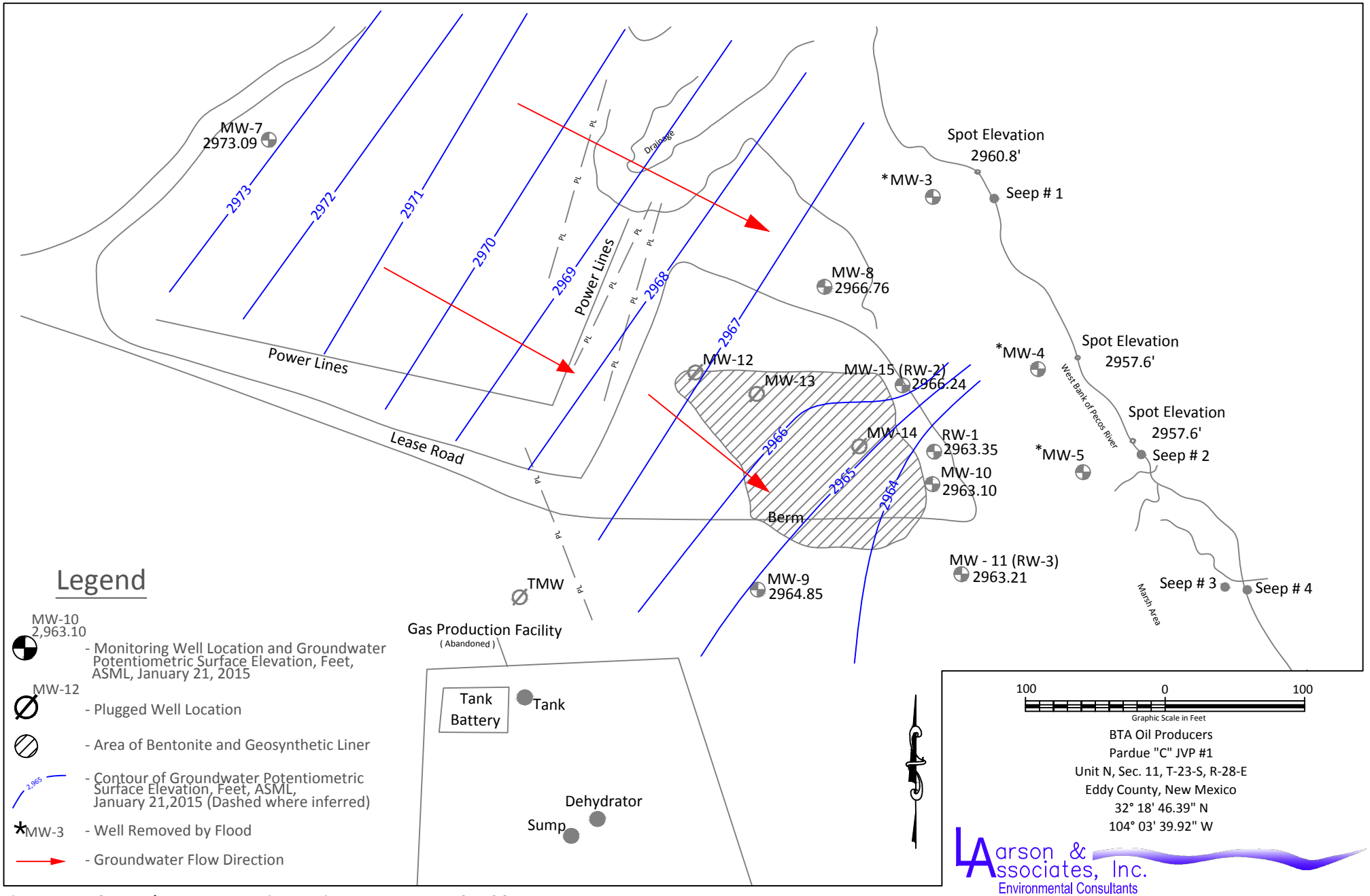


Figure 4a - Groundwater Potentiometric Map, January 21, 2015

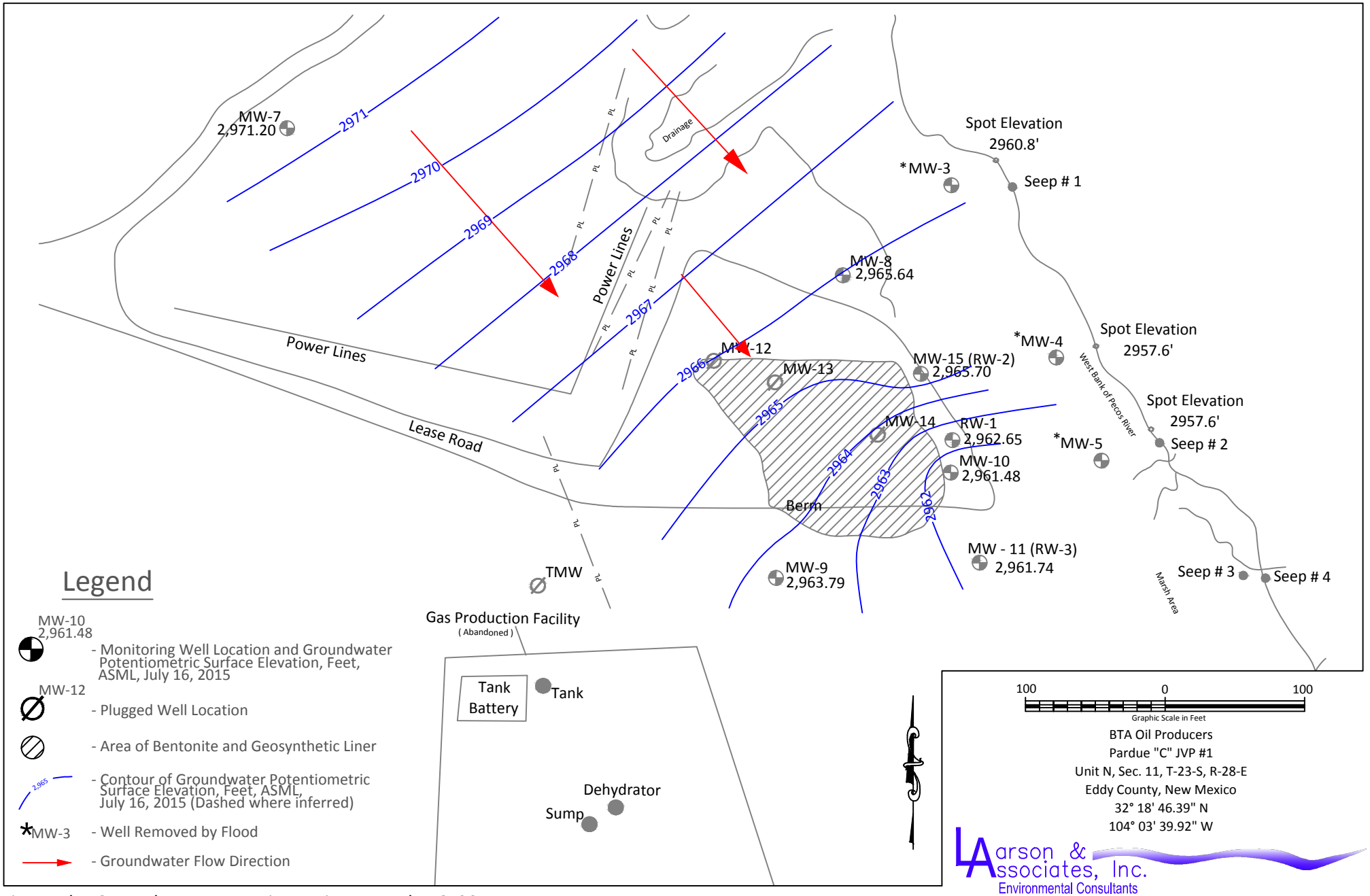


Figure 4b - Groundwater Potentiometric Map, July 16, 2015

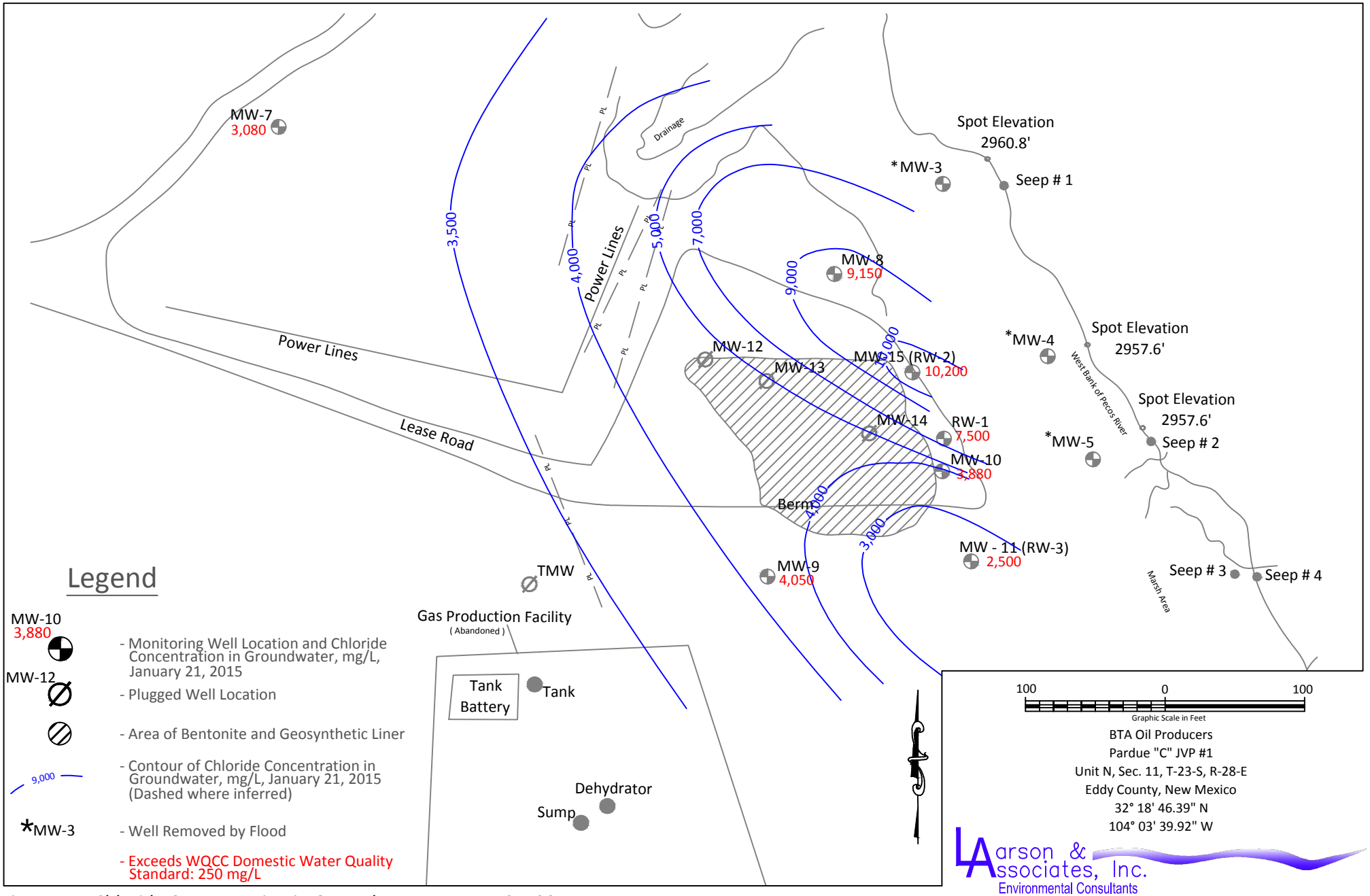


Figure 5a - Chloride Concentration in Groundwater, January 21, 2015

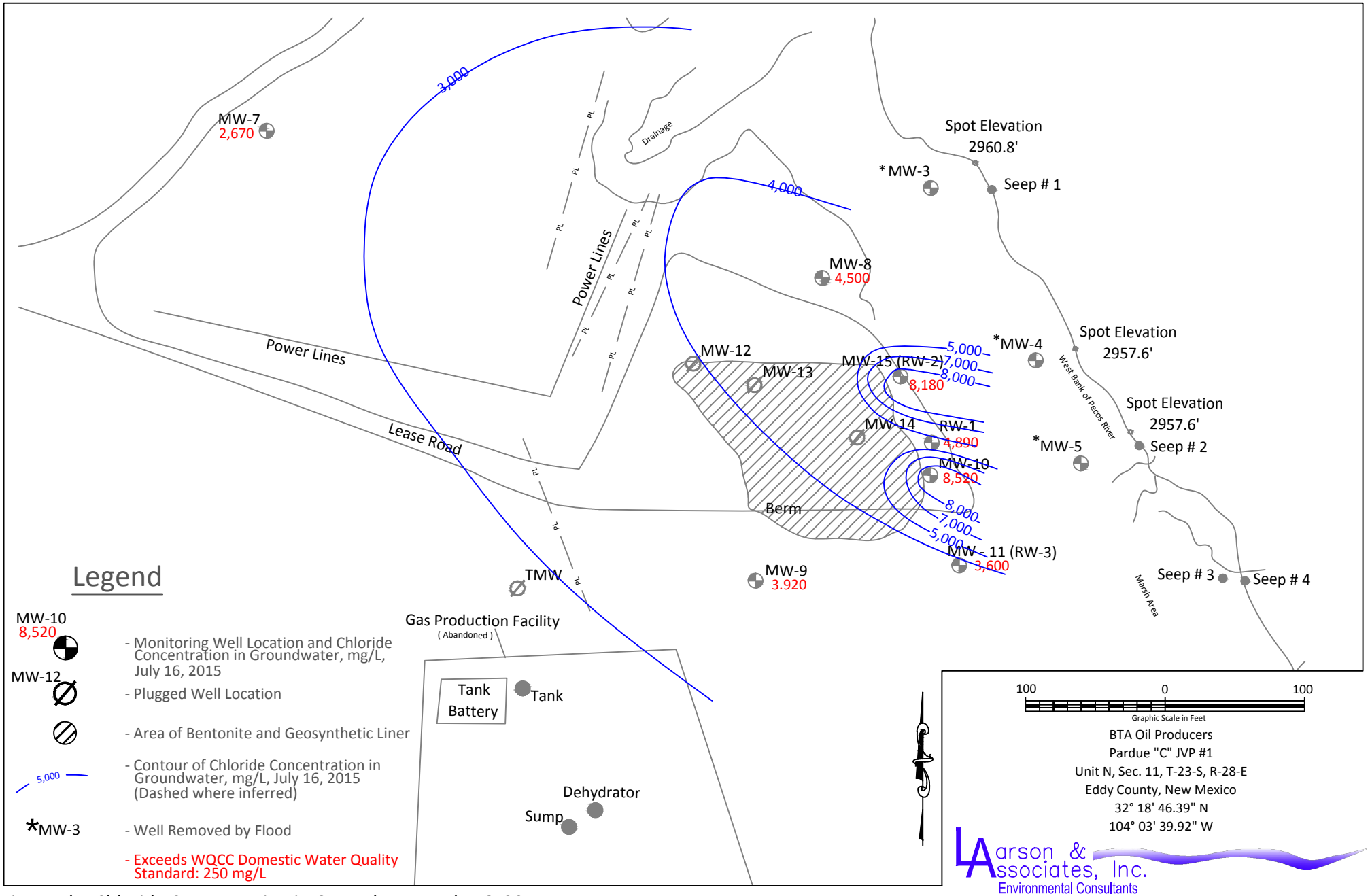


Figure 5b - Chloride Concentration in Groundwater, July 16, 2015

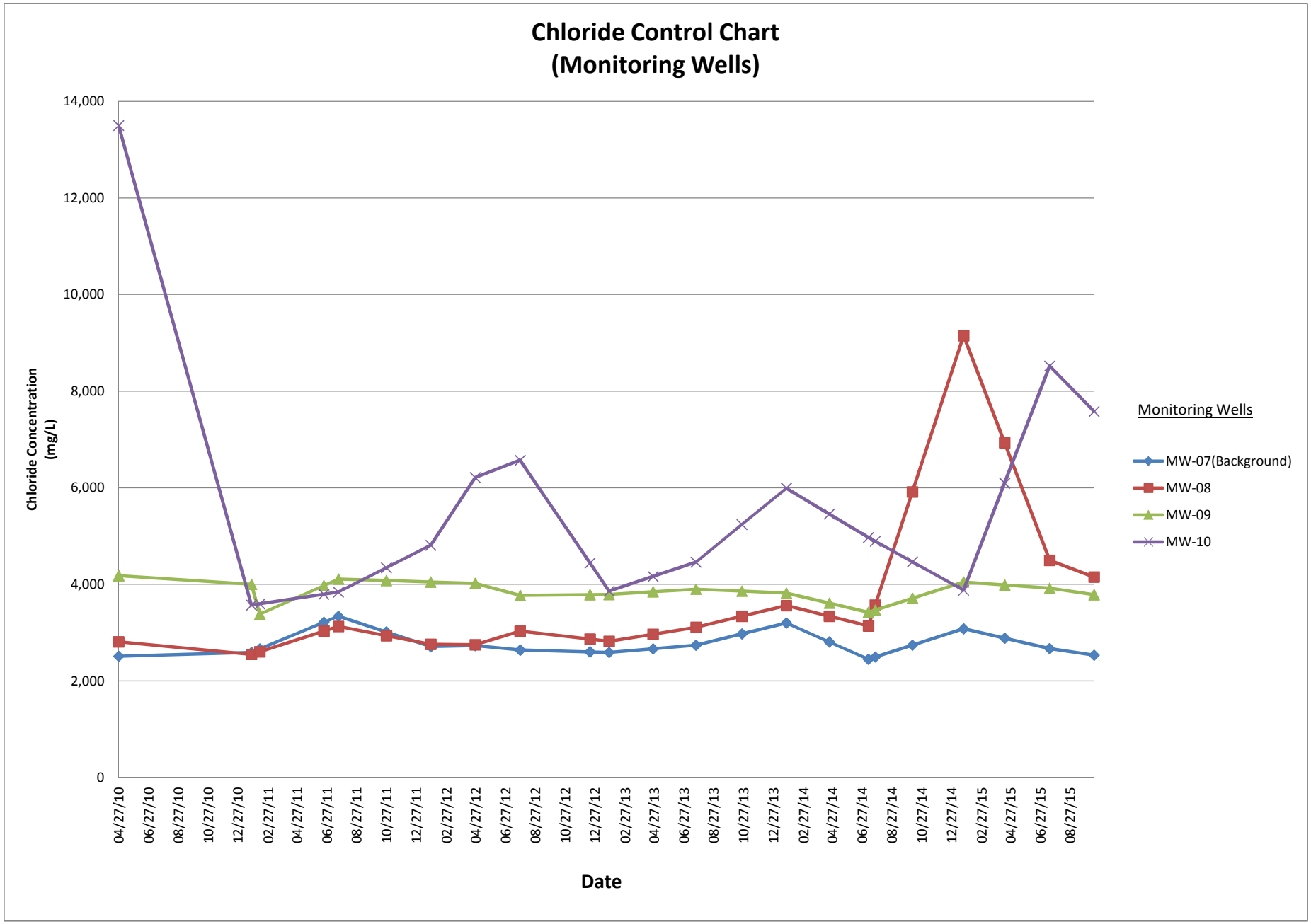


Figure 5c - Chloride Control Chart for Monitoring Wells

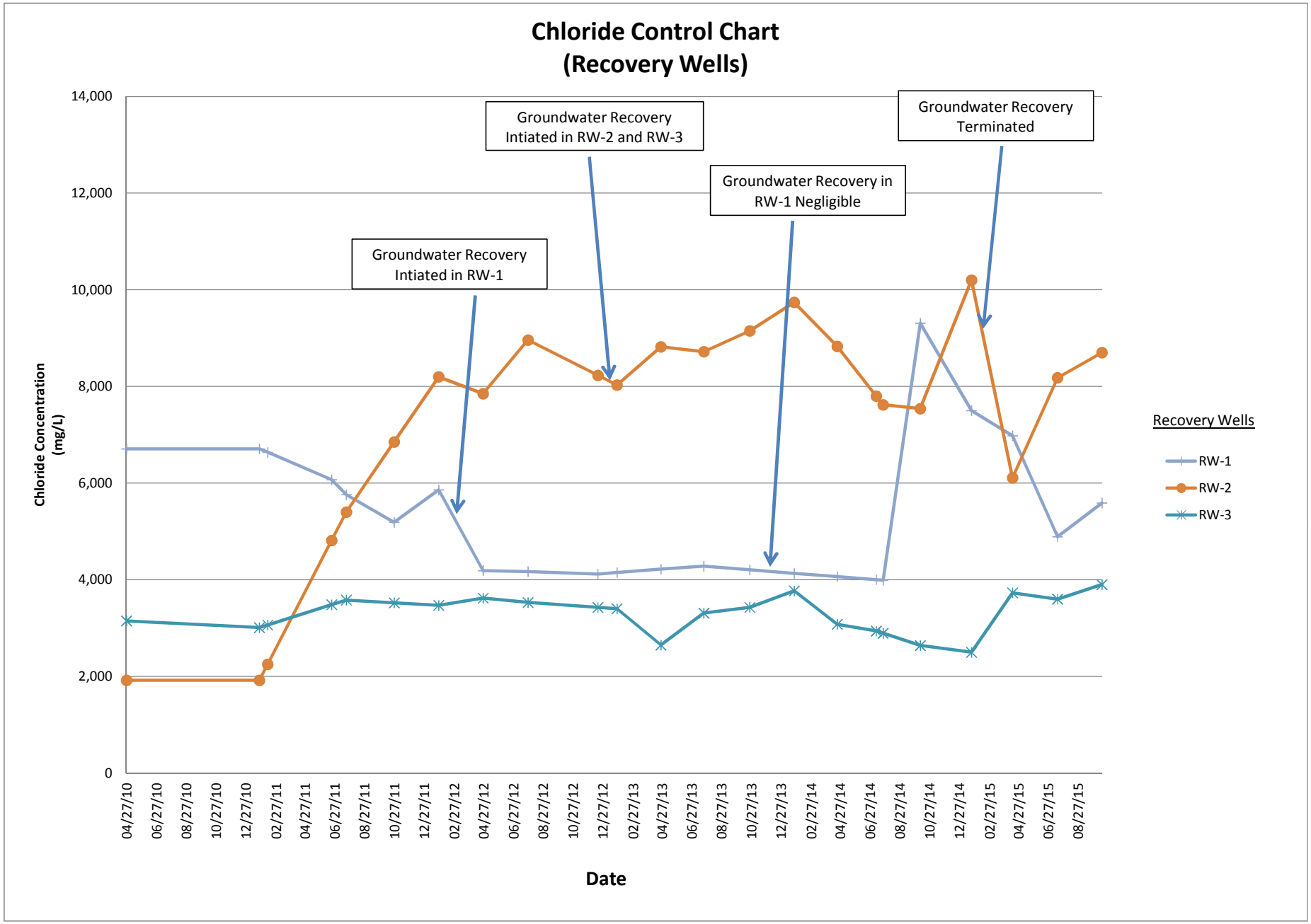


Figure 5d - Chloride Control Chart for Recovery Wells

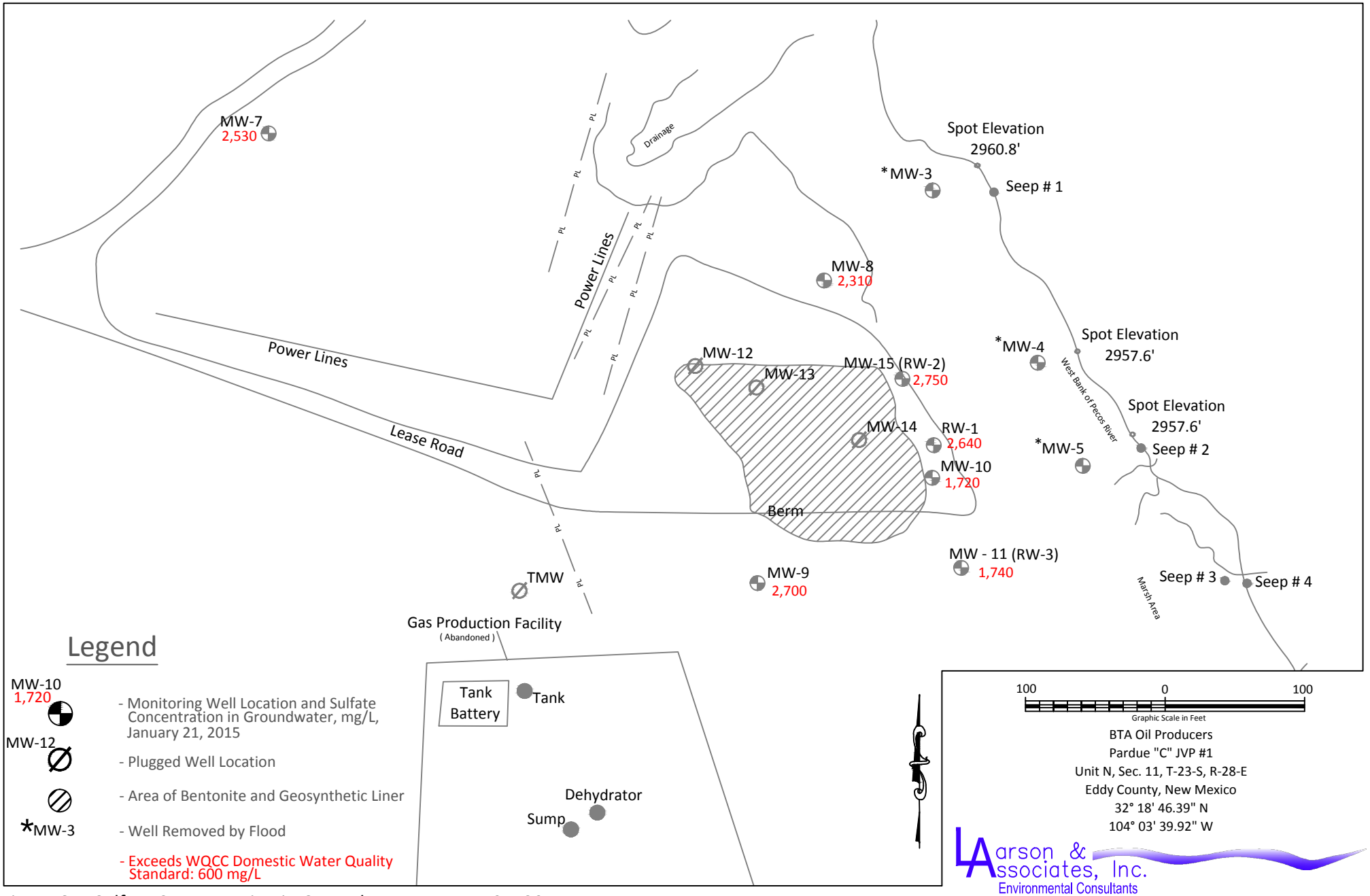


Figure 6a - Sulfate Concentration in Groundwater, January 21, 2015

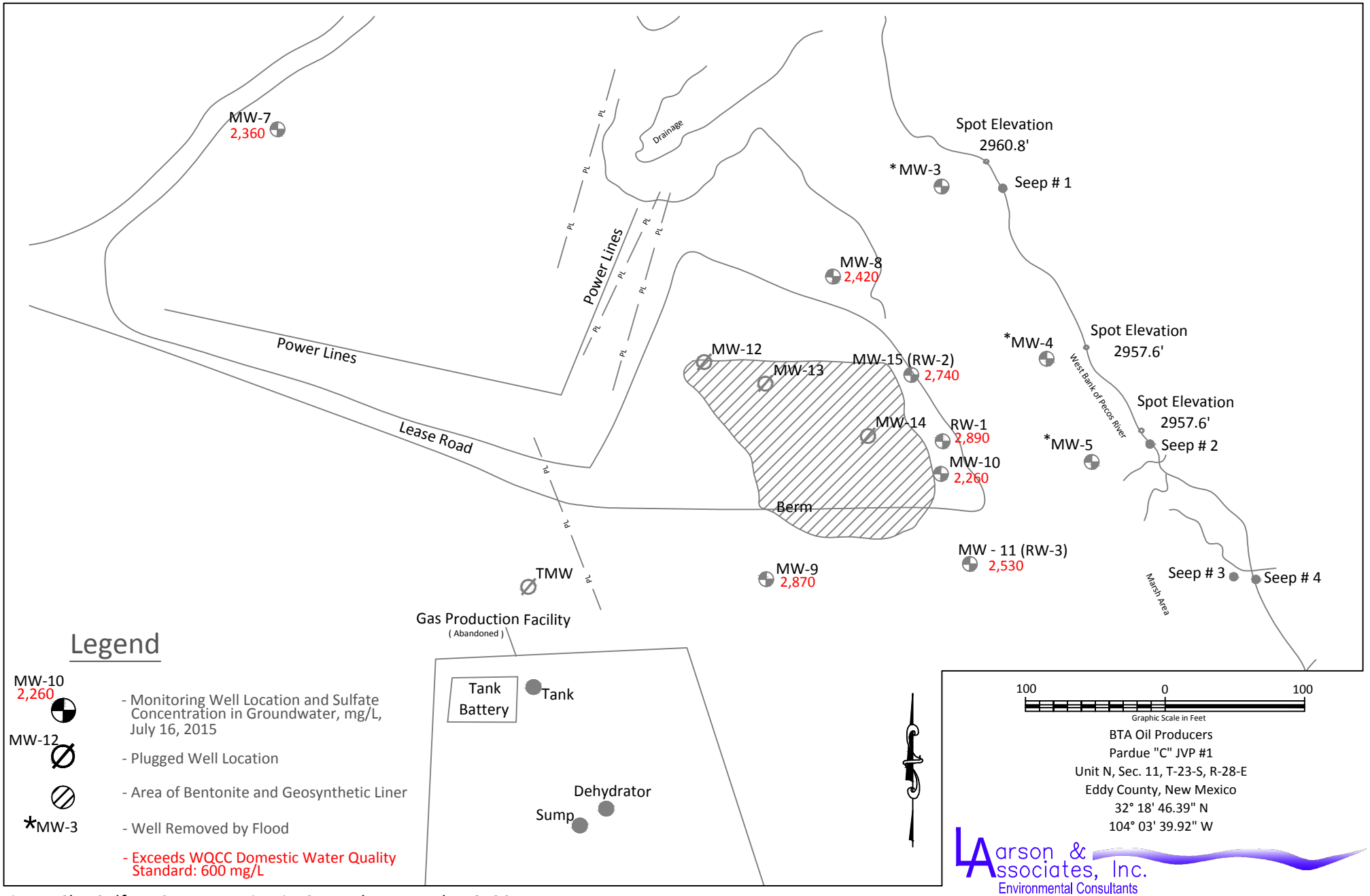


Figure 6b - Sulfate Concentration in Groundwater, July 16, 2015

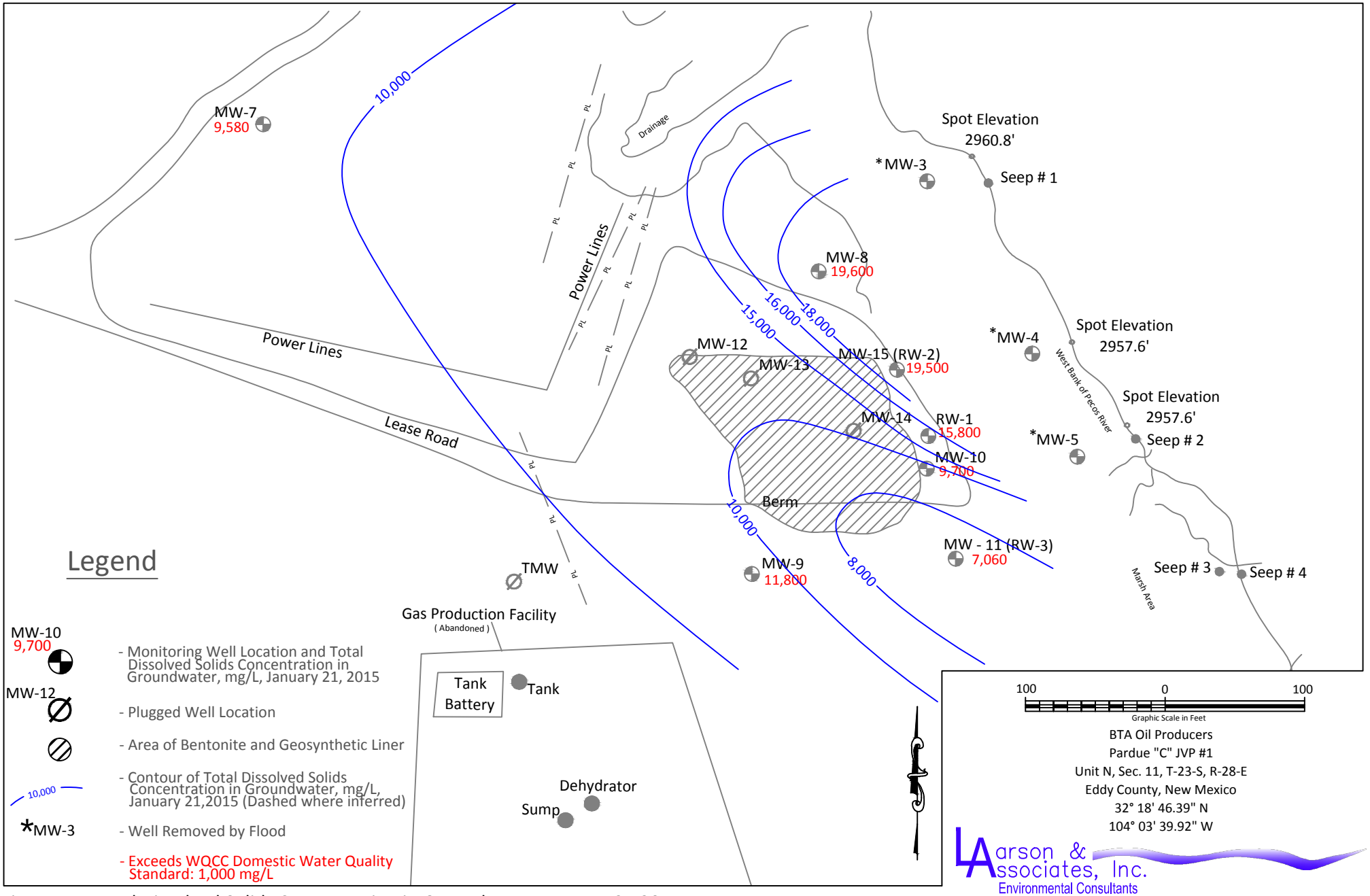


Figure 7a - Total Dissolved Solids Concentration in Groundwater, January 21,2015

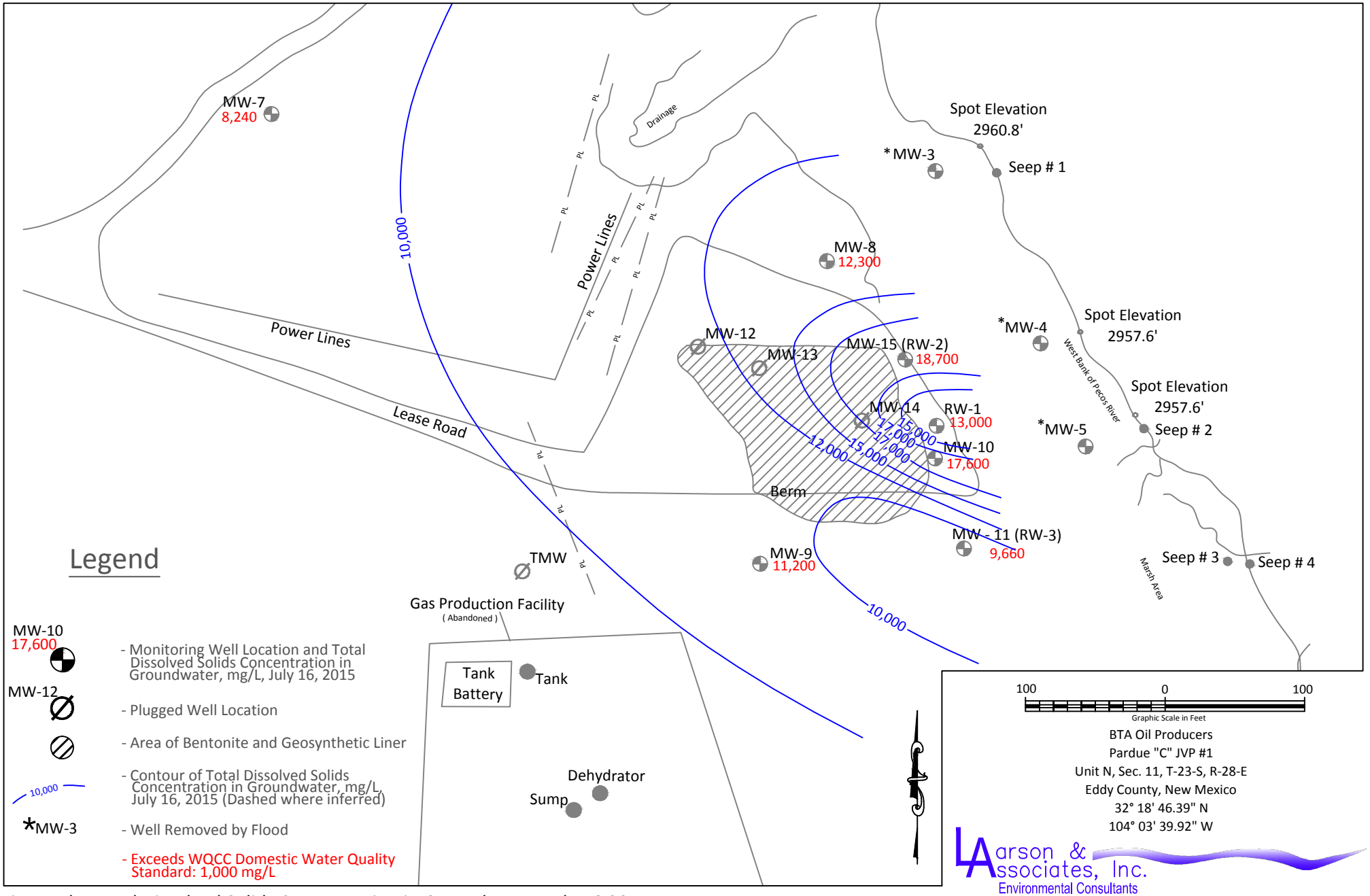


Figure 7b - Total Dissolved Solids Concentration in Groundwater, July 16,2015

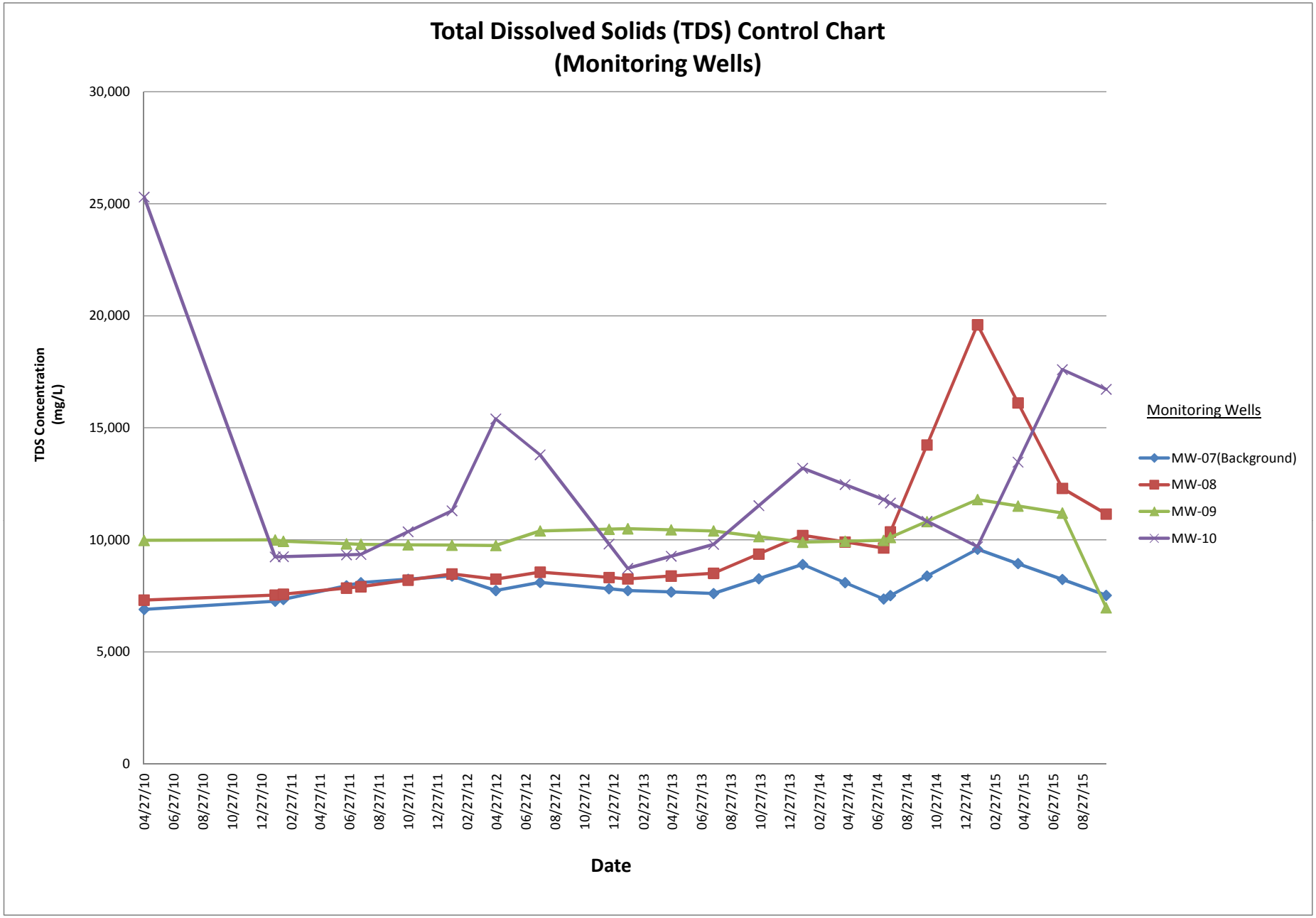


Figure 7c - TDS Control Chart for Monitoring Wells

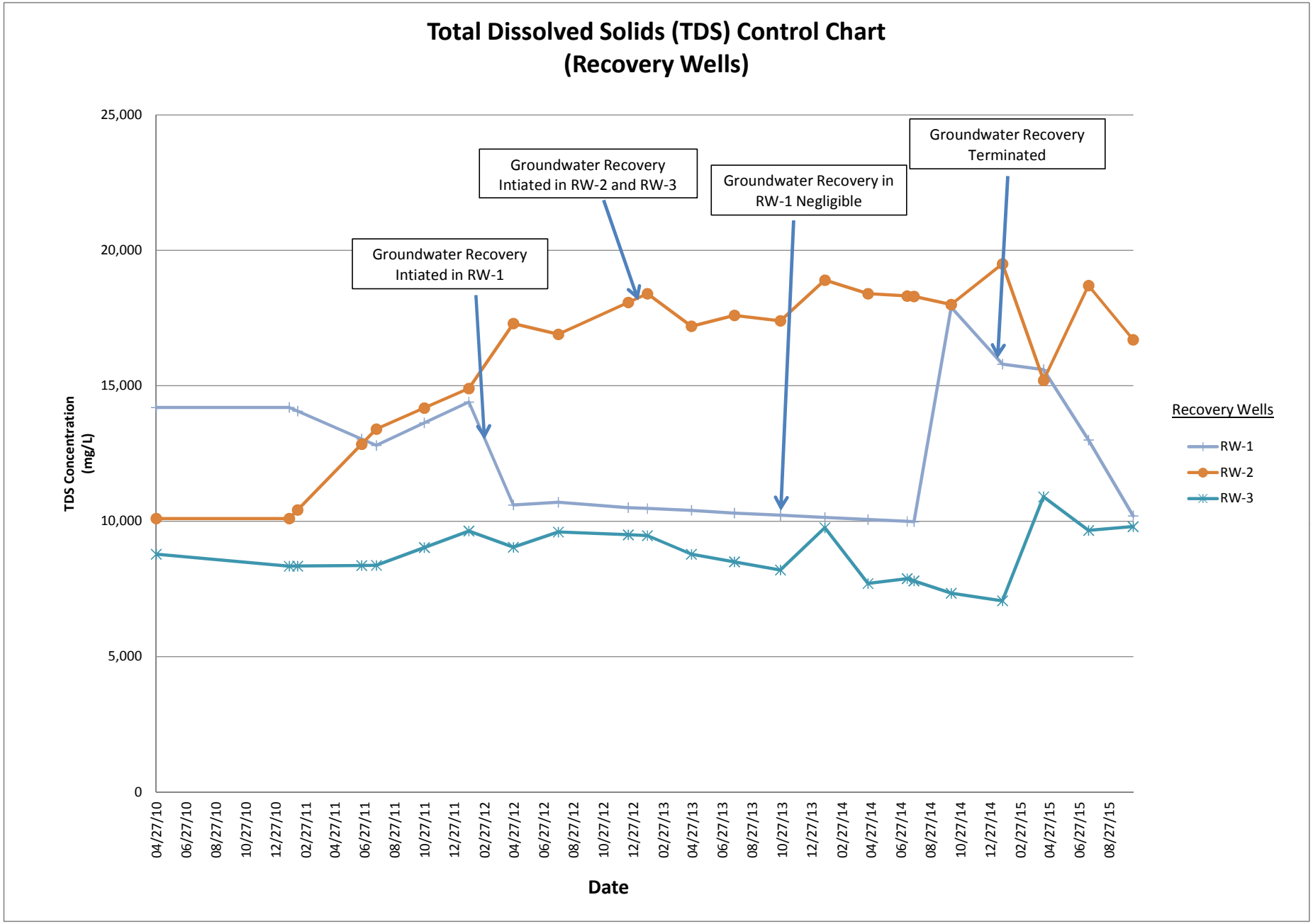


Figure 7d - TDS Control Chart for Recovery Wells

Appendix A

Laboratory Reports

January 29, 2015

Coty Woolf
Larson & Associates
507 N. Marienfeld #200
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456

Order No.: 1501222

RE: BTA Pardue 'C'

Dear Coty Woolf:

DHL Analytical, Inc. received 7 sample(s) on 1/23/2015 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,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-13

Table of Contents

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

№ 63635

CHAIN-OF-CUSTODY

CLIENT: Larson and Associates
ADDRESS: 507 N. Marienfeld Ste. 205 Midland, TX 79701
PHONE: (432) 687-0901 FAX/E-MAIL:
DATA REPORTED TO: Jeremy Cannady
ADDITIONAL REPORT COPIES TO:

DATE: 1/22/2015 PAGE 1 OF 1
PO #: DHL WORK ORDER #: 1501222
PROJECT LOCATION OR NAME: BTA Pardue C
CLENT PROJECT #: 10-0101-02 COLLECTOR: Sarah Shiesler

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

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

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ 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 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ____ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☒ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | Sulfate

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	FIELD NOTES
MW7	01	1/21/15	11:20	W	Poly	1						
MW8	02		11:30									
MW15	03		11:40									
RW-1	04		11:50									
MW10	05		12:00									
MW11	06		12:10									
MW4	07		12:20									
TOTAL												

RELINQUISHED BY: (Signature) Sarah Shiesler DATE/TIME 1/22/15 8:30AM RECEIVED BY: (Signature) Lonestar
RELINQUISHED BY: (Signature) Lonestar DATE/TIME 1/23/15 8:30 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 2.8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #: Lonestar
☐ APC DELIVERY
☐ HAND DELIVERED

Lone Star Overnight

WWW.LSO.COM
Questions? Call 800-800-8984

Airbill No. 47376987

47376987

1. To:
Print Name (Person): Di Baker
Phone (Important): (512)588-6222
Company Name: DHL Analytical
Street Address (No P.O. Box or P.O. Box Zip Code Deliveries): 2300 Double Creek Dr.
Suite / Floor
City: Round Rock State: TX Zip: 78664

2. From:
Print Name (Person)
Phone (Important): 432-687-0901
Company Name: LARSON & ASSOCIATES
Street Address: 507 NORTH MARIENFELD
Suite / Floor: 200
City: MIDLAND State: TX Zip: 79701

3. Service:
Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.

- [x] By 10:30 am Delivery — Check availability at www.lso.com
- [ ] By 8:30 am Delivery (Extra charge, no signature obtained) — Check availability at www.lso.com
- [ ] By 3:00 pm Delivery
- [ ] Ground (next day to most cities)
- [ ] Saturday Delivery (Extra charge, not available on Ground) — Check availability at www.lso.com
- [ ] Other ________

Assumed 10:30 a.m. service unless otherwise noted.

- [ ] Deliver Without Delivery Signature (See Limits of Liability below)

Release Signature

L______ x W______ x H______

4. Package:
Weight: 10
Your Company's Billing Reference Information
Ship Date: (mm/dd/yy) 1 22 2015

5. Payment:

FOR COURIER USE ONLY
Courier Number: 1102
- [ ] Check here if LSO Supplies are used with Ground Service.
Pick-up Location: DC
Date: 1/22/15
Time: 1530
City Code: AUS

LIMIT OF LIABILITY: We are not responsible for claims in excess of $100 for any reason unless you: 1) declare a greater value (not to exceed $25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. NO DELIVERY SIGNATURE WILL BE OBTAINED FOR 08:30 AM DELIVERIES. PRIORITY SERVICE PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON GROUND SERVICE. OVERSIZE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Larson & Associates** Date Received: **1/23/2015**

Work Order Number **1501222** Received by **MB**

Checklist completed by: _____ 1/23/2015 Reviewed by _____ 1/23/2015
Signature Date Initials Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.8 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT # 8086
	Adjusted? _____		Checked by _____
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 _____

Page 1 of 1

DHL Analytical, Inc. **Date:** *29-Jan-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1501222

CASE NARRATIVE

Sample was analyzed using the methods outlined in the following references:

Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids Analysis

LOG IN

The samples were received and log-in performed on 1/23/2015. A total of 7 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *29-Jan-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1501222

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1501222-01	MW7		01/21/15 11:20 AM	1/23/2015
1501222-02	MW8		01/21/15 11:30 AM	1/23/2015
1501222-03	MW15		01/21/15 11:40 AM	1/23/2015
1501222-04	RW-1		01/21/15 11:50 AM	1/23/2015
1501222-05	MW10		01/21/15 12:00 PM	1/23/2015
1501222-06	MW11		01/21/15 12:10 PM	1/23/2015
1501222-07	MW9		01/21/15 12:20 PM	1/23/2015

Lab Order: 1501222
Client: Larson & Associates
Project: BTA Pardue 'C'

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1501222-01A	MW7	01/21/15 11:20 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW7	01/21/15 11:20 AM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-02A	MW8	01/21/15 11:30 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW8	01/21/15 11:30 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW8	01/21/15 11:30 AM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-03A	MW15	01/21/15 11:40 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW15	01/21/15 11:40 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW15	01/21/15 11:40 AM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-04A	RW-1	01/21/15 11:50 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	RW-1	01/21/15 11:50 AM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	RW-1	01/21/15 11:50 AM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-05A	MW10	01/21/15 12:00 PM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW10	01/21/15 12:00 PM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-06A	MW11	01/21/15 12:10 PM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW11	01/21/15 12:10 PM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922
1501222-07A	MW9	01/21/15 12:20 PM	Aqueous	E300	Anion Preparation	01/27/15 08:57 AM	67930
	MW9	01/21/15 12:20 PM	Aqueous	M2540C	TDS Preparation	01/26/15 03:40 PM	67922

Lab Order: 1501222
Client: Larson & Associates
Project: BTA Pardue 'C'

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1501222-01A	MW7	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 03:36 PM	IC2_150127A
	MW7	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-02A	MW8	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 02:09 PM	IC2_150127A
	MW8	Aqueous	E300	Anions by IC method - Water	67930	1000	01/27/15 04:08 PM	IC2_150127A
	MW8	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-03A	MW15	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 02:23 PM	IC2_150127A
	MW15	Aqueous	E300	Anions by IC method - Water	67930	1000	01/27/15 04:22 PM	IC2_150127A
	MW15	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-04A	RW-1	Aqueous	E300	Anions by IC method - Water	67930	1000	01/27/15 04:37 PM	IC2_150127A
	RW-1	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 02:38 PM	IC2_150127A
	RW-1	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-05A	MW10	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 02:52 PM	IC2_150127A
	MW10	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-06A	MW11	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 03:07 PM	IC2_150127A
	MW11	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D
1501222-07A	MW9	Aqueous	E300	Anions by IC method - Water	67930	100	01/27/15 03:21 PM	IC2_150127A
	MW9	Aqueous	M2540C	Total Dissolved Solids	67922	1	01/27/15 08:35 AM	WC_150126D

DHL Analytical, Inc.

Date: *29-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW7
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-01
Project No:	10-0101-02	**Collection Date:**	01/21/15 11:20 AM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3080	30.0	100		mg/L	100	01/27/15 03:36 PM
Sulfate	2530	100	300		mg/L	100	01/27/15 03:36 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	9580	200	200		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW8
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-02
Project No:	10-0101-02	**Collection Date:**	01/21/15 11:30 AM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	9150	300	1000		mg/L	1000	01/27/15 04:08 PM
Sulfate	2310	100	300		mg/L	100	01/27/15 02:09 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	19600	200	200		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW15
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-03
Project No:	10-0101-02	**Collection Date:**	01/21/15 11:40 AM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	10200	300	1000		mg/L	1000	01/27/15 04:22 PM
Sulfate	2750	100	300		mg/L	100	01/27/15 02:23 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	19500	200	200		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	RW-1
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-04
Project No:	10-0101-02	**Collection Date:**	01/21/15 11:50 AM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	7500	300	1000		mg/L	1000	01/27/15 04:37 PM
Sulfate	2640	100	300		mg/L	100	01/27/15 02:38 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	15800	200	200		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW10
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-05
Project No:	10-0101-02	**Collection Date:**	01/21/15 12:00 PM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3880	30.0	100		mg/L	100	01/27/15 02:52 PM
Sulfate	1720	100	300		mg/L	100	01/27/15 02:52 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	9700	200	200		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW11
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-06
Project No:	10-0101-02	**Collection Date:**	01/21/15 12:10 PM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	2500	30.0	100		mg/L	100	01/27/15 03:07 PM
Sulfate	1740	100	300		mg/L	100	01/27/15 03:07 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	7060	50.0	50.0		mg/L	1	01/27/15 08:35 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-Jan-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW9
Project:	BTA Pardue 'C'	**Lab ID:**	1501222-07
Project No:	10-0101-02	**Collection Date:**	01/21/15 12:20 PM
Lab Order:	1501222	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	4050	30.0	100		mg/L	100	01/27/15 03:21 PM
Sulfate	2700	100	300		mg/L	100	01/27/15 03:21 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	11800	200	200		mg/L	1	01/27/15 08:35 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: Larson & Associates
Work Order: 1501222
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150127A

The QC data in batch 67930 applies to the following samples: 1501222-01A, 1501222-02A, 1501222-03A, 1501222-04A, 1501222-05A, 1501222-06A, 1501222-07A

Sample ID **MB-67930** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 9:18:49 AM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<1.00	1.00								
Sulfate	<3.00	3.00								

Sample ID **LCS-67930** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 9:33:24 AM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.3	1.00	10.00	0	103	90	110			
Sulfate	29.9	3.00	30.00	0	99.7	90	110			

Sample ID **LCSD-67930** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 9:47:58 AM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110	0.718	20	
Sulfate	29.5	3.00	30.00	0	98.5	90	110	1.27	20	

Sample ID **1501243-02AMS** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 11:19:44 AM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2840	100	2000	699.4	107	90	110			
Sulfate	3740	300	2000	1561	109	90	110			

Sample ID **1501243-02AMSD** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 11:34:19 AM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2840	100	2000	699.4	107	90	110	0.008	20	
Sulfate	3750	300	2000	1561	109	90	110	0.181	20	

Sample ID **1501212-01EMS** Batch ID: **67930** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_150127A** Analysis Date: **1/27/2015 4:52:00 PM** Prep Date: **1/27/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26800	1000	20000	5067	109	90	110			
Sulfate	21300	3000	20000	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: Larson & Associates
Work Order: 1501222
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150127A

Sample ID **1501212-01EMSD**	Batch ID: **67930**	TestNo: **E300**	Units: **mg/L**		
SampType: **MSD**	Run ID: **IC2_150127A**	Analysis Date: **1/27/2015 5:06:34 PM**	Prep Date: **1/27/2015**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26600	1000	20000	5067	108	90	110	0.693	20	
Sulfate	21300	3000	20000	0	106	90	110	0.177	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: Larson & Associates
Work Order: 1501222
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150127A

Sample ID **ICV-150127**	Batch ID: **R77750**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_150127A**	Analysis Date: **1/27/2015 9:01:42 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.7	1.00	25.00	0	103	90	110			
Sulfate	76.3	3.00	75.00	0	102	90	110			

Sample ID **CCV1-150127**	Batch ID: **R77750**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150127A**	Analysis Date: **1/27/2015 1:08:29 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110			
Sulfate	29.8	3.00	30.00	0	99.4	90	110			

Sample ID **CCV2-150127**	Batch ID: **R77750**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150127A**	Analysis Date: **1/27/2015 3:52:19 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110			
Sulfate	30.0	3.00	30.00	0	99.9	90	110			

Sample ID **CCV3-150127**	Batch ID: **R77750**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150127A**	Analysis Date: **1/27/2015 5:21:09 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.3	1.00	10.00	0	103	90	110			
Sulfate	30.2	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: Larson & Associates
Work Order: 1501222
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: WC_150126D

The QC data in batch 67922 applies to the following samples: 1501222-01A, 1501222-02A, 1501222-03A, 1501222-04A, 1501222-05A, 1501222-06A, 1501222-07A

Sample ID	**MB-67922**	Batch ID:	**67922**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**WC_150126D**	Analysis Date:	**1/27/2015 8:35:00 AM**	Prep Date:	**1/26/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID	**LCS-67922**	Batch ID:	**67922**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**WC_150126D**	Analysis Date:	**1/27/2015 8:35:00 AM**	Prep Date:	**1/26/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	770	10.0	745.6	0	103	90	113			

Sample ID	**1501230-01D-DUP**	Batch ID:	**67922**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**DUP**	Run ID:	**WC_150126D**	Analysis Date:	**1/27/2015 8:35:00 AM**	Prep Date:	**1/26/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	2150	50.0	0	2100				2.59	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

April 23, 2015

Jeremy Cannady
Larson & Associates
507 N. Marienfeld #200
Midland, TX 79701

TEL: (432) 687-0901

FAX (432) 687-0456

Order No.: 1504157

RE: BTA Pardue 'C'

Dear Jeremy Cannady:

DHL Analytical, Inc. received 3 sample(s) on 4/16/2015 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,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-13

Table of Contents

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

nelap

№ 65445

CHAIN-OF-CUSTODY

CLIENT: Larson and Associates
ADDRESS: 507 N. Marienfeld Ste. 205 Midland, TX 79701
PHONE: (432) 687-0901 FAX/E-MAIL:
DATA REPORTED TO: ~~[illegible]~~ Jeremy Cannady
ADDITIONAL REPORT COPIES TO:

DATE: 4/15/2015 PAGE 1 OF 1
PO #: DHL WORK ORDER #: 1504157
PROJECT LOCATION OR NAME: BTA Perdue 'C'
CLENT PROJECT #: 10-0101-01 COLLECTOR: Sarah [illegible]

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

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

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ 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 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ____ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☒ ANIONS ____ ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | Sulfate | | | FIELD NOTES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 / NaOH	ICE	UNPRESERVED	CHLORIDE	TDS	Sulfate	FIELD NOTES
MW-15	01	4/15/15	12:10	W	Poly	1				X		X	X	X	
RW-1	02	↓	12:20	↓	↓	↓				↓		↓	↓	↓	
MW-11	03	↓	12:30	↓	↓	↓				↓		↓	↓	↓	

TOTAL

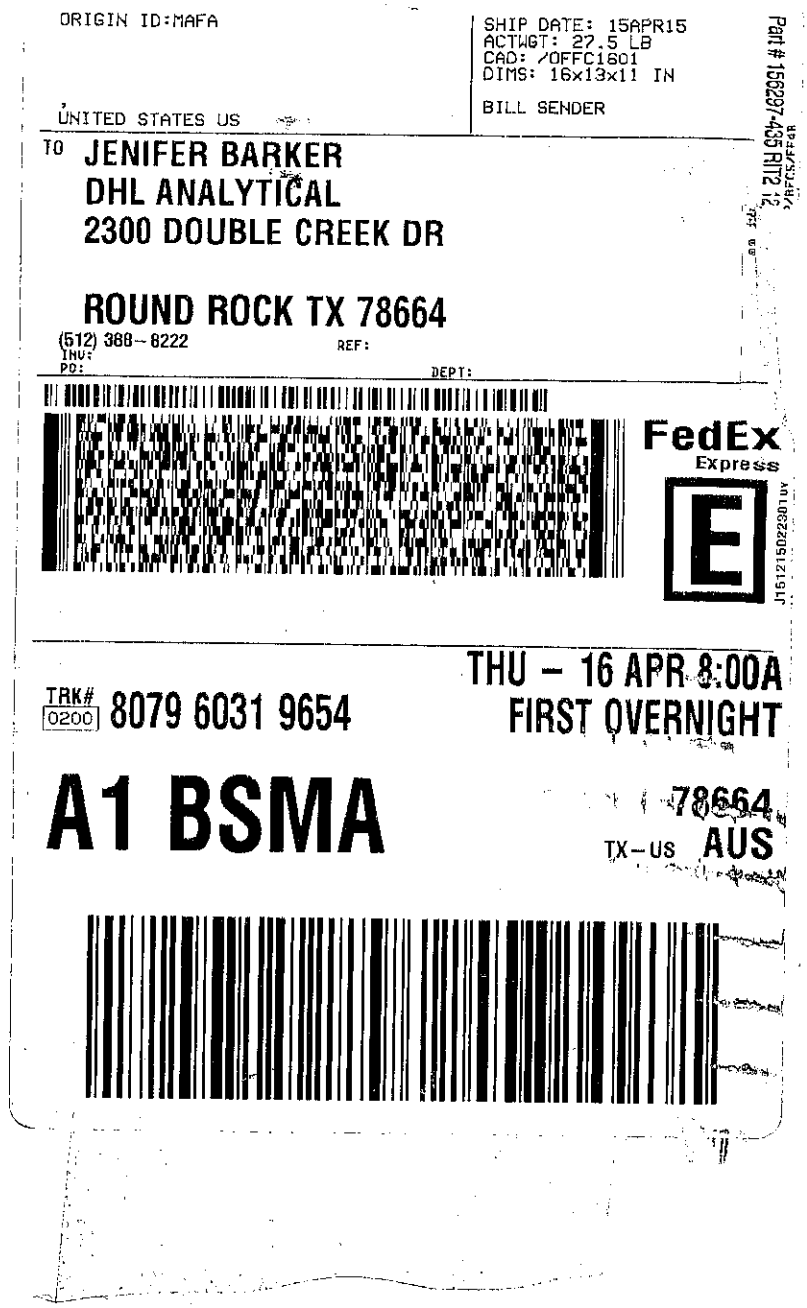
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	4/15/15 4:20PM	FedEx
FedEx	4/16/15 0810	[signature]

☐ 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: ~~5.8~~ 1.9 THERM #: [illegible] 5.8 MO 4/16/15
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #:
☐ APC DELIVERY
☐ HAND DELIVERED


ORIGIN ID:MAFA

UNITED STATES US

SHIP DATE: 15APR15
ACTWGT: 27.5 LB
CAD: /OFFC1601
DIMS: 16x13x11 IN

BILL SENDER

Part # 156297-435 RIT2 12

TO JENIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222

INV:
PO:

REF:

DEPT:

FedEx
Express

THU - 16 APR 8:00A
FIRST OVERNIGHT

TRK# 0200 8079 6031 9654

A1 BSMA

78664
TX-US AUS

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Larson & Associates** Date Received: **4/16/2015**

Work Order Number **1504157** Received by **MB**

Checklist completed by: _____ 4/16/2015 Reviewed by _____ 4/16/2015
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	**1.9** °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____
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 _____

DHL Analytical, Inc. **Date:** *23-Apr-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1504157

CASE NARRATIVE

Sample was analyzed using the methods outlined in the following references:

Method E300 - Anions Analysis
Method M2540C - TDS Analysis

LOG IN

The samples were received and log-in performed on 2/6/2015. A total of 3 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

DHL Analytical, Inc.

Date: *23-Apr-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1504157

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1504157-01	MW-15		04/15/15 12:10 PM	4/16/2015
1504157-02	RW-1		04/15/15 12:20 PM	4/16/2015
1504157-03	MW-11		04/15/15 12:30 PM	4/16/2015

Lab Order: 1504157
Client: Larson & Associates
Project: BTA Pardue 'C'

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1504157-01A	MW-15	04/15/15 12:10 PM	Aqueous	E300	Anion Preparation	04/16/15 11:33 AM	69176
	MW-15	04/15/15 12:10 PM	Aqueous	E300	Anion Preparation	04/16/15 11:33 AM	69176
	MW-15	04/15/15 12:10 PM	Aqueous	M2540C	TDS Preparation	04/17/15 01:30 PM	69180
1504157-02A	RW-1	04/15/15 12:20 PM	Aqueous	E300	Anion Preparation	04/16/15 11:33 AM	69176
	RW-1	04/15/15 12:20 PM	Aqueous	E300	Anion Preparation	04/16/15 11:33 AM	69176
	RW-1	04/15/15 12:20 PM	Aqueous	M2540C	TDS Preparation	04/17/15 01:30 PM	69180
1504157-03A	MW-11	04/15/15 12:30 PM	Aqueous	E300	Anion Preparation	04/16/15 11:33 AM	69176
	MW-11	04/15/15 12:30 PM	Aqueous	M2540C	TDS Preparation	04/17/15 01:30 PM	69180

Lab Order: 1504157
Client: Larson & Associates
Project: BTA Pardue 'C'

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1504157-01A	MW-15	Aqueous	E300	Anions by IC method - Water	69176	1000	04/16/15 03:26 PM	IC2_150416A
	MW-15	Aqueous	E300	Anions by IC method - Water	69176	100	04/16/15 01:26 PM	IC2_150416A
	MW-15	Aqueous	M2540C	Total Dissolved Solids	69180	1	04/20/15 08:43 AM	WC_150417A
1504157-02A	RW-1	Aqueous	E300	Anions by IC method - Water	69176	1000	04/16/15 03:41 PM	IC2_150416A
	RW-1	Aqueous	E300	Anions by IC method - Water	69176	100	04/16/15 01:40 PM	IC2_150416A
	RW-1	Aqueous	M2540C	Total Dissolved Solids	69180	1	04/20/15 08:43 AM	WC_150417A
1504157-03A	MW-11	Aqueous	E300	Anions by IC method - Water	69176	100	04/16/15 01:55 PM	IC2_150416A
	MW-11	Aqueous	M2540C	Total Dissolved Solids	69180	1	04/20/15 08:43 AM	WC_150417A

DHL Analytical, Inc.

Date: *23-Apr-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-15
Project:	BTA Pardue 'C'	**Lab ID:**	1504157-01
Project No:	10-0101-01	**Collection Date:**	04/15/15 12:10 PM
Lab Order:	1504157	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	6110	300	1000		mg/L	1000	04/16/15 03:26 PM
Sulfate	2440	100	300		mg/L	100	04/16/15 01:26 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	15200	200	200		mg/L	1	04/20/15 08:43 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: *23-Apr-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	RW-1
Project:	BTA Pardue 'C'	**Lab ID:**	1504157-02
Project No:	10-0101-01	**Collection Date:**	04/15/15 12:20 PM
Lab Order:	1504157	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	6980	300	1000		mg/L	1000	04/16/15 03:41 PM
Sulfate	2170	100	300		mg/L	100	04/16/15 01:40 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	15600	200	200		mg/L	1	04/20/15 08:43 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: *23-Apr-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-11
Project:	BTA Pardue 'C'	**Lab ID:**	1504157-03
Project No:	10-0101-01	**Collection Date:**	04/15/15 12:30 PM
Lab Order:	1504157	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3730	30.0	100		mg/L	100	04/16/15 01:55 PM
Sulfate	2590	100	300		mg/L	100	04/16/15 01:55 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	10900	200	200		mg/L	1	04/20/15 08:43 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: Larson & Associates
Work Order: 1504157
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150416A

The QC data in batch 69176 applies to the following samples: 1504157-01A, 1504157-02A, 1504157-03A

Sample ID **LCS-69176** Batch ID: **69176** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_150416A** Analysis Date: **4/16/2015 11:56:37 AM** Prep Date: **4/16/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.68	1.00	10.00	0	96.8	90	110			
Sulfate	29.5	3.00	30.00	0	98.4	90	110			

Sample ID **LCSD-69176** Batch ID: **69176** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_150416A** Analysis Date: **4/16/2015 12:11:11 PM** Prep Date: **4/16/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.70	1.00	10.00	0	97.0	90	110	0.189	20	
Sulfate	29.5	3.00	30.00	0	98.5	90	110	0.125	20	

Sample ID **MB-69176** Batch ID: **69176** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_150416A** Analysis Date: **4/16/2015 12:25:45 PM** Prep Date: **4/16/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<1.00	1.00								
Sulfate	<3.00	3.00								

Sample ID **1504157-01AMS** Batch ID: **69176** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_150416A** Analysis Date: **4/16/2015 4:13:45 PM** Prep Date: **4/16/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26200	1000	20000	6106	101	90	110			
Sulfate	21800	3000	20000	2362	97.4	90	110			

Sample ID **1504157-01AMSD** Batch ID: **69176** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_150416A** Analysis Date: **4/16/2015 4:28:20 PM** Prep Date: **4/16/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26300	1000	20000	6106	101	90	110	0.522	20	
Sulfate	22000	3000	20000	2362	98.4	90	110	0.858	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: Larson & Associates
Work Order: 1504157
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150416A

Sample ID **ICV-150416**	Batch ID: **R79159**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_150416A**	Analysis Date: **4/16/2015 11:36:44 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.8	1.00	25.00	0	99.3	90	110			
Sulfate	74.6	3.00	75.00	0	99.5	90	110			

Sample ID **CCV1-150416**	Batch ID: **R79159**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150416A**	Analysis Date: **4/16/2015 2:26:06 PM**	Prep Date:

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			
Sulfate	29.7	3.00	30.00	0	98.9	90	110			

Sample ID **CCV2-150416**	Batch ID: **R79159**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150416A**	Analysis Date: **4/16/2015 4:42:54 PM**	Prep Date:

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			
Sulfate	29.6	3.00	30.00	0	98.6	90	110			

Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1504157
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: WC_150417A

The QC data in batch 69180 applies to the following samples: 1504157-01A, 1504157-02A, 1504157-03A

Sample ID	**MB-69180**	Batch ID:	**69180**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**WC_150417A**	Analysis Date:	**4/20/2015 8:43:00 AM**	Prep Date:	**4/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID	**LCS-69180**	Batch ID:	**69180**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**WC_150417A**	Analysis Date:	**4/20/2015 8:43:00 AM**	Prep Date:	**4/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	738	10.0	745.6	0	99.0	90	113			

Sample ID	**1504145-01C-DUP**	Batch ID:	**69180**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**DUP**	Run ID:	**WC_150417A**	Analysis Date:	**4/20/2015 8:43:00 AM**	Prep Date:	**4/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1370	50.0	0	1325				3.34	5	

Sample ID	**1504145-02C-DUP**	Batch ID:	**69180**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**DUP**	Run ID:	**WC_150417A**	Analysis Date:	**4/20/2015 8:43:00 AM**	Prep Date:	**4/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	92.0	10.0	0	91.00				1.09	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

July 23, 2015

Jeremy Cannady
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456

Order No.: 1507174

RE: BTA Pardue 'C'

Dear Jeremy Cannady:

DHL Analytical, Inc. received 7 sample(s) on 7/17/2015 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,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-14

Table of Contents

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

№ 67188

CHAIN-OF-CUSTODY

CLIENT: Larson and Associates
ADDRESS: 507 N Marienfeld Ste. 205 Midland, TX 79701
PHONE: (432) 687-0901 FAX/E-MAIL:
DATA REPORTED TO: Mark Larson
ADDITIONAL REPORT COPIES TO: Jeremy Cannady

DATE: 7/16/15 PAGE 1 OF 1
PO #: DHL WORK ORDER #: 1502174
PROJECT LOCATION OR NAME: BTA Pardue "C"
CLENT PROJECT #: 10-0101-02 COLLECTOR: Sarah Shaw

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

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

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: 8TEX ☐ 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 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ☐	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDES ☒ ANIONS ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐	Sulfate ☒	FIELD NOTES
MW-7	01	7/16/15	10:45	W	Poly	1				X	X											X			X	X		
MW-8	02		11:20																									
MW-15	03		11:15																									
RW-1	04		11:30																									
MW-10	05		11:45																									
MW-11	06		12:15																									
MW-9	07		12:30																									

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151969 REV 7/08 RRD

P.O.

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Larson & Associates** Date Received: **7/17/2015**

Work Order Number **1507174** Received by **MB**

Checklist completed by: _____ 7/17/2015 Reviewed by _____ 7/17/2015
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.1 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____
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:

_____

_____

Page 1 of 1

DHL Analytical, Inc. **Date:** *23-Jul-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1507174

CASE NARRATIVE

Sample was analyzed using the methods outlined in the following references:

Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids Analysis

LOG IN

The samples were received and log-in performed on 7/17/20115. A total of 7 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

ANIONS ANALYSIS

For Anions Analysis, the recovery of Sulfate for the Matrix Spike and Matrix Spike Duplicate (1507274-05 MS/MSD) was slightly above the method control limits. This is flagged accordingly in the QC Summary Repot. This anion was within method control limits in the associated LCS. No further corrective action was taken.

DHL Analytical, Inc.

Date: *23-Jul-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1507174

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1507174-01	MW-7		07/16/15 10:45 AM	7/17/2015
1507174-02	MW-8		07/16/15 11:00 AM	7/17/2015
1507174-03	MW-15		07/16/15 11:15 AM	7/17/2015
1507174-04	RW-1		07/16/15 11:30 AM	7/17/2015
1507174-05	MW-10		07/16/15 11:45 AM	7/17/2015
1507174-06	MW-11		07/16/15 12:15 PM	7/17/2015
1507174-07	MW-9		07/16/15 12:30 PM	7/17/2015

Lab Order: 1507174
Client: Larson & Associates
Project: BTA Pardue 'C'

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1507174-01A	MW-7	07/16/15 10:45 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-7	07/16/15 10:45 AM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-02A	MW-8	07/16/15 11:00 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-8	07/16/15 11:00 AM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-03A	MW-15	07/16/15 11:15 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-15	07/16/15 11:15 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-15	07/16/15 11:15 AM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-04A	RW-1	07/16/15 11:30 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	RW-1	07/16/15 11:30 AM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-05A	MW-10	07/16/15 11:45 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-10	07/16/15 11:45 AM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-10	07/16/15 11:45 AM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-06A	MW-11	07/16/15 12:15 PM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-11	07/16/15 12:15 PM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549
1507174-07A	MW-9	07/16/15 12:30 PM	Aqueous	E300	Anion Preparation	07/17/15 09:49 AM	70501
	MW-9	07/16/15 12:30 PM	Aqueous	M2540C	TDS Preparation	07/21/15 09:55 AM	70549

Lab Order: 1507174
Client: Larson & Associates
Project: BTA Pardue 'C'

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1507174-01A	MW-7	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 12:50 PM	IC2_150717A
	MW-7	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-02A	MW-8	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 11:21 AM	IC2_150717A
	MW-8	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-03A	MW-15	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 11:35 AM	IC2_150717A
	MW-15	Aqueous	E300	Anions by IC method - Water	70501	1000	07/17/15 01:05 PM	IC2_150717A
	MW-15	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-04A	RW-1	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 01:19 PM	IC2_150717A
	RW-1	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-05A	MW-10	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 01:51 PM	IC2_150717A
	MW-10	Aqueous	E300	Anions by IC method - Water	70501	1000	07/17/15 02:51 PM	IC2_150717A
	MW-10	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-06A	MW-11	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 02:05 PM	IC2_150717A
	MW-11	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B
1507174-07A	MW-9	Aqueous	E300	Anions by IC method - Water	70501	100	07/17/15 02:20 PM	IC2_150717A
	MW-9	Aqueous	M2540C	Total Dissolved Solids	70549	1	07/22/15 09:00 AM	WC_150721B

DHL Analytical, Inc.

Date: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-7
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-01
Project No:	10-0101-02	**Collection Date:**	07/16/15 10:45 AM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	2670	30.0	100		mg/L	100	07/17/15 12:50 PM
Sulfate	2360	100	300		mg/L	100	07/17/15 12:50 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	8240	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-8
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-02
Project No:	10-0101-02	**Collection Date:**	07/16/15 11:00 AM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	4500	30.0	100		mg/L	100	07/17/15 11:21 AM
Sulfate	2420	100	300		mg/L	100	07/17/15 11:21 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	12300	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-15
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-03
Project No:	10-0101-02	**Collection Date:**	07/16/15 11:15 AM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	8180	300	1000		mg/L	1000	07/17/15 01:05 PM
Sulfate	2740	100	300		mg/L	100	07/17/15 11:35 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	18700	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	RW-1
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-04
Project No:	10-0101-02	**Collection Date:**	07/16/15 11:30 AM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	4890	30.0	100		mg/L	100	07/17/15 01:19 PM
Sulfate	2890	100	300		mg/L	100	07/17/15 01:19 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	13000	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-10
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-05
Project No:	10-0101-02	**Collection Date:**	07/16/15 11:45 AM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	8520	300	1000		mg/L	1000	07/17/15 02:51 PM
Sulfate	2260	100	300		mg/L	100	07/17/15 01:51 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	17600	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-11
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-06
Project No:	10-0101-02	**Collection Date:**	07/16/15 12:15 PM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3600	30.0	100		mg/L	100	07/17/15 02:05 PM
Sulfate	2530	100	300		mg/L	100	07/17/15 02:05 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	9660	200	200		mg/L	1	07/22/15 09:00 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: *23-Jul-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-9
Project:	BTA Pardue 'C'	**Lab ID:**	1507174-07
Project No:	10-0101-02	**Collection Date:**	07/16/15 12:30 PM
Lab Order:	1507174	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3920	30.0	100		mg/L	100	07/17/15 02:20 PM
Sulfate	2870	100	300		mg/L	100	07/17/15 02:20 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **PT**
Total Dissolved Solids (Residue, Filterable)	11200	200	200		mg/L	1	07/22/15 09:00 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		

CLIENT: Larson & Associates
Work Order: 1507174
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150717A

The QC data in batch 70501 applies to the following samples: 1507174-01A, 1507174-02A, 1507174-03A, 1507174-04A, 1507174-05A, 1507174-06A, 1507174-07A

Sample ID **LCS-70501** Batch ID: **70501** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_150717A** Analysis Date: **7/17/2015 10:09:51 AM** Prep Date: **7/17/2015**

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			
Sulfate	31.7	3.00	30.00	0	106	90	110			

Sample ID **LCSD-70501** Batch ID: **70501** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_150717A** Analysis Date: **7/17/2015 10:24:28 AM** Prep Date: **7/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.81	1.00	10.00	0	98.1	90	110	0.146	20	
Sulfate	31.7	3.00	30.00	0	106	90	110	0.136	20	

Sample ID **MB-70501** Batch ID: **70501** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_150717A** Analysis Date: **7/17/2015 10:39:04 AM** Prep Date: **7/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<1.00	1.00								
Sulfate	<3.00	3.00								

Sample ID **1507174-05AMS** Batch ID: **70501** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_150717A** Analysis Date: **7/17/2015 3:06:21 PM** Prep Date: **7/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	28100	1000	20000	8521	98.1	90	110			
Sulfate	25100	3000	20000	2265	114	90	110			S

Sample ID **1507174-05AMSD** Batch ID: **70501** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_150717A** Analysis Date: **7/17/2015 3:20:57 PM** Prep Date: **7/17/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	27900	1000	20000	8521	96.7	90	110	0.981	20	
Sulfate	24900	3000	20000	2265	113	90	110	0.902	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: Larson & Associates
Work Order: 1507174
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_150717A

Sample ID **ICV-150717**	Batch ID: **R80642**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_150717A**	Analysis Date: **7/17/2015 9:47:42 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.2	1.00	25.00	0	96.7	90	110			
Sulfate	79.4	3.00	75.00	0	106	90	110			

Sample ID **CCV1-150717**	Batch ID: **R80642**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150717A**	Analysis Date: **7/17/2015 1:34:17 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.92	1.00	10.00	0	99.2	90	110			
Sulfate	32.1	3.00	30.00	0	107	90	110			

Sample ID **CCV2-150717**	Batch ID: **R80642**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_150717A**	Analysis Date: **7/17/2015 3:35:34 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.84	1.00	10.00	0	98.4	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: Larson & Associates
Work Order: 1507174
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: WC_150721B

The QC data in batch 70549 applies to the following samples: 1507174-01A, 1507174-02A, 1507174-03A, 1507174-04A, 1507174-05A, 1507174-06A, 1507174-07A

Sample ID **MB-70549**	Batch ID: **70549**	TestNo: **M2540C**	Units: **mg/L**
SampType: **MBLK**	Run ID: **WC_150721B**	Analysis Date: **7/22/2015 9:00:00 AM**	Prep Date: **7/21/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0	0							

Sample ID **LCS-70549**	Batch ID: **70549**	TestNo: **M2540C**	Units: **mg/L**
SampType: **LCS**	Run ID: **WC_150721B**	Analysis Date: **7/22/2015 9:00:00 AM**	Prep Date: **7/21/2015**

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 **1507174-01A-DUP**	Batch ID: **70549**	TestNo: **M2540C**	Units: **mg/L**
SampType: **DUP**	Run ID: **WC_150721B**	Analysis Date: **7/22/2015 9:00:00 AM**	Prep Date: **7/21/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	8200	200	0	8240				0.487	5	

Sample ID **1507174-02A-DUP**	Batch ID: **70549**	TestNo: **M2540C**	Units: **mg/L**
SampType: **DUP**	Run ID: **WC_150721B**	Analysis Date: **7/22/2015 9:00:00 AM**	Prep Date: **7/21/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	12200	200	0	12340				0.977	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

October 23, 2015

Jeremy Cannady
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701

TEL: (432) 687-0901

FAX (432) 687-0456

Order No.: 1510147

RE: BTA Pardue 'C'

Dear Jeremy Cannady:

DHL Analytical, Inc. received 3 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,

John DuPont
General Manager

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

Table of Contents

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 10/15/2015 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: 570147
PROJECT LOCATION OR NAME: BTA Pardue C
LAI PROJECT #: 10-0101-02 COLLECTOR: Sarah Shiloh

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐ | Sulfate

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-15	01	10/15/15	11:15	W	1				X		TCLP - METALS (RCRA) ☐ TCLP VOC ☐ X; pH ☐ HEXAVALENT CHROMIUM ☐ X; CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐ Sulfate X	
RW-1	02	↓	11:30	↓	↓				↓		↓	
MW-11	03	↓	11:45	↓	↓				↓		↓	

TOTAL

RELINQUISHED BY:(Signature) Sarah Shiloh — DATE/TIME 10/15/15 9:00PM — RECEIVED BY: (Signature) Larson

RELINQUISHED BY:(Signature) Larson — DATE/TIME 10/16/15 0833 — RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) — DATE/TIME — RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.2 THERM #: 73
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # Larson
☐ HAND DELIVERED

LSO

WWW.LSO.COM
Questions? Call 800-800-8984

Airbill No. 49614841

49614841

1. To: Print Name (Person): J. Barker Phone (Important): (512)388-8222

Company Name: DHL Analytical

Street Address (No P.O. Box or P.O. Box Zip Code Deliveries): 2300 Double Creek Dr.

Suite / Floor:

City: Round Rock State: TX Zip: 78664

2. From: Print Name (Person): Phone (Important): 432-687-0901

Company Name: LARSON & ASSOCIATES

Street Address: 507 NORTH MARIENFELD

Suite / Floor: 205

City: MIDLAND State: TX Zip: 79701

3. Service: Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.

- ☒ **LSO Priority Overnight*** By 10:30 a.m. to most cities
- ☐ **LSO Early Overnight*** By 8:30 a.m. select cities
- ☐ **LSO Economy Next Day*** By 3 p.m. to most cities
- ☐ **LSO 2nd Day***
- ☐ **LSO Ground**
- ☐ **LSO Saturday***
- ☐ Other _____

*Check commitment times and availability at www.lso.com

Assumed LSO Priority Overnight service unless otherwise noted.

☐ Deliver Without Delivery Signature (See Limits of Liability below)

Release Signature

L_____ x W_____ x H_____

4. Package: Weight:

Your Company's Billing Reference Information

Ship Date: (mm/dd/yy) 10/15/15

5. Payment:

FOR DRIVER USE ONLY

Driver Number:

☐ Check here if LSO Supplies are used with LSO Ground Service.

Pick-up Location:

Date:

Time:

City Code:

LIMIT OF LIABILITY: We are not responsible for claims in excess of $100 for any reason unless you: 1) declare a greater value (not to exceed $25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. ***NO DELIVERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERNIGHT SERVICE. PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON LSO GROUND SERVICE. OVERSIZE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.***

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Larson & Associates** Date Received: **10/16/2015**

Work Order Number **1510147** Received by **MB**

Checklist completed by _____ 10/16/2015 Reviewed by _____ 10/16/2015
Signature Date Initials Date

Carrier name LoneStar

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.2 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____
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 _____

Page 1 of 1

DHL Analytical, Inc. **Date:** *23-Oct-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1510147

CASE NARRATIVE

The samples were analyzed using the methods outlined in the following references:

Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids Analysis

LOG IN

The samples were received and log-in performed on 10/16/2015. A total of 3 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time Zone.

ANIONS ANALYSIS

For Anions Analysis, the recovery of Sulfate for the Matrix Spike and Matrix Spike Duplicate (1510147-02 MS/MSD) was slightly above the method control limits. These are flagged accordingly in the QC summary Report. This anion was within method control limit in the associated LCS. No further corrective action was taken.

DHL Analytical, Inc.

Date: *23-Oct-15*

CLIENT: Larson & Associates
Project: BTA Pardue 'C'
Lab Order: 1510147

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1510147-01	MW-15		10/15/15 11:15 AM	10/16/2015
1510147-02	RW-1		10/15/15 11:30 AM	10/16/2015
1510147-03	MW-11		10/15/15 11:45 AM	10/16/2015

Lab Order: 1510147
Client: Larson & Associates
Project: BTA Pardue 'C'

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1510147-01A	MW-15	10/15/15 11:15 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	MW-15	10/15/15 11:15 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	MW-15	10/15/15 11:15 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
1510147-02A	RW-1	10/15/15 11:30 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	RW-1	10/15/15 11:30 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	RW-1	10/15/15 11:30 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924
1510147-03A	MW-11	10/15/15 11:45 AM	Aqueous	E300	Anion Preparation	10/19/15 09:20 AM	71912
	MW-11	10/15/15 11:45 AM	Aqueous	M2540C	TDS Preparation	10/19/15 01:46 PM	71924

Lab Order: 1510147
Client: Larson & Associates
Project: BTA Pardue 'C'

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1510147-01A	MW-15	Aqueous	E300	Anions by IC method - Water	71912	1000	10/19/15 02:28 PM	IC2_151019A
	MW-15	Aqueous	E300	Anions by IC method - Water	71912	100	10/19/15 10:49 AM	IC2_151019A
	MW-15	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
1510147-02A	RW-1	Aqueous	E300	Anions by IC method - Water	71912	1000	10/19/15 02:43 PM	IC2_151019A
	RW-1	Aqueous	E300	Anions by IC method - Water	71912	100	10/19/15 11:04 AM	IC2_151019A
	RW-1	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F
1510147-03A	MW-11	Aqueous	E300	Anions by IC method - Water	71912	100	10/19/15 11:19 AM	IC2_151019A
	MW-11	Aqueous	M2540C	Total Dissolved Solids	71924	1	10/20/15 08:00 AM	WC_151019F

DHL Analytical, Inc.

Date: *23-Oct-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-15
Project:	BTA Pardue 'C'	**Lab ID:**	1510147-01
Project No:	10-0101-02	**Collection Date:**	10/15/15 11:15 AM
Lab Order:	1510147	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	8700	300	1000		mg/L	1000	10/19/15 02:28 PM
Sulfate	2520	100	300		mg/L	100	10/19/15 10:49 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **BJT**
Total Dissolved Solids (Residue, Filterable)	16700	200	200		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: *23-Oct-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	RW-1
Project:	BTA Pardue 'C'	**Lab ID:**	1510147-02
Project No:	10-0101-02	**Collection Date:**	10/15/15 11:30 AM
Lab Order:	1510147	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	5590	300	1000		mg/L	1000	10/19/15 02:43 PM
Sulfate	2710	100	300		mg/L	100	10/19/15 11:04 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **BJT**
Total Dissolved Solids (Residue, Filterable)	10200	200	200		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: *23-Oct-15*

CLIENT:	Larson & Associates	**Client Sample ID:**	MW-11
Project:	BTA Pardue 'C'	**Lab ID:**	1510147-03
Project No:	10-0101-02	**Collection Date:**	10/15/15 11:45 AM
Lab Order:	1510147	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **AV**
Chloride	3990	30.0	100		mg/L	100	10/19/15 11:19 AM
Sulfate	2550	100	300		mg/L	100	10/19/15 11:19 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **BJT**
Total Dissolved Solids (Residue, Filterable)	9800	200	200		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		

CLIENT: Larson & Associates
Work Order: 1510147
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_151019A

The QC data in batch 71912 applies to the following samples: 1510147-01A, 1510147-02A, 1510147-03A

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

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			
Sulfate	31.2	3.00	30.00	0	104	90	110			

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

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	
Sulfate	30.1	3.00	30.00	0	100	90	110	3.76	20	

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

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<1.00	1.00								
Sulfate	<3.00	3.00								

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

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

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

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26200	1000	20000	5590	103	90	110	1.54	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	Page 1 of 3
	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: Larson & Associates
Work Order: 1510147
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_151019A

Sample ID **ICV-151019**	Batch ID: **R82252**	TestNo: **E300**	Units: **mg/L**
SampType: **ICV**	Run ID: **IC2_151019A**	Analysis Date: **10/19/2015 9:10:28 AM**	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			
Sulfate	78.2	3.00	75.00	0	104	90	110			

Sample ID **CCV1-151019**	Batch ID: **R82252**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_151019A**	Analysis Date: **10/19/2015 1:40:28 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			
Sulfate	31.3	3.00	30.00	0	104	90	110			

Sample ID **CCV2-151019**	Batch ID: **R82252**	TestNo: **E300**	Units: **mg/L**
SampType: **CCV**	Run ID: **IC2_151019A**	Analysis Date: **10/19/2015 5:10:56 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110			
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: Larson & Associates
Work Order: 1510147
Project: BTA Pardue 'C'

ANALYTICAL QC SUMMARY REPORT

RunID: WC_151019F

The QC data in batch 71924 applies to the following samples: 1510147-01A, 1510147-02A, 1510147-03A

Sample ID	**MB-71924**	Batch ID:	**71924**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**WC_151019F**	Analysis Date:	**10/20/2015 8:00:00 AM**	Prep Date:	**10/19/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID	**LCS-71924**	Batch ID:	**71924**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**WC_151019F**	Analysis Date:	**10/20/2015 8:00:00 AM**	Prep Date:	**10/19/2015**

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	**1510126-01C-DUP**	Batch ID:	**71924**	TestNo:	**M2540C**	Units:	**mg/L**
SampType:	**DUP**	Run ID:	**WC_151019F**	Analysis Date:	**10/20/2015 8:00:00 AM**	Prep Date:	**10/19/2015**

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	

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