

**2016 Annual Groundwater
Monitoring Report**
Empire Abo Gas Plant
Eddy County, New Mexico
AP-112

Project No. 6-0141-06

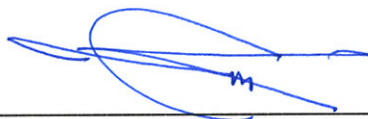
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Table of Contents

1.0	EXECUTIVE SUMMARY	1
2.0	INTRODUCTION.....	3
2.1	Background	3
2.2	Topography and Surface Water	3
2.3	Geology	4
2.4	Groundwater Occurrence	4
2.5	Light Non-Aqueous Phase Liquid	5
3.0	GROUNDWATER SAMPLES AND LABORATORY ANALYSIS.....	6
3.1	BTEX Analysis.....	7
3.2	Dissolved Metals Analysis	8
3.3	General Chemistry Analysis	8
4.0	CONCLUSIONS.....	10
5.0	RECOMMENDATIONS	11

List of Tables

Table 1	Monitor Well Completion and Gauging Summary
Table 2	BTEX Analytical Data Summary
Table 3	Dissolved Metal Analytical Data Summary
Table 4	General Chemistry Analytical Data Summary

List of Figures

Figure 1	Topographic Map
Figure 2	Aerial Photograph
Figure 3	Facility Drawing
Figure 4a	Apparent LNAPL Thickness Map, April 11, 2016
Figure 4b	Apparent LNAPL Thickness Map, December 12-13, 2016
Figure 5a	Groundwater Potentiometric Map, April 11, 2016
Figure 5b	Groundwater Potentiometric Map, December 12-13, 2016
Figure 6a	Benzene Concentration in Groundwater, April 12-13, 2016
Figure 6b	Benzene Concentration in Groundwater, December 13-14, 2016
Figure 7a	Dissolved Metals (Above WQCC Limits) in Groundwater, April 12-13, 2016
Figure 7b	Dissolved Metals (Above WQCC Limits) in Groundwater, December 13-14, 2016
Figure 8a	Chloride Concentration in Groundwater, April 12-13, 2016
Figure 8b	Chloride Concentration in Groundwater, December 13-14, 2016
Figure 9a	Map Showing Sulfate Concentration in Groundwater, April 12-13, 2016
Figure 9b	Map Showing Sulfate Concentration in Groundwater, December 13-14, 2016
Figure 10a	Map Showing TDS Concentration in Groundwater, April 12-13, 2016
Figure 10b	Map Showing TDS Concentration in Groundwater, December 13-14, 2016

List of Appendices

Appendix A	Laboratory Analytical Reports and Chain of Custody Documentation
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1.0 EXECUTIVE SUMMARY

This report presents 2016 groundwater monitoring results for the Empire Abo Gas Plant (Facility) operated by Frontier Field Services, LLC (Frontier) which is a wholly owned subsidiary of AKA Energy Group (AKA). The Facility formerly processed natural gas using cryogenic methods to remove simple alkanes (i.e. ethane, propane, pentane and hexane). Currently the Facility operates as a gathering and boosting station. The Facility is located approximately 9 miles east - southeast of Artesia, in Unit I (NE/4, SE/4), Section 3, Township 18 South, Range 27 East, Eddy County, New Mexico. The geodetic position is north 32° 46' 37.4" and west 104° 15' 32.7".

The following activities occurred during 2016:

- April 11-13, 2016 - first semi-annual groundwater gauging and sampling event
- December 12-14, 2016 - second semi-annual groundwater gauging and sampling event

The following is documented in the report:

- Light non-aqueous phase liquid (LNAPL) in the form of natural gas condensate was observed in 17 wells during the first semi-annual event (April 11-13, 2016) and 18 wells during the second semi-annual event (December 12 – 14, 2016);
- LNAPL thickness during the first semi-annual event (April 11 – 13, 2016) ranged from about 0.03 feet (MW-11) to 7.81 feet (MW-10);
- LNAPL thickness during the second semi-annual event (December 12 – 14, 2016) ranged from about 0.01 feet (MW-02-06) to greater than 4.00 feet (MW-02-10);
- Localized groundwater mounding is present in the north in the vicinity of the cooling tower and east side of the Facility in the vicinity of the product storage tanks;
- The mounding is reportedly caused by past leakage from the cooling tower basin and discontinuous clay in the subsurface locally causing perched groundwater conditions;
- The mounding causes groundwater to flow radially outward from the Facility;
- The regional groundwater flow direction is to the southeast;
- Dissolved benzene exceeded the New Mexico Water Quality Control Commission (WQCC) human health standard of 0.010 milligrams per liter (mg/L) in groundwater samples from 11 monitoring wells during the first semi-annual event (April 12 - 13, 2016) and 12 monitoring wells during the second semi-annual event (December 13 - 14, 2016);
- Dissolved benzene was reported at 1.86 mg/L (April 12 – 13, 2016) and 1.62 mg/L (December 13 – 14, 2016) in groundwater samples from down gradient well MW-24 indicating down gradient (southeast) plume migration;
- Dissolved arsenic was reported above the WQCC human health standard (0.1 mg/L) in groundwater samples from wells P-01 (0.226 mg/L) on April 12 – 13, 2016 and MW-12 (0.108 mg/L) on December 13 – 14, 2016;
- Dissolved chromium was reported above the WQCC human health standard (0.05 mg/L) in groundwater samples from wells MW-02-03 (0.0599 mg/L), MW-07 (0.0509 mg/L and 0.0946 mg/L) and EB-06 (0.0508 mg/L) during the monitoring period;
- Dissolved selenium was reported above the WQCC human health standard (0.05 mg/L) in groundwater samples from wells MW-02-05 (0.0173 mg/L) and MW-07 (0.0642 mg/L and 0.115 mg/L) during the monitoring period;
- Chloride, sulfate and TDS are highest near the northwest corner of the Facility in the area of groundwater mounding and likely due to dissolution of minerals, predominantly gypsum, from

the Tansill formation resulting from a past leak in the cooling tower basin with migration to the north and northeast in the direction of localized groundwater flow;

- Sulfate and TDS are naturally elevated due to dissolution of minerals, predominately gypsum, in the Tansill formation.

Frontier will continue groundwater monitoring during 2017 and submit the results in an annual report. Frontier will notify the OCD at least 48 hours prior to the annual monitoring events, and as soon as possible upon any significant change in analyte concentrations.

2.0 INTRODUCTION

This report presents 2016 groundwater monitoring results for the Empire Abo Gas Plant (Facility) operated by Frontier Field Services, LLC (Frontier), a wholly owned subsidiary of AKA Energy Group (AKA). The Facility is located approximately 9 miles east-southeast of Artesia, in Eddy County, New Mexico. The legal description is Unit I (NE/4, SE/4), Section 3, Township 18 South, Range 27 East. The geodetic position is North 32° 46' 33.7" and West 104° 15' 37.22". Figure 1 presents the location on a topographic map. Figure 2 presents an aerial photograph. Figure 3 presents a Facility drawing.

2.1 Background

The Facility was a natural gas processing plant that formerly utilized cryogenic processes to remove simple alkanes (i.e. ethane, propane, pentane and hexane) from natural gas. Currently the Facility operates as a natural gas gathering and boosting station. The Facility previously operated under New Mexico Water Quality Control Commission (WQCC) discharge permit GW-022 administered by OCD. The permit was cancelled by OCD following completion of a questionnaire ("Oil & Gas Facilities Questionnaire for Determination of a WQCC Discharge Permit") by Frontier stating that the Facility did not have intentional discharges other than potable water onto the ground or directly into surface or groundwater. The OCD issued case number AP-112 for remediation of groundwater contamination and requested Frontier to submit an abatement plan for groundwater contamination. An abatement plan was submitted to the OCD on January 15, 2013. Implementation of the groundwater abatement plan was contingent on approval from the Office of the State Engineer (OSE) to extract groundwater and permitting, installation and start-up of a disposal (SWD or AGI) well. On March 8, 2013, the OSE approved Frontier's request to extract the groundwater. Consideration for an SWD or AGI well is currently under review by Frontier management.

Previous investigations at the Facility have identified light non-aqueous phase liquid (LNAPL) on groundwater and dissolved benzene in groundwater resulting from release of natural gas condensate from subsurface piping. The LNAPL and dissolved benzene are present in five (5) areas including the northeast, west-central, east-central, southwest, and southeast areas of the Facility. The groundwater contains naturally elevated concentrations of sulfate and total dissolved solids (TDS) that exceed the WQCC domestic water quality standards of 600 and 1,000 milligrams per liter (mg/L), respectively.

2.2 Topography and Surface Water

The surface elevation is approximately 3,550 feet above mean sea level (MSL) and slopes to the southeast. The Facility is located approximately 3.4 miles east-northeast of the Pecos River. The nearest drainage is an unnamed wash located west of the Facility. The unnamed wash flows south to Scoggins Draw (aka Coggins Draw on some early maps) about 1,300 feet south of the Facility. Scoggins Draw flows southwest to ephemeral Chalk Bluff Draw located about three (3) miles downstream. Chalk Bluff Draw flows to the Pecos River located about 1.8 miles further downstream.

When comparing the elevation of Scoggins Draw and the depth to groundwater from the nearest monitoring wells (P-04, EB-07 and EB-01), depth to groundwater is estimated to be about 25 or more feet below the drainage. This watercourse is a losing stream without groundwater affecting surface water or discharging to the surface. There are no documented springs, seeps or marshes within 1-mile of the outside perimeter of the Facility. Figure 1 presents a topographic map.

2.3 Geology

The dominant regional feature is the Pecos Slope, a broad geologic structure with a low eastward dip of about 50 to 100 feet per mile. The western extents of the Pecos Slope are the Mescalero Arch, and Sacramento and Guadalupe uplift structural divides (Kelley, 1971). The eastern extents of the Pecos Slope are the Delaware and Midland Basins. This Pecos Slope is a monocline that is imprinted with other structural features, including the southern flank of the Artesia-Vacuum Arch, which reflects the underlying ABO reef trend.

The Artesia-Vacuum Arch extends from beneath the Pecos Valley fill to the west, extending through Townships 17 through 19 south, eastward to Range 35 East in Lea County (Kelley, 1971). The arch is covered by post-Permian strata, except in a four to five mile stretch near Chalk Bluff Draw. In the vicinity of the Facility, the plunging south limb of Yates and Tansill Formations dips about 4° South 47° East. Brittle deformation of the Artesia Group members caused fractures that are subject to dissolution by groundwater interaction.

The lowest encountered formation at the Facility is the Permian-age Yates formation of the Artesia Group. The Yates formation is named for the Yates oilfield in Pecos County, Texas, and has wide aerial extent in both surface exposures and subsurface wells samples. The Yates formation is approximately 250 to 350 feet thick and is documented as siltstone north of Roswell, New Mexico, as carbonate and evaporites west and northwest of Carlsbad, and as gypsum north of Lake McMillan to near Roswell (the vicinity of the Facility). At the Facility it appears as red mudstone/shale/clay reported at the base of monitor well borings is the top of the Yates formation.

Above the Yates formation is the Tansill formation of the Artesia Group. The type section of the Tansill formation is found along US Highway 285 about two (2) miles north of Carlsbad and is reported to be predominantly dolomite. The reef shelf margin is about 300 – 325 feet thick (Kelley, 1971), however, this facies gives way to an evaporite facies about ten (10) miles north of the type section. In the vicinity of the Facility the Tansill Formation is part of a irregularly shaped north-trending belt that is generally less than a mile wide and comprised of anhydrite and salt about 100 feet thick. At the Facility the anhydrite, gypsum and salts of the Tansill formation appear to be the bulk of the strata encountered in monitor wells and borings.

2.4 Groundwater Occurrence

The historic groundwater flow direction is towards the south-southwest consistent with the surface drainage (Hendrickson and Jones, 1952). During investigations, LAI observed groundwater mounding under the north-central and east-central areas of the Facility which has affected the groundwater flow direction. Current groundwater potentiometric maps depict groundwater movement south of the mound moving towards the east and southeast, while groundwater to the north of the mounds appears to be moving towards the north and northeast. The mounding may be due in part to perched water in shallow discontinuous clay and silty-clay units.

Groundwater occurs in the Tansill formation. The base of the water-bearing strata is interpreted as the red shale between approximately 3,525.08 feet above mean sea level (MSL) in monitoring well MW-02-02 located in the area of groundwater mounding near the north central area of the Facility to 3,453.97 feet AMSL in well EB-07 located southeast of the Facility.

Depth to groundwater was measured in 55 monitoring wells on April 11, 2016 and December 12-13, 2016. The measurements were collected at the top of the PVC well casing with an electronic oil and water interface probe that was decontaminated between wells with a solution of Alconox® detergent and water and rinsed with distilled water.

Groundwater elevations in the more peripheral monitor wells remained relatively stable with seasonal fluctuation of not more than a few feet between April 2016 and December 2016. On April 11, 2016, groundwater was observed between approximately 5.61 (MW-07) and 114.72 (MW-16) feet bgs. Shallow groundwater was observed within the facility operation area where the area is underlain by laterally discontinuous clay and silty clay and where water line leaks were discovered and repaired. The deepest groundwater occurs in well MW-16 located north of the Facility. Similar results were observed on December 12 - 13, 2016, when the groundwater fluctuated between 8.88 (MW-07) and 115.30 (MW-16) feet bgs. Table 1 presents a summary of monitoring well gauging data. Figure 4A and Figure 4b present apparent LNAPL thickness maps for April 11, 2016 and December 12 – 13, 2016 respectively. Figure 5a and Figure 5b present groundwater potentiometric maps for April 11, 2016 and December 12 – 13, 2016, respectfully.

Mounding caused by past leakage from the cooling tower basing caused mounded groundwater in the north central area of the Facility. Clay in the shallow subsurface causes perched groundwater conditions near the east central area of the Facility. The mounding and perched groundwater causes groundwater to flow away from the Facility.

The following monitoring wells were dry during 2016:

Well ID	April 11, 2016	December 12-13, 2016
MW-02-07	✓	✓
EB-01	✓	✓
EB-04	✓	✓
P-04	✓	✓
P-05	✓	✓

2.5 Light Non-Aqueous Phase Liquid

Light non-aqueous phase liquid (LNAPL) in the form of natural gas condensate was observed in 17 monitoring wells during the first semi-annual event (April 11, 2016) and in 18 monitoring wells during the second semi-annual event (December 12 – 13, 2016). LNAPL was observed in monitoring wells located near the west central (MW-02-09, MW-02-13, MW-02-14, MW-03-01, MW-09, MW-10, MW-11 and MW-06), southwest (MW-02-15, MW-02-16, MW-03-02 and MW-19), east central (MW-02-10, MW-04 and MW-21), northeast (MW-03-04), east (EB-08) and southeast (EB-03) areas of the Facility.

On April 11, 2016 the apparent LNAPL thickness ranged from approximately 0.03 (MW-11) to 7.81 feet (MW-10). On December 12 - 13, 2016, the apparent LNAPL thickness ranged from approximately 0.01 (MW-02-06) to greater than 4.00 feet (MW-02-10).

The following monitoring wells reported LNAPL during 2016:

Well ID	April 11, 2016	December 12-13, 2016
MW-02-06		✓

Well ID	April 11, 2016	December 12-13, 2016
MW-02-09	✓	✓
MW-02-10	✓	✓
MW-02-13	✓	✓
MW-02-14	✓	✓
MW-02-15		✓
MW-02-16		✓
MW-03-01	✓	✓
MW-03-02	✓	✓
MW-03-04	✓	✓
MW-04	✓	✓
MW-06	✓	✓
MW-09	✓	✓
MW-10	✓	✓
MW-11	✓	
MW-13		
MW-19	✓	✓
MW-21	✓	✓
EB-03	✓	✓
EB-08	✓	✓

Table 1 presents a summary of apparent LNAPL thickness measurements. Figures 4a and 4b present apparent LNAPL thickness maps for April 11, 2016 and December 12 - 13, 2016, respectively.

3.0 GROUNDWATER SAMPLES AND LABORATORY ANALYSIS

Groundwater samples were collected from 31 monitoring wells during the first semi-annual event on April 12 - 13, 2016, and from 30 wells during the second semi-annual event on December 13 - 14, 2016. Samples were not collected from wells with measured LNAPL. Eight monitoring wells had insufficient water for sample collection or were dry for at least one monitoring event in 2016.

The groundwater samples were collected after removing approximately three (3) well volumes of groundwater or purging dry with dedicated disposable polyethylene bailers or pumping with an electric submersible pump and dedicated tubing. The samples were carefully transferred to laboratory containers that were labeled, sealed with custody labels, packed in an ice filled chest and delivered under chain of custody control to DHL Analytical, Inc. (DHL), a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory, located in Round Rock, Texas. All samples for metals analysis were filtered by the laboratory to exclude particles larger than 0.45 micron (μ) and acidified with nitric acid within 24-hours of collection. DHL analyzed the samples for benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA SW-846 Method 8021B, dissolved RCRA and common soluble metals (arsenic, barium, cadmium, calcium, chromium, lead, magnesium, potassium, selenium, silver, sodium) by Methods SW-6020A and 7470A (December 2015), anions (chloride and sulfate), alkalinity (as calcium carbonate) and total dissolved solids (TDS) by Methods E-300, M2320B and M2540, respectively. Purge water was contained in a portable tank and discharged to the Facility's process water system for disposal in an offsite OCD permitted Class II injection well. Table 2 presents the BTEX analytical data summary. Table 3 presents the dissolved RCRA metals analytical data summary. Table 4

presents the general chemistry, including common anions, common cations and TDS analytical data summary. The laboratory analytical reports are presented in Appendix A.

Two wells presented additional challenges for the monitoring event of December 13 - 14, 2016. EB-06 was installed with 1" tubing, necessitating purging and sampling using a 1" disposable polyethylene bailer. While sampling the well the top of the bailer became disconnected from the bailer itself, and was trapped downhole. Plans are being developed to retrieve the remaining portion of the bailer during the next sampling event. MW-13 is typically gauged as containing water, but previous attempts to sample have been unsuccessful. During the monitoring event on December 13 - 14, 2016 a weighted bailer was used to obtain a sample of the well contents. MW-13 contained a chalky white solid, indicating that the well was dry although the monitor indicated that the well contained water.

3.1 BTEX Analysis

All benzene values represent dissolved-phase concentrations that are well below the solubility limit of 1,770 milligrams per liter (mg/L). Dissolved benzene exceeded the New Mexico Water Quality Control Commission (WQCC) human health standard of 0.01 mg/L in samples from 11 wells each during the 2016 monitoring events on April 12 - 13, 2016 and December 13 - 14, 2016. Benzene was reported above the WQCC human health standard (0.01 mg/L) in down gradient well MW-24 during April 12 - 13, 2016 (1.86 mg/L) and December 12 - 13, 2016 (1.62 mg/L) indicating down gradient (southeast) migration.

April 2016 BTEX Results

The following samples were reported with benzene concentrations above the WQCC human health standard of 0.01 mg/L:

- MW-02-11 (24.8 mg/L)
- MW-02-15 (1.09 mg/L)
- MW-02-16 (8.22 mg/L)
- MW-02-18 (15.9 mg/L)
- MW-03 (1.90 mg/L)
- MW-03-03 (2.72 mg/L)
- MW-07 (10.0 mg/L)
- MW-14 (0.156 mg/L)
- MW-20 (0.0471 mg/L)
- MW-22 (17.7 mg/L)
- MW-24 (1.86 mg/L)

Figure 6a presents a map of dissolved benzene concentrations in groundwater on April 12 - 13, 2016.

Toluene, methylbenzene and xylenes were reported below the WQCC human health standards in groundwater samples collected on April 12 - 13, 2016.

December 2016 BTEX Results

The following samples were reported with benzene concentrations above the WQCC human health standard of 0.01 mg/L:

- MW-02-07 (5.07 mg/L)
- MW-02-11 (31.6 mg/L)
- MW-02-12 (0.178 mg/L)
- MW-02-18 (15.3 mg/L)
- MW-03 (4.80 mg/L)
- MW-07 (7.90 mg/L)
- MW-14 (0.0163 mg/L)
- MW-20 (5.88 mg/L)
- MW-22 (5.88 mg/L)
- MW-23 (0.0274 mg/L)

- MW-03-03 (2.74 mg/L)
- MW-24 (1.62 mg/L)

Figure 6b presents a concentration map of dissolved benzene concentrations in groundwater samples on December 13 - 14, 2016.

Toluene exceeded the WQCC human health standard (0.75 mg/L) in well MW-02-07 (0.854 mg/L) during the December 2016 monitoring event. Ethylbenzene and xylenes were below the WQCC human health standards in groundwater samples collected during the December 2016 monitoring event.

3.2 Dissolved Metals Analysis

On April 12 – 13, 2016, groundwater samples were analyzed for dissolved (filtered) metals and reported arsenic above the WQCC human health standard (0.1 mg/L) in P-01 (0.226 mg/L), chromium above the WQCC human health standard (0.05 mg/L) in MW-02-03 (0.0599 mg/L), MW-07 (0.0599 mg/L) and EB-06 (0.0508 mg/L), and selenium above the WQCC human health standard (0.05 mg/L) in MW-02-05 (0.0173 mg/L) and MW-07 (0.0642 mg/L). Figure 7a presents the map of dissolved metal concentrations above WQCC standards during the April 2016 monitoring event.

On December 13 – 14, 2016, groundwater samples were analyzed for dissolved metals and reported arsenic above the WQCC human health standard (0.1 mg/L) in MW-12 (0.108 mg/L), chromium above the WQCC human health standard (0.05 mg/L) in MW-07 (0.0946 mg/L), and selenium above the WQCC human health standard (0.05 mg/L) in MW-07 (0.113 mg/L). These results are consistent with previous sampling events. The remaining metals were below the WQCC human health standards during the 2016 monitoring events. Figure 7b presents the map of dissolved metal concentrations above WQCC standards during the December 2016 monitoring event.

3.3 General Chemistry Analysis

Sulfate and TDS are naturally occurring and reported at concentrations above the WQCC domestic water quality standards of 600 and 1,000 mg/L. The naturally occurring sulfate and TDS is due to dissolution of gypsum in the Tansill formation. Chloride is variable in concentration and exceeded the WQCC domestic water quality standard of 250 mg/L in eight (8) wells during April 2016 and seven (7) wells during December 2016. Chloride, sulfate, and TDS concentrations over time have very similar trends and do not appear to consistently increase or decrease in any particular well. Dissolution of gypsum from a leak in the cooling tower basin is suspected as the source for elevated chloride, sulfate and TDS near the northwest corner of the Facility, where sulfate and TDS occur in the range of 250,000-300,000 ppm and 500,000-550,000 ppm respectively. Typical sulfate and TDS values in groundwater are in the range of 1,000-2,000 ppm and 2,000-5,000 ppm respectively. Mounded groundwater caused the elevated sulfate, chloride and TDS to migrate north in the direction of groundwater flow. Wells MW-18 and P-01 also contained elevated levels of sulfate, TDS, and chloride which could indicate migration of contaminated water off to the west.

April 2016 Results

Chloride – The following samples were reported with chloride concentrations above the WQCC domestic water quality standard of 250 mg/L:

- MW-02-02 (11,200 mg/L)
- MW-02-05 (6,540 mg/L)
- MW-02-15 (691 mg/L)
- MW-03-03 (316 mg/L)
- MW-08 (329 mg/L)
- MW-15 (2,220 mg/L)
- MW-16 (386 mg/L)
- MW-18 (584 mg/L)

The chloride plume migrates north in the direction of groundwater flow. The elevated chloride concentrations in MW-14, MW-02-15, MW-18, and MW-03-03 appear to be the result of local groundwater chemistry and unrelated to a wider trend, based on the lower chloride concentrations in nearby wells. Figure 8a presents an isopleths map of chloride concentrations in groundwater on April 12 - 13, 2016.

Sulfate – All sulfate concentrations exceeded the WQCC domestic water quality standard of 600 mg/L and ranged from 1,270 mg/L (MW-03) to 392,000 mg/L (MW-02-05). Sulfate is naturally elevated from dissolution of minerals, principally gypsum, in the Tansill formation. The sulfate concentrations in samples from MW-02-02 (348,000 mg/L) and MW-02-05 (392,000 mg/L) are likely the result of dissolution of minerals in the Tansill formation caused by a past leak in the cooling tower basin. The sulfate plume migrates north in the direction of localized groundwater flow. A second plume of elevated sulfate is visible in the southeast corner of the Facility, between MW-12 and MW-20. The actual concentrations in these wells are not notably higher than those of surrounding wells and this may be attributed to natural groundwater chemistry. Sulfate concentrations are notably elevated above the background concentration only in the northbound plume and in P-01. Wells east from P-01 contain product which makes them unfeasible for sampling. Figure 9a presents an isopleth map of sulfate concentrations in groundwater on April 12 - 13, 2016.

TDS – All TDS concentrations exceeded the WQCC domestic water quality standard of 1,000 mg/L and ranged from 2,750 mg/L (MW-07) to 592,000 mg/L (MW-02-05). The TDS is the result of dissolution of minerals, principally gypsum, in the Tansill formation. The TDS concentration in samples from wells MW-02-02 (583,000 mg/L) and MW-02-05 (592,000 mg/L) are likely the result of dissolution of minerals in the Tansill formation caused by a past leak in the cooling tower basin. The TDS plume migrates north in the direction of localized groundwater flow. No additional plumes of high or low TDS are visible on this map. Many of the wells inside the Facility contain product which makes them unfeasible for sampling, so a second plume may be responsible for the elevated TDS in P-01. Figure 10a presents an isopleth map of TDS concentrations in groundwater on April 12 - 13, 2016.

December 2016 Results

Chloride – The following samples exhibited chloride concentrations above the WQCC domestic water quality standard of 250 mg/L during December 2016:

- MW-02-02 (12,800 mg/L)
- MW-02-05 (6,860 mg/L)
- MW-08 (325 mg/L)
- MW-15 (1,520 mg/L)
- MW-16 (365 mg/L)
- MW-18 (617 mg/L)

The chloride plume migrates north in the direction of groundwater flow. The chloride concentration is notably elevated the wells overlaying the plume (MW-02-02, MW-02-05, and MW-15), and in MW-18.

The elevated chloride concentration in MW-18 appears to be the result of local groundwater chemistry and is unrelated to any plume, based on the concentrations of nearby wells. Figure 8b presents an isopleths map for observed chloride concentrations in groundwater on December 13 - 14, 2016.

Sulfate – All sulfate concentrations exceeded the WQCC domestic water quality standard of 600 mg/L and ranged from 1,120 mg/L (MW-03-03) to 280,000 mg/L (MW-02-05). The sulfate is naturally elevated from dissolution of minerals, principally gypsum, in the Tansill formation. The sulfate concentration in samples from wells MW-02-02 (276,000 mg/L) and MW-02-05 (280,000 mg/L) are likely the result of dissolution of minerals in the Tansill formation caused by a past leak in the cooling tower basin. The sulfate plume migrates north in the direction of localized groundwater flow. Outside of the wells inside the plume (MW-02-02, MW-02-05 and MW-15) sulfate is only notably elevated in P-01. Wells east from P-01 contain product which makes them unfeasible for sampling, so it is unknown whether the concentration in P-01 is the result of a plume. Figure 9b presents an isopleth map of sulfate concentrations in groundwater on December 13 - 14, 2016.

TDS – All TDS concentrations exceeded the WQCC domestic water quality standard of 1,000 mg/L and ranged from 2,770 mg/L (MW-02 and P-03) to 547,000 mg/L (MW-02-02). The TDS is naturally elevated from dissolution of minerals, principally gypsum, in the Tansill formation. The TDS concentrations in groundwater samples from MW-02-02 (547,000 mg/L) and MW-02-05 (519,000 mg/L) are likely the result of dissolution of minerals in the Tansill formation caused by a past leak in the cooling tower basin. The TDS plume migrates north in the direction of localized groundwater flow. Outside of the wells inside the plume (MW-02-02, MW-02-05 and MW-15) sulfate is only notably elevated in P-01. Wells east from P-01 contain product which makes them unfeasible for sampling, so it is unknown whether the concentration in P-01 is the result of a plume. Figure 10b presents an isopleth map showing TDS concentrations in groundwater samples on December 13 - 14, 2016.

4.0 CONCLUSIONS

The following observations are documented in this report:

- Groundwater is mounded beneath the Facility in at least two areas, which causes groundwater to flow in a radial pattern. The mounding is caused by shallow groundwater perched on laterally discontinuous clay and silty clay;
- The regional groundwater flow direction is from northwest to southeast, therefore, monitoring well EB-06 has typically been used as the up-gradient monitoring well. During the sampling of EB-06 the disposable bailer malfunctioned and blocked the wellbore. MW-17 was used as replacement background well as it has no product present in the wellbore and is effectively up gradient (i.e. received little flow from) of the groundwater under the Facility.
- Groundwater mounding observed in MW-24 merged with mounding observed in the east of the Facility. Mounding was also present in the north of the Facility.
- LNAPL was observed in 17 wells during the first semi-annual monitoring event (April 11, 2016) and 18 wells during the second semi-annual monitoring event (December 12 - 13, 2016) with apparent LNAPL thickness ranging from approximately 0.01 (MW-02) to 7.81 feet (MW-10). LNAPL is most prevalent near the west central area of the Facility;
- Dissolved benzene exceeded the WQCC human health standard (0.01 mg/L) in groundwater samples from 11 monitoring wells during the first (April 12 – 13, 2016) and 13 wells during the second (December 13 – 14, 2016) monitoring events and ranged in concentrations from 0.0156 mg/ L (MW-14) to 24.8 mg/L (MW-02-11);

- Arsenic exceeded the WQCC human health standard (0.1 mg/L) in groundwater from wells P-01 (0.226 mg/L) during the April 2016 event and MW-12 (0.108 mg/L) during the December 2016 event;
- Chromium exceeded the WQCC human health standard (0.05 mg/L) in groundwater samples from wells (MW-02-03 (0.0599 mg/L), MW-07 (0.0599 mg/L) and EB-06 (0.0508 mg/L) during April 2016 and well MW-07 (0.0946 mg/L) during the December 2016 event; and
- Chloride, sulfate and TDS were elevated in groundwater in the vicinity of the cooling tower near the north side of the Facility. The elevated chloride, sulfate and TDS are attributed to dissolution of minerals in the Tansil formation caused by a past leak in the concrete basin of the cooling tower. The elevated chloride, sulfate and TDS migrate to the north and northeast in the direction of localized groundwater flow caused by groundwater mounding beneath central area of the plant.

5.0 RECOMMENDATIONS

Frontier will continue monitoring groundwater on a semi-annual (twice yearly) schedule during 2017. The laboratory results will be reported to the OCD in an annual report to be submitted during the first quarter 2017. Frontier will notify the OCD at least 48 hours prior to the annual monitoring events, and as soon as possible upon any significant change in analyte concentrations.

Tables

Table 1
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Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well Information								Groundwater Data				
Well ID	Date Drilled	Total Depth (TOC)	Well Dia. (Inches)	Surface Elevation (AMSL)	Screen Interval (BGS)	Casing Stickup (Feet)	TOC Elevation (AMSL)	Date Gauged	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Corrected Water Elevation (AMSL)
MW-1								Plugged				
MW-2	12/29/1991	37.88	4	3,545.3	19 - 34	2.89	3,548.19	5/20/2013	--	34.00	--	3,514.19
								10/15/2013	--	34.05	--	3,514.14
								5/14/2014	--	34.00	--	3,514.19
								10/14/2014	--	34.05	--	3,514.14
								4/21/2015	--	34.05	--	3,514.14
								12/8/2015	--	34.10	--	3,514.09
								4/11/2016	--	34.06	--	3,514.13
								12/12/2016	--	34.06	--	3,514.13
MW-02-01								Plugged				
MW-02-02	10/6/1992	48.65	4	3,549.3	35 - 45	2.96	3,552.26	5/20/2013	--	26.91	--	3,525.35
								10/15/2013	--	27.00	--	3,525.26
								5/14/2014	--	27.22	--	3,525.04
								10/14/2014	--	27.20	--	3,525.06
								4/21/2015	--	26.96	--	3,525.30
								12/8/2015	--	27.20	--	3,525.06
								4/11/2016	--	27.18	--	3,525.08
								12/12/2016	--	27.06	--	3,525.20
MW-02-03	9/28/1992	108.50	4	3,553.0	95 - 105	3.03	3,556.03	5/20/2013	--	77.55	--	3,478.48
								10/15/2013	--	79.00	--	3,477.03
								5/14/2014	--	81.11	--	3,474.92
								10/14/2014	--	79.12	--	3,476.91
								4/21/2015	--	79.65	--	3,476.38
								12/8/2015	--	79.95	--	3,476.08
								4/11/2016	--	80.03	--	3,476.00
								12/12/2016	--	89.50	--	3,466.53
MW-02-04	9/30/1992	61.60	4	3,550.9	45 - 55	2.89	3,553.79	5/20/2013	--	51.45	--	3,502.34
								10/15/2013	--	51.00	--	3,502.79
								5/14/2014	--	52.80	--	3,500.99
								10/14/2014	--	48.58	--	3,505.21
								4/21/2015	--	50.70	--	3,503.09
								12/8/2015	--	52.30	--	3,501.49
								4/11/2016	--	52.58	--	3,501.21
								12/12/2016	--	53.00	--	3,500.79
MW-02-05	10/6/1992	52.31	4	3,549.9	40 - 50	2.79	3,552.69	5/20/2013	--	27.45	--	3,525.24
								10/15/2013	--	27.60	--	3,525.09
								5/14/2014	--	27.90	--	3,524.79
								10/14/2014	--	27.90	--	3,524.79
								4/21/2015	--	27.62	--	3,525.07
								12/8/2015	--	27.80	--	3,524.89
								4/11/2016	--	27.82	--	3,524.87
								12/12/2016	--	28.71	--	3,523.98
MW-02-06	9/29/1992	23.90	4	3,548.3	11 - 21	2.52	3,550.82	5/20/2013	19.25	19.30	0.05	3,531.55*
								10/15/2013	10.55	11.00	0.45	3,540.13*
								5/14/2014	20.50	20.85	0.35	3,530.22*
								10/14/2014	11.75	12.20	0.45	3,538.94*
								4/21/2015	18.30	18.60	0.30	3,532.43*
								12/8/2015	sheen	16.11	--	3,534.71
								4/11/2016	sheen	15.79	--	3,535.03
								12/12/2016	17.65	17.66	0.01	3,533.17
and reproducible with multiple probes												
MW-02-07	10/5/1992	63.80	4	3,544.2	53 - 63	2.80	3,547.00	5/20/2013	--	58.00	--	3,489.00
								10/15/2013	--	60.40	--	3,486.60
								5/14/2014	--	61.70	--	3,485.30

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								10/14/2014	--	59.05	--	3,487.95
								4/21/2015	--	62.00	--	3,485.00
								12/8/2015	--	DRY	--	--
								4/11/2016	--	DRY	--	--
								12/12/2016	--	61.95	--	3,485.05
MW-02-09	10/7/1992	43.97	4	3,543.5	30 - 40	3.02	3,546.52	5/20/2013	34.00	38.45	4.45	3,511.19
								10/15/2013	34.55	37.70	3.15	3,511.03
								5/14/2014	34.60	39.15	4.55	3,510.56
								10/14/2014	34.82	38.90	4.08	3,510.48
								4/21/2015	34.92	38.80	3.88	3,510.44
								12/8/2015	35.70	37.90	2.20	3,510.16
								4/11/2016	35.35	36.81	1.46	3,510.73
								12/13/2016	35.70	38.65	2.95	3,509.94
MW-02-10	9/29/1992	72.90	4	3,545.4	65 - 75	3.00	3,548.40	5/20/2013	63.96	**	>10	--
								10/15/2013	66.1	72.4	6.30	3,480.41*
								5/14/2014	68.35	>72.9	>4.55	<3,475.50
								10/14/2014	64.72	>72.9	>8.15	<3,475.50
								4/21/2015	67.25	>72.9	>5.65	<3,475.50
								12/8/2015	67.05	>72.9	>5.85	<3,475.50
								4/11/2016	67.47	>72.9	>5.43	<3,475.50
								12/12/2016	68.9	>72.9	>4.00	<3,472.70
MW-02-11	9/29/1992	23.42	4	3,544.0	10 - 20	2.79	3,546.79	5/20/2013	21.78	21.90	0.12	3,524.97*
								10/15/2013	18.25	18.30	0.05	3,528.52*
								5/14/2014	22.45	22.50	0.05	3,523.64*
								10/14/2014	17.29	17.35	0.06	3,528.80*
								4/21/2015	--	19.54	--	3,527.25
								12/8/2015	--	18.80	--	3,527.99
								4/11/2016	--	20.59	--	3,526.20
								12/12/2016	--	21.00	--	3,525.79
MW-02-12	10/1/1992	85.85	4	3,540.3	70 - 80	3.02	3,543.32	5/20/2013	--	66.84	--	3,476.48
								10/15/2013	--	67.80	--	3,475.52
								5/14/2014	--	70.00	--	3,473.32
								10/14/2014	--	67.25	--	3,476.07
								4/21/2015	--	68.10	--	3,475.22
								12/8/2015	--	68.25	--	3,475.07
								4/11/2016	--	68.42	--	3,474.90
								12/12/2016	--	69.10	--	3,474.22
MW-02-13	10/7/1992	50.05	4	3,542.7	36 - 46	2.89	3,545.59	5/20/2013	43.80	47.42	3.62	3,500.70
								10/15/2013	43.82	47.40	3.58	3,500.70
								5/14/2014	45.91	47.38	1.47	3,499.24
								10/14/2014	41.40	47.25	5.85	3,502.44
								4/21/2015	45.00	46.80	1.80	3,500.05
								12/8/2015	44.75	46.90	2.15	3,500.20
								4/11/2016	44.72	47.07	2.35	3,500.17
								12/13/2016	45.30	47.02	1.72	3,499.77
MW-02-14	10/5/1992	78.80	4	3,541.3	63 - 73	3.23	3,544.53	5/20/2013	59.47	60.35	0.88	3,484.80
								10/15/2013	60.15	60.85	0.70	3,484.17
								5/14/2014	61.60	62.20	0.60	3,482.75
								10/14/2014	59.30	61.20	1.90	3,484.66
								4/21/2015	61.25	62.00	0.75	3,483.06
								12/8/2015	61.35	61.70	0.35	3,483.08
								4/11/2016	61.38	61.80	0.42	3,483.02
								12/13/2016	61.31	61.90	0.59	3,483.04

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MW-02-15	10/2/1992	75.95	4	3,540.2	60 - 70	3.09	3,543.29	5/20/2013	--	61.04	--	3,482.25
								10/15/2013	--	61.50	--	3,481.79
								5/14/2014	--	62.75	--	3,480.54
								10/14/2014	--	60.71	--	3,482.58
								4/21/2015	--	62.25	--	3,481.04
								12/8/2015	--	62.21	--	3,481.08
								4/11/2016	--	62.31	--	3,480.98
								12/13/2016	67.31	67.41	0.10	3,475.95
MW-02-16	9/30/1992	86.10	4	3,541.0	70 - 80	3.24	3,544.24	5/20/2013	--	67.25	--	3,476.99
								10/15/2013	--	67.90	--	3,476.34
								5/14/2014	--	70.00	--	3,474.24
								10/14/2014	--	67.58	--	3,476.66
								4/21/2015	--	68.56	--	3,475.68
								12/8/2015	--	68.50	--	3,475.74
								4/11/2016	--	68.66	--	3,475.58
								12/12/2016	72.15	72.89	0.74	3,471.87
MW-02-18	10/7/1992	39.80	4	3,542.7	26 - 36	3.00	3,545.70	5/20/2013	--	20.65	--	3,525.05
								10/15/2013	--	17.15	--	3,528.55
								5/14/2014	--	21.25	--	3,524.45
								10/14/2014	--	15.35	--	3,530.35
								4/21/2015	--	18.35	--	3,527.35
								12/8/2015	--	17.75	--	3,527.95
								4/11/2016	--	19.63	--	3,526.07
								12/12/2016	--	19.95	--	3,525.75
MW-03	12/20/1991	63.30	4	3,552.4	69 - 89	2.90	3,555.30	5/20/2013	--	72.62	--	3,482.68
								10/15/2013	--	75.90	--	3,479.40
								5/14/2014	77.30	77.32	0.02	3,477.99*
								10/14/2014	--	75.12	--	3,480.18
								4/21/2015	--	76.35	--	3,478.95
								12/8/2015	--	76.28	--	3,479.02
								4/11/2016	--	76.60	--	3,478.70
								12/12/2016	--	77.40	--	3,477.90
MW-03-01	5/3/1994	73.40	4	3,539.9	50 - 70	2.66	3,542.56	5/20/2013	--	57.50	--	3,485.06
								10/15/2013	58.10	58.70	0.60	3,484.28
								5/14/2014	59.20	60.70	1.50	3,482.91
								10/14/2014	57.07	57.15	0.08	3,485.47
								4/21/2015	59.65	60.20	0.55	3,482.75
								12/8/2015	59.66	61.00	1.34	3,482.50
								4/11/2016	58.53	58.75	0.22	3,483.96
								12/13/2016	58.26	58.36	0.10	3,484.27
MW-03-02	5/4/1994	105.75	4	3,538.6	60 - 100	2.48	3,541.08	5/20/2013	68.75	69.10	0.35	3,472.23
								10/15/2013	65.80	69.00	3.20	3,474.32
								5/14/2014	69.80	70.40	0.60	3,471.10
								10/14/2014	67.40	68.20	0.80	3,473.44
								4/21/2015	68.75	68.95	0.20	3,472.27
								12/8/2015	68.75	69.20	0.45	3,472.20
								4/11/2016	68.97	69.32	0.35	3,472.01
								12/12/2016	68.65	69.33	0.68	3,472.23
MW-03-03	5/4/1994	85.40	4	3,542.3	55 - 80	2.42	3,544.72	5/20/2013	--	71.30	--	3,473.42
								10/15/2013	--	71.65	--	3,473.07
								5/14/2014	--	72.90	--	3,471.82
								10/14/2014	--	71.30	--	3,473.42

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								4/21/2015	--	71.40	--	3,473.32
								12/8/2015	--	71.70	--	3,473.02
								4/11/2016	--	71.81	--	3,472.91
								12/12/2016	--	72.20	--	3,472.52
MW-03-04	5/4/1994	117.50	4	3,555.7	65 - 110	2.75	3,558.45	5/20/2013	78.12	78.42	0.30	3,480.24
								10/15/2013	81.55	81.95	0.40	3,476.78
								5/14/2014	83.35	84.25	0.90	3,474.83
								10/14/2014	81.80	82.25	0.45	3,476.52
								4/21/2015	82.35	82.55	0.20	3,476.04
								12/8/2015	82.70	82.95	0.25	3,475.68
								4/11/2016	83.43	83.08	0.35	3,475.62
								12/12/2016	83.55	84.20	0.65	3,474.71
MW-04	12/21/1991	62.59	4	3,547.8	45 - 60	3.19	3,550.99	5/20/2013	52.03	52.10	0.07	3,498.94
								10/15/2013	53.25	53.45	0.20	3,497.68
								5/14/2014	57.80	58.30	0.50	3,493.04
								10/14/2014	53.00	53.25	0.25	3,497.92
								4/21/2015	56.90	57.55	0.65	3,493.90
								12/8/2015	53.55	54.20	0.65	3,497.25
								4/11/2016	52.97	53.75	0.78	3,497.79
								12/12/2016	52.86	53.65	0.79	3,497.89
MW-05	12/22/1991	95.30	4	3,540.6	71 - 96	3.17	3,543.77	5/20/2013	--	66.73	--	3,477.04
								10/15/2013	--	67.60	--	3,476.17
								5/14/2014	--	69.70	--	3,474.07
								10/14/2014	--	67.00	--	3,476.77
								4/21/2015	--	68.02	--	3,475.75
								12/8/2015	--	68.20	--	3,475.57
								4/11/2016	--	68.22	--	3,475.55
								12/12/2016	--	68.92	--	3,474.85
MW-06	12/22/1991	76.90	4	3,541.8	30 - 50	2.70	3,544.50	5/20/2013	42.48	46.30	3.82	3,500.87
								10/15/2013	41.68	46.80	5.12	3,501.28
								5/14/2014	44.70	47.00	2.30	3,499.11
								10/14/2014	39.60	43.70	4.10	3,503.67
								4/21/2015	42.80	44.90	2.10	3,501.07
								12/8/2015	43.05	46.45	3.40	3,500.43
								4/11/2016	43.59	46.52	2.93	3,500.03
								12/13/2016	43.78	46.31	2.53	3,499.96
MW-07	12/22/1991	26.35	4	3,546.0	11 - 26	0.49	3,546.49	5/20/2013	--	4.30	--	3,542.19
								10/15/2013	--	8.05	--	3,538.44
								5/14/2014	--	8.10	--	3,538.39
								10/14/2014	--	7.30	--	3,539.19
								4/21/2015	--	7.90	--	3,538.59
								12/8/2015	--	6.00	--	3,540.49
								4/11/2016	--	5.61	--	3,540.88
								12/12/2016	--	8.88	--	3,537.61
MW-08	12/29/1991	88.95	4	3,540.5	69 - 89	3.23	3,543.73	5/20/2013	--	66.07	--	3,477.66
								10/15/2013	--	66.45	--	3,477.28
								5/14/2014	--	68.15	--	3,475.58
								10/14/2014	--	65.95	--	3,477.78
								4/21/2015	--	67.10	--	3,476.63
								12/8/2015	--	67.25	--	3,476.48
								4/11/2016	--	67.36	--	3,476.37
								12/12/2016	--	67.23	--	3,476.50

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MW-09	12/29/1991	75.80	4	3,540.4	52 - 72	2.42	3,542.82	5/20/2013	--	56.50	--	3,486.32
								10/15/2013	57.25	57.55	0.30	3,485.48
								5/14/2014	58.50	59.32	0.82	3,484.07
								10/14/2014	55.90	57.95	2.05	3,486.31
								4/21/2015	58.70	60.80	2.10	3,483.49
								12/8/2015	58.85	59.60	0.75	3,483.75
								4/11/2016	58.47	59.66	1.19	3,483.99
								12/13/2016	58.28	59.74	1.46	3,484.10
MW-10	7/28/2008	53.24	4	3,541.8	15 - 50	2.64	3,544.44	5/20/2013	45.55	51.60	6.05	3,497.08
								10/15/2013	47.55	52.00	4.45	3,495.56
								5/14/2014	50.70	52.30	1.60	3,493.26
								10/14/2014	47.40	51.10	3.70	3,495.93
								4/21/2015	48.05	50.95	2.90	3,495.52
								12/8/2015	48.70	53.00	4.30	3,494.45
								4/11/2016	44.81	52.62	7.81	3,497.29
								12/13/2016	50.40	52.61	2.21	3,493.38
MW-11	7/29/2008	58.98	4	3,540.2	21 - 56	2.53	3,542.73	5/20/2013	--	56.10	--	3,486.63
								10/15/2013	--	57.00	--	3,485.73
								5/14/2014	58.30	58.98	0.68	3484.22*
								10/14/2014	56.00	56.20	0.20	3486.67*
								4/21/2015	58.60	58.98	0.38	3,484.01*
								12/8/2015	58.40	58.98	0.58	3484.15*
								4/11/2016	58.38	58.41	0.03	3,484.34*
								12/13/2016	Sheen	58.33	Sheen	3,484.40
MW-12	7/29/2008	74.11	4	3,522.6	36 - 71	2.65	3,525.25	5/20/2013	--	62.00	--	3,463.25
								10/15/2013	--	61.20	--	3,464.05
								5/14/2014	--	62.78	--	3,462.47
								10/14/2014	--	60.95	--	3,464.30
								4/21/2015	--	59.80	--	3,465.45
								12/8/2015	--	60.45	--	3,464.80
								4/11/2016	--	59.99	--	3,465.26
								12/12/2016	--	60.40	--	3,464.85
MW-13	7/29/2008	88.64	4	3,558.5	50 - 85	2.90	3,561.40	5/20/2013	--	71.88	--	3,489.52
								10/14/2013	--	83.00	--	3,478.40
								5/14/2014	81.10	>88.64	> 7.54	<3,472.76*
								10/13/2014	--	84.65	--	3,476.75
								4/20/2015	--	86.03	--	3,475.37
								12/7/2015	83.00	>88.64	> 5.64	<3,472.76*
								4/11/2016	*	86.03	--	3,474.60
								12/12/2016	--	86.80	--	3,474.60
MW-14	7/30/2008	72.50	4	3,517.7	33 - 68	2.62	3,520.32	5/20/2013	61.52	61.54	0.02	3,458.79*
								10/14/2013	--	60.61	--	3,459.71
								5/14/2014	62.23	62.28	0.05	3,458.08*
								10/13/2014	57.80	60.80	3.00	3,461.62*
								4/20/2015	--	59.55	--	3,460.77
								12/7/2015	sheen	59.50	--	3,460.82
								4/11/2016	--	60.08	--	3,460.24
								12/12/2016	--	59.38	--	3,460.94
MW-15	7/30/2008	80.20	4	3,559.7	42 - 77	2.75	3,562.45	5/20/2013	--	67.30	--	3,495.15
								10/14/2013	--	66.52	--	3,495.93
								5/14/2014	--	67.75	--	3,494.70
								10/13/2014	--	65.65	--	3,496.80
								4/20/2015	--	67.30	--	3,495.15

Table 1
Monitor Well Completion and Gauging Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well Information								Groundwater Data				
Well ID	Date Drilled	Total Depth (TOC)	Well Dia. (Inches)	Surface Elevation (AMSL)	Screen Interval (BGS)	Casing Stickup (Feet)	TOC Elevation (AMSL)	Date Gauged	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Corrected Water Elevation (AMSL)
								12/7/2015	--	64.70	--	3,497.75
								4/11/2016	--	67.26	--	3,495.19
								12/12/2016	--	67.16	--	3,495.29
MW-16	6/24/2009	117.39	4	3,582.6	80 - 115	2.86	3,585.46	5/20/2013	--	111.70	--	3,473.76
								10/14/2013	--	112.30	--	3,473.16
								5/14/2014	--	114.10	--	3,471.36
								10/13/2014	--	113.85	--	3,471.61
								4/20/2015	--	112.45	--	3,473.01
								12/7/2015	--	114.25	--	3,471.21
								4/11/2016	--	114.72	--	3,470.74
								12/12/2016	--	115.30	--	3,470.16
MW-17	6/23/2009	101.60	4	3,568.0	60 - 95	2.84	3,570.84	5/20/2013	--	93.36	--	3,477.48
								10/15/2013	--	93.00	--	3,477.84
								5/14/2014	--	95.61	--	3,475.23
								10/14/2014	--	95.15	--	3,475.69
								4/20/2015	--	95.80	--	3,475.04
								12/7/2015	--	96.45	--	3,474.39
								4/11/2016	--	95.34	--	3,475.50
								12/12/2016	--	96.60	--	3,474.24
MW-18	6/24/2009	56.53	4	3,529.7	33 - 53	2.93	3,532.63	5/20/2013	--	50.95	--	3,481.68
								10/14/2013	Sheen	50.50	--	3,482.13
								5/14/2014	--	51.31	--	3,481.32
								10/13/2014	--	51.79	--	3,480.84
								4/20/2015	--	51.02	--	3,481.61
								12/7/2015	--	52.21	--	3,480.42
								4/11/2016	--	51.57	--	3,481.06
								12/12/2016	--	50.90	--	3,481.73
MW-19	6/17/2009	79.42	4	3,540.6	41 - 76	2.74	3,543.34	5/20/2013	67.10	71.15	4.05	3,475.03
								10/15/2013	67.00	71.10	4.10	3,475.11
								5/14/2014	62.75	73.30	10.55	3,477.43
								10/14/2014	66.50	70.10	3.60	3,475.76
								4/21/2015	66.00	72.45	6.45	3,475.41
								12/7/2015	65.50	68.60	3.10	3,476.91
								4/11/2016	67.24	69.66	2.42	3,475.37
								12/13/2016	65.78	68.00	2.22	3,476.89
MW-20	6/18/2009	79.39	4	3,538.7	41 - 76	2.77	3,541.47	5/20/2013	71.02	71.05	0.03	3,470.44*
								10/15/2013	70.40	70.45	0.05	3,471.05*
								5/14/2014	71.50	72.00	0.50	3469.82*
								10/14/2014	--	69.90	--	3,471.57
								4/21/2015	--	70.90	--	3,470.57
								12/7/2015	sheen	70.71	--	3,470.76
								4/11/2016	--	70.93	--	3,470.54
								12/12/2016	--	71.00	--	3,470.47
MW-21	6/18/2009	81.48	4	3,540.2	43 - 78	2.95	3,543.15	5/20/2013	66.65	67.65	1.00	3,476.20
								10/15/2013	67.40	68.60	1.20	3,475.39
								5/14/2014	69.23	70.50	1.27	3,473.54
								10/14/2014	66.80	67.92	1.12	3,476.01
								4/21/2015	67.55	68.60	1.05	3,475.29
								12/7/2015	67.80	68.80	1.00	3,475.05
								4/11/2016	67.71	68.83	1.12	3,475.10
								12/12/2016	67.80	69.41	1.61	3,474.87
MW-22	6/19/2009	41.07	4	3,542.9	13 - 38	2.97	3,545.87	5/20/2013	--	20.90	--	3,524.97

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Eddy County, New Mexico

Well Information								Groundwater Data				
Well ID	Date Drilled	Total Depth (TOC)	Well Dia. (Inches)	Surface Elevation (AMSL)	Screen Interval (BGS)	Casing Stickup (Feet)	TOC Elevation (AMSL)	Date Gauged	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Corrected Water Elevation (AMSL)
								10/15/2013	--	17.40	--	3,528.47
								5/14/2014	--	21.51	--	3,524.36
								10/14/2014	--	15.55	--	3,530.32
								4/21/2015	Sheen	18.60	--	3,527.27
								12/7/2015		17.95	--	3,527.92
								4/11/2016		19.77	--	3,526.10
								12/12/2016		20.18	--	3,525.69
MW-23	6/19/2009	85.74	4	3,539.2	49 - 84	3.01	3,542.21	5/20/2013	--	72.71	--	3,469.50
								10/14/2013	--	72.72	--	3,469.49
								5/14/2014	--	74.70	--	3,467.51
								10/13/2014	--	72.37	--	3,469.84
								4/20/2015	--	71.98	--	3,470.23
								12/7/2015	--	72.65	--	3,469.56
								4/11/2016	--	72.94	--	3,469.27
								12/12/2016	--	72.95	--	3,469.26
MW-24	9/28/2011	36	2	3,526.9	19 - 33	2.24	3,529.10	5/30/2012	--	29.69	--	3,499.41
								9/24/2012	--	33.00	--	3,496.10
								5/14/2014	--	29.50	--	3,499.60
								10/13/2014	--	21.69	--	3,507.41
								4/20/2015	--	24.92	--	3,504.18
								12/7/2015	--	24.50	--	3,504.60
								4/11/2016	--	24.89	--	3,504.21
								12/12/2016	--	22.10	--	3,507.00
EB-01	3/29/2004	37.05	1	3,491.5	33 - 38	0.65	3,492.15	5/20/2013	--	DRY	--	--
								10/14/2013	--	DRY	--	--
								5/14/2014	--	DRY	--	--
								10/13/2014	--	DRY	--	--
								4/20/2015	--	DRY	--	--
								12/7/2015	--	DRY	--	--
								4/11/2016	--	DRY	--	--
								12/12/2016	--	DRY	--	--
EB-02	3/29/2004	57.47	2	3,522.6	35 - 55	2.74	3,525.34	5/20/2013	Sheen	42.05	--	3,483.29
								10/14/2013	--	42.45	--	3,482.89
								5/14/2014	--	42.72	--	3,482.62
								10/13/2014	--	43.40	--	3,481.94
								4/20/2015	--	43.70	--	3,481.64
								12/7/2015	--	44.16	--	3,481.18
								4/11/2016	--	44.02	--	3,481.32
								12/12/2016	--	44.00	--	3,481.34
EB-03	3/30/2004	69.84	2	3,517.8	46 - 66	3.25	3,521.05	5/20/2013	61.32	61.36	0.04	3,459.72*
								10/14/2013	Sheen	60.78	0.00	3460.27*
								5/14/2014	61.65	61.69	0.04	3459.39*
								10/13/2014	--	58.95	--	3,462.10
								4/20/2015	Sheen	60.75	--	3,460.30
								12/7/2015	60.80	61.60	0.80	3,460.01
								4/11/2016	60.85	61.95	1.10	3,459.87
								12/12/2016	60.80	61.20	0.40	3,460.13
EB-04	3/31/2004	53.91	2	3,505.3	31 - 51	3.08	3,508.38	5/20/2013	Sheen	52.63	--	3,455.75
								10/14/2013	--	52.70	--	3,455.68
								5/14/2014	--	DRY	--	--
								10/13/2014	--	DRY	--	--
								4/20/2015	--	50.81	--	3,457.57
								12/7/2015	--	DRY	--	--

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								4/11/2016 12/12/2016	-- --	DRY DRY	-- --	-- --
EB-05	3/31/2004	57.93	2	3,523.7	44 - 54	2.91	3,526.61	5/20/2013 10/14/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	Sheen -- -- -- -- -- -- --	50.15 49.92 50.65 51.00 50.41 51.10 50.66 50.50	-- -- -- -- -- -- -- --	3,476.46 3,476.69 3,475.96 3,475.61 3,476.20 3,475.51 3,475.95 3,476.11
EB-06	3/31/2004	58.35	1	3,555.6	72 - 82	1.03	3,556.63	5/20/2013 10/14/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	-- Sheen -- -- -- -- -- --	73.45 73.04 73.98 74.70 73.80 75.28 74.76 73.76	-- -- -- -- -- -- -- --	3,483.18 3,483.59 3,482.65 3,481.93 3,482.83 3,481.35 3,481.87 3,482.87
EB-07	4/1/2004	56.08	2	3,501.3	43 - 53	2.67	3,503.97	5/20/2013 10/15/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	-- -- -- -- -- -- -- --	53.92 54.58 DRY 47.90 49.19 50.00 50.00 49.85	-- -- -- -- -- -- -- --	3,450.05 3,449.39 -- 3,456.07 3,454.78 3,453.97 3,453.97 3,454.12
EB-08	4/2/2004	86.22	2	3,533.8	66 - 81	3.27	3,537.07	5/20/2013 10/14/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	71.2 70.9 72.55 69.5 70.0 71.0 71.61 70.6	73.60 73.20 74.90 72.00 71.70 72.10 72.70 71.75	2.40 2.30 2.35 2.50 1.70 1.10 1.09 1.20	3,465.15 3,465.48 3,463.82 3,466.82 3,466.56 3,465.74 3,465.13 3,466.16
P-01	12/29/2005	54.60	2	3,527.9	40 - 50	2.31	3,530.21	5/20/2013 10/14/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	Sheen -- -- -- -- Sheen -- --	50.87 50.85 50.95 50.82 50.93 50.95 50.89 50.85	-- -- -- -- -- -- -- --	3,479.34 3,479.36 3,479.26 3,479.39 3,479.28 3,479.26 3,479.32 3,479.36
P-02	12/27/2005	27.45	2	3,542.3	19.5 - 22.5	2.43	3,544.73	5/20/2013 10/14/2013 5/14/2014 10/13/2014 4/20/2015 12/7/2015 4/11/2016 12/12/2016	-- -- -- -- -- -- -- --	22.70 20.92 22.15 18.80 21.14 20.55 21.44 21.06	-- -- -- -- -- -- -- --	3,522.03 3,523.81 3,522.58 3,525.93 3,523.59 3,524.18 3,523.29 3,523.67
P-03	12/27/2005	78.65	2	3,534.4	58 - 78	2.43	3,536.83	5/20/2013 10/14/2013	-- --	72.72 56.39	-- --	3,464.11 3,480.44

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Well ID	Date Drilled	Total Depth (TOC)	Well Dia. (Inches)	Surface Elevation (AMSL)	Screen Interval (BGS)	Casing Stickup (Feet)	TOC Elevation (AMSL)	Date Gauged	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Corrected Water Elevation (AMSL)
								5/14/2014	--	73.91	--	3,462.92
								10/13/2014	--	40.70	--	3,496.13
								4/20/2015	--	56.65	--	3,480.18
								12/7/2015	--	44.93	--	3,491.90
								4/11/2016	--	52.22	--	3,484.61
								12/12/2016	--	40.50	--	3,496.33
P-04	12/28/2005	61.65	2	3,513.5	51 - 61	2.27	3,515.77	5/20/2013	--	DRY	--	--
								10/14/2013	--	DRY	--	--
								5/14/2014	--	56.80	--	3,458.97
								10/13/2014	--	59.30	--	3,456.47
								4/20/2015	--	60.40	--	3,455.37
								12/7/2015	--	DRY	--	--
								4/11/2016	--	DRY	--	--
								12/12/2016	--	DRY	--	--
P-05	12/28/2005	47.35	2	3,504.9	35 - 45	2.58	3,507.48	5/20/2013	--	47.34	--	3,460.14
								10/14/2013	--	47.30	--	3,460.18
								5/14/2014	--	47.30	--	3,460.18
								10/13/2014	--	47.30	--	3,460.18

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Well Information								Groundwater Data				
Well ID	Date Drilled	Total Depth (TOC)	Well Dia. (Inches)	Surface Elevation (AMSL)	Screen Interval (BGS)	Casing Stickup (Feet)	TOC Elevation (AMSL)	Date Gauged	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Corrected Water Elevation (AMSL)
								4/20/2015	--	47.00	--	3,460.48
								12/7/2015	--	47.14	--	3,460.34
								4/11/2016	--	47.30	--	3,460.18
								12/12/2016	--	47.35	--	3,460.13
<i>Notes: Wells drilled Eades Drilling, Atkins Engineering and Scarborough Drilling. Wells completed with Schedule 40 threaded PVC.</i> All values are in feet, unless otherwise noted. Survey datum based upon NAD 1927/NAVD 1929 BGS - below ground surface TOC - top of casing AMSL: Feet above mean sea level Wells drilled and installed by Alan Eades and Atkins Engineering. Schedule 40 threaded PVC casing and screen set * Groundwater corrected for LNAPL thickness assuming 0.70 specific gravity. ** Emulsion observed in well >Groundwater not observed over entire screen interval												

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
MW-01	Plugged				
MW-02	5/22/2013	<0.0008	<0.002	<0.002	<0.003
	10/17/2013	0.0057	<0.002	<0.002	<0.003
	5/14/2014	Insufficient Water for Sample Collection			
	10/15/2014	<0.0008	<0.002	<0.002	<0.003
	4/23/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/13/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-02-01	Plugged				
MW-02-02	5/23/2013	0.000814	<0.002	<0.002	<0.003
	10/16/2013	0.00104	<0.002	<0.002	<0.003
	5/15/2014	<0.008	<0.02	<0.02	<0.03
	10/15/2014	<0.008	<0.02	<0.02	<0.03
	4/23/2015	<0.020	<0.060	<0.060	<0.090
	12/9/2015	<0.020	<0.060	<0.060	<0.090
	4/13/2016	<0.01	<0.03	<0.03	<0.045
	12/14/2016	<0.0100	<0.0300	<0.0300	<0.0300
MW-02-03	5/23/2013	<0.0008	<0.002	<0.002	<0.003
	10/16/2013	0.00134	<0.002	<0.002	<0.003
	5/15/2014	<0.0008	<0.002	<0.002	<0.003
	10/15/2014	<0.0008	<0.002	<0.002	<0.003
	4/22/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-02-04	5/23/2013	0.00447	0.00212	<0.002	0.00301
	10/16/2013	<0.0008	<0.002	<0.002	<0.003
	5/15/2014	<0.0008	<0.002	<0.002	<0.003
	10/15/2014	<0.00008	<0.002	<0.002	<0.002
	4/22/2015	<0.002	<0.006	<0.006	<0.009
	12/9/2015	<0.002	<0.006	<0.006	<0.009
	4/13/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-02-05	5/23/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/15/2014	<0.008	<0.02	<0.02	<0.03
	10/15/2014	<0.008	<0.02	<0.02	<0.03
	4/23/2015	<0.002	<0.006	<0.006	<0.009
	12/9/2015	<0.002	<0.006	<0.006	<0.009
	4/13/2016	<0.01	<0.03	<0.03	<0.045
	12/14/2016	<0.0100	<0.0300	<0.0300	<0.0300
MW-02-06	5/23/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			

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Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	4/21/2015	LNAPL Present, No Sample Collected			
	12/9/2015	0.721	1.76	<0.300	3.49
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-02-07	5/22/2013	3.19	0.0489	<0.0400	0.0605
	10/15/2013	Insufficient Water for Sample Collection			
	5/15/2014	5.09	0.0742	0.608	0.069
	10/15/2014	5.00	<0.002	0.277	<0.003
	4/23/2015	3.40	<0.300	<0.300	<0.450
	12/8/2015	Dry			
	4/13/2016	Dry			
	12/14/2016	5.09	0.26	0.854	0.148
MW-02-09	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-02-10	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-02-11	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/22/2015	27.3	0.774	<0.120	1.43
	12/9/2015	29.6	0.539	<1.2	0.813
	4/13/2016	24.8	0.0557	<1.2	0.933
	12/13/2016	31.6	0.694	<1.20	0.580
MW-02-12	5/23/2013	0.00172	<0.002	<0.002	<0.003
	10/16/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014	0.00134	<0.002	<0.002	<0.003
	10/15/2014	0.0043	<0.002	<0.002	<0.003
	4/22/2015	<0.002	<0.006	<0.006	<0.009
	12/9/2015	0.0028	<0.006	<0.006	<0.009
	4/13/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	0.1780	<0.00600	<0.00600	<0.00600
MW-02-13	5/20/2013	LNAPL Present, No Sample Collected			

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected			
MW-02-14	5/20/2013 10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected			
MW-02-15	5/22/2013 10/15/2013 5/14/2014 10/15/2014 4/23/2015 12/8/2015 4/13/2016 12/13/2016	0.973 0.376 0.722 0.555 0.576 0.448 1.09	<0.02 <0.002 <0.002 <0.002 0.00539 <0.03 <0.06 LNAPL Present, No Sample Collected	<0.02 <0.002 <0.002 <0.002 0.00295 <0.03 <0.06	<0.03 <0.003 <0.003 <0.003 <0.009 <0.045 <0.09
MW-02-16	5/22/2013 10/16/2013 5/14/2014 10/15/2014 4/22/2015 12/8/2015 4/13/2016 12/13/2016	0.138 0.384 2.22 0.0231 7.98 8.22 3.43	0.002 0.0049 0.148 <0.05 0.715 0.534 0.160 LNAPL Present, No Sample Collected	<0.002 <0.002 0.0656 <0.05 0.836 0.676 0.153	<0.003 <0.003 0.0977 <0.075 0.513 0.900 0.138
MW-02-18	5/23/2013 10/16/2013 5/15/2014 10/15/2014 4/22/2015 12/9/2015 4/13/2016 12/13/2016	19.2 15.5 7.61 8.14 8.24 10.5 15.9 15.3	<0.400 0.335 0.132 <0.2 <0.600 0.291 0.358 0.391	<0.400 0.002 <0.002 <0.2 <0.600 <0.600 <0.600 <0.600	<0.600 0.155 0.0604 <0.3 0.900 0.900 0.900 <0.600
MW-03	5/23/2013 10/16/2013 5/14/2014 10/15/2014 4/22/2015 12/9/2015 4/13/2016	1.30 2.42 2.87 2.52 2.12 1.90	0.318 0.0823 LNAPL Present, No Sample Collected 0.156 0.273 0.19 0.191	0.00501 <0.0200 <0.04 <0.006 <0.120 0.00332	0.271 0.158 0.199 0.296 0.238 0.286

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	12/13/2016	4.80	0.196	<0.120	0.25
MW-03-01	5/22/2013 10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016	32	0.745 LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected	11.5	0.841
MW-03-02	5/20/2013 10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016		LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected		
MW-03-03	5/23/2013 10/16/2013 5/15/2014 10/15/2014 4/22/2015 12/9/2015 4/13/2016 12/13/2016	2.36 1.52 1.58 2.68 2.33 2.52 2.72 2.74	<0.0400 <0.0400 <0.100 <0.1 <0.300 <0.300 <0.300 <0.300	<0.0400 <0.0400 <0.100 <0.1 <0.300 <0.300 <0.300 <0.300	0.0625 <0.0600 <0.150 0.171 0.246 <0.450 0.257 <0.300
MW-03-04	5/20/2013 10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016		LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected		
MW-04	5/20/2013 10/15/2013 5/14/2014 10/14/2014 4/21/2015 12/8/2015 4/13/2016 12/13/2016		LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected		
MW-05	5/22/2013 10/16/2013 5/14/2014 10/15/2014	0.00211 0.0016 <0.0008 <0.0008	<0.002 <0.002 <0.002 <0.002	<0.002 <0.002 <0.002 <0.002	<0.003 <0.003 <0.003 <0.003

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	4/23/2015	<0.002	<0.006	<0.006	<0.009
	12/9/2015	0.0011	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-06	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-07	5/22/2013	14.4	0.207	2.26	<0.300
	10/17/2013	14.6	<0.002	1.20	<0.300
	5/15/2014	9.24	0.102	1.29	0.0954
	10/15/2014	12.7	0.352	2.66	<0.3
	4/23/2015	12.3	<0.600	1.78	<0.900
	12/9/2015	7.26	0.873	1.28	0.655
	4/13/2016	10.0	0.236	<0.6	<0.9
	12/14/2016	7.90	0.270	0.0572	0.193
MW-08	5/22/2013	0.00373	<0.002	0.00218	<0.003
	10/16/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014	<0.0008	<0.002	<0.002	<0.003
	10/15/2014	<0.0008	<0.002	<0.002	<0.003
	4/23/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/13/2016	0.00323	<0.006	<0.006	<0.009
	12/14/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-09	5/22/2013	4.40	0.0448	0.0378	0.216
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-10	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-11	5/20/2013	Insufficient Water for sample			

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	10/15/2013	Insufficient Water for sample			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/8/2015	LNAPL Present, No Sample Collected			
	4/13/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-12	5/22/2013	0.0495	<0.002	<0.002	<0.003
	10/16/2013	1.48	0.0385	<0.002	0.0307
	5/14/2014	<0.0008	<0.002	<0.002	<0.003
	10/15/2014	1.80	<0.2	<0.2	<0.3
	4/22/2015	0.00162	<0.006	<0.006	<0.009
	12/9/2015	0.0122	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	0.0014	<0.00600	<0.00600	<0.00600
MW-13	5/21/2013	2.71	<0.002	<0.002	0.11
	10/14/2013	0.00186	<0.002	<0.002	<0.003
	5/14/2014	LNAPL Present, No Sample Collected			
	10/15/2014	0.600	0.0178	0.00451	0.0258
	4/20/2015	Insufficient Water for sample			
	12/8/2015	Dry			
	4/12/2016	Dry			
	12/13/2016	Dry			
MW-14	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	0.0941	<0.001	<0.001	0.0015
	5/14/2014	LNAPL Present, No Sample Collected			
	10/13/2014	LNAPL Present, No Sample Collected			
	4/21/2015	0.0167	0.0191	<0.006	0.0159
	12/8/2015	0.111	<0.006	<0.006	0.0153
	4/12/2016	0.156	<0.006	<0.006	<0.009
	12/13/2016	0.0163	<0.00600	<0.00600	0.00351
MW-15	5/21/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014	Insufficient Water for Sample Collection			
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-16	5/21/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014	Insufficient Water for Sample Collection			
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-17	5/21/2013	0.0427	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014	Insufficient Water for Sample Collection			
	10/14/2014	<0.002	<0.006	<0.006	0.0248
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-18	5/20/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/13/2014	<0.002	<0.002	<0.002	<0.003
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/14/2016	<0.00200	<0.00600	<0.00600	<0.00600
MW-19	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/7/2015	LNAPL Present, No Sample Collected			
	4/12/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-20	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/15/2014	2.84	0.104	<0.04	<0.06
	4/22/2015	0.665	<0.150	<0.150	<0.225
	12/8/2015	0.556	<0.150	<0.150	<0.225
	4/12/2016	0.471	0.0384	0.0247	<0.09
	12/14/2016	0.521	0.0248	0.0186	0.0118
MW-21	5/20/2013	LNAPL Present, No Sample Collected			
	10/15/2013	LNAPL Present, No Sample Collected			
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	LNAPL Present, No Sample Collected			
	4/21/2015	LNAPL Present, No Sample Collected			
	12/7/2015	LNAPL Present, No Sample Collected			
	4/12/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			
MW-22	5/23/2013	10.2	<0.002	<0.002	<0.003
	10/16/2013	5.48	<0.002	<0.002	<0.003
	5/15/2014	5.21	<0.200	<0.200	<0.300
	10/15/2014	8.81	0.27	<0.2	<0.2

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	4/22/2015	4.48	<1.2	<1.2	<1.8
	12/9/2015	3.54	<1.2	<1.2	<1.2
	4/13/2016	17.7	0.36	<0.6	<0.9
	12/13/2016	5.88	<0.600	<0.600	<0.600
MW-23	5/21/2013	0.0234	<0.002	<0.002	<0.003
	10/16/2013	0.00599	<0.002	<0.002	<0.003
	5/13/2014	0.0875	<0.002	<0.002	<0.003
	10/14/2014	0.160	0.00433	<0.0060	0.0409
	4/21/2015	0.0645	0.00215	<0.006	0.00304
	12/8/2015	0.009	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	0.0274	<0.00600	<0.00600	<0.00600
MW-24	3/13/2012	4.16	1.78	0.00541	0.820
	9/27/2012	5.10	1.45	<0.100	0.461
	5/20/2013	No Sample Collected			
	10/15/2013	No Sample Collected			
	5/14/2014	Insufficient Water for Sample Collection			
	10/14/2014	1.04	0.707	0.00282	0.447
	4/23/2015	2.73	0.717	<0.060	0.276
	12/8/2015	2.14	0.743	<0.120	0.354
	4/12/2016	1.86	0.478	<0.600	0.251
	12/13/2016	1.62	0.114	<0.00600	0.231
EB-01	5/20/2013	Dry			
	10/14/2013	Dry			
	5/14/2014	Dry			
	10/13/2014	Dry			
	4/20/2015	Dry			
	12/7/2015	Dry			
	4/12/2016	Dry			
	12/13/2016	Dry			
EB-02	5/20/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/13/2014	<0.0008	<0.002	<0.002	<0.003
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
EB-03	10/15/2013	0.0982	<0.002	<0.002	0.0173
	5/14/2014	LNAPL Present, No Sample Collected			
	10/14/2014	0.936	0.0523	0.00564	0.0998
	4/21/2015	0.145	<0.003	<0.003	0.0722
	12/8/2015	LNAPL Present, No Sample Collected			
	4/12/2016	LNAPL Present, No Sample Collected			
	12/13/2016	LNAPL Present, No Sample Collected			

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Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
EB-04	5/20/2013	<0.000800	<0.0020	<0.00200	<0.00300
	10/15/2013	<0.000800	<0.0020	<0.00200	<0.00300
	5/14/2014		Dry		
	10/14/2014		Dry		
	4/21/2015		Dry		
	12/8/2015		Dry		
	4/12/2016		Dry		
	12/13/2016		Dry		
EB-05	5/20/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/14/2014		Insufficient Water for Sample Collection		
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
EB-06	5/20/2013	<0.0008	<0.002	<0.002	<0.003
	10/14/2013		Insufficient Water for Sample Collection		
	5/14/2014	<0.0008	<0.002	0.00219	0.00338
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016		Insufficient Water for Sample Collection		
EB-07	5/20/2013	<0.0002	<0.0003	<0.0007	<0.0009
	10/14/2013		Insufficient Water for Sample Collection		
	5/14/2014		Insufficient Water for Sample Collection		
	10/14/2014	<0.0002	<0.0003	<0.0007	<0.0009
	4/21/2015	<0.0002	<0.0003	<0.0007	<0.0009
	12/8/2015		Insufficient Water for Sample Collection		
	4/12/2016		Insufficient Water for Sample Collection		
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
EB-08	5/20/2013		LNAPL Present, No Sample Collected		
	10/14/2013		LNAPL Present, No Sample Collected		
	5/14/2014		LNAPL Present, No Sample Collected		
	10/13/2014		LNAPL Present, No Sample Collected		
	4/20/2015		LNAPL Present, No Sample Collected		
	12/7/2015		LNAPL Present, No Sample Collected		
	4/12/2016		LNAPL Present, No Sample Collected		
	12/13/2016		LNAPL Present, No Sample Collected		
P-01	5/20/2013	<0.0008	<0.002	<0.002	<0.003
	10/15/2013	<0.0008	<0.002	<0.002	<0.003
	5/13/2014	<0.0008	<0.002	<0.002	<0.003
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009

Table 2
Groundwater BTEX Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Volatile Organic Compounds	Collection Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
WQCC Human Health Standard (mg/L)		0.01	0.75	0.75	0.62
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
P-02	5/21/2013	0.00139	<0.002	<0.002	<0.003
	10/16/2013	0.12200	<0.002	0.00816	0.00343
	5/15/2014	0.09920	0.00544	0.0118	0.00447
	10/14/2014	0.13100	0.168	<0.006	0.191
	4/21/2015	<0.002	<0.006	<0.006	<0.009
	12/8/2015	<0.002	<0.006	<0.006	<0.009
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
P-03	5/21/2013	0.00308	<0.002	<0.002	<0.003
	10/14/2013		Insufficient Water for Sample Collection		
	5/14/2014		Insufficient Water for Sample Collection		
	10/14/2014	0.04350	0.00292	<0.006	<0.009
	4/21/2015	0.00650	<0.006	<0.006	<0.009
	12/8/2015	0.00240	<0.006	<0.006	<0.009
	4/12/2016		Insufficient Water for Sample Collection		
	12/13/2016	<0.00200	<0.00600	<0.00600	<0.00600
P-04	5/20/2013			Dry	
	10/15/2013			Dry	
	5/14/2014			Dry	
	10/14/2014	<0.002	<0.006	<0.006	<0.009
	4/20/2015		Insufficient Water for Sample Collection		
	12/8/2015			Dry	
	4/12/2016	<0.002	<0.006	<0.006	<0.009
	12/13/2016			Dry	
P-05	5/20/2013		Insufficient Water for Sample Collection		
	10/14/2013		Insufficient Water for Sample Collection		
	5/14/2014		Insufficient Water for Sample Collection		
	10/13/2014		Insufficient Water for Sample Collection		
	4/20/2015		Insufficient Water for Sample Collection		
	12/8/2015		Insufficient Water for Sample Collection		
	4/12/2016		Insufficient Water for Sample Collection		
	12/13/2016		Insufficient Water for Sample Collection		

Notes: Analysis performed by DHL Analytical, Round Rock, Texas

Volatiles analyzed by EPA SW-846 Method 8021B

All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)

< values - Indicate the value is less than method detection limit (MDL).

Blue and bold indicates analyte concentration exceeds Water Quality Control Commission (WQCC) human health standard

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
MW-01	Plugged								
MW-02	5/21/2013	--	--	--	--	--	--	--	--
	10/17/2013	<0.002	0.047	<0.0003	0.00251	<0.0003	<0.00008	<0.002	<0.001
	5/14/2014	Insufficient Water for Sample							
	10/15/2014	0.0023	0.037	<0.0003	<0.002	<0.003	<0.00008	<0.002	<0.001
	4/23/2015	<0.005	0.037	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.0051	0.042	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	0.0023	0.038	<0.001	<0.005	<0.001	<0.0002	0.002570	<0.002
	12/14/2016	0.00285	0.0361	<0.001	<0.005	<0.001	<0.0002	0.003340	<0.002
MW-02-01	Plugged								
MW-02-02	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.0319	<0.0300	0.00441	<0.0200	<0.0030	<0.000080	<0.0200	<0.0100
	5/15/2014	0.0369	<0.0300	0.00845	<0.0200	<0.0030	<0.000080	<0.0200	<0.0100
	10/15/2014	0.0442	<0.03	0.00328	<0.02	<0.003	<0.00008	0.0415	<0.01
	4/23/2015	0.0232	<0.100	0.00415	<0.050	<0.010	<0.0002	<0.050	<0.020
	12/9/2015	0.0680	<0.100	0.00407	<0.050	<0.010	<0.0002	<0.05	<0.02
	4/13/2016	0.0560	<0.05	0.00434	<0.025	<0.005	<0.0002	0.0342	<0.01
	12/14/2016	0.0563	<0.1	0.00686	<0.05	<0.01	<0.002	0.0216	<0.02
MW-02-03	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00221	0.01	<0.00030	0.0545	<0.0003	<0.00008	0.00519	<0.001
	5/15/2014	0.00336	0.00965	<0.00030	0.0549	<0.0003	<0.00008	0.00546	<0.001
	10/15/2014	0.00264	0.00904	<0.0003	0.0575	<0.0003	<0.00008	0.00581	<0.001
	4/22/2015	0.00218	0.0103	<0.001	0.0328	<0.001	<0.0002	0.00336	<0.002
	12/9/2015	0.00276	0.00987	<0.001	0.0651	<0.001	<0.0002	0.00516	<0.002
	4/12/2016	0.00284	0.0111	0.000525	0.0599	<0.001	<0.0002	0.00512	<0.002
	12/13/2016	0.00292	0.00969	<0.001	0.0463	<0.001	<0.0002	0.00432	<0.002
MW-02-04	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00508	0.0216	<0.00030	<0.0020	<0.0003	<0.000080	<0.002	<0.001
	5/15/2014	<0.002	0.0198	<0.00030	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/15/2014	<0.002	0.0195	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	<0.005	0.0195	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	0.00788	0.0197	<0.001	<0.005	<0.001	<0.0002	0.00496	<0.002
	4/13/2016	<0.005	0.0191	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/14/2016	0.0048	0.0182	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-02-05	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.0331	<0.0300	0.00522	0.0343	0.0034	<0.00008	<0.0200	<0.0100
	5/15/2014	0.0331	<0.03	0.00672	<0.02	<0.003	<0.00008	<0.02	<0.01
	10/15/2014	0.0468	<0.03	<0.003	<0.02	<0.003	<0.00008	0.0416	<0.01
	4/23/2015	<0.100	<0.200	<0.020	<0.100	<0.020	<0.0002	<0.100	<0.040
	12/9/2015	0.0556	<0.200	<0.020	<0.100	<0.020	<0.0002	<0.100	<0.040
	4/13/2016	0.0473	<0.05	0.00358	<0.025	<0.005	<0.0002	0.0173	<0.01
	12/14/2016	0.0542	<0.100	0.00468	<0.05	<0.01	<0.002	0.0222	<0.02

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
MW-02-06	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/9/2015	0.0122	0.0258	0.000412	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-07	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	Insufficient Water for Sample Collection							
	5/15/2014	0.0118	0.0243	<0.0003	0.0232	<0.0003	<0.00008	0.208	<0.001
	10/15/2014	0.0148	0.023	<0.003	0.0168	<0.0003	0.0000959		
	4/23/2015	0.00852	0.0236	<0.001	0.0122	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	Dry							
	4/13/2016	Dry							
	12/14/2016	0.00607	0.0265	<0.00100	0.0174	<0.00100	<0.000200	0.00547	<0.00200
MW-02-09	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-10	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-11	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	<0.005	0.0153	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.001
	12/9/2015	0.00212	0.0161	<0.001	<0.005	<0.001	<0.0002	0.00227	<0.002
	4/13/2016	<0.005	0.0135	<0.001	<0.005	<0.001	<0.0002	0.00212	<0.002
	12/13/2016	<0.005	0.0164	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-02-12	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	<0.0020	0.015	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/14/2014	0.016	0.0144	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	10/15/2014	0.00317	0.0147	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	0.00365	0.0152	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	0.0029	0.0147	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	<0.005	0.0146	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/14/2016	0.00526	0.015	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-02-13	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-14	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-15	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.0563	0.0232	<0.00030	0.00446	<0.00030	<0.00008	<0.0020	<0.0010
	5/14/2014	0.0193	0.0217	<0.00030	0.00262	<0.00030	<0.00008	<0.0020	<0.0010
	10/15/2014	0.00387	0.0196	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/23/2015	0.00708	0.0208	<0.001	0.00225	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.01	0.0207	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	0.0117	0.0203	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-16	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.0265	0.0252	<0.00030	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/14/2014	0.0319	0.0196	<0.00030	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/15/2014	0.00778	0.0234	<0.0003	0.0032	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	0.00473	0.0263	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.0122	0.0261	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	0.00660	0.0180	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	LNAPL Present, No Sample Collected							
MW-02-18	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	<0.002	0.0177	<0.0003	0.00322	0.0003	<0.00008	<0.002	<0.0010
	5/15/2014	<0.002	0.0161	<0.0003	<0.002	0.0003	<0.00008	0.0121	<0.0010
	10/15/2014	<0.002	0.0151	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	<0.005	0.0145	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	12/9/2015	<0.005	0.0177	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	<0.005	0.0181	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	<0.005	0.0191	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-03	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00536	0.0266	<0.0003	0.00405	<0.0003	<0.00008	<0.002	<0.001
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	0.00327	0.0276	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	0.00431	0.0261	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	0.00272	0.0287	<0.001	<0.005	<0.001	<0.0002	0.121	<0.002
	4/13/2016	0.00364	0.0289	<0.001	<0.005	<0.001	<0.0002	0.036	<0.002
	12/13/2016	0.00675	0.0252	<0.001	0.00312	<0.001	<0.0002	0.013	<0.002
MW-03-01	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-03-02	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-03-03	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00358	0.0244	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/15/2014	0.00212	0.0224	<0.0003	<0.002	<0.0003	<0.00008	0.00611	<0.001
	10/15/2014	0.00334	0.0225	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	0.0128	0.0237	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.001
	12/9/2015	0.00577	0.0238	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.001
	4/13/2016	0.00636	0.0238	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.001
	12/13/2016	0.00426	0.0222	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.001
MW-03-04	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	12/13/2016	LNAPL Present, No Sample Collected							
MW-04	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/15/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-05	5/23/2013	--	--	--	--	--	--	--	--
	10/16/2013	<0.002	0.0126	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/14/2014	0.0035	0.0141	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/15/2014	<0.002	0.0141	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/23/2015	<0.005	0.0137	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	<0.005	0.0138	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	<0.005	0.0132	<0.001	<0.005	<0.001	<0.0002	<<0.005	<0.002
	12/14/2016	0.00367	0.0151	<0.001	0.0139	<0.001	<0.0002	<<0.005	<0.002
MW-06	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/9/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-07	5/22/2013	--	--	--	--	--	--	--	--
	10/17/2013	0.0111	0.0282	<0.0003	0.130	<0.0003	<0.00008	0.00591	<0.001
	5/15/2014	0.0081	0.0262	<0.0003	0.167	<0.0003	<0.00008	0.266	<0.001
	10/15/2014	0.00772	0.0262	<0.003	0.0874	<0.0003	<0.00008	<0.002	<0.001
	4/23/2015	0.00468	0.0245	<0.001	0.140	<0.001	<0.0002	<0.005	<0.002
	12/9/2015	0.00453	0.0609	<0.001	0.0574	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	0.00422	0.0405	<0.001	<0.0002	<0.001	<0.0002	0.0642	<0.002
	12/14/2016	0.00307	0.0295	<0.001	<0.0002	<0.001	<0.0002	0.113	<0.002
MW-08	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00771	0.0226	<0.000300	<0.002	<0.0003	<0.00008	<0.00200	<0.001
	5/14/2014	0.00518	0.0170	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/15/2014	0.00465	0.0192	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/23/2015	0.00282	0.0180	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.00588	0.0193	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/13/2016	0.00552	0.0184	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/14/2016	0.00587	0.0208	<0.001	<0.005	<0.001	<0.0002	0.0108	<0.002

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
MW-09	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/8/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-10	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/8/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-11	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	Insufficient Water for Sample Collection							
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/8/2015	LNAPL Present, No Sample Collected							
	4/13/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
MW-12	5/22/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00716	0.0180	<0.0003	0.00362	0.000617	<0.00008	<0.0020	<0.001
	5/14/2014	0.00338	0.0130	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/15/2014	0.0124	0.0202	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	<0.005	0.0185	<0.001	<0.005	0.000387	<0.0002	<0.005	<0.002
	12/9/2015	<0.005	0.0179	<0.001	<0.005	0.000308	<0.0002	<0.005	<0.002
	4/12/2016	0.00296	0.0165	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/14/2016	0.108	0.0239	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-13	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00186	0.0405	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/14/2014	LNAPL Present, No Sample Collected							
	10/15/2014	0.0206	0.0299	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	4/22/2015	Insufficient Water for Sample							
	12/9/2015	Sludge Present, No Sample Collected							
	4/13/2016	Sludge Present, No Sample Collected							
	12/13/2016	Sludge Present, No Sample Collected							
MW-14	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.00467	0.0212	<0.00030	<0.002	<0.0003	<0.00008	<0.0020	<0.0010

Table 3
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Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	4/21/2015	LNAPL Present, No Sample Collected							
	10/15/2014	LNAPL Present, No Sample Collected							
	4/22/2015	0.00422	0.0224	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	<0.005	0.0193	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	<0.005	0.0202	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	<0.005	0.0199	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
MW-15	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.0057	0.0145	0.000323	<0.002	<0.0003	<0.00008	0.0101	<0.00100
	5/14/2014	Insufficient Water for Sample							
	10/14/2014	0.00257	0.0126	<0.001	<0.005	<0.001	<0.0002	0.0050	<0.002
	4/21/2015	0.00611	0.0145	0.000516	<0.005	<0.001	<0.0002	0.0046	<0.002
	12/8/2015	0.00734	0.0135	0.000456	<0.005	<0.001	<0.0002	0.0045	<0.002
	4/12/2016	0.00577	0.0131	0.000502	<0.005	<0.001	<0.0002	0.0050	<0.002
	12/13/2016	0.00416	0.0126	<0.001	<0.005	<0.001	<0.0002	0.0151	<0.002
MW-16	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.00242	0.0102	0.0003	0.0128	0.0003	<0.00008	0.00608	0.001
	5/14/2014	Insufficient Water for Sample							
	10/14/2014	0.0022	0.00965	<0.001	0.0147	<0.001	<0.0002	0.00679	<0.002
	4/21/2015	0.00223	0.0092	<0.001	0.0155	<0.001	<0.0002	0.0058	<0.002
	12/8/2015	0.00285	0.0093	<0.001	0.0173	<0.001	<0.0002	0.00564	<0.002
	4/12/2016	0.0029	0.0098	<0.001	0.0151	<0.001	<0.0002	0.00557	<0.002
	12/13/2016	0.00272	0.0093	<0.001	0.0160	<0.001	<0.0002	0.00983	<0.002
MW-17	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.00525	0.0229	0.0003	0.002	0.0003	<0.00008	0.002	0.001
	5/14/2014	Insufficient Water for Sample							
	10/14/2014	<0.005	0.0195	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	0.00353	0.0165	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.00543	0.0153	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	0.00290	0.0170	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	0.00343	0.0177	<0.001	<0.005	<0.001	<0.0002	0.00455	0.002
MW-18	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.002	0.0158	0.0003	0.00731	0.0003	<0.00008	0.00202	0.001
	5/13/2014	<0.002	0.0151	<0.0003	0.00208	<0.0003	<0.00008	<0.002	<0.001
	10/14/2014	<0.005	0.0136	<0.001	0.00343	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	<0.005	0.0148	<0.001	0.00431	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	<0.005	0.0139	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	<0.005	0.0135	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	<0.005	0.0142	<0.001	0.0162	<0.001	<0.0002	0.00258	<0.002
MW-19	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	LNAPL Present, No Sample Collected							
	5/13/2014	LNAPL Present, No Sample Collected							
	10/14/2014	LNAPL Present, No Sample Collected							

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	4/21/2015 12/8/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected							
MW-20	5/21/2013 10/15/2013 5/13/2014 10/15/2014 4/22/2015 12/8/2015 4/12/2016 12/14/2016	-- 0.0378 0.0106 <0.005 <0.005 0.00256	-- 0.0163 0.0126 0.0145 0.0130 0.0111	-- <0.0003 <0.001 <0.001 <0.001 <0.001	-- <0.002 <0.005 <0.005 <0.005 <0.005	-- <0.0003 <0.001 <0.001 <0.001 <0.001	-- <0.00008 <0.0002 <0.0002 <0.0002 <0.0002	-- <0.002 <0.005 <0.005 <0.005 <0.005	-- <0.001 <0.002 <0.002 <0.002 <0.002
MW-21	5/21/2013 10/15/2013 5/13/2014 10/15/2014 4/22/2015 12/8/2015 4/13/2016 12/13/2016	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected	-- LNAPL Present, No Sample Collected
MW-22	5/23/2013 10/16/2013 5/15/2014 10/15/2014 4/22/2015 12/9/2015 4/13/2016 12/13/2016	-- <0.002 <0.002 <0.002 <0.005 <0.005 <0.005 <0.005	-- 0.0234 0.0217 0.0209 0.0187 0.0207 0.0185 0.0206	-- <0.0003 <0.0003 <0.0003 <0.001 <0.001 <0.001 <0.001	-- <0.002 <0.002 <0.002 <0.005 0.0284 <0.005 <0.005	-- <0.0003 <0.0003 <0.0003 <0.001 <0.001 <0.001 <0.001	-- <0.00008 <0.00008 <0.00008 <0.002 <0.0002 <0.0002 <0.0002	-- <0.002 0.0288 <0.001 <0.005 <0.005 <0.005 <0.005	-- <0.001 <0.001 <0.001 <0.002 <0.002 <0.002 <0.002
MW-23	5/21/2013 10/16/2013 5/13/2014 10/14/2014 4/21/2015 12/8/2015 4/12/2016 12/13/2016	-- 0.00408 0.00543 0.00338 <0.005 <0.005 <0.005 <0.005	-- 0.0158 0.0184 0.0194 0.0156 0.0179 0.0191 0.0189	-- <0.0003 <0.0003 <0.00100 <0.001 <0.001 <0.001 <0.001	-- <0.002 0.00661 <0.005 <0.005 <0.005 <0.005 <0.005	-- <0.0003 <0.0003 <0.001 <0.001 <0.001 <0.001 <0.001	-- <0.00008 <0.00008 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002	-- <0.002 <0.002 <0.005 <0.005 <0.005 <0.005 <0.005	-- <0.001 <0.001 <0.002 <0.002 <0.002 <0.002 <0.002
MW-24	5/21/2013 10/16/2013 5/13/2014 10/14/2014 4/23/2015 12/8/2015	No Sample Collected No Sample Collected Insufficient Water for Sample 0.00347 <0.005 <0.005							
		0.0272 0.0237 0.0221	<0.001 <0.001 <0.001	<0.005 <0.005 0.00305	<0.001 <0.001 <0.001	<0.0002 <0.0002 <0.0002	<0.005 <0.005 <0.005	<0.002 <0.002 <0.002	

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Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	4/12/2016	0.00279	0.0225	<0.001	<0.005	<0.001	<0.002	<0.005	<0.002
	12/13/2016	<0.005	0.0215	<0.001	<0.005	<0.001	<0.002	<0.005	<0.002
EB-01	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013					Dry			
	5/13/2014					Dry			
	10/14/2014					Dry			
	4/23/2015					Dry			
	12/8/2015					Dry			
	4/12/2016					Dry			
	12/13/2016					Dry			
EB-02	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.002	0.01080	0.0003	0.0002	<0.0003	<0.00008	0.00372	<0.001
	5/13/2014	<0.002	0.0114	<0.0003	<0.002	<0.0003	<0.00008	0.00322	<0.001
	10/14/2014	<0.005	0.0102	<0.001	<0.005	<0.001	<0.0002	0.00385	<0.002
	4/21/2015	<0.005	0.0106	0.00114	<0.005	<0.001	<0.0002	0.00211	<0.002
	12/8/2015	<0.005	0.00947	<0.001	<0.005	<0.001	<0.0002	0.00364	<0.002
	4/12/2016	<0.005	0.00890	<0.001	<0.005	<0.001	<0.0002	0.00321	<0.002
	12/13/2016	<0.005	0.00878	<0.001	<0.005	<0.001	<0.0002	0.00572	<0.002
EB-03	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.002	0.0269	0.0003	0.00208	0.0003	<0.00008	0.002	0.001
	5/13/2014					LNAPL Present, No Sample Collected			
	10/14/2014	<0.005	0.0234	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	<0.005	0.0222	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015					LNAPL Present, No Sample Collected			
	4/12/2016					LNAPL Present, No Sample Collected			
	12/13/2016					LNAPL Present, No Sample Collected			
EB-04	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.00322	0.0197	0.0003	0.0577	0.0003	<0.00008	0.002333	0.001
	5/13/2014					Dry			
	10/14/2014					Dry			
	4/21/2015					Dry			
	12/8/2015					Dry			
	4/12/2016					Dry			
	12/13/2016					Dry			
EB-05	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	0.0119	0.0239	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	5/13/2014					Insufficient Water for Sample Collection			
	10/14/2014	<0.005	0.0222	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	<0.005	0.0198	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.00307	0.0209	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	0.00262	0.0194	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	<0.005	0.0199	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002

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Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
EB-06	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	Insufficient Water for Sample Collection							
	5/14/2014	0.00215	0.013	0.001	0.0372	<0.0003	<0.00008	0.00287	<0.001
	10/14/2014	0.00215	0.0132	0.000333	0.0508	<0.001	<0.0002	0.00357	<0.002
	4/21/2015	<0.005	0.0117	<0.001	0.0597	<0.001	<0.0002	0.00311	<0.002
	12/8/2015	0.00208	0.0124	0.000436	0.0676	<0.001	<0.0002	0.00380	<0.002
	4/12/2016	0.00215	0.0132	0.000663	0.0508	<0.001	<0.0002	0.00343	<0.002
	12/13/2016	LNAPL Present, No Sample Collected							
EB-07	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	Insufficient Water for Sample Collection							
	5/14/2014	Insufficient Water for Sample Collection							
	10/14/2014	0.0049	0.0163	<0.001	<0.005	<0.001	<0.0002	0.00403	<0.002
	4/21/2015	0.00277	0.0163	0.000451	<0.005	<0.001	<0.0002	0.00427	<0.002
	12/8/2015	Insufficient Water for Sample Collection							
	4/12/2016	Insufficient Water for Sample Collection							
	12/13/2016	<0.00500	0.0157	<0.00100	<0.00500	<0.00100	<0.000200	0.00316	<0.00200
EB-08	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	LNAPL Present, No Sample Collected							
	5/13/2014	LNAPL Present, No Sample Collected							
	10/14/2014	LNAPL Present, No Sample Collected							
	4/23/2015	LNAPL Present, No Sample Collected							
	12/8/2015	LNAPL Present, No Sample Collected							
	4/12/2016	LNAPL Present, No Sample Collected							
	12/13/2016	LNAPL Present, No Sample Collected							
P-01	5/21/2013	--	--	--	--	--	--	--	--
	10/15/2013	<0.002	0.0183	<0.0003	<0.002	<0.0003	<0.00008	<0.003	<0.001
	5/13/2014	<0.002	0.0158	<0.0003	<0.002	<0.0003	<0.00008	<0.002	<0.001
	10/14/2014	<0.005	0.014	<0.001	<0.005	<0.001	<0.0002	<0.0050	<0.002
	4/21/2015	0.0024	0.0133	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	0.118	0.0273	<0.001	0.0327	<0.001	<0.0002	0.0141	<0.002
	4/12/2016	0.226	0.0100	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	0.0148	0.0184	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
P-02	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	0.00318	0.0172	<0.00030	<0.002	<0.0003	<0.00008	<0.002	<0.00100
	5/15/2014	0.00206	0.0162	<0.0003	<0.002	<0.0003	<0.00008	0.0214	<0.001
	10/14/2014	<0.005	0.0171	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	<0.005	0.0164	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	<0.005	0.0168	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	<0.005	0.0150	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	<0.00500	0.0172	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
P-03	5/21/2013	--	--	--	--	--	--	--	--

Table 3
Groundwater Dissolved Metals Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Dissolved Metals	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
WQCC Standard (mg/L)		0.1	1	0.01	0.05	0.05	0.002	0.05	0.05
	10/16/2013	Insufficient Water for Sample Collection							
	5/15/2014	Insufficient Water for Sample Collection							
	10/14/2014	<0.005	0.032	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	<0.005	0.0206	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/8/2015	<0.005	0.0223	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/12/2016	Insufficient Water for Sample Collection							
	12/13/2016	<0.005	0.0261	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
P-04	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	Dry							
	5/15/2014	Dry							
	10/14/2014	0.00274	0.0175	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	4/21/2015	Insufficient Water for Sample Collection							
	12/8/2015	Dry							
	4/12/2016	<0.005	0.0202	<0.001	<0.005	<0.001	<0.0002	<0.005	<0.002
	12/13/2016	Dry							
P-05	5/21/2013	--	--	--	--	--	--	--	--
	10/16/2013	Insufficient Water for Sample Collection							
	5/13/2014	Insufficient Water for Sample Collection							
	10/14/2014	Insufficient Water for Sample Collection							
	4/23/2015	Insufficient Water for Sample Collection							
	12/8/2015	Insufficient Water for Sample Collection							
	4/12/2016	Insufficient Water for Sample Collection							
	12/13/2016	Insufficient Water for Sample Collection							

Notes: analysis performed by DHL Analytical, Round Rock, Texas

Metals analyzed by EPA SW-846 Method 6020

Mercury analyzed by EPA SW-846 Method 7470A

All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)

< values - Indicate the value is less than Method Detection Limit (MDL).

Blue and bold indicates analyte concentration exceeds Water Quality Control Commission (WQCC) human health standard

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
MW-01		Plugged											
MW-02	5/22/2013	--	--	--	--	--	--	--	--	124	--	1,670	2,900
	10/17/2013	626	89.8	20.5	106	289	<25.0	<25.0	289	150	--	1,860	2,910
	5/14/2014	Insufficient Water for Sample											
	10/15/2014	643	75.5	18.9	120	234			234	112		1,560	2,960
	4/23/2015	521	105	20.3	120	227	<20.0	<20.0	227	136	--	1,800	2,750
	12/8/2015	540	114	20.8	120	276	<20.0	<20.0	276	125	--	1,650	3,020
	4/13/2016	580	76.9	21.2	114	204	<20.0	<20.0	204	113	--	1,740	3,060
	12/14/2016	577	79.0	10.7	87.8	206	<20.0	<20.0	206	103	--	1,670	2,770
MW-02-01		Plugged											
MW-02-02	5/23/2013	--	--	--	--	--	--	--	--	10,800	--	344,000	507,000
	10/16/2013	290	45,900	2,070	21,800	103,000	<250	<250	10,300	16,400	--	223,000	440,000
	5/15/2014	340	48,700	2,240	29,800	8,630	1,270	<200	9,900	14,700	--	263,000	301,000
	10/15/2014	239	48,500	1,630	55,800	18,300	148	<10.0	18,400	11,800	--	186,000	474,000
	4/23/2015	262	45,100	2,260	24,300	4,130	<20.0	<20.0	4,130	12,500	--	301,000	520,000
	12/9/2015	209	55,500	1,630	60,200	6,640	<20.0	<20.0	6,640	9,950	--	296,000	529,000
	4/13/2016	219	48,400	1,600	55,900	3,210	<20.0	<20.0	3,210	11,200	--	348,000	583,000
	12/14/2016	242	50,300	1,740	50,800	6,320	<20.0	<20.0	6,320	12,800	--	276,000	547,000
MW-02-03													
MW-02-03	5/23/2013	--	--	--	--	--	--	--	--	68.2	--	1,930	3,120
	10/16/2013	<0.00030	112	4.92	41.1	102	<12.5	<12.5	102	46.0	--	1,670	2,810
	5/15/2014	<0.00030	123	5.64	50.6	113	<10.0	<10.0	113	37.3	--	2,040	1,720
	10/15/2014	<0.0003	134	5.99	50.6	107	<10.0	<10.0	107	36.4	--	1,640	2,950
	4/22/2015	<0.001	131	5.59	80.3	186	<20.0	<20.0	186	65.5	--	1,790	5,280
	12/9/2015	<0.001	127	5.00	47.5	104	<20.0	<20.0	104	36.3	--	2,020	1,830
	4/12/2016	529	118	5.11	46.7	105	<20.0	<20.0	105	43.1	--	1,920	2,900
	12/13/2016	508.0	118	5.68	66.9	165.0	<20	<20	165.0	59.7	--	1,740	2,890
MW-02-04													
MW-02-04	5/23/2013	--	--	--	--	--	--	--	--	81.2	--	1,690	2,920
	10/16/2013	577	118	12.0	73.4	324	<12.5	<12.5	324	93.4	--	1,590	2,540

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	5/15/2014	549	89.5	11.80	59.1	270	<10.0	<10.0	270	58.3	--	1,590	1,540
	10/15/2014	631	98.0	12.5	70.3	285	<10.0	<10.0	285	67.1	--	1,540	2,860
	4/22/2015	495	96.0	11.1	62.9	274	<20.0	<20.0	274	86.2	--	1,710	3,180
	12/9/2015	540	134	11.1	63.8	253	<20.0	<20.0	253	62.1	--	1,480	2,580
	4/13/2016	543	94	11.9	59.7	244	<20.0	<20.0	244	70.2	--	1,780	2,930
	12/14/2016	535	101	11	56	246	<20	<20	246	59	--	1,660	2,860
MW-02-05	5/23/2013	--	--	--	--	--	--	--	--	5,840	--	355,000	533,000
	10/16/2013	309	47,200	1,470	19,200	8,990	1,550	<250	10,500	10,400	--	237,000	458,000
	5/15/2014	351	49,700	1,660	28,400	5,460	2,620	<200	8,090	7,800	--	307,000	172,000
	10/15/2014	240	48,000	1,170	65,100	1,260	<10.0	<10.0	1,260	5,550	--	321,000	478,000
	4/23/2015	204	44,300	1,100	49,700	4,140	<20.0	<20.0	4,140	5,710	--	333,000	489,000
	12/9/2015	209	54,100	1,120	58,200	7,810	<20.0	<20.0	7,810	5,700	--	290,000	545,000
	4/13/2016	236	55,100	1,170	59,700	7,570	<20.0	<20.0	7,570	6,540	--	392,000	592,000
	12/14/2016	215	52,000	1,090	51,300	7,870	<20.0	<20.0	7,870	6,860	--	280,000	519,000
MW-02-06	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/15/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/23/2015	LNAPL Present, No Sample Collected											
	12/9/2015	560	161	8.09	58.3	495	<20.0	<20.0	495	36.3	--	1,620	3,170
	4/13/2016	LNAPL Present, No Sample Collected											
	12/12/2016	LNAPL Present, No Sample Collected											
MW-02-07	5/22/2013	--	--	--	--	--	--	--	--	158	--	1,950	3,780
	10/16/2013	Insufficient Water For Sample Collection											
	5/15/2014	718	107	18.9	208	1,020	<10.0	<10.0	1,020	182	--	2,170	2,580
	10/15/2014	707	320	24.4	391	759	--	--	759	171	--	1,860	3,980
	4/23/2015	588	113	17.7	207	1,610	<20.0	<20.0	1,610	202	--	1,520	3,250
	12/9/2015	Dry											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	4/13/2016 12/14/2016	575	196	19.0	152	826	Dry <20.0		<20.0	826	121	--	1,860 3,730
MW-02-09	5/22/2013 10/16/2013 5/15/2014 10/15/2014 4/23/2015 12/9/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
MW-02-10	5/22/2013 10/16/2013 5/15/2014 10/15/2014 4/23/2015 12/9/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
MW-02-11	5/22/2013 10/16/2013 5/15/2014 10/15/2014 4/22/2015 12/9/2015 4/13/2016 12/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected 616 240.0 3.94 101 803 <20.0 <20.0 803 86.6 -- 1,850 3,720 630 228.0 3.83 101 834 <20.0 <20.0 834 75.2 -- 1,710 3,720 628 194.0 2.02 82 772 <20.0 <20.0 772 81.2 -- 2,020 3,900 626 223.0 3.73 101 796 <20.0 <20.0 796 94.8 -- 1,730 3,780											
MW-02-12	5/23/2013	--	--	--	--	--	--	--	--	117.0	--	1,850	3,370

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	10/16/2013	558	118	9.30	215	508	<12.5	<12.5	508	124.0	--	1,700	3,150
	5/14/2014	568	110	9.78	212	517	<10.0	<10.0	517	103.0	--	1,790	2,240
	10/15/2014	626	142	10.2	253	526	<10.0	<10.0	526	114.0	--	1,730	3,660
	4/22/2015	525	135	8.90	244	497	<20.0	<20.0	497	138.0	--	1,910	4,510
	12/9/2015	546	130	8.94	238	518	<20.0	<20.0	518	137.0	--	1,710	3,450
	4/13/2016	550	126	9.89	229	473	<20.0	<20.0	473	117.0	--	1,910	3,610
	12/14/2016	552	116	9.25	213	518	<20	<20	518	128	--	1,820	3,140
MW-02-13	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
	12/13/2016	LNAPL Present, No Sample Collected											
MW-02-14	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
	12/13/2016	LNAPL Present, No Sample Collected											
MW-02-15	5/22/2013	--	--	--	--	--	--	--	--	835	--	1,620	4,260
	10/16/2013	750	93.9	20.9	340	464	<12.5	<12.5	464	738	--	1,630	3,900
	5/14/2014	800	106	13.8	417	629	<10.0	<10.0	629	773	--	1,650	3,620
	10/15/2014	795	117	12.2	478	580	<10.0	<10.0	580	793	--	1,540	4,760
	4/23/2015	688	115	13.3	446	610	<20.0	<20.0	610	832	--	1,640	4,220

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	12/8/2015	709	114	10.7	427	644	<20.0	<20.0	644	785	--	1,660	4,250
	4/13/2016	730	109	11.5	414	599	<20.0	<20.0	599	691	--	1,680	4,500
	12/13/2016					LNAPL Present, No Sample Collected							
MW-02-16	5/22/2013	--	--	--	--	--	--	--	--	202.0	--	1,970	3,850
	10/16/2013	622	90.5	19.8	250	557	<12.5	<12.5	557	163.0	--	1,670	3,230
	5/14/2014	680	108	10.7	353	731	<10.0	<10.0	731	233.0	--	1,880	2,730
	10/15/2014	689	109	10.6	354	707	<10.0	<10.0	707	201.0	--	1,660	3,500
	4/22/2015	605	96.8	16.4	277	680	<20.0	<20.0	680	258.0	--	1,690	3,440
	12/8/2015	643	95.2	14.7	259	817	<20.0	<20.0	817	234.0	--	1,660	3,350
	4/13/2016	601	102.0	9.02	335	680	<20.0	<20.0	680	204.0	--	1,810	4,080
	12/13/2016					LNAPL Present, No Sample Collected							
MW-02-18	5/23/2013	--	--	--	--	--	--	--	--	85.1	--	1,880	3,630
	10/16/2013	597	192	3.05	76.4	679	<12.5	<12.5	679	78.2	--	1,970	3,210
	5/15/2014	652	212	3.82	87.6	550	<10.0	<10.0	550	61.4	--	2,040	2,050
	10/15/2014	639	230	3.87	92.2	623	<10.0	<10.0	623	67.1	--	1,700	3,770
	4/22/2015	556	218	3.14	80	652	<20.0	<20.0	652	71.2	--	1,840	3,350
	12/9/2015	570	201	3.17	63.6	677	<20.0	<20.0	677	50.1	--	1,610	3,560
	4/13/2016	610	208	3.48	77.7	740	<20.0	<20.0	740	73.1	--	1,880	3,860
	12/13/2016	574	206	3.29	73.4	691	<20.0	<20.0	691	74.4	--	1,710	3,470
MW-03	5/23/2013	--	--	--	--	--	--	--	--	140.0	--	1,680	3,190
	10/16/2013	597	85.1	13.2	139	605	<50.0	<50.0	605	175.0	--	1,340	2,830
	5/15/2014					LNAPL Present, No Sample Collected							
	10/15/2014	588	92.2	15.4	147	663	<10.0	<10.0	663	132.0	--	1,180	2,860
	4/22/2015	428	98.0	11.3	110	563	<20.0	<20.0	563	118.0	--	1,110	2,460
	12/9/2015	475	92.7	12.3	112	627	<20.0	<20.0	627	104.0	--	1,220	2,640
	4/13/2016	481	95.1	12.4	107	585	<20.0	<20.0	585	123.0	--	1,270	3,020
	12/13/2016	573	61.7	17.6	110	699	<20.0	<20.0	699	119.0	--	1,310	2,960

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
MW-03-01	5/22/2013	--	--	--	--	--	--	--	--	2,720	--	2,900	5,550
	10/16/2013	LNAPL Present, No Sample Collected											
	5/15/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
MW-03-02	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/15/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
MW-03-03	5/23/2013	--	--	--	--	--	--	--	--	212.0	--	1,110	2,640
	10/16/2013	486	81.2	10	160	676	50	50	676	197.0	--	1,020	2,540
	5/15/2014	627	96.6	10.4	189	587	<10.0	<10.0	587	171.0	--	1,410	2,210
	10/15/2014	536	94.1	10.9	197	739	<10.0	<10.0	739	216.0	--	1,100	3,190
	4/22/2015	501	105	9.73	212	751	<20.0	<20.0	751	261	--	1,200	3,000
	12/9/2015	499	107	10.4	221	715	<20.0	<20.0	715	279	--	1,150	3,090
	4/13/2016	537	112	10.6	223	702	<20.0	<20.0	702	316	--	1,350	3,240
	12/13/2016	468.0	105.0	10.2	194.0	712.0	<20	<20	712.0	246	--	1,120	2,910
MW-04	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/15/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	12/9/2015 4/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
MW-05	5/22/2013	--	--	--	--	--	--	--	--	153.0	--	1,840	3,440
	10/16/2013	558	128	7.94	207	421	<25.0	<25.0	421	160.0	--	1,600	3,170
	5/14/2014	592	124	8.56	214	464	<10.0	<10.0	464	142.0	--	1,850	2,150
	10/15/2014	618	141	9.33	243	491	<10.0	<10.0	491	134.0	--	1,660	3,650
	4/23/2015	507	128	7.17	213	460	<20.0	<20.0	460	148.0	--	1,770	3,130
	12/9/2015	517	128	8.09	226	461	<20.0	<20.0	461	137.0	--	1,640	3,290
	4/12/2016	517	118	8.36	212	439	<20.0	<20.0	439	122.0	--	1,810	3,200
	12/14/2016	511	120	8.37	212	447	<20	<20	447	135	--	1,740	3,180
MW-06	5/23/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/15/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/22/2015	LNAPL Present, No Sample Collected											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/12/2016	LNAPL Present, No Sample Collected											
MW-07	5/22/2013	--	--	--	--	--	--	--	--	66.9	--	2,100	3,770
	10/17/2013	542	77	19.8	68.7	1,530	25	25	1,530	64.1	--	2,170	3,450
	5/15/2014	609	176	24.3	68.4	1,580	<10.0	<10.0	1,580	53.0	--	2,720	3,240
	10/15/2014	628	54	15.2	62.5	1,240	<10.0	<10.0	1,240	29.9	--	1,710	3,360
	4/23/2015	597	175	21.0	63.5	1,740	<20.0	<20.0	1,740	38.8	--	2,130	3,850
	12/9/2015	528	15	4.87	10.4	578	<20.0	<20.0	578	7.28	--	1,210	2,350
	4/13/2016	615	59	9.03	26.6	794	<20.0	<20.0	794	18.50	--	1,610	2,750
	12/14/2016	598	184	16.50	39.70	953	<20	<20	953	21.8	--	2,060	3,760

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
MW-08	5/22/2013	--	--	--	--	--	--	--	--	278.0	--	1,610	3,180
	10/16/2013	431	103	8.37	246	479	<12.5	<12.5	479	235	--	1,240	2,460
	5/14/2014	538	120	7.54	279	451	<10.0	<10.0	451	261	--	1,630	2,490
	10/15/2014	517	125	7.98	316	465	<10	<10	465	253	--	1,390	3,080
	4/23/2015	432	125	7.21	295	447	<20.0	<20.0	447	261	--	1,560	2,770
	12/8/2015	450	123	7.84	278	461	<20.0	<20.0	461	274	--	1,550	3,060
	4/13/2016	471	120	8.18	270	444	<20.0	<20.0	444	329	--	1,700	3,320
	12/14/2016	450	123	8.36	283	470	<20	<20	470	325	--	1,460	2,970
MW-09	5/22/2013	--	--	--	--	--	--	--	--	318	--	1,270	3,120
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/23/2015	LNAPL Present, No Sample Collected											
	12/8/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
MW-10	5/22/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/23/2015	LNAPL Present, No Sample Collected											
	12/8/2015	LNAPL Present, No Sample Collected											
	4/13/2016	LNAPL Present, No Sample Collected											
MW-11	5/22/2013	LNAPL Present, No Sample Collected											
	10/16/2013	Insufficient Water For Sample Collection											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	4/23/2015 12/8/2015 4/13/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
MW-12	5/22/2013	--	--	--	--	--	--	--	--	109.0	--	2,230	3,770
	10/16/2013	576	208	5.72	88.4	373	<12.5	<12.5	373	106.0	--	1,950	3,290
	5/14/2014	562	260	5.95	104	309	<10.0	<10.0	309	86.0	--	2,340	2,470
	10/15/2014	672	170	6.40	99.9	370	<10.0	<10.0	370	79.0	--	1,690	3,470
	4/22/2015	529	249	5.68	93.6	497	<20.0	<20.0	497	86.8	--	2,090	3,650
	12/9/2015	537	245	5.26	87.9	461	<20.0	<20.0	461	79.8	--	1,970	3,590
	4/12/2016	512	216	4.95	102	341	<20.0	<20.0	341	91.7	--	2,130	3,330
	12/14/2016	525	196	5.70	69.2	438	<20.0	<20.0	438	80.5	--	1,820	3,420
MW-13	5/21/2013	--	--	--	--	--	--	--	--	138.0	--	1,440	2,910
	10/16/2013	584	115	15.5	230	337	<12.5	<12.5	337	192.0	--	1,950	3,200
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	674	52.8	13.6	126	439	<10.0	<10.0	439	104.0	--	1,440	2,990
	4/22/2015	Insufficient Water For Sample Collection											
	12/9/2015	LNAPL Present, No Sample Collected											
	4/12/2016	LNAPL Present, No Sample Collected											
MW-14	5/21/2013	LNAPL Present, No Sample Collected											
	10/15/2013	598	103	4.81	114	505	<25.0	<25.0	505	105.0	--	1,690	2,710
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/21/2015	579	121	4.45	163	468	<20.0	<20.0	468	142.0	--	1,790	3,140
	12/8/2015	545	116	4.63	141	600	<20.0	<20.0	600	125.0	--	1,720	2,960
	4/12/2016	584	128	5.11	140	638	<20.0	<20.0	638	127.0	--	1,670	3,340
	12/13/2016	604.0	119.0	5.09	141.0	471.0	<20	<20	471.0	170.0	--	1,750	3,670

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
MW-15	5/21/2013	--	--	--	--	--	--	--	--	6,360	--	95,600	141,000
	10/15/2013	451	2,810	104	3,490	423	<25.0	<25.0	423	1,320	--	16,400	28,500
	5/14/2014	Insufficient Water For Sample Collection											
	10/14/2014	542	1,560	56.7	2,010	281	<20.0	<20.0	281	774	--	9,190	16,400
	4/21/2015	424	4,940	173	6,280	881	<20.0	<20.0	881	2,110	--	29,100	47,800
	12/8/2015	428	5,870	201	7,560	747	<20.0	<20.0	747	2,480	--	39,800	59,400
	4/12/2016	425	4,600	162	5,940	608	<20.0	<20.0	608	2,220	--	31,600	53,600
	12/13/2016	405	3010	106	3940	430	<20	<20	430	1,520	--	18,500	33,800
MW-16	5/21/2013	--	--	--	--	--	--	--	--	353	--	2,260	4,130
	10/15/2013	540	250	9.90	238	77.5	<12.5	<12.5	77.5	381	--	2,230	3,820
	5/14/2014	Insufficient Water For Sample Collection											
	10/14/2014	600	270	9.98	275	83.8	<20.0	<20.0	83.9	377	--	2,220	6,220
	4/21/2015	500	262	8.99	245	68.1	<20.0	<20.0	68.1	371	--	2,240	5,210
	12/8/2015	485	248	8.68	240	82.6	<20.0	<20.0	82.6	387	--	2,430	3,760
	4/12/2016	518	238	8.91	233	81.8	<20.0	<20.0	81.8	386	--	2,400	4,150
	12/13/2016	502	231	8.32	221	95.4	<20	<20	95.4	365	--	2,170	3,770
MW-17	5/21/2013	--	--	--	--	--	--	--	--	158.0	--	1,810	3,290
	10/15/2013	612	118	9.29	140	334	<12.5	<12.5	334	170.0	--	1,590	2,910
	5/14/2014	Insufficient Water For Sample Collection											
	10/14/2014	650	144	8.75	140	316	<20.0	<20.0	316	148.0	--	1,670	4,310
	4/21/2015	517	156	7.41	140	328	<20.0	<20.0	328	166.0	--	1,790	3,070
	12/8/2015	497	189	7.42	128	314	<20.0	<20.0	314	133.0	--	1,980	3,220
	4/12/2016	541	165	7.45	124	319	<20.0	<20.0	319	153.0	--	1,990	3,210
	12/13/2016	504	191	7.13	118	306	<20	<20	306	146	--	1,910	3,260
MW-18	5/20/2013	--	--	--	--	--	--	--	--	734.0	--	1,610	3,660
	10/15/2013	724	136	4.73	69.4	121	<12.5	<12.5	121	606.0	--	1,470	3,130
	5/13/2014	763	140	5.18	68.6	155	<10.0	<10.0	155	585.0	--	1,580	2,490
	10/14/2014	750	138	4.71	56.6	199	<20.0	<20.0	199	408.0	--	1,470	3,850

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	4/21/2015	679	151	4.70	78.1	131	<20.0	<20.0	131	691.0	--	1,550	3,830
	12/8/2015	638	137	4.34	57.2	202	<20.0	<20.0	202	385.0	--	1,720	3,100
	4/12/2016	654	131	4.46	62.7	159	<20.0	<20.0	159	584.0	--	1,690	3,630
	12/13/2016	669	137	4.46	72.2	140	<20	<20	140	617	--	1,530	4,190
MW-19	5/22/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/23/2015	LNAPL Present, No Sample Collected											
	12/8/2015	LNAPL Present, No Sample Collected											
	4/12/2016	LNAPL Present, No Sample Collected											
MW-20	5/20/2013	LNAPL Present, No Sample Collected											
	10/15/2013	LNAPL Present, No Sample Collected											
	5/13/2014	LNAPL Present, No Sample Collected											
	10/15/2014	666	130	10.50	274	624	<10	<10	624	196	--	1,680	3,830
	4/22/2015	537	138	5.07	279	558	<20.0	<20.0	558	165	--	1,900	3,470
	12/8/2015	556	137	5.23	270	553	<20.0	<20.0	553	136	--	2,020	3,280
	4/12/2016	560	129	5.17	261	523	<20.0	<20.0	523	148	--	2,150	3,750
	12/14/2016	549	132	5.17	264	519	<20.0	<20.0	519	160	--	1,900	3,350
MW-21	5/22/2013	LNAPL Present, No Sample Collected											
	10/16/2013	LNAPL Present, No Sample Collected											
	5/14/2014	LNAPL Present, No Sample Collected											
	10/15/2014	LNAPL Present, No Sample Collected											
	4/23/2015	LNAPL Present, No Sample Collected											
	12/8/2015	LNAPL Present, No Sample Collected											
	4/12/2016	LNAPL Present, No Sample Collected											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
MW-22	5/23/2013	--	--	--	--	--	--	--	--	76.3	--	1,790	3,450
	10/16/2013	652	157	4.84	63.7	578	<12.5	<12.5	578	72.9	--	1,630	3,120
	5/15/2014	692	179	5.20	71	637	<10.0	<10.0	637	54.6	--	1,870	2,060
	10/15/2014	707	195	5.07	72.2	626	<10.0	<10.0	626	57.7	--	1,580	3,640
	4/22/2015	564	178	4.06	52.7	563	<20.0	<20.0	563	43.4	--	1,750	3,280
	12/9/2015	605	185	4.11	56.4	611	<20.0	<20.0	611	68.4	--	1,650	3,310
	4/13/2016	603	189	3.65	75.7	693	<20.0	<20.0	693	83.4	--	2,010	4,160
	12/13/2016	579	174	3.96	63.7	585	<20.0	<20.0	585	70.6	--	1,660	3,320
MW-23	5/21/2013	--	--	--	--	--	--	--	--	326.0	--	1,750	3,700
	10/16/2013	591	129	6.36	169	548	<50.0	<50.0	548	333.0	--	1,630	3,070
	5/13/2014	650	138	7.38	191	454	<10.0	<10.0	545	262.0	--	1,780	2,520
	10/14/2014	743	167	8.46	210	622	<10.0	<10.0	622	237.0	--	1,610	4,070
	4/21/2015	565	163	7.00	205	577	<20.0	<20.0	577	245.0	--	1,780	7,420
	12/8/2015	586	138	6.78	178	499	<20.0	<20.0	499	198.0	--	1,840	2,410
	4/12/2016	630	134	6.85	178	538	<10.0	<10.0	538	219.0	--	1,840	3,350
	12/13/2016	564.0	128.0	6.8	160.0	541.0	<20	<20	541.0	246.0	--	1,690	3,300
MW-24	5/21/2013	No Sample Collected											
	10/16/2013	No Sample Collected											
	5/13/2014	Insufficient Water For Sample Collection											
	10/14/2014	682	405	7.21	78.6	781	<10.0	<10.0	781	79.2	--	2,080	4,740
	4/23/2015	592	304	3.8	83.4	1,370	<20.0	<20.0	1,370	90.1	--	2,050	3,440
	12/8/2015	578	293	3.61	73.7	817	<20.0	<20.0	817	84.9	--	2,100	2,960
	4/12/2016	598	280	3.77	72	805	<20.0	<20.0	805	88.7	--	2,110	3,720
	12/13/2016	586.0	280.0	3.82	69.2	776.0	<20	<20	776.0	92.3	--	1,910	3,960
EB-01	5/21/2013	Dry											
	10/16/2013	Dry											
	5/13/2014	Dry											
	10/14/2014	Dry											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	4/23/2015 12/8/2015 4/12/2016	Dry Dry Dry											
EB-02	5/20/2013	--	--	--	--	--	--	--	--	124.0	--	2,140	3,680
	10/15/2013	550	263	10.3	151	336	<12.5	<12.5	336	108.0	--	2,200	3,340
	5/13/2014	582	262	12	159	344	<10.0	<10.0	344	105.0	--	2,400	2,600
	10/14/2014	596	298	10.8	166	335	<20.0	<20.0	335	102.0	--	2,100	4,210
	4/21/2015	494	259	10.4	170	345	<20.0	<20.0	345	108.0	--	2,250	4,190
	12/8/2015	498	293	9.57	157	302	<20.0	<20.0	302	83.5	--	2,850	3,990
	4/12/2016	507	254	10.4	161	332	<20.0	<20.0	332	100.0	--	2,420	3,810
	12/13/2016	481	313	9.19	150	300	<20	<20	300	98.4	--	2620	4290
EB-03	5/20/2013	LNAPL Present, No Sample Collected											
	10/15/2013	631	99	4.31	110	700	<12.5	<12.5	700	110.0	--	1,420	2,790
	5/13/2014	LNAPL Present, No Sample Collected											
	10/14/2014	656	92	5.03	111	576	<20.0	<20.0	576	105.0	--	1,410	3,330
	4/21/2015	574	115	4.11	138	714	<20.0	<20.0	714	132.0	--	1,530	3,500
	12/8/2015 4/12/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
EB-04	5/20/2013	--	--	--	--	--	--	--	--	481.0	--	1,750	3,600
	10/15/2013	607	138.0	6.05	143	176	<12.5	<12.5	176	387.0	--	1,750	3,180
	5/13/2014	Dry											
	10/14/2014	Dry											
	4/21/2015	Dry											
	12/8/2015	Dry											
	4/12/2016	Dry											

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Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
EB-05	5/20/2013	--	--	--	--	--	--	--	--	208.0	--	1,630	2,970
	10/15/2013	635	53.8	5.48	66.5	337	<12.5	<12.5	337	161.0	--	1,440	2,550
	5/13/2014	Insufficient Water for Sample Collection											
	10/14/2014	724	58.0	6.00	75.9	325	<20.0	<20.0	325	96.0	--	1,450	3,020
	4/21/2015	579	72.7	5.47	79.8	339	<20.0	<20.0	339	119.0	--	1,630	2,810
	12/8/2015	606	59.5	5.44	75.9	363	<20.0	<20.0	363	124.0	--	1,640	2,730
	4/12/2016	616	60.3	5.42	75.3	344	<20.0	<20.0	344	118.0	--	1,660	2,950
	12/13/2016	596	60.2	5.32	88.5	391	<20	<20	391	183	--	1460	3180
EB-06	5/20/2013	--	--	--	--	--	--	--	--	193.0	--	1,760	3,150
	10/15/2013	Insufficient Water for Sample Collection											
	5/14/2014	615	134	5.30	51.8	106	<10.0	<10.0	106	164.0	--	1,810	2,040
	10/14/2014	649	140	5.09	50	109	<20.0	<20.0	109	149.0	--	1,560	3,540
	4/21/2015	530	139	4.47	48.1	96.3	<20.0	<20.0	96.3	166.0	--	1,740	2,910
	12/8/2015	530	132	4.97	46.6	104	<20.0	<20.0	104	147.0	--	1,790	2,640
	4/12/2016	548	125	4.52	43.9	104	<20.0	<20.0	104	173.0	--	1,910	3,260
EB-07	5/20/2013	--	--	--	--	--	--	--	--	140.0	--	1,910	3,510
	10/15/2013	Insufficient Water for Sample Collection											
	5/13/2014	Insufficient Water for Sample Collection											
	10/14/2014	733	111	4.28	147	379	<20.0	<20.0	379	234.0	--	1,630	3,640
	4/21/2015	574	117	3.57	123	365	<20.0	<20.0	365	209.0	--	1,690	3,480
	12/8/2015	Insufficient Water for Sample Collection											
	4/12/2016	Insufficient Water for Sample Collection											
	12/13/2016	564.0	109.0	3.18	95.6	254.0	<20	<20	254.0	184.0	--	1,630	3,480
EB-08	5/20/2013	LNAPL Present, No Sample Collected											
	10/15/2013	LNAPL Present, No Sample Collected											
	5/13/2014	LNAPL Present, No Sample Collected											
	10/14/2014	LNAPL Present, No Sample Collected											

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
	4/21/2015 12/8/2015 4/12/2016	LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected LNAPL Present, No Sample Collected											
P-01	5/20/2013	--	--	--	--	--	--	--	--	158.0	--	2,790	4,530
	10/15/2013	584	319	4.67	102	378	<12.5	<12.5	378	251.0	--	2,180	3,630
	5/13/2014	564	448	5.58	76.2	302	<10.0	<10.0	302	146.0	--	2,960	3,120
	10/14/2014	616	445	5.40	87.8	314	<10.0	<10.0	314	175.0	--	2,370	3,600
	4/21/2015	461	535	5.69	84.1	195	<20.0	<20.0	195	124.0	--	3,290	5,290
	12/8/2015	454	592	8.13	64.8	<20.0	<20.0	<20.0	<20.0	97.9	--	4,480	6,600
	4/12/2016	460	510	6.96	67.4	97.6	<20.0	<20.0	97.6	119.0	--	3,690	5,490
	12/13/2016	480.0	483.0	6.71	85.4	72.0	<20	<20	72.0	173.0	--	3,300	5,610
P-02	5/21/2013	--	--	--	--	--	--	--	--	75.4	--	2,020	3,540
	10/16/2013	584	202	5.22	43.8	429	<12.5	<12.5	429	60.4	--	1,750	2,880
	5/15/2014	628	235	4.41	50.3	585	<10.0	<10.0	585	109.0	--	1,890	2,300
	10/14/2014	652	203	5.43	38.2	474	<20.0	<20.0	474	45.2	--	1,730	3,670
	4/21/2015	549	203	4.60	40.3	458	<20.0	<20.0	458	67.8	--	1,860	3,360
	12/8/2015	567	189	4.47	43.6	395	<20.0	<20.0	395	74.2	--	1,930	3,030
	4/12/2016	540	184	4.26	45.1	350	<20.0	<20.0	350	94.0	--	2,090	3,420
	12/13/2016	570.0	212.0	4.53	58.1	348.0	<20	<20	348.0	96.2	--	1,850	3,340
P-03	5/21/2013	--	--	--	--	--	--	--	--	216.0	--	2,850	4,740
	10/16/2013	Insufficient Water for Sample Collection											
	5/13/2014	Insufficient Water for Sample Collection											
	10/14/2014	656	210	4.34	108	363	<20.0	<20.0	363	163.0	--	1,770	3,800
	4/21/2015	521	154	3.09	83	277	<20.0	<20.0	277	131.0	--	1,790	3,360
	12/8/2015	536	120	3.02	63.4	246	<20.0	<20.0	246	88.6	--	1,810	2,660
	4/12/2016	Insufficient Water for Sample Collection											
	12/13/2016	543.0	97.1	3.18	76.4	223.0	<20	<20	223.0	121.0	--	1,580	2,770

Table 4
Groundwater General Inorganics Analytical Data Summary
Frontier Field Services, LLC, Empire Abo Gas Plant
Eddy County, New Mexico

Well	Collection Date	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Bicarbonate	Alkalinity, Carbonate	Alkalinity, Hydroxide	Alkalinity, Total	Chloride	Nitrate	Sulfate	Total Dissolved Solids
NMWQCC Standard (mg/L)		--	--	--	--	--	--	--	--	250	10	600	1,000
P-04	5/21/2013	Dry											
	10/16/2013	Dry											
	5/13/2014	Dry											
	10/14/2014	695	248	7.53	237	527	<20.0	<20.0	527	323.0	--	1,860	4,590
	4/21/2015	Insufficient Water for Sample Collection											
	12/8/2015	Dry											
	4/12/2016	548	103	2.95	61.8	220	<20.0	<20.0	220	119	--	1,820	3,040
P-05	5/21/2013	Insufficient Water for Sample Collection											
	10/16/2013	Insufficient Water for Sample Collection											
	5/13/2014	Insufficient Water for Sample Collection											
	10/14/2014	Insufficient Water for Sample Collection											
	4/21/2015	Insufficient Water for Sample Collection											
	12/8/2015	Insufficient Water for Sample Collection											
	4/12/2016	Insufficient Water for Sample Collection											

Notes: Analysis performed by DHL Analytical, Round Rock, Texas

Alkalinity analyzed b EPA Method 310.0

Anions analyzed via EPA Method 300 by DHL Analytical Inc., Round Rock, Texas

TDS analyzed by EPA Method 160.1

All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)

< - Indicates analyte concentration is less than method detection limit (MDL)

Blue and bold indicates analyte concentration exceeds Water Quality Control Commission (WQCC) domestic water water quality standard

Figures

JWW

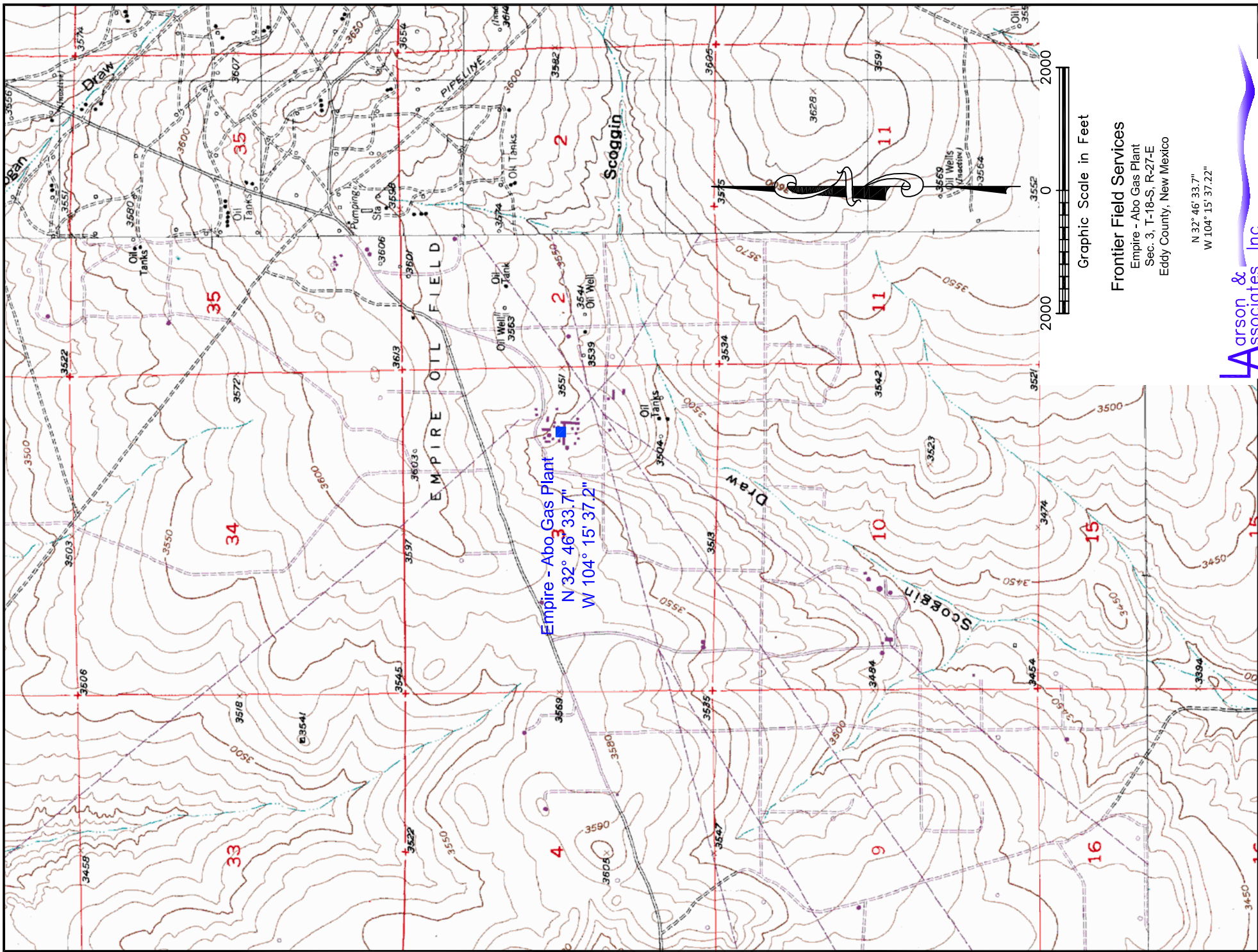


Figure 1 - Topographic Map



Figure 2 - Aerial Photograph

JWW



- LEGEND**
- Plugged And Abandoned Monitoring Well Location
 - Monitoring Well Location

- Piezometer (Fluid Level) Location

- Monitoring Well Location

- * - Water Level Corrected For Hydrocarbon Product In Well Using 0.70 Specific Gravity
- ** - Hydrocarbon Emulsion Present In Well

- Fence
- Draw
- Roads
- Property Line



Graphic Scale in Feet

300 0 300

FRONTIER FIELD SERVICES, LLC

EMPIRE - ABO GAS PLANT
SECTION 3, T-18-S, R-27-E
EDDY COUNTY, NEW MEXICO

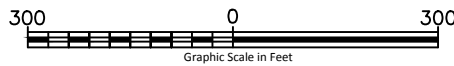
Figure 3 - Facility Drawing



Legend

- Monitoring Well Location and Apparent LNAPL Thickness, Feet, April 11, 2016
- Plugged and Abandoned Monitoring Well
- Monitoring Well Location and Apparent LNAPL Thickness, Feet, April 11, 2016
- Piezometer (Fluid Level) Location
- Not Sampled
- Hydrocarbon Product Present in Well
- Insufficient Water for Sample

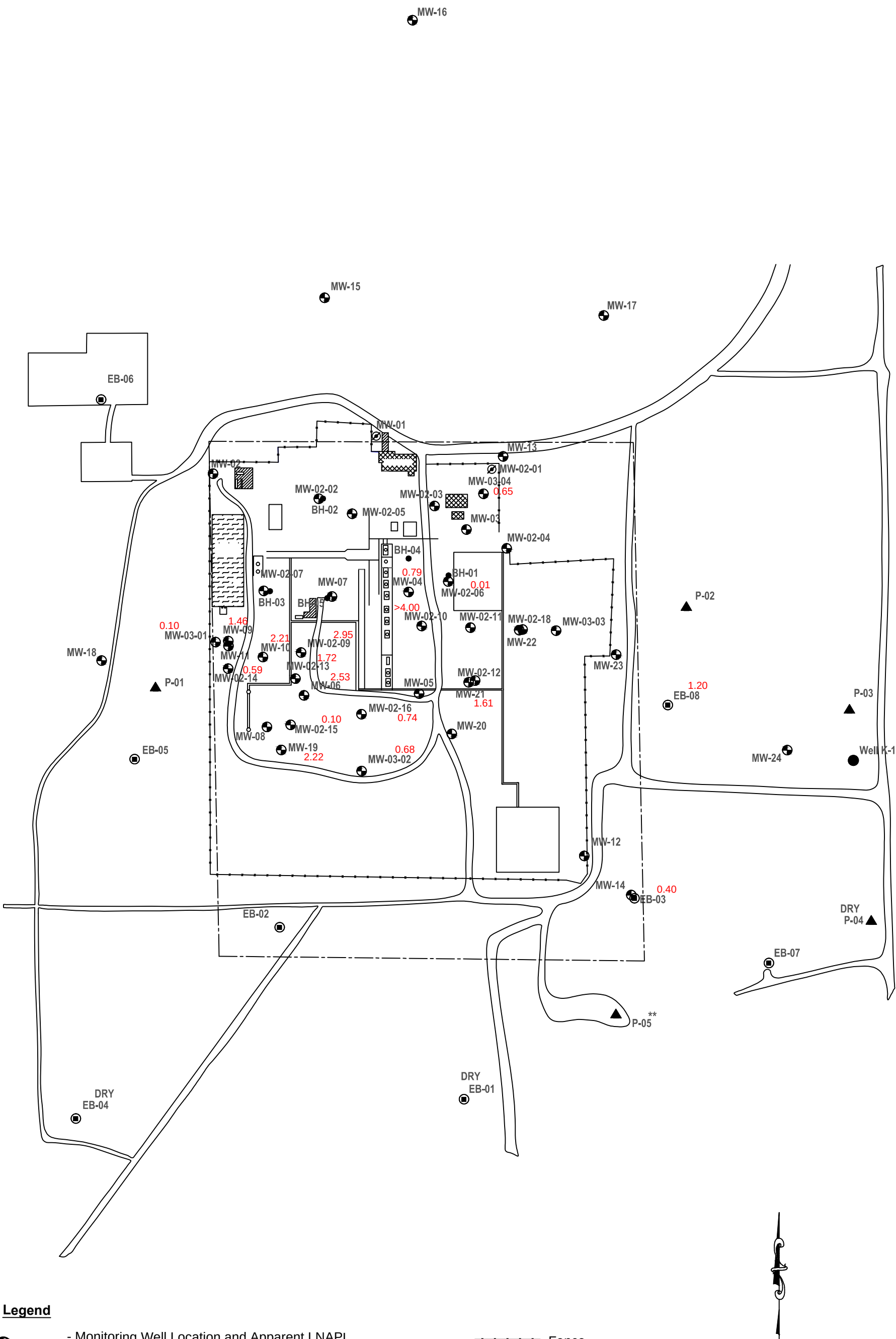
- Fence
- Property Line
- Draw
- Road



Frontier Field Services, LLC
AP - 112 / Empire - Abo Compressor Station
Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E
Eddy County, New Mexico
32° 46' 33.7"N
104° 15' 37.22"W

Larson & Associates, Inc.
Environmental Consultants

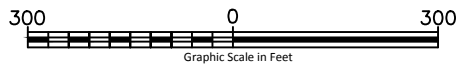
Figure 4a - Apparent LNAPL Thickness, April 11, 2016



Legend

- MW-10
- MW-01
- EB-03
- P-03
- N/S
- *
- **

- Fence
- Property Line
- Draw
- Road



Frontier Field Services, LLC
AP - 112 / Empire - Abo Compressor Station
Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E
Eddy County, New Mexico
32° 46' 33.7"N
104° 15' 37.22"W

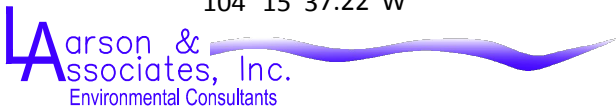
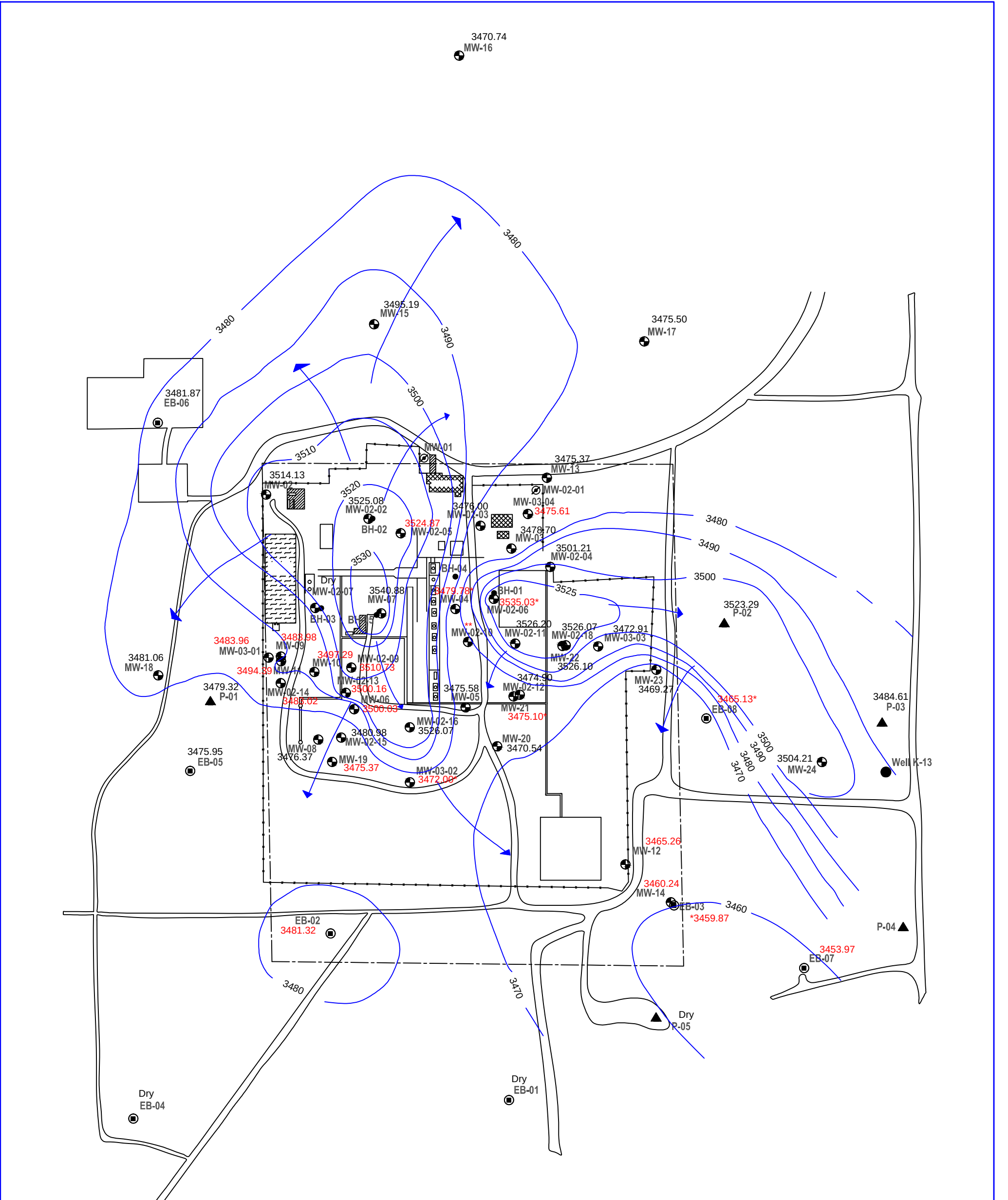


Figure 4b - Apparent LNAPL Thickness, December 12-13, 2016



Legend

— 3490 —

—>

3481.06
MW-18

MW-01

3481.02
EB-02

3523.29
P-02

N/S

*

**

- Contour of Groundwater Potentiometric Surface Elevation, feet AMSL, , April 11, 2016

- Groundwater Flow Direction

- Monitoring Well Location and Groundwater Potentiometric Surface Elevation, feet AMSL, April 11, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and Groundwater Potentiometric Surface Elevation, feet AMSL, April 11, 2016

- Piezometer (Fluid Level) Location and Groundwater Potentiometric Surface Elevation, feet AMSL, April 11, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

Fence

Property Line

Draw

Road

300

0

300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

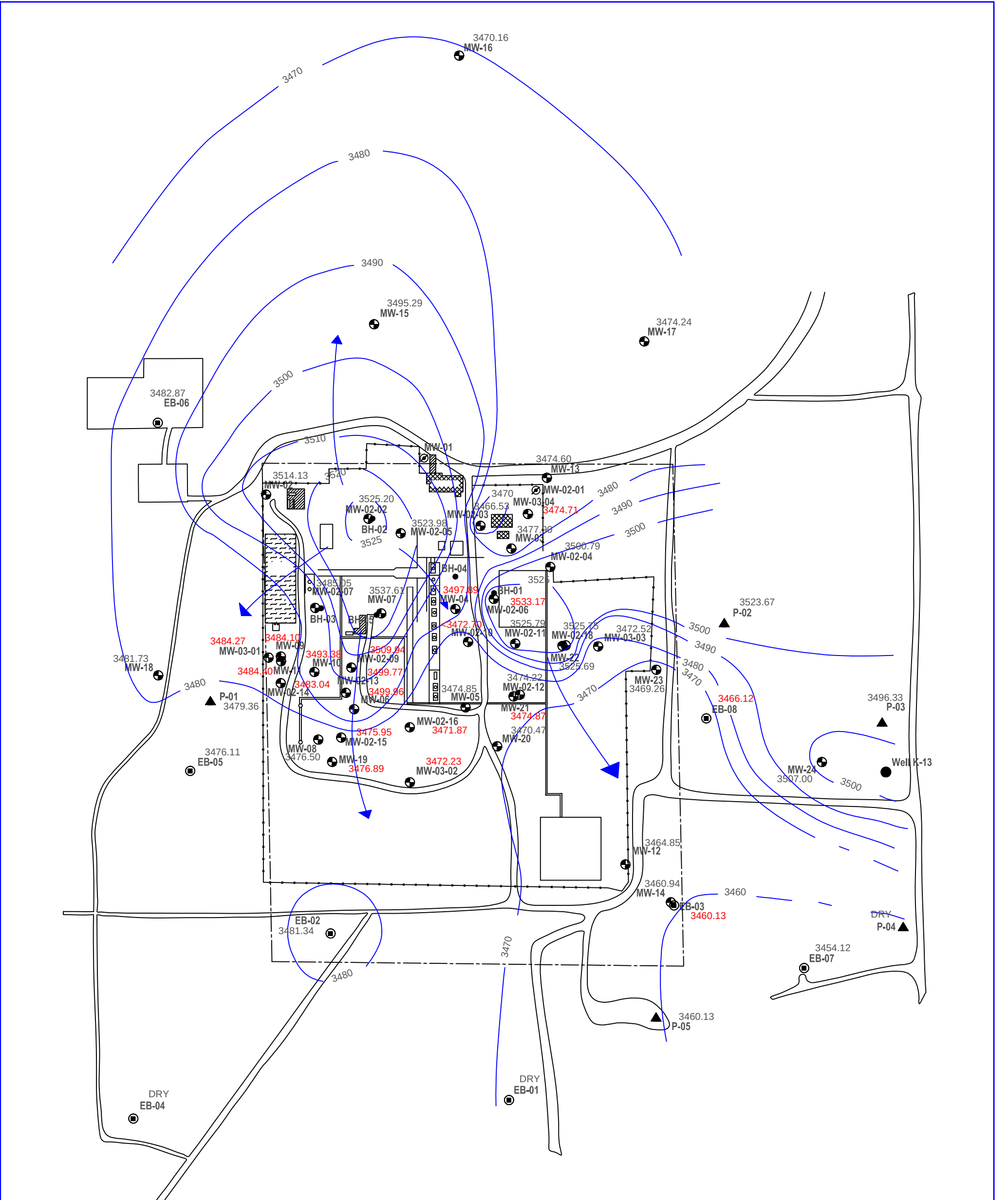
32° 46' 33.7"N

104° 15' 37.22"W

Larson & Associates, Inc.

Environmental Consultants

Figure 5a- Site Map Showing Groundwater Potentiometric Map, April 11, 2016



Legend

— 3490 —

— 3490 —

→

→

3481.73
MW-18

MW-01

3481.34
EB-02

3523.67
P-02

N/S

*

**

- Contour of Groundwater Potentiometric Surface Elevation, feet AMSL, December 12-13, 2016

- Groundwater Flow Direction

- Monitoring Well Location and Groundwater Potentiometric Surface Elevation, feet AMSL, December 12-13, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and Groundwater Potentiometric Surface Elevation, feet AMSL, December 12-13, 2016

- Piezometer (Fluid Level) Location and Groundwater Potentiometric Surface Elevation, feet AMSL, December 12-13, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

Fence

Property Line

Draw

Road

300

0

300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

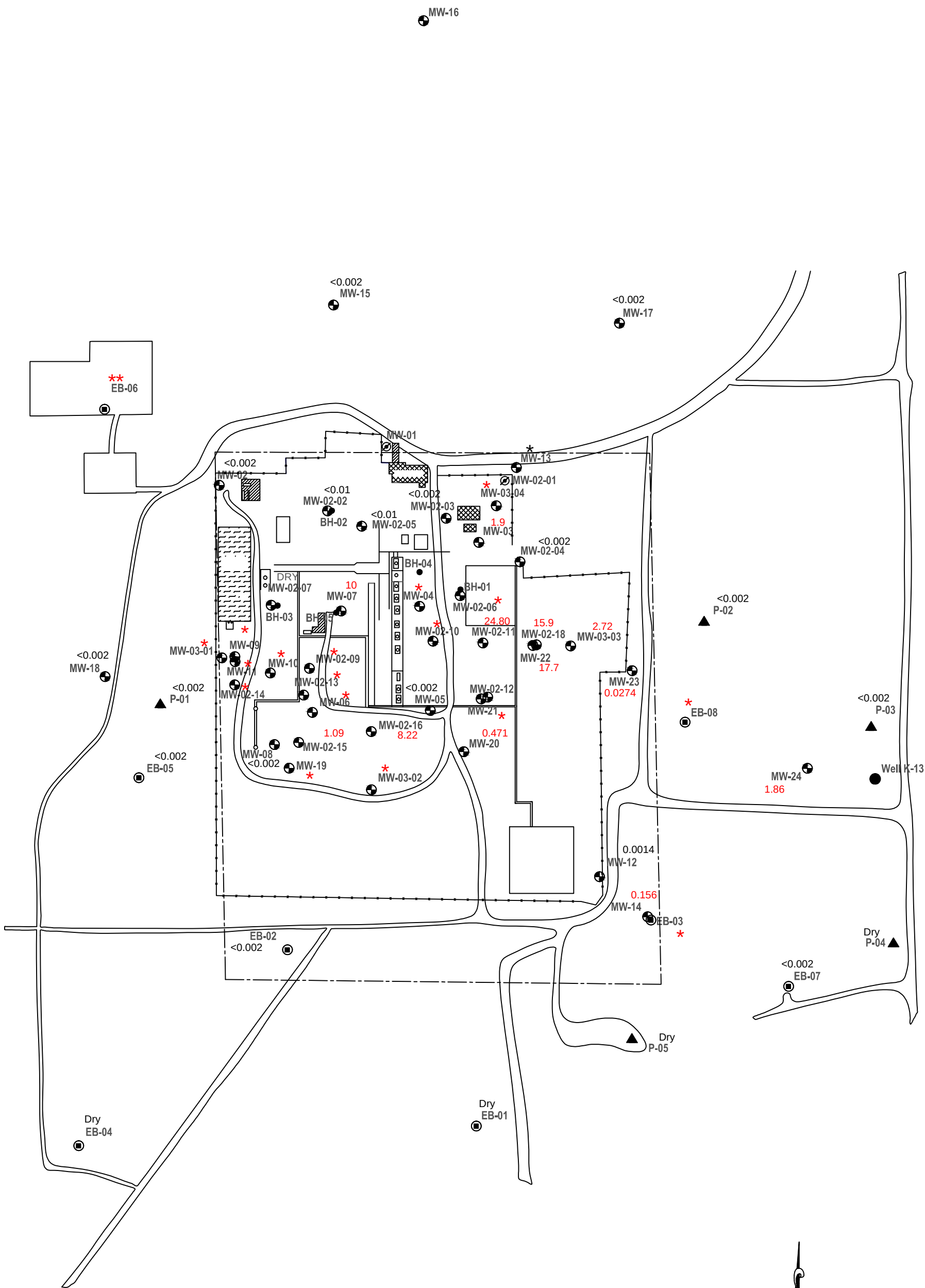
32° 46' 33.7"N

104° 15' 37.22"W

Larson & Associates, Inc.

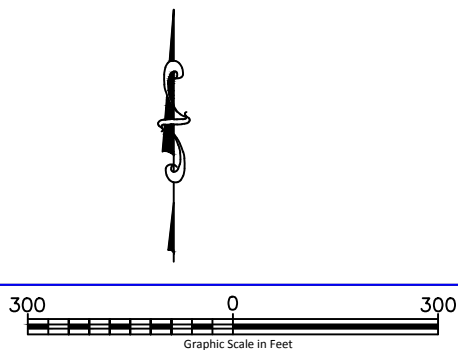
Environmental Consultants

Figure 5b- Site Map Showing Groundwater Potentiometric Map, December 12-13, 2016



Legend

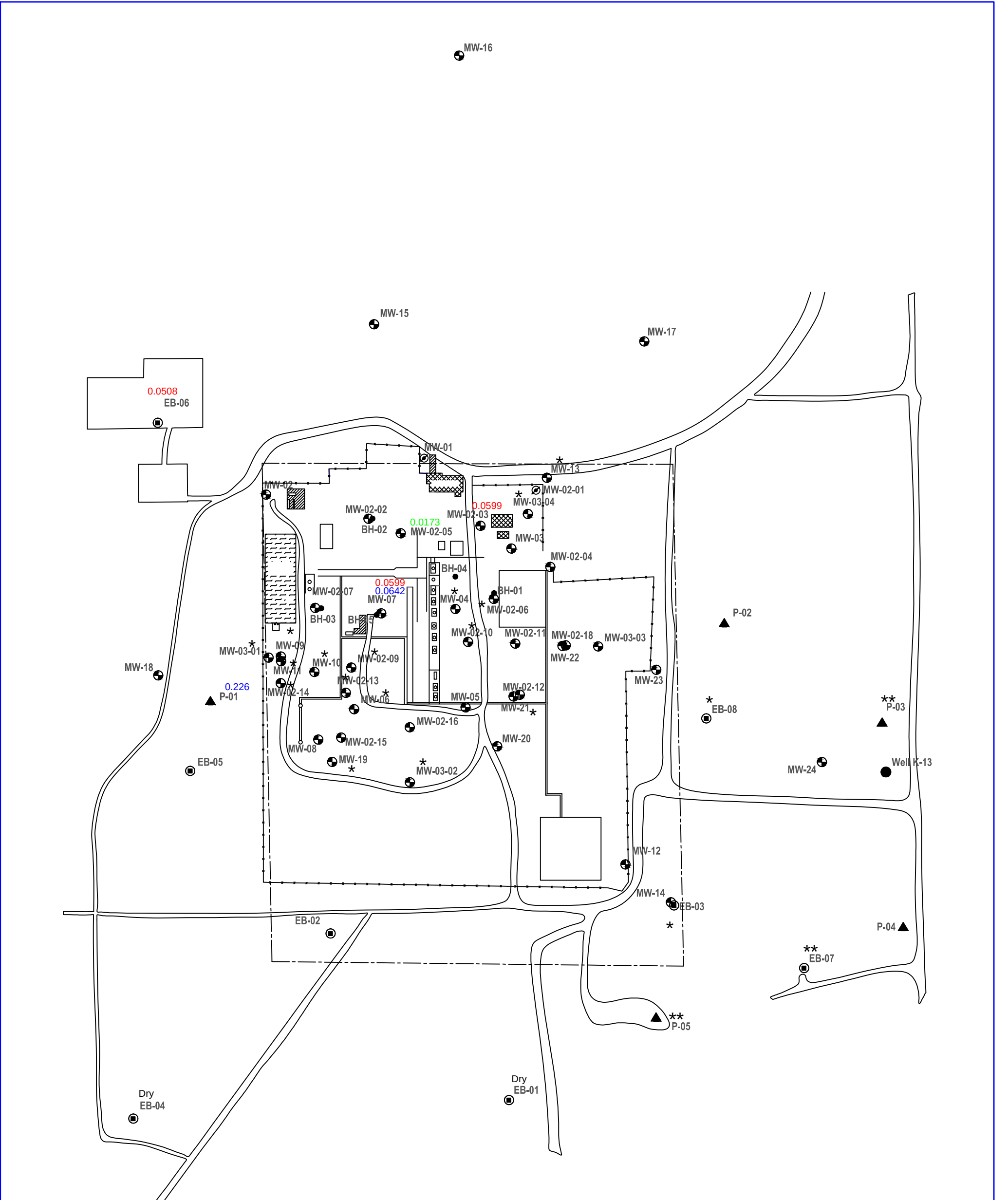
- 17.7 MW-22 - Monitoring Well Location and Benzene Concentration in Groundwater mg/L, April 12-13, 2016
- MW-01 - Plugged and Abandoned Monitoring Well
- <0.002 EB-01 - Monitoring Well Location and Benzene Concentration in Groundwater mg/L, April 12-13, 2016
- <0.002 P-03 - Piezometer (Fluid Level) and Benzene Concentration in Groundwater mg/L, April 12-13, 2016
- N/S - Not Sampled
- *
- **
- |X| - WACC Human Health Standard : 0.01 mg/L
- Fence
- Property Line
- Draw
- Road



Frontier Field Services, LLC
AP - 112 / Empire - Abo Compressor Station
Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E
Eddy County, New Mexico
32° 46' 33.7"N
104° 15' 37.22"W

Larson & Associates, Inc.
Environmental Consultants

Figure 6a- Benzene Concentration in Groundwater, April 12-13, 2016



Legend

0.0173
MW-02-02

0.06
MW-07

MW-01

EB-06

0.226
P-01

N/S

*

**

[X]

- Monitoring Well Location and Dissolved **Selenium** and Dissolved **Chromium** in Groundwater, mg/L, April 12-13, 2016

- Monitoring Well Location and Dissolved **Selenium** and Dissolved **Chromium** in Groundwater, mg/L, April 12-13, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location

- Piezometer (Fluid Level) Location and Disolved Arsenic (Above WQCC Limit) in Groundwater, mg/L, April 12-13, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

- WACC Human Health Standard : 0.05 mg/L

Fence

Property Line

Draw

Road

3000300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

32° 46' 33.7"N

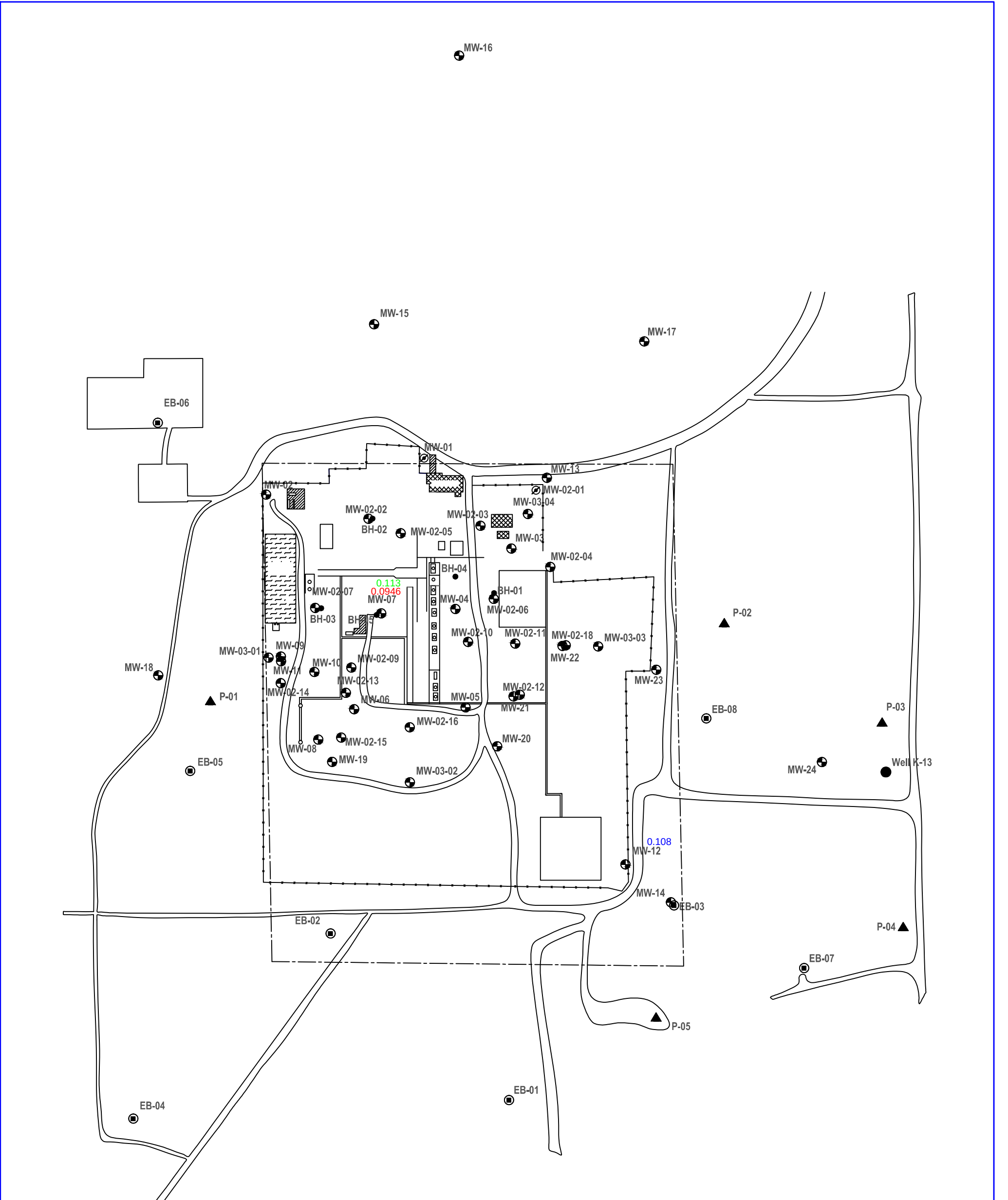
104° 15' 37.22"W

L

arson &
Associates, Inc.

Environmental Consultants

Figure 7a- Dissolved Metals (Above WQCC Limits) in Groundwater, April 12-13, 2016



0.113
0.0946
MW-07

0.108
MW-12

MW-01

EB-06

P-01

N/S

*

**

0.05

Legend

- Monitoring Well Location and Dissolved **Selenium** and Dissolved **Chromium** in Groundwater, mg/L, December 13-14, 2016

- Monitoring Well Location and Disolved **Arsenic** (Above WQCC Limit) in Groundwater, mg/L, December 13-14, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location

- Piezometer (Fluid Level) Location , December 13-14, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

- WACC Human Health Standard : 0.05 mg/L

Fence

Property Line

Draw

Road

3000300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

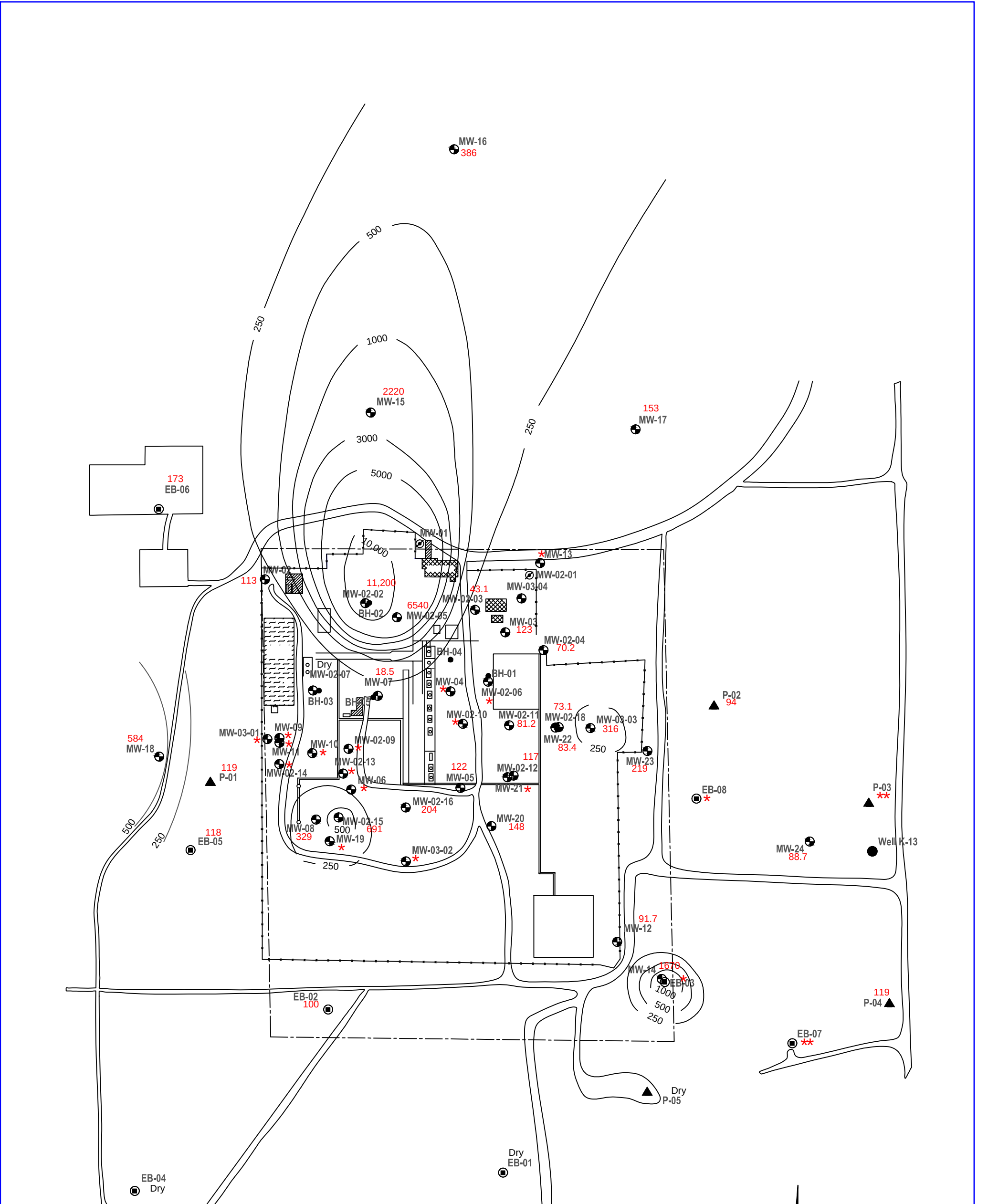
32° 46' 33.7"N

104° 15' 37.22"W

Larson & Associates, Inc.

Environmental Consultants

Figure 7b- Dissolved Metals (Above WQCC Limits) in Groundwater, December 13-14, 2016



Legend

— 500 —

584
MW-18

MW-01

100
EB-02

94
P-02

N/S

*

**

- Isopleth of Chloride Concentration in Groundwater, mg/L, April 12-13, 2016
WQCC Domestic water Quality Standard: 250 mg/L

- Monitoring Well Location and Chloride Concentration in Groundwater
mg/L, April 12-13,2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and Chloride Concentration in Groundwater
mg/L, April 12-13,2016

- Piezometer (Fluid Level) Location and Chloride Concentration in
Groundwater, mg/L, April 12-13, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

----- Fence

----- Property Line

----- Draw

===== Road



30000300
0
Graphic Scale in Feet

Frontier Field Services, LLC
AP - 112 / Empire - Abo Compressor Station
Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E
Eddy County, New Mexico
32° 46' 33.7"N
104° 15' 37.22"W

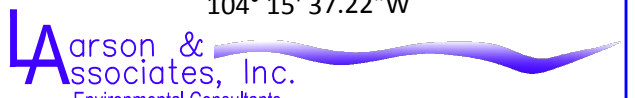
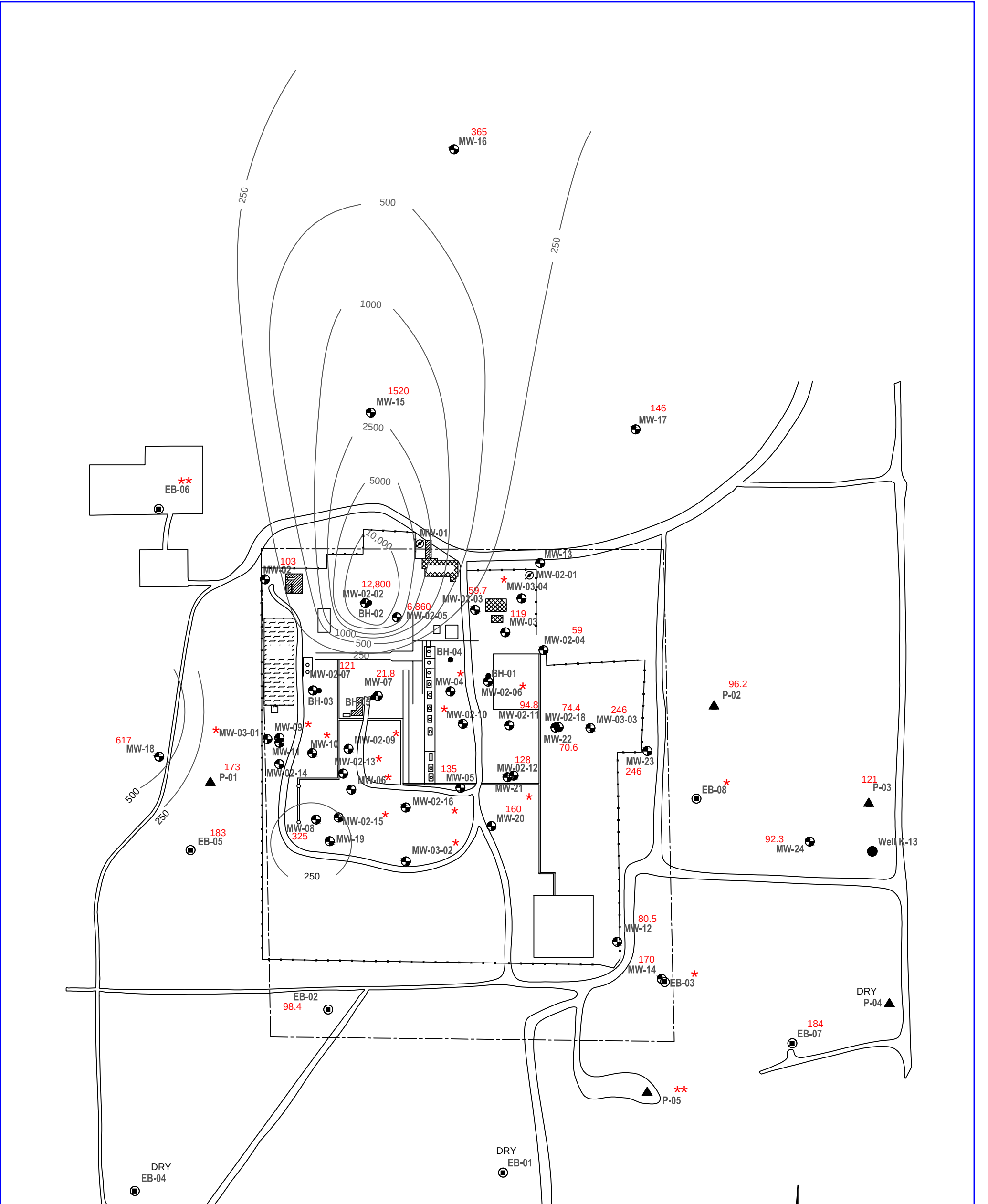
**Larson & Associates, Inc.**
Environmental Consultants

Figure 8a - Chloride Concentration in Groundwater, April 12-13, 2016



Legend

— 500 —

617
MW-18

MW-01

98.4
EB-02

96.2
P-03

N/S

*

**

- Isopleth of Chloride Concentration in Groundwater, mg/L, December 13-14, 2016
WQCC Domestic water Quality Standard: 250 mg/L

- Monitoring Well Location and Chloride Concentration in Groundwater
mg/L, December 13-14, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and Chloride Concentration in Groundwater
mg/L, December 13-14, 2016

- Piezometer (Fluid Level) Location and Chloride Concentration in Groundwater
mg/L, December 13-14, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

----- Fence

----- Property Line

----- Draw

==== Road

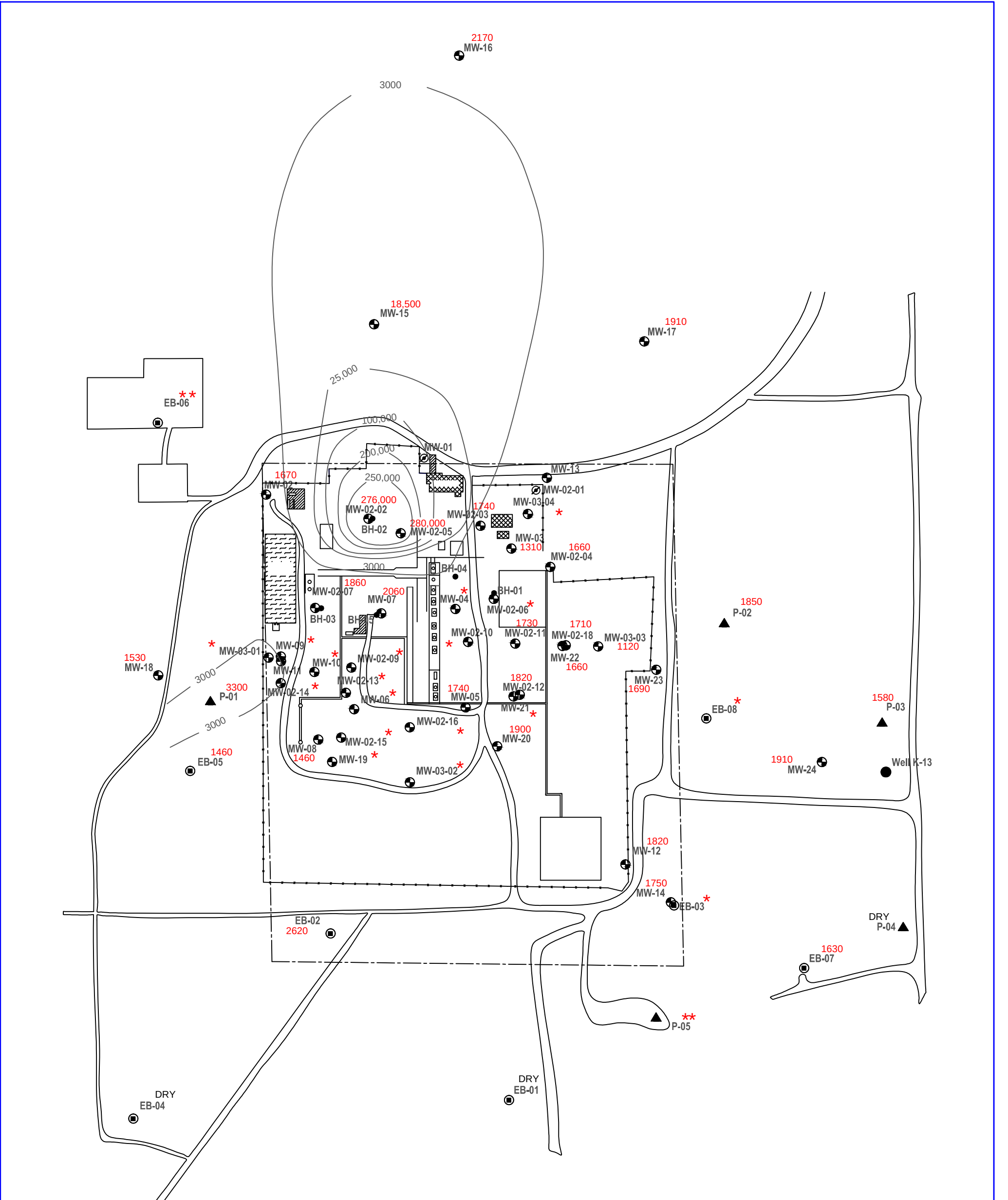


30000300
Graphic Scale in Feet

Frontier Field Services, LLC
AP - 112 / Empire - Abo Compressor Station
Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E
Eddy County, New Mexico
32° 46' 33.7"N
104° 15' 37.22"W

Larson & Associates, Inc.
Environmental Consultants

Figure 8b - Chloride Concentration in Groundwater, December 13-14, 2016



Legend

— 3,000 —

1530.0
MW-18

MW-01

2620.0
EB-02

1850.0
P-02

N/S

*

**

- Contour of Sulfate Concentration in Groundwater, mg/L, December 13-14, 2016
WQCC Domestic water Quality Standard: 1,000 mg/L

- Monitoring Well Location and Sulfate Concentration in Groundwater
mg/L, December 13-14, 2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and Sulfate Concentration in
Groundwater, mg/L, December 13-14, 2016

- Piezometer (Fluid Level) Location and Sulfate Concentration in
Groundwater, mg/L, December 13-14, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

— — — — —

— — — — —

— — — — —

— — — — —

Fence

Property Line

Draw

Road

3000

0

300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

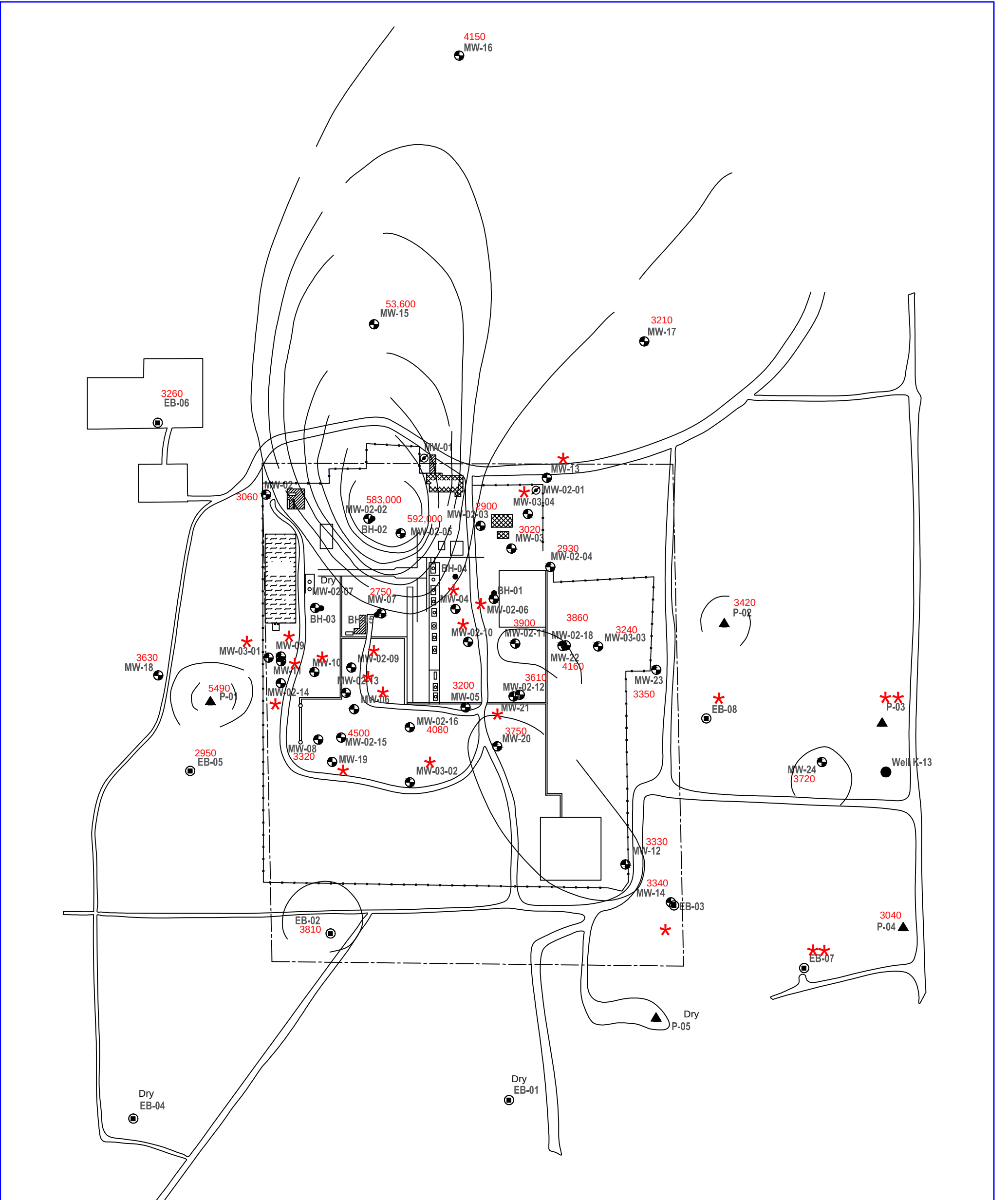
32° 46' 33.7"N

104° 15' 37.22"W

Larson & Associates, Inc.

Environmental Consultants

Figure 9b- Site Map Showing Sulfate Concentration in Groundwater, December 13-14, 2016



Legend

3630

MW-18

MW-01

3810

EB-02

3420

P-02

N/S

*

**

- Contour of TDS Concentration in Groundwater, mg/L, April 12-13, 2016

WQCC Domestic water Quality Standard: 1,000 mg/L

- Monitoring Well Location and TDS Concentration in Groundwater mg/L, April 12-13,2016

- Plugged and Abandoned Monitoring Well

- Monitoring Well Location and TDS Concentration in Groundwater, mg/L, April 12-13, 2016

- Piezometer (Fluid Level) Location and TDS Concentration in Groundwater, mg/L, April 12-13, 2016

- Not Sampled

- Hydrocarbon Product Present in Well

- Insufficient Water for Sample

Fence

Property Line

Draw

Road

300

0

300

Graphic Scale in Feet

Frontier Field Services, LLC

AP - 112 / Empire - Abo Compressor Station

Unit I, (NE/4, SE/4)- 18 - S, R - 27 - E

Eddy County, New Mexico

32° 46' 33.7"N

104° 15' 37.22"W

L

arson &

Associates, Inc.

Environmental Consultants

Figure 10a- Site Map Showing TDS Concentration in Groundwater, April 12-13, 2016

Appendix A

Laboratory Reports



April 27, 2016

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456
RE: Empire Abo

Order No.: 1604146

Dear Mark Larson:

DHL Analytical, Inc. received 31 sample(s) on 4/14/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

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

John DuPont
General Manager

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



Table of Contents

Miscellaneous Documents	3
CaseNarrative 1604146	10
WorkOrderSampleSummary 1604146	12
PrepDatesReport 1604146	13
AnalyticalDatesReport 1604146	22
Analytical Report 1604146	32
AnalyticalQCSummaryReport 1604146	63

CLIENT: Larson and Associates
ADDRESS: 607 N Marienfeld St 205 Midland, TX 79701
PHONE: (432) 687-0801 FAX/E-MAIL: _____
DATA REPORTED TO: Mark Larson
ADDITIONAL REPORT COPIES TO: _____

DATE: 4/13/2016 PAGE 1 OF 1
PO #: [REDACTED] DHL WORK ORDER #: 1604146
PROJECT LOCATION OR NAME: Empire Abo
CLIENT PROJECT #: 6-0141 COLLECTOR: Sarah Shuster

[illegible]

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature) _____

TURN AROUND TIME

RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 21.1/22.2 THERM #: 78

CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED

CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER

☐ COURIER DELIVERY

☐ HAND DELIVERED

☐ DHL DISPOSAL @ \$5.00 each

☐ Return

3



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



No 70827
CHAIN-OF-CUSTODY

PAGE 1 OF 1

CLIENT: Larson & Associates
ADDRESS: 507 Marienfeld St. 205 Midland, TX 79701
PHONE: (432) 682-0901 FAX/E-MAIL: _____
DATA REPORTED TO: Mark Larson
ADDITIONAL REPORT COPIES TO: Carson Hughes

DATE: 4/13/2016

PO #: 60414

DHL WORK ORDER #: 160414

PROJECT LOCATION OR NAME: Empire ABO

CLIENT PROJECT #: 6-0141

COLLECTOR: Travis Williams/Carson Hughes

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION					ANALYSES															FIELD NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
							HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	UNPRESERVED	BTX	MTBE	TPH	GRO	VOC	SVOC	8270	8271	8272	8273	8274	8275	8276	8277		8278	8279	8280	8281	8282	8283	8284	8285	8286	8287	8288	8289	8290	8291	8292	8293	8294	8295	8296	8297	8298	8299	8300	8301	8302	8303	8304	8305	8306	8307	8308	8309	8310	8311	8312	8313	8314	8315	8316	8317	8318	8319	8320	8321	8322	8323	8324	8325	8326	8327	8328	8329	8330	8331	8332	8333	8334	8335	8336	8337	8338	8339	8340	8341	8342	8343	8344	8345	8346	8347	8348	8349	8350	8351	8352	8353	8354	8355	8356	8357	8358	8359	8360	8361	8362	8363	8364	8365	8366	8367	8368	8369	8370	8371	8372	8373	8374	8375	8376	8377	8378	8379	8380	8381	8382	8383	8384	8385	8386	8387	8388	8389	8390	8391	8392	8393	8394	8395	8396	8397	8398	8399	8400	8401	8402	8403	8404	8405	8406	8407	8408	8409	8410	8411	8412	8413	8414	8415	8416	8417	8418	8419	8420	8421	8422	8423	8424	8425	8426	8427	8428	8429	8430	8431	8432	8433	8434	8435	8436	8437	8438	8439	8440	8441	8442	8443	8444	8445	8446	8447	8448	8449	8450	8451	8452	8453	8454	8455	8456	8457	8458	8459	8460	8461	8462	8463	8464	8465	8466	8467	8468	8469	8470	8471	8472	8473	8474	8475	8476	8477	8478	8479	8480	8481	8482	8483	8484	8485	8486	8487	8488	8489	8490	8491	8492	8493	8494	8495	8496	8497	8498	8499	8500	8501	8502	8503	8504	8505	8506	8507	8508	8509	8510	8511	8512	8513	8514	8515	8516	8517	8518	8519	8520	8521	8522	8523	8524	8525	8526	8527	8528	8529	8530	8531	8532	8533	8534	8535	8536	8537	8538	8539	8540	8541	8542	8543	8544	8545	8546	8547	8548	8549	8550	8551	8552	8553	8554	8555	8556	8557	8558	8559	8560	8561	8562	8563	8564	8565	8566	8567	8568	8569	8570	8571	8572	8573	8574	8575	8576	8577	8578	8579	8580	8581	8582	8583	8584	8585	8586	8587	8588	8589	8590	8591	8592	8593	8594	8595	8596	8597	8598	8599	8600	8601	8602	8603	8604	8605	8606	8607	8608	8609	8610	8611	8612	8613	8614	8615	8616	8617	8618	8619	8620	8621	8622	8623	8624	8625	8626	8627	8628	8629	8630	8631	8632	8633	8634	8635	8636	8637	8638	8639	8640	8641	8642	8643	8644	8645	8646	8647	8648	8649	8650	8651	8652	8653	8654	8655	8656	8657	8658	8659	8660	8661	8662	8663	8664	8665	8666	8667	8668	8669	8670	8671	8672	8673	8674	8675	8676	8677	8678	8679	8680	8681	8682	8683	8684	8685	8686	8687	8688	8689	8690	8691	8692	8693	8694	8695	8696	8697	8698	8699	8700	8701	8702	8703	8704	8705	8706	8707	8708	8709	8710	8711	8712	8713	8714	8715	8716	8717	8718	8719	8720	8721	8722	8723	8724	8725	8726	8727	8728	8729	8730	8731	8732	8733	8734	8735	8736	8737	8738	8739	8740	8741	8742	8743	8744	8745	8746	8747	8748	8749	8750	8751	8752	8753	8754	8755	8756	8757	8758	8759	8760	8761	8762	8763	8764	8765	8766	8767	8768	8769	8770	8771	8772	8773	8774	8775	8776	8777	8778	8779	8780	8781	8782	8783	8784	8785	8786	8787	8788	8789	8790	8791	8792	8793	8794	8795	8796	8797	8798	8799	8800	8801	8802	8803	8804	8805	8806	8807	8808	8809	8810	8811	8812	8813	8814	8815	8816	8817	8818	8819	8820	8821	8822	8823	8824	8825	8826	8827	8828	8829	8830	8831	8832	8833	8834	8835	8836	8837	8838	8839	8840	8841	8842	8843	8844	8845	8846	8847	8848	8849	8850	8851	8852	8853	8854	8855	8856	8857	8858	8859	8860	8861	8862	8863	8864	8865	8866	8867	8868	8869	8870	8871	8872	8873	8874	8875	8876	8877	8878	8879	8880	8881	8882	8883	8884	8885	8886	8887	8888	8889	8890	8891	8892	8893	8894	8895	8896	8897	8898	8899	8900	8901	8902	8903	8904	8905	8906	8907	8908	8909	8910	8911	8912	8913	8914	8915	8916	8917	8918	8919	8920	8921	8922	8923	8924	8925	8926	8927	8928	8929	8930	8931	8932	8933	8934	8935	8936	8937	8938	8939	8940	8941	8942	8943	8944	8945	8946	8947	8948	8949	8950	8951	8952	8953	8954	8955	8956	8957	8958	8959	8960	8961	8962	8963	8964	8965	8966	8967	8968	8969	8970	8971	8972	8973	8974	8975	8976	8977	8978	8979	8980	8981	8982	8983	8984	8985	8986	8987	8988	8989	8990	8991	8992	8993	8994	8995	8996	8997	8998	8999	9000	9001	9002	9003	9004	9005	9006	9007	9008	9009	9010	9011	9012	9013	9014	9015	9016	9017	9018	9019	9020	9021	9022	9023	9024	9025	9026	9027	9028	9029	9030	9031	9032	9033	9034	9035	9036	9037	9038	9039	9040	9041	9042	9043	9044	9045	9046	9047	9048	9049	9050	9051	9052	9053	9054	9055	9056	9057	9058	9059	9060	9061	9062	9063	9064	9065	9066	9067	9068	9069	9070	9071	9072	9073	9074	9075	9076	9077	9078	9079	9080	9081	9082	9083	9084	9085	9086	9087	9088	9089	9090	9091	9092	9093	9094	9095	9096	9097	9098	9099	9100	9101	9102	9103	9104	9105	9106	9107	9108	9109	9110	9111	9112	9113	9114	9115	9116	9117	9118	9119	9120	9121	9122	9123	9124	9125	9126	9127	9128	9129	9130	9131	9132	9133	9134	9135	9136	9137	9138	9139	9140	9141	9142	9143	9144	9145	9146	9147	9148	9149	9150	9151	9152	9153	9154	9155	9156	9157	9158	9159	9160	9161	9162	9163	9164	9165	9166	9167	9168	9169	9170	9171	9172	9173	9174	9175	9176	9177	9178	9179	9180	9181	9182	9183	9184	9185	9186	9187	9188	9189	9190	9191	9192	9193	9194	9195	9196	9197	9198	9199	9200	9201	9202	9203	9204	9205	9206	9207	9208	9209	9210	9211	9212	9213	9214	9215	9216	9217	9218	9219	9220	9221	9222	9223	9224	9225	9226	9227	9228	9229	9230	9231	9232	9233	9234	9235	9236	9237	9238	9239	9240	9241	9242	9243	9244	9245	9246	9247	9248	9249	9250	9251	9252	9253	9254	9255	9256	9257	9258	9259	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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: _____

DATE: 4/13/2016 PAGE 1 OF 1
PO #: [REDACTED] DHL WORK ORDER #: 16001146
PROJECT LOCATION OR NAME: Empire Abo
CLIENT PROJECT #: 6-0141 COLLECTOR: Sarah Shuler

[illegible]

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
<i>Josephine</i>	4/13/16 4:30pm	<i>Josephine</i>
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
<i>Josephine</i>	4/14/16 125	<i>Josephine</i>
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)

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

LABORATORY USE ONLY:
RECEIVING TEMP: 21.11 °C THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

ORIGIN ID: H0BA (432) 687-0901
MARK LARSON

507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 13APR16
ACTWT: 64.20 LB
CAD: 006994246/SSFE1703
DIMS: 25x15x14 IN

BILL THIRD PARTY

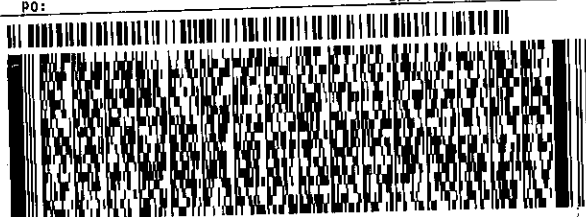
TO **J BAKER**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222
THU:
PO:

REF:

DEPT:



FedEx
Express



AR100208101917

TRK# 7828 3001 5809
0201

THU - 14 APR 10:30A
PRIORITY OVERNIGHT

A8 BSMA

78664
TX-US AUS



UNITED STATES US

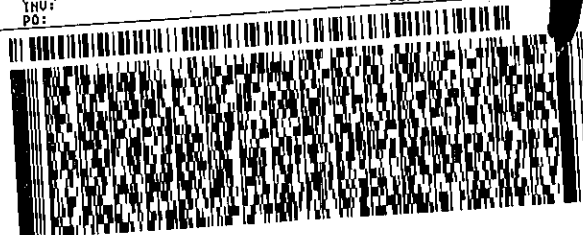
TO **J BAKER**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222
THU:
PO:

REF:

DEPT:



FedEx
Express



AR100208101917

TRK# 7828 3000 3724
0201

THU - 14 APR 10:30A
PRIORITY OVERNIGHT

A8 BSMA

78664
TX-US AUS



ORIGIN ID: H0BA (432) 687-0901
MARK LARSON

507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 13APR16
ACTWGT: 14.10 LB
CAD: 006994246/SSFE1703
DIMS: 12x11x12 IN

BILL THIRD PARTY

Part # 156297-435 R12 12/15

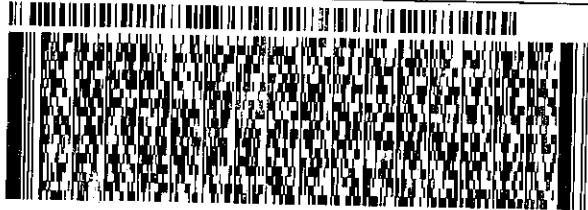
TO **J BAKER**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(E12) 388-8222

REF:

DEPT:



FedEx
Express



TRK# 7828 2998 9102
0201

THU - 14 APR 10:30A
PRIORITY OVERNIGHT

A8 BSMA

78664
TX-US AUS

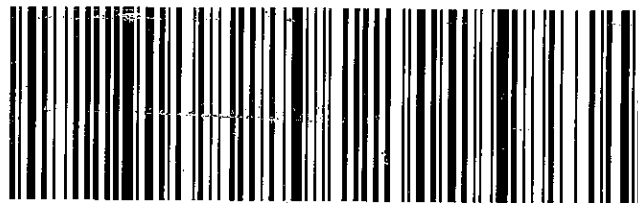


TRK#
0201

10:30A

44 BSMA

78664
TX-US
AUS



290240 14Apr 02:46 AFWHU 541C1/1042/9524

MIDLAND, ^{TX}
UNITED STATES US

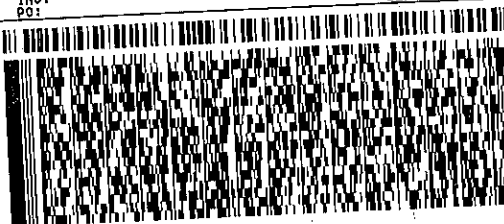
TO J BAKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(612) 388-8222
INV:
PO:

REF :

DEPT:



FedEx
Express



1

TRK#
0201

TRK# 7828 2994 0969
0201

THU - 14 APR 10:30A
PRIORITY OVERNIGHT

A8 BSMA

78664
TX-US AUS



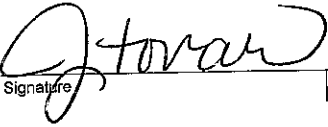
Sample Receipt Checklist

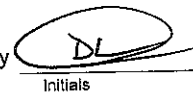
Client Name **Larson & Associates**

Date Received: **4/14/2016**

Work Order Number **1604146**

Received by **JB**

Checklist completed by:  4/14/2016
Signature Date

Reviewed by:  4/14/2016
Initials Date

Carrier name **FedEx 1day**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	2.1 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH<2 acceptable upon receipt?	Yes ☒	No ☐	NA ☐ LOT # 8086
	Adjusted? _____	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 _____

CLIENT: Larson & Associates
Project: Empire Abo
Lab Order: 1604146

CASE NARRATIVE

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

Method SW6020A - Dissolved Metals Analysis
Method SW7470A - Mercury Analysis (Filtered)
Method SW8021B - Volatile Organics by GC Analysis
Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids Analysis
Method M2320 B - Alkalinity Analysis

LOG IN

The samples were received and log-in performed on 4/14/2016. A total of 31 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

VOLATILE ORGANICS BY GC ANALYSIS

For Volatile Organics by GC Analysis, some samples were diluted due to concentration of target analytes.

METALS ANALYSIS

For Dissolved Metals Analysis, for Batches 74628 and 74632, the recoveries of up to two analytes for the Matrix Spike and Matrix Spike Duplicate(s) (1604146-04, 1604152-01 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS(s). No further corrective action was taken.

For Dissolved Metals Analysis, performed on 4/18, 20, 25/2016, the recovery of Sodium for the Low Level Calibration Verification(s) was above the method control limits, due to concentration of target analyte in field samples. These are flagged accordingly in the QC Summary Report. The concentration of this analyte is similar to the CCV spike levels or is being reported in QC samples. No further corrective action was taken.

For Dissolved Metals Analysis, performed on 4/20/2016, Sodium was detected below the reporting limit for the Continuing Calibration Blank (CCB8-160420), due to carryover. This analyte is being reported in previous and subsequent brackets for QC samples only. No further corrective action was taken.

For Dissolved Metals Analysis, the response factor of Internal Standard Bismuth 209 was below the

CLIENT: Larson & Associates
Project: Empire Abo
Lab Order: 1604146

CASE NARRATIVE

method control limits for Samples MW-15, MW-02-02 and MW-02-05. The associated analyte, Lead, was nondetect for these samples. No further corrective action was taken.

For Dissolved Metals Analysis, for Batch 74628, Calcium, Lead and Sodium were detected below the reporting limit for Filter Blank-74628. The analyte Lead was nondetect in the associated samples. The analytes Calcium and Sodium were detected in the associated samples at greater than 10x the amount detected in the filter blank. These analytes were nondetect in the batch method blank. No further corrective action was taken.

For Dissolved Metals Analysis, for Batch 74632, Calcium, Lead and Sodium were detected below the reporting limit for Filter Blank-74632. The analyte Lead was nondetect in the associated samples. The analytes Calcium and Sodium were detected in the associated samples at greater than 10x the amount detected in the filter blank. These analytes were nondetect in the batch method blank. No further corrective action was taken.

MERCURY ANALYSIS

For Mercury Analysis, performed on 4/19/2016, Mercury was detected above the reporting limit for the Continuing Calibration Blank(s) (CCB2/3-160419). Mercury was nondetect in the associated samples. No further corrective action was taken.

ANIONS ANALYSIS

For Anions Analysis, for Batches 74674 and 74702, the recoveries of up to two anions for the Matrix Spike and Matrix Spike Duplicate(s) (1604146-09, -29 MS/MSD) were slightly above the method control limits. These are flagged accordingly in the QC Summary Report. These anions were within method control limits in the associated LCS(s). No further corrective action was taken.

CLIENT: Larson & Associates
Project: Empire Abo
Lab Order: 1604146

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1604146-01	MW-23		04/12/16 09:45 AM	4/14/2016
1604146-02	P-04		04/12/16 10:15 AM	4/14/2016
1604146-03	MW-24		04/12/16 10:45 AM	4/14/2016
1604146-04	P-02		04/12/16 11:00 AM	4/14/2016
1604146-05	EB-06		04/12/16 12:00 PM	4/14/2016
1604146-06	MW-15		04/12/16 12:30 PM	4/14/2016
1604146-07	MW-16		04/12/16 01:00 PM	4/14/2016
1604146-08	MW-17		04/12/16 01:45 PM	4/14/2016
1604146-09	MW-02-03		04/12/16 03:15 PM	4/14/2016
1604146-10	MW-18		04/12/16 10:05 AM	4/14/2016
1604146-11	EB-02		04/12/16 10:45 AM	4/14/2016
1604146-12	EB-05		04/12/16 11:19 AM	4/14/2016
1604146-13	P-01		04/12/16 11:30 AM	4/14/2016
1604146-14	MW-14		04/12/16 12:50 PM	4/14/2016
1604146-15	MW-12		04/12/16 03:00 PM	4/14/2016
1604146-16	MW-05		04/12/16 04:05 PM	4/14/2016
1604146-17	MW-20		04/13/16 09:00 AM	4/14/2016
1604146-18	MW-02-16		04/13/16 10:05 AM	4/14/2016
1604146-19	MW-02-15		04/13/16 10:50 AM	4/14/2016
1604146-20	MW-2		04/13/16 11:40 AM	4/14/2016
1604146-21	MW-08		04/13/16 12:10 PM	4/14/2016
1604146-22	MW-07		04/13/16 12:56 PM	4/14/2016
1604146-23	MW-02-02		04/13/16 02:15 PM	4/14/2016
1604146-24	MW-02-05		04/13/16 02:30 PM	4/14/2016
1604146-25	MW-3		04/13/16 08:15 AM	4/14/2016
1604146-26	MW-02-11		04/13/16 08:30 AM	4/14/2016
1604146-27	MW-02-04		04/13/16 09:30 AM	4/14/2016
1604146-28	MW-22		04/13/16 10:15 AM	4/14/2016
1604146-29	MW-02-18		04/13/16 11:45 AM	4/14/2016
1604146-30	MW-03-03		04/13/16 12:30 PM	4/14/2016
1604146-31	MW-02-12		04/13/16 01:15 AM	4/14/2016

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-01A	MW-23	04/12/16 09:45 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-01C	MW-23	04/12/16 09:45 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-23	04/12/16 09:45 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-23	04/12/16 09:45 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-01D	MW-23	04/12/16 09:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-23	04/12/16 09:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-23	04/12/16 09:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-02A	P-04	04/12/16 10:15 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-02C	P-04	04/12/16 10:15 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	P-04	04/12/16 10:15 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	P-04	04/12/16 10:15 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	P-04	04/12/16 10:15 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-02D	P-04	04/12/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-04	04/12/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-04	04/12/16 10:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-03A	MW-24	04/12/16 10:45 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-03C	MW-24	04/12/16 10:45 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-24	04/12/16 10:45 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-24	04/12/16 10:45 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-24	04/12/16 10:45 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-03D	MW-24	04/12/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-24	04/12/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-24	04/12/16 10:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-04A	P-02	04/12/16 11:00 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-04C	P-02	04/12/16 11:00 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	P-02	04/12/16 11:00 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	P-02	04/12/16 11:00 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	P-02	04/12/16 11:00 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-04D	P-02	04/12/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-02	04/12/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-02	04/12/16 11:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-05A	EB-06	04/12/16 12:00 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-05C	EB-06	04/12/16 12:00 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	EB-06	04/12/16 12:00 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	EB-06	04/12/16 12:00 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-05D	EB-06	04/12/16 12:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-06	04/12/16 12:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-06	04/12/16 12:00 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-06A	MW-15	04/12/16 12:30 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-06C	MW-15	04/12/16 12:30 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-15	04/12/16 12:30 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-15	04/12/16 12:30 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-06D	MW-15	04/12/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-15	04/12/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-15	04/12/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-15	04/12/16 12:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-07A	MW-16	04/12/16 01:00 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-07C	MW-16	04/12/16 01:00 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-16	04/12/16 01:00 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-16	04/12/16 01:00 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-07D	MW-16	04/12/16 01:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-16	04/12/16 01:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-16	04/12/16 01:00 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-08A	MW-17	04/12/16 01:45 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-08C	MW-17	04/12/16 01:45 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-17	04/12/16 01:45 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-08C	MW-17	04/12/16 01:45 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-08D	MW-17	04/12/16 01:45 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-17	04/12/16 01:45 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-17	04/12/16 01:45 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-09A	MW-02-03	04/12/16 03:15 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-09C	MW-02-03	04/12/16 03:15 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-02-03	04/12/16 03:15 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-02-03	04/12/16 03:15 PM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-02-03	04/12/16 03:15 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-09D	MW-02-03	04/12/16 03:15 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-02-03	04/12/16 03:15 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-02-03	04/12/16 03:15 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-10A	MW-18	04/12/16 10:05 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-10C	MW-18	04/12/16 10:05 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-18	04/12/16 10:05 AM	Aqueous	E300	Anion Preparation	04/19/16 10:31 AM	74674
	MW-18	04/12/16 10:05 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-10D	MW-18	04/12/16 10:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-18	04/12/16 10:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-18	04/12/16 10:05 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-11A	EB-02	04/12/16 10:45 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-11C	EB-02	04/12/16 10:45 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	EB-02	04/12/16 10:45 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	EB-02	04/12/16 10:45 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	EB-02	04/12/16 10:45 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-11D	EB-02	04/12/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-02	04/12/16 10:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-02	04/12/16 10:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-12A	EB-05	04/12/16 11:19 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-12C	EB-05	04/12/16 11:19 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	EB-05	04/12/16 11:19 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	EB-05	04/12/16 11:19 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-12D	EB-05	04/12/16 11:19 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-05	04/12/16 11:19 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	EB-05	04/12/16 11:19 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-13A	P-01	04/12/16 11:30 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-13C	P-01	04/12/16 11:30 AM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	P-01	04/12/16 11:30 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	P-01	04/12/16 11:30 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	P-01	04/12/16 11:30 AM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-13D	P-01	04/12/16 11:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-01	04/12/16 11:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	P-01	04/12/16 11:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-14A	MW-14	04/12/16 12:50 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-14C	MW-14	04/12/16 12:50 PM	Aqueous	M2320 B	Alkalinity Preparation	04/15/16 08:54 AM	74615
	MW-14	04/12/16 12:50 PM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-14	04/12/16 12:50 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-14D	MW-14	04/12/16 12:50 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-14	04/12/16 12:50 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-14	04/12/16 12:50 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-15A	MW-12	04/12/16 03:00 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-15C	MW-12	04/12/16 03:00 PM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-12	04/12/16 03:00 PM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-12	04/12/16 03:00 PM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-12	04/12/16 03:00 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-15D	MW-12	04/12/16 03:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-12	04/12/16 03:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-15D	MW-12	04/12/16 03:00 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-16A	MW-05	04/12/16 04:05 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-16C	MW-05	04/12/16 04:05 PM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-05	04/12/16 04:05 PM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-05	04/12/16 04:05 PM	Aqueous	M2540C	TDS Preparation	04/18/16 12:13 PM	74656
1604146-16D	MW-05	04/12/16 04:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-05	04/12/16 04:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-05	04/12/16 04:05 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-17A	MW-20	04/13/16 09:00 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-17C	MW-20	04/13/16 09:00 AM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-20	04/13/16 09:00 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-20	04/13/16 09:00 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-17D	MW-20	04/13/16 09:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-20	04/13/16 09:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-20	04/13/16 09:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-18A	MW-02-16	04/13/16 10:05 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
	MW-02-16	04/13/16 10:05 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-18C	MW-02-16	04/13/16 10:05 AM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-02-16	04/13/16 10:05 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-02-16	04/13/16 10:05 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-18D	MW-02-16	04/13/16 10:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-02-16	04/13/16 10:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-02-16	04/13/16 10:05 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-19A	MW-02-15	04/13/16 10:50 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-19C	MW-02-15	04/13/16 10:50 AM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-02-15	04/13/16 10:50 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-02-15	04/13/16 10:50 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-19D	MW-02-15	04/13/16 10:50 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-19D	MW-02-15	04/13/16 10:50 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-02-15	04/13/16 10:50 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74640
1604146-20A	MW-2	04/13/16 11:40 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/18/16 09:44 AM	74648
1604146-20C	MW-2	04/13/16 11:40 AM	Aqueous	M2320 B	Alkalinity Preparation	04/26/16 01:00 AM	74799
	MW-2	04/13/16 11:40 AM	Aqueous	E300	Anion Preparation	04/20/16 10:31 AM	74700
	MW-2	04/13/16 11:40 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-20D	MW-2	04/13/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-2	04/13/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/15/16 03:00 PM	74628
	MW-2	04/13/16 11:40 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-21A	MW-08	04/13/16 12:10 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-21C	MW-08	04/13/16 12:10 PM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-08	04/13/16 12:10 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-08	04/13/16 12:10 PM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-21D	MW-08	04/13/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-08	04/13/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-08	04/13/16 12:10 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-22A	MW-07	04/13/16 12:56 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-22C	MW-07	04/13/16 12:56 PM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-07	04/13/16 12:56 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-07	04/13/16 12:56 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-07	04/13/16 12:56 PM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-22D	MW-07	04/13/16 12:56 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-07	04/13/16 12:56 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-07	04/13/16 12:56 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-23A	MW-02-02	04/13/16 02:15 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-23C	MW-02-02	04/13/16 02:15 PM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-02	04/13/16 02:15 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-02	04/13/16 02:15 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-23C	MW-02-02	04/13/16 02:15 PM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-23D	MW-02-02	04/13/16 02:15 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-02	04/13/16 02:15 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-02	04/13/16 02:15 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-02	04/13/16 02:15 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-24A	MW-02-05	04/13/16 02:30 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-24C	MW-02-05	04/13/16 02:30 PM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-05	04/13/16 02:30 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-05	04/13/16 02:30 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-05	04/13/16 02:30 PM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-24D	MW-02-05	04/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-05	04/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-05	04/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-05	04/13/16 02:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-25A	MW-3	04/13/16 08:15 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
	MW-3	04/13/16 08:15 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-25C	MW-3	04/13/16 08:15 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-3	04/13/16 08:15 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-3	04/13/16 08:15 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-25D	MW-3	04/13/16 08:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-3	04/13/16 08:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-3	04/13/16 08:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-26A	MW-02-11	04/13/16 08:30 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-26C	MW-02-11	04/13/16 08:30 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-11	04/13/16 08:30 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-11	04/13/16 08:30 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-11	04/13/16 08:30 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-26D	MW-02-11	04/13/16 08:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-26D	MW-02-11	04/13/16 08:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-11	04/13/16 08:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-27A	MW-02-04	04/13/16 09:30 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-27C	MW-02-04	04/13/16 09:30 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-04	04/13/16 09:30 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-04	04/13/16 09:30 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-04	04/13/16 09:30 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-27D	MW-02-04	04/13/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-04	04/13/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-04	04/13/16 09:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-28A	MW-22	04/13/16 10:15 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-28C	MW-22	04/13/16 10:15 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-22	04/13/16 10:15 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-22	04/13/16 10:15 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-22	04/13/16 10:15 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-28D	MW-22	04/13/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-22	04/13/16 10:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-22	04/13/16 10:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-29A	MW-02-18	04/13/16 11:45 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-29C	MW-02-18	04/13/16 11:45 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-18	04/13/16 11:45 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-18	04/13/16 11:45 AM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-02-18	04/13/16 11:45 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-29D	MW-02-18	04/13/16 11:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-18	04/13/16 11:45 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-18	04/13/16 11:45 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-30A	MW-03-03	04/13/16 12:30 PM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-30C	MW-03-03	04/13/16 12:30 PM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1604146-30C	MW-03-03	04/13/16 12:30 PM	Aqueous	E300	Anion Preparation	04/20/16 11:16 AM	74702
	MW-03-03	04/13/16 12:30 PM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-30D	MW-03-03	04/13/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-03-03	04/13/16 12:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-03-03	04/13/16 12:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641
1604146-31A	MW-02-12	04/13/16 01:15 AM	Aqueous	SW5030C	Purge and Trap Water GC	04/20/16 08:29 AM	74690
1604146-31C	MW-02-12	04/13/16 01:15 AM	Aqueous	M2320 B	Alkalinity Preparation	04/18/16 09:56 AM	74650
	MW-02-12	04/13/16 01:15 AM	Aqueous	E300	Anion Preparation	04/20/16 09:32 AM	74694
	MW-02-12	04/13/16 01:15 AM	Aqueous	M2540C	TDS Preparation	04/19/16 02:27 PM	74687
1604146-31D	MW-02-12	04/13/16 01:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-12	04/13/16 01:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	04/18/16 08:30 AM	74632
	MW-02-12	04/13/16 01:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	04/18/16 08:30 AM	74641

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-01A	MW-23	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 02:26 PM	GC8_160418A
1604146-01C	MW-23	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 09:26 AM	TITRATOR_160415A
	MW-23	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 12:14 PM	IC4_160419A
	MW-23	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-01D	MW-23	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 02:59 PM	ICP-MS4_160418B
	MW-23	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 12:49 PM	ICP-MS4_160425E
	MW-23	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:29 PM	CETAC2_HG_160422 B
1604146-02A	P-04	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 02:49 PM	GC8_160418A
1604146-02C	P-04	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 09:45 AM	TITRATOR_160415A
	P-04	Aqueous	E300	Anions by IC method - Water	74674	10	04/19/16 12:37 PM	IC4_160419A
	P-04	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 03:49 PM	IC4_160419A
	P-04	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-02D	P-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 12:51 PM	ICP-MS4_160425E
	P-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:01 PM	ICP-MS4_160418B
	P-04	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:31 PM	CETAC2_HG_160422 B
1604146-03A	MW-24	Aqueous	SW8021B	Volatile Organics by GC	74648	10	04/18/16 03:11 PM	GC8_160418A
1604146-03C	MW-24	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:07 AM	TITRATOR_160415A
	MW-24	Aqueous	E300	Anions by IC method - Water	74674	10	04/19/16 12:52 PM	IC4_160419A
	MW-24	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 04:04 PM	IC4_160419A
	MW-24	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-03D	MW-24	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:03 PM	ICP-MS4_160418B
	MW-24	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 12:53 PM	ICP-MS4_160425E
	MW-24	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:33 PM	CETAC2_HG_160422 B
1604146-04A	P-02	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 03:34 PM	GC8_160418A
1604146-04C	P-02	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:17 AM	TITRATOR_160415A
	P-02	Aqueous	E300	Anions by IC method - Water	74674	10	04/19/16 01:07 PM	IC4_160419A

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-04C	P-02	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 04:19 PM	IC4_160419A
	P-02	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-04D	P-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 02:55 PM	ICP-MS4_160418B
	P-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 12:45 PM	ICP-MS4_160425E
	P-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:35 PM	CETAC2_HG_160422 B
1604146-05A	EB-06	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 03:57 PM	GC8_160418A
1604146-05C	EB-06	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:23 AM	TITRATOR_160415A
	EB-06	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 01:22 PM	IC4_160419A
	EB-06	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-05D	EB-06	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:05 PM	ICP-MS4_160418B
	EB-06	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 12:55 PM	ICP-MS4_160425E
	EB-06	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:38 PM	CETAC2_HG_160422 B
1604146-06A	MW-15	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 04:19 PM	GC8_160418A
1604146-06C	MW-15	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:32 AM	TITRATOR_160415A
	MW-15	Aqueous	E300	Anions by IC method - Water	74674	1000	04/19/16 01:37 PM	IC4_160419A
	MW-15	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-06D	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	500	04/25/16 12:57 PM	ICP-MS4_160425E
	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	100	04/25/16 12:59 PM	ICP-MS4_160425E
	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:07 PM	ICP-MS4_160418B
	MW-15	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:40 PM	CETAC2_HG_160422 B
1604146-07A	MW-16	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 04:42 PM	GC8_160418A
1604146-07C	MW-16	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:35 AM	TITRATOR_160415A
	MW-16	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 01:52 PM	IC4_160419A
	MW-16	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-07D	MW-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:09 PM	ICP-MS4_160418B
	MW-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:01 PM	ICP-MS4_160425E

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-07D	MW-16	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:42 PM	CETAC2_HG_160422 B
1604146-08A	MW-17	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 05:05 PM	GC8_160418A
1604146-08C	MW-17	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:44 AM	TITRATOR_160415A
	MW-17	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 02:07 PM	IC4_160419A
	MW-17	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-08D	MW-17	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:03 PM	ICP-MS4_160425E
	MW-17	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:11 PM	ICP-MS4_160418B
	MW-17	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:44 PM	CETAC2_HG_160422 B
1604146-09A	MW-02-03	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 05:27 PM	GC8_160418A
1604146-09C	MW-02-03	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 10:54 AM	TITRATOR_160415A
	MW-02-03	Aqueous	E300	Anions by IC method - Water	74674	10	04/19/16 02:22 PM	IC4_160419A
	MW-02-03	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 04:34 PM	IC4_160419A
	MW-02-03	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-09D	MW-02-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:13 PM	ICP-MS4_160418B
	MW-02-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:05 PM	ICP-MS4_160425E
	MW-02-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:47 PM	CETAC2_HG_160422 B
1604146-10A	MW-18	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 05:50 PM	GC8_160418A
1604146-10C	MW-18	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 11:01 AM	TITRATOR_160415A
	MW-18	Aqueous	E300	Anions by IC method - Water	74674	100	04/19/16 02:37 PM	IC4_160419A
	MW-18	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-10D	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 03:15 PM	ICP-MS4_160418B
	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:24 PM	ICP-MS4_160425E
	MW-18	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:49 PM	CETAC2_HG_160422 B
1604146-11A	EB-02	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 06:58 PM	GC8_160418A
1604146-11C	EB-02	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 11:09 AM	TITRATOR_160415A
	EB-02	Aqueous	E300	Anions by IC method - Water	74700	10	04/20/16 11:50 AM	IC3_160420A

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-11C	EB-02	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 04:39 PM	IC3_160420A
	EB-02	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-11D	EB-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:00 PM	ICP-MS4_160418B
	EB-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:26 PM	ICP-MS4_160425E
	EB-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:56 PM	CETAC2_HG_160422 B
1604146-12A	EB-05	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 07:20 PM	GC8_160418A
1604146-12C	EB-05	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 11:17 AM	TITRATOR_160415A
	EB-05	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 12:14 PM	IC3_160420A
	EB-05	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-12D	EB-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:02 PM	ICP-MS4_160418B
	EB-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:28 PM	ICP-MS4_160425E
	EB-05	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 03:58 PM	CETAC2_HG_160422 B
1604146-13A	P-01	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 07:43 PM	GC8_160418A
1604146-13C	P-01	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 11:21 AM	TITRATOR_160415A
	P-01	Aqueous	E300	Anions by IC method - Water	74700	10	04/20/16 12:35 PM	IC3_160420A
	P-01	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 05:03 PM	IC3_160420A
	P-01	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-13D	P-01	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:04 PM	ICP-MS4_160418B
	P-01	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:30 PM	ICP-MS4_160425E
	P-01	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:00 PM	CETAC2_HG_160422 B
1604146-14A	MW-14	Aqueous	SW8021B	Volatile Organics by GC	74648	10	04/18/16 08:05 PM	GC8_160418A
1604146-14C	MW-14	Aqueous	M2320 B	Alkalinity	74615	1	04/15/16 11:33 AM	TITRATOR_160415A
	MW-14	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 12:55 PM	IC3_160420A
	MW-14	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-14D	MW-14	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:06 PM	ICP-MS4_160418B
	MW-14	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:32 PM	ICP-MS4_160425E

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-14D	MW-14	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:03 PM	CETAC2_HG_160422 B
1604146-15A	MW-12	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 08:28 PM	GC8_160418A
1604146-15C	MW-12	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 01:26 PM	TITRATOR_160426A
	MW-12	Aqueous	E300	Anions by IC method - Water	74700	10	04/20/16 01:16 PM	IC3_160420A
	MW-12	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 05:24 PM	IC3_160420A
	MW-12	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-15D	MW-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:08 PM	ICP-MS4_160418B
	MW-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:34 PM	ICP-MS4_160425E
	MW-12	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:05 PM	CETAC2_HG_160422 B
1604146-16A	MW-05	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 08:50 PM	GC8_160418A
1604146-16C	MW-05	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 01:45 PM	TITRATOR_160426A
	MW-05	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 01:36 PM	IC3_160420A
	MW-05	Aqueous	M2540C	Total Dissolved Solids	74656	1	04/19/16 08:49 AM	WC_160418B
1604146-16D	MW-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:36 PM	ICP-MS4_160425E
	MW-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:10 PM	ICP-MS4_160418B
	MW-05	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:07 PM	CETAC2_HG_160422 B
1604146-17A	MW-20	Aqueous	SW8021B	Volatile Organics by GC	74648	10	04/18/16 09:13 PM	GC8_160418A
1604146-17C	MW-20	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 01:57 PM	TITRATOR_160426A
	MW-20	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 01:57 PM	IC3_160420A
	MW-20	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-17D	MW-20	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:12 PM	ICP-MS4_160418B
	MW-20	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:38 PM	ICP-MS4_160425E
	MW-20	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:09 PM	CETAC2_HG_160422 B
1604146-18A	MW-02-16	Aqueous	SW8021B	Volatile Organics by GC	74648	10	04/18/16 09:36 PM	GC8_160418A
	MW-02-16	Aqueous	SW8021B	Volatile Organics by GC	74648	25	04/19/16 10:58 AM	GC8_160418A
1604146-18C	MW-02-16	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 02:09 PM	TITRATOR_160426A

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-18C	MW-02-16	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 02:18 PM	IC3_160420A
	MW-02-16	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-18D	MW-02-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:14 PM	ICP-MS4_160418B
	MW-02-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:40 PM	ICP-MS4_160425E
	MW-02-16	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:12 PM	CETAC2_HG_160422 B
1604146-19A	MW-02-15	Aqueous	SW8021B	Volatile Organics by GC	74648	10	04/18/16 09:58 PM	GC8_160418A
1604146-19C	MW-02-15	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 02:21 PM	TITRATOR_160426A
	MW-02-15	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 02:38 PM	IC3_160420A
	MW-02-15	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-19D	MW-02-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:16 PM	ICP-MS4_160418B
	MW-02-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/25/16 01:42 PM	ICP-MS4_160425E
	MW-02-15	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74640	1	04/22/16 04:14 PM	CETAC2_HG_160422 B
1604146-20A	MW-2	Aqueous	SW8021B	Volatile Organics by GC	74648	1	04/18/16 10:21 PM	GC8_160418A
1604146-20C	MW-2	Aqueous	M2320 B	Alkalinity	74799	1	04/26/16 02:28 PM	TITRATOR_160426A
	MW-2	Aqueous	E300	Anions by IC method - Water	74700	100	04/20/16 02:59 PM	IC3_160420A
	MW-2	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-20D	MW-2	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	1	04/18/16 04:18 PM	ICP-MS4_160418B
	MW-2	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74628	50	04/26/16 05:02 PM	ICP-MS4_160426B
	MW-2	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:33 AM	CETAC2_HG_160419 B
1604146-21A	MW-08	Aqueous	SW8021B	Volatile Organics by GC	74690	1	04/20/16 12:22 PM	GC8_160420A
1604146-21C	MW-08	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 12:07 PM	TITRATOR_160418A
	MW-08	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 01:10 PM	IC4_160420A
	MW-08	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-21D	MW-08	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:35 PM	ICP-MS4_160420A
	MW-08	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:08 PM	ICP-MS4_160425E
	MW-08	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:35 AM	CETAC2_HG_160419 B

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-22A	MW-07	Aqueous	SW8021B	Volatile Organics by GC	74690	100	04/20/16 12:45 PM	GC8_160420A
1604146-22C	MW-07	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 12:31 PM	TITRATOR_160418A
	MW-07	Aqueous	E300	Anions by IC method - Water	74702	1	04/20/16 01:25 PM	IC4_160420A
	MW-07	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 05:22 PM	IC4_160420A
	MW-07	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-22D	MW-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:52 PM	ICP-MS4_160420A
	MW-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:10 PM	ICP-MS4_160425E
	MW-07	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:37 AM	CETAC2_HG_160419 B
1604146-23A	MW-02-02	Aqueous	SW8021B	Volatile Organics by GC	74690	5	04/20/16 04:31 PM	GC8_160420A
1604146-23C	MW-02-02	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 03:24 PM	TITRATOR_160418A
	MW-02-02	Aqueous	E300	Anions by IC method - Water	74702	1000	04/20/16 01:47 PM	IC4_160420A
	MW-02-02	Aqueous	E300	Anions by IC method - Water	74702	10000	04/20/16 05:37 PM	IC4_160420A
	MW-02-02	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-23D	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:54 PM	ICP-MS4_160420A
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	500	04/25/16 02:12 PM	ICP-MS4_160425E
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	10	04/25/16 02:40 PM	ICP-MS4_160425E
	MW-02-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:40 AM	CETAC2_HG_160419 B
1604146-24A	MW-02-05	Aqueous	SW8021B	Volatile Organics by GC	74690	5	04/20/16 05:17 PM	GC8_160420A
1604146-24C	MW-02-05	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 04:19 PM	TITRATOR_160418A
	MW-02-05	Aqueous	E300	Anions by IC method - Water	74702	10000	04/20/16 05:52 PM	IC4_160420A
	MW-02-05	Aqueous	E300	Anions by IC method - Water	74702	1000	04/20/16 02:02 PM	IC4_160420A
	MW-02-05	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-24D	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:55 PM	ICP-MS4_160420A
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	500	04/25/16 02:14 PM	ICP-MS4_160425E
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	10	04/25/16 02:42 PM	ICP-MS4_160425E
	MW-02-05	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:42 AM	CETAC2_HG_160419 B

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-25A	MW-3	Aqueous	SW8021B	Volatile Organics by GC	74690	1	04/20/16 01:08 PM	GC8_160420A
	MW-3	Aqueous	SW8021B	Volatile Organics by GC	74690	50	04/21/16 11:25 AM	GC8_160420A
1604146-25C	MW-3	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 12:42 PM	TITRATOR_160418A
	MW-3	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 02:17 PM	IC4_160420A
	MW-3	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-25D	MW-3	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:58 PM	ICP-MS4_160420A
	MW-3	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:16 PM	ICP-MS4_160425E
	MW-3	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:44 AM	CETAC2_HG_160419 B
1604146-26A	MW-02-11	Aqueous	SW8021B	Volatile Organics by GC	74690	200	04/20/16 01:30 PM	GC8_160420A
1604146-26C	MW-02-11	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 12:55 PM	TITRATOR_160418A
	MW-02-11	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 06:07 PM	IC4_160420A
	MW-02-11	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 02:32 PM	IC4_160420A
	MW-02-11	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-26D	MW-02-11	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 07:59 PM	ICP-MS4_160420A
	MW-02-11	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:18 PM	ICP-MS4_160425E
	MW-02-11	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:46 AM	CETAC2_HG_160419 B
1604146-27A	MW-02-04	Aqueous	SW8021B	Volatile Organics by GC	74690	1	04/20/16 01:53 PM	GC8_160420A
1604146-27C	MW-02-04	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 01:02 PM	TITRATOR_160418A
	MW-02-04	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 02:47 PM	IC4_160420A
	MW-02-04	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 06:22 PM	IC4_160420A
	MW-02-04	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-27D	MW-02-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 08:01 PM	ICP-MS4_160420A
	MW-02-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:20 PM	ICP-MS4_160425E
	MW-02-04	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:49 AM	CETAC2_HG_160419 B
1604146-28A	MW-22	Aqueous	SW8021B	Volatile Organics by GC	74690	100	04/20/16 02:15 PM	GC8_160420A
1604146-28C	MW-22	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 01:15 PM	TITRATOR_160418A

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-28C	MW-22	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 03:02 PM	IC4_160420A
	MW-22	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 06:37 PM	IC4_160420A
	MW-22	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-28D	MW-22	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 08:03 PM	ICP-MS4_160420A
	MW-22	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:22 PM	ICP-MS4_160425E
	MW-22	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:51 AM	CETAC2_HG_160419 B
1604146-29A	MW-02-18	Aqueous	SW8021B	Volatile Organics by GC	74690	100	04/20/16 02:38 PM	GC8_160420A
1604146-29C	MW-02-18	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 01:28 PM	TITRATOR_160418A
	MW-02-18	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 03:17 PM	IC4_160420A
	MW-02-18	Aqueous	E300	Anions by IC method - Water	74702	100	04/20/16 06:52 PM	IC4_160420A
	MW-02-18	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-29D	MW-02-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:24 PM	ICP-MS4_160425E
	MW-02-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 08:05 PM	ICP-MS4_160420A
	MW-02-18	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 11:53 AM	CETAC2_HG_160419 B
1604146-30A	MW-03-03	Aqueous	SW8021B	Volatile Organics by GC	74690	50	04/20/16 03:01 PM	GC8_160420A
1604146-30C	MW-03-03	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 01:40 PM	TITRATOR_160418A
	MW-03-03	Aqueous	E300	Anions by IC method - Water	74702	10	04/20/16 03:32 PM	IC4_160420A
	MW-03-03	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-30D	MW-03-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 08:07 PM	ICP-MS4_160420A
	MW-03-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	50	04/25/16 02:36 PM	ICP-MS4_160425E
	MW-03-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	74641	1	04/19/16 12:00 PM	CETAC2_HG_160419 B
1604146-31A	MW-02-12	Aqueous	SW8021B	Volatile Organics by GC	74690	1	04/20/16 03:23 PM	GC8_160420A
1604146-31C	MW-02-12	Aqueous	M2320 B	Alkalinity	74650	1	04/18/16 01:50 PM	TITRATOR_160418A
	MW-02-12	Aqueous	E300	Anions by IC method - Water	74694	100	04/20/16 12:46 PM	IC2_160420A
	MW-02-12	Aqueous	M2540C	Total Dissolved Solids	74687	1	04/20/16 08:59 AM	WC_160419C
1604146-31D	MW-02-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	74632	1	04/20/16 08:09 PM	ICP-MS4_160420A

Lab Order: 1604146
Client: Larson & Associates
Project: Empire Abo

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1604146-31D	MW-02-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45μ)	74632	50	04/25/16 02:38 PM	ICP-MS4_160425E
	MW-02-12	Aqueous	SW7470A	Mercury Filtered (0.45μ)	74641	1	04/19/16 12:02 PM	CETAC2_HG_160419 B

DHL Analytical, Inc.

Date: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-23
Lab ID: 1604146-01
Collection Date: 04/12/16 09:45 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 02:26 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 02:26 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 02:26 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 02:26 PM
Surr: a,a,a-Trifluorotoluene	94.8	0	87-113		%REC	1	04/18/16 02:26 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:29 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:59 PM
Barium	0.0191	0.00300	0.0100		mg/L	1	04/18/16 02:59 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 02:59 PM
Calcium	630	5.00	15.0		mg/L	50	04/25/16 12:49 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:59 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 02:59 PM
Magnesium	134	5.00	15.0		mg/L	50	04/25/16 12:49 PM
Potassium	6.85	0.100	0.300		mg/L	1	04/18/16 02:59 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:59 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 02:59 PM
Sodium	178	5.00	15.0		mg/L	50	04/25/16 12:49 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	219	30.0	100		mg/L	100	04/19/16 12:14 PM
Sulfate	1840	100	300		mg/L	100	04/19/16 12:14 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	538	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 09:26 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 09:26 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 09:26 AM
Alkalinity, Total (As CaCO ₃)	538	20.0	20.0		mg/L @ pH 4.54	1	04/15/16 09:26 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3350	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: P-04
Lab ID: 1604146-02
Collection Date: 04/12/16 10:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 02:49 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 02:49 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 02:49 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 02:49 PM
Surr: a,a,a-Trifluorotoluene	96.2	0	87-113		%REC	1	04/18/16 02:49 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:31 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:01 PM
Barium	0.0202	0.00300	0.0100		mg/L	1	04/18/16 03:01 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:01 PM
Calcium	548	5.00	15.0		mg/L	50	04/25/16 12:51 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:01 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:01 PM
Magnesium	103	5.00	15.0		mg/L	50	04/25/16 12:51 PM
Potassium	2.95	0.100	0.300		mg/L	1	04/18/16 03:01 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:01 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:01 PM
Sodium	61.8	5.00	15.0		mg/L	50	04/25/16 12:51 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	119	3.00	10.0		mg/L	10	04/19/16 12:37 PM
Sulfate	1820	100	300		mg/L	100	04/19/16 03:49 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	220	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 09:45 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 09:45 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 09:45 AM
Alkalinity, Total (As CaCO3)	220	20.0	20.0		mg/L @ pH 4.26	1	04/15/16 09:45 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3040	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-24
Lab ID: 1604146-03
Collection Date: 04/12/16 10:45 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	1.86	0.00800	0.0200		mg/L	10	04/18/16 03:11 PM
Ethylbenzene	0.478	0.0200	0.0600		mg/L	10	04/18/16 03:11 PM
Toluene	<0.0600	0.0200	0.0600		mg/L	10	04/18/16 03:11 PM
Xylenes, Total	0.251	0.0300	0.0900		mg/L	10	04/18/16 03:11 PM
Surr: a,a,a-Trifluorotoluene	96.3	0	87-113		%REC	10	04/18/16 03:11 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:33 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00279	0.00200	0.00500	J	mg/L	1	04/18/16 03:03 PM
Barium	0.0225	0.00300	0.0100		mg/L	1	04/18/16 03:03 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:03 PM
Calcium	598	5.00	15.0		mg/L	50	04/25/16 12:53 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:03 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:03 PM
Magnesium	280	5.00	15.0		mg/L	50	04/25/16 12:53 PM
Potassium	3.77	0.100	0.300		mg/L	1	04/18/16 03:03 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:03 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:03 PM
Sodium	72.0	5.00	15.0		mg/L	50	04/25/16 12:53 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	88.7	3.00	10.0		mg/L	10	04/19/16 12:52 PM
Sulfate	2110	100	300		mg/L	100	04/19/16 04:04 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	805	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 10:07 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 10:07 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 10:07 AM
Alkalinity, Total (As CaCO ₃)	805	20.0	20.0		mg/L @ pH 4.54	1	04/15/16 10:07 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3720	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: P-02
Lab ID: 1604146-04
Collection Date: 04/12/16 11:00 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 03:34 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 03:34 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 03:34 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 03:34 PM
Surr: a,a,a-Trifluorotoluene	95.3	0	87-113		%REC	1	04/18/16 03:34 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:35 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:55 PM
Barium	0.0150	0.00300	0.0100		mg/L	1	04/18/16 02:55 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 02:55 PM
Calcium	540	5.00	15.0		mg/L	50	04/25/16 12:45 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:55 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 02:55 PM
Magnesium	184	5.00	15.0		mg/L	50	04/25/16 12:45 PM
Potassium	4.26	0.100	0.300		mg/L	1	04/18/16 02:55 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 02:55 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 02:55 PM
Sodium	45.1	5.00	15.0		mg/L	50	04/25/16 12:45 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	94.0	3.00	10.0		mg/L	10	04/19/16 01:07 PM
Sulfate	2090	100	300		mg/L	100	04/19/16 04:19 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	350	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 10:17 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 10:17 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.26	1	04/15/16 10:17 AM
Alkalinity, Total (As CaCO ₃)	350	20.0	20.0		mg/L @ pH 4.26	1	04/15/16 10:17 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3420	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: EB-06
Lab ID: 1604146-05
Collection Date: 04/12/16 12:00 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 03:57 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 03:57 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 03:57 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 03:57 PM
Surr: a,a,a-Trifluorotoluene	94.9	0	87-113		%REC	1	04/18/16 03:57 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:38 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	0.00215	0.00200	0.00500	J	mg/L	1	04/18/16 03:05 PM
Barium	0.0132	0.00300	0.0100		mg/L	1	04/18/16 03:05 PM
Cadmium	0.000663	0.000300	0.00100	J	mg/L	1	04/18/16 03:05 PM
Calcium	548	5.00	15.0		mg/L	50	04/25/16 12:55 PM
Chromium	0.0508	0.00200	0.00500		mg/L	1	04/18/16 03:05 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:05 PM
Magnesium	125	5.00	15.0		mg/L	50	04/25/16 12:55 PM
Potassium	4.52	0.100	0.300		mg/L	1	04/18/16 03:05 PM
Selenium	0.00343	0.00200	0.00500	J	mg/L	1	04/18/16 03:05 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:05 PM
Sodium	43.9	5.00	15.0		mg/L	50	04/25/16 12:55 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	173	30.0	100		mg/L	100	04/19/16 01:22 PM
Sulfate	1910	100	300		mg/L	100	04/19/16 01:22 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	104	10.0	20.0		mg/L @ pH 4.21	1	04/15/16 10:23 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.21	1	04/15/16 10:23 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.21	1	04/15/16 10:23 AM
Alkalinity, Total (As CaCO ₃)	104	20.0	20.0		mg/L @ pH 4.21	1	04/15/16 10:23 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3260	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-15
Lab ID: 1604146-06
Collection Date: 04/12/16 12:30 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 04:19 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 04:19 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 04:19 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 04:19 PM
Surr: a,a,a-Trifluorotoluene	93.2	0	87-113		%REC	1	04/18/16 04:19 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:40 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00577	0.00200	0.00500		mg/L	1	04/18/16 03:07 PM
Barium	0.0131	0.00300	0.0100		mg/L	1	04/18/16 03:07 PM
Cadmium	0.000502	0.000300	0.00100	J	mg/L	1	04/18/16 03:07 PM
Calcium	425	10.0	30.0		mg/L	100	04/25/16 12:59 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:07 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:07 PM
Magnesium	4600	50.0	150		mg/L	500	04/25/16 12:57 PM
Potassium	162	10.0	30.0		mg/L	100	04/25/16 12:59 PM
Selenium	0.00498	0.00200	0.00500	J	mg/L	1	04/18/16 03:07 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:07 PM
Sodium	5940	50.0	150		mg/L	500	04/25/16 12:57 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	2220	300	1000		mg/L	1000	04/19/16 01:37 PM
Sulfate	31600	1000	3000		mg/L	1000	04/19/16 01:37 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	608	10.0	20.0		mg/L @ pH 4.55	1	04/15/16 10:32 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	04/15/16 10:32 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	04/15/16 10:32 AM
Alkalinity, Total (As CaCO3)	608	20.0	20.0		mg/L @ pH 4.55	1	04/15/16 10:32 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	53600	1000	1000		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-16
Lab ID: 1604146-07
Collection Date: 04/12/16 01:00 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 04:42 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 04:42 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 04:42 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 04:42 PM
Surr: a,a,a-Trifluorotoluene	95.6	0	87-113		%REC	1	04/18/16 04:42 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:42 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00290	0.00200	0.00500	J	mg/L	1	04/18/16 03:09 PM
Barium	0.00980	0.00300	0.0100	J	mg/L	1	04/18/16 03:09 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:09 PM
Calcium	518	5.00	15.0		mg/L	50	04/25/16 01:01 PM
Chromium	0.0151	0.00200	0.00500		mg/L	1	04/18/16 03:09 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:09 PM
Magnesium	238	5.00	15.0		mg/L	50	04/25/16 01:01 PM
Potassium	8.91	0.100	0.300		mg/L	1	04/18/16 03:09 PM
Selenium	0.00557	0.00200	0.00500		mg/L	1	04/18/16 03:09 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:09 PM
Sodium	233	5.00	15.0		mg/L	50	04/25/16 01:01 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	386	30.0	100		mg/L	100	04/19/16 01:52 PM
Sulfate	2400	100	300		mg/L	100	04/19/16 01:52 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	81.8	10.0	20.0		mg/L @ pH 4.53	1	04/15/16 10:35 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	04/15/16 10:35 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	04/15/16 10:35 AM
Alkalinity, Total (As CaCO ₃)	81.8	20.0	20.0		mg/L @ pH 4.53	1	04/15/16 10:35 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	4150	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-17
Lab ID: 1604146-08
Collection Date: 04/12/16 01:45 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 05:05 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:05 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:05 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 05:05 PM
Surr: a,a,a-Trifluorotoluene	96.1	0	87-113		%REC	1	04/18/16 05:05 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:44 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00290	0.00200	0.00500	J	mg/L	1	04/18/16 03:11 PM
Barium	0.0170	0.00300	0.0100		mg/L	1	04/18/16 03:11 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:11 PM
Calcium	541	5.00	15.0		mg/L	50	04/25/16 01:03 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:11 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:11 PM
Magnesium	165	5.00	15.0		mg/L	50	04/25/16 01:03 PM
Potassium	7.45	0.100	0.300		mg/L	1	04/18/16 03:11 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:11 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:11 PM
Sodium	124	5.00	15.0		mg/L	50	04/25/16 01:03 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	153	30.0	100		mg/L	100	04/19/16 02:07 PM
Sulfate	1990	100	300		mg/L	100	04/19/16 02:07 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	319	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:44 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:44 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:44 AM
Alkalinity, Total (As CaCO3)	319	20.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:44 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3210	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-03
Lab ID: 1604146-09
Collection Date: 04/12/16 03:15 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 05:27 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:27 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:27 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 05:27 PM
Surr: a,a,a-Trifluorotoluene	93.6	0	87-113		%REC	1	04/18/16 05:27 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:47 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	0.00284	0.00200	0.00500	J	mg/L	1	04/18/16 03:13 PM
Barium	0.0111	0.00300	0.0100		mg/L	1	04/18/16 03:13 PM
Cadmium	0.000525	0.000300	0.00100	J	mg/L	1	04/18/16 03:13 PM
Calcium	529	5.00	15.0		mg/L	50	04/25/16 01:05 PM
Chromium	0.0599	0.00200	0.00500		mg/L	1	04/18/16 03:13 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:13 PM
Magnesium	118	5.00	15.0		mg/L	50	04/25/16 01:05 PM
Potassium	5.11	0.100	0.300		mg/L	1	04/18/16 03:13 PM
Selenium	0.00512	0.00200	0.00500		mg/L	1	04/18/16 03:13 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:13 PM
Sodium	46.7	5.00	15.0		mg/L	50	04/25/16 01:05 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	43.1	3.00	10.0		mg/L	10	04/19/16 02:22 PM
Sulfate	1920	100	300		mg/L	100	04/19/16 04:34 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	105	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:54 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:54 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:54 AM
Alkalinity, Total (As CaCO ₃)	105	20.0	20.0		mg/L @ pH 4.35	1	04/15/16 10:54 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2900	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-18
Lab ID: 1604146-10
Collection Date: 04/12/16 10:05 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 05:50 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:50 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 05:50 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 05:50 PM
Surr: a,a,a-Trifluorotoluene	96.7	0	87-113		%REC	1	04/18/16 05:50 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:49 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:15 PM
Barium	0.0135	0.00300	0.0100		mg/L	1	04/18/16 03:15 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:15 PM
Calcium	654	5.00	15.0		mg/L	50	04/25/16 01:24 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:15 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 03:15 PM
Magnesium	131	5.00	15.0		mg/L	50	04/25/16 01:24 PM
Potassium	4.46	0.100	0.300		mg/L	1	04/18/16 03:15 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 03:15 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 03:15 PM
Sodium	62.7	5.00	15.0		mg/L	50	04/25/16 01:24 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	584	30.0	100		mg/L	100	04/19/16 02:37 PM
Sulfate	1690	100	300		mg/L	100	04/19/16 02:37 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	159	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:01 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:01 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:01 AM
Alkalinity, Total (As CaCO ₃)	159	20.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:01 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3630	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: EB-02
Lab ID: 1604146-11
Collection Date: 04/12/16 10:45 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 06:58 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 06:58 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 06:58 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 06:58 PM
Surr: a,a,a-Trifluorotoluene	96.1	0	87-113		%REC	1	04/18/16 06:58 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:56 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:00 PM
Barium	0.00890	0.00300	0.0100	J	mg/L	1	04/18/16 04:00 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:00 PM
Calcium	507	5.00	15.0		mg/L	50	04/25/16 01:26 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:00 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:00 PM
Magnesium	254	5.00	15.0		mg/L	50	04/25/16 01:26 PM
Potassium	10.4	0.100	0.300		mg/L	1	04/18/16 04:00 PM
Selenium	0.00321	0.00200	0.00500	J	mg/L	1	04/18/16 04:00 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:00 PM
Sodium	161	5.00	15.0		mg/L	50	04/25/16 01:26 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	100	3.00	10.0		mg/L	10	04/20/16 11:50 AM
Sulfate	2420	100	300		mg/L	100	04/20/16 04:39 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	332	10.0	20.0		mg/L @ pH 4.34	1	04/15/16 11:09 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	04/15/16 11:09 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	04/15/16 11:09 AM
Alkalinity, Total (As CaCO3)	332	20.0	20.0		mg/L @ pH 4.34	1	04/15/16 11:09 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3810	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: EB-05
Lab ID: 1604146-12
Collection Date: 04/12/16 11:19 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 07:20 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 07:20 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 07:20 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 07:20 PM
Surr: a,a,a-Trifluorotoluene	96.3	0	87-113		%REC	1	04/18/16 07:20 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 03:58 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	0.00262	0.00200	0.00500	J	mg/L	1	04/18/16 04:02 PM
Barium	0.0194	0.00300	0.0100		mg/L	1	04/18/16 04:02 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:02 PM
Calcium	616	5.00	15.0		mg/L	50	04/25/16 01:28 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:02 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:02 PM
Magnesium	60.3	5.00	15.0		mg/L	50	04/25/16 01:28 PM
Potassium	5.42	0.100	0.300		mg/L	1	04/18/16 04:02 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:02 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:02 PM
Sodium	75.3	5.00	15.0		mg/L	50	04/25/16 01:28 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	118	30.0	100		mg/L	100	04/20/16 12:14 PM
Sulfate	1660	100	300		mg/L	100	04/20/16 12:14 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	344	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:17 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:17 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:17 AM
Alkalinity, Total (As CaCO3)	344	20.0	20.0		mg/L @ pH 4.52	1	04/15/16 11:17 AM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2950	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: P-01
Lab ID: 1604146-13
Collection Date: 04/12/16 11:30 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 07:43 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 07:43 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 07:43 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 07:43 PM
Surr: a,a,a-Trifluorotoluene	94.0	0	87-113		%REC	1	04/18/16 07:43 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:00 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.226	0.00200	0.00500		mg/L	1	04/18/16 04:04 PM
Barium	0.0100	0.00300	0.0100		mg/L	1	04/18/16 04:04 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:04 PM
Calcium	460	5.00	15.0		mg/L	50	04/25/16 01:30 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:04 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:04 PM
Magnesium	510	5.00	15.0		mg/L	50	04/25/16 01:30 PM
Potassium	6.96	0.100	0.300		mg/L	1	04/18/16 04:04 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:04 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:04 PM
Sodium	67.4	5.00	15.0		mg/L	50	04/25/16 01:30 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	119	3.00	10.0		mg/L	10	04/20/16 12:35 PM
Sulfate	3690	100	300		mg/L	100	04/20/16 05:03 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	97.6	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:21 AM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:21 AM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:21 AM
Alkalinity, Total (As CaCO ₃)	97.6	20.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:21 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	5490	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-14
Lab ID: 1604146-14
Collection Date: 04/12/16 12:50 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	0.156	0.00800	0.0200		mg/L	10	04/18/16 08:05 PM
Ethylbenzene	<0.0600	0.0200	0.0600		mg/L	10	04/18/16 08:05 PM
Toluene	<0.0600	0.0200	0.0600		mg/L	10	04/18/16 08:05 PM
Xylenes, Total	<0.0900	0.0300	0.0900		mg/L	10	04/18/16 08:05 PM
Surr: a,a,a-Trifluorotoluene	97.7	0	87-113		%REC	10	04/18/16 08:05 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:03 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:06 PM
Barium	0.0202	0.00300	0.0100		mg/L	1	04/18/16 04:06 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:06 PM
Calcium	584	5.00	15.0		mg/L	50	04/25/16 01:32 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:06 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:06 PM
Magnesium	128	5.00	15.0		mg/L	50	04/25/16 01:32 PM
Potassium	5.11	0.100	0.300		mg/L	1	04/18/16 04:06 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:06 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:06 PM
Sodium	140	5.00	15.0		mg/L	50	04/25/16 01:32 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	127	30.0	100		mg/L	100	04/20/16 12:55 PM
Sulfate	1670	100	300		mg/L	100	04/20/16 12:55 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	638	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:33 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:33 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:33 AM
Alkalinity, Total (As CaCO3)	638	20.0	20.0		mg/L @ pH 4.54	1	04/15/16 11:33 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3340	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-12
Lab ID: 1604146-15
Collection Date: 04/12/16 03:00 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 08:28 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 08:28 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 08:28 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 08:28 PM
Surr: a,a,a-Trifluorotoluene	95.4	0	87-113		%REC	1	04/18/16 08:28 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:05 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	0.00296	0.00200	0.00500	J	mg/L	1	04/18/16 04:08 PM
Barium	0.0165	0.00300	0.0100		mg/L	1	04/18/16 04:08 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:08 PM
Calcium	512	5.00	15.0		mg/L	50	04/25/16 01:34 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:08 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:08 PM
Magnesium	216	5.00	15.0		mg/L	50	04/25/16 01:34 PM
Potassium	4.95	0.100	0.300		mg/L	1	04/18/16 04:08 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:08 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:08 PM
Sodium	102	5.00	15.0		mg/L	50	04/25/16 01:34 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	91.7	3.00	10.0		mg/L	10	04/20/16 01:16 PM
Sulfate	2130	100	300		mg/L	100	04/20/16 05:24 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	341	10.0	20.0		mg/L @ pH 4.46	1	04/26/16 01:26 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	04/26/16 01:26 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	04/26/16 01:26 PM
Alkalinity, Total (As CaCO3)	341	20.0	20.0		mg/L @ pH 4.46	1	04/26/16 01:26 PM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3330	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-05
Lab ID: 1604146-16
Collection Date: 04/12/16 04:05 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 08:50 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 08:50 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 08:50 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 08:50 PM
Surr: a,a,a-Trifluorotoluene	95.7	0	87-113		%REC	1	04/18/16 08:50 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:07 PM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:10 PM
Barium	0.0132	0.00300	0.0100		mg/L	1	04/18/16 04:10 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:10 PM
Calcium	517	5.00	15.0		mg/L	50	04/25/16 01:36 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:10 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:10 PM
Magnesium	118	5.00	15.0		mg/L	50	04/25/16 01:36 PM
Potassium	8.36	0.100	0.300		mg/L	1	04/18/16 04:10 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:10 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:10 PM
Sodium	212	5.00	15.0		mg/L	50	04/25/16 01:36 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	122	30.0	100		mg/L	100	04/20/16 01:36 PM
Sulfate	1810	100	300		mg/L	100	04/20/16 01:36 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	439	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:45 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:45 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:45 PM
Alkalinity, Total (As CaCO ₃)	439	20.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:45 PM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3200	50.0	50.0		mg/L	1	04/19/16 08:49 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-20
Lab ID: 1604146-17
Collection Date: 04/13/16 09:00 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
		SW8021B				Analyst: BJT	
Benzene	0.471	0.00800	0.0200		mg/L	10	04/18/16 09:13 PM
Ethylbenzene	0.0384	0.0200	0.0600	J	mg/L	10	04/18/16 09:13 PM
Toluene	0.0247	0.0200	0.0600	J	mg/L	10	04/18/16 09:13 PM
Xylenes, Total	<0.0900	0.0300	0.0900		mg/L	10	04/18/16 09:13 PM
Surr: a,a,a-Trifluorotoluene	95.3	0	87-113		%REC	10	04/18/16 09:13 PM
MERCURY FILTERED (0.45µ)							
		SW7470A				Analyst: AH	
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:09 PM
DISSOLVED METALS-ICPMS (0.45µ)							
		SW6020A				Analyst: RO	
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:12 PM
Barium	0.0130	0.00300	0.0100		mg/L	1	04/18/16 04:12 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:12 PM
Calcium	560	5.00	15.0		mg/L	50	04/25/16 01:38 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:12 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:12 PM
Magnesium	129	5.00	15.0		mg/L	50	04/25/16 01:38 PM
Potassium	5.17	0.100	0.300		mg/L	1	04/18/16 04:12 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:12 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:12 PM
Sodium	261	5.00	15.0		mg/L	50	04/25/16 01:38 PM
ANIONS BY IC METHOD - WATER							
		E300				Analyst: AV	
Chloride	148	30.0	100		mg/L	100	04/20/16 01:57 PM
Sulfate	2150	100	300		mg/L	100	04/20/16 01:57 PM
ALKALINITY							
		M2320 B				Analyst: BJT	
Alkalinity, Bicarbonate (As CaCO ₃)	523	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:57 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:57 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:57 PM
Alkalinity, Total (As CaCO ₃)	523	20.0	20.0		mg/L @ pH 4.54	1	04/26/16 01:57 PM
TOTAL DISSOLVED SOLIDS							
		M2540C				Analyst: AJH	
Total Dissolved Solids (Residue, Filterable)	3750	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-16
Lab ID: 1604146-18
Collection Date: 04/13/16 10:05 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	3.43	0.0200	0.0500		mg/L	25	04/19/16 10:58 AM
Ethylbenzene	0.160	0.0200	0.0600		mg/L	10	04/18/16 09:36 PM
Toluene	0.153	0.0200	0.0600		mg/L	10	04/18/16 09:36 PM
Xylenes, Total	0.138	0.0300	0.0900		mg/L	10	04/18/16 09:36 PM
Surr: a,a,a-Trifluorotoluene	93.8	0	87-113		%REC	25	04/19/16 10:58 AM
Surr: a,a,a-Trifluorotoluene	95.3	0	87-113		%REC	10	04/18/16 09:36 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:12 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00660	0.00200	0.00500		mg/L	1	04/18/16 04:14 PM
Barium	0.0180	0.00300	0.0100		mg/L	1	04/18/16 04:14 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:14 PM
Calcium	601	5.00	15.0		mg/L	50	04/25/16 01:40 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:14 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:14 PM
Magnesium	102	5.00	15.0		mg/L	50	04/25/16 01:40 PM
Potassium	9.02	0.100	0.300		mg/L	1	04/18/16 04:14 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:14 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:14 PM
Sodium	335	5.00	15.0		mg/L	50	04/25/16 01:40 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	204	30.0	100		mg/L	100	04/20/16 02:18 PM
Sulfate	1810	100	300		mg/L	100	04/20/16 02:18 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	680	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:09 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:09 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:09 PM
Alkalinity, Total (As CaCO3)	680	20.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:09 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	4080	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-15
Lab ID: 1604146-19
Collection Date: 04/13/16 10:50 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	1.09	0.00800	0.0200		mg/L	10	04/18/16 09:58 PM
Ethylbenzene	<0.0600	0.0200	0.0600		mg/L	10	04/18/16 09:58 PM
Toluene	<0.0600	0.0200	0.0600		mg/L	10	04/18/16 09:58 PM
Xylenes, Total	<0.0900	0.0300	0.0900		mg/L	10	04/18/16 09:58 PM
Surr: a,a,a-Trifluorotoluene	95.9	0	87-113		%REC	10	04/18/16 09:58 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/22/16 04:14 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.0117	0.00200	0.00500		mg/L	1	04/18/16 04:16 PM
Barium	0.0203	0.00300	0.0100		mg/L	1	04/18/16 04:16 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:16 PM
Calcium	730	5.00	15.0		mg/L	50	04/25/16 01:42 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:16 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:16 PM
Magnesium	109	5.00	15.0		mg/L	50	04/25/16 01:42 PM
Potassium	11.5	0.100	0.300		mg/L	1	04/18/16 04:16 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:16 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:16 PM
Sodium	414	5.00	15.0		mg/L	50	04/25/16 01:42 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	691	30.0	100		mg/L	100	04/20/16 02:38 PM
Sulfate	1680	100	300		mg/L	100	04/20/16 02:38 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	599	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:21 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:21 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:21 PM
Alkalinity, Total (As CaCO ₃)	599	20.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:21 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	4500	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-2
Lab ID: 1604146-20
Collection Date: 04/13/16 11:40 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
SW8021B				Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/18/16 10:21 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 10:21 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/18/16 10:21 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/18/16 10:21 PM
Surr: a,a,a-Trifluorotoluene	95.1	0	87-113		%REC	1	04/18/16 10:21 PM
MERCURY FILTERED (0.45µ)							
SW7470A				Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:33 AM
DISSOLVED METALS-ICPMS (0.45µ)							
SW6020A				Analyst: RO			
Arsenic	0.00229	0.00200	0.00500	J	mg/L	1	04/18/16 04:18 PM
Barium	0.0384	0.00300	0.0100		mg/L	1	04/18/16 04:18 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:18 PM
Calcium	580	5.00	15.0		mg/L	50	04/26/16 05:02 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/18/16 04:18 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/18/16 04:18 PM
Magnesium	76.9	5.00	15.0		mg/L	50	04/26/16 05:02 PM
Potassium	21.2	0.100	0.300		mg/L	1	04/18/16 04:18 PM
Selenium	0.00257	0.00200	0.00500	J	mg/L	1	04/18/16 04:18 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/18/16 04:18 PM
Sodium	114	5.00	15.0		mg/L	50	04/26/16 05:02 PM
ANIONS BY IC METHOD - WATER							
E300				Analyst: AV			
Chloride	113	30.0	100		mg/L	100	04/20/16 02:59 PM
Sulfate	1740	100	300		mg/L	100	04/20/16 02:59 PM
ALKALINITY							
M2320 B				Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	204	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:28 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:28 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:28 PM
Alkalinity, Total (As CaCO ₃)	204	20.0	20.0		mg/L @ pH 4.54	1	04/26/16 02:28 PM
TOTAL DISSOLVED SOLIDS							
M2540C				Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3060	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-08
Lab ID: 1604146-21
Collection Date: 04/13/16 12:10 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
		SW8021B		Analyst: BJT			
Benzene	0.00323	0.000800	0.00200		mg/L	1	04/20/16 12:22 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 12:22 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 12:22 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/20/16 12:22 PM
Surr: a,a,a-Trifluorotoluene	94.8	0	87-113		%REC	1	04/20/16 12:22 PM
MERCURY FILTERED (0.45µ)							
		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:35 AM
DISSOLVED METALS-ICPMS (0.45µ)							
		SW6020A		Analyst: RO			
Arsenic	0.00552	0.00200	0.00500		mg/L	1	04/20/16 07:35 PM
Barium	0.0184	0.00300	0.0100		mg/L	1	04/20/16 07:35 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:35 PM
Calcium	471	5.00	15.0		mg/L	50	04/25/16 02:08 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 07:35 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:35 PM
Magnesium	120	5.00	15.0		mg/L	50	04/25/16 02:08 PM
Potassium	8.18	0.100	0.300		mg/L	1	04/20/16 07:35 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 07:35 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 07:35 PM
Sodium	270	5.00	15.0		mg/L	50	04/25/16 02:08 PM
ANIONS BY IC METHOD - WATER							
		E300		Analyst: AV			
Chloride	329	30.0	100		mg/L	100	04/20/16 01:10 PM
Sulfate	1700	100	300		mg/L	100	04/20/16 01:10 PM
ALKALINITY							
		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	444	10.0	20.0		mg/L @ pH 4.52	1	04/18/16 12:07 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/18/16 12:07 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	04/18/16 12:07 PM
Alkalinity, Total (As CaCO3)	444	20.0	20.0		mg/L @ pH 4.52	1	04/18/16 12:07 PM
TOTAL DISSOLVED SOLIDS							
		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3320	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-07
Lab ID: 1604146-22
Collection Date: 04/13/16 12:56 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
		SW8021B					Analyst: BJT
Benzene	10.0	0.0800	0.200		mg/L	100	04/20/16 12:45 PM
Ethylbenzene	0.236	0.200	0.600	J	mg/L	100	04/20/16 12:45 PM
Toluene	<0.600	0.200	0.600		mg/L	100	04/20/16 12:45 PM
Xylenes, Total	<0.900	0.300	0.900		mg/L	100	04/20/16 12:45 PM
Surr: a,a,a-Trifluorotoluene	93.8	0	87-113		%REC	100	04/20/16 12:45 PM
MERCURY FILTERED (0.45µ)							
		SW7470A					Analyst: AH
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:37 AM
DISSOLVED METALS-ICPMS (0.45µ)							
		SW6020A					Analyst: RO
Arsenic	0.00422	0.00200	0.00500	J	mg/L	1	04/20/16 07:52 PM
Barium	0.0405	0.00300	0.0100		mg/L	1	04/20/16 07:52 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:52 PM
Calcium	615	5.00	15.0		mg/L	50	04/25/16 02:10 PM
Chromium	0.0599	0.00200	0.00500		mg/L	1	04/20/16 07:52 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:52 PM
Magnesium	59.2	5.00	15.0		mg/L	50	04/25/16 02:10 PM
Potassium	9.03	0.100	0.300		mg/L	1	04/20/16 07:52 PM
Selenium	0.0642	0.00200	0.00500		mg/L	1	04/20/16 07:52 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 07:52 PM
Sodium	26.6	5.00	15.0		mg/L	50	04/25/16 02:10 PM
ANIONS BY IC METHOD - WATER							
		E300					Analyst: AV
Chloride	18.5	0.300	1.00		mg/L	1	04/20/16 01:25 PM
Sulfate	1610	100	300		mg/L	100	04/20/16 05:22 PM
ALKALINITY							
		M2320 B					Analyst: BJT
Alkalinity, Bicarbonate (As CaCO3)	794	10.0	20.0		mg/L @ pH 4.53	1	04/18/16 12:31 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	04/18/16 12:31 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	04/18/16 12:31 PM
Alkalinity, Total (As CaCO3)	794	20.0	20.0		mg/L @ pH 4.53	1	04/18/16 12:31 PM
TOTAL DISSOLVED SOLIDS							
		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	2750	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-02
Lab ID: 1604146-23
Collection Date: 04/13/16 02:15 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.0100	0.00400	0.0100		mg/L	5	04/20/16 04:31 PM
Ethylbenzene	<0.0300	0.0100	0.0300		mg/L	5	04/20/16 04:31 PM
Toluene	<0.0300	0.0100	0.0300		mg/L	5	04/20/16 04:31 PM
Xylenes, Total	<0.0450	0.0150	0.0450		mg/L	5	04/20/16 04:31 PM
Surr: a,a,a-Trifluorotoluene	90.0	0	87-113		%REC	5	04/20/16 04:31 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:40 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.0560	0.0100	0.0250		mg/L	1	04/20/16 07:54 PM
Barium	<0.0500	0.0150	0.0500		mg/L	1	04/20/16 07:54 PM
Cadmium	0.00434	0.00150	0.00500	J	mg/L	1	04/20/16 07:54 PM
Calcium	219	5.00	15.0		mg/L	10	04/25/16 02:40 PM
Chromium	<0.0250	0.0100	0.0250		mg/L	1	04/20/16 07:54 PM
Lead	<0.00500	0.00150	0.00500		mg/L	1	04/20/16 07:54 PM
Magnesium	48400	250	750		mg/L	500	04/25/16 02:12 PM
Potassium	1600	250	750		mg/L	500	04/25/16 02:12 PM
Selenium	0.0342	0.0100	0.0250		mg/L	1	04/20/16 07:54 PM
Silver	<0.0100	0.00500	0.0100		mg/L	1	04/20/16 07:54 PM
Sodium	55900	250	750		mg/L	500	04/25/16 02:12 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	11200	300	1000		mg/L	1000	04/20/16 01:47 PM
Sulfate	348000	10000	30000		mg/L	10000	04/20/16 05:37 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	3210	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 03:24 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 03:24 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 03:24 PM
Alkalinity, Total (As CaCO3)	3210	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 03:24 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	583000	5000	5000		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-05
Lab ID: 1604146-24
Collection Date: 04/13/16 02:30 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.0100	0.00400	0.0100		mg/L	5	04/20/16 05:17 PM
Ethylbenzene	<0.0300	0.0100	0.0300		mg/L	5	04/20/16 05:17 PM
Toluene	<0.0300	0.0100	0.0300		mg/L	5	04/20/16 05:17 PM
Xylenes, Total	<0.0450	0.0150	0.0450		mg/L	5	04/20/16 05:17 PM
Surr: a,a,a-Trifluorotoluene	92.0	0	87-113		%REC	5	04/20/16 05:17 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:42 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.0473	0.0100	0.0250		mg/L	1	04/20/16 07:55 PM
Barium	<0.0500	0.0150	0.0500		mg/L	1	04/20/16 07:55 PM
Cadmium	0.00358	0.00150	0.00500	J	mg/L	1	04/20/16 07:55 PM
Calcium	236	5.00	15.0		mg/L	10	04/25/16 02:42 PM
Chromium	<0.0250	0.0100	0.0250		mg/L	1	04/20/16 07:55 PM
Lead	<0.00500	0.00150	0.00500		mg/L	1	04/20/16 07:55 PM
Magnesium	55100	250	750		mg/L	500	04/25/16 02:14 PM
Potassium	1170	250	750		mg/L	500	04/25/16 02:14 PM
Selenium	0.0173	0.0100	0.0250	J	mg/L	1	04/20/16 07:55 PM
Silver	<0.0100	0.00500	0.0100		mg/L	1	04/20/16 07:55 PM
Sodium	59700	250	750		mg/L	500	04/25/16 02:14 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	6540	300	1000		mg/L	1000	04/20/16 02:02 PM
Sulfate	392000	10000	30000		mg/L	10000	04/20/16 05:52 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	7570	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 04:19 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 04:19 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 04:19 PM
Alkalinity, Total (As CaCO ₃)	7570	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 04:19 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	592000	5000	5000		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-3
Lab ID: 1604146-25
Collection Date: 04/13/16 08:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
		SW8021B					Analyst: BJT
Benzene	1.90	0.0400	0.100		mg/L	50	04/21/16 11:25 AM
Ethylbenzene	0.191	0.100	0.300	J	mg/L	50	04/21/16 11:25 AM
Toluene	0.00332	0.00200	0.00600	J	mg/L	1	04/20/16 01:08 PM
Xylenes, Total	0.286	0.150	0.450	J	mg/L	50	04/21/16 11:25 AM
Surr: a,a,a-Trifluorotoluene	102	0	87-113		%REC	1	04/20/16 01:08 PM
Surr: a,a,a-Trifluorotoluene	97.8	0	87-113		%REC	50	04/21/16 11:25 AM
MERCURY FILTERED (0.45µ)							
		SW7470A					Analyst: AH
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:44 AM
DISSOLVED METALS-ICPMS (0.45µ)							
		SW6020A					Analyst: RO
Arsenic	0.00364	0.00200	0.00500	J	mg/L	1	04/20/16 07:58 PM
Barium	0.0289	0.00300	0.0100		mg/L	1	04/20/16 07:58 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:58 PM
Calcium	481	5.00	15.0		mg/L	50	04/25/16 02:16 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 07:58 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:58 PM
Magnesium	95.1	5.00	15.0		mg/L	50	04/25/16 02:16 PM
Potassium	12.4	0.100	0.300		mg/L	1	04/20/16 07:58 PM
Selenium	0.0360	0.00200	0.00500		mg/L	1	04/20/16 07:58 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 07:58 PM
Sodium	107	5.00	15.0		mg/L	50	04/25/16 02:16 PM
ANIONS BY IC METHOD - WATER							
		E300					Analyst: AV
Chloride	123	3.00	10.0		mg/L	10	04/20/16 02:17 PM
Sulfate	1270	10.0	30.0		mg/L	10	04/20/16 02:17 PM
ALKALINITY							
		M2320 B					Analyst: BJT
Alkalinity, Bicarbonate (As CaCO3)	585	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:42 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:42 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:42 PM
Alkalinity, Total (As CaCO3)	585	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:42 PM
TOTAL DISSOLVED SOLIDS							
		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	3020	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-11
Lab ID: 1604146-26
Collection Date: 04/13/16 08:30 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	24.8	0.160	0.400		mg/L	200	04/20/16 01:30 PM
Ethylbenzene	0.557	0.400	1.20	J	mg/L	200	04/20/16 01:30 PM
Toluene	<1.20	0.400	1.20		mg/L	200	04/20/16 01:30 PM
Xylenes, Total	0.933	0.600	1.80	J	mg/L	200	04/20/16 01:30 PM
Surr: a,a,a-Trifluorotoluene	96.2	0	87-113		%REC	200	04/20/16 01:30 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:46 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 07:59 PM
Barium	0.0135	0.00300	0.0100		mg/L	1	04/20/16 07:59 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:59 PM
Calcium	628	5.00	15.0		mg/L	50	04/25/16 02:18 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 07:59 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 07:59 PM
Magnesium	194	5.00	15.0		mg/L	50	04/25/16 02:18 PM
Potassium	2.02	0.100	0.300		mg/L	1	04/20/16 07:59 PM
Selenium	0.00212	0.00200	0.00500	J	mg/L	1	04/20/16 07:59 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 07:59 PM
Sodium	82.0	5.00	15.0		mg/L	50	04/25/16 02:18 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	81.2	3.00	10.0		mg/L	10	04/20/16 02:32 PM
Sulfate	2020	100	300		mg/L	100	04/20/16 06:07 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	772	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:55 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:55 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:55 PM
Alkalinity, Total (As CaCO ₃)	772	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 12:55 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3900	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-04
Lab ID: 1604146-27
Collection Date: 04/13/16 09:30 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/20/16 01:53 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 01:53 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 01:53 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/20/16 01:53 PM
Surr: a,a,a-Trifluorotoluene	95.8	0	87-113		%REC	1	04/20/16 01:53 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:49 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:01 PM
Barium	0.0191	0.00300	0.0100		mg/L	1	04/20/16 08:01 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:01 PM
Calcium	543	5.00	15.0		mg/L	50	04/25/16 02:20 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:01 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:01 PM
Magnesium	94.0	5.00	15.0		mg/L	50	04/25/16 02:20 PM
Potassium	11.9	0.100	0.300		mg/L	1	04/20/16 08:01 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:01 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 08:01 PM
Sodium	59.7	5.00	15.0		mg/L	50	04/25/16 02:20 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	70.2	3.00	10.0		mg/L	10	04/20/16 02:47 PM
Sulfate	1780	100	300		mg/L	100	04/20/16 06:22 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	244	10.0	20.0		mg/L @ pH 4.19	1	04/18/16 01:02 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.19	1	04/18/16 01:02 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.19	1	04/18/16 01:02 PM
Alkalinity, Total (As CaCO3)	244	20.0	20.0		mg/L @ pH 4.19	1	04/18/16 01:02 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2930	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-22
Lab ID: 1604146-28
Collection Date: 04/13/16 10:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC							
		SW8021B					Analyst: BJT
Benzene	17.7	0.0800	0.200		mg/L	100	04/20/16 02:15 PM
Ethylbenzene	0.360	0.200	0.600	J	mg/L	100	04/20/16 02:15 PM
Toluene	<0.600	0.200	0.600		mg/L	100	04/20/16 02:15 PM
Xylenes, Total	<0.900	0.300	0.900		mg/L	100	04/20/16 02:15 PM
Surr: a,a,a-Trifluorotoluene	94.4	0	87-113		%REC	100	04/20/16 02:15 PM
MERCURY FILTERED (0.45µ)							
		SW7470A					Analyst: AH
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:51 AM
DISSOLVED METALS-ICPMS (0.45µ)							
		SW6020A					Analyst: RO
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:03 PM
Barium	0.0185	0.00300	0.0100		mg/L	1	04/20/16 08:03 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:03 PM
Calcium	603	5.00	15.0		mg/L	50	04/25/16 02:22 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:03 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:03 PM
Magnesium	189	5.00	15.0		mg/L	50	04/25/16 02:22 PM
Potassium	3.65	0.100	0.300		mg/L	1	04/20/16 08:03 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:03 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 08:03 PM
Sodium	75.7	5.00	15.0		mg/L	50	04/25/16 02:22 PM
ANIONS BY IC METHOD - WATER							
		E300					Analyst: AV
Chloride	83.4	3.00	10.0		mg/L	10	04/20/16 03:02 PM
Sulfate	2010	100	300		mg/L	100	04/20/16 06:37 PM
ALKALINITY							
		M2320 B					Analyst: BJT
Alkalinity, Bicarbonate (As CaCO3)	693	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:15 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:15 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:15 PM
Alkalinity, Total (As CaCO3)	693	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:15 PM
TOTAL DISSOLVED SOLIDS							
		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	4160	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-18
Lab ID: 1604146-29
Collection Date: 04/13/16 11:45 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	15.9	0.0800	0.200		mg/L	100	04/20/16 02:38 PM
Ethylbenzene	0.358	0.200	0.600	J	mg/L	100	04/20/16 02:38 PM
Toluene	<0.600	0.200	0.600		mg/L	100	04/20/16 02:38 PM
Xylenes, Total	<0.900	0.300	0.900		mg/L	100	04/20/16 02:38 PM
Surr: a,a,a-Trifluorotoluene	94.1	0	87-113		%REC	100	04/20/16 02:38 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 11:53 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:05 PM
Barium	0.0181	0.00300	0.0100		mg/L	1	04/20/16 08:05 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:05 PM
Calcium	610	5.00	15.0		mg/L	50	04/25/16 02:24 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:05 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:05 PM
Magnesium	208	5.00	15.0		mg/L	50	04/25/16 02:24 PM
Potassium	3.48	0.100	0.300		mg/L	1	04/20/16 08:05 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:05 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 08:05 PM
Sodium	77.7	5.00	15.0		mg/L	50	04/25/16 02:24 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	73.1	3.00	10.0		mg/L	10	04/20/16 03:17 PM
Sulfate	1880	100	300		mg/L	100	04/20/16 06:52 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	740	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:28 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:28 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:28 PM
Alkalinity, Total (As CaCO ₃)	740	20.0	20.0		mg/L @ pH 4.54	1	04/18/16 01:28 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3860	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-03-03
Lab ID: 1604146-30
Collection Date: 04/13/16 12:30 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	2.72	0.0400	0.100		mg/L	50	04/20/16 03:01 PM
Ethylbenzene	<0.300	0.100	0.300		mg/L	50	04/20/16 03:01 PM
Toluene	<0.300	0.100	0.300		mg/L	50	04/20/16 03:01 PM
Xylenes, Total	0.257	0.150	0.450	J	mg/L	50	04/20/16 03:01 PM
Surr: a,a,a-Trifluorotoluene	96.0	0	87-113		%REC	50	04/20/16 03:01 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 12:00 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	0.00636	0.00200	0.00500		mg/L	1	04/20/16 08:07 PM
Barium	0.0238	0.00300	0.0100		mg/L	1	04/20/16 08:07 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:07 PM
Calcium	537	5.00	15.0		mg/L	50	04/25/16 02:36 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:07 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:07 PM
Magnesium	112	5.00	15.0		mg/L	50	04/25/16 02:36 PM
Potassium	10.6	0.100	0.300		mg/L	1	04/20/16 08:07 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:07 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 08:07 PM
Sodium	223	5.00	15.0		mg/L	50	04/25/16 02:36 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	316	3.00	10.0		mg/L	10	04/20/16 03:32 PM
Sulfate	1350	10.0	30.0		mg/L	10	04/20/16 03:32 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	702	10.0	20.0		mg/L @ pH 4.55	1	04/18/16 01:40 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	04/18/16 01:40 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	04/18/16 01:40 PM
Alkalinity, Total (As CaCO ₃)	702	20.0	20.0		mg/L @ pH 4.55	1	04/18/16 01:40 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3240	50.0	50.0		mg/L	1	04/20/16 08:59 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: 27-Apr-16

CLIENT: Larson & Associates
Project: Empire Abo
Project No: 6-0141
Lab Order: 1604146

Client Sample ID: MW-02-12
Lab ID: 1604146-31
Collection Date: 04/13/16 01:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		SW8021B		Analyst: BJT			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	04/20/16 03:23 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 03:23 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	04/20/16 03:23 PM
Xylenes, Total	<0.00900	0.00300	0.00900		mg/L	1	04/20/16 03:23 PM
Surr: a,a,a-Trifluorotoluene	96.7	0	87-113		%REC	1	04/20/16 03:23 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	04/19/16 12:02 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Arsenic	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:09 PM
Barium	0.0146	0.00300	0.0100		mg/L	1	04/20/16 08:09 PM
Cadmium	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:09 PM
Calcium	550	5.00	15.0		mg/L	50	04/25/16 02:38 PM
Chromium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:09 PM
Lead	<0.00100	0.000300	0.00100		mg/L	1	04/20/16 08:09 PM
Magnesium	126	5.00	15.0		mg/L	50	04/25/16 02:38 PM
Potassium	9.89	0.100	0.300		mg/L	1	04/20/16 08:09 PM
Selenium	<0.00500	0.00200	0.00500		mg/L	1	04/20/16 08:09 PM
Silver	<0.00200	0.00100	0.00200		mg/L	1	04/20/16 08:09 PM
Sodium	229	5.00	15.0		mg/L	50	04/25/16 02:38 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	117	30.0	100		mg/L	100	04/20/16 12:46 PM
Sulfate	1910	100	300		mg/L	100	04/20/16 12:46 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO ₃)	473	10.0	20.0		mg/L @ pH 4.41	1	04/18/16 01:50 PM
Alkalinity, Carbonate (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.41	1	04/18/16 01:50 PM
Alkalinity, Hydroxide (As CaCO ₃)	<20.0	10.0	20.0		mg/L @ pH 4.41	1	04/18/16 01:50 PM
Alkalinity, Total (As CaCO ₃)	473	20.0	20.0		mg/L @ pH 4.41	1	04/18/16 01:50 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3610	50.0	50.0		mg/L	1	04/20/16 08:59 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: 1604146

Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160418A

The QC data in batch 74648 applies to the following samples: 1604146-01A, 1604146-02A, 1604146-03A, 1604146-04A, 1604146-05A, 1604146-06A, 1604146-07A, 1604146-08A, 1604146-09A, 1604146-10A, 1604146-11A, 1604146-12A, 1604146-13A, 1604146-14A, 1604146-15A, 1604146-16A, 1604146-17A, 1604146-18A, 1604146-19A, 1604146-20A

Sample ID	LCS-74648	Batch ID:	74648	TestNo:	SW8021B	Units:	mg/L
SampType:	LCS	Run ID:	GC8_160418A	Analysis Date:	4/18/2016 12:33:14 PM	Prep Date:	4/18/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0521	0.00200	0.0464	0	112	81	125			
Toluene	0.0522	0.00600	0.0464	0	113	84	123			
Ethylbenzene	0.0523	0.00600	0.0464	0	113	83	119			
Xylenes, Total	0.159	0.00900	0.139	0	114	81	117			
Surr: a,a,a-Trifluorotoluene	193		200.0		96.6	87	113			

Sample ID	MB-74648	Batch ID:	74648	TestNo:	SW8021B	Units:	mg/L
SampType:	MBLK	Run ID:	GC8_160418A	Analysis Date:	4/18/2016 12:55:47 PM	Prep Date:	4/18/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Toluene	<0.00600	0.00600								
Ethylbenzene	<0.00600	0.00600								
Xylenes, Total	<0.00900	0.00900								
Surr: a,a,a-Trifluorotoluene	188		200.0		94.2	87	113			

Sample ID	MB-160419	Batch ID:	74648	TestNo:	SW8021B	Units:	mg/L
SampType:	MBLK	Run ID:	GC8_160418A	Analysis Date:	4/19/2016 8:56:21 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Toluene	<0.00600	0.00600								
Ethylbenzene	<0.00600	0.00600								
Xylenes, Total	<0.00900	0.00900								
Surr: a,a,a-Trifluorotoluene	181		200.0		90.5	87	113			

Sample ID	1604146-04AMS	Batch ID:	74648	TestNo:	SW8021B	Units:	mg/L
SampType:	MS	Run ID:	GC8_160418A	Analysis Date:	4/19/2016 10:13:27 AM	Prep Date:	4/18/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0372	0.00200	0.0464	0	80.2	81	125			S
Toluene	0.0368	0.00600	0.0464	0	79.3	84	123			S
Ethylbenzene	0.0371	0.00600	0.0464	0	79.9	83	119			S
Xylenes, Total	0.113	0.00900	0.139	0	81.3	81	117			
Surr: a,a,a-Trifluorotoluene	190		200.0		94.9	87	113			

Qualifiers:

B Analyte detected in the associated Method Blank

J Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

J Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

R RPD outside accepted control limits

S Spike Recovery outside control limits

N Parameter not NELAC certified

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160418A

Sample ID	1604146-04AMSD	Batch ID:	74648	TestNo:	SW8021B	Units:	mg/L			
SampType:	MSD	Run ID:	GC8_160418A	Analysis Date:	4/19/2016 10:36:02 AM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0438	0.00200	0.0464	0	94.5	81	125	16.4	20	
Toluene	0.0436	0.00600	0.0464	0	94.0	84	123	17.0	20	
Ethylbenzene	0.0440	0.00600	0.0464	0	94.9	83	119	17.1	20	
Xylenes, Total	0.134	0.00900	0.139	0	96.3	81	117	16.9	20	
Surr: a,a,a-Trifluorotoluene	190		200.0		95.0	87	113	0	0	

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160418A

Sample ID	ICV-160418		Batch ID:	R85306		TestNo:	SW8021B		Units:	mg/L	
SampType:	ICV		Run ID:	GC8_160418A		Analysis Date:	4/18/2016 11:54:13 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0840	0.00200	0.0928	0	90.6	80	120			
Toluene	0.0844	0.00600	0.0928	0	91.0	80	120			
Ethylbenzene	0.0852	0.00600	0.0928	0	91.8	80	120			
Xylenes, Total	0.256	0.00900	0.278	0	91.9	80	120			
Surr: a,a,a-Trifluorotoluene	191		200.0		95.6	87	113			

Sample ID	CCV1-160418	Batch ID:	R85306		TestNo:	SW8021B		Units:	mg/L		
SampType:	CCV	Run ID:	GC8_160418A		Analysis Date:	4/18/2016 6:35:23 PM		Prep Date:			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0430	0.00200	0.0464	0	92.6	80	120			
Toluene	0.0426	0.00600	0.0464	0	91.8	80	120			
Ethylbenzene	0.0427	0.00600	0.0464	0	92.1	80	120			
Xylenes, Total	0.129	0.00900	0.139	0	92.8	80	120			
Surr: a,a,a-Trifluorotoluene	192		200.0		96.1	87	113			

Sample ID	CCV2-160418	Batch ID:	R85306	TestNo:	SW8021B	Units:	mg/L				
SampType:	CCV	Run ID:	GC8_160418A	Analysis Date:	4/18/2016 11:06:33 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0427	0.00200	0.0464	0	92.1	80	120			
Toluene	0.0422	0.00600	0.0464	0	90.9	80	120			
Ethylbenzene	0.0427	0.00600	0.0464	0	92.0	80	120			
Xylenes, Total	0.129	0.00900	0.139	0	92.4	80	120			
Surr: a,a,a-Trifluorotoluene	190		200.0		95.0	87	113			

Sample ID	ICV-160419		Batch ID:	R85306		TestNo:	SW8021B		Units:	mg/L	
SampType:	ICV		Run ID:	GC8_160418A		Analysis Date:	4/19/2016 9:18:49 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0838	0.00200	0.0928	0	90.3	80	120			
Toluene	0.0840	0.00600	0.0928	0	90.5	80	120			
Ethylbenzene	0.0851	0.00600	0.0928	0	91.7	80	120			
Xylenes, Total	0.255	0.00900	0.278	0	91.8	80	120			
Surr: a,a,a-Trifluorotoluene	190		200.0		94.8	87	113			

Sample ID	CCV3-160419	Batch ID:	R85306	TestNo:	SW8021B	Units:	mg/L				
SampType:	CCV	Run ID:	GC8_160418A	Analysis Date:	4/19/2016 12:16:39 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0456	0.00200	0.0464	0	98.4	80	120			
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Qualifiers: B Analyte detected in the associated Method Blank
J Analyte detected between MDL and RL
ND Not Detected at the Method Detection Limit
RL Reporting Limit
J Analyte detected between SDL and RL

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

CLIENT: Larson & Associates

Work Order: 1604146

Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160418A

Sample ID	CCV3-160419	Batch ID:	R85306	TestNo:	SW8021B	Units:	mg/L			
SampType:	CCV	Run ID:	GC8_160418A	Analysis Date:	4/19/2016 12:16:39 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	0.0454	0.00600	0.0464	0	97.8	80	120			
Ethylbenzene	0.0461	0.00600	0.0464	0	99.4	80	120			
Xylenes, Total	0.139	0.00900	0.139	0	99.8	80	120			
Surr: a,a,a-Trifluorotoluene	191		200.0		95.3	87	113			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160420A

The QC data in batch 74690 applies to the following samples: 1604146-21A, 1604146-22A, 1604146-23A, 1604146-24A, 1604146-25A, 1604146-26A, 1604146-27A, 1604146-28A, 1604146-29A, 1604146-30A, 1604146-31A

Sample ID	LCS-74690		Batch ID:	74690		TestNo:	SW8021B		Units:	mg/L	
SampType:	LCS		Run ID:	GC8_160420A		Analysis Date:	4/20/2016 10:10:43 AM		Prep Date:	4/20/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0429	0.00200	0.0464	0	92.5	81	125			
Toluene	0.0427	0.00600	0.0464	0	92.0	84	123			
Ethylbenzene	0.0431	0.00600	0.0464	0	92.9	83	119			
Xylenes, Total	0.131	0.00900	0.139	0	94.3	81	117			
Surr: a,a,a-Trifluorotoluene	189		200.0		94.3	87	113			

Sample ID	MB-74690	Batch ID:	74690	TestNo:	SW8021B	Units:	mg/L			
SampType:	MBLK	Run ID:	GC8_160420A	Analysis Date:	4/20/2016 10:33:19 AM	Prep Date:	4/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	<0.00200	0.00200								
Toluene	<0.00600	0.00600								
Ethylbenzene	<0.00600	0.00600								
Xylenes, Total	<0.00900	0.00900								
Surr: a,a,a-Trifluorotoluene	189		200.0		94.6	87	113			

Sample ID	MB-160420	Batch ID:	74690	TestNo:	SW8021B	Units:	mg/L			
SampType:	MBLK	Run ID:	GC8_160420A	Analysis Date:	4/21/2016 10:01:06 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	<0.00200	0.00200								
Toluene	<0.00600	0.00600								
Ethylbenzene	<0.00600	0.00600								
Xylenes, Total	<0.00900	0.00900								
Surr: a,a,a-Trifluorotoluene	192		200.0		95.8	87	113			

Sample ID	1604146-21AMS			Batch ID:	74690		TestNo:	SW8021B		Units:	mg/L	
SampType:	MS			Run ID:	GC8_160420A		Analysis Date:	4/21/2016 10:40:44 AM		Prep Date:	4/20/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Benzene	0.0449	0.00200	0.0464	0.00323	89.8	81	125			
Toluene	0.0417	0.00600	0.0464	0	89.8	84	123			
Ethylbenzene	0.0427	0.00600	0.0464	0	91.9	83	119			
Xylenes, Total	0.128	0.00900	0.139	0	91.8	81	117			
Surr: a,a,a-Trifluorotoluene	185		200.0		92.5	87	113			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160420A

Sample ID	1604146-21AMSD	Batch ID:	74690	TestNo:	SW8021B	Units:	mg/L			
SampType:	MSD	Run ID:	GC8_160420A	Analysis Date:	4/21/2016 11:03:18 AM	Prep Date:	4/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0443	0.00200	0.0464	0.00323	88.6	81	125	1.26	20	
Toluene	0.0412	0.00600	0.0464	0	88.9	84	123	1.09	20	
Ethylbenzene	0.0420	0.00600	0.0464	0	90.4	83	119	1.65	20	
Xylenes, Total	0.125	0.00900	0.139	0	89.9	81	117	2.11	20	
Surr: a,a,a-Trifluorotoluene	191		200.0		95.3	87	113	0	0	

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160420A

Sample ID	ICV-160420	Batch ID:	R85356	TestNo:	SW8021B	Units:	mg/L				
SampType:	ICV	Run ID:	GC8_160420A	Analysis Date:	4/20/2016 9:29:02 AM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0870	0.00200	0.0928	0	93.7	80	120			
Toluene	0.0875	0.00600	0.0928	0	94.3	80	120			
Ethylbenzene	0.0884	0.00600	0.0928	0	95.2	80	120			
Xylenes, Total	0.264	0.00900	0.278	0	95.0	80	120			
Surr: a,a,a-Trifluorotoluene	191		200.0		95.6	87	113			

Sample ID	CCV1-160420	Batch ID:	R85356	TestNo:	SW8021B	Units:	mg/L				
SampType:	CCV	Run ID:	GC8_160420A	Analysis Date:	4/20/2016 4:09:20 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0431	0.00200	0.0464	0	93.0	80	120			
Toluene	0.0427	0.00600	0.0464	0	92.0	80	120			
Ethylbenzene	0.0433	0.00600	0.0464	0	93.3	80	120			
Xylenes, Total	0.130	0.00900	0.139	0	93.8	80	120			
Surr: a,a,a-Trifluorotoluene	194		200.0		96.8	87	113			

Sample ID	CCV2-160420	Batch ID:	R85356	TestNo:	SW8021B	Units:	mg/L				
SampType:	CCV	Run ID:	GC8_160420A	Analysis Date:	4/20/2016 6:02:18 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0442	0.00200	0.0464	0	95.3	80	120			
Toluene	0.0436	0.00600	0.0464	0	94.1	80	120			
Ethylbenzene	0.0439	0.00600	0.0464	0	94.7	80	120			
Xylenes, Total	0.133	0.00900	0.139	0	95.7	80	120			
Surr: a,a,a-Trifluorotoluene	191		200.0		95.7	87	113			

Sample ID	ICV-160421		Batch ID:	R85356		TestNo:	SW8021B		Units:	mg/L	
SampType:	ICV		Run ID:	GC8_160420A		Analysis Date:	4/21/2016 9:38:38 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0823	0.00200	0.0928	0	88.7	80	120			
Toluene	0.0820	0.00600	0.0928	0	88.4	80	120			
Ethylbenzene	0.0829	0.00600	0.0928	0	89.3	80	120			
Xylenes, Total	0.249	0.00900	0.278	0	89.7	80	120			
Surr: a,a,a-Trifluorotoluene	191		200.0		95.4	87	113			

Sample ID	CCV3-160421	Batch ID:	R85356	TestNo:	SW8021B	Units:	mg/L				
SampType:	CCV	Run ID:	GC8_160420A	Analysis Date:	4/21/2016 12:28:24 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Benzene	0.0462	0.00200	0.0464	0	99.6	80	120			
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Qualifiers: B Analyte detected in the associated Method Blank
J Analyte detected between MDL and RL
ND Not Detected at the Method Detection Limit
RL Reporting Limit
J Analyte detected between SDL and RL

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

CLIENT: Larson & Associates

Work Order: 1604146

Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: GC8_160420A

Sample ID	CCV3-160421	Batch ID:	R85356	TestNo:	SW8021B	Units:	mg/L			
SampType:	CCV	Run ID:	GC8_160420A	Analysis Date:	4/21/2016 12:28:24 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	0.0460	0.00600	0.0464	0	99.2	80	120			
Ethylbenzene	0.0462	0.00600	0.0464	0	99.6	80	120			
Xylenes, Total	0.140	0.00900	0.139	0	101	80	120			
Surr: a,a,a-Trifluorotoluene	190		200.0		94.9	87	113			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160419B

The QC data in batch 74641 applies to the following samples: 1604146-20D, 1604146-21D, 1604146-22D, 1604146-23D, 1604146-24D, 1604146-25D, 1604146-26D, 1604146-27D, 1604146-28D, 1604146-29D, 1604146-30D, 1604146-31D

Sample ID	MB-74641	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	MBLK	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 11:26:33 AM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury <0.000200 0.000200

Sample ID	LCS-74641	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	LCS	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 11:28:48 AM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00210 0.000200 0.00200 0 105 85 115

Sample ID	LCSD-74641	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	LCSD	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 11:31:05 AM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00210 0.000200 0.00200 0 105 85 115 0 15

Sample ID	1604161-01B SD	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	SD	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:24:47 PM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury <0.00100 0.00100 0 0 0 0 10

Sample ID	1604161-01B PDS	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	PDS	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:27:03 PM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00236 0.000200 0.00250 0 94.4 85 115

Sample ID	1604161-01B MS	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	MS	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:29:19 PM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00218 0.000200 0.00200 0 109 80 120

Sample ID	1604161-01B MSD	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	MSD	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:31:36 PM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00217 0.000200 0.00200 0 108 80 120 0.460 15

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160419B

Sample ID	FB-74641	Batch ID:	74641	TestNo:	SW7470A	Units:	mg/L			
SampType:	MBLK	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:40:41 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000200	0.000200								

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160419B

Sample ID	ICV-160419	Batch ID:	R85315	TestNo:	SW7470A	Units:	mg/L				
SampType:	ICV	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 10:03:51 AM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00382	0.000200	0.00400	0	95.5	90	110			

Sample ID	CCV2-160419	Batch ID:	R85315	TestNo:	SW7470A	Units:	mg/L			
SampType:	CCV	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 11:21:59 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00196	0.000200	0.00200	0	98.0	90	110			

Sample ID	CCV3-160419	Batch ID:	R85315	TestNo:	SW7470A	Units:	mg/L				
SampType:	CCV	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 11:56:01 AM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00204	0.000200	0.00200	0	102	90	110			

Sample ID	CCV4-160419	Batch ID:	R85315	TestNo:	SW7470A	Units:	mg/L			
SampType:	CCV	Run ID:	CETAC2_HG_160419B	Analysis Date:	4/19/2016 12:42:59 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00207	0.000200	0.00200	0	104	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160422B

The QC data in batch 74640 applies to the following samples: 1604146-01D, 1604146-02D, 1604146-03D, 1604146-04D, 1604146-05D, 1604146-06D, 1604146-07D, 1604146-08D, 1604146-09D, 1604146-10D, 1604146-11D, 1604146-12D, 1604146-13D, 1604146-14D, 1604146-15D, 1604146-16D, 1604146-17D, 1604146-18D, 1604146-19D

Sample ID	MB-74640			Batch ID:	74640		TestNo:	SW7470A		Units:	mg/L	
SampType:	MBLK			Run ID:	CETAC2_HG_160422B		Analysis Date:	4/22/2016 3:19:57 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000200 0.000200

Sample ID	FB-74640			Batch ID:	74640		TestNo:	SW7470A		Units:	mg/L	
SampType:	MBLK			Run ID:	CETAC2_HG_160422B		Analysis Date:	4/22/2016 3:22:13 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Mercury <0.000200 0.000200 0

Sample ID	LCS-74640			Batch ID:	74640		TestNo:	SW7470A		Units:	mg/L	
SampType:	LCS			Run ID:	CETAC2_HG_160422B		Analysis Date:	4/22/2016 3:24:29 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Mercury 0.00205 0.000200 0.00200 0 103 85 115

Sample ID	LCSD-74640			Batch ID:	74640		TestNo:	SW7470A		Units:	mg/L	
SampType:	LCSD			Run ID:	CETAC2_HG_160422B		Analysis Date:	4/22/2016 3:26:45 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Mercury 0.00207 0.000200 0.00200 0 104 85 115 0.971 15

Sample ID	1604146-19D SD			Batch ID:	74640		TestNo:	SW7470A		Units:	mg/L	
SampType:	SD			Run ID:	CETAC2_HG_160422B		Analysis Date:	4/22/2016 4:16:41 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.00100 0.00100 0 0 0 0 10

Sample ID	1604146-19D PDS	Batch ID:	74640	TestNo:	SW7470A	Units:	mg/L			
SampType:	PDS	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 4:18:58 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00236 0.000200 0.00250 0 94.4 85 115

Sample ID	1604146-19D MS	Batch ID:	74640	TestNo:	SW7470A	Units:	mg/L			
SampType:	MS	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 4:21:14 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00198 0.000200 0.00200 0 99.0 80 120

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160422B

Sample ID	1604146-19D MSD	Batch ID:	74640	TestNo:	SW7470A	Units:	mg/L			
SampType:	MSD	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 4:23:31 PM	Prep Date:	4/18/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Mercury		0.00194	0.000200	0.00200	0	97.0	80	120	2.04	15

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_160422B

Sample ID	ICV-160422	Batch ID:	R85405	TestNo:	SW7470A	Units:	mg/L				
SampType:	ICV	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 10:34:55 AM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00388	0.000200	0.00400	0	97.0	90	110			

Sample ID	CCV7-160422	Batch ID:	R85405	TestNo:	SW7470A	Units:	mg/L			
SampType:	CCV	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 3:04:25 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00197	0.000200	0.00200	0	98.5	90	110			

Sample ID	CCV8-160422	Batch ID:	R85405	TestNo:	SW7470A	Units:	mg/L				
SampType:	CCV	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 3:51:42 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00196	0.000200	0.00200	0	98.0	90	110			

Sample ID	CCV9-160422	Batch ID:	R85405	TestNo:	SW7470A	Units:	mg/L				
SampType:	CCV	Run ID:	CETAC2_HG_160422B	Analysis Date:	4/22/2016 4:25:49 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00198	0.000200	0.00200	0	99.0	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

The QC data in batch 74628 applies to the following samples: 1604146-01D, 1604146-02D, 1604146-03D, 1604146-04D, 1604146-05D, 1604146-06D, 1604146-07D, 1604146-08D, 1604146-09D, 1604146-10D, 1604146-11D, 1604146-12D, 1604146-13D, 1604146-14D, 1604146-15D, 1604146-16D, 1604146-17D, 1604146-18D, 1604146-19D, 1604146-20D

Sample ID	MB-74628		Batch ID:	74628		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK		Run ID:	ICP-MS4_160418B		Analysis Date:	4/18/2016 2:45:00 PM		Prep Date:	4/15/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	<0.00500	0.00500
Barium	<0.0100	0.0100
Cadmium	<0.00100	0.00100
Calcium	<0.300	0.300
Chromium	<0.00500	0.00500
Lead	<0.00100	0.00100
Magnesium	<0.300	0.300
Potassium	<0.300	0.300
Selenium	<0.00500	0.00500
Silver	<0.00200	0.00200
Sodium	<0.300	0.300

Sample ID	FB-74628	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L			
SampType:	MBLK	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:47:00 PM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	<0.00500	0.00500
Barium	<0.0100	0.0100
Cadmium	<0.00100	0.00100
Calcium	0.127	0.300
Chromium	<0.00500	0.00500
Lead	0.000321	0.00100
Magnesium	<0.300	0.300
Potassium	<0.300	0.300
Selenium	<0.00500	0.00500
Silver	<0.00200	0.00200
Sodium	0.152	0.300

Sample ID	LCS-74628		Batch ID:	74628		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCS		Run ID:	ICP-MS4_160418B		Analysis Date:	4/18/2016 2:49:00 PM		Prep Date:	4/15/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.196	0.00500	0.200	0	97.8	80	120
Barium	0.191	0.0100	0.200	0	95.6	80	120
Cadmium	0.188	0.00100	0.200	0	94.1	80	120
Calcium	4.91	0.300	5.00	0	98.2	80	120
Chromium	0.199	0.00500	0.200	0	99.5	80	120
Lead	0.191	0.00100	0.200	0	95.7	80	120
Magnesium	5.27	0.300	5.00	0	105	80	120

Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

Sample ID	LCS-74628	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:49:00 PM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	5.27	0.300	5.00	0	105	80	120			
Selenium	0.197	0.00500	0.200	0	98.7	80	120			
Silver	0.196	0.00200	0.200	0	98.1	80	120			
Sodium	5.23	0.300	5.00	0	105	80	120			

Sample ID	LCSD-74628	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCSD	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:51:00 PM	Prep Date:	4/15/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.196	0.00500	0.200	0	98.1	80	120	0.256	15	
Barium		0.192	0.0100	0.200	0	96.1	80	120	0.480	15	
Cadmium		0.190	0.00100	0.200	0	95.2	80	120	1.19	15	
Calcium		4.99	0.300	5.00	0	99.7	80	120	1.51	15	
Chromium		0.201	0.00500	0.200	0	101	80	120	1.10	15	
Lead		0.191	0.00100	0.200	0	95.6	80	120	0.071	15	
Magnesium		5.36	0.300	5.00	0	107	80	120	1.67	15	
Potassium		5.34	0.300	5.00	0	107	80	120	1.26	15	
Selenium		0.197	0.00500	0.200	0	98.3	80	120	0.396	15	
Silver		0.197	0.00200	0.200	0	98.7	80	120	0.542	15	
Sodium		5.33	0.300	5.00	0	107	80	120	1.89	15	

Sample ID	1604146-04D SD	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:57:00 PM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	<0.0250	0.0250	0	0				0	10	
Barium	<0.0500	0.0500	0	0.0150				0	10	
Cadmium	<0.00500	0.00500	0	0				0	10	
Chromium	<0.0250	0.0250	0	0				0	10	
Lead	<0.00500	0.00500	0	0				0	10	
Potassium	4.36	1.50	0	4.26				2.25	10	
Selenium	<0.0250	0.0250	0	0				0	10	
Silver	<0.0100	0.0100	0	0				0	10	

Sample ID	1604146-04D PDS	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:17:00 PM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.194	0.00500	0.200	0	96.9	80	120			
Barium	0.201	0.0100	0.200	0.0150	92.9	80	120			
Cadmium	0.172	0.00100	0.200	0	86.0	80	120			

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

Sample ID	1604146-04D PDS			Batch ID:	74628		TestNo:	SW6020A		Units:	mg/L	
SampType:	PDS			Run ID:	ICP-MS4_160418B		Analysis Date:	4/18/2016 3:17:00 PM		Prep Date:	4/15/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chromium	0.188	0.00500	0.200	0	94.0	80	120			
Lead	0.185	0.00100	0.200	0	92.6	80	120			
Potassium	9.15	0.300	5.00	4.26	97.7	80	120			
Selenium	0.205	0.00500	0.200	0	102	80	120			
Silver	0.172	0.00200	0.200	0	85.8	80	120			

Sample ID	1604146-04D MS	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L				
SampType:	MS	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:19:00 PM	Prep Date:	4/15/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.199	0.00500	0.200	0	99.3	80	120			
Barium	0.209	0.0100	0.200	0.0150	97.1	80	120			
Cadmium	0.178	0.00100	0.200	0	89.2	80	120			
Calcium	569	0.300	5.00	536	672	80	120			S
Chromium	0.187	0.00500	0.200	0	93.6	80	120			
Lead	0.190	0.00100	0.200	0	94.8	80	120			
Magnesium	193	0.300	5.00	184	191	80	120			S
Potassium	9.78	0.300	5.00	4.26	110	80	120			
Selenium	0.207	0.00500	0.200	0	104	80	120			
Silver	0.178	0.00200	0.200	0	89.0	80	120			
Sodium	50.3	0.300	5.00	44.7	112	80	120			

Sample ID	1604146-04D MSD	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L			
SampType:	MSD	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:21:00 PM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.199	0.00500	0.200	0	99.6	80	120	0.237	15	
Barium	0.208	0.0100	0.200	0.0150	96.6	80	120	0.440	15	
Cadmium	0.177	0.00100	0.200	0	88.7	80	120	0.612	15	
Calcium	572	0.300	5.00	536	731	80	120	0.523	15	S
Chromium	0.188	0.00500	0.200	0	94.1	80	120	0.532	15	
Lead	0.192	0.00100	0.200	0	95.8	80	120	1.03	15	
Magnesium	191	0.300	5.00	184	155	80	120	0.929	15	S
Potassium	9.82	0.300	5.00	4.26	111	80	120	0.437	15	
Selenium	0.205	0.00500	0.200	0	103	80	120	0.837	15	
Silver	0.178	0.00200	0.200	0	88.9	80	120	0.121	15	
Sodium	50.3	0.300	5.00	44.7	111	80	120	0.082	15	

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

Sample ID	ICV-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 11:10:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.0987	0.00500	0.100	0	98.7	90	110			
Barium	0.0984	0.0100	0.100	0	98.4	90	110			
Cadmium	0.0987	0.00100	0.100	0	98.7	90	110			
Calcium	2.34	0.300	2.50	0	93.4	90	110			
Chromium	0.104	0.00500	0.100	0	104	90	110			
Lead	0.0982	0.00100	0.100	0	98.2	90	110			
Magnesium	2.58	0.300	2.50	0	103	90	110			
Potassium	2.55	0.300	2.50	0	102	90	110			
Selenium	0.0994	0.00500	0.100	0	99.4	90	110			
Silver	0.101	0.00200	0.100	0	101	90	110			
Sodium	2.56	0.300	2.50	0	103	90	110			

Sample ID	LCVL-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 11:17:00 AM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.00471	0.00500	0.00500	0	94.3	70	130			
Barium	0.00461	0.0100	0.00500	0	92.2	70	130			
Cadmium	0.000963	0.00100	0.00100	0	96.3	70	130			
Calcium	0.0987	0.300	0.100	0	98.7	70	130			
Chromium	0.00500	0.00500	0.00500	0	100	70	130			
Lead	0.000924	0.00100	0.00100	0	92.4	70	130			
Magnesium	0.0961	0.300	0.100	0	96.1	70	130			
Potassium	0.102	0.300	0.100	0	102	70	130			
Selenium	0.00493	0.00500	0.00500	0	98.6	70	130			
Silver	0.00190	0.00200	0.00200	0	95.0	70	130			
Sodium	0.102	0.300	0.100	0	102	70	130			

Sample ID	CCV5-160418		Batch ID:	R85292		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_160418B		Analysis Date:	4/18/2016 2:35:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.196	0.00500	0.200	0	97.8	90	110			
Barium	0.193	0.0100	0.200	0	96.5	90	110			
Cadmium	0.192	0.00100	0.200	0	96.1	90	110			
Calcium	4.86	0.300	5.00	0	97.3	90	110			
Chromium	0.194	0.00500	0.200	0	97.2	90	110			
Lead	0.190	0.00100	0.200	0	95.2	90	110			
Magnesium	5.18	0.300	5.00	0	104	90	110			
Potassium	5.17	0.300	5.00	0	103	90	110			
Selenium	0.199	0.00500	0.200	0	99.5	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

Sample ID	CCV5-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:35:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver		0.198	0.00200	0.200	0	98.8	90	110			
Sodium		5.14	0.300	5.00	0	103	90	110			

Sample ID	LCVL5-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 2:39:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00491	0.00500	0.00500	0	98.1	70	130			
Barium	0.00467	0.0100	0.00500	0	93.5	70	130			
Cadmium	0.000961	0.00100	0.00100	0	96.1	70	130			
Calcium	0.0983	0.300	0.100	0	98.3	70	130			
Chromium	0.00511	0.00500	0.00500	0	102	70	130			
Lead	0.000888	0.00100	0.00100	0	88.8	70	130			
Magnesium	0.100	0.300	0.100	0	100	70	130			
Potassium	0.105	0.300	0.100	0	105	70	130			
Selenium	0.00483	0.00500	0.00500	0	96.5	70	130			
Silver	0.00192	0.00200	0.00200	0	96.2	70	130			
Sodium	0.130	0.300	0.100	0	130	70	130			

Sample ID	CCV6-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:35:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.194	0.00500	0.200	0	96.8	90	110			
Barium		0.190	0.0100	0.200	0	94.8	90	110			
Cadmium		0.184	0.00100	0.200	0	91.9	90	110			
Calcium		4.89	0.300	5.00	0	97.8	90	110			
Chromium		0.189	0.00500	0.200	0	94.3	90	110			
Lead		0.187	0.00100	0.200	0	93.3	90	110			
Magnesium		5.06	0.300	5.00	0	101	90	110			
Potassium		5.24	0.300	5.00	0	105	90	110			
Selenium		0.201	0.00500	0.200	0	101	90	110			
Silver		0.186	0.00200	0.200	0	92.9	90	110			
Sodium		5.01	0.300	5.00	0	100	90	110			

Sample ID	LCVL6-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:55:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.00509	0.00500	0.00500	0	102	70	130			
Barium		0.00472	0.0100	0.00500	0	94.5	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160418B

Sample ID	LCVL6-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 3:55:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Cadmium	0.000898	0.00100	0.00100	0	89.8	70	130			
Calcium	0.0929	0.300	0.100	0	92.9	70	130			
Chromium	0.00489	0.00500	0.00500	0	97.9	70	130			
Lead	0.000848	0.00100	0.00100	0	84.8	70	130			
Magnesium	0.103	0.300	0.100	0	103	70	130			
Potassium	0.116	0.300	0.100	0	116	70	130			
Selenium	0.00556	0.00500	0.00500	0	111	70	130			
Silver	0.00182	0.00200	0.00200	0	90.8	70	130			
Sodium	0.161	0.300	0.100	0	161	70	130			S

Sample ID	CCV7-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 4:28:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.196	0.00500	0.200	0	97.8	90	110			
Barium	0.189	0.0100	0.200	0	94.4	90	110			
Cadmium	0.183	0.00100	0.200	0	91.4	90	110			
Calcium	4.95	0.300	5.00	0	99.0	90	110			
Chromium	0.190	0.00500	0.200	0	95.2	90	110			
Lead	0.187	0.00100	0.200	0	93.7	90	110			
Magnesium	5.09	0.300	5.00	0	102	90	110			
Potassium	5.35	0.300	5.00	0	107	90	110			
Selenium	0.203	0.00500	0.200	0	101	90	110			
Silver	0.183	0.00200	0.200	0	91.5	90	110			

Sample ID	LCVL7-160418	Batch ID:	R85292	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160418B	Analysis Date:	4/18/2016 4:53:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.00505	0.00500	0.00500	0	101	70	130			
Barium	0.00471	0.0100	0.00500	0	94.1	70	130			
Cadmium	0.000887	0.00100	0.00100	0	88.7	70	130			
Calcium	0.0976	0.300	0.100	0	97.6	70	130			
Chromium	0.00488	0.00500	0.00500	0	97.6	70	130			
Lead	0.000833	0.00100	0.00100	0	83.3	70	130			
Magnesium	0.0990	0.300	0.100	0	99.0	70	130			
Potassium	0.118	0.300	0.100	0	118	70	130			
Selenium	0.00519	0.00500	0.00500	0	104	70	130			
Silver	0.00179	0.00200	0.00200	0	89.5	70	130			

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

The QC data in batch 74632 applies to the following samples: 1604146-21D, 1604146-22D, 1604146-23D, 1604146-24D, 1604146-25D, 1604146-26D, 1604146-27D, 1604146-28D, 1604146-29D, 1604146-30D, 1604146-31D

Sample ID	MB-74632		Batch ID:	74632		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK		Run ID:	ICP-MS4_160420A		Analysis Date:	4/20/2016 7:05:00 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	<0.00500	0.00500								
Barium	<0.0100	0.0100								
Cadmium	<0.00100	0.00100								
Calcium	<0.300	0.300								
Chromium	<0.00500	0.00500								
Lead	<0.00100	0.00100								
Magnesium	<0.300	0.300								
Potassium	<0.300	0.300								
Selenium	<0.00500	0.00500								
Silver	<0.00200	0.00200								
Sodium	<0.300	0.300								

Sample ID	FB-74632			Batch ID:	74632		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK			Run ID:	ICP-MS4_160420A		Analysis Date:	4/20/2016 7:07:00 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Arsenic	<0.00500	0.00500								
Barium	<0.0100	0.0100								
Cadmium	<0.00100	0.00100								
Calcium	0.135	0.300								
Chromium	<0.00500	0.00500								
Lead	0.000348	0.00100								
Magnesium	<0.300	0.300								
Potassium	<0.300	0.300								
Selenium	<0.00500	0.00500								
Silver	<0.00200	0.00200								
Sodium	0.172	0.300								

Sample ID	LCS-74632			Batch ID:	74632		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCS			Run ID:	ICP-MS4_160420A		Analysis Date:	4/20/2016 7:09:00 PM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Arsenic	0.200	0.00500	0.200	0	100	80	120			
Barium	0.196	0.0100	0.200	0	98.1	80	120			
Cadmium	0.198	0.00100	0.200	0	99.0	80	120			
Calcium	4.95	0.300	5.00	0	99.0	80	120			
Chromium	0.206	0.00500	0.200	0	103	80	120			
Lead	0.200	0.00100	0.200	0	100	80	120			
Magnesium	5.31	0.300	5.00	0	106	80	120			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

Sample ID	LCS-74632	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:09:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	5.30	0.300	5.00	0	106	80	120			
Selenium	0.205	0.00500	0.200	0	102	80	120			
Silver	0.207	0.00200	0.200	0	104	80	120			
Sodium	5.33	0.300	5.00	0	107	80	120			

Sample ID	LCSD-74632	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCSD	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:11:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.202	0.00500	0.200	0	101	80	120	1.12	15	
Barium	0.197	0.0100	0.200	0	98.5	80	120	0.401	15	
Cadmium	0.199	0.00100	0.200	0	99.6	80	120	0.660	15	
Calcium	5.05	0.300	5.00	0	101	80	120	1.95	15	
Chromium	0.207	0.00500	0.200	0	104	80	120	0.598	15	
Lead	0.205	0.00100	0.200	0	102	80	120	2.05	15	
Magnesium	5.43	0.300	5.00	0	109	80	120	2.20	15	
Potassium	5.41	0.300	5.00	0	108	80	120	2.07	15	
Selenium	0.204	0.00500	0.200	0	102	80	120	0.241	15	
Silver	0.212	0.00200	0.200	0	106	80	120	2.29	15	
Sodium	5.48	0.300	5.00	0	110	80	120	2.75	15	

Sample ID	1604152-01B SD	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:17:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	<0.0250	0.0250	0	0.00296				0	10	
Barium	0.0596	0.0500	0	0.0602				0.887	10	
Cadmium	<0.00500	0.00500	0	0.000900				0	10	
Chromium	<0.0250	0.0250	0	0				0	10	
Lead	<0.00500	0.00500	0	0				0	10	
Potassium	7.88	1.50	0	7.69				2.44	10	
Selenium	<0.0250	0.0250	0	0				0	10	
Silver	<0.0100	0.0100	0	0				0	10	

Sample ID	1604152-01B PDS	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:37:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.202	0.00500	0.200	0.00296	99.4	80	120			
Barium	0.250	0.0100	0.200	0.0602	94.9	80	120			
Cadmium	0.186	0.00100	0.200	0.000900	92.8	80	120			

Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

Sample ID	1604152-01B PDS			Batch ID:	74632			TestNo:	SW6020A			Units:	mg/L		
SampType:	PDS			Run ID:	ICP-MS4_160420A			Analysis Date:	4/20/2016 7:37:00 PM			Prep Date:	4/18/2016		
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chromium	0.203	0.00500	0.200	0	101	80	120			
Lead	0.201	0.00100	0.200	0	101	80	120			
Potassium	12.2	0.300	5.00	7.69	91.0	80	120			
Selenium	0.197	0.00500	0.200	0	98.4	80	120			
Silver	0.195	0.00200	0.200	0	97.4	80	120			

Sample ID	1604152-01B MS			Batch ID:	74632		TestNo:	SW6020A		Units:	mg/L	
SampType:	MS			Run ID:	ICP-MS4_160420A		Analysis Date:	4/20/2016 7:39:00 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.212	0.00500	0.200	0.00296	104	80	120			
Barium	0.260	0.0100	0.200	0.0602	100	80	120			
Cadmium	0.194	0.00100	0.200	0.000900	96.6	80	120			
Calcium	150	0.300	5.00	147	66.3	80	120			S
Chromium	0.203	0.00500	0.200	0	102	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
Magnesium	38.4	0.300	5.00	33.5	98.4	80	120			
Potassium	12.9	0.300	5.00	7.69	104	80	120			
Selenium	0.206	0.00500	0.200	0	103	80	120			
Silver	0.200	0.00200	0.200	0	100	80	120			
Sodium	379	0.300	5.00	376	66.1	80	120			S

Sample ID: 1604152-01B MSD	Batch ID: 74632	TestNo: SW6020A	Units: mg/L							
SampType: MSD	Run ID: ICP-MS4_160420A	Analysis Date: 4/20/2016 7:41:00 PM	Prep Date: 4/18/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.211	0.00500	0.200	0.00296	104	80	120	0.552	15	
Barium	0.259	0.0100	0.200	0.0602	99.5	80	120	0.427	15	
Cadmium	0.196	0.00100	0.200	0.000900	97.5	80	120	0.967	15	
Calcium	153	0.300	5.00	147	111	80	120	1.47	15	
Chromium	0.204	0.00500	0.200	0	102	80	120	0.623	15	
Lead	0.206	0.00100	0.200	0	103	80	120	0.269	15	
Magnesium	38.7	0.300	5.00	33.5	105	80	120	0.810	15	
Potassium	13.1	0.300	5.00	7.69	108	80	120	1.42	15	
Selenium	0.204	0.00500	0.200	0	102	80	120	1.07	15	
Silver	0.200	0.00200	0.200	0	99.9	80	120	0.321	15	
Sodium	383	0.300	5.00	376	145	80	120	1.04	15	S

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

Sample ID	ICV-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 12:30:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.0979	0.00500	0.100	0	97.9	90	110			
Barium	0.0985	0.0100	0.100	0	98.5	90	110			
Cadmium	0.0977	0.00100	0.100	0	97.6	90	110			
Calcium	2.42	0.300	2.50	0	96.7	90	110			
Chromium	0.105	0.00500	0.100	0	105	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
Magnesium	2.60	0.300	2.50	0	104	90	110			
Potassium	2.57	0.300	2.50	0	103	90	110			
Selenium	0.100	0.00500	0.100	0	100	90	110			
Silver	0.105	0.00200	0.100	0	105	90	110			
Sodium	2.60	0.300	2.50	0	104	90	110			

Sample ID	LCVL-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 12:37:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.00481	0.00500	0.00500	0	96.1	70	130			
Barium	0.00482	0.0100	0.00500	0	96.4	70	130			
Cadmium	0.000955	0.00100	0.00100	0	95.5	70	130			
Calcium	0.0969	0.300	0.100	0	96.9	70	130			
Chromium	0.00512	0.00500	0.00500	0	102	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
Magnesium	0.0986	0.300	0.100	0	98.6	70	130			
Potassium	0.0928	0.300	0.100	0	92.8	70	130			
Selenium	0.00508	0.00500	0.00500	0	102	70	130			
Silver	0.00202	0.00200	0.00200	0	101	70	130			
Sodium	0.100	0.300	0.100	0	100	70	130			

Sample ID	CCV7-160420			Batch ID:	R85336		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV			Run ID:	ICP-MS4_160420A		Analysis Date:	4/20/2016 6:57:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Arsenic	0.199	0.00500	0.200	0	99.4	90	110			
Barium	0.194	0.0100	0.200	0	96.9	90	110			
Cadmium	0.195	0.00100	0.200	0	97.3	90	110			
Calcium	5.00	0.300	5.00	0	100	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Lead	0.201	0.00100	0.200	0	101	90	110			
Magnesium	5.30	0.300	5.00	0	106	90	110			
Potassium	5.27	0.300	5.00	0	105	90	110			
Selenium	0.201	0.00500	0.200	0	100	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

Sample ID	CCV7-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 6:57:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.209	0.00200	0.200	0	104	90	110			
Sodium	5.38	0.300	5.00	0	108	90	110			

Sample ID	LCVL7-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:01:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00499	0.00500	0.00500	0	99.8	70	130			
Barium	0.00481	0.0100	0.00500	0	96.3	70	130			
Cadmium	0.000975	0.00100	0.00100	0	97.5	70	130			
Calcium	0.0987	0.300	0.100	0	98.7	70	130			
Chromium	0.00526	0.00500	0.00500	0	105	70	130			
Lead	0.000952	0.00100	0.00100	0	95.2	70	130			
Magnesium	0.100	0.300	0.100	0	100	70	130			
Potassium	0.101	0.300	0.100	0	101	70	130			
Selenium	0.00525	0.00500	0.00500	0	105	70	130			
Silver	0.00203	0.00200	0.00200	0	101	70	130			
Sodium	0.159	0.300	0.100	0	159	70	130			S

Sample ID	CCV8-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:43:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Barium	0.193	0.0100	0.200	0	96.6	90	110			
Cadmium	0.196	0.00100	0.200	0	97.9	90	110			
Calcium	5.02	0.300	5.00	0	100	90	110			
Chromium	0.207	0.00500	0.200	0	103	90	110			
Lead	0.200	0.00100	0.200	0	99.9	90	110			
Magnesium	5.32	0.300	5.00	0	106	90	110			
Potassium	5.27	0.300	5.00	0	105	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Silver	0.211	0.00200	0.200	0	105	90	110			
Sodium	5.51	0.300	5.00	0	110	90	110			

Sample ID	LCVL8-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:47:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.00498	0.00500	0.00500	0	99.6	70	130			
Barium		0.00485	0.0100	0.00500	0	97.0	70	130			

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160420A

Sample ID	LCVL8-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 7:47:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Cadmium	0.000994	0.00100	0.00100	0	99.4	70	130			
Calcium	0.103	0.300	0.100	0	103	70	130			
Chromium	0.00525	0.00500	0.00500	0	105	70	130			
Lead	0.000957	0.00100	0.00100	0	95.7	70	130			
Magnesium	0.101	0.300	0.100	0	101	70	130			
Potassium	0.103	0.300	0.100	0	103	70	130			
Selenium	0.00518	0.00500	0.00500	0	104	70	130			
Silver	0.00209	0.00200	0.00200	0	105	70	130			
Sodium	0.215	0.300	0.100	0	215	70	130			S

Sample ID	CCV9-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 8:11:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.202	0.00500	0.200	0	101	90	110			
Barium	0.191	0.0100	0.200	0	95.3	90	110			
Cadmium	0.191	0.00100	0.200	0	95.3	90	110			
Chromium	0.199	0.00500	0.200	0	99.5	90	110			
Lead	0.200	0.00100	0.200	0	99.8	90	110			
Potassium	5.40	0.300	5.00	0	108	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Silver	0.202	0.00200	0.200	0	101	90	110			

Sample ID	LCVL9-160420	Batch ID:	R85336	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160420A	Analysis Date:	4/20/2016 8:15:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.00509	0.00500	0.00500	0	102	70	130			
Barium	0.00471	0.0100	0.00500	0	94.2	70	130			
Cadmium	0.000934	0.00100	0.00100	0	93.4	70	130			
Chromium	0.00500	0.00500	0.00500	0	99.9	70	130			
Lead	0.000915	0.00100	0.00100	0	91.5	70	130			
Potassium	0.130	0.300	0.100	0	130	70	130			
Selenium	0.00569	0.00500	0.00500	0	114	70	130			
Silver	0.00194	0.00200	0.00200	0	97.0	70	130			

Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160425E

The QC data in batch 74628 applies to the following samples: 1604146-01D, 1604146-02D, 1604146-03D, 1604146-04D, 1604146-05D, 1604146-06D, 1604146-07D, 1604146-08D, 1604146-09D, 1604146-10D, 1604146-11D, 1604146-12D, 1604146-13D, 1604146-14D, 1604146-15D, 1604146-16D, 1604146-17D, 1604146-18D, 1604146-19D, 1604146-20D

Sample ID	1604146-04D SD	Batch ID:	74628	TestNo:	SW6020A	Units:	mg/L				
SampType:	SD	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 12:47:00 PM	Prep Date:	4/15/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	550	75.0	0	540				1.96	10
Magnesium	187	75.0	0	184				1.33	10
Sodium	47.7	75.0	0	45.1				5.60	10

Sample ID	1604146-04D PDS			Batch ID:	74628		TestNo:	SW6020A		Units:	mg/L	
SampType:	PDS			Run ID:	ICP-MS4_160425E		Analysis Date:	4/25/2016 1:07:00 PM		Prep Date:	4/15/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Calcium	790	15.0	250	540	100	80	120
Magnesium	443	15.0	250	184	103	80	120
Sodium	302	15.0	250	45.1	103	80	120

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160425E

The QC data in batch 74632 applies to the following samples: 1604146-21D, 1604146-22D, 1604146-23D, 1604146-24D, 1604146-25D, 1604146-26D, 1604146-27D, 1604146-28D, 1604146-29D, 1604146-30D, 1604146-31D

Sample ID	1604152-01B SD	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 2:06:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	134	75.0	0	134				0.520	10	
Magnesium	30.4	75.0	0	30.6				0.589	10	
Sodium	347	75.0	0	346				0.204	10	

Sample ID	1604152-01B PDS	Batch ID:	74632	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 2:26:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	391	15.0	250	134	103	80	120			
Magnesium	288	15.0	250	30.6	103	80	120			
Sodium	637	15.0	250	346	117	80	120			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160425E

Sample ID	ICV-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 10:36:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	2.37	0.300	2.50	0	94.9	90	110			
Magnesium	2.55	0.300	2.50	0	102	90	110			
Potassium	2.54	0.300	2.50	0	102	90	110			
Sodium	2.54	0.300	2.50	0	102	90	110			

Sample ID	LCVL-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 10:47:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0899	0.300	0.100	0	89.9	70	130			
Magnesium	0.0952	0.300	0.100	0	95.2	70	130			
Potassium	0.0978	0.300	0.100	0	97.8	70	130			
Sodium	0.0980	0.300	0.100	0	98.0	70	130			

Sample ID	CCV2-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 12:28:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.02	0.300	5.00	0	100	90	110			
Magnesium	5.25	0.300	5.00	0	105	90	110			
Potassium	5.22	0.300	5.00	0	104	90	110			
Sodium	5.25	0.300	5.00	0	105	90	110			

Sample ID	LCVL2-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 12:34:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0918	0.300	0.100	0	91.8	70	130			
Magnesium	0.0943	0.300	0.100	0	94.3	70	130			
Potassium	0.104	0.300	0.100	0	104	70	130			
Sodium	0.113	0.300	0.100	0	113	70	130			

Sample ID	CCV3-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 1:09:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.91	0.300	5.00	0	98.3	90	110			
Magnesium	5.11	0.300	5.00	0	102	90	110			
Potassium	5.11	0.300	5.00	0	102	90	110			
Sodium	5.07	0.300	5.00	0	101	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160425E

Sample ID	LCVL3-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 1:17:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0994	0.300	0.100	0	99.4	70	130			
Magnesium	0.0953	0.300	0.100	0	95.3	70	130			
Potassium	0.107	0.300	0.100	0	107	70	130			
Sodium	0.103	0.300	0.100	0	103	70	130			

Sample ID	CCV4-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 1:44:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.89	0.300	5.00	0	97.7	90	110			
Magnesium	5.06	0.300	5.00	0	101	90	110			
Potassium	5.13	0.300	5.00	0	103	90	110			
Sodium	5.05	0.300	5.00	0	101	90	110			

Sample ID	LCVL4-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 1:54:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.101	0.300	0.100	0	101	70	130			
Magnesium	0.0953	0.300	0.100	0	95.3	70	130			
Potassium	0.108	0.300	0.100	0	108	70	130			
Sodium	0.0991	0.300	0.100	0	99.1	70	130			

Sample ID	CCV5-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 2:28:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.94	0.300	5.00	0	98.8	90	110			
Magnesium	5.09	0.300	5.00	0	102	90	110			
Potassium	5.14	0.300	5.00	0	103	90	110			
Sodium	5.06	0.300	5.00	0	101	90	110			

Sample ID	LCVL5-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 2:32:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0971	0.300	0.100	0	97.1	70	130			
Magnesium	0.0956	0.300	0.100	0	95.6	70	130			
Potassium	0.104	0.300	0.100	0	104	70	130			
Sodium	0.0995	0.300	0.100	0	99.5	70	130			

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160425E

Sample ID	CCV6-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 2:59:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.94	0.300	5.00	0	98.8	90	110			
Magnesium	5.15	0.300	5.00	0	103	90	110			
Sodium	5.19	0.300	5.00	0	104	90	110			

Sample ID	LCVL6-160425	Batch ID:	R85434	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_160425E	Analysis Date:	4/25/2016 3:13:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium		0.0911	0.300	0.100	0	91.1	70	130			
Magnesium		0.117	0.300	0.100	0	117	70	130			
Sodium		0.137	0.300	0.100	0	137	70	130			S

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160426B

Sample ID	ICV-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 11:36:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	2.39	0.300	2.50	0	95.5	90	110			
Magnesium	2.56	0.300	2.50	0	103	90	110			
Sodium	2.54	0.300	2.50	0	102	90	110			

Sample ID	LCVL-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 11:45:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.100	0.300	0.100	0	100	70	130			
Magnesium	0.0961	0.300	0.100	0	96.1	70	130			
Sodium	0.0876	0.300	0.100	0	87.6	70	130			

Sample ID	CCV7-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 4:36:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.98	0.300	5.00	0	99.7	90	110			
Magnesium	5.14	0.300	5.00	0	103	90	110			
Sodium	5.15	0.300	5.00	0	103	90	110			

Sample ID	LCVL7-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 4:41:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0939	0.300	0.100	0	93.9	70	130			
Magnesium	0.0964	0.300	0.100	0	96.4	70	130			
Sodium	0.0964	0.300	0.100	0	96.4	70	130			

Sample ID	CCV8-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 5:04:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.96	0.300	5.00	0	99.3	90	110			
Magnesium	5.18	0.300	5.00	0	104	90	110			
Sodium	5.17	0.300	5.00	0	103	90	110			
IS: Germanium	0.200		0.200		98.2	70	200			

Sample ID	LCVL8-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 5:09:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

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

CLIENT: Larson & Associates

Work Order: 1604146

Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160426B

Sample ID	LCVL8-160426	Batch ID:	R85458	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_160426B	Analysis Date:	4/26/2016 5:09:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0942	0.300	0.100	0	94.2	70	130			
Magnesium	0.0964	0.300	0.100	0	96.4	70	130			
Sodium	0.0937	0.300	0.100	0	93.7	70	130			
IS: Germanium	0.200		0.200		98.5	70	200			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_160420A

The QC data in batch 74694 applies to the following samples: 1604146-31C

Sample ID	MB-74694	Batch ID:	74694	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 10:07:52 AM	Prep Date:	4/20/2016			
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-74694	Batch ID:	74694	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 10:22:29 AM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	9.38	1.00	10.00	0	93.8	90	110			
Sulfate	30.3	3.00	30.00	0	101	90	110			

Sample ID	LCSD-74694	Batch ID:	74694	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 10:37:05 AM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	9.40	1.00	10.00	0	94.0	90	110	0.211	20	
Sulfate	30.4	3.00	30.00	0	101	90	110	0.256	20	

Sample ID	1604146-31CMS	Batch ID:	74694	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 1:33:41 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	2100	100	2000	117.0	99.0	90	110			
Sulfate	4070	300	2000	1909	108	90	110			

Sample ID	1604146-31CMSD	Batch ID:	74694	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 1:48:17 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	2090	100	2000	117.0	98.7	90	110	0.292	20	
Sulfate	4060	300	2000	1909	108	90	110	0.251	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_160420A

Sample ID	ICV-160420			Batch ID:	R85332		TestNo:	E300		Units:	mg/L	
SampType:	ICV			Run ID:	IC2_160420A		Analysis Date:	4/20/2016 9:25:22 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Chloride	23.0	1.00	25.00	0	91.8	90	110			
Sulfate	73.7	3.00	75.00	0	98.3	90	110			

Sample ID	CCV1-160420	Batch ID:	R85332	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC2_160420A	Analysis Date:	4/20/2016 2:02:54 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.39	1.00	10.00	0	93.9	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC3_160420A

The QC data in batch 74700 applies to the following samples: 1604146-11C, 1604146-12C, 1604146-13C, 1604146-14C, 1604146-15C, 1604146-16C, 1604146-17C, 1604146-18C, 1604146-19C, 1604146-20C

Sample ID	MB-74700	Batch ID:	74700	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 10:36:29 AM	Prep Date:	4/20/2016			
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-74700	Batch ID:	74700	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 10:59:58 AM	Prep Date:	4/20/2016			
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		32.1	3.00	30.00	0	107	90	110		

Sample ID	LCSD-74700	Batch ID:	74700	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 11:20:38 AM	Prep Date:	4/20/2016			
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	0.082	20
Sulfate		31.5	3.00	30.00	0	105	90	110	1.86	20

Sample ID	1604146-20CMS	Batch ID:	74700	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 5:44:50 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		2010	100	2000	112.8	94.8	90	110		
Sulfate		3840	300	2000	1739	105	90	110		

Sample ID	1604146-20CMSD	Batch ID:	74700	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 6:05:31 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		2020	100	2000	112.8	95.2	90	110	0.402	20
Sulfate		3850	300	2000	1739	106	90	110	0.460	20

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC3_160420A

Sample ID	ICV-160420		Batch ID:	R85349		TestNo:	E300		Units:	mg/L	
SampType:	ICV		Run ID:	IC3_160420A		Analysis Date:	4/20/2016 9:42:28 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	25.0	1.00	25.00	0	100	90	110			
Sulfate	77.1	3.00	75.00	0	103	90	110			

Sample ID	CCV1-160420	Batch ID:	R85349	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC3_160420A	Analysis Date:	4/20/2016 3:47:40 PM	Prep Date:				
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	31.1	3.00	30.00	0	104	90	110			

Sample ID	CCV2-160420			Batch ID:	R85349			TestNo:	E300			Units:	mg/L		
SampType:	CCV			Run ID:	IC3_160420A			Analysis Date:	4/20/2016 6:46:49 PM			Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chloride	9.67	1.00	10.00	0	96.7	90	110			
Sulfate	33.0	3.00	30.00	0	110	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_160419A

The QC data in batch 74674 applies to the following samples: 1604146-01C, 1604146-02C, 1604146-03C, 1604146-04C, 1604146-05C, 1604146-06C, 1604146-07C, 1604146-08C, 1604146-09C, 1604146-10C

Sample ID	MB-74674	Batch ID:	74674	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 11:11:42 AM	Prep Date:	4/19/2016			
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-74674	Batch ID:	74674	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 11:26:42 AM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	10.6	1.00	10.00	0	106	90	110			
Sulfate	32.1	3.00	30.00	0	107	90	110			

Sample ID	LCSD-74674	Batch ID:	74674	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 11:41:42 AM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	10.6	1.00	10.00	0	106	90	110	0.475	20	
Sulfate	32.2	3.00	30.00	0	107	90	110	0.343	20	

Sample ID	1604146-09CMS	Batch ID:	74674	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 4:49:25 PM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	2240	100	2000	31.84	110	90	110			
Sulfate	4170	300	2000	1918	112	90	110			S

Sample ID	1604146-09CMSD	Batch ID:	74674	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 5:04:25 PM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	2260	100	2000	31.84	112	90	110	1.06	20	S
Sulfate	4200	300	2000	1918	114	90	110	0.783	20	S

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_160419A

Sample ID	ICV-160419		Batch ID:	R85322		TestNo:	E300		Units:	mg/L	
SampType:	ICV		Run ID:	IC4_160419A		Analysis Date:	4/19/2016 10:30:07 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	26.1	1.00	25.00	0	105	90	110			
Sulfate	79.0	3.00	75.00	0	105	90	110			

Sample ID	CCV1-160419	Batch ID:	R85322	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 2:59:45 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.9	1.00	10.00	0	109	90	110			
Sulfate	32.9	3.00	30.00	0	110	90	110			

Sample ID	CCV2-160419	Batch ID:	R85322	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC4_160419A	Analysis Date:	4/19/2016 5:34:25 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.6	1.00	10.00	0	106	90	110			
Sulfate	32.1	3.00	30.00	0	107	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_160420A

The QC data in batch 74702 applies to the following samples: 1604146-21C, 1604146-22C, 1604146-23C, 1604146-24C, 1604146-25C, 1604146-26C, 1604146-27C, 1604146-28C, 1604146-29C, 1604146-30C

Sample ID	MB-74702	Batch ID:	74702	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 11:41:03 AM	Prep Date:	4/20/2016			
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-74702	Batch ID:	74702	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 11:56:04 AM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		10.8	1.00	10.00	0	108	90	110		
Sulfate		32.6	3.00	30.00	0	109	90	110		

Sample ID	LCSD-74702	Batch ID:	74702	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 12:11:03 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		10.8	1.00	10.00	0	108	90	110	0.133	20
Sulfate		32.7	3.00	30.00	0	109	90	110	0.329	20

Sample ID	1604146-29CMS	Batch ID:	74702	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 7:07:25 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		2310	100	2000	66.30	112	90	110		S
Sulfate		4150	300	2000	1875	114	90	110		S

Sample ID	1604146-29CMSD	Batch ID:	74702	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 7:22:25 PM	Prep Date:	4/20/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Chloride		2320	100	2000	66.30	113	90	110	0.253	20 S
Sulfate		4160	300	2000	1875	114	90	110	0.282	20 S

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_160420A

Sample ID	ICV-160420		Batch ID:	R85346		TestNo:	E300		Units:	mg/L	
SampType:	ICV		Run ID:	IC4_160420A		Analysis Date:	4/20/2016 10:53:32 AM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	26.6	1.00	25.00	0	107	90	110			
Sulfate	80.6	3.00	75.00	0	107	90	110			

Sample ID	CCV1-160420	Batch ID:	R85346	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 4:34:58 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.5	1.00	10.00	0	105	90	110			
Sulfate	31.5	3.00	30.00	0	105	90	110			

Sample ID	CCV2-160420	Batch ID:	R85346	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC4_160420A	Analysis Date:	4/20/2016 7:52:25 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.5	1.00	10.00	0	105	90	110			
Sulfate	31.9	3.00	30.00	0	106	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160415A

The QC data in batch 74615 applies to the following samples: 1604146-01C, 1604146-02C, 1604146-03C, 1604146-04C, 1604146-05C, 1604146-06C, 1604146-07C, 1604146-08C, 1604146-09C, 1604146-10C, 1604146-11C, 1604146-12C, 1604146-13C, 1604146-14C

Sample ID	MB-74615	Batch ID:	74615	TestNo:	M2320 B	Units:	mg/L @ pH 4.4			
SampType:	MBLK	Run ID:	TITRATOR_160415A	Analysis Date:	4/15/2016 8:55:00 AM	Prep Date:	4/15/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID	LCS-74615			Batch ID:	74615		TestNo:	M2320 B		Units:	mg/L @ pH 4.51			
SampType:	LCS			Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 8:59:00 AM		Prep Date:	4/15/2016			
Analyte	Result			RL	SPK value		Ref Val	%REC		LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	54.2	20.0	50.00	0	108	74	129			
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Sample ID	1604146-01C-DUP			Batch ID:	74615		TestNo:	M2320 B		Units:	mg/L @ pH 4.55	
SampType:	DUP			Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 9:38:00 AM		Prep Date:	4/15/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Bicarbonate (As CaCO3)	520	20.0	0	537.6				3.41	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	520	20.0	0	537.6				3.41	20	

Sample ID	1604146-02C-DUP			Batch ID:	74615		TestNo:	M2320 B		Units:	mg/L @ pH 4.32	
SampType:	DUP			Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 9:53:00 AM		Prep Date:	4/15/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	224	20.0	0	220.4				1.44	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	224	20.0	0	220.4				1.44	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160415A

Sample ID	ICV-160415			Batch ID:	R85270		TestNo:	M2320 B		Units:	mg/L @ pH 4.51		
SampType:	ICV			Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 8:48:00 AM		Prep Date:	4/15/2016		
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	6.64	20.0	0							
Alkalinity, Carbonate (As CaCO3)	94.4	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	101	20.0	100.0	0	101	98	102			

Sample ID	CCV1-160415		Batch ID:	R85270		TestNo:	M2320 B		Units:	mg/L @ pH 4.51		
SampType:	CCV		Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 10:50:00 AM		Prep Date:	4/15/2016		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	19.0	20.0	0							
Alkalinity, Carbonate (As CaCO3)	83.2	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Sample ID	CCV2-160415		Batch ID:	R85270		TestNo:	M2320 B		Units:	mg/L @ pH 4.52		
SampType:	CCV		Run ID:	TITRATOR_160415A		Analysis Date:	4/15/2016 11:56:00 AM		Prep Date:	4/15/2016		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	7.92	20.0	0							
Alkalinity, Carbonate (As CaCO3)	95.0	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	103	20.0	100.0	0	103	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160418A

The QC data in batch 74650 applies to the following samples: 1604146-21C, 1604146-22C, 1604146-23C, 1604146-24C, 1604146-25C, 1604146-26C, 1604146-27C, 1604146-28C, 1604146-29C, 1604146-30C, 1604146-31C

Sample ID	MB-74650	Batch ID:	74650	TestNo:	M2320 B	Units:	mg/L @ pH 4.44			
SampType:	MBLK	Run ID:	TITRATOR_160418A	Analysis Date:	4/18/2016 11:37:00 AM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID	LCS-74650			Batch ID:	74650		TestNo:	M2320 B		Units:	mg/L @ pH 4.5		
SampType:	LCS			Run ID:	TITRATOR_160418A		Analysis Date:	4/18/2016 11:42:00 AM		Prep Date:	4/18/2016		
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Total (As CaCO3)	52.8	20.0	50.00	0	106	74	129			
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Sample ID	1604146-21C-DUP			Batch ID:	74650		TestNo:	M2320 B		Units:	mg/L @ pH 4.53	
SampType:	DUP			Run ID:	TITRATOR_160418A		Analysis Date:	4/18/2016 12:19:00 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	429	20.0	0	443.6				3.25	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	429	20.0	0	443.6				3.25	20	

Sample ID	1604161-02C-DUP			Batch ID:	74650		TestNo:	M2320 B		Units:	mg/L @ pH 4.51	
SampType:	DUP			Run ID:	TITRATOR_160418A		Analysis Date:	4/18/2016 2:11:00 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	267	20.0	0	270.4				1.12	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	267	20.0	0	270.4				1.12	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160418A

Sample ID	ICV-160418	Batch ID:	R85289	TestNo:	M2320 B	Units:	mg/L @ pH 4.5			
SampType:	ICV	Run ID:	TITRATOR_160418A	Analysis Date:	4/18/2016 11:31:00 AM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	10.4	20.0	0							
Alkalinity, Carbonate (As CaCO3)	90.9	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	101	20.0	100.0	0	101	98	102			

Sample ID	CCV1-160418	Batch ID:	R85289	TestNo:	M2320 B	Units:	mg/L @ pH 4.51			
SampType:	CCV	Run ID:	TITRATOR_160418A	Analysis Date:	4/18/2016 1:56:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	11.9	20.0	0							
Alkalinity, Carbonate (As CaCO3)	90.6	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Sample ID	CCV2-160418	Batch ID:	R85289	TestNo:	M2320 B	Units:	mg/L @ pH 4.51			
SampType:	CCV	Run ID:	TITRATOR_160418A	Analysis Date:	4/18/2016 2:17:00 PM	Prep Date:	4/18/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	15.1	20.0	0							
Alkalinity, Carbonate (As CaCO3)	87.0	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Sample ID	CCV3-160418			Batch ID:	R85289		TestNo:	M2320 B		Units:	mg/L @ pH 4.5	
SampType:	CCV			Run ID:	TITRATOR_160418A		Analysis Date:	4/18/2016 4:28:00 PM		Prep Date:	4/18/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	9.76	20.0	0							
Alkalinity, Carbonate (As CaCO3)	92.2	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160426A

The QC data in batch 74799 applies to the following samples: 1604146-15C, 1604146-16C, 1604146-17C, 1604146-18C, 1604146-19C, 1604146-20C

Sample ID	MB-74799	Batch ID:	74799	TestNo:	M2320 B	Units:	mg/L @ pH 4.39			
SampType:	MBLK	Run ID:	TITRATOR_160426A	Analysis Date:	4/26/2016 1:12:00 PM	Prep Date:	4/26/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID	LCS-74799			Batch ID:	74799		TestNo:	M2320 B		Units:	mg/L @ pH 4.52	
SampType:	LCS			Run ID:	TITRATOR_160426A		Analysis Date:	4/26/2016 1:16:00 PM		Prep Date:	4/26/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	53.9	20.0	50.00	0	108	74	129			
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Sample ID	1604146-15C-DUP			Batch ID:	74799		TestNo:	M2320 B		Units:	mg/L @ pH 4.3	
SampType:	DUP			Run ID:	TITRATOR_160426A		Analysis Date:	4/26/2016 1:35:00 PM		Prep Date:	4/26/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Bicarbonate (As CaCO3)	328	20.0	0	341.2				3.95	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	328	20.0	0	341.2				3.95	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_160426A

Sample ID	ICV-160426	Batch ID:	R85449	TestNo:	M2320 B	Units:	mg/L @ pH 4.51			
SampType:	ICV	Run ID:	TITRATOR_160426A	Analysis Date:	4/26/2016 1:08:00 PM	Prep Date:	4/26/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	17.5	20.0	0							
Alkalinity, Carbonate (As CaCO3)	82.6	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	100	20.0	100.0	0	100	98	102			

Sample ID	CCV-160426	Batch ID:	R85449	TestNo:	M2320 B	Units:	mg/L @ pH 4.54			
SampType:	CCV	Run ID:	TITRATOR_160426A	Analysis Date:	4/26/2016 2:34:00 PM	Prep Date:	4/26/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	29.1	20.0	0							
Alkalinity, Carbonate (As CaCO3)	73.0	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: WC_160418B

The QC data in batch 74656 applies to the following samples: 1604146-01C, 1604146-02C, 1604146-03C, 1604146-04C, 1604146-05C, 1604146-06C, 1604146-07C, 1604146-08C, 1604146-09C, 1604146-10C, 1604146-11C, 1604146-12C, 1604146-13C, 1604146-14C, 1604146-15C, 1604146-16C

Sample ID	MB-74656		Batch ID:	74656		TestNo:	M2540C		Units:	mg/L	
SampType:	MBLK		Run ID:	WC_160418B		Analysis Date:	4/19/2016 8:49:00 AM		Prep Date:	4/18/2016	
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-74656		Batch ID:	74656		TestNo:	M2540C		Units:	mg/L	
SampType:	LCS		Run ID:	WC_160418B		Analysis Date:	4/19/2016 8:49:00 AM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 749 10.0 745.6 0 100 90 113

Sample ID	1604146-16C-DUP		Batch ID:	74656		TestNo:	M2540C		Units:	mg/L	
SampType:	DUP		Run ID:	WC_160418B		Analysis Date:	4/19/2016 8:49:00 AM		Prep Date:	4/18/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 3070 50.0 0 3195 3.99 5

Sample ID: 1604151-05B-DUP	Batch ID: 74656	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_160418B	Analysis Date: 4/19/2016 8:49:00 AM	Prep Date: 4/18/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 1330 50.0 0 1280 3.83 5

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

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

CLIENT: Larson & Associates
Work Order: 1604146
Project: Empire Abo

ANALYTICAL QC SUMMARY REPORT

RunID: WC_160419C

The QC data in batch 74687 applies to the following samples: 1604146-17C, 1604146-18C, 1604146-19C, 1604146-20C, 1604146-21C, 1604146-22C, 1604146-23C, 1604146-24C, 1604146-25C, 1604146-26C, 1604146-27C, 1604146-28C, 1604146-29C, 1604146-30C, 1604146-31C

Sample ID	MB-74687	Batch ID:	74687	TestNo:	M2540C	Units:	mg/L			
SampType:	MBLK	Run ID:	WC_160419C	Analysis Date:	4/20/2016 8:59:00 AM	Prep Date:	4/19/2016			
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-74687	Batch ID:	74687	TestNo:	M2540C	Units:	mg/L			
SampType:	LCS	Run ID:	WC_160419C	Analysis Date:	4/20/2016 8:59:00 AM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 743 10.0 745.6 0 99.7 90 113

Sample ID	1604146-20C-DUP	Batch ID:	74687	TestNo:	M2540C	Units:	mg/L			
SampType:	DUP	Run ID:	WC_160419C	Analysis Date:	4/20/2016 8:59:00 AM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 3160 50.0 0 3060 3.22 5

Sample ID	1604146-31C-DUP	Batch ID:	74687	TestNo:	M2540C	Units:	mg/L			
SampType:	DUP	Run ID:	WC_160419C	Analysis Date:	4/20/2016 8:59:00 AM	Prep Date:	4/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 3720 50.0 0 3605 3.14 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



January 03, 2017

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456
RE: Empire ABO

Order No.: 1612163

Dear Mark Larson:

DHL Analytical, Inc. received 30 sample(s) on 12/15/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

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

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-17



Table of Contents

Miscellaneous Documents	3
CaseNarrative 1612163	9
WorkOrderSampleSummary 1612163	11
PrepDatesReport 1612163	12
AnalyticalDatesReport 1612163	22
Analytical Report 1612163	32
AnalyticalQCSummaryReport 1612163	66

Larson & Associates, Inc.
Environmental Consultants

DATE: 12-14-16 PAGE 1 OF 1
PO #: _____ LAB WORK ORDER #: 11121103
PROJECT LOCATION OR NAME: Empire ABO
LAI PROJECT #: 6-0141 COLLECTOR: Jared Moring

Data Reported to: Mark Larson

TRRP report? ☐ Yes ☒ No		S=SOIL <u>W=WATER</u> A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION		ANALYSES		FIELD NOTES		
TIME ZONE: Time zone/State: <u>MST</u>												
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ ☐ NaOH ☐	ICE	UNPRESERVED		
MW-02-04	01	12-14-16	08:59	W	5	X			X	X		
MW-02-12	02	12-14-16	9:52		5	X			X			
MW-05	03	12-14-16	10:25		5							
MW-07	04	12-14-16	11:53		5							
MW-08	05	12-14-16	11:15		5							
MW-15	06	12-13-16	11:05		5							
MW-16	07	12-13-16	10:20		5							
MW-17	08	12-13-16	9:30		5							
MW-18	09	12-13-16	13:09		5							
EB-02	10	12-13-16	13:46		5							
EB-05	11	12-13-16	14:12		5							
P-01	12	12-13-16	14:49		5							
MW-03-03	13	12-13-16	16:10		5							
TOTAL												

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-14-16

RELINQUISHED BY: (Signature) Fedex DATE/TIME 12/15/16 10:07

RELINQUISHED BY: (Signature) _____ DATE/TIME _____

RECEIVED BY: (Signature) Fedex

RECEIVED BY: (Signature) [Signature]

RECEIVED BY: (Signature) _____

TURN AROUND TIME

NORMAL ☒

1 DAY ☐

2 DAY ☐

OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 0.2/0.6 THERM #: 78

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED

☐ CARRIER BILL # _____

☐ HAND DELIVERED

Larson & Associates, Inc.
Environmental Consultants

DATE: 12/14/16 PAGE 1 OF 2
PO #: _____ LAB WORK ORDER #: 11e1211e3
PROJECT LOCATION OR NAME: Empire ABO GW Monitoring
LAI PROJECT #: 6-0141 COLLECTOR: Travis Williams/Cason Hudobiz

Data Reported to:

TRRP report? ☐ Yes ☐ No		S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	PRESERVATION						ANALYSES																		FIELD NOTES
TIME ZONE: Time zone/State:				# of Containers	HCl	HNO ₃	H ₂ SO ₄ ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☒ MTBE ☐	TPH 418-1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HCBPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	LEAD - PEST ☐ HERB ☐ Semi-VOC ☐	ROCI ☐ TOX ☐ D.W. 200.8 ☐ OTHER LIST ☐	TDS ☐ TSS ☐ % MOISTURE ☐ FLASHPOINT ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☒					
Field Sample I.D.	Lab #	Date	Time	Matrix																								
EB-07	14	12/13/16	9:15	W	5	X		X	X								X	X	X	X				Samples not filtered, no acid added to polys				
P-03	15		10:00																									
MW-24	16		10:25																									
MW-14	17		11:00																									
MW-23	18		11:40																									
P-02	19		12:05																									
MW-02-03	20		13:20																									
MW-03	21		14:05																									
MW-02-11	22		14:30																									
MW-22 ^{OP} _(12/15/16)	23		15:00																									
MW-02-18	24		15:35																									
MW-12	25	12/14/16	9:05																									
MW-20	26		9:35																									
MW-02-07	27		11:00																									
MW-02	28		11:20																									
TOTAL																												

RELINQUISHED BY:(Signature) Coraan Hughes DATE/TIME 12/14/16 15:04 RECEIVED BY: (Signature) Fedex

RELINQUISHED BY:(Signature) Fedex DATE/TIME 12/15/16 10:00 RECEIVED BY: (Signature) Jtman

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

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

LABORATORY USE ONLY:
RECEIVING TEMP: 10.2/016 THERM #: 760
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

Larson &
ssociates, Inc.
Environmental Consultants

DATE: 12/14/16 PAGE 2 OF 2
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: EMPIRE ABO GW MONITORING
LAI PROJECT #: 6-0141 COLLECTOR: Travis Williams / Carson Hughes

[illegible]

RELINQUISHED BY:(Signature) <i>Carson Hughes</i>	DATE/TIME <i>12/14/16 15:04</i>	RECEIVED BY: (Signature) <i>Fedex</i>
RELINQUISHED BY:(Signature) <i>Fedex</i>	DATE/TIME <i>12/15/16 10:00</i>	RECEIVED BY: (Signature) <i>Estevan</i>
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

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

LABORATORY USE ONLY:

RECEIVING TEMP: 15.3 THERM #: 70

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED

☐ CARRIER BILL # _____

☐ HAND DELIVERED

ORIGIN ID: HOBA (432) 687-0901
TRAVIS WILLIAMS
LARSON AND ASSOC
507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 14DEC16
ACTWGT: 56.80 LB
CAD: 006994246/SSFE1722
DIMS: 24x14x13 IN

BILL THIRD PARTY

TO JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

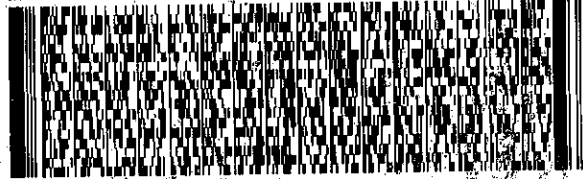
ROUND ROCK TX 78664

(512) 388-8222

INU:
PO:

REF:

DEPT:



FedEx
Express



TRK# 7850 0133 4891
0201

THU - 15 DEC 8:00A
FIRST OVERNIGHT

A1 BSMA

78664
TX-US AUS



ORIGIN ID: HOBA (432) 687-0901
TRAVIS WILLIAMS
LARSON AND ASSOC
507 N MARIENFELD ST STE 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 14DEC16
ACTWGT: 54.60 LB
CAD: 006994246/SSFE1722
DIMS: 24x14x13 IN

BILL THIRD PARTY

TO JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

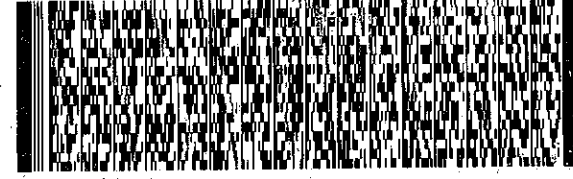
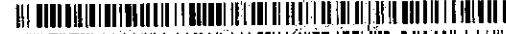
ROUND ROCK TX 78664

(512) 388-8222

INU:
PO:

REF:

DEPT:



FedEx
Express



TRK# 7850 0135 2412
0201

THU - 15 DEC 8:00A
FIRST OVERNIGHT

A1 BSMA

78664
TX-US AUS



ORIGIN ID: H0BA (432) 687-0901
TRAVIS WILLIAMS
LARSON AND ASSOC
507 N MARIENFELD ST STE. 202

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 14DEC16
ACTWGT: 7.50 LB
CAD: 006994246/SSFE1722
DIMS: 11x10x8 IN

BILL THIRD PARTY

TO **JENNIFER BARKER**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

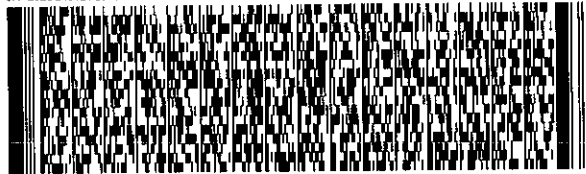
ROUND ROCK TX 78664

(512) 388-8222

REF:

PO1

DEPT:



FedEx
Express



TRK# 7850 0131 1353
0201

THU - 15 DEC 8:00A
FIRST OVERNIGHT

A1 BSMA

78664
TX-US AUS



PAID 156297-235 412 ADV EXP 09/17 2016

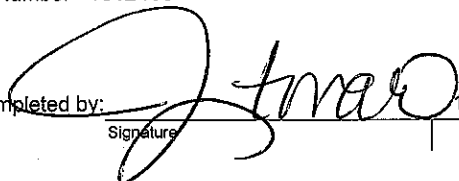
Sample Receipt Checklist

Client Name **Larson & Associates**

Date Received: **12/15/2016**

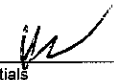
Work Order Number **1612163**

Received by **JT**

Checklist completed by:  **12/15/2016**

Signature

Date

Reviewed by 

Initials

12/15/2016

Date

Carrier name **FedEx 1day**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	0.6 °C 0.2 15.3
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 _____

CLIENT: Larson & Associates
Project: Empire ABO
Lab Order: 1612163

CASE NARRATIVE

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

Method SW6020A - Dissolved Metals Analysis
Method SW7470A - Mercury Analysis
Method E300 - Anions Analysis
Method SW8260C - Volatile Organics Analysis
Method M2320 B - Alkalinity Analysis
Method M2540C - TDS Analysis

LOG IN

The samples were received and log-in performed on 12/15/2016. A total of 30 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 Duplicate (1612163-06 MSD) was above the method control limits. This is flagged accordingly in the QC Summary Report. This anion was within method control limits in the associated LCS/MS. No further corrective action was taken.

VOLATILE ORGANICS ANALYSIS

For Volatiles Analysis, the recoveries of two surrogates for Sample MW-17 were above the method control limits, confirmed by re-analysis. These are flagged accordingly in the Analytical Data Report. The associated compounds are nondetect for this sample. No further corrective action was taken.

For Volatiles Analysis, for Batch 78370 performed on 12/19/2016, the recoveries of up to three surrogates for the Laboratory Control Spike (LCS-78370), Method Blank-78370, the Matrix Spike and Matrix Spike Duplicate (1612163-01 MS/MSD) were above the method control limits, due to instrument. These are flagged accordingly in the QC Summary Report. Maintenance was performed on the instrument. No further corrective action was taken.

For Volatiles Analysis, Samples MW-02-02 and MW-02-05 were unable to be preserved due to matrix. Samples were analyzed outside of the method specified holdtime. These results are "C" flagged in the Analytical Data Report prior to analysis of additional samples. No further corrective action was taken.

DISSOLVED METALS ANALYSIS

For Dissolved Metals Analysis, for Batch 78415, Calcium and Sodium were detected below the

CLIENT: Larson & Associates
Project: Empire ABO
Lab Order: 1612163

CASE NARRATIVE

reporting limit for Filter Blank-7415. These analytes were detected in the associated samples at greater than 10x the amount detected in the filter blank. These analytes were nondetect in the associated batch method blank. No further corrective action was taken.

For Dissolved Metals Analysis, for Batches 78347 and 78415, the recoveries of up to three analytes for the Matrix Spike and Matrix Spike Duplicate(s) (1612137-02 and 1612163-15 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS. No further corrective action was taken.

For Dissolved Metals Analysis, the recoveries of up to two analytes for various Low Level Calibration Verification(s) were above the method control limits, due to concentration of target analytes. These are flagged accordingly in the QC Summary Report. The concentration(s) of these analytes are similar to the CCV spike levels or were re-analyzed. No further corrective action was taken.

For Dissolved Metals Analysis, performed on 12/30/2016, Sodium was detected below the reporting limit for the Calibration Blank Verification (CCB1-161230), due to concentration of target analyte. This analyte was reported in QC samples only, no field samples were reported in this bracket. No further corrective action was taken.

For Dissolved Metals Analysis, the response factor of Internal Standard Bismuth for Samples MW-07, MW-15, MW-02-02 and MW-02-05 was below the method control limits, due to matrix. The affected analyte, Lead, was nondetect for these samples. No further corrective action was taken.

CLIENT: Larson & Associates
Project: Empire ABO
Lab Order: 1612163

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1612163-01	MW-02-04		12/14/16 08:59 AM	12/15/2016
1612163-02	MW-02-12		12/14/16 09:52 AM	12/15/2016
1612163-03	MW-05		12/14/16 10:25 AM	12/15/2016
1612163-04	MW-07		12/14/16 11:53 AM	12/15/2016
1612163-05	MW-08		12/14/16 11:15 AM	12/15/2016
1612163-06	MW-15		12/13/16 11:05 AM	12/15/2016
1612163-07	MW-16		12/13/16 10:20 AM	12/15/2016
1612163-08	MW-17		12/13/16 09:30 AM	12/15/2016
1612163-09	MW-18		12/13/16 01:09 PM	12/15/2016
1612163-10	EB-02		12/13/16 01:46 PM	12/15/2016
1612163-11	EB-5		12/13/16 02:12 PM	12/15/2016
1612163-12	P-01		12/13/16 02:49 PM	12/15/2016
1612163-13	MW-03-03		12/13/16 04:10 PM	12/15/2016
1612163-14	EB-07		12/13/16 09:15 AM	12/15/2016
1612163-15	P-03		12/13/16 10:00 AM	12/15/2016
1612163-16	MW-24		12/13/16 10:25 AM	12/15/2016
1612163-17	MW-14		12/13/16 11:00 AM	12/15/2016
1612163-18	MW-23		12/13/16 11:40 AM	12/15/2016
1612163-19	P-02		12/13/16 12:05 PM	12/15/2016
1612163-20	MW-02-03		12/13/16 01:20 PM	12/15/2016
1612163-21	MW-03		12/13/16 02:05 PM	12/15/2016
1612163-22	MW-02-11		12/13/16 02:30 PM	12/15/2016
1612163-23	MW-22		12/13/16 03:00 PM	12/15/2016
1612163-24	MW-02-18		12/13/16 03:35 PM	12/15/2016
1612163-25	MW-12		12/14/16 09:05 AM	12/15/2016
1612163-26	MW-20		12/14/16 09:35 AM	12/15/2016
1612163-27	MW-02-07		12/14/16 11:00 AM	12/15/2016
1612163-28	MW-02		12/14/16 11:20 AM	12/15/2016
1612163-29	MW-02-02		12/14/16 12:10 PM	12/15/2016
1612163-30	MW-02-05		12/14/16 12:40 PM	12/15/2016

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-01A	MW-02-04	12/14/16 08:59 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-02-04	12/14/16 08:59 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
1612163-01B	MW-02-04	12/14/16 08:59 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-02-04	12/14/16 08:59 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-02-04	12/14/16 08:59 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-01D	MW-02-04	12/14/16 08:59 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-02-04	12/14/16 08:59 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-02-04	12/14/16 08:59 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-02-04	12/14/16 08:59 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-02A	MW-02-12	12/14/16 09:52 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-02-12	12/14/16 09:52 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
1612163-02B	MW-02-12	12/14/16 09:52 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-02-12	12/14/16 09:52 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-02-12	12/14/16 09:52 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-02D	MW-02-12	12/14/16 09:52 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-02-12	12/14/16 09:52 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-02-12	12/14/16 09:52 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-03A	MW-05	12/14/16 10:25 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
	MW-05	12/14/16 10:25 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
1612163-03B	MW-05	12/14/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-05	12/14/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-05	12/14/16 10:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-03D	MW-05	12/14/16 10:25 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-05	12/14/16 10:25 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-05	12/14/16 10:25 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-04A	MW-07	12/14/16 11:53 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-07	12/14/16 11:53 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-07	12/14/16 11:53 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-04B	MW-07	12/14/16 11:53 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-07	12/14/16 11:53 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-07	12/14/16 11:53 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-04D	MW-07	12/14/16 11:53 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-07	12/14/16 11:53 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-07	12/14/16 11:53 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-07	12/14/16 11:53 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-05A	MW-08	12/14/16 11:15 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
	MW-08	12/14/16 11:15 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
1612163-05B	MW-08	12/14/16 11:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-08	12/14/16 11:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-08	12/14/16 11:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-05D	MW-08	12/14/16 11:15 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-08	12/14/16 11:15 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-08	12/14/16 11:15 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-06A	MW-15	12/13/16 11:05 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-15	12/13/16 11:05 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
1612163-06B	MW-15	12/13/16 11:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-15	12/13/16 11:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-15	12/13/16 11:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-15	12/13/16 11:05 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-06D	MW-15	12/13/16 11:05 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-15	12/13/16 11:05 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-15	12/13/16 11:05 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-15	12/13/16 11:05 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-15	12/13/16 11:05 AM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-07A	MW-16	12/13/16 10:20 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
	MW-16	12/13/16 10:20 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-07B	MW-16	12/13/16 10:20 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-16	12/13/16 10:20 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-16	12/13/16 10:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-07D	MW-16	12/13/16 10:20 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-16	12/13/16 10:20 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-16	12/13/16 10:20 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-16	12/13/16 10:20 AM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-08A	MW-17	12/13/16 09:30 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
	MW-17	12/13/16 09:30 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
1612163-08B	MW-17	12/13/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-17	12/13/16 09:30 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-17	12/13/16 09:30 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-08D	MW-17	12/13/16 09:30 AM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-17	12/13/16 09:30 AM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-17	12/13/16 09:30 AM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-09A	MW-18	12/13/16 01:09 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
	MW-18	12/13/16 01:09 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
1612163-09B	MW-18	12/13/16 01:09 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-18	12/13/16 01:09 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-18	12/13/16 01:09 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-18	12/13/16 01:09 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	MW-18	12/13/16 01:09 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-09D	MW-18	12/13/16 01:09 PM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	MW-18	12/13/16 01:09 PM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	MW-18	12/13/16 01:09 PM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-10A	EB-02	12/13/16 01:46 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78370
	EB-02	12/13/16 01:46 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/19/16 11:38 AM	78425
1612163-10B	EB-02	12/13/16 01:46 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-10B	EB-02	12/13/16 01:46 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	EB-02	12/13/16 01:46 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-10D	EB-02	12/13/16 01:46 PM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	EB-02	12/13/16 01:46 PM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	EB-02	12/13/16 01:46 PM	Aqueous	E300	Anion Preparation	12/27/16 09:19 AM	78474
	EB-02	12/13/16 01:46 PM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-11A	EB-5	12/13/16 02:12 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/21/16 03:43 PM	78425
1612163-11B	EB-5	12/13/16 02:12 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	EB-5	12/13/16 02:12 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	EB-5	12/13/16 02:12 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-11D	EB-5	12/13/16 02:12 PM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	EB-5	12/13/16 02:12 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	EB-5	12/13/16 02:12 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	EB-5	12/13/16 02:12 PM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-12A	P-01	12/13/16 02:49 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-12B	P-01	12/13/16 02:49 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	P-01	12/13/16 02:49 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/19/16 08:01 AM	78347
	P-01	12/13/16 02:49 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-12D	P-01	12/13/16 02:49 PM	Aqueous	M2320 B	Alkalinity Preparation	12/19/16 12:44 PM	78371
	P-01	12/13/16 02:49 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	P-01	12/13/16 02:49 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	P-01	12/13/16 02:49 PM	Aqueous	M2540C	TDS Preparation	12/19/16 03:40 PM	78352
1612163-13A	MW-03-03	12/13/16 04:10 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-13B	MW-03-03	12/13/16 04:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-03-03	12/13/16 04:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-03-03	12/13/16 04:10 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-13D	MW-03-03	12/13/16 04:10 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-03-03	12/13/16 04:10 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-13D	MW-03-03	12/13/16 04:10 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-14A	EB-07	12/13/16 09:15 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-14B	EB-07	12/13/16 09:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	EB-07	12/13/16 09:15 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	EB-07	12/13/16 09:15 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-14D	EB-07	12/13/16 09:15 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	EB-07	12/13/16 09:15 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	EB-07	12/13/16 09:15 AM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-15A	P-03	12/13/16 10:00 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-15B	P-03	12/13/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-03	12/13/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-03	12/13/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-03	12/13/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-03	12/13/16 10:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-03	12/13/16 10:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-15D	P-03	12/13/16 10:00 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	P-03	12/13/16 10:00 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	P-03	12/13/16 10:00 AM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-16A	MW-24	12/13/16 10:25 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
	MW-24	12/13/16 10:25 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-16B	MW-24	12/13/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-24	12/13/16 10:25 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-24	12/13/16 10:25 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-16D	MW-24	12/13/16 10:25 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-24	12/13/16 10:25 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-24	12/13/16 10:25 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-24	12/13/16 10:25 AM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-17A	MW-14	12/13/16 11:00 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/16 10:06 AM	78479

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-17A	MW-14	12/13/16 11:00 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-17B	MW-14	12/13/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-14	12/13/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-14	12/13/16 11:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-17D	MW-14	12/13/16 11:00 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-14	12/13/16 11:00 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-14	12/13/16 11:00 AM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-18A	MW-23	12/13/16 11:40 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-18B	MW-23	12/13/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-23	12/13/16 11:40 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-23	12/13/16 11:40 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-18D	MW-23	12/13/16 11:40 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-23	12/13/16 11:40 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-23	12/13/16 11:40 AM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-19A	P-02	12/13/16 12:05 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-19B	P-02	12/13/16 12:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-02	12/13/16 12:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	P-02	12/13/16 12:05 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-19D	P-02	12/13/16 12:05 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	P-02	12/13/16 12:05 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	P-02	12/13/16 12:05 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	P-02	12/13/16 12:05 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-20A	MW-02-03	12/13/16 01:20 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-20B	MW-02-03	12/13/16 01:20 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-03	12/13/16 01:20 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-03	12/13/16 01:20 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/19/16 10:31 AM	78369
1612163-20D	MW-02-03	12/13/16 01:20 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-02-03	12/13/16 01:20 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-20D	MW-02-03	12/13/16 01:20 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-02-03	12/13/16 01:20 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-21A	MW-03	12/13/16 02:05 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
	MW-03	12/13/16 02:05 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-21B	MW-03	12/13/16 02:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-03	12/13/16 02:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-03	12/13/16 02:05 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-03	12/13/16 02:05 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-21D	MW-03	12/13/16 02:05 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-03	12/13/16 02:05 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-03	12/13/16 02:05 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-22A	MW-02-11	12/13/16 02:30 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-22B	MW-02-11	12/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-11	12/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-11	12/13/16 02:30 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-11	12/13/16 02:30 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-22D	MW-02-11	12/13/16 02:30 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-02-11	12/13/16 02:30 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-02-11	12/13/16 02:30 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-02-11	12/13/16 02:30 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-23A	MW-22	12/13/16 03:00 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-23B	MW-22	12/13/16 03:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-22	12/13/16 03:00 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-22	12/13/16 03:00 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-23D	MW-22	12/13/16 03:00 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-22	12/13/16 03:00 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-22	12/13/16 03:00 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-22	12/13/16 03:00 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-24A	MW-02-18	12/13/16 03:35 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-24B	MW-02-18	12/13/16 03:35 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-18	12/13/16 03:35 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-18	12/13/16 03:35 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-24D	MW-02-18	12/13/16 03:35 PM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-02-18	12/13/16 03:35 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-02-18	12/13/16 03:35 PM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-02-18	12/13/16 03:35 PM	Aqueous	M2540C	TDS Preparation	12/20/16 02:57 PM	78399
1612163-25A	MW-12	12/14/16 09:05 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/16 10:06 AM	78479
	MW-12	12/14/16 09:05 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-25B	MW-12	12/14/16 09:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-12	12/14/16 09:05 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-12	12/14/16 09:05 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-25D	MW-12	12/14/16 09:05 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-12	12/14/16 09:05 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-12	12/14/16 09:05 AM	Aqueous	E300	Anion Preparation	12/27/16 09:27 AM	78476
	MW-12	12/14/16 09:05 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-26A	MW-20	12/14/16 09:35 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
	MW-20	12/14/16 09:35 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/27/16 10:06 AM	78479
1612163-26B	MW-20	12/14/16 09:35 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-20	12/14/16 09:35 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-20	12/14/16 09:35 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-26D	MW-20	12/14/16 09:35 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-20	12/14/16 09:35 AM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-20	12/14/16 09:35 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-27A	MW-02-07	12/14/16 11:00 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-27B	MW-02-07	12/14/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-07	12/14/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-27B	MW-02-07	12/14/16 11:00 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-07	12/14/16 11:00 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-27D	MW-02-07	12/14/16 11:00 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-02-07	12/14/16 11:00 AM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02-07	12/14/16 11:00 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-28A	MW-02	12/14/16 11:20 AM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-28B	MW-02	12/14/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02	12/14/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02	12/14/16 11:20 AM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02	12/14/16 11:20 AM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-28D	MW-02	12/14/16 11:20 AM	Aqueous	M2320 B	Alkalinity Preparation	12/22/16 11:31 AM	78442
	MW-02	12/14/16 11:20 AM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02	12/14/16 11:20 AM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02	12/14/16 11:20 AM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-29A	MW-02-02	12/14/16 12:10 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-29B	MW-02-02	12/14/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-02	12/14/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-02	12/14/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-02	12/14/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-02	12/14/16 12:10 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-02	12/14/16 12:10 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-29D	MW-02-02	12/14/16 12:10 PM	Aqueous	M2320 B	Alkalinity Preparation	12/16/16 09:30 AM	78331
	MW-02-02	12/14/16 12:10 PM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02-02	12/14/16 12:10 PM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02-02	12/14/16 12:10 PM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406
1612163-30A	MW-02-05	12/14/16 12:40 PM	Aqueous	SW5030C	Purge and Trap Water GC/MS	12/23/16 08:55 AM	78454
1612163-30B	MW-02-05	12/14/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-05	12/14/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1612163-30B	MW-02-05	12/14/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-05	12/14/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-05	12/14/16 12:40 PM	Aqueous	SW3005A	Aq Prep Metals: Dissolved	12/21/16 10:16 AM	78415
	MW-02-05	12/14/16 12:40 PM	Aqueous	SW7470A	Mercury Aq Prep, Total	12/20/16 10:38 AM	78391
1612163-30D	MW-02-05	12/14/16 12:40 PM	Aqueous	M2320 B	Alkalinity Preparation	12/16/16 09:30 AM	78331
	MW-02-05	12/14/16 12:40 PM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02-05	12/14/16 12:40 PM	Aqueous	E300	Anion Preparation	12/27/16 09:48 AM	78477
	MW-02-05	12/14/16 12:40 PM	Aqueous	M2540C	TDS Preparation	12/21/16 02:59 PM	78406

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-01A	MW-02-04	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 05:47 PM	GCMS3_161221B
	MW-02-04	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 03:51 PM	GCMS3_161219A
1612163-01B	MW-02-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:40 PM	ICP-MS4_161219C
	MW-02-04	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:49 PM	ICP-MS4_161219C
	MW-02-04	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 11:39 AM	CETAC2_HG_161222 A
1612163-01D	MW-02-04	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 03:54 PM	TITRATOR_161219A
	MW-02-04	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 02:43 PM	IC2_161227A
	MW-02-04	Aqueous	E300	Anions by IC method - Water	78474	10	12/27/16 10:43 AM	IC2_161227A
	MW-02-04	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-02A	MW-02-12	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 08:15 PM	GCMS3_161221B
	MW-02-12	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 05:54 PM	GCMS3_161219A
1612163-02B	MW-02-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:42 PM	ICP-MS4_161219C
	MW-02-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:51 PM	ICP-MS4_161219C
	MW-02-12	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 11:51 AM	CETAC2_HG_161222 A
1612163-02D	MW-02-12	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 04:18 PM	TITRATOR_161219A
	MW-02-12	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 10:57 AM	IC2_161227A
	MW-02-12	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-03A	MW-05	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 06:19 PM	GCMS3_161219A
	MW-05	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 08:40 PM	GCMS3_161221B
1612163-03B	MW-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:44 PM	ICP-MS4_161219C
	MW-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:53 PM	ICP-MS4_161219C
	MW-05	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 11:53 AM	CETAC2_HG_161222 A
1612163-03D	MW-05	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 04:27 PM	TITRATOR_161219A
	MW-05	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 11:12 AM	IC2_161227A
	MW-05	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-04A	MW-07	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	50	12/22/16 12:46 AM	GCMS3_161221B

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-04A	MW-07	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	5	12/22/16 01:35 AM	GCMS3_161221B
	MW-07	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	100	12/19/16 06:43 PM	GCMS3_161219A
1612163-04B	MW-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:46 PM	ICP-MS4_161219C
	MW-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:55 PM	ICP-MS4_161219C
	MW-07	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 11:55 AM	CETAC2_HG_161222 A
1612163-04D	MW-07	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 04:43 PM	TITRATOR_161219A
	MW-07	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 02:58 PM	IC2_161227A
	MW-07	Aqueous	E300	Anions by IC method - Water	78474	1	12/27/16 11:26 AM	IC2_161227A
	MW-07	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-05A	MW-08	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 07:08 PM	GCMS3_161219A
	MW-08	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 09:04 PM	GCMS3_161221B
1612163-05B	MW-08	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:48 PM	ICP-MS4_161219C
	MW-08	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:57 PM	ICP-MS4_161219C
	MW-08	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 11:57 AM	CETAC2_HG_161222 A
1612163-05D	MW-08	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 04:53 PM	TITRATOR_161219A
	MW-08	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 11:41 AM	IC2_161227A
	MW-08	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-06A	MW-15	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 07:32 PM	GCMS3_161219A
	MW-15	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 09:29 PM	GCMS3_161221B
1612163-06B	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	500	12/21/16 11:29 AM	ICP-MS4_161221A
	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:50 PM	ICP-MS4_161219C
	MW-15	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 05:59 PM	ICP-MS4_161219C
	MW-15	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:00 PM	CETAC2_HG_161222 A
1612163-06D	MW-15	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 04:59 PM	TITRATOR_161219A
	MW-15	Aqueous	E300	Anions by IC method - Water	78474	10	12/27/16 12:38 PM	IC2_161227A
	MW-15	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 03:12 PM	IC2_161227A

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-06D	MW-15	Aqueous	E300	Anions by IC method - Water	78474	1000	12/27/16 04:03 PM	IC2_161227A
	MW-15	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-07A	MW-16	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 09:54 PM	GCMS3_161221B
	MW-16	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 07:57 PM	GCMS3_161219A
1612163-07B	MW-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	50	12/19/16 04:52 PM	ICP-MS4_161219C
	MW-16	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:01 PM	ICP-MS4_161219C
	MW-16	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:02 PM	CETAC2_HG_161222A
1612163-07D	MW-16	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:03 PM	TITRATOR_161219A
	MW-16	Aqueous	E300	Anions by IC method - Water	78474	10	12/27/16 12:52 PM	IC2_161227A
	MW-16	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 03:27 PM	IC2_161227A
	MW-16	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-08A	MW-17	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 10:18 PM	GCMS3_161221B
	MW-17	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 08:21 PM	GCMS3_161219A
1612163-08B	MW-17	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:03 PM	ICP-MS4_161219C
	MW-17	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 04:54 PM	ICP-MS4_161219C
	MW-17	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:04 PM	CETAC2_HG_161222A
1612163-08D	MW-17	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:12 PM	TITRATOR_161219A
	MW-17	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 01:26 PM	IC2_161227A
	MW-17	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-09A	MW-18	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 10:43 PM	GCMS3_161221B
	MW-18	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	5	12/19/16 08:46 PM	GCMS3_161219A
1612163-09B	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:29 PM	ICP-MS4_161219C
	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 06:27 PM	ICP-MS4_161219C
	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	5000	12/19/16 04:56 PM	ICP-MS4_161219C
	MW-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	50	12/19/16 06:05 PM	ICP-MS4_161219C
	MW-18	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:06 PM	CETAC2_HG_161222A

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-09D	MW-18	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:17 PM	TITRATOR_161219A
	MW-18	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 01:41 PM	IC2_161227A
	MW-18	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-10A	EB-02	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 11:07 PM	GCMS3_161221B
	EB-02	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78370	1	12/19/16 09:10 PM	GCMS3_161219A
1612163-10B	EB-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 05:17 PM	ICP-MS4_161219C
	EB-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:31 PM	ICP-MS4_161219C
	EB-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:09 PM	CETAC2_HG_161222A
1612163-10D	EB-02	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:25 PM	TITRATOR_161219A
	EB-02	Aqueous	E300	Anions by IC method - Water	78474	100	12/27/16 03:42 PM	IC2_161227A
	EB-02	Aqueous	E300	Anions by IC method - Water	78474	10	12/27/16 01:55 PM	IC2_161227A
	EB-02	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-11A	EB-5	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78425	1	12/21/16 11:32 PM	GCMS3_161221B
1612163-11B	EB-5	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 05:19 PM	ICP-MS4_161219C
	EB-5	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:33 PM	ICP-MS4_161219C
	EB-5	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:16 PM	CETAC2_HG_161222A
1612163-11D	EB-5	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:45 PM	TITRATOR_161219A
	EB-5	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 05:04 PM	IC4_161227A
	EB-5	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 11:01 AM	IC4_161227A
	EB-5	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-12A	P-01	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 10:53 AM	GCMS3_161223A
1612163-12B	P-01	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	100	12/19/16 05:21 PM	ICP-MS4_161219C
	P-01	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78347	1	12/19/16 06:35 PM	ICP-MS4_161219C
	P-01	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:18 PM	CETAC2_HG_161222A
1612163-12D	P-01	Aqueous	M2320 B	Alkalinity	78371	1	12/19/16 05:50 PM	TITRATOR_161219A
	P-01	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 05:19 PM	IC4_161227A

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-12D	P-01	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 11:16 AM	IC4_161227A
	P-01	Aqueous	M2540C	Total Dissolved Solids	78352	1	12/20/16 08:41 AM	WC_161219C
1612163-13A	MW-03-03	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	50	12/23/16 11:18 AM	GCMS3_161223A
1612163-13B	MW-03-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:21 PM	ICP-MS4_161223B
	MW-03-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 01:58 PM	ICP-MS4_161227C
	MW-03-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:20 PM	CETAC2_HG_161222A
1612163-13D	MW-03-03	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 12:59 PM	TITRATOR_161222A
	MW-03-03	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 11:31 AM	IC4_161227A
	MW-03-03	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-14A	EB-07	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 11:43 AM	GCMS3_161223A
1612163-14B	EB-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:00 PM	ICP-MS4_161227C
	EB-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:23 PM	ICP-MS4_161223B
	EB-07	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:22 PM	CETAC2_HG_161222A
1612163-14D	EB-07	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 01:18 PM	TITRATOR_161222A
	EB-07	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 11:46 AM	IC4_161227A
	EB-07	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-15A	P-03	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 12:08 PM	GCMS3_161223A
1612163-15B	P-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/30/16 01:00 PM	ICP-MS4_161230A
	P-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/28/16 11:35 PM	ICP-MS4_161228C
	P-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/28/16 05:03 PM	ICP-MS4_161228C
	P-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:13 PM	ICP-MS4_161223B
	P-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/28/16 01:38 PM	ICP-MS4_161228B
	P-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:25 PM	CETAC2_HG_161222A
1612163-15D	P-03	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 01:25 PM	TITRATOR_161222A
	P-03	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 12:01 PM	IC4_161227A
	P-03	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-16A	MW-24	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	10	12/23/16 06:42 PM	GCMS3_161223A
	MW-24	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 12:32 PM	GCMS3_161223A
1612163-16B	MW-24	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:25 PM	ICP-MS4_161223B
	MW-24	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:02 PM	ICP-MS4_161227C
	MW-24	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:27 PM	CETAC2_HG_161222A
1612163-16D	MW-24	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 01:38 PM	TITRATOR_161222A
	MW-24	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 05:34 PM	IC4_161227A
	MW-24	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 12:16 PM	IC4_161227A
	MW-24	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-17A	MW-14	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78479	1	12/27/16 12:32 PM	GCMS3_161227A
	MW-14	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 12:57 PM	GCMS3_161223A
1612163-17B	MW-14	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:27 PM	ICP-MS4_161223B
	MW-14	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:04 PM	ICP-MS4_161227C
	MW-14	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:29 PM	CETAC2_HG_161222A
1612163-17D	MW-14	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 01:48 PM	TITRATOR_161222A
	MW-14	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 12:31 PM	IC4_161227A
	MW-14	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-18A	MW-23	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 01:22 PM	GCMS3_161223A
1612163-18B	MW-23	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:29 PM	ICP-MS4_161223B
	MW-23	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:06 PM	ICP-MS4_161227C
	MW-23	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:32 PM	CETAC2_HG_161222A
1612163-18D	MW-23	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 01:58 PM	TITRATOR_161222A
	MW-23	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 12:46 PM	IC4_161227A
	MW-23	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-19A	P-02	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 01:46 PM	GCMS3_161223A
1612163-19B	P-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:08 PM	ICP-MS4_161227C

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-19B	P-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:31 PM	ICP-MS4_161223B
	P-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:34 PM	CETAC2_HG_161222A
1612163-19D	P-02	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 02:07 PM	TITRATOR_161222A
	P-02	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 01:01 PM	IC4_161227A
	P-02	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 05:49 PM	IC4_161227A
	P-02	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-20A	MW-02-03	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 02:11 PM	GCMS3_161223A
1612163-20B	MW-02-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:33 PM	ICP-MS4_161223B
	MW-02-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:10 PM	ICP-MS4_161227C
	MW-02-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78369	1	12/22/16 12:36 PM	CETAC2_HG_161222A
1612163-20D	MW-02-03	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 02:13 PM	TITRATOR_161222A
	MW-02-03	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 01:16 PM	IC4_161227A
	MW-02-03	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 06:04 PM	IC4_161227A
	MW-02-03	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-21A	MW-03	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	20	12/23/16 02:36 PM	GCMS3_161223A
	MW-03	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	200	12/23/16 07:07 PM	GCMS3_161223A
1612163-21B	MW-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:49 PM	ICP-MS4_161223B
	MW-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:20 PM	ICP-MS4_161227C
	MW-03	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:09 PM	ICP-MS4_161227C
	MW-03	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 10:54 AM	CETAC2_HG_161222A
1612163-21D	MW-03	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 02:31 PM	TITRATOR_161222A
	MW-03	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 02:23 PM	IC4_161227A
	MW-03	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-22A	MW-02-11	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	200	12/23/16 03:00 PM	GCMS3_161223A
1612163-22B	MW-02-11	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:51 PM	ICP-MS4_161223B
	MW-02-11	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:22 PM	ICP-MS4_161227C

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-22B	MW-02-11	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:11 PM	ICP-MS4_161227C
	MW-02-11	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:05 AM	CETAC2_HG_161222A
1612163-22D	MW-02-11	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 02:53 PM	TITRATOR_161222A
	MW-02-11	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 02:38 PM	IC4_161227A
	MW-02-11	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 06:19 PM	IC4_161227A
	MW-02-11	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-23A	MW-22	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	100	12/23/16 03:25 PM	GCMS3_161223A
1612163-23B	MW-22	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:53 PM	ICP-MS4_161223B
	MW-22	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:24 PM	ICP-MS4_161227C
	MW-22	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:08 AM	CETAC2_HG_161222A
1612163-23D	MW-22	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 03:04 PM	TITRATOR_161222A
	MW-22	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 06:34 PM	IC4_161227A
	MW-22	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 02:53 PM	IC4_161227A
	MW-22	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-24A	MW-02-18	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	100	12/23/16 03:50 PM	GCMS3_161223A
1612163-24B	MW-02-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:55 PM	ICP-MS4_161223B
	MW-02-18	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:26 PM	ICP-MS4_161227C
	MW-02-18	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:10 AM	CETAC2_HG_161222A
1612163-24D	MW-02-18	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 03:17 PM	TITRATOR_161222A
	MW-02-18	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 06:49 PM	IC4_161227A
	MW-02-18	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 03:08 PM	IC4_161227A
	MW-02-18	Aqueous	M2540C	Total Dissolved Solids	78399	1	12/21/16 08:45 AM	WC_161220A
1612163-25A	MW-12	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78479	1	12/27/16 12:07 PM	GCMS3_161227A
	MW-12	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 04:14 PM	GCMS3_161223A
1612163-25B	MW-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:57 PM	ICP-MS4_161223B
	MW-12	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:28 PM	ICP-MS4_161227C

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-25B	MW-12	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:12 AM	CETAC2_HG_161222 A
1612163-25D	MW-12	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 03:27 PM	TITRATOR_161222A
	MW-12	Aqueous	E300	Anions by IC method - Water	78476	100	12/27/16 03:23 PM	IC4_161227A
	MW-12	Aqueous	E300	Anions by IC method - Water	78476	10	12/27/16 07:04 PM	IC4_161227A
	MW-12	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-26A	MW-20	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 04:39 PM	GCMS3_161223A
	MW-20	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78479	10	12/27/16 12:57 PM	GCMS3_161227A
1612163-26B	MW-20	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 06:59 PM	ICP-MS4_161223B
	MW-20	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:30 PM	ICP-MS4_161227C
	MW-20	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:14 AM	CETAC2_HG_161222 A
1612163-26D	MW-20	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 03:39 PM	TITRATOR_161222A
	MW-20	Aqueous	E300	Anions by IC method - Water	78477	100	12/27/16 01:21 PM	IC3_161227A
	MW-20	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-27A	MW-02-07	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	50	12/23/16 05:04 PM	GCMS3_161223A
1612163-27B	MW-02-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 07:01 PM	ICP-MS4_161223B
	MW-02-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:32 PM	ICP-MS4_161227C
	MW-02-07	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:13 PM	ICP-MS4_161227C
	MW-02-07	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:17 AM	CETAC2_HG_161222 A
1612163-27D	MW-02-07	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 03:56 PM	TITRATOR_161222A
	MW-02-07	Aqueous	E300	Anions by IC method - Water	78477	100	12/27/16 01:42 PM	IC3_161227A
	MW-02-07	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-28A	MW-02	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	1	12/23/16 05:28 PM	GCMS3_161223A
1612163-28B	MW-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 07:03 PM	ICP-MS4_161223B
	MW-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:35 PM	ICP-MS4_161227C
	MW-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:15 PM	ICP-MS4_161227C
	MW-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:19 AM	CETAC2_HG_161222 A

Lab Order: 1612163
Client: Larson & Associates
Project: Empire ABO

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1612163-28D	MW-02	Aqueous	M2320 B	Alkalinity	78442	1	12/22/16 04:03 PM	TITRATOR_161222A
	MW-02	Aqueous	E300	Anions by IC method - Water	78477	100	12/27/16 02:03 PM	IC3_161227A
	MW-02	Aqueous	E300	Anions by IC method - Water	78477	10	12/27/16 03:14 PM	IC3_161227A
	MW-02	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-29A	MW-02-02	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	5	12/23/16 05:53 PM	GCMS3_161223A
1612163-29B	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	500	12/28/16 11:37 PM	ICP-MS4_161228C
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	10	12/28/16 11:41 PM	ICP-MS4_161228C
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:37 PM	ICP-MS4_161227C
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 07:05 PM	ICP-MS4_161223B
	MW-02-02	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:17 PM	ICP-MS4_161227C
	MW-02-02	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:21 AM	CETAC2_HG_161222A
1612163-29D	MW-02-02	Aqueous	M2320 B	Alkalinity	78331	1	12/16/16 11:21 AM	TITRATOR_161216B
	MW-02-02	Aqueous	E300	Anions by IC method - Water	78477	1000	12/27/16 02:23 PM	IC3_161227A
	MW-02-02	Aqueous	E300	Anions by IC method - Water	78477	10000	12/27/16 03:38 PM	IC3_161227A
	MW-02-02	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C
1612163-30A	MW-02-05	Aqueous	SW8260C	8260 Water Volatiles by GC/MS	78454	5	12/23/16 06:18 PM	GCMS3_161223A
1612163-30B	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	10	12/28/16 11:43 PM	ICP-MS4_161228C
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	500	12/28/16 11:39 PM	ICP-MS4_161228C
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/27/16 03:19 PM	ICP-MS4_161227C
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	1	12/23/16 07:07 PM	ICP-MS4_161223B
	MW-02-05	Aqueous	SW6020A	Dissolved Metals-ICPMS (0.45µ)	78415	100	12/27/16 02:39 PM	ICP-MS4_161227C
	MW-02-05	Aqueous	SW7470A	Mercury Filtered (0.45µ)	78391	1	12/22/16 11:23 AM	CETAC2_HG_161222A
1612163-30D	MW-02-05	Aqueous	M2320 B	Alkalinity	78331	1	12/16/16 11:30 AM	TITRATOR_161216B
	MW-02-05	Aqueous	E300	Anions by IC method - Water	78477	1000	12/27/16 02:44 PM	IC3_161227A
	MW-02-05	Aqueous	E300	Anions by IC method - Water	78477	10000	12/27/16 03:58 PM	IC3_161227A
	MW-02-05	Aqueous	M2540C	Total Dissolved Solids	78406	1	12/22/16 08:40 AM	WC_161221C

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-04
Lab ID: 1612163-01
Collection Date: 12/14/16 08:59 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 05:47 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 05:47 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 05:47 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 05:47 PM
Surr: 1,2-Dichloroethane-d4	104	0	72-119		%REC	1	12/21/16 05:47 PM
Surr: 4-Bromofluorobenzene	96.8	0	76-119		%REC	1	12/21/16 05:47 PM
Surr: Dibromofluoromethane	103	0	85-115		%REC	1	12/21/16 05:47 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/21/16 05:47 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:39 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00480	0.00200	0.00500	J	mg/L	1	12/19/16 05:49 PM
Dissolved Barium	0.0182	0.00300	0.0100		mg/L	1	12/19/16 05:49 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:49 PM
Dissolved Calcium	535	10.0	30.0		mg/L	100	12/19/16 04:40 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:49 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:49 PM
Dissolved Magnesium	101	10.0	30.0		mg/L	100	12/19/16 04:40 PM
Dissolved Potassium	11.0	0.100	0.300		mg/L	1	12/19/16 05:49 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:49 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:49 PM
Dissolved Sodium	56.2	10.0	30.0		mg/L	100	12/19/16 04:40 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	58.8	3.00	10.0		mg/L	10	12/27/16 10:43 AM
Sulfate	1660	100	300		mg/L	100	12/27/16 02:43 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	246	10.0	20.0		mg/L @ pH 4.5	1	12/19/16 03:54 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.5	1	12/19/16 03:54 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.5	1	12/19/16 03:54 PM
Alkalinity, Total (As CaCO3)	246	20.0	20.0		mg/L @ pH 4.5	1	12/19/16 03:54 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2860	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-12
Lab ID: 1612163-02
Collection Date: 12/14/16 09:52 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	0.178	0.000800	0.00200		mg/L	1	12/21/16 08:15 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:15 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:15 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:15 PM
Surr: 1,2-Dichloroethane-d4	103	0	72-119		%REC	1	12/21/16 08:15 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	1	12/21/16 08:15 PM
Surr: Dibromofluoromethane	102	0	85-115		%REC	1	12/21/16 08:15 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/21/16 08:15 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:51 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00526	0.00200	0.00500		mg/L	1	12/19/16 05:51 PM
Dissolved Barium	0.0150	0.00300	0.0100		mg/L	1	12/19/16 05:51 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:51 PM
Dissolved Calcium	552	10.0	30.0		mg/L	100	12/19/16 04:42 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:51 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:51 PM
Dissolved Magnesium	116	10.0	30.0		mg/L	100	12/19/16 04:42 PM
Dissolved Potassium	9.25	0.100	0.300		mg/L	1	12/19/16 05:51 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:51 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:51 PM
Dissolved Sodium	213	10.0	30.0		mg/L	100	12/19/16 04:42 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	128	30.0	100		mg/L	100	12/27/16 10:57 AM
Sulfate	1820	100	300		mg/L	100	12/27/16 10:57 AM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	518	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:18 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:18 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:18 PM
Alkalinity, Total (As CaCO3)	518	20.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:18 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3140	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-05
Lab ID: 1612163-03
Collection Date: 12/14/16 10:25 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 08:40 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:40 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:40 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 08:40 PM
Surr: 1,2-Dichloroethane-d4	104	0	72-119		%REC	1	12/21/16 08:40 PM
Surr: 4-Bromofluorobenzene	99.2	0	76-119		%REC	1	12/21/16 08:40 PM
Surr: Dibromofluoromethane	102	0	85-115		%REC	1	12/21/16 08:40 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/21/16 08:40 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:53 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00367	0.00200	0.00500	J	mg/L	1	12/19/16 05:53 PM
Dissolved Barium	0.0151	0.00300	0.0100		mg/L	1	12/19/16 05:53 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:53 PM
Dissolved Calcium	511	10.0	30.0		mg/L	100	12/19/16 04:44 PM
Dissolved Chromium	0.0139	0.00200	0.00500		mg/L	1	12/19/16 05:53 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:53 PM
Dissolved Magnesium	120	10.0	30.0		mg/L	100	12/19/16 04:44 PM
Dissolved Potassium	8.37	0.100	0.300		mg/L	1	12/19/16 05:53 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:53 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:53 PM
Dissolved Sodium	212	10.0	30.0		mg/L	100	12/19/16 04:44 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	135	30.0	100		mg/L	100	12/27/16 11:12 AM
Sulfate	1740	100	300		mg/L	100	12/27/16 11:12 AM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	447	10.0	20.0		mg/L @ pH 4.52	1	12/19/16 04:27 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/19/16 04:27 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/19/16 04:27 PM
Alkalinity, Total (As CaCO3)	447	20.0	20.0		mg/L @ pH 4.52	1	12/19/16 04:27 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3180	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-07
Lab ID: 1612163-04
Collection Date: 12/14/16 11:53 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	7.90	0.0400	0.100		mg/L	50	12/22/16 12:46 AM
Ethylbenzene	0.270	0.0100	0.0300		mg/L	5	12/22/16 01:35 AM
Toluene	0.0572	0.0100	0.0300		mg/L	5	12/22/16 01:35 AM
Total Xylenes	0.193	0.0100	0.0300		mg/L	5	12/22/16 01:35 AM
Surr: 1,2-Dichloroethane-d4	104	0	72-119		%REC	5	12/22/16 01:35 AM
Surr: 1,2-Dichloroethane-d4	107	0	72-119		%REC	50	12/22/16 12:46 AM
Surr: 4-Bromofluorobenzene	96.8	0	76-119		%REC	5	12/22/16 01:35 AM
Surr: 4-Bromofluorobenzene	101	0	76-119		%REC	50	12/22/16 12:46 AM
Surr: Dibromofluoromethane	100	0	85-115		%REC	5	12/22/16 01:35 AM
Surr: Dibromofluoromethane	104	0	85-115		%REC	50	12/22/16 12:46 AM
Surr: Toluene-d8	98.0	0	81-120		%REC	50	12/22/16 12:46 AM
Surr: Toluene-d8	97.2	0	81-120		%REC	5	12/22/16 01:35 AM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:55 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00307	0.00200	0.00500	J	mg/L	1	12/19/16 05:55 PM
Dissolved Barium	0.0295	0.00300	0.0100		mg/L	1	12/19/16 05:55 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:55 PM
Dissolved Calcium	598	10.0	30.0		mg/L	100	12/19/16 04:46 PM
Dissolved Chromium	0.0946	0.00200	0.00500		mg/L	1	12/19/16 05:55 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:55 PM
Dissolved Magnesium	184	10.0	30.0		mg/L	100	12/19/16 04:46 PM
Dissolved Potassium	16.5	0.100	0.300		mg/L	1	12/19/16 05:55 PM
Dissolved Selenium	0.113	0.00200	0.00500		mg/L	1	12/19/16 05:55 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:55 PM
Dissolved Sodium	39.7	10.0	30.0		mg/L	100	12/19/16 04:46 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	21.8	0.300	1.00		mg/L	1	12/27/16 11:26 AM
Sulfate	2060	100	300		mg/L	100	12/27/16 02:58 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	953	10.0	20.0		mg/L @ pH 4.55	1	12/19/16 04:43 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/19/16 04:43 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/19/16 04:43 PM
Alkalinity, Total (As CaCO3)	953	20.0	20.0		mg/L @ pH 4.55	1	12/19/16 04:43 PM

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

DHL Analytical, Inc.**Date:** 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-07
Lab ID: 1612163-04
Collection Date: 12/14/16 11:53 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TOTAL DISSOLVED SOLIDS		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	3760	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-08
Lab ID: 1612163-05
Collection Date: 12/14/16 11:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 09:04 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:04 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:04 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:04 PM
Surr: 1,2-Dichloroethane-d4	105	0	72-119		%REC	1	12/21/16 09:04 PM
Surr: 4-Bromofluorobenzene	102	0	76-119		%REC	1	12/21/16 09:04 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/21/16 09:04 PM
Surr: Toluene-d8	99.2	0	81-120		%REC	1	12/21/16 09:04 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:57 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00587	0.00200	0.00500		mg/L	1	12/19/16 05:57 PM
Dissolved Barium	0.0208	0.00300	0.0100		mg/L	1	12/19/16 05:57 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:57 PM
Dissolved Calcium	450	10.0	30.0		mg/L	100	12/19/16 04:48 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:57 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:57 PM
Dissolved Magnesium	123	10.0	30.0		mg/L	100	12/19/16 04:48 PM
Dissolved Potassium	8.36	0.100	0.300		mg/L	1	12/19/16 05:57 PM
Dissolved Selenium	0.0108	0.00200	0.00500		mg/L	1	12/19/16 05:57 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:57 PM
Dissolved Sodium	283	10.0	30.0		mg/L	100	12/19/16 04:48 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	325	30.0	100		mg/L	100	12/27/16 11:41 AM
Sulfate	1460	100	300		mg/L	100	12/27/16 11:41 AM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	470	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:53 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:53 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:53 PM
Alkalinity, Total (As CaCO3)	470	20.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:53 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2970	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-15
Lab ID: 1612163-06
Collection Date: 12/13/16 11:05 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 09:29 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:29 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:29 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:29 PM
Surr: 1,2-Dichloroethane-d4	106	0	72-119		%REC	1	12/21/16 09:29 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	1	12/21/16 09:29 PM
Surr: Dibromofluoromethane	102	0	85-115		%REC	1	12/21/16 09:29 PM
Surr: Toluene-d8	98.8	0	81-120		%REC	1	12/21/16 09:29 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:00 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00416	0.00200	0.00500	J	mg/L	1	12/19/16 05:59 PM
Dissolved Barium	0.0126	0.00300	0.0100		mg/L	1	12/19/16 05:59 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:59 PM
Dissolved Calcium	405	10.0	30.0		mg/L	100	12/19/16 04:50 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 05:59 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 05:59 PM
Dissolved Magnesium	3010	50.0	150		mg/L	500	12/21/16 11:29 AM
Dissolved Potassium	106	10.0	30.0		mg/L	100	12/19/16 04:50 PM
Dissolved Selenium	0.0151	0.00200	0.00500		mg/L	1	12/19/16 05:59 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 05:59 PM
Dissolved Sodium	3940	50.0	150		mg/L	500	12/21/16 11:29 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	1520	30.0	100		mg/L	100	12/27/16 03:12 PM
Sulfate	18500	1000	3000		mg/L	1000	12/27/16 04:03 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	430	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:59 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:59 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:59 PM
Alkalinity, Total (As CaCO3)	430	20.0	20.0		mg/L @ pH 4.54	1	12/19/16 04:59 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	33800	1000	1000		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-16
Lab ID: 1612163-07
Collection Date: 12/13/16 10:20 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 09:54 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:54 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:54 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 09:54 PM
Surr: 1,2-Dichloroethane-d4	105	0	72-119		%REC	1	12/21/16 09:54 PM
Surr: 4-Bromofluorobenzene	100	0	76-119		%REC	1	12/21/16 09:54 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/21/16 09:54 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/21/16 09:54 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:02 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00272	0.00200	0.00500	J	mg/L	1	12/19/16 06:01 PM
Dissolved Barium	0.00930	0.00300	0.0100	J	mg/L	1	12/19/16 06:01 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:01 PM
Dissolved Calcium	502	5.00	15.0		mg/L	50	12/19/16 04:52 PM
Dissolved Chromium	0.0160	0.00200	0.00500		mg/L	1	12/19/16 06:01 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:01 PM
Dissolved Magnesium	231	5.00	15.0		mg/L	50	12/19/16 04:52 PM
Dissolved Potassium	8.32	0.100	0.300		mg/L	1	12/19/16 06:01 PM
Dissolved Selenium	0.00983	0.00200	0.00500		mg/L	1	12/19/16 06:01 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:01 PM
Dissolved Sodium	221	5.00	15.0		mg/L	50	12/19/16 04:52 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	365	3.00	10.0		mg/L	10	12/27/16 12:52 PM
Sulfate	2170	100	300		mg/L	100	12/27/16 03:27 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	95.4	10.0	20.0		mg/L @ pH 4.34	1	12/19/16 05:03 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	12/19/16 05:03 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	12/19/16 05:03 PM
Alkalinity, Total (As CaCO3)	95.4	20.0	20.0		mg/L @ pH 4.34	1	12/19/16 05:03 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3770	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-17
Lab ID: 1612163-08
Collection Date: 12/13/16 09:30 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/19/16 08:21 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/19/16 08:21 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/19/16 08:21 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/19/16 08:21 PM
Surr: 1,2-Dichloroethane-d4	129	0	72-119	S	%REC	1	12/19/16 08:21 PM
Surr: 4-Bromofluorobenzene	118	0	76-119		%REC	1	12/19/16 08:21 PM
Surr: Dibromofluoromethane	132	0	85-115	S	%REC	1	12/19/16 08:21 PM
Surr: Toluene-d8	100	0	81-120		%REC	1	12/19/16 08:21 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:04 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00343	0.00200	0.00500	J	mg/L	1	12/19/16 06:03 PM
Dissolved Barium	0.0177	0.00300	0.0100		mg/L	1	12/19/16 06:03 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:03 PM
Dissolved Calcium	504	10.0	30.0		mg/L	100	12/19/16 04:54 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:03 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:03 PM
Dissolved Magnesium	191	10.0	30.0		mg/L	100	12/19/16 04:54 PM
Dissolved Potassium	7.13	0.100	0.300		mg/L	1	12/19/16 06:03 PM
Dissolved Selenium	0.00455	0.00200	0.00500	J	mg/L	1	12/19/16 06:03 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:03 PM
Dissolved Sodium	118	10.0	30.0		mg/L	100	12/19/16 04:54 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	146	30.0	100		mg/L	100	12/27/16 01:26 PM
Sulfate	1910	100	300		mg/L	100	12/27/16 01:26 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	306	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:12 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:12 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:12 PM
Alkalinity, Total (As CaCO3)	306	20.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:12 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3260	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-18
Lab ID: 1612163-09
Collection Date: 12/13/16 01:09 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 10:43 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 10:43 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 10:43 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 10:43 PM
Surr: 1,2-Dichloroethane-d4	105	0	72-119		%REC	1	12/21/16 10:43 PM
Surr: 4-Bromofluorobenzene	96.0	0	76-119		%REC	1	12/21/16 10:43 PM
Surr: Dibromofluoromethane	103	0	85-115		%REC	1	12/21/16 10:43 PM
Surr: Toluene-d8	98.0	0	81-120		%REC	1	12/21/16 10:43 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:06 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:29 PM
Dissolved Barium	0.0142	0.00300	0.0100		mg/L	1	12/19/16 06:29 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:29 PM
Dissolved Calcium	669	10.0	30.0		mg/L	100	12/19/16 06:27 PM
Dissolved Chromium	0.0162	0.00200	0.00500		mg/L	1	12/19/16 06:29 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:29 PM
Dissolved Magnesium	137	10.0	30.0		mg/L	100	12/19/16 06:27 PM
Dissolved Potassium	4.46	0.100	0.300		mg/L	1	12/19/16 06:29 PM
Dissolved Selenium	0.00258	0.00200	0.00500	J	mg/L	1	12/19/16 06:29 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:29 PM
Dissolved Sodium	72.2	10.0	30.0		mg/L	100	12/19/16 06:27 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	617	30.0	100		mg/L	100	12/27/16 01:41 PM
Sulfate	1530	100	300		mg/L	100	12/27/16 01:41 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	140	10.0	20.0		mg/L @ pH 4.37	1	12/19/16 05:17 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.37	1	12/19/16 05:17 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.37	1	12/19/16 05:17 PM
Alkalinity, Total (As CaCO3)	140	20.0	20.0		mg/L @ pH 4.37	1	12/19/16 05:17 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	4190	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: EB-02
Lab ID: 1612163-10
Collection Date: 12/13/16 01:46 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 11:07 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:07 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:07 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:07 PM
Surr: 1,2-Dichloroethane-d4	107	0	72-119		%REC	1	12/21/16 11:07 PM
Surr: 4-Bromofluorobenzene	97.6	0	76-119		%REC	1	12/21/16 11:07 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/21/16 11:07 PM
Surr: Toluene-d8	98.8	0	81-120		%REC	1	12/21/16 11:07 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:09 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:31 PM
Dissolved Barium	0.00878	0.00300	0.0100	J	mg/L	1	12/19/16 06:31 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:31 PM
Dissolved Calcium	481	10.0	30.0		mg/L	100	12/19/16 05:17 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:31 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:31 PM
Dissolved Magnesium	313	10.0	30.0		mg/L	100	12/19/16 05:17 PM
Dissolved Potassium	9.19	0.100	0.300		mg/L	1	12/19/16 06:31 PM
Dissolved Selenium	0.00572	0.00200	0.00500		mg/L	1	12/19/16 06:31 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:31 PM
Dissolved Sodium	150	10.0	30.0		mg/L	100	12/19/16 05:17 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	98.4	3.00	10.0		mg/L	10	12/27/16 01:55 PM
Sulfate	2620	100	300		mg/L	100	12/27/16 03:42 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	300	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:25 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:25 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:25 PM
Alkalinity, Total (As CaCO3)	300	20.0	20.0		mg/L @ pH 4.46	1	12/19/16 05:25 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	4290	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: EB-5
Lab ID: 1612163-11
Collection Date: 12/13/16 02:12 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/21/16 11:32 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:32 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:32 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/21/16 11:32 PM
Surr: 1,2-Dichloroethane-d4	106	0	72-119		%REC	1	12/21/16 11:32 PM
Surr: 4-Bromofluorobenzene	100	0	76-119		%REC	1	12/21/16 11:32 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/21/16 11:32 PM
Surr: Toluene-d8	99.2	0	81-120		%REC	1	12/21/16 11:32 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:16 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:33 PM
Dissolved Barium	0.0199	0.00300	0.0100		mg/L	1	12/19/16 06:33 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:33 PM
Dissolved Calcium	596	10.0	30.0		mg/L	100	12/19/16 05:19 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:33 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:33 PM
Dissolved Magnesium	60.2	10.0	30.0		mg/L	100	12/19/16 05:19 PM
Dissolved Potassium	5.32	0.100	0.300		mg/L	1	12/19/16 06:33 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:33 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:33 PM
Dissolved Sodium	88.5	10.0	30.0		mg/L	100	12/19/16 05:19 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	183	3.00	10.0		mg/L	10	12/27/16 11:01 AM
Sulfate	1460	100	300		mg/L	100	12/27/16 05:04 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	391	10.0	20.0		mg/L @ pH 4.43	1	12/19/16 05:45 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.43	1	12/19/16 05:45 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.43	1	12/19/16 05:45 PM
Alkalinity, Total (As CaCO3)	391	20.0	20.0		mg/L @ pH 4.43	1	12/19/16 05:45 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3180	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: P-01
Lab ID: 1612163-12
Collection Date: 12/13/16 02:49 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 10:53 AM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 10:53 AM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 10:53 AM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 10:53 AM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	1	12/23/16 10:53 AM
Surr: 4-Bromofluorobenzene	97.6	0	76-119		%REC	1	12/23/16 10:53 AM
Surr: Dibromofluoromethane	106	0	85-115		%REC	1	12/23/16 10:53 AM
Surr: Toluene-d8	99.2	0	81-120		%REC	1	12/23/16 10:53 AM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:18 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.0148	0.00200	0.00500		mg/L	1	12/19/16 06:35 PM
Dissolved Barium	0.0184	0.00300	0.0100		mg/L	1	12/19/16 06:35 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:35 PM
Dissolved Calcium	480	10.0	30.0		mg/L	100	12/19/16 05:21 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/19/16 06:35 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/19/16 06:35 PM
Dissolved Magnesium	483	10.0	30.0		mg/L	100	12/19/16 05:21 PM
Dissolved Potassium	6.71	0.100	0.300		mg/L	1	12/19/16 06:35 PM
Dissolved Selenium	0.00226	0.00200	0.00500	J	mg/L	1	12/19/16 06:35 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/19/16 06:35 PM
Dissolved Sodium	85.4	10.0	30.0		mg/L	100	12/19/16 05:21 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	173	3.00	10.0		mg/L	10	12/27/16 11:16 AM
Sulfate	3300	100	300		mg/L	100	12/27/16 05:19 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	72.0	10.0	20.0		mg/L @ pH 4.47	1	12/19/16 05:50 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.47	1	12/19/16 05:50 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.47	1	12/19/16 05:50 PM
Alkalinity, Total (As CaCO3)	72.0	20.0	20.0		mg/L @ pH 4.47	1	12/19/16 05:50 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	5610	50.0	50.0		mg/L	1	12/20/16 08:41 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-03-03
Lab ID: 1612163-13
Collection Date: 12/13/16 04:10 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	2.74	0.0400	0.100		mg/L	50	12/23/16 11:18 AM
Ethylbenzene	<0.300	0.100	0.300		mg/L	50	12/23/16 11:18 AM
Toluene	<0.300	0.100	0.300		mg/L	50	12/23/16 11:18 AM
Total Xylenes	<0.300	0.100	0.300		mg/L	50	12/23/16 11:18 AM
Surr: 1,2-Dichloroethane-d4	110	0	72-119		%REC	50	12/23/16 11:18 AM
Surr: 4-Bromofluorobenzene	96.0	0	76-119		%REC	50	12/23/16 11:18 AM
Surr: Dibromofluoromethane	104	0	85-115		%REC	50	12/23/16 11:18 AM
Surr: Toluene-d8	98.4	0	81-120		%REC	50	12/23/16 11:18 AM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:20 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00426	0.00200	0.00500	J	mg/L	1	12/23/16 06:21 PM
Dissolved Barium	0.0222	0.00300	0.0100		mg/L	1	12/23/16 06:21 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:21 PM
Dissolved Calcium	468	10.0	30.0		mg/L	100	12/27/16 01:58 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:21 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:21 PM
Dissolved Magnesium	105	10.0	30.0		mg/L	100	12/27/16 01:58 PM
Dissolved Potassium	10.2	0.100	0.300		mg/L	1	12/23/16 06:21 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:21 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:21 PM
Dissolved Sodium	194	10.0	30.0		mg/L	100	12/27/16 01:58 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	246	3.00	10.0		mg/L	10	12/27/16 11:31 AM
Sulfate	1120	10.0	30.0		mg/L	10	12/27/16 11:31 AM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	712	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 12:59 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 12:59 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 12:59 PM
Alkalinity, Total (As CaCO3)	712	20.0	20.0		mg/L @ pH 4.54	1	12/22/16 12:59 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2910	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: EB-07
Lab ID: 1612163-14
Collection Date: 12/13/16 09:15 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 11:43 AM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 11:43 AM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 11:43 AM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 11:43 AM
Surr: 1,2-Dichloroethane-d4	113	0	72-119		%REC	1	12/23/16 11:43 AM
Surr: 4-Bromofluorobenzene	94.0	0	76-119		%REC	1	12/23/16 11:43 AM
Surr: Dibromofluoromethane	107	0	85-115		%REC	1	12/23/16 11:43 AM
Surr: Toluene-d8	98.0	0	81-120		%REC	1	12/23/16 11:43 AM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:22 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:23 PM
Dissolved Barium	0.0157	0.00300	0.0100		mg/L	1	12/23/16 06:23 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:23 PM
Dissolved Calcium	564	10.0	30.0		mg/L	100	12/27/16 02:00 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:23 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:23 PM
Dissolved Magnesium	109	10.0	30.0		mg/L	100	12/27/16 02:00 PM
Dissolved Potassium	3.18	0.100	0.300		mg/L	1	12/23/16 06:23 PM
Dissolved Selenium	0.00316	0.00200	0.00500	J	mg/L	1	12/23/16 06:23 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:23 PM
Dissolved Sodium	95.6	10.0	30.0		mg/L	100	12/27/16 02:00 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	184	30.0	100		mg/L	100	12/27/16 11:46 AM
Sulfate	1630	100	300		mg/L	100	12/27/16 11:46 AM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	254	10.0	20.0		mg/L @ pH 4.28	1	12/22/16 01:18 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.28	1	12/22/16 01:18 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.28	1	12/22/16 01:18 PM
Alkalinity, Total (As CaCO3)	254	20.0	20.0		mg/L @ pH 4.28	1	12/22/16 01:18 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3480	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: P-03
Lab ID: 1612163-15
Collection Date: 12/13/16 10:00 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 12:08 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:08 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:08 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:08 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	1	12/23/16 12:08 PM
Surr: 4-Bromofluorobenzene	96.4	0	76-119		%REC	1	12/23/16 12:08 PM
Surr: Dibromofluoromethane	106	0	85-115		%REC	1	12/23/16 12:08 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	1	12/23/16 12:08 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:25 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:13 PM
Dissolved Barium	0.0261	0.00300	0.0100		mg/L	1	12/23/16 06:13 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:13 PM
Dissolved Calcium	543	10.0	30.0		mg/L	100	12/28/16 11:35 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:13 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:13 PM
Dissolved Magnesium	97.1	10.0	30.0		mg/L	100	12/28/16 11:35 PM
Dissolved Potassium	3.18	0.100	0.300		mg/L	1	12/23/16 06:13 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:13 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:13 PM
Dissolved Sodium	76.4	10.0	30.0		mg/L	100	12/28/16 11:35 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	121	30.0	100		mg/L	100	12/27/16 12:01 PM
Sulfate	1580	100	300		mg/L	100	12/27/16 12:01 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	223	10.0	20.0		mg/L @ pH 4.34	1	12/22/16 01:25 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	12/22/16 01:25 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.34	1	12/22/16 01:25 PM
Alkalinity, Total (As CaCO3)	223	20.0	20.0		mg/L @ pH 4.34	1	12/22/16 01:25 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2770	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-24
Lab ID: 1612163-16
Collection Date: 12/13/16 10:25 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	1.62	0.00800	0.0200		mg/L	10	12/23/16 06:42 PM
Ethylbenzene	0.114	0.00200	0.00600		mg/L	1	12/23/16 12:32 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:32 PM
Total Xylenes	0.231	0.00200	0.00600		mg/L	1	12/23/16 12:32 PM
Surr: 1,2-Dichloroethane-d4	115	0	72-119		%REC	10	12/23/16 06:42 PM
Surr: 1,2-Dichloroethane-d4	110	0	72-119		%REC	1	12/23/16 12:32 PM
Surr: 4-Bromofluorobenzene	108	0	76-119		%REC	1	12/23/16 12:32 PM
Surr: 4-Bromofluorobenzene	98.8	0	76-119		%REC	10	12/23/16 06:42 PM
Surr: Dibromofluoromethane	98.8	0	85-115		%REC	1	12/23/16 12:32 PM
Surr: Dibromofluoromethane	106	0	85-115		%REC	10	12/23/16 06:42 PM
Surr: Toluene-d8	104	0	81-120		%REC	1	12/23/16 12:32 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	10	12/23/16 06:42 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:27 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:25 PM
Dissolved Barium	0.0215	0.00300	0.0100		mg/L	1	12/23/16 06:25 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:25 PM
Dissolved Calcium	586	10.0	30.0		mg/L	100	12/27/16 02:02 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:25 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:25 PM
Dissolved Magnesium	280	10.0	30.0		mg/L	100	12/27/16 02:02 PM
Dissolved Potassium	3.82	0.100	0.300		mg/L	1	12/23/16 06:25 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:25 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:25 PM
Dissolved Sodium	69.2	10.0	30.0		mg/L	100	12/27/16 02:02 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	92.3	3.00	10.0		mg/L	10	12/27/16 12:16 PM
Sulfate	1910	100	300		mg/L	100	12/27/16 05:34 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	776	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 01:38 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 01:38 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 01:38 PM
Alkalinity, Total (As CaCO3)	776	20.0	20.0		mg/L @ pH 4.55	1	12/22/16 01:38 PM

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

DHL Analytical, Inc.**Date:** 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-24
Lab ID: 1612163-16
Collection Date: 12/13/16 10:25 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TOTAL DISSOLVED SOLIDS		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	3960	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-14
Lab ID: 1612163-17
Collection Date: 12/13/16 11:00 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	0.0163	0.000800	0.00200		mg/L	1	12/23/16 12:57 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:57 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 12:57 PM
Total Xylenes	0.00351	0.00200	0.00600	J	mg/L	1	12/23/16 12:57 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-119		%REC	1	12/23/16 12:57 PM
Surr: 4-Bromofluorobenzene	100	0	76-119		%REC	1	12/23/16 12:57 PM
Surr: Dibromofluoromethane	105	0	85-115		%REC	1	12/23/16 12:57 PM
Surr: Toluene-d8	100	0	81-120		%REC	1	12/23/16 12:57 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:29 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:27 PM
Dissolved Barium	0.0199	0.00300	0.0100		mg/L	1	12/23/16 06:27 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:27 PM
Dissolved Calcium	604	10.0	30.0		mg/L	100	12/27/16 02:04 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:27 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:27 PM
Dissolved Magnesium	119	10.0	30.0		mg/L	100	12/27/16 02:04 PM
Dissolved Potassium	5.09	0.100	0.300		mg/L	1	12/23/16 06:27 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:27 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:27 PM
Dissolved Sodium	141	10.0	30.0		mg/L	100	12/27/16 02:04 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	170	30.0	100		mg/L	100	12/27/16 12:31 PM
Sulfate	1750	100	300		mg/L	100	12/27/16 12:31 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	471	10.0	20.0		mg/L @ pH 4.45	1	12/22/16 01:48 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.45	1	12/22/16 01:48 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.45	1	12/22/16 01:48 PM
Alkalinity, Total (As CaCO3)	471	20.0	20.0		mg/L @ pH 4.45	1	12/22/16 01:48 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3670	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-23
Lab ID: 1612163-18
Collection Date: 12/13/16 11:40 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	0.0274	0.000800	0.00200		mg/L	1	12/23/16 01:22 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:22 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:22 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:22 PM
Surr: 1,2-Dichloroethane-d4	111	0	72-119		%REC	1	12/23/16 01:22 PM
Surr: 4-Bromofluorobenzene	99.6	0	76-119		%REC	1	12/23/16 01:22 PM
Surr: Dibromofluoromethane	106	0	85-115		%REC	1	12/23/16 01:22 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	1	12/23/16 01:22 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:32 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:29 PM
Dissolved Barium	0.0189	0.00300	0.0100		mg/L	1	12/23/16 06:29 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:29 PM
Dissolved Calcium	564	10.0	30.0		mg/L	100	12/27/16 02:06 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:29 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:29 PM
Dissolved Magnesium	128	10.0	30.0		mg/L	100	12/27/16 02:06 PM
Dissolved Potassium	6.80	0.100	0.300		mg/L	1	12/23/16 06:29 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:29 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:29 PM
Dissolved Sodium	160	10.0	30.0		mg/L	100	12/27/16 02:06 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	246	30.0	100		mg/L	100	12/27/16 12:46 PM
Sulfate	1690	100	300		mg/L	100	12/27/16 12:46 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	541	10.0	20.0		mg/L @ pH 4.53	1	12/22/16 01:58 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	12/22/16 01:58 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.53	1	12/22/16 01:58 PM
Alkalinity, Total (As CaCO3)	541	20.0	20.0		mg/L @ pH 4.53	1	12/22/16 01:58 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3300	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: P-02
Lab ID: 1612163-19
Collection Date: 12/13/16 12:05 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 01:46 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:46 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:46 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 01:46 PM
Surr: 1,2-Dichloroethane-d4	110	0	72-119		%REC	1	12/23/16 01:46 PM
Surr: 4-Bromofluorobenzene	100	0	76-119		%REC	1	12/23/16 01:46 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/23/16 01:46 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/23/16 01:46 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:34 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:31 PM
Dissolved Barium	0.0172	0.00300	0.0100		mg/L	1	12/23/16 06:31 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:31 PM
Dissolved Calcium	570	10.0	30.0		mg/L	100	12/27/16 02:08 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:31 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:31 PM
Dissolved Magnesium	212	10.0	30.0		mg/L	100	12/27/16 02:08 PM
Dissolved Potassium	4.53	0.100	0.300		mg/L	1	12/23/16 06:31 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:31 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:31 PM
Dissolved Sodium	58.1	10.0	30.0		mg/L	100	12/27/16 02:08 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	96.2	3.00	10.0		mg/L	10	12/27/16 01:01 PM
Sulfate	1850	100	300		mg/L	100	12/27/16 05:49 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	348	10.0	20.0		mg/L @ pH 4.5	1	12/22/16 02:07 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.5	1	12/22/16 02:07 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.5	1	12/22/16 02:07 PM
Alkalinity, Total (As CaCO3)	348	20.0	20.0		mg/L @ pH 4.5	1	12/22/16 02:07 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3340	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-03
Lab ID: 1612163-20
Collection Date: 12/13/16 01:20 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 02:11 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 02:11 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 02:11 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 02:11 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	1	12/23/16 02:11 PM
Surr: 4-Bromofluorobenzene	94.8	0	76-119		%REC	1	12/23/16 02:11 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	1	12/23/16 02:11 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/23/16 02:11 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 12:36 PM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00292	0.00200	0.00500	J	mg/L	1	12/23/16 06:33 PM
Dissolved Barium	0.00969	0.00300	0.0100	J	mg/L	1	12/23/16 06:33 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:33 PM
Dissolved Calcium	508	10.0	30.0		mg/L	100	12/27/16 02:10 PM
Dissolved Chromium	0.0463	0.00200	0.00500		mg/L	1	12/23/16 06:33 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:33 PM
Dissolved Magnesium	118	10.0	30.0		mg/L	100	12/27/16 02:10 PM
Dissolved Potassium	5.68	0.100	0.300		mg/L	1	12/23/16 06:33 PM
Dissolved Selenium	0.00432	0.00200	0.00500	J	mg/L	1	12/23/16 06:33 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:33 PM
Dissolved Sodium	66.9	10.0	30.0		mg/L	100	12/27/16 02:10 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	59.7	3.00	10.0		mg/L	10	12/27/16 01:16 PM
Sulfate	1740	100	300		mg/L	100	12/27/16 06:04 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	165	10.0	20.0		mg/L @ pH 4.32	1	12/22/16 02:13 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.32	1	12/22/16 02:13 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.32	1	12/22/16 02:13 PM
Alkalinity, Total (As CaCO3)	165	20.0	20.0		mg/L @ pH 4.32	1	12/22/16 02:13 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2890	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-03
Lab ID: 1612163-21
Collection Date: 12/13/16 02:05 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	4.80	0.160	0.400		mg/L	200	12/23/16 07:07 PM
Ethylbenzene	0.196	0.0400	0.120		mg/L	20	12/23/16 02:36 PM
Toluene	<0.120	0.0400	0.120		mg/L	20	12/23/16 02:36 PM
Total Xylenes	0.250	0.0400	0.120		mg/L	20	12/23/16 02:36 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-119		%REC	200	12/23/16 07:07 PM
Surr: 1,2-Dichloroethane-d4	113	0	72-119		%REC	20	12/23/16 02:36 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	20	12/23/16 02:36 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	200	12/23/16 07:07 PM
Surr: Dibromofluoromethane	105	0	85-115		%REC	20	12/23/16 02:36 PM
Surr: Dibromofluoromethane	107	0	85-115		%REC	200	12/23/16 07:07 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	20	12/23/16 02:36 PM
Surr: Toluene-d8	98.8	0	81-120		%REC	200	12/23/16 07:07 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 10:54 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00675	0.00200	0.00500		mg/L	1	12/23/16 06:49 PM
Dissolved Barium	0.0252	0.00300	0.0100		mg/L	1	12/23/16 06:49 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:49 PM
Dissolved Calcium	573	10.0	30.0		mg/L	100	12/27/16 02:20 PM
Dissolved Chromium	0.00312	0.00200	0.00500	J	mg/L	1	12/23/16 06:49 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:49 PM
Dissolved Magnesium	61.7	10.0	30.0		mg/L	100	12/27/16 02:20 PM
Dissolved Potassium	17.6	0.100	0.300		mg/L	1	12/23/16 06:49 PM
Dissolved Selenium	0.0130	0.00200	0.00500		mg/L	1	12/27/16 03:09 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:49 PM
Dissolved Sodium	110	10.0	30.0		mg/L	100	12/27/16 02:20 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	119	30.0	100		mg/L	100	12/27/16 02:23 PM
Sulfate	1310	100	300		mg/L	100	12/27/16 02:23 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	699	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:31 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:31 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:31 PM
Alkalinity, Total (As CaCO3)	699	20.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:31 PM

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

DHL Analytical, Inc.**Date:** 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-03
Lab ID: 1612163-21
Collection Date: 12/13/16 02:05 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TOTAL DISSOLVED SOLIDS		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	2960	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-11
Lab ID: 1612163-22
Collection Date: 12/13/16 02:30 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	31.6	0.160	0.400		mg/L	200	12/23/16 03:00 PM
Ethylbenzene	0.694	0.400	1.20	J	mg/L	200	12/23/16 03:00 PM
Toluene	<1.20	0.400	1.20		mg/L	200	12/23/16 03:00 PM
Total Xylenes	0.580	0.400	1.20	J	mg/L	200	12/23/16 03:00 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	200	12/23/16 03:00 PM
Surr: 4-Bromofluorobenzene	94.4	0	76-119		%REC	200	12/23/16 03:00 PM
Surr: Dibromofluoromethane	106	0	85-115		%REC	200	12/23/16 03:00 PM
Surr: Toluene-d8	98.0	0	81-120		%REC	200	12/23/16 03:00 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:05 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:51 PM
Dissolved Barium	0.0164	0.00300	0.0100		mg/L	1	12/23/16 06:51 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:51 PM
Dissolved Calcium	626	10.0	30.0		mg/L	100	12/27/16 02:22 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:51 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:51 PM
Dissolved Magnesium	223	10.0	30.0		mg/L	100	12/27/16 02:22 PM
Dissolved Potassium	3.73	0.100	0.300		mg/L	1	12/23/16 06:51 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/27/16 03:11 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:51 PM
Dissolved Sodium	101	10.0	30.0		mg/L	100	12/27/16 02:22 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	94.8	3.00	10.0		mg/L	10	12/27/16 02:38 PM
Sulfate	1730	100	300		mg/L	100	12/27/16 06:19 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	796	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:53 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:53 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:53 PM
Alkalinity, Total (As CaCO3)	796	20.0	20.0		mg/L @ pH 4.54	1	12/22/16 02:53 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3780	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-22
Lab ID: 1612163-23
Collection Date: 12/13/16 03:00 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	5.88	0.0800	0.200		mg/L	100	12/23/16 03:25 PM
Ethylbenzene	<0.600	0.200	0.600		mg/L	100	12/23/16 03:25 PM
Toluene	<0.600	0.200	0.600		mg/L	100	12/23/16 03:25 PM
Total Xylenes	<0.600	0.200	0.600		mg/L	100	12/23/16 03:25 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-119		%REC	100	12/23/16 03:25 PM
Surr: 4-Bromofluorobenzene	94.8	0	76-119		%REC	100	12/23/16 03:25 PM
Surr: Dibromofluoromethane	109	0	85-115		%REC	100	12/23/16 03:25 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	100	12/23/16 03:25 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:08 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:53 PM
Dissolved Barium	0.0206	0.00300	0.0100		mg/L	1	12/23/16 06:53 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:53 PM
Dissolved Calcium	579	10.0	30.0		mg/L	100	12/27/16 02:24 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:53 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:53 PM
Dissolved Magnesium	174	10.0	30.0		mg/L	100	12/27/16 02:24 PM
Dissolved Potassium	3.96	0.100	0.300		mg/L	1	12/23/16 06:53 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:53 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:53 PM
Dissolved Sodium	63.7	10.0	30.0		mg/L	100	12/27/16 02:24 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	70.6	3.00	10.0		mg/L	10	12/27/16 02:53 PM
Sulfate	1660	100	300		mg/L	100	12/27/16 06:34 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	585	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:04 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:04 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:04 PM
Alkalinity, Total (As CaCO3)	585	20.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:04 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3320	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-18
Lab ID: 1612163-24
Collection Date: 12/13/16 03:35 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	15.3	0.0800	0.200		mg/L	100	12/23/16 03:50 PM
Ethylbenzene	0.391	0.200	0.600	J	mg/L	100	12/23/16 03:50 PM
Toluene	<0.600	0.200	0.600		mg/L	100	12/23/16 03:50 PM
Total Xylenes	<0.600	0.200	0.600		mg/L	100	12/23/16 03:50 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	100	12/23/16 03:50 PM
Surr: 4-Bromofluorobenzene	92.8	0	76-119		%REC	100	12/23/16 03:50 PM
Surr: Dibromofluoromethane	106	0	85-115		%REC	100	12/23/16 03:50 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	100	12/23/16 03:50 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:10 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:55 PM
Dissolved Barium	0.0191	0.00300	0.0100		mg/L	1	12/23/16 06:55 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:55 PM
Dissolved Calcium	574	10.0	30.0		mg/L	100	12/27/16 02:26 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:55 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:55 PM
Dissolved Magnesium	206	10.0	30.0		mg/L	100	12/27/16 02:26 PM
Dissolved Potassium	3.29	0.100	0.300		mg/L	1	12/23/16 06:55 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:55 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:55 PM
Dissolved Sodium	73.4	10.0	30.0		mg/L	100	12/27/16 02:26 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	74.4	3.00	10.0		mg/L	10	12/27/16 03:08 PM
Sulfate	1710	100	300		mg/L	100	12/27/16 06:49 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	691	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:17 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:17 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:17 PM
Alkalinity, Total (As CaCO3)	691	20.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:17 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3470	50.0	50.0		mg/L	1	12/21/16 08:45 AM

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

DHL Analytical, Inc.

Date: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-12
Lab ID: 1612163-25
Collection Date: 12/14/16 09:05 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	0.00140	0.000800	0.00200	J	mg/L	1	12/23/16 04:14 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 04:14 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 04:14 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 04:14 PM
Surr: 1,2-Dichloroethane-d4	113	0	72-119		%REC	1	12/23/16 04:14 PM
Surr: 4-Bromofluorobenzene	98.4	0	76-119		%REC	1	12/23/16 04:14 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	1	12/23/16 04:14 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	1	12/23/16 04:14 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:12 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.108	0.00200	0.00500		mg/L	1	12/23/16 06:57 PM
Dissolved Barium	0.0239	0.00300	0.0100		mg/L	1	12/23/16 06:57 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:57 PM
Dissolved Calcium	525	10.0	30.0		mg/L	100	12/27/16 02:28 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:57 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:57 PM
Dissolved Magnesium	196	10.0	30.0		mg/L	100	12/27/16 02:28 PM
Dissolved Potassium	5.70	0.100	0.300		mg/L	1	12/23/16 06:57 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:57 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:57 PM
Dissolved Sodium	69.2	10.0	30.0		mg/L	100	12/27/16 02:28 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	80.5	3.00	10.0		mg/L	10	12/27/16 07:04 PM
Sulfate	1820	100	300		mg/L	100	12/27/16 03:23 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	438	10.0	20.0		mg/L @ pH 4.52	1	12/22/16 03:27 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/22/16 03:27 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/22/16 03:27 PM
Alkalinity, Total (As CaCO3)	438	20.0	20.0		mg/L @ pH 4.52	1	12/22/16 03:27 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3420	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-20
Lab ID: 1612163-26
Collection Date: 12/14/16 09:35 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	0.521	0.00800	0.0200		mg/L	10	12/27/16 12:57 PM
Ethylbenzene	0.0248	0.00200	0.00600		mg/L	1	12/23/16 04:39 PM
Toluene	0.0186	0.00200	0.00600		mg/L	1	12/23/16 04:39 PM
Total Xylenes	0.0118	0.00200	0.00600		mg/L	1	12/23/16 04:39 PM
Surr: 1,2-Dichloroethane-d4	115	0	72-119		%REC	10	12/27/16 12:57 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-119		%REC	1	12/23/16 04:39 PM
Surr: 4-Bromofluorobenzene	97.2	0	76-119		%REC	1	12/23/16 04:39 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	10	12/27/16 12:57 PM
Surr: Dibromofluoromethane	104	0	85-115		%REC	1	12/23/16 04:39 PM
Surr: Dibromofluoromethane	110	0	85-115		%REC	10	12/27/16 12:57 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	1	12/23/16 04:39 PM
Surr: Toluene-d8	99.2	0	81-120		%REC	10	12/27/16 12:57 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:14 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00256	0.00200	0.00500	J	mg/L	1	12/23/16 06:59 PM
Dissolved Barium	0.0111	0.00300	0.0100		mg/L	1	12/23/16 06:59 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:59 PM
Dissolved Calcium	549	10.0	30.0		mg/L	100	12/27/16 02:30 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:59 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 06:59 PM
Dissolved Magnesium	132	10.0	30.0		mg/L	100	12/27/16 02:30 PM
Dissolved Potassium	5.17	0.100	0.300		mg/L	1	12/23/16 06:59 PM
Dissolved Selenium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 06:59 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 06:59 PM
Dissolved Sodium	264	10.0	30.0		mg/L	100	12/27/16 02:30 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	160	30.0	100		mg/L	100	12/27/16 01:21 PM
Sulfate	1900	100	300		mg/L	100	12/27/16 01:21 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	519	10.0	20.0		mg/L @ pH 4.4	1	12/22/16 03:39 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.4	1	12/22/16 03:39 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.4	1	12/22/16 03:39 PM
Alkalinity, Total (As CaCO3)	519	20.0	20.0		mg/L @ pH 4.4	1	12/22/16 03:39 PM

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

DHL Analytical, Inc.**Date:** 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-20
Lab ID: 1612163-26
Collection Date: 12/14/16 09:35 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TOTAL DISSOLVED SOLIDS		M2540C					Analyst: AJH
Total Dissolved Solids (Residue, Filterable)	3350	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-07
Lab ID: 1612163-27
Collection Date: 12/14/16 11:00 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	5.09	0.0400	0.100		mg/L	50	12/23/16 05:04 PM
Ethylbenzene	0.260	0.100	0.300	J	mg/L	50	12/23/16 05:04 PM
Toluene	0.854	0.100	0.300		mg/L	50	12/23/16 05:04 PM
Total Xylenes	0.148	0.100	0.300	J	mg/L	50	12/23/16 05:04 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-119		%REC	50	12/23/16 05:04 PM
Surr: 4-Bromofluorobenzene	97.2	0	76-119		%REC	50	12/23/16 05:04 PM
Surr: Dibromofluoromethane	107	0	85-115		%REC	50	12/23/16 05:04 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	50	12/23/16 05:04 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:17 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00607	0.00200	0.00500		mg/L	1	12/23/16 07:01 PM
Dissolved Barium	0.0265	0.00300	0.0100		mg/L	1	12/23/16 07:01 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 07:01 PM
Dissolved Calcium	575	10.0	30.0		mg/L	100	12/27/16 02:32 PM
Dissolved Chromium	0.0174	0.00200	0.00500		mg/L	1	12/23/16 07:01 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 07:01 PM
Dissolved Magnesium	196	10.0	30.0		mg/L	100	12/27/16 02:32 PM
Dissolved Potassium	19.0	0.100	0.300		mg/L	1	12/23/16 07:01 PM
Dissolved Selenium	0.00547	0.00200	0.00500		mg/L	1	12/27/16 03:13 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 07:01 PM
Dissolved Sodium	152	10.0	30.0		mg/L	100	12/27/16 02:32 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	121	30.0	100		mg/L	100	12/27/16 01:42 PM
Sulfate	1860	100	300		mg/L	100	12/27/16 01:42 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	826	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:56 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:56 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:56 PM
Alkalinity, Total (As CaCO3)	826	20.0	20.0		mg/L @ pH 4.55	1	12/22/16 03:56 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	3730	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02
Lab ID: 1612163-28
Collection Date: 12/14/16 11:20 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.00200	0.000800	0.00200		mg/L	1	12/23/16 05:28 PM
Ethylbenzene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 05:28 PM
Toluene	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 05:28 PM
Total Xylenes	<0.00600	0.00200	0.00600		mg/L	1	12/23/16 05:28 PM
Surr: 1,2-Dichloroethane-d4	113	0	72-119		%REC	1	12/23/16 05:28 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	1	12/23/16 05:28 PM
Surr: Dibromofluoromethane	107	0	85-115		%REC	1	12/23/16 05:28 PM
Surr: Toluene-d8	98.4	0	81-120		%REC	1	12/23/16 05:28 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.000200	0.0000800	0.000200		mg/L	1	12/22/16 11:19 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.00285	0.00200	0.00500	J	mg/L	1	12/23/16 07:03 PM
Dissolved Barium	0.0361	0.00300	0.0100		mg/L	1	12/23/16 07:03 PM
Dissolved Cadmium	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 07:03 PM
Dissolved Calcium	577	10.0	30.0		mg/L	100	12/27/16 02:35 PM
Dissolved Chromium	<0.00500	0.00200	0.00500		mg/L	1	12/23/16 07:03 PM
Dissolved Lead	<0.00100	0.000300	0.00100		mg/L	1	12/23/16 07:03 PM
Dissolved Magnesium	79.0	10.0	30.0		mg/L	100	12/27/16 02:35 PM
Dissolved Potassium	10.7	0.100	0.300		mg/L	1	12/23/16 07:03 PM
Dissolved Selenium	0.00334	0.00200	0.00500	J	mg/L	1	12/27/16 03:15 PM
Dissolved Silver	<0.00200	0.00100	0.00200		mg/L	1	12/23/16 07:03 PM
Dissolved Sodium	87.8	10.0	30.0		mg/L	100	12/27/16 02:35 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	103	3.00	10.0		mg/L	10	12/27/16 03:14 PM
Sulfate	1670	100	300		mg/L	100	12/27/16 02:03 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	206	10.0	20.0		mg/L @ pH 4.31	1	12/22/16 04:03 PM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.31	1	12/22/16 04:03 PM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.31	1	12/22/16 04:03 PM
Alkalinity, Total (As CaCO3)	206	20.0	20.0		mg/L @ pH 4.31	1	12/22/16 04:03 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	2770	50.0	50.0		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-02
Lab ID: 1612163-29
Collection Date: 12/14/16 12:10 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.0100	0.00400	0.0100	C	mg/L	5	12/23/16 05:53 PM
Ethylbenzene	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 05:53 PM
Toluene	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 05:53 PM
Total Xylenes	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 05:53 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-119		%REC	5	12/23/16 05:53 PM
Surr: 4-Bromofluorobenzene	95.6	0	76-119		%REC	5	12/23/16 05:53 PM
Surr: Dibromofluoromethane	107	0	85-115		%REC	5	12/23/16 05:53 PM
Surr: Toluene-d8	98.0	0	81-120		%REC	5	12/23/16 05:53 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.00200	0.000800	0.00200		mg/L	1	12/22/16 11:21 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.0563	0.0200	0.0500		mg/L	1	12/23/16 07:05 PM
Dissolved Barium	<0.100	0.0300	0.100		mg/L	1	12/23/16 07:05 PM
Dissolved Cadmium	0.00686	0.00300	0.0100	J	mg/L	1	12/23/16 07:05 PM
Dissolved Calcium	242	10.0	30.0		mg/L	10	12/28/16 11:41 PM
Dissolved Chromium	<0.0500	0.0200	0.0500		mg/L	1	12/23/16 07:05 PM
Dissolved Lead	<0.0100	0.00300	0.0100		mg/L	1	12/23/16 07:05 PM
Dissolved Magnesium	50300	500	1500		mg/L	500	12/28/16 11:37 PM
Dissolved Potassium	1740	100	300		mg/L	100	12/27/16 02:37 PM
Dissolved Selenium	0.0216	0.0200	0.0500	J	mg/L	1	12/27/16 03:17 PM
Dissolved Silver	<0.0200	0.0100	0.0200		mg/L	1	12/23/16 07:05 PM
Dissolved Sodium	50800	500	1500		mg/L	500	12/28/16 11:37 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	12800	300	1000		mg/L	1000	12/27/16 02:23 PM
Sulfate	276000	10000	30000		mg/L	10000	12/27/16 03:38 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	6320	10.0	20.0		mg/L @ pH 4.51	1	12/16/16 11:21 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.51	1	12/16/16 11:21 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.51	1	12/16/16 11:21 AM
Alkalinity, Total (As CaCO3)	6320	20.0	20.0		mg/L @ pH 4.51	1	12/16/16 11:21 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	547000	5000	5000		mg/L	1	12/22/16 08:40 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: 03-Jan-17

CLIENT: Larson & Associates
Project: Empire ABO
Project No: 6-0141
Lab Order: 1612163

Client Sample ID: MW-02-05
Lab ID: 1612163-30
Collection Date: 12/14/16 12:40 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
8260 WATER VOLATILES BY GC/MS		SW8260C		Analyst: KL			
Benzene	<0.0100	0.00400	0.0100	C	mg/L	5	12/23/16 06:18 PM
Ethylbenzene	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 06:18 PM
Toluene	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 06:18 PM
Total Xylenes	<0.0300	0.0100	0.0300	C	mg/L	5	12/23/16 06:18 PM
Surr: 1,2-Dichloroethane-d4	115	0	72-119		%REC	5	12/23/16 06:18 PM
Surr: 4-Bromofluorobenzene	92.4	0	76-119		%REC	5	12/23/16 06:18 PM
Surr: Dibromofluoromethane	108	0	85-115		%REC	5	12/23/16 06:18 PM
Surr: Toluene-d8	98.0	0	81-120		%REC	5	12/23/16 06:18 PM
MERCURY FILTERED (0.45µ)		SW7470A		Analyst: AH			
Mercury	<0.00200	0.000800	0.00200		mg/L	1	12/22/16 11:23 AM
DISSOLVED METALS-ICPMS (0.45µ)		SW6020A		Analyst: RO			
Dissolved Arsenic	0.0542	0.0200	0.0500		mg/L	1	12/23/16 07:07 PM
Dissolved Barium	<0.100	0.0300	0.100		mg/L	1	12/23/16 07:07 PM
Dissolved Cadmium	0.00468	0.00300	0.0100	J	mg/L	1	12/23/16 07:07 PM
Dissolved Calcium	215	10.0	30.0		mg/L	10	12/28/16 11:43 PM
Dissolved Chromium	<0.0500	0.0200	0.0500		mg/L	1	12/23/16 07:07 PM
Dissolved Lead	<0.0100	0.00300	0.0100		mg/L	1	12/23/16 07:07 PM
Dissolved Magnesium	52000	500	1500		mg/L	500	12/28/16 11:39 PM
Dissolved Potassium	1090	100	300		mg/L	100	12/27/16 02:39 PM
Dissolved Selenium	0.0222	0.0200	0.0500	J	mg/L	1	12/27/16 03:19 PM
Dissolved Silver	<0.0200	0.0100	0.0200		mg/L	1	12/23/16 07:07 PM
Dissolved Sodium	51300	500	1500		mg/L	500	12/28/16 11:39 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: AV			
Chloride	6860	300	1000		mg/L	1000	12/27/16 02:44 PM
Sulfate	280000	10000	30000		mg/L	10000	12/27/16 03:58 PM
ALKALINITY		M2320 B		Analyst: BJT			
Alkalinity, Bicarbonate (As CaCO3)	7870	10.0	20.0		mg/L @ pH 4.52	1	12/16/16 11:30 AM
Alkalinity, Carbonate (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/16/16 11:30 AM
Alkalinity, Hydroxide (As CaCO3)	<20.0	10.0	20.0		mg/L @ pH 4.52	1	12/16/16 11:30 AM
Alkalinity, Total (As CaCO3)	7870	20.0	20.0		mg/L @ pH 4.52	1	12/16/16 11:30 AM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: AJH			
Total Dissolved Solids (Residue, Filterable)	519000	5000	5000		mg/L	1	12/22/16 08:40 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: 1612163

Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161219A

The QC data in batch 78370 applies to the following samples: 1612163-01A, 1612163-02A, 1612163-03A, 1612163-04A, 1612163-05A, 1612163-06A, 1612163-07A, 1612163-08A, 1612163-09A, 1612163-10A

Sample ID	LCS-78370	Batch ID:	78370	TestNo:	SW8260C	Units:	mg/L
SampType:	LCS	Run ID:	GCMS3_161219A	Analysis Date:	12/19/2016 1:47:00 PM	Prep Date:	12/19/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0454	0.00200	0.0464	0	97.8	81	122			
Ethylbenzene	0.0485	0.00600	0.0464	0	105	80	120			
Toluene	0.0474	0.00600	0.0464	0	102	80	120			
Total Xylenes	0.136	0.00600	0.139	0	98.2	80	120			
Surr: 1,2-Dichloroethane-d4	31.9		25.00		128	72	119			S
Surr: 4-Bromofluorobenzene	30.1		25.00		120	76	119			S
Surr: Dibromofluoromethane	33.9		25.00		136	85	115			S
Surr: Toluene-d8	25.4		25.00		102	81	120			

Sample ID	MB-78370	Batch ID:	78370	TestNo:	SW8260C	Units:	mg/L
SampType:	MBLK	Run ID:	GCMS3_161219A	Analysis Date:	12/19/2016 2:37:00 PM	Prep Date:	12/19/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Ethylbenzene	<0.00600	0.00600								
Toluene	<0.00600	0.00600								
Total Xylenes	<0.00600	0.00600								
Surr: 1,2-Dichloroethane-d4	32.2		25.00		129	72	119			S
Surr: 4-Bromofluorobenzene	29.6		25.00		118	76	119			
Surr: Dibromofluoromethane	33.2		25.00		133	85	115			S
Surr: Toluene-d8	25.5		25.00		102	81	120			

Sample ID	1612163-01AMS	Batch ID:	78370	TestNo:	SW8260C	Units:	mg/L
SampType:	MS	Run ID:	GCMS3_161219A	Analysis Date:	12/19/2016 9:35:00 PM	Prep Date:	12/19/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0432	0.00200	0.0464	0	93.0	81	122			
Ethylbenzene	0.0449	0.00600	0.0464	0	96.7	80	120			
Toluene	0.0438	0.00600	0.0464	0	94.4	80	120			
Total Xylenes	0.128	0.00600	0.139	0	92.1	80	120			
Surr: 1,2-Dichloroethane-d4	33.0		25.00		132	72	119			S
Surr: 4-Bromofluorobenzene	29.6		25.00		118	76	119			
Surr: Dibromofluoromethane	33.5		25.00		134	85	115			S
Surr: Toluene-d8	25.2		25.00		101	81	120			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161219A

Sample ID	1612163-01AMSD	Batch ID:	78370	TestNo:	SW8260C	Units:	mg/L			
SampType:	MSD	Run ID:	GCMS3_161219A	Analysis Date:	12/19/2016 9:59:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0450	0.00200	0.0464	0	97.0	81	122	4.13	20	
Ethylbenzene	0.0481	0.00600	0.0464	0	104	80	120	6.99	20	
Toluene	0.0458	0.00600	0.0464	0	98.6	80	120	4.35	20	
Total Xylenes	0.138	0.00600	0.139	0	99.1	80	120	7.30	20	
Surr: 1,2-Dichloroethane-d4	32.4		25.00		130	72	119	0	0	S
Surr: 4-Bromofluorobenzene	30.0		25.00		120	76	119	0	0	S
Surr: Dibromofluoromethane	33.2		25.00		133	85	115	0	0	S
Surr: Toluene-d8	25.4		25.00		102	81	120	0	0	

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161219A

Sample ID	ICV-161219	Batch ID:	R89536	TestNo:	SW8260C	Units:	mg/L			
SampType:	ICV	Run ID:	GCMS3_161219A	Analysis Date:	12/19/2016 1:23:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.00879	0.00200	0.00928	0	94.7	80	120			
Ethylbenzene	0.00901	0.00600	0.00928	0	97.1	80	120			
Toluene	0.00898	0.00600	0.00928	0	96.8	80	120			
Total Xylenes	0.0266	0.00600	0.0278	0	95.9	80	120			
Surr: 1,2-Dichloroethane-d4	2.72		2.500		109	72	119			
Surr: 4-Bromofluorobenzene	2.63		2.500		105	76	119			
Surr: Dibromofluoromethane	2.80		2.500		112	85	115			
Surr: Toluene-d8	2.57		2.500		103	81	120			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161221B

The QC data in batch 78425 applies to the following samples: 1612163-01A, 1612163-02A, 1612163-03A, 1612163-04A, 1612163-05A, 1612163-06A, 1612163-07A, 1612163-08A, 1612163-09A, 1612163-10A, 1612163-11A

Sample ID	LCS-78425	Batch ID:	78425	TestNo:	SW8260C	Units:	mg/L
SampType:	LCS	Run ID:	GCMS3_161221B	Analysis Date:	12/21/2016 4:08:00 PM	Prep Date:	12/21/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0483	0.00200	0.0464	0	104	81	122			
Ethylbenzene	0.0513	0.00600	0.0464	0	111	80	120			
Toluene	0.0490	0.00600	0.0464	0	106	80	120			
Total Xylenes	0.154	0.00600	0.139	0	111	80	120			
Surr: 1,2-Dichloroethane-d4	25.4		25.00		102	72	119			
Surr: 4-Bromofluorobenzene	25.0		25.00		100	76	119			
Surr: Dibromofluoromethane	25.1		25.00		100	85	115			
Surr: Toluene-d8	25.0		25.00		100	81	120			

Sample ID	MB-78425	Batch ID:	78425	TestNo:	SW8260C	Units:	mg/L
SampType:	MBLK	Run ID:	GCMS3_161221B	Analysis Date:	12/21/2016 4:58:00 PM	Prep Date:	12/21/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Ethylbenzene	<0.00600	0.00600								
Toluene	<0.00600	0.00600								
Total Xylenes	<0.00600	0.00600								
Surr: 1,2-Dichloroethane-d4	25.8		25.00		103	72	119			
Surr: 4-Bromofluorobenzene	24.0		25.00		96.0	76	119			
Surr: Dibromofluoromethane	25.0		25.00		100	85	115			
Surr: Toluene-d8	25.0		25.00		100	81	120			

Sample ID	1612163-01AMS	Batch ID:	78425	TestNo:	SW8260C	Units:	mg/L
SampType:	MS	Run ID:	GCMS3_161221B	Analysis Date:	12/22/2016 2:24:00 AM	Prep Date:	12/19/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0468	0.00200	0.0464	0	101	81	122			
Ethylbenzene	0.0494	0.00600	0.0464	0	106	80	120			
Toluene	0.0479	0.00600	0.0464	0	103	80	120			
Total Xylenes	0.147	0.00600	0.139	0	105	80	120			
Surr: 1,2-Dichloroethane-d4	26.6		25.00		106	72	119			
Surr: 4-Bromofluorobenzene	24.4		25.00		97.6	76	119			
Surr: Dibromofluoromethane	25.7		25.00		103	85	115			
Surr: Toluene-d8	24.7		25.00		98.8	81	120			

Sample ID	1612163-01AMSD	Batch ID:	78425	TestNo:	SW8260C	Units:	mg/L
SampType:	MSD	Run ID:	GCMS3_161221B	Analysis Date:	12/22/2016 2:49:00 AM	Prep Date:	12/19/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161221B

Sample ID	1612163-01AMSD	Batch ID:	78425	TestNo:	SW8260C	Units:	mg/L			
SampType:	MSD	Run ID:	GCMS3_161221B	Analysis Date:	12/22/2016 2:49:00 AM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0445	0.00200	0.0464	0	95.8	81	122	5.19	20	
Ethylbenzene	0.0459	0.00600	0.0464	0	99.0	80	120	7.20	20	
Toluene	0.0455	0.00600	0.0464	0	98.1	80	120	5.12	20	
Total Xylenes	0.137	0.00600	0.139	0	98.5	80	120	6.83	20	
Surr: 1,2-Dichloroethane-d4	26.9		25.00		108	72	119	0	0	
Surr: 4-Bromofluorobenzene	24.4		25.00		97.6	76	119	0	0	
Surr: Dibromofluoromethane	26.2		25.00		105	85	115	0	0	
Surr: Toluene-d8	24.9		25.00		99.6	81	120	0	0	

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161221B

Sample ID	ICV-161221	Batch ID:	R89579	TestNo:	SW8260C	Units:	mg/L			
SampType:	ICV	Run ID:	GCMS3_161221B	Analysis Date:	12/21/2016 3:44:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.00887	0.00200	0.00928	0	95.6	80	120			
Ethylbenzene	0.00916	0.00600	0.00928	0	98.8	80	120			
Toluene	0.00896	0.00600	0.00928	0	96.5	80	120			
Total Xylenes	0.0272	0.00600	0.0278	0	97.7	80	120			
Surr: 1,2-Dichloroethane-d4	2.54		2.500		102	72	119			
Surr: 4-Bromofluorobenzene	2.48		2.500		99.2	76	119			
Surr: Dibromofluoromethane	2.52		2.500		101	85	115			
Surr: Toluene-d8	2.49		2.500		99.6	81	120			

Qualifiers:

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

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

CLIENT: Larson & Associates

Work Order: 1612163

Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161223A

The QC data in batch 78454 applies to the following samples: 1612163-12A, 1612163-13A, 1612163-14A, 1612163-15A, 1612163-16A, 1612163-17A, 1612163-18A, 1612163-19A, 1612163-20A, 1612163-21A, 1612163-22A, 1612163-23A, 1612163-24A, 1612163-25A, 1612163-26A, 1612163-27A, 1612163-28A, 1612163-29A, 1612163-30A

Sample ID	LCS-78454	Batch ID:	78454	TestNo:	SW8260C	Units:	mg/L
SampType:	LCS	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 10:04:00 A	Prep Date:	12/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0457	0.00200	0.0464	0	98.6	81	122			
Ethylbenzene	0.0480	0.00600	0.0464	0	103	73	127			
Toluene	0.0473	0.00600	0.0464	0	102	77	122			
Total Xylenes	0.142	0.00600	0.139	0	102	80	121			
Surr: 1,2-Dichloroethane-d4	27.8		25.00		111	72	119			
Surr: 4-Bromofluorobenzene	24.6		25.00		98.4	76	119			
Surr: Dibromofluoromethane	26.3		25.00		105	85	115			
Surr: Toluene-d8	25.1		25.00		100	81	120			

Sample ID	MB-78454	Batch ID:	78454	TestNo:	SW8260C	Units:	mg/L
SampType:	MBLK	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 10:29:00 A	Prep Date:	12/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Ethylbenzene	<0.00600	0.00600								
Toluene	<0.00600	0.00600								
Total Xylenes	<0.00600	0.00600								
Surr: 1,2-Dichloroethane-d4	28.1		25.00		112	72	119			
Surr: 4-Bromofluorobenzene	24.1		25.00		96.4	76	119			
Surr: Dibromofluoromethane	26.8		25.00		107	85	115			
Surr: Toluene-d8	24.8		25.00		99.2	81	120			

Sample ID	1612163-12AMS	Batch ID:	78454	TestNo:	SW8260C	Units:	mg/L
SampType:	MS	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 7:32:00 PM	Prep Date:	12/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0482	0.00200	0.0464	0	104	81	122			
Ethylbenzene	0.0495	0.00600	0.0464	0	107	73	127			
Toluene	0.0489	0.00600	0.0464	0	105	77	122			
Total Xylenes	0.150	0.00600	0.139	0	108	80	121			
Surr: 1,2-Dichloroethane-d4	28.4		25.00		114	72	119			
Surr: 4-Bromofluorobenzene	24.6		25.00		98.4	76	119			
Surr: Dibromofluoromethane	27.0		25.00		108	85	115			
Surr: Toluene-d8	24.6		25.00		98.4	81	120			

Sample ID	1612163-12AMSD	Batch ID:	78454	TestNo:	SW8260C	Units:	mg/L
SampType:	MSD	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 7:56:00 PM	Prep Date:	12/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Qualifiers: B Analyte detected in the associated Method Blank
J Analyte detected between MDL and RL
ND Not Detected at the Method Detection Limit
RL Reporting Limit
J Analyte detected between SDL and RL

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161223A

Sample ID	1612163-12AMSD	Batch ID:	78454	TestNo:	SW8260C	Units:	mg/L			
SampType:	MSD	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 7:56:00 PM	Prep Date:	12/23/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0464	0.00200	0.0464	0	100	81	122	3.78	20	
Ethylbenzene	0.0485	0.00600	0.0464	0	104	73	127	2.02	20	
Toluene	0.0477	0.00600	0.0464	0	103	77	122	2.55	20	
Total Xylenes	0.148	0.00600	0.139	0	106	80	121	1.66	20	
Surr: 1,2-Dichloroethane-d4	28.3		25.00		113	72	119	0	0	
Surr: 4-Bromofluorobenzene	25.6		25.00		102	76	119	0	0	
Surr: Dibromofluoromethane	26.7		25.00		107	85	115	0	0	
Surr: Toluene-d8	24.8		25.00		99.2	81	120	0	0	

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161223A

Sample ID	ICV-161223	Batch ID:	R89635	TestNo:	SW8260C	Units:	mg/L			
SampType:	ICV	Run ID:	GCMS3_161223A	Analysis Date:	12/23/2016 9:39:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.00865	0.00200	0.00928	0	93.2	80	120			
Ethylbenzene	0.00923	0.00600	0.00928	0	99.5	80	120			
Toluene	0.00902	0.00600	0.00928	0	97.1	80	120			
Total Xylenes	0.0272	0.00600	0.0278	0	97.8	80	120			
Surr: 1,2-Dichloroethane-d4	2.79		2.500		112	72	119			
Surr: 4-Bromofluorobenzene	2.49		2.500		99.6	76	119			
Surr: Dibromofluoromethane	2.61		2.500		104	85	115			
Surr: Toluene-d8	2.52		2.500		101	81	120			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161227A

The QC data in batch 78479 applies to the following samples: 1612163-17A, 1612163-25A, 1612163-26A

Sample ID	LCS-78479	Batch ID:	78479	TestNo:	SW8260C	Units:	mg/L			
SampType:	LCS	Run ID:	GCMS3_161227A	Analysis Date:	12/27/2016 11:18:00 A	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0474	0.00200	0.0464	0	102	81	122			
Surr: 1,2-Dichloroethane-d4	29.0		25.00		116	72	119			
Surr: 4-Bromofluorobenzene	24.9		25.00		99.6	76	119			
Surr: Dibromofluoromethane	27.1		25.00		108	85	115			
Surr: Toluene-d8	25.4		25.00		102	81	120			

Sample ID	MB-78479	Batch ID:	78479	TestNo:	SW8260C	Units:	mg/L			
SampType:	MBLK	Run ID:	GCMS3_161227A	Analysis Date:	12/27/2016 11:43:00 A	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00200	0.00200								
Surr: 1,2-Dichloroethane-d4	29.0		25.00		116	72	119			
Surr: 4-Bromofluorobenzene	24.0		25.00		96.0	76	119			
Surr: Dibromofluoromethane	27.3		25.00		109	85	115			
Surr: Toluene-d8	25.2		25.00		101	81	120			

Sample ID	1612163-26AMS	Batch ID:	78479	TestNo:	SW8260C	Units:	mg/L			
SampType:	MS	Run ID:	GCMS3_161227A	Analysis Date:	12/27/2016 1:36:00 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.980	0.0200	0.464	0.521	98.9	81	122			
Surr: 1,2-Dichloroethane-d4	284		250.0		114	72	119			
Surr: 4-Bromofluorobenzene	254		250.0		102	76	119			
Surr: Dibromofluoromethane	270		250.0		108	85	115			
Surr: Toluene-d8	246		250.0		98.4	81	120			

Sample ID	1612163-26AMSD	Batch ID:	78479	TestNo:	SW8260C	Units:	mg/L			
SampType:	MSD	Run ID:	GCMS3_161227A	Analysis Date:	12/27/2016 2:00:00 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.03	0.0200	0.464	0.521	110	81	122	5.05	20	
Surr: 1,2-Dichloroethane-d4	288		250.0		115	72	119	0	0	
Surr: 4-Bromofluorobenzene	245		250.0		98.0	76	119	0	0	
Surr: Dibromofluoromethane	273		250.0		109	85	115	0	0	
Surr: Toluene-d8	249		250.0		99.6	81	120	0	0	

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

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

CLIENT: Larson & Associates

Work Order: 1612163

Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_161227A

Sample ID	ICV-161227	Batch ID:	R89656	TestNo:	SW8260C	Units:	mg/L			
SampType:	ICV	Run ID:	GCMS3_161227A	Analysis Date:	12/27/2016 10:53:00 A	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.00914	0.00200	0.00928	0	98.5	80	120			
Surr: 1,2-Dichloroethane-d4	2.89		2.500		116	72	119			
Surr: 4-Bromofluorobenzene	2.55		2.500		102	76	119			
Surr: Dibromofluoromethane	2.67		2.500		107	85	115			
Surr: Toluene-d8	2.50		2.500		100	81	120			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_161222A

The QC data in batch 78369 applies to the following samples: 1612163-01B, 1612163-02B, 1612163-03B, 1612163-04B, 1612163-05B, 1612163-06B, 1612163-07B, 1612163-08B, 1612163-09B, 1612163-10B, 1612163-11B, 1612163-12B, 1612163-13B, 1612163-14B, 1612163-15B, 1612163-16B, 1612163-17B, 1612163-18B, 1612163-19B, 1612163-20B

Sample ID	MB-78369	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	MBLK	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:32:59 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury <0.000200 0.000200

Sample ID	LCS-78369	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	LCS	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:35:14 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00200 0.000200 0.00200 0 100 85 115

Sample ID	LCSD-78369	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	LCSD	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:37:30 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00201 0.000200 0.00200 0 101 85 115 0.499 15

Sample ID	1612163-01B SD	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	SD	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:42:03 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury <0.00100 0.00100 0 0 0 0 10

Sample ID	1612163-01B PDS	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	PDS	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:44:19 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00239 0.000200 0.00250 0 95.6 85 115

Sample ID	1612163-01B MS	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	MS	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:46:34 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00200 0.000200 0.00200 0 100 80 120

Sample ID	1612163-01B MSD	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	MSD	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:48:50 A	Prep Date:	12/19/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury 0.00205 0.000200 0.00200 0 103 80 120 2.47 15

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_161222A

Sample ID	FB-78369	Batch ID:	78369	TestNo:	SW7470A	Units:	mg/L			
SampType:	MBLK	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 12:38:50 P	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000200	0.000200								

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_161222A

The QC data in batch 78391 applies to the following samples: 1612163-21B, 1612163-22B, 1612163-23B, 1612163-24B, 1612163-25B, 1612163-26B, 1612163-27B, 1612163-28B, 1612163-29B, 1612163-30B

Sample ID	MB-78391		Batch ID:	78391		TestNo:	SW7470A		Units:	mg/L	
SampType:	MBLK		Run ID:	CETAC2_HG_161222A		Analysis Date:	12/22/2016 10:47:36 A		Prep Date:	12/20/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury <0.000200 0.000200

Sample ID	LCS-78391			Batch ID:	78391		TestNo:	SW7470A		Units:	mg/L	
SampType:	LCS			Run ID:	CETAC2_HG_161222A		Analysis Date:	12/22/2016 10:49:52 A		Prep Date:	12/20/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Mercury 0.00196 0.000200 0.00200 0 98.0 85 115

Sample ID	LCSD-78391	Batch ID:	78391	TestNo:	SW7470A	Units:	mg/L			
SampType:	LCSD	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 10:52:08 A	Prep Date:	12/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00198 0.000200 0.00200 0 99.0 85 115 1.02 15

Sample ID	1612163-21B SD			Batch ID:	78391		TestNo:	SW7470A		Units:	mg/L	
SampType:	SD			Run ID:	CETAC2_HG_161222A		Analysis Date:	12/22/2016 10:56:41 A		Prep Date:	12/20/2016	
Analyte	Result			RL	SPK value		Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Mercury <0.00100 0.00100 0 0 0 0 10

Sample ID	1612163-21B PDS			Batch ID:	78391		TestNo:	SW7470A		Units:	mg/L		
SampType:	PDS			Run ID:	CETAC2_HG_161222A		Analysis Date:	12/22/2016 10:58:56 A		Prep Date:	12/20/2016		
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00239 0.000200 0.00250 0 95.6 85 115

Sample ID	1612163-21B MS	Batch ID:	78391	TestNo:	SW7470A	Units:	mg/L			
SampType:	MS	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:01:12 A	Prep Date:	12/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00194 0.000200 0.00200 0 97.0 80 120

Sample ID	1612163-21B MSD	Batch ID:	78391	TestNo:	SW7470A	Units:	mg/L			
SampType:	MSD	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:03:27 A	Prep Date:	12/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Mercury 0.00196 0.000200 0.00200 0 98.0 80 120 1.03 15

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_161222A

Sample ID	FB-78391	Batch ID:	78391	TestNo:	SW7470A	Units:	mg/L			
SampType:	MBLK	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:26:07 A	Prep Date:	12/20/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000200	0.000200								

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2_HG_161222A

Sample ID	ICV-161222	Batch ID:	R89599		TestNo:	SW7470A		Units:	mg/L		
SampType:	ICV	Run ID:	CETAC2_HG_161222A		Analysis Date:	12/22/2016 10:43:02 A		Prep Date:			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00397	0.000200	0.00400	0	99.2	90	110			

Sample ID	CCV1-161222	Batch ID:	R89599	TestNo:	SW7470A	Units:	mg/L			
SampType:	CCV	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 11:28:25 A	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00202	0.000200	0.00200	0	101	90	110			

Sample ID	CCV2-161222	Batch ID:	R89599	TestNo:	SW7470A	Units:	mg/L				
SampType:	CCV	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 12:11:32 P	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.00207	0.000200	0.00200	0	104	90	110			

Sample ID	CCV3-161222	Batch ID:	R89599	TestNo:	SW7470A	Units:	mg/L			
SampType:	CCV	Run ID:	CETAC2_HG_161222A	Analysis Date:	12/22/2016 12:41:08 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00202	0.000200	0.00200	0	101	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

The QC data in batch 78347 applies to the following samples: 1612163-01B, 1612163-02B, 1612163-03B, 1612163-04B, 1612163-05B, 1612163-06B, 1612163-07B, 1612163-08B, 1612163-09B, 1612163-10B, 1612163-11B, 1612163-12B

Sample ID	MB-78347		Batch ID:	78347		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 4:26:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	<0.00500	0.00500
Dissolved Barium	<0.0100	0.0100
Dissolved Cadmium	<0.00100	0.00100
Dissolved Calcium	<0.300	0.300
Dissolved Chromium	<0.00500	0.00500
Dissolved Lead	<0.00100	0.00100
Dissolved Magnesium	<0.300	0.300
Dissolved Potassium	<0.300	0.300
Dissolved Selenium	<0.00500	0.00500
Dissolved Silver	<0.00200	0.00200
Dissolved Sodium	<0.300	0.300

Sample ID	FB-78347		Batch ID:	78347		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 4:28:00 PM		Prep Date:	12/19/2016	
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Dissolved Arsenic	<0.00500	0.00500
Dissolved Barium	<0.0100	0.0100
Dissolved Cadmium	<0.00100	0.00100
Dissolved Calcium	<0.300	0.300
Dissolved Chromium	<0.00500	0.00500
Dissolved Lead	<0.00100	0.00100
Dissolved Magnesium	<0.300	0.300
Dissolved Potassium	<0.300	0.300
Dissolved Selenium	<0.00500	0.00500
Dissolved Silver	<0.00200	0.00200
Dissolved Sodium	<0.300	0.300

Sample ID	LCS-78347			Batch ID:	78347		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCS			Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 4:30:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Dissolved Arsenic	0.199	0.00500	0.200	0	99.5	80	120
Dissolved Barium	0.198	0.0100	0.200	0	99.2	80	120
Dissolved Cadmium	0.198	0.00100	0.200	0	99.2	80	120
Dissolved Calcium	4.88	0.300	5.00	0	97.5	80	120
Dissolved Chromium	0.201	0.00500	0.200	0	101	80	120
Dissolved Lead	0.195	0.00100	0.200	0	97.3	80	120
Dissolved Magnesium	5.00	0.300	5.00	0	100	80	120

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	LCS-78347	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:30:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Potassium	4.96	0.300	5.00	0	99.2	80	120			
Dissolved Selenium	0.202	0.00500	0.200	0	101	80	120			
Dissolved Silver	0.191	0.00200	0.200	0	95.4	80	120			
Dissolved Sodium	5.01	0.300	5.00	0	100	80	120			

Sample ID	LCSD-78347	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCSD	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:32:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.201	0.00500	0.200	0	101	80	120	1.15	15	
Dissolved Barium	0.199	0.0100	0.200	0	99.7	80	120	0.492	15	
Dissolved Cadmium	0.200	0.00100	0.200	0	100	80	120	0.878	15	
Dissolved Calcium	4.94	0.300	5.00	0	98.8	80	120	1.33	15	
Dissolved Chromium	0.201	0.00500	0.200	0	101	80	120	0.077	15	
Dissolved Lead	0.196	0.00100	0.200	0	97.9	80	120	0.635	15	
Dissolved Magnesium	5.10	0.300	5.00	0	102	80	120	1.82	15	
Dissolved Potassium	5.05	0.300	5.00	0	101	80	120	1.82	15	
Dissolved Selenium	0.202	0.00500	0.200	0	101	80	120	0.277	15	
Dissolved Silver	0.194	0.00200	0.200	0	96.8	80	120	1.45	15	
Dissolved Sodium	5.16	0.300	5.00	0	103	80	120	2.98	15	

Sample ID	1612137-02A SD	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:38:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	319	75.0	0	313				1.99	10	
Dissolved Magnesium	57.1	75.0	0	55.1				3.49	10	
Dissolved Potassium	<75.0	75.0	0	23.6				0	10	
Dissolved Sodium	201	75.0	0	193				4.25	10	

Sample ID	1612137-02A PDS	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:58:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	560	15.0	250	313	98.7	80	120			
Dissolved Magnesium	310	15.0	250	55.1	102	80	120			
Dissolved Potassium	277	15.0	250	23.6	101	80	120			
Dissolved Sodium	454	15.0	250	193	105	80	120			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID: 1612137-02A MS	Batch ID: 78347	TestNo: SW6020A	Units: mg/L							
SampType: MS	Run ID: ICP-MS4_161219C	Analysis Date: 12/19/2016 5:00:00 PM	Prep Date: 12/19/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.217	0.250	0.200	0	109	80	120			
Dissolved Barium	0.252	0.500	0.200	0	126	80	120			S
Dissolved Cadmium	0.205	0.0500	0.200	0	102	80	120			
Dissolved Calcium	321	15.0	5.00	313	165	80	120			S
Dissolved Chromium	0.210	0.250	0.200	0	105	80	120			
Dissolved Lead	0.196	0.0500	0.200	0	98.0	80	120			
Dissolved Magnesium	60.0	15.0	5.00	55.1	98.6	80	120			
Dissolved Potassium	28.8	15.0	5.00	23.6	104	80	120			
Dissolved Selenium	0.228	0.250	0.200	0	114	80	120			
Dissolved Silver	0.195	0.100	0.200	0	97.5	80	120			
Dissolved Sodium	198	15.0	5.00	193	110	80	120			

Sample ID	1612137-02A MSD		Batch ID:	78347		TestNo:	SW6020A		Units:	mg/L	
SampType:	MSD		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 5:02:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.210	0.250	0.200	0	105	80	120	3.49	15	
Dissolved Barium	0.243	0.500	0.200	0	122	80	120	3.41	15	S
Dissolved Cadmium	0.197	0.0500	0.200	0	98.5	80	120	3.74	15	
Dissolved Calcium	311	15.0	5.00	313	-46.4	80	120	3.35	15	S
Dissolved Chromium	0.203	0.250	0.200	0	101	80	120	3.39	15	
Dissolved Lead	0.193	0.0500	0.200	0	96.5	80	120	1.54	15	
Dissolved Magnesium	59.5	15.0	5.00	55.1	87.0	80	120	0.973	15	
Dissolved Potassium	28.3	15.0	5.00	23.6	94.8	80	120	1.64	15	
Dissolved Selenium	0.226	0.250	0.200	0	113	80	120	1.21	15	
Dissolved Silver	0.192	0.100	0.200	0	96.2	80	120	1.34	15	
Dissolved Sodium	195	15.0	5.00	193	39.4	80	120	1.79	15	S

Sample ID	1612137-02A SD	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 5:47:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	<0.0250	0.0250	0	0				0	10	
Dissolved Barium	0.0459	0.0500	0	0.0449				2.12	10	
Dissolved Cadmium	<0.00500	0.00500	0	0				0	10	
Dissolved Chromium	<0.0250	0.0250	0	0				0	10	
Dissolved Lead	<0.00500	0.00500	0	0				0	10	
Dissolved Selenium	<0.0250	0.0250	0	0.00212				0	10	
Dissolved Silver	<0.0100	0.0100	0	0				0	10	

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	1612137-02A PDS	Batch ID:	78347	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 6:07:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.204	0.00500	0.200	0	102	80	120			
Dissolved Barium	0.251	0.0100	0.200	0.0449	103	80	120			
Dissolved Cadmium	0.188	0.00100	0.200	0	94.1	80	120			
Dissolved Chromium	0.202	0.00500	0.200	0	101	80	120			
Dissolved Lead	0.184	0.00100	0.200	0	91.9	80	120			
Dissolved Selenium	0.211	0.00500	0.200	0.00212	104	80	120			
Dissolved Silver	0.176	0.00200	0.200	0	87.9	80	120			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	ICV-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 1:04:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.101	0.00500	0.100	0	101	90	110			
Dissolved Barium	0.102	0.0100	0.100	0	102	90	110			
Dissolved Cadmium	0.101	0.00100	0.100	0	101	90	110			
Dissolved Calcium	2.36	0.300	2.50	0	94.6	90	110			
Dissolved Chromium	0.108	0.00500	0.100	0	108	90	110			
Dissolved Lead	0.0991	0.00100	0.100	0	99.1	90	110			
Dissolved Magnesium	2.55	0.300	2.50	0	102	90	110			
Dissolved Potassium	2.48	0.300	2.50	0	99.1	90	110			
Dissolved Selenium	0.0997	0.00500	0.100	0	99.7	90	110			
Dissolved Silver	0.0992	0.00200	0.100	0	99.2	90	110			
Dissolved Sodium	2.55	0.300	2.50	0	102	90	110			

Sample ID	LCVL-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 1:12:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00541	0.00500	0.00500	0	108	70	130			
Dissolved Barium	0.00540	0.0100	0.00500	0	108	70	130			
Dissolved Cadmium	0.00106	0.00100	0.00100	0	106	70	130			
Dissolved Calcium	0.107	0.300	0.100	0	107	70	130			
Dissolved Chromium	0.00552	0.00500	0.00500	0	110	70	130			
Dissolved Lead	0.00108	0.00100	0.00100	0	108	70	130			
Dissolved Magnesium	0.105	0.300	0.100	0	105	70	130			
Dissolved Potassium	0.108	0.300	0.100	0	108	70	130			
Dissolved Selenium	0.00579	0.00500	0.00500	0	116	70	130			
Dissolved Silver	0.00202	0.00200	0.00200	0	101	70	130			
Dissolved Sodium	0.109	0.300	0.100	0	109	70	130			

Sample ID	CCV4-161219		Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 4:07:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.202	0.00500	0.200	0	101	90	110			
Dissolved Barium	0.195	0.0100	0.200	0	97.3	90	110			
Dissolved Cadmium	0.197	0.00100	0.200	0	98.3	90	110			
Dissolved Calcium	4.92	0.300	5.00	0	98.3	90	110			
Dissolved Chromium	0.202	0.00500	0.200	0	101	90	110			
Dissolved Lead	0.195	0.00100	0.200	0	97.5	90	110			
Dissolved Magnesium	5.02	0.300	5.00	0	100	90	110			
Dissolved Potassium	5.03	0.300	5.00	0	101	90	110			
Dissolved Selenium	0.202	0.00500	0.200	0	101	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	CCV4-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:07:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Silver		0.190	0.00200	0.200	0	94.8	90	110			
Dissolved Sodium		4.95	0.300	5.00	0	98.9	90	110			

Sample ID	LCVL4-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 4:15:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.00557	0.00500	0.00500	0	111	70	130			
Dissolved Barium	0.00533	0.0100	0.00500	0	107	70	130			
Dissolved Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Dissolved Calcium	0.108	0.300	0.100	0	108	70	130			
Dissolved Chromium	0.00548	0.00500	0.00500	0	110	70	130			
Dissolved Lead	0.00101	0.00100	0.00100	0	101	70	130			
Dissolved Magnesium	0.107	0.300	0.100	0	107	70	130			
Dissolved Potassium	0.109	0.300	0.100	0	109	70	130			
Dissolved Selenium	0.00605	0.00500	0.00500	0	121	70	130			
Dissolved Silver	0.00198	0.00200	0.00200	0	98.8	70	130			
Dissolved Sodium	0.115	0.300	0.100	0	115	70	130			

Sample ID	CCV5-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 5:04:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.199	0.00500	0.200	0	99.7	90	110			
Dissolved Barium	0.198	0.0100	0.200	0	99.0	90	110			
Dissolved Cadmium	0.197	0.00100	0.200	0	98.6	90	110			
Dissolved Calcium	4.91	0.300	5.00	0	98.1	90	110			
Dissolved Chromium	0.202	0.00500	0.200	0	101	90	110			
Dissolved Lead	0.193	0.00100	0.200	0	96.7	90	110			
Dissolved Magnesium	5.04	0.300	5.00	0	101	90	110			
Dissolved Potassium	5.03	0.300	5.00	0	101	90	110			
Dissolved Selenium	0.203	0.00500	0.200	0	101	90	110			
Dissolved Silver	0.195	0.00200	0.200	0	97.4	90	110			
Dissolved Sodium	5.08	0.300	5.00	0	102	90	110			

Sample ID	LCVL5-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 5:11:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic		0.00565	0.00500	0.00500	0	113	70	130			
Dissolved Barium		0.00556	0.0100	0.00500	0	111	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	LCVL5-161219			Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL			Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 5:11:00 PM		Prep Date:		
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Cadmium	0.00109	0.00100	0.00100	0	109	70	130			
Dissolved Calcium	0.111	0.300	0.100	0	111	70	130			
Dissolved Chromium	0.00571	0.00500	0.00500	0	114	70	130			
Dissolved Lead	0.00103	0.00100	0.00100	0	103	70	130			
Dissolved Magnesium	0.113	0.300	0.100	0	113	70	130			
Dissolved Potassium	0.110	0.300	0.100	0	110	70	130			
Dissolved Selenium	0.00625	0.00500	0.00500	0	125	70	130			
Dissolved Silver	0.00206	0.00200	0.00200	0	103	70	130			
Dissolved Sodium	0.113	0.300	0.100	0	113	70	130			

Sample ID	CCV6-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 5:37:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.203	0.00500	0.200	0	101	90	110			
Dissolved Barium	0.199	0.0100	0.200	0	99.6	90	110			
Dissolved Cadmium	0.200	0.00100	0.200	0	100	90	110			
Dissolved Calcium	4.92	0.300	5.00	0	98.5	90	110			
Dissolved Chromium	0.204	0.00500	0.200	0	102	90	110			
Dissolved Lead	0.196	0.00100	0.200	0	97.9	90	110			
Dissolved Magnesium	4.98	0.300	5.00	0	99.6	90	110			
Dissolved Potassium	4.98	0.300	5.00	0	99.6	90	110			
Dissolved Selenium	0.202	0.00500	0.200	0	101	90	110			
Dissolved Silver	0.197	0.00200	0.200	0	98.6	90	110			
Dissolved Sodium	5.06	0.300	5.00	0	101	90	110			

Sample ID	LCVL6-161219	Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L		
SampType:	LCVL	Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 5:41:00 PM		Prep Date:			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00575	0.00500	0.00500	0	115	70	130			
Dissolved Barium	0.00549	0.0100	0.00500	0	110	70	130			
Dissolved Cadmium	0.00110	0.00100	0.00100	0	110	70	130			
Dissolved Calcium	0.117	0.300	0.100	0	117	70	130			
Dissolved Chromium	0.00573	0.00500	0.00500	0	115	70	130			
Dissolved Lead	0.00106	0.00100	0.00100	0	106	70	130			
Dissolved Magnesium	0.111	0.300	0.100	0	111	70	130			
Dissolved Potassium	0.111	0.300	0.100	0	111	70	130			
Dissolved Selenium	0.00588	0.00500	0.00500	0	118	70	130			
Dissolved Silver	0.00212	0.00200	0.00200	0	106	70	130			
Dissolved Sodium	0.133	0.300	0.100	0	133	70	130			S

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	CCV7-161219		Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 6:13:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.203	0.00500	0.200	0	101	90	110			
Dissolved Barium	0.202	0.0100	0.200	0	101	90	110			
Dissolved Cadmium	0.197	0.00100	0.200	0	98.5	90	110			
Dissolved Calcium	4.91	0.300	5.00	0	98.2	90	110			
Dissolved Chromium	0.201	0.00500	0.200	0	101	90	110			
Dissolved Lead	0.191	0.00100	0.200	0	95.5	90	110			
Dissolved Magnesium	4.99	0.300	5.00	0	99.8	90	110			
Dissolved Potassium	5.06	0.300	5.00	0	101	90	110			
Dissolved Selenium	0.199	0.00500	0.200	0	99.5	90	110			
Dissolved Silver	0.193	0.00200	0.200	0	96.3	90	110			
Dissolved Sodium	5.03	0.300	5.00	0	101	90	110			

Sample ID	LCVL7-161219		Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 6:23:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00547	0.00500	0.00500	0	109	70	130			
Dissolved Barium	0.00540	0.0100	0.00500	0	108	70	130			
Dissolved Cadmium	0.00102	0.00100	0.00100	0	102	70	130			
Dissolved Calcium	0.106	0.300	0.100	0	106	70	130			
Dissolved Chromium	0.00545	0.00500	0.00500	0	109	70	130			
Dissolved Lead	0.000988	0.00100	0.00100	0	98.8	70	130			
Dissolved Magnesium	0.108	0.300	0.100	0	108	70	130			
Dissolved Potassium	0.107	0.300	0.100	0	107	70	130			
Dissolved Selenium	0.00625	0.00500	0.00500	0	125	70	130			
Dissolved Silver	0.00211	0.00200	0.00200	0	105	70	130			
Dissolved Sodium	0.129	0.300	0.100	0	129	70	130			

Sample ID	CCV8-161219		Batch ID:	R89538		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_161219C		Analysis Date:	12/19/2016 6:41:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.201	0.00500	0.200	0	101	90	110			
Dissolved Barium	0.201	0.0100	0.200	0	100	90	110			
Dissolved Cadmium	0.194	0.00100	0.200	0	97.1	90	110			
Dissolved Calcium	4.95	0.300	5.00	0	99.0	90	110			
Dissolved Chromium	0.203	0.00500	0.200	0	102	90	110			
Dissolved Lead	0.189	0.00100	0.200	0	94.3	90	110			
Dissolved Magnesium	5.04	0.300	5.00	0	101	90	110			
Dissolved Potassium	5.11	0.300	5.00	0	102	90	110			
Dissolved Selenium	0.201	0.00500	0.200	0	101	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161219C

Sample ID	CCV8-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 6:41:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Silver	0.188	0.00200	0.200	0	93.9	90	110			
Dissolved Sodium	5.13	0.300	5.00	0	103	90	110			

Sample ID	LCVL8-161219	Batch ID:	R89538	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161219C	Analysis Date:	12/19/2016 6:51:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.00552	0.00500	0.00500	0	110	70	130			
Dissolved Barium	0.00543	0.0100	0.00500	0	109	70	130			
Dissolved Cadmium	0.000997	0.00100	0.00100	0	99.7	70	130			
Dissolved Calcium	0.111	0.300	0.100	0	111	70	130			
Dissolved Chromium	0.00541	0.00500	0.00500	0	108	70	130			
Dissolved Lead	0.00102	0.00100	0.00100	0	102	70	130			
Dissolved Magnesium	0.108	0.300	0.100	0	108	70	130			
Dissolved Potassium	0.106	0.300	0.100	0	106	70	130			
Dissolved Selenium	0.00640	0.00500	0.00500	0	128	70	130			
Dissolved Silver	0.00196	0.00200	0.00200	0	98.2	70	130			
Dissolved Sodium	0.111	0.300	0.100	0	111	70	130			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161221A

Sample ID	ICV-161221		Batch ID:	R89593		TestNo:	SW6020A		Units:	mg/L	
SampType:	ICV		Run ID:	ICP-MS4_161221A		Analysis Date:	12/21/2016 10:50:00 A		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.102	0.00500	0.100	0	102	90	110			
Dissolved Barium	0.105	0.0100	0.100	0	105	90	110			
Dissolved Cadmium	0.105	0.00100	0.100	0	105	90	110			
Dissolved Calcium	2.28	0.300	2.50	0	91.1	90	110			
Dissolved Chromium	0.109	0.00500	0.100	0	109	90	110			
Dissolved Lead	0.101	0.00100	0.100	0	101	90	110			
Dissolved Magnesium	2.57	0.300	2.50	0	103	90	110			
Dissolved Potassium	2.56	0.300	2.50	0	102	90	110			
Dissolved Selenium	0.101	0.00500	0.100	0	101	90	110			
Dissolved Silver	0.103	0.00200	0.100	0	103	90	110			
Dissolved Sodium	2.58	0.300	2.50	0	103	90	110			

Sample ID	LCVL-161221	Batch ID:	R89593	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161221A	Analysis Date:	12/21/2016 11:06:00 A	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00553	0.00500	0.00500	0	111	70	130			
Dissolved Barium	0.00534	0.0100	0.00500	0	107	70	130			
Dissolved Cadmium	0.00108	0.00100	0.00100	0	108	70	130			
Dissolved Calcium	0.104	0.300	0.100	0	104	70	130			
Dissolved Chromium	0.00560	0.00500	0.00500	0	112	70	130			
Dissolved Lead	0.00110	0.00100	0.00100	0	110	70	130			
Dissolved Magnesium	0.107	0.300	0.100	0	107	70	130			
Dissolved Potassium	0.111	0.300	0.100	0	111	70	130			
Dissolved Selenium	0.00558	0.00500	0.00500	0	112	70	130			
Dissolved Silver	0.00211	0.00200	0.00200	0	106	70	130			
Dissolved Sodium	0.113	0.300	0.100	0	113	70	130			

Sample ID	CCV1-161221		Batch ID:	R89593		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_161221A		Analysis Date:	12/21/2016 12:08:00 P		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	4.75	0.300	5.00	0	95.0	90	110			
Dissolved Magnesium	5.15	0.300	5.00	0	103	90	110			
Dissolved Sodium	5.18	0.300	5.00	0	104	90	110			

Sample ID	LCVL1-161221	Batch ID:	R89593	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161221A	Analysis Date:	12/21/2016 12:24:00 P	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	0.101	0.300	0.100	0	101	70	130			
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Qualifiers: B Analyte detected in the associated Method Blank
J Analyte detected between MDL and RL
ND Not Detected at the Method Detection Limit
RL Reporting Limit
J Analyte detected between SDL and RL

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161221A

Sample ID	LCVL1-161221	Batch ID:	R89593	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161221A	Analysis Date:	12/21/2016 12:24:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Magnesium	0.107	0.300	0.100	0	107	70	130			
Dissolved Sodium	0.105	0.300	0.100	0	105	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

The QC data in batch 78415 applies to the following samples: 1612163-13B, 1612163-14B, 1612163-15B, 1612163-16B, 1612163-17B, 1612163-18B, 1612163-19B, 1612163-20B, 1612163-21B, 1612163-22B, 1612163-23B, 1612163-24B, 1612163-25B, 1612163-26B, 1612163-27B, 1612163-28B, 1612163-29B, 1612163-30B

Sample ID	MB-78415		Batch ID:	78415		TestNo:	SW6020A		Units:	mg/L	
SampType:	MBLK		Run ID:	ICP-MS4_161223B		Analysis Date:	12/23/2016 6:03:00 PM		Prep Date:	12/21/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	<0.00500	0.00500
Dissolved Barium	<0.0100	0.0100
Dissolved Cadmium	<0.00100	0.00100
Dissolved Calcium	<0.300	0.300
Dissolved Chromium	<0.00500	0.00500
Dissolved Lead	<0.00100	0.00100
Dissolved Magnesium	<0.300	0.300
Dissolved Potassium	<0.300	0.300
Dissolved Selenium	<0.00500	0.00500
Dissolved Silver	<0.00200	0.00200
Dissolved Sodium	<0.300	0.300

Sample ID	FB-78415	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	MBLK	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:05:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	<0.00500	0.00500
Dissolved Barium	<0.0100	0.0100
Dissolved Cadmium	<0.00100	0.00100
Dissolved Calcium	0.131	0.300
Dissolved Chromium	<0.00500	0.00500
Dissolved Lead	<0.00100	0.00100
Dissolved Magnesium	<0.300	0.300
Dissolved Potassium	<0.300	0.300
Dissolved Selenium	<0.00500	0.00500
Dissolved Silver	<0.00200	0.00200
Dissolved Sodium	0.153	0.300

Sample ID	LCS-78415	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:07:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.215	0.00500	0.200	0	107	80	120
Dissolved Barium	0.209	0.0100	0.200	0	105	80	120
Dissolved Cadmium	0.211	0.00100	0.200	0	105	80	120
Dissolved Calcium	5.07	0.300	5.00	0	101	80	120
Dissolved Chromium	0.207	0.00500	0.200	0	104	80	120
Dissolved Lead	0.203	0.00100	0.200	0	101	80	120
Dissolved Magnesium	5.28	0.300	5.00	0	106	80	120

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

Sample ID	LCS-78415	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:07:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Potassium	5.17	0.300	5.00	0	103	80	120			
Dissolved Selenium	0.214	0.00500	0.200	0	107	80	120			
Dissolved Silver	0.203	0.00200	0.200	0	101	80	120			
Dissolved Sodium	5.35	0.300	5.00	0	107	80	120			

Sample ID	LCSD-78415	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCSD	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:09:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.215	0.00500	0.200	0	108	80	120	0.199	15	
Dissolved Barium	0.209	0.0100	0.200	0	104	80	120	0.220	15	
Dissolved Cadmium	0.212	0.00100	0.200	0	106	80	120	0.650	15	
Dissolved Calcium	5.09	0.300	5.00	0	102	80	120	0.266	15	
Dissolved Chromium	0.208	0.00500	0.200	0	104	80	120	0.412	15	
Dissolved Lead	0.200	0.00100	0.200	0	99.9	80	120	1.48	15	
Dissolved Magnesium	5.34	0.300	5.00	0	107	80	120	1.20	15	
Dissolved Potassium	5.21	0.300	5.00	0	104	80	120	0.929	15	
Dissolved Selenium	0.216	0.00500	0.200	0	108	80	120	1.15	15	
Dissolved Silver	0.203	0.00200	0.200	0	101	80	120	0.076	15	
Dissolved Sodium	5.41	0.300	5.00	0	108	80	120	1.09	15	

Sample ID	1612163-15B SD	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:15:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	<0.0250	0.0250	0	0				0	10	
Barium	0.0270	0.0500	0	0.0261				3.42	10	
Cadmium	<0.00500	0.00500	0	0				0	10	
Chromium	<0.0250	0.0250	0	0				0	10	
Lead	<0.00500	0.00500	0	0				0	10	
Potassium	3.26	1.50	0	3.18				2.48	10	
Selenium	<0.0250	0.0250	0	0				0	10	
Silver	<0.0100	0.0100	0	0				0	10	

Sample ID	1612163-15B PDS	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:35:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.218	0.00500	0.200	0	109	80	120			
Barium	0.232	0.0100	0.200	0.0261	103	80	120			
Cadmium	0.195	0.00100	0.200	0	97.3	80	120			

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

Sample ID	1612163-15B PDS			Batch ID:	78415		TestNo:	SW6020A		Units:	mg/L	
SampType:	PDS			Run ID:	ICP-MS4_161223B		Analysis Date:	12/23/2016 6:35:00 PM		Prep Date:	12/21/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chromium	0.205	0.00500	0.200	0	103	80	120			
Lead	0.198	0.00100	0.200	0	98.9	80	120			
Potassium	8.15	0.300	5.00	3.18	99.3	80	120			
Selenium	0.219	0.00500	0.200	0	110	80	120			
Silver	0.180	0.00200	0.200	0	90.1	80	120			

Sample ID	1612163-15B MS	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	MS	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:37:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.220	0.00500	0.200	0	110	80	120			
Dissolved Barium	0.232	0.0100	0.200	0.0261	103	80	120			
Dissolved Cadmium	0.196	0.00100	0.200	0	98.2	80	120			
Dissolved Calcium	564	0.300	5.00	549	287	80	120			S
Dissolved Chromium	0.198	0.00500	0.200	0	99.2	80	120			
Dissolved Lead	0.198	0.00100	0.200	0	99.2	80	120			
Dissolved Magnesium	92.5	0.300	5.00	86.7	117	80	120			
Dissolved Potassium	8.34	0.300	5.00	3.18	103	80	120			
Dissolved Selenium	0.221	0.00500	0.200	0	111	80	120			
Dissolved Silver	0.184	0.00200	0.200	0	92.1	80	120			
Dissolved Sodium	65.0	0.300	5.00	60.3	94.8	80	120			

Sample ID	1612163-15B MSD	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L			
SampType:	MSD	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:39:00 PM	Prep Date:	12/21/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.224	0.00500	0.200	0	112	80	120	1.97	15	
Dissolved Barium	0.234	0.0100	0.200	0.0261	104	80	120	0.894	15	
Dissolved Cadmium	0.198	0.00100	0.200	0	98.9	80	120	0.777	15	
Dissolved Calcium	567	0.300	5.00	549	346	80	120	0.522	15	S
Dissolved Chromium	0.202	0.00500	0.200	0	101	80	120	1.57	15	
Dissolved Lead	0.202	0.00100	0.200	0	101	80	120	1.62	15	
Dissolved Magnesium	95.1	0.300	5.00	86.7	170	80	120	2.81	15	S
Dissolved Potassium	8.45	0.300	5.00	3.18	105	80	120	1.29	15	
Dissolved Selenium	0.224	0.00500	0.200	0	112	80	120	1.34	15	
Dissolved Silver	0.185	0.00200	0.200	0	92.6	80	120	0.523	15	
Dissolved Sodium	67.1	0.300	5.00	60.3	136	80	120	3.11	15	S

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

Sample ID	ICV-161223		Batch ID:	R89638		TestNo:	SW6020A		Units:	mg/L	
SampType:	ICV		Run ID:	ICP-MS4_161223B		Analysis Date:	12/23/2016 10:19:00 A		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.103	0.00500	0.100	0	103	90	110			
Dissolved Barium	0.105	0.0100	0.100	0	105	90	110			
Dissolved Cadmium	0.104	0.00100	0.100	0	104	90	110			
Dissolved Calcium	2.41	0.300	2.50	0	96.3	90	110			
Dissolved Chromium	0.107	0.00500	0.100	0	107	90	110			
Dissolved Lead	0.102	0.00100	0.100	0	102	90	110			
Dissolved Magnesium	2.57	0.300	2.50	0	103	90	110			
Dissolved Potassium	2.50	0.300	2.50	0	100	90	110			
Dissolved Selenium	0.105	0.00500	0.100	0	105	90	110			
Dissolved Silver	0.101	0.00200	0.100	0	101	90	110			
Dissolved Sodium	2.57	0.300	2.50	0	103	90	110			

Sample ID	LCVL-161223			Batch ID:	R89638		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL			Run ID:	ICP-MS4_161223B		Analysis Date:	12/23/2016 10:28:00 A		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Dissolved Arsenic	0.00549	0.00500	0.00500	0	110	70	130			
Dissolved Barium	0.00547	0.0100	0.00500	0	109	70	130			
Dissolved Cadmium	0.00109	0.00100	0.00100	0	109	70	130			
Dissolved Calcium	0.105	0.300	0.100	0	105	70	130			
Dissolved Chromium	0.00535	0.00500	0.00500	0	107	70	130			
Dissolved Lead	0.00112	0.00100	0.00100	0	112	70	130			
Dissolved Magnesium	0.107	0.300	0.100	0	107	70	130			
Dissolved Potassium	0.104	0.300	0.100	0	104	70	130			
Dissolved Selenium	0.00566	0.00500	0.00500	0	113	70	130			
Dissolved Silver	0.00204	0.00200	0.00200	0	102	70	130			
Dissolved Sodium	0.106	0.300	0.100	0	106	70	130			

Sample ID	CCV6-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 5:55:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.211	0.00500	0.200	0	106	90	110			
Dissolved Barium	0.206	0.0100	0.200	0	103	90	110			
Dissolved Cadmium	0.205	0.00100	0.200	0	103	90	110			
Dissolved Calcium	5.00	0.300	5.00	0	100	90	110			
Dissolved Chromium	0.204	0.00500	0.200	0	102	90	110			
Dissolved Lead	0.200	0.00100	0.200	0	99.8	90	110			
Dissolved Magnesium	5.14	0.300	5.00	0	103	90	110			
Dissolved Potassium	5.03	0.300	5.00	0	101	90	110			
Dissolved Selenium	0.212	0.00500	0.200	0	106	90	110			

Qualifiers:

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

Sample ID	CCV6-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 5:55:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Silver	0.193	0.00200	0.200	0	96.7	90	110			
Dissolved Sodium	5.42	0.300	5.00	0	108	90	110			

Sample ID	LCVL6-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161223B	Analysis Date: 12/23/2016 5:59:00 PM		Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.00582	0.00500	0.00500	0	116	70	130			
Dissolved Barium	0.00543	0.0100	0.00500	0	109	70	130			
Dissolved Cadmium	0.00107	0.00100	0.00100	0	107	70	130			
Dissolved Calcium	0.115	0.300	0.100	0	115	70	130			
Dissolved Chromium	0.00550	0.00500	0.00500	0	110	70	130			
Dissolved Lead	0.00105	0.00100	0.00100	0	105	70	130			
Dissolved Magnesium	0.112	0.300	0.100	0	112	70	130			
Dissolved Potassium	0.117	0.300	0.100	0	117	70	130			
Dissolved Selenium	0.00556	0.00500	0.00500	0	111	70	130			
Dissolved Silver	0.00208	0.00200	0.00200	0	104	70	130			
Dissolved Sodium	0.168	0.300	0.100	0	168	70	130			S

Sample ID	CCV7-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:41:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.216	0.00500	0.200	0	108	90	110			
Dissolved Barium	0.208	0.0100	0.200	0	104	90	110			
Dissolved Cadmium	0.208	0.00100	0.200	0	104	90	110			
Dissolved Calcium	5.17	0.300	5.00	0	103	90	110			
Dissolved Chromium	0.205	0.00500	0.200	0	103	90	110			
Dissolved Lead	0.201	0.00100	0.200	0	101	90	110			
Dissolved Magnesium	5.16	0.300	5.00	0	103	90	110			
Dissolved Potassium	5.13	0.300	5.00	0	103	90	110			
Dissolved Selenium	0.219	0.00500	0.200	0	109	90	110			
Dissolved Silver	0.196	0.00200	0.200	0	98.0	90	110			
Dissolved Sodium	5.17	0.300	5.00	0	103	90	110			

Sample ID	LCVL7-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:45:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.00590	0.00500	0.00500	0	118	70	130			
Dissolved Barium	0.00550	0.0100	0.00500	0	110	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161223B

Sample ID	LCVL7-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 6:45:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Cadmium	0.00111	0.00100	0.00100	0	111	70	130			
Dissolved Calcium	0.171	0.300	0.100	0	171	70	130			S
Dissolved Chromium	0.00552	0.00500	0.00500	0	110	70	130			
Dissolved Lead	0.00111	0.00100	0.00100	0	111	70	130			
Dissolved Magnesium	0.122	0.300	0.100	0	122	70	130			
Dissolved Potassium	0.124	0.300	0.100	0	124	70	130			
Dissolved Selenium	0.00576	0.00500	0.00500	0	115	70	130			
Dissolved Silver	0.00199	0.00200	0.00200	0	99.6	70	130			
Dissolved Sodium	0.148	0.300	0.100	0	148	70	130			S

Sample ID	CCV8-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 7:09:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.220	0.00500	0.200	0	110	90	110			
Dissolved Barium	0.206	0.0100	0.200	0	103	90	110			
Dissolved Cadmium	0.201	0.00100	0.200	0	101	90	110			
Dissolved Chromium	0.196	0.00500	0.200	0	98.0	90	110			
Dissolved Lead	0.198	0.00100	0.200	0	99.1	90	110			
Dissolved Potassium	5.33	0.300	5.00	0	107	90	110			
Dissolved Selenium	0.218	0.00500	0.200	0	109	90	110			
Dissolved Silver	0.186	0.00200	0.200	0	93.0	90	110			

Sample ID	LCVL8-161223	Batch ID:	R89638	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161223B	Analysis Date:	12/23/2016 7:14:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00639	0.00500	0.00500	0	128	70	130			
Dissolved Barium	0.00534	0.0100	0.00500	0	107	70	130			
Dissolved Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Dissolved Chromium	0.00536	0.00500	0.00500	0	107	70	130			
Dissolved Lead	0.00106	0.00100	0.00100	0	106	70	130			
Dissolved Potassium	0.136	0.300	0.100	0	136	70	130			S
Dissolved Selenium	0.00695	0.00500	0.00500	0	139	70	130			S
Dissolved Silver	0.00194	0.00200	0.00200	0	97.1	70	130			

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161227C

Sample ID	ICV-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 11:00:00 A	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.102	0.00500	0.100	0	102	90	110			
Dissolved Barium	0.104	0.0100	0.100	0	104	90	110			
Dissolved Cadmium	0.103	0.00100	0.100	0	103	90	110			
Dissolved Calcium	2.29	0.300	2.50	0	91.5	90	110			
Dissolved Chromium	0.107	0.00500	0.100	0	107	90	110			
Dissolved Lead	0.101	0.00100	0.100	0	101	90	110			
Dissolved Magnesium	2.51	0.300	2.50	0	101	90	110			
Dissolved Potassium	2.49	0.300	2.50	0	99.8	90	110			
Dissolved Selenium	0.102	0.00500	0.100	0	102	90	110			
Dissolved Silver	0.102	0.00200	0.100	0	102	90	110			
Dissolved Sodium	2.48	0.300	2.50	0	99.4	90	110			

Sample ID	LCVL-16227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 11:06:00 A	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00556	0.00500	0.00500	0	111	70	130			
Dissolved Barium	0.00547	0.0100	0.00500	0	109	70	130			
Dissolved Cadmium	0.00105	0.00100	0.00100	0	105	70	130			
Dissolved Calcium	0.101	0.300	0.100	0	101	70	130			
Dissolved Chromium	0.00561	0.00500	0.00500	0	112	70	130			
Dissolved Lead	0.00115	0.00100	0.00100	0	115	70	130			
Dissolved Magnesium	0.107	0.300	0.100	0	107	70	130			
Dissolved Potassium	0.104	0.300	0.100	0	104	70	130			
Dissolved Selenium	0.00570	0.00500	0.00500	0	114	70	130			
Dissolved Silver	0.00207	0.00200	0.00200	0	104	70	130			
Dissolved Sodium	0.0977	0.300	0.100	0	97.7	70	130			

Sample ID	CCV3-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 1:43:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.206	0.00500	0.200	0	103	90	110			
Dissolved Barium	0.205	0.0100	0.200	0	102	90	110			
Dissolved Cadmium	0.204	0.00100	0.200	0	102	90	110			
Dissolved Calcium	4.74	0.300	5.00	0	94.9	90	110			
Dissolved Chromium	0.208	0.00500	0.200	0	104	90	110			
Dissolved Lead	0.201	0.00100	0.200	0	100	90	110			
Dissolved Magnesium	4.95	0.300	5.00	0	99.0	90	110			
Dissolved Selenium	0.207	0.00500	0.200	0	104	90	110			
Dissolved Silver	0.196	0.00200	0.200	0	98.0	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161227C

Sample ID	CCV3-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L				
SampType:	CCV	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 1:43:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Sodium		4.91	0.300	5.00	0	98.3	90	110			

Sample ID	LCVL3-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 1:47:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic		0.00546	0.00500	0.00500	0	109	70	130			
Dissolved Barium		0.00542	0.0100	0.00500	0	108	70	130			
Dissolved Cadmium		0.00111	0.00100	0.00100	0	111	70	130			
Dissolved Calcium		0.109	0.300	0.100	0	109	70	130			
Dissolved Chromium		0.00554	0.00500	0.00500	0	111	70	130			
Dissolved Lead		0.00113	0.00100	0.00100	0	113	70	130			
Dissolved Magnesium		0.104	0.300	0.100	0	104	70	130			
Dissolved Selenium		0.00561	0.00500	0.00500	0	112	70	130			
Dissolved Silver		0.00206	0.00200	0.00200	0	103	70	130			
Dissolved Sodium		0.0888	0.300	0.100	0	88.8	70	130			

Sample ID	CCV4-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 2:12:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic	0.209	0.00500	0.200	0	105	90	110			
Dissolved Barium	0.204	0.0100	0.200	0	102	90	110			
Dissolved Cadmium	0.204	0.00100	0.200	0	102	90	110			
Dissolved Calcium	4.75	0.300	5.00	0	95.0	90	110			
Dissolved Chromium	0.208	0.00500	0.200	0	104	90	110			
Dissolved Lead	0.200	0.00100	0.200	0	99.9	90	110			
Dissolved Magnesium	4.97	0.300	5.00	0	99.3	90	110			
Dissolved Potassium	5.06	0.300	5.00	0	101	90	110			
Dissolved Selenium	0.211	0.00500	0.200	0	106	90	110			
Dissolved Silver	0.196	0.00200	0.200	0	98.0	90	110			
Dissolved Sodium	4.92	0.300	5.00	0	98.4	90	110			

Sample ID	LCVL4-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161227C	Analysis Date: 12/27/2016 2:16:00 PM			Prep Date:				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Arsenic		0.00536	0.00500	0.00500	0	107	70	130			
Dissolved Barium		0.00553	0.0100	0.00500	0	111	70	130			
Dissolved Cadmium		0.00106	0.00100	0.00100	0	106	70	130			
Dissolved Calcium		0.105	0.300	0.100	0	105	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161227C

Sample ID	LCVL4-161227			Batch ID:	R89660		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL			Run ID:	ICP-MS4_161227C		Analysis Date:	12/27/2016 2:16:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Dissolved Chromium	0.00563	0.00500	0.00500	0	113	70	130			
Dissolved Lead	0.00110	0.00100	0.00100	0	110	70	130			
Dissolved Magnesium	0.106	0.300	0.100	0	106	70	130			
Dissolved Potassium	0.110	0.300	0.100	0	110	70	130			
Dissolved Selenium	0.00596	0.00500	0.00500	0	119	70	130			
Dissolved Silver	0.00207	0.00200	0.00200	0	103	70	130			
Dissolved Sodium	0.0878	0.300	0.100	0	87.8	70	130			

Sample ID	CCV5-161227			Batch ID:	R89660		TestNo:	SW6020A		Units:	mg/L		
SampType:	CCV			Run ID:	ICP-MS4_161227C		Analysis Date:	12/27/2016 2:41:00 PM		Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	4.75	0.300	5.00	0	95.0	90	110			
Dissolved Magnesium	4.97	0.300	5.00	0	99.4	90	110			
Dissolved Potassium	5.09	0.300	5.00	0	102	90	110			
Dissolved Sodium	4.96	0.300	5.00	0	99.3	90	110			

Sample ID	LCVL5-161227		Batch ID:	R89660		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL		Run ID:	ICP-MS4_161227C		Analysis Date:	12/27/2016 2:45:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	0.102	0.300	0.100	0	102	70	130			
Dissolved Magnesium	0.109	0.300	0.100	0	109	70	130			
Dissolved Potassium	0.111	0.300	0.100	0	111	70	130			
Dissolved Sodium	0.0850	0.300	0.100	0	85.0	70	130			

Sample ID	CCV6-161227		Batch ID:	R89660		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV		Run ID:	ICP-MS4_161227C		Analysis Date:	12/27/2016 3:01:00 PM		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	4.80	0.300	5.00	0	96.0	90	110			
Dissolved Magnesium	5.00	0.300	5.00	0	100	90	110			
Dissolved Selenium	0.205	0.00500	0.200	0	103	90	110			
Dissolved Sodium	4.92	0.300	5.00	0	98.3	90	110			

Sample ID	LCVL6-161227		Batch ID:	R89660		TestNo:	SW6020A		Units:	mg/L		
SampType:	LCVL		Run ID:	ICP-MS4_161227C		Analysis Date:	12/27/2016 3:05:00 PM		Prep Date:			
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Calcium	0.109	0.300	0.100	0	109	70	130			
Dissolved Magnesium	0.104	0.300	0.100	0	104	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161227C

Sample ID	LCVL6-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 3:05:00 PM	Prep Date:	
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit %RPD RPDLimit Qual

Dissolved Selenium	0.00618	0.00500	0.00500	0	124	70	130
Dissolved Sodium	0.0820	0.300	0.100	0	82.0	70	130

Sample ID	CCV7-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 3:21:00 PM	Prep Date:	
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit %RPD RPDLimit Qual

Dissolved Selenium	0.208	0.00500	0.200	0	104	90	110
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Sample ID	LCVL7-161227	Batch ID:	R89660	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_161227C	Analysis Date:	12/27/2016 3:25:00 PM	Prep Date:	
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit %RPD RPDLimit Qual

Dissolved Selenium	0.00642	0.00500	0.00500	0	128	70	130
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Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161228C

Sample ID	ICV-161228	Batch ID:	R89687	TestNo:	SW6020A	Units:	mg/L				
SampType:	ICV	Run ID:	ICP-MS4_161228C	Analysis Date:	12/28/2016 10:59:00 A	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.101	0.00500	0.100	0	101	90	110			
Dissolved Barium	0.106	0.0100	0.100	0	106	90	110			
Dissolved Cadmium	0.105	0.00100	0.100	0	105	90	110			
Dissolved Calcium	2.37	0.300	2.50	0	94.8	90	110			
Dissolved Chromium	0.105	0.00500	0.100	0	105	90	110			
Dissolved Lead	0.102	0.00100	0.100	0	102	90	110			
Dissolved Magnesium	2.50	0.300	2.50	0	99.9	90	110			
Dissolved Selenium	0.0980	0.00500	0.100	0	98.0	90	110			
Dissolved Silver	0.104	0.00200	0.100	0	104	90	110			
Dissolved Sodium	2.54	0.300	2.50	0	101	90	110			

Sample ID	LCVL-161228		Batch ID:	R89687		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL		Run ID:	ICP-MS4_161228C		Analysis Date:	12/28/2016 11:04:00 A		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Dissolved Arsenic	0.00534	0.00500	0.00500	0	107	70	130			
Dissolved Barium	0.00540	0.0100	0.00500	0	108	70	130			
Dissolved Cadmium	0.00110	0.00100	0.00100	0	110	70	130			
Dissolved Calcium	0.107	0.300	0.100	0	107	70	130			
Dissolved Chromium	0.00544	0.00500	0.00500	0	109	70	130			
Dissolved Lead	0.00110	0.00100	0.00100	0	110	70	130			
Dissolved Magnesium	0.106	0.300	0.100	0	106	70	130			
Dissolved Selenium	0.00554	0.00500	0.00500	0	111	70	130			
Dissolved Silver	0.00208	0.00200	0.00200	0	104	70	130			
Dissolved Sodium	0.118	0.300	0.100	0	118	70	130			

Sample ID	CCV13-161228			Batch ID:	R89687		TestNo:	SW6020A		Units:	mg/L	
SampType:	CCV			Run ID:	ICP-MS4_161228C		Analysis Date:	12/28/2016 11:14:00 P		Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Dissolved Calcium	4.80	0.300	5.00	0	95.9	90	110			
Dissolved Magnesium	4.84	0.300	5.00	0	96.9	90	110			
Dissolved Selenium	0.203	0.00500	0.200	0	102	90	110			
Dissolved Sodium	4.94	0.300	5.00	0	98.8	90	110			

Sample ID	LCVL13-161228		Batch ID:	R89687		TestNo:	SW6020A		Units:	mg/L	
SampType:	LCVL		Run ID:	ICP-MS4_161228C		Analysis Date:	12/28/2016 11:18:00 P		Prep Date:		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Dissolved Calcium	0.128	0.300	0.100	0	128	70	130			
Dissolved Magnesium	0.106	0.300	0.100	0	106	70	130			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161228C

Sample ID	LCVL13-161228	Batch ID:	R89687	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161228C	Analysis Date:	12/28/2016 11:18:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Selenium	0.00583	0.00500	0.00500	0	117	70	130			
Dissolved Sodium	0.192	0.300	0.100	0	192	70	130			S

Sample ID	CCV14-161228	Batch ID:	R89687	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161228C	Analysis Date:	12/28/2016 11:47:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	4.79	0.300	5.00	0	95.7	90	110			
Dissolved Magnesium	4.88	0.300	5.00	0	97.5	90	110			
Dissolved Selenium	0.199	0.00500	0.200	0	99.6	90	110			
Dissolved Sodium	5.00	0.300	5.00	0	100	90	110			

Sample ID	LCVL14-161228	Batch ID:	R89687	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161228C	Analysis Date:	12/28/2016 11:51:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	0.0995	0.300	0.100	0	99.5	70	130			
Dissolved Magnesium	0.116	0.300	0.100	0	116	70	130			
Dissolved Selenium	0.00596	0.00500	0.00500	0	119	70	130			
Dissolved Sodium	0.194	0.300	0.100	0	194	70	130			S

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161230A

The QC data in batch 78415 applies to the following samples: 1612163-13B, 1612163-14B, 1612163-15B, 1612163-16B, 1612163-17B, 1612163-18B, 1612163-19B, 1612163-20B, 1612163-21B, 1612163-22B, 1612163-23B, 1612163-24B, 1612163-25B, 1612163-26B, 1612163-27B, 1612163-28B, 1612163-29B, 1612163-30B

Sample ID	1612163-15B SD	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L
SampType:	SD	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 1:03:00 PM	Prep Date:	12/21/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	546	150	0	532				2.64	10	
Magnesium	90.1	150	0	87.4				3.14	10	
Sodium	62.7	150	0	58.4				7.05	10	

Sample ID	1612163-15B PDS	Batch ID:	78415	TestNo:	SW6020A	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 1:06:00 PM	Prep Date:	12/21/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	1030	30.0	500	532	98.8	80	120			
Magnesium	608	30.0	500	87.4	104	80	120			
Sodium	578	30.0	500	58.4	104	80	120			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_161230A

Sample ID	ICV-161230	Batch ID:	R89729	TestNo:	SW6020A	Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 12:40:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	2.31	0.300	2.50	0	92.6	90	110			
Dissolved Magnesium	2.49	0.300	2.50	0	99.6	90	110			
Dissolved Sodium	2.46	0.300	2.50	0	98.4	90	110			

Sample ID	LCVL-161230	Batch ID:	R89729	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 12:50:00 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	0.0908	0.300	0.100	0	90.8	70	130			
Dissolved Magnesium	0.100	0.300	0.100	0	100	70	130			
Dissolved Sodium	0.107	0.300	0.100	0	107	70	130			

Sample ID	CCV1-161230	Batch ID:	R89729	TestNo:	SW6020A	Units:	mg/L			
SampType:	CCV	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 1:44:00 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium	4.75	0.300	5.00	0	95.0	90	110			
Dissolved Magnesium	4.99	0.300	5.00	0	99.8	90	110			
Dissolved Sodium	5.17	0.300	5.00	0	103	90	110			

Sample ID	LCVL1-161230	Batch ID:	R89729	TestNo:	SW6020A	Units:	mg/L				
SampType:	LCVL	Run ID:	ICP-MS4_161230A	Analysis Date:	12/30/2016 2:06:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Calcium		0.0829	0.300	0.100	0	82.9	70	130			
Dissolved Magnesium		0.100	0.300	0.100	0	100	70	130			
Dissolved Sodium		0.219	0.300	0.100	0	219	70	130			S

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_161227A

The QC data in batch 78474 applies to the following samples: 1612163-01D, 1612163-02D, 1612163-03D, 1612163-04D, 1612163-05D, 1612163-06D, 1612163-07D, 1612163-08D, 1612163-09D, 1612163-10D

Sample ID	MB-78474	Batch ID:	78474	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 9:55:55 AM	Prep Date:	12/27/2016			
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-78474	Batch ID:	78474	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 10:10:31 A	Prep Date:	12/27/2016			
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	30.7	3.00	30.00	0	102	90	110			

Sample ID	LCSD-78474	Batch ID:	78474	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 10:25:08 A	Prep Date:	12/27/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	10.3	1.00	10.00	0	103	90	110	0.102	20	
Sulfate	30.9	3.00	30.00	0	103	90	110	0.381	20	

Sample ID	1612163-06DMS	Batch ID:	78474	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 4:18:33 PM	Prep Date:	12/27/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	22800	1000	20000	1475	107	90	110			
Sulfate	40400	3000	20000	18500	109	90	110			

Sample ID	1612163-06DMSD	Batch ID:	78474	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 4:33:10 PM	Prep Date:	12/27/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Chloride	23000	1000	20000	1475	108	90	110	0.864	20	
Sulfate	41000	3000	20000	18500	113	90	110	1.67	20	S

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_161227A

Sample ID	ICV-161227			Batch ID:	R89681			TestNo:	E300			Units:	mg/L		
SampType:	ICV			Run ID:	IC2_161227A			Analysis Date:	12/27/2016 9:15:18 AM			Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chloride	27.2	1.00	25.00	0	109	90	110			
Sulfate	80.7	3.00	75.00	0	108	90	110			

Sample ID	CCV1-161227	Batch ID:	R89681	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 2:12:27 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	31.3	3.00	30.00	0	104	90	110			

Sample ID	CCV2-161227	Batch ID:	R89681	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC2_161227A	Analysis Date:	12/27/2016 4:47:46 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	31.4	3.00	30.00	0	105	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC3_161227A

The QC data in batch 78477 applies to the following samples: 1612163-26D, 1612163-27D, 1612163-28D, 1612163-29D, 1612163-30D

Sample ID	MB-78477	Batch ID:	78477	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 10:28:10 A	Prep Date:	12/27/2016
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-78477	Batch ID:	78477	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 10:48:48 A	Prep Date:	12/27/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	9.59	1.00	10.00	0	95.9	90	110
Sulfate	31.2	3.00	30.00	0	104	90	110

Sample ID	LCSD-78477	Batch ID:	78477	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 11:09:27 A	Prep Date:	12/27/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	9.57	1.00	10.00	0	95.7	90	110	0.198	20
Sulfate	31.3	3.00	30.00	0	104	90	110	0.336	20

Sample ID	1612145-01DMS	Batch ID:	78477	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 11:59:14 A	Prep Date:	12/27/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	2460	100	2000	518.1	97.2	90	110
Sulfate	2090	300	2000	0	104	90	110

Sample ID	1612145-01DMSD	Batch ID:	78477	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 12:19:53 P	Prep Date:	12/27/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	2450	100	2000	518.1	96.8	90	110	0.342	20
Sulfate	2080	300	2000	0	104	90	110	0.403	20

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC3_161227A

Sample ID	ICV-161227			Batch ID:	R89679			TestNo:	E300			Units:	mg/L		
SampType:	ICV			Run ID:	IC3_161227A			Analysis Date:	12/27/2016 9:20:09 AM			Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chloride	24.5	1.00	25.00	0	97.9	90	110			
Sulfate	74.2	3.00	75.00	0	98.9	90	110			

Sample ID	CCV1-161227	Batch ID:	R89679	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC3_161227A	Analysis Date:	12/27/2016 4:39:54 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	9.60	1.00	10.00	0	96.0	90	110			
Sulfate	29.5	3.00	30.00	0	98.5	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_161227A

The QC data in batch 78476 applies to the following samples: 1612163-11D, 1612163-12D, 1612163-13D, 1612163-14D, 1612163-15D, 1612163-16D, 1612163-17D, 1612163-18D, 1612163-19D, 1612163-20D, 1612163-21D, 1612163-22D, 1612163-23D, 1612163-24D, 1612163-25D

Sample ID	MB-78476	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	MBLK	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 10:04:17 A	Prep Date:	12/27/2016			
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-78476	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	LCS	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 10:19:16 A	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.86	1.00	10.00	0	98.6	90	110			
Sulfate	29.1	3.00	30.00	0	97.0	90	110			

Sample ID	LCSD-78476	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	LCSD	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 10:34:17 A	Prep Date:	12/27/2016			
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	0.093	20	
Sulfate	29.2	3.00	30.00	0	97.4	90	110	0.386	20	

Sample ID	1612163-14DMS	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 7:19:31 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2140	100	2000	183.8	97.8	90	110			
Sulfate	3710	300	2000	1625	104	90	110			

Sample ID	1612163-14DMSD	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 7:34:31 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2020	100	2000	183.8	91.7	90	110	5.82	20	
Sulfate	3560	300	2000	1625	96.8	90	110	3.94	20	

Sample ID	1612163-15DMS	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	MS	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 7:49:31 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2130	100	2000	120.9	100	90	110			
Sulfate	3670	300	2000	1578	105	90	110			

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

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

CLIENT: Larson & Associates

Work Order: 1612163

Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_161227A

Sample ID	1612163-15DMSD	Batch ID:	78476	TestNo:	E300	Units:	mg/L			
SampType:	MSD	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 8:04:31 PM	Prep Date:	12/27/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2050	100	2000	120.9	96.6	90	110	3.72	20	
Sulfate	3620	300	2000	1578	102	90	110	1.53	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_161227A

Sample ID	ICV-161227			Batch ID:	R89682			TestNo:	E300			Units:	mg/L		
SampType:	ICV			Run ID:	IC4_161227A			Analysis Date:	12/27/2016 9:22:58 AM			Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chloride	24.1	1.00	25.00	0	96.6	90	110			
Sulfate	73.8	3.00	75.00	0	98.4	90	110			

Sample ID	CCV1-161227	Batch ID:	R89682	TestNo:	E300	Units:	mg/L			
SampType:	CCV	Run ID:	IC4_161227A	Analysis Date:	12/27/2016 1:46:44 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	29.7	3.00	30.00	0	98.9	90	110			

Sample ID	CCV2-161227		Batch ID:	R89682		TestNo:	E300		Units:	mg/L	
SampType:	CCV		Run ID:	IC4_161227A		Analysis Date:	12/27/2016 4:03:23 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	29.7	3.00	30.00	0	98.9	90	110			

Sample ID	CCV3-161227			Batch ID:	R89682			TestNo:	E300			Units:	mg/L		
SampType:	CCV			Run ID:	IC4_161227A			Analysis Date:	12/27/2016 8:34:31 PM			Prep Date:			
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Chloride	10.4	1.00	10.00	0	104	90	110			
Sulfate	30.0	3.00	30.00	0	100	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161216B

The QC data in batch 78331 applies to the following samples: 1612163-29D, 1612163-30D

Sample ID	MB-78331	Batch ID:	78331	TestNo:	M2320 B	Units:	mg/L @ pH 4.36			
SampType:	MBLK	Run ID:	TITRATOR_161216B	Analysis Date:	12/16/2016 9:38:00 AM	Prep Date:	12/16/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID	LCS-78331			Batch ID:	78331		TestNo:	M2320 B		Units:	mg/L @ pH 4.41	
SampType:	LCS			Run ID:	TITRATOR_161216B		Analysis Date:	12/16/2016 9:42:00 AM		Prep Date:	12/16/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Total (As CaCO3)	244	20.0	250.0	0	97.6	74	129			
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Sample ID	1612163-30D-DUP			Batch ID:	78331		TestNo:	M2320 B		Units:	mg/L @ pH 4.51	
SampType:	DUP			Run ID:	TITRATOR_161216B		Analysis Date:	12/16/2016 11:39:00 A		Prep Date:	12/16/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	7780	20.0	0	7873				1.25	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	7780	20.0	0	7873				1.25	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161216B

Sample ID	ICV-161216	Batch ID:	R89489		TestNo:	M2320 B		Units:	mg/L @ pH 4.5	
SampType:	ICV	Run ID:	TITRATOR_161216B		Analysis Date:	12/16/2016 9:28:00 AM		Prep Date:	12/16/2016	
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	4.80	20.0	0							
Alkalinity, Carbonate (As CaCO3)	504	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	509	20.0	500.0	0	102	98	102			

Sample ID	CCV-161216	Batch ID:	R89489	TestNo:	M2320 B	Units:	mg/L @ pH 4.5			
SampType:	CCV	Run ID:	TITRATOR_161216B	Analysis Date:	12/16/2016 11:49:00 A	Prep Date:	12/16/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	6.00	20.0	0							
Alkalinity, Carbonate (As CaCO3)	482	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	488	20.0	500.0	0	97.7	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161219A

The QC data in batch 78371 applies to the following samples: 1612163-01D, 1612163-02D, 1612163-03D, 1612163-04D, 1612163-05D, 1612163-06D, 1612163-07D, 1612163-08D, 1612163-09D, 1612163-10D, 1612163-11D, 1612163-12D

Sample ID	MB-78371	Batch ID:	78371	TestNo:	M2320 B	Units:	mg/L @ pH 4.46			
SampType:	MBLK	Run ID:	TITRATOR_161219A	Analysis Date:	12/19/2016 1:13:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID	LCS-78371			Batch ID:	78371		TestNo:	M2320 B		Units:	mg/L @ pH 4.51	
SampType:	LCS			Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 1:18:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Total (As CaCO3)	52.3	20.0	50.00	0	105	74	129			
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Sample ID	1612156-01B-DUP			Batch ID:	78371		TestNo:	M2320 B		Units:	mg/L @ pH 4.54	
SampType:	DUP			Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 1:57:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Alkalinity, Bicarbonate (As CaCO3)	435	20.0	0	442.8				1.78	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	435	20.0	0	442.8				1.78	20	

Sample ID	1612163-01D-DUP			Batch ID:	78371		TestNo:	M2320 B		Units:	mg/L @ pH 4.34	
SampType:	DUP			Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 4:08:00 PM		Prep Date:	12/19/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	247	20.0	0	245.6				0.487	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	247	20.0	0	245.6				0.487	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161219A

Sample ID	ICV-161219			Batch ID:	R89547		TestNo:	M2320 B		Units:	mg/L @ pH 4.5			
SampType:	ICV			Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 1:04:00 PM		Prep Date:	12/19/2016			
Analyte	Result			RL	SPK value		Ref Val	%REC		LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	5.92	20.0	0							
Alkalinity, Carbonate (As CaCO3)	94.2	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	100	20.0	100.0	0	100	98	102			

Sample ID	CCV1-161219	Batch ID:	R89547	TestNo:	M2320 B	Units:	mg/L @ pH 4.52			
SampType:	CCV	Run ID:	TITRATOR_161219A	Analysis Date:	12/19/2016 4:00:00 PM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	26.6	20.0	0							
Alkalinity, Carbonate (As CaCO3)	74.4	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	101	20.0	100.0	0	101	90	110			

Sample ID	CCV2-161219		Batch ID:	R89547		TestNo:	M2320 B		Units:	mg/L @ pH 4.51	
SampType:	CCV		Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 5:36:00 PM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	6.08	20.0	0							
Alkalinity, Carbonate (As CaCO3)	95.8	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Sample ID	CCV3-161219			Batch ID:	R89547		TestNo:	M2320 B		Units:	mg/L @ pH 4.5	
SampType:	CCV			Run ID:	TITRATOR_161219A		Analysis Date:	12/19/2016 5:56:00 PM		Prep Date:	12/19/2016	
Analyte	Result			RL	SPK value		Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Alkalinity, Bicarbonate (As CaCO3)	10.2	20.0	0							
Alkalinity, Carbonate (As CaCO3)	92.0	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161222A

The QC data in batch 78442 applies to the following samples: 1612163-13D, 1612163-14D, 1612163-15D, 1612163-16D, 1612163-17D, 1612163-18D, 1612163-19D, 1612163-20D, 1612163-21D, 1612163-22D, 1612163-23D, 1612163-24D, 1612163-25D, 1612163-26D, 1612163-27D, 1612163-28D

Sample ID MB-78442	Batch ID: 78442	TestNo: M2320 B	Units: mg/L @ pH 4.48
SampType: MBLK	Run ID: TITRATOR_161222A	Analysis Date: 12/22/2016 12:31:00 P	Prep Date: 12/22/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0								
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0								
Alkalinity, Total (As CaCO3)	<20.0	20.0								

Sample ID LCS-78442	Batch ID: 78442	TestNo: M2320 B	Units: mg/L @ pH 4.49
SampType: LCS	Run ID: TITRATOR_161222A	Analysis Date: 12/22/2016 12:35:00 P	Prep Date: 12/22/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	52.7	20.0	50.00	0	105	74	129			

Sample ID 1612163-13D-DUP	Batch ID: 78442	TestNo: M2320 B	Units: mg/L @ pH 4.53
SampType: DUP	Run ID: TITRATOR_161222A	Analysis Date: 12/22/2016 1:10:00 PM	Prep Date: 12/22/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	704	20.0	0	711.8				1.13	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	704	20.0	0	711.8				1.13	20	

Sample ID 1612189-01B-DUP	Batch ID: 78442	TestNo: M2320 B	Units: mg/L @ pH 4.13
SampType: DUP	Run ID: TITRATOR_161222A	Analysis Date: 12/22/2016 4:19:00 PM	Prep Date: 12/22/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	180	20.0	0	183.6				2.09	20	
Alkalinity, Carbonate (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	180	20.0	0	183.6				2.09	20	

Qualifiers:

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_161222A

Sample ID	ICV-161222			Batch ID:	R89607		TestNo:	M2320 B		Units:	mg/L @ pH 4.52	
SampType:	ICV			Run ID:	TITRATOR_161222A		Analysis Date:	12/22/2016 12:25:00 P		Prep Date:	12/22/2016	
Analyte	Result			RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	17.0	20.0	0							
Alkalinity, Carbonate (As CaCO3)	82.7	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	99.7	20.0	100.0	0	99.7	98	102			

Sample ID	CCV1-161222		Batch ID:	R89607		TestNo:	M2320 B		Units:	mg/L @ pH 4.52		
SampType:	CCV		Run ID:	TITRATOR_161222A		Analysis Date:	12/22/2016 2:38:00 PM		Prep Date:	12/22/2016		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	31.7	20.0	0							
Alkalinity, Carbonate (As CaCO3)	69.3	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	101	20.0	100.0	0	101	90	110			

Sample ID	CCV2-161222		Batch ID:	R89607		TestNo:	M2320 B		Units:	mg/L @ pH 4.53		
SampType:	CCV		Run ID:	TITRATOR_161222A		Analysis Date:	12/22/2016 4:26:00 PM		Prep Date:	12/22/2016		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	41.8	20.0	0							
Alkalinity, Carbonate (As CaCO3)	58.4	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	100	20.0	100.0	0	100	90	110			

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: WC_161219C

The QC data in batch 78352 applies to the following samples: 1612163-06D, 1612163-07D, 1612163-08D, 1612163-09D, 1612163-10D, 1612163-11D, 1612163-12D

Sample ID	MB-78352	Batch ID:	78352	TestNo:	M2540C	Units:	mg/L			
SampType:	MBLK	Run ID:	WC_161219C	Analysis Date:	12/20/2016 8:41:00 AM	Prep Date:	12/19/2016			
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-78352		Batch ID:	78352		TestNo:	M2540C		Units:	mg/L	
SampType:	LCS		Run ID:	WC_161219C		Analysis Date:	12/20/2016 8:41:00 AM		Prep Date:	12/19/2016	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 750 10.0 745.6 0 101 90 113

Sample ID	1612144-02D-DUP	Batch ID:	78352	TestNo:	M2540C	Units:	mg/L			
SampType:	DUP	Run ID:	WC_161219C	Analysis Date:	12/20/2016 8:41:00 AM	Prep Date:	12/19/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filtera 239 10.0 0 245.0 2.48 5

Sample ID	1612167-02D-DUP			Batch ID:	78352			TestNo:	M2540C			Units:	mg/L		
SampType:	DUP			Run ID:	WC_161219C			Analysis Date:	12/20/2016 8:41:00 AM			Prep Date:	12/19/2016		
Analyte				Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

Total Dissolved Solids (Residue, Filtera 1100 10.0 0 1128 2.15 5

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: WC_161220A

The QC data in batch 78399 applies to the following samples: 1612163-13D, 1612163-14D, 1612163-15D, 1612163-16D, 1612163-17D, 1612163-18D, 1612163-19D, 1612163-20D, 1612163-21D, 1612163-22D, 1612163-23D, 1612163-24D

Sample ID	MB-78399	Batch ID:	78399	TestNo:	M2540C	Units:	mg/L
SampType:	MBLK	Run ID:	WC_161220A	Analysis Date:	12/21/2016 8:45:00 AM	Prep Date:	12/20/2016
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-78399	Batch ID:	78399	TestNo:	M2540C	Units:	mg/L
SampType:	LCS	Run ID:	WC_161220A	Analysis Date:	12/21/2016 8:45:00 AM	Prep Date:	12/20/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 757 10.0 745.6 0 102 90 113

Sample ID	1612145-01D-DUP	Batch ID:	78399	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_161220A	Analysis Date:	12/21/2016 8:45:00 AM	Prep Date:	12/20/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 1520 50.0 0 1475 3.33 5

Sample ID	1612198-01C-DUP	Batch ID:	78399	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_161220A	Analysis Date:	12/21/2016 8:45:00 AM	Prep Date:	12/20/2016
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 568 10.0 0 543.0 4.50 5

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

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

CLIENT: Larson & Associates
Work Order: 1612163
Project: Empire ABO

ANALYTICAL QC SUMMARY REPORT

RunID: WC_161221C

The QC data in batch 78406 applies to the following samples: 1612163-01D, 1612163-02D, 1612163-03D, 1612163-04D, 1612163-05D, 1612163-25D, 1612163-26D, 1612163-27D, 1612163-28D, 1612163-29D, 1612163-30D

Sample ID	MB-78406	Batch ID:	78406	TestNo:	M2540C	Units:	mg/L			
SampType:	MBLK	Run ID:	WC_161221C	Analysis Date:	12/22/2016 8:40:00 AM	Prep Date:	12/21/2016			
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-78406	Batch ID:	78406	TestNo:	M2540C	Units:	mg/L			
SampType:	LCS	Run ID:	WC_161221C	Analysis Date:	12/22/2016 8:40:00 AM	Prep Date:	12/21/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 753 10.0 745.6 0 101 90 113

Sample ID	1612163-27D-DUP	Batch ID:	78406	TestNo:	M2540C	Units:	mg/L			
SampType:	DUP	Run ID:	WC_161221C	Analysis Date:	12/22/2016 8:40:00 AM	Prep Date:	12/21/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 3610 50.0 0 3725 3.27 5

Sample ID	1612205-03D-DUP	Batch ID:	78406	TestNo:	M2540C	Units:	mg/L			
SampType:	DUP	Run ID:	WC_161221C	Analysis Date:	12/22/2016 8:40:00 AM	Prep Date:	12/21/2016			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 486 10.0 0 483.0 0.619 5

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

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