FIRST SEMI-ANNUAL & BIENNIAL 2015 MONITORING REPORT

Groundwater Quality Monitoring Program
Active Oil and Gas Well Sites
Longmont, Colorado

September 15, 2015
Terracon Project No. 25147063

Prepared for:
City of Longmont
Longmont, Colorado

Prepared by:
Terracon Consultants, Inc.
Wheat Ridge, Colorado

September 15, 2015

Terracon

City of Longmont
7 South Sunset Street
Longmont, Colorado 80501

Attn: Mr. Dan Wolford
P: (303) 774-4691
Dan.Wolford@ci.longmont.co.us

Re: First Semi-Annual & Biennial 2015 Monitoring Report
Groundwater Quality Monitoring Program
Active Oil and Gas Well Sites
Longmont, Colorado
Terracon Project No. 25147063

Dear Mr. Wolford:

Terracon Consultants, Inc. (Terracon) is pleased to submit our report of the First Semi-Annual and Biennial 2015 Groundwater Quality Monitoring Program activities completed at eleven of the active oil and gas (O&G) well sites located in the City of Longmont, Colorado between County Road 1 and County Road 7. The report presents data from recent field activities that included the collection of groundwater samples for laboratory analysis. The activities were completed to address the findings presented in the *2012 Annual Oil & Gas Wellhead Reconnaissance Report* dated August 21, 2012, the *First Quarter 2013 Monitoring Report* dated May 31, 2013, the *Third Quarter 2013 Monitoring Report* dated December 31, 2013, and the *First Semi-Annual 2014 Monitoring Report*, dated October 16, 2014. Terracon conducted the monitoring in general accordance with our proposal (P25130874) dated July 15, 2014, and the Sampling and Analysis Plan dated February 1, 2013.

Terracon appreciates this opportunity to provide environmental services to the City of Longmont. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Jonathan P. Anstey, P.G.
Senior Project Geologist

Daniel F. Schneider, P.E., CHMM
Principal/Environmental Program Manager

Terracon

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LONGMONT, COLORADO

Terracon Project No. 25147063
September 15, 2015

1.0 SITE DESCRIPTION

The active oil and gas (O&G) well sites are located within the City of Longmont, Colorado (the City) between County Road 1 and County Road 7. Originally, 9 well sites and one associated tank battery were assessed in March 2013 for potential impacts to groundwater as follows:

- City of Longmont #1
- Domenico #1;
- Evans #6 Wellhead;
- Evans #6 Tank Battery;
- Longmont #8-10K;
- Powell #1;
- Serafini Gas Unit;
- Sherwood #1;
- Sherwood #2; and,
- Stamp 31-2C.

At the direction of the City, the six previously-installed monitoring wells at the Rider #1 Well Site were added to the semi-annual monitoring event list for the July 2014 sampling event. The well site locations are shown on Figure 1. The first half 2015 monitoring event included both the semi-annual and biennial sampling sites outlined in Terracon Proposal Number P25130874.

2.0 SCOPE OF SERVICES

In 2012, Terracon performed an inspection of each of the well sites for the City (Terracon Project No. 25127040). The *2012 Annual Oil & Gas Wellhead Reconnaissance Report* (Terracon, 2012) dated August 21, 2012 summarizes the equipment present at each of the well sites and Terracon's observations. Based on the request from the City and findings presented in the *2012 Annual Oil & Gas Wellhead Reconnaissance Report* this Groundwater Quality Monitoring Program was initiated.

The objective of the Groundwater Quality Monitoring Program is to evaluate groundwater quality beneath the active O&G well sites on the City's property by installing a network of groundwater monitoring wells, collecting groundwater samples, and analyzing the samples for the Colorado

Oil and Gas Conservation Commission (COGCC) recommended constituents for monitoring groundwater at O&G production facilities.

The initial monitoring event conducted in March 2013 included development of the Sampling and Analysis Plan (SAP), monitoring well installation and development, collection of groundwater samples, laboratory analysis, and reporting and consultation with the City. Subsequent monitoring events were conducted in October 2014. These monitoring events are summarized in the *First Quarter 2013 Monitoring Report*, dated May 31, 2013, the *Third Quarter 2013 Monitoring Report*, dated December 31, 2013, and the *First Semi-Annual 2014 Monitoring Report*, dated October 16, 2014.

Moreover, sampling frequency at a currently biennially well site will be modified to the semi-annual sampling frequency if a groundwater sample is reported with an exceedance of the COGCC standards or if an indicator parameter increases in concentration by more than 25% for two consecutive samples.

Conversely, sampling frequency at a currently semi-annual sampling well site will modified to eh biennial sampling if groundwater samples are reported with no exceedances of the COGCC standards and the indicator parameters decrease in the concentration by more than 25% or are non-detect for two consecutive sampling events.

2.1 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work (SOW) agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-11.

2.2 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from the services provided are based upon information derived from the on-site activities and other services performed under this SOW; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the sites contain no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during monitoring well construction and groundwater sampling. Subsurface conditions may vary from those encountered at specific borings or wells or during

other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of the services provided.

2.3 Reliance

This report has been prepared for the exclusive use of the City, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City and Terracon. Any unauthorized distribution or reuse is at the City's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and service agreement for the project.

3.0 FIELD INVESTIGATION

Terracon conducted the groundwater sampling activities under a site-specific Health and Safety Plan (HASP) developed for this project. Work was performed using Occupational Safety and Health Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, and protective boots.

Terracon developed a site-specific SAP, which included the following:

- Location of proposed boreholes/monitoring wells at each well site as agreed to by the City's representative, (Mr. Dan Wolford [Natural Resources Division, Manager of Open Space]);
- Types of samples to be collected and collection methods;
- Sample tests/analyses and methods; and,
- Quality control and quality assurance measures.

This monitoring event was conducted in general accordance to the SAP with modifications (the removal of sampling well sites from the sampling event, as described above).

3.1 Groundwater Sampling

Terracon used a combination of low-flow sampling techniques and hand bailing with a disposable bailer to purge and obtain+ a representative groundwater sample from the monitoring wells. The monitoring wells were sampled in accordance with "Terracon Field Methods for Petroleum Storage Tank Assessment, Remediation and Emergency Response", November 2013. After groundwater parameters of pH, temperature, and specific conductivity had stabilized, a groundwater sample was collected from each of the monitoring wells. The groundwater samples were placed in a laboratory provided, pre-cleaned containers and stored in a cooler with ice at 4°

(± 2°) Celsius during delivery to the laboratory. The samples were submitted under chain-of-custody protocol and analyzed for the parameters summarized in the table below in a standard turn-around time.

Analytical Constituents and Methods

Constituents	Analytical Method
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA Method 8260
Dissolved Gasses: Methane, Ethane and Ethene	RSK 175
Major Cations – Dissolved (Calcium, Iron, Magnesium, Potassium, and Sodium)	EPA Method 6010
Strontium	EPA Method 6010
Alkalinity	SM 2320B
Bromide	EPA Method 300.0
Chloride	EPA Method 300.0
Nitrate and Nitrite	EPA Method 353.2
Sulfate	EPA Method 300.0

The groundwater sample naming convention used is as follows:

- [Site Abbreviation]-[Well Designation]-[6 Digit Date: YYMMDD].
- Example: RD1-MW01-150401 is the groundwater sample collected from Rider Gas Unit well site, monitoring well MW01 on April 1, 2015.
- Note: In laboratory reports, monitoring wells on the Stamp 31-2C well site are identified without the site abbreviation (S31). Monitoring wells on the Evans #6, Sherwood #1, Sherwood #2, City of Longmont #1, Serafini Gas Unit, Powell #1, and Dominico #1 sites are identified without the 6 digit date.

The groundwater samples were submitted to Pace Analytical Services, Inc. (Pace) in Lenexa, Kansas. Pace performed Quality Analysis/Quality Control (QA/QC) during the analysis process of the groundwater samples. The QA/QC process involved completing a method blank, laboratory control sample, matrix spike, matrix spike duplicate, and a sample duplicate to test the accuracy and calibration of the laboratory equipment and processes.

During Terracon's site visit on March 31, 2015, Terracon observed monitoring wells MW01 through MW03 to be dry at the Longmont #8-10K site and monitoring well MW03, at the Powell #1 site, to be destroyed. On April 1, 2015, Stamp 31-2C Well site monitoring well MW02 was observed to be filled with sediment. The cause of the sediment in monitoring well MW02 is

unknown. Due to the observed conditions, Terracon was unable to collect a groundwater samples from the aforementioned monitoring wells.

4.0 RESULTS OF THE FIELD INVESTIGATION

4.1 Hydrogeology

Groundwater was encountered from 3.92 feet below top of casing (BTOC) as observed in monitoring well E6W-MW01 (Evans #6 Wellhead) to 12.52 feet BTOC as observed in PL1-MW02 (Powell #1). Groundwater elevations were observed ranging from 4,850.72 feet above mean sea level (amsl) in monitoring well DM1-MW02 (Domenico #1) to 4,952.84 feet amsl in monitoring well S31-MW01 (Stamp 31-2C). Depth to groundwater and groundwater elevation data are summarized in Table 1.

Depth to groundwater and groundwater elevation data were used to generate potentiometric surface maps and estimated groundwater flow direction. Figures 2 and 3 illustrate potentiometric surfaces based on the groundwater elevations as measured in March 2015 and April 2015 (Note: Figure 2 includes all the well sites except Stamp 31-2C, which is on Figure 3). Monitoring well elevation data was not available for the Rider #1 Well site; therefore a potentiometric surface map was not generated for this site.

As depicted on the potentiometric surface maps groundwater beneath most of the well site, in general, flows towards the St. Vrain Creek. The well site groundwater flow directions are as follows:

- Sherwood #1: northeast towards the St. Vrain Creek;
- Sherwood #2: northeast towards the St. Vrain Creek;
- City of Longmont #1: northeast towards the St. Vrain Creek;
- Serafini Gas Unit: northeast towards the St. Vrain Creek;
- Powell #1: east-northeast towards the St. Vrain Creek;
- Evans #6: southeast towards the St. Vrain Creek;
- Evans #6 Tank Battery: east-southeast towards the St. Vrain and Boulder Creeks;
- Domenico #1: northwest towards the St. Vrain Creek; and,

- Stamp 31-2C: southeast towards Union Reservoir.

5.0 ANALYTICAL RESULTS

The laboratory analytical report and chain-of-custody record are included in Appendix B. The groundwater analytical results are summarized in Table 2. The following sections summarize the results of the analytical testing.

Laboratory analytical results for the groundwater samples were compared to the groundwater standard applicable to oil and gas well sites, COGCC Table 910-1 standards (May 30, 2011). The Colorado Department of Public Health and Environment's (CDPHE) Basic Standards for Groundwater (January 31, 2013) are included for reference only as the groundwater samples were not collected from a drinking water source. A summary of constituent concentrations exceeding these standards in the groundwater samples is included in Table 2.

Groundwater samples were collected from the following sites: Sherwood #1 Wellhead (3 monitoring wells), Sherwood #2 Wellhead (3 monitoring wells), City of Longmont #1 Wellhead (3 monitoring wells), Serafini Gas Unit (3 monitoring wells), Powell #1 Wellhead (2 monitoring wells), Evans #6 Wellhead (3 monitoring wells), Evans #6 Tank Battery (3 monitoring wells), Domenico #1 Well site (3 monitoring wells), Stamp 31-2C Well site (5 monitoring wells), and Rider #1 Well site (6 monitoring wells); for a total of 35 samples. The groundwater analytical results are discussed in the following sections.

5.1 BTEX in Groundwater

5.1.1 Stamp 31-2C

BTEX compounds were detected in two groundwater samples at concentrations above the laboratory reporting limits at the Stamp 31-2C well site.

- Sample MW01-150401 was reported with a benzene concentration of 0.0014 milligrams per liter (mg/L), below the COGCC and CDPHE standard of 0.005 mg/L. MW01-150401 was also reported with an ethylbenzene concentration at 0.186 mg/L, below the COGCC and CDPHE standard of 0.7 mg/L.

- Sample MW03-140729 was reported with an ethylbenzene concentration at 0.0012 mg/L, below the COGCC and CDPHE standard of 0.7 mg/L. Historically, ethylbenzene was not detected in MW03 above laboratory detection limits.

5.1.2 Rider #1

BTEX compounds were detected in one groundwater sample at concentrations above the laboratory reporting limits at the Rider #1 Well site.

- Sample RD1-MW04-150401 had a reported concentration of ethylbenzene at 0.0021 mg/L, below the COGCC and CDPHE standard of 0.7 mg/L.

- Sample RD1-MW04-150401 had a reported concentration of total xylenes at 0.0253 mg/L, below the COGCC and CDPHE standard of 1.4 to 10 mg/L.

BTEX constituents were not detected in groundwater samples above the method reporting limits at the remaining sites during this sampling event.

5.2 Dissolved Gasses

Dissolved methane and ethane were detected above their respective laboratory reporting limits at the following sites. Dissolved ethene was not detected above the laboratory reporting limit in any of the samples collected.

5.2.1 Domenico #1

- Methane was reported in sample DMI-MW01 at a concentrations of 0.0625 mg/L.

5.2.2 Stamp 31-2C

- Methane was reported in samples MW01-150401 and MW03-150401 at concentrations of 0.372 mg/L and 0.104 mg/L, respectively.

- Ethane was reported in samples MW01-150401 and MW03-150401 at concentrations of 0.0094 mg/L and 0.0228 mg/L, respectively.

5.2.3 Rider #1

- Methane was reported in samples RD1-MW02-150401, RD1-MW03R-150401, RD1-MW04-150401, and RD1-MW05-150401 at concentrations of 0.0392 mg/L, 0.0734 mg/L, 0.0092 mg/L, and 0.0067 mg/L, respectively.

Dissolved methane in groundwater may be an indication of a release at an O&G production well site. Neither the COGCC nor the CDPHE have developed standards for methane in groundwater. The COGCC has developed standards for source water (which are water wells that are registered with Colorado Division of Water Resources (DWR), including household, domestic, livestock, irrigation, municipal/public, and commercial wells, permitted or adjudicated springs, or monitoring wells installed for the purpose of complying with groundwater baseline sampling and monitoring requirements) used for household, domestic, livestock, irrigation, municipal/public, or commercial

or other specifically in the Greater Wattenberg Area (GWA), of which the various well sites are located. Section 318.4.e.(4).G of the COGCC Rules and Regulations states that concentrations of methane greater than 1.0 mg/L require a gas compositional and stable isotope analysis of the methane to determine the source of the methane (thermogenic, biogenic or a mixture of the two). None of the groundwater samples with detections of methane exceeded 1.0 mg/L.

5.3 Inorganics in Groundwater

Inorganic cations and anions can be secondary indicators of well site releases associated with produced water. Neither CDPHE nor the COGCC have developed groundwater standards for the following indicator parameters: dissolved calcium, dissolved magnesium, dissolved potassium, dissolved sodium, strontium, alkalinity species, or bromide.

The COGCC has defined the groundwater standard exceedance concentrations for chloride and sulfate to be a regional background concentration with a multiplier of 1.25. Terracon utilized current and historical data for chloride and sulfate from the Sherwood #1 Wellhead, Sherwood #2 Wellhead, City of Longmont #1 Wellhead, Serafini Gas Unit, Powell #1 Wellhead, Evans #6 Wellhead, and Longmont 8-10K Wellhead sites (totaling 50 monitoring wells) to calculate respective regional background concentrations.

Assuming a Gaussian distribution of concentrations between the sites, Terracon determined the upper 95 percent confidence limit for the chloride and sulfate parameters and elected to utilize the empirical values as the respective regional background concentrations. Below is a summary table of the statistical analysis.

Statistical Analysis	Chloride	Sulfate
Mean	41.2	680
Standard Deviation	14.8	549
Sample Size	50	50
Confidence Coefficient	1.96	1.96
Upper 95% Limit	45.3	832
Lower 95% Limit	37.1	528

Moreover, in September 2013, the Colorado Front Range area experienced a historic precipitation event that caused extensive flooding throughout Saint Vrain Creek and Boulder Creek drainages. Specifically, the Powel #1 Well site, Evans #6 Wellhead, Evans #6 Tank Battery, Longmont #8-10K, and Domenico #1 Well site sampling locations were inundated as the Saint Vrain and Boulder Creeks exceeded respective channel capacity and overtopped their banks.

The inorganic analytes were reported with a general increase in concentration during the October 2013 sampling event that may be attributed to the historic flood event. During the March/April 2015 sampling event, the concentration of the inorganic parameters generally decreased in the biennial sampling sites (last sampled during the October 2013 event) and generally stabilized in the semi-annual sampling sites (last sampled during the July 2014 event). Sites with distinct inorganic analyte signatures or sites with special considerations are discussed below.

5.3.1 Evans #6 Tank Battery Inorganics in Groundwater

The Evans #6 Tank Battery inorganic analyte concentration trends appear to be inconsistent with what was observed at nearby sites; namely the Evans #6 Wellhead. The analytical results are summarized below.

Upgradient monitoring well, E6T-MW01:

- Groundwater sample from E6T-MW01, was reported with a general stabilization of inorganic parameters relative to the July 2014 sampling event. The measured concentrations of inorganic analytes in the upgradient well have returned to concentrations consistent with the pre-flood condition.

- The concentration of chloride was detected at 96.5 mg/L, an exceedance of the COGCC statistical regional background standard of 56.6 mg/L. Historic concentrations of chloride have fluctuated 16% relative to the current value, with a maximum concentration of 112 mg/L measured in March 2013.

- The concentration of sulfate was detected at 2,590 mg/L, an exceedance of the COGCC statistical regional background standard and CDPHE groundwater standard of 1,040 mg/L and 250 mg/L, respectively. Historic concentrations of sulfate have fluctuated 23% relative to the current value, with a maximum concentration of 3,190 mg/L measured in October 2013.

- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

Cross-gradient monitoring well, E6T-MW03:

- Groundwater sample from E6T-MW03, was reported with an increase in dissolved iron and strontium. The remaining parameters were reported with a decrease in concentration from July 2014. However, all of the inorganic parameters remain elevated relative to the pre-flood condition, with the exception of dissolved potassium and alkalinity.

- The detected concentration of dissolved iron, 9.73 mg/L, in is approximately 4,500% greater that the historical maximum of 0.212 mg/L, measured in October 2013.

- The detected concentration of strontium, 9.29 mg/L, in is approximately 270% greater than the July 2014 value.

- The chloride concentration of 165 mg/L is in exceedance of the COGCC statistical regional background concentration standard of 56.6 mg/L.

- The sulfate concentration of 4,970 mg/L is in exceedance of the COGCC statistical regional background standard and the CDPHE domestic supply drinking water standard of 1,040 mg/L and 250 mg/L, respectively.

- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

Downgradient monitoring well, E6T-MW02:

- Groundwater sample from E6T-MW02, was reported with a general increase of inorganic parameters with the exception of dissolved potassium and alkalinity.

- The largest observed relative increases in concentration since the July 2014 sampling event were dissolved sodium, dissolved magnesium, and strontium; respectively.

- The chloride concentration of 129 mg/L is in exceedance of the COGCC statistical regional background concentration standard of 56.6 mg/L.

- The sulfate concentration of 3,610 mg/L is in exceedance of the COGCC statistical regional background standard and the CDPHE domestic supply drinking water standard of 1,040 mg/L and 250 mg/L, respectively.

- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

5.3.2 Domenico #1 Well Site Inorganics in Groundwater

The Domenico #1 Well Site inorganic analyte concentrations generally stabilized during the March/April 2015 sampling event. However, monitoring well specific exceedances are discussed below.

Upgradient monitoring well, DMI-MW01:

- The chloride concentration of 72.2 mg/L is in exceedance of the COGCC statistical regional background concentration standard of 56.6 mg/L.
- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

Cross-gradient monitoring well, DMI-MW02:

- The chloride concentration of 112 mg/L is in exceedance of the COGCC statistical regional background concentration standard of 56.6 mg/L.
- The sulfate concentration of 339 mg/L is in exceedance of the CDPHE domestic supply drinking water standard of 250 mg/L.
- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

Downgradient monitoring well, DMI-MW03:

- The chloride concentration of 108 mg/L is in exceedance of the COGCC statistical regional background concentration standard of 56.6 mg/L.
- The sulfate concentration of 577 mg/L is in exceedance of the CDPHE domestic supply drinking water standard of 250 mg/L.
- None of the remaining parameters were in exceedance of either the CDPHE or COGCC thresholds.

5.3.3 Stamp 31-2C Well Site Inorganics in Groundwater

The Stamp 31-2C Well site is not located within the Saint Vrain or Boulder Creek floodplains. The analytical results for the Stamp 31-2C Well site are summarized below.

- The chloride concentrations detected in monitoring wells MW03, MW04, MW05, and MW06 exceeded the COGCC statistical regional background concentration standard of 56.6 mg/L with measured concentrations between 64.8 mg/L and 162 mg/L. The chloride concentration detected in MW01 exceeded both the COGCC statistical region background concentration standard and the CDPHE domestic drinking water supply standard of 56.6 mg/L and 250 mg/L, respectively, with a measured concentration of 762 mg/L.

- The sulfate concentration in all the sampled wells exceeded the COGCC statistical region background standard and the CDPHE domestic drinking water supply standard of 1,040 mg/L and 250 mg/L, respectively, with measured concentrations between 5,250 mg/L and 7,340 mg/L.

5.4 General Groundwater Parameters

Specific conductance was reported in the groundwater samples ranging from 1,135 to 12,985 micro Siemens per centimeter (µmhos/cm). Relatively higher concentrations of specific conductance were reported in groundwater samples with higher concentrations of alkalinity, bromide, chloride, nitrate, nitrite, sulfate and sulfide.

Groundwater samples were reported to have a neutral pH (i.e. near 7.0); pH values measured during purging were reported in a range from 7.01 to 7.95, which is within the range of CDPHE's drinking water standard for pH of 6.5 to 8.5.

6.0 CONCLUSIONS

Based on the scope of services described in this report and subject to the limitations described herein, Terracon concludes the following.

- Evans #6 Tank Battery site has persistent and/or increasing concentrations of dissolved iron, strontium, and dissolved sodium.

- BTEX compounds were not detected at concentrations that exceed the COGCC standards at the Stamp 31-2C Well site, however, ethylbenzene and benzene were measured at concentrations above the laboratory detection limit in well MW01. An ethylbenzene concentration above the laboratory detection limit, but below COGCC standard, was detected in MW03. Dissolved methane and ethane were detected in MW01 and MW03.

- BTEX compounds were not detected at concentrations above the COGCC standards at the Rider #1 Well site, however, ethylbenzene and total xylenes were

measured above the laboratory detection limit in monitoring well RD1-MW04. Additionally, dissolved methane was detected above the laboratory detection limit in monitoring wells RD1-MW02, RD1-MW03R, RD1-MW04, and RD1-MW05.

7.0 RECOMMENDATIONS

Terracon recommends the continued monitoring of the Evans #6 Wellhead, Evans #6 Tank Battery, Domenico #1 Well Site, Stamp 31-2C Well Site, and Rider #1 Well Site on a semi-annual basis and the Sherwood #1 Wellhead, Sherwood #2 Wellhead, City of Longmont #1 Wellhead, Serafini Gas Unit, Powell #1 Wellhead, and the City of Longmont #8-10K Wellhead on a biennial basis. The continued monitoring of the aforementioned sites will work to augment the existing data set. This information will be used to continuously assess the extent groundwater impacts are present, track trends in the groundwater quality, and/or if sites shall be added or removed from the semi-annual sampling list.

Additionally, Terracon recommends updating the established localized background groundwater concentrations for chloride and sulfate used to determine the COGCC Table 910-1 values for each applicable sampling event.

8.0 REFERENCES

Terracon 2012. 2012 Annual Oil & Gas Wellhead Reconnaissance Report, City of Longmont, Parks and Forestry Division, Longmont, Colorado, Terracon Project Number 25127040, August 21, 2012.

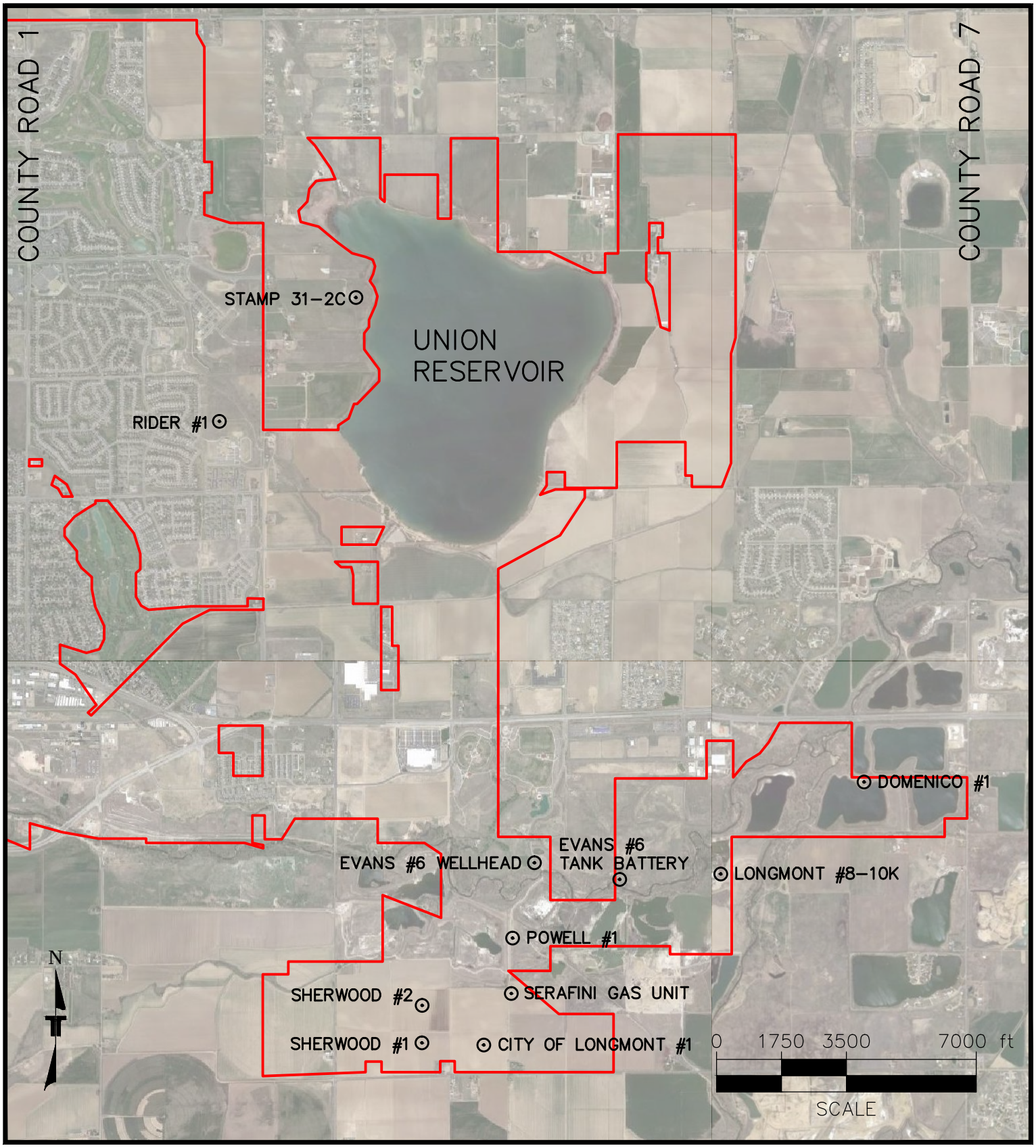
Terracon 2013a. Sampling and Analysis Plan, Groundwater Quality Monitoring Program, City of Longmont, Terracon Project Number 25127127, February 1, 2013.

Terracon 2013b. First Quarter 2013 Monitoring Report, Groundwater Quality Monitoring Program, Active Oil and Gas Well Sites, City of Longmont, Terracon Project Number 25127127, May 31, 2013.

Terracon 2013c. Third Quarter 2013 Monitoring Report, Groundwater Quality Monitoring Program, Active Oil and Gas Well Sites, City of Longmont, Terracon Project Number 25127127, December 31, 2013.

Terracon 2013d. First Semi-Annual 2014 Monitoring Report, Groundwater Quality Monitoring Program, Active Oil and Gas Well Sites, City of Longmont, Terracon Project Number 25147063, October 16, 2014.

APPENDIX A
TABLES AND FIGURES



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APPROVED:	DFS
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DATE:	05.13.2015

Terracon
Consulting Engineers & Scientists
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PH. (303) 423-3300 FAX. (303) 423-3353

WELL SITE LOCATIONS MAP

GROUNDWATER QUALITY MONITORING
CITY OF LONGMONT
LONGMONT, COLOROADO

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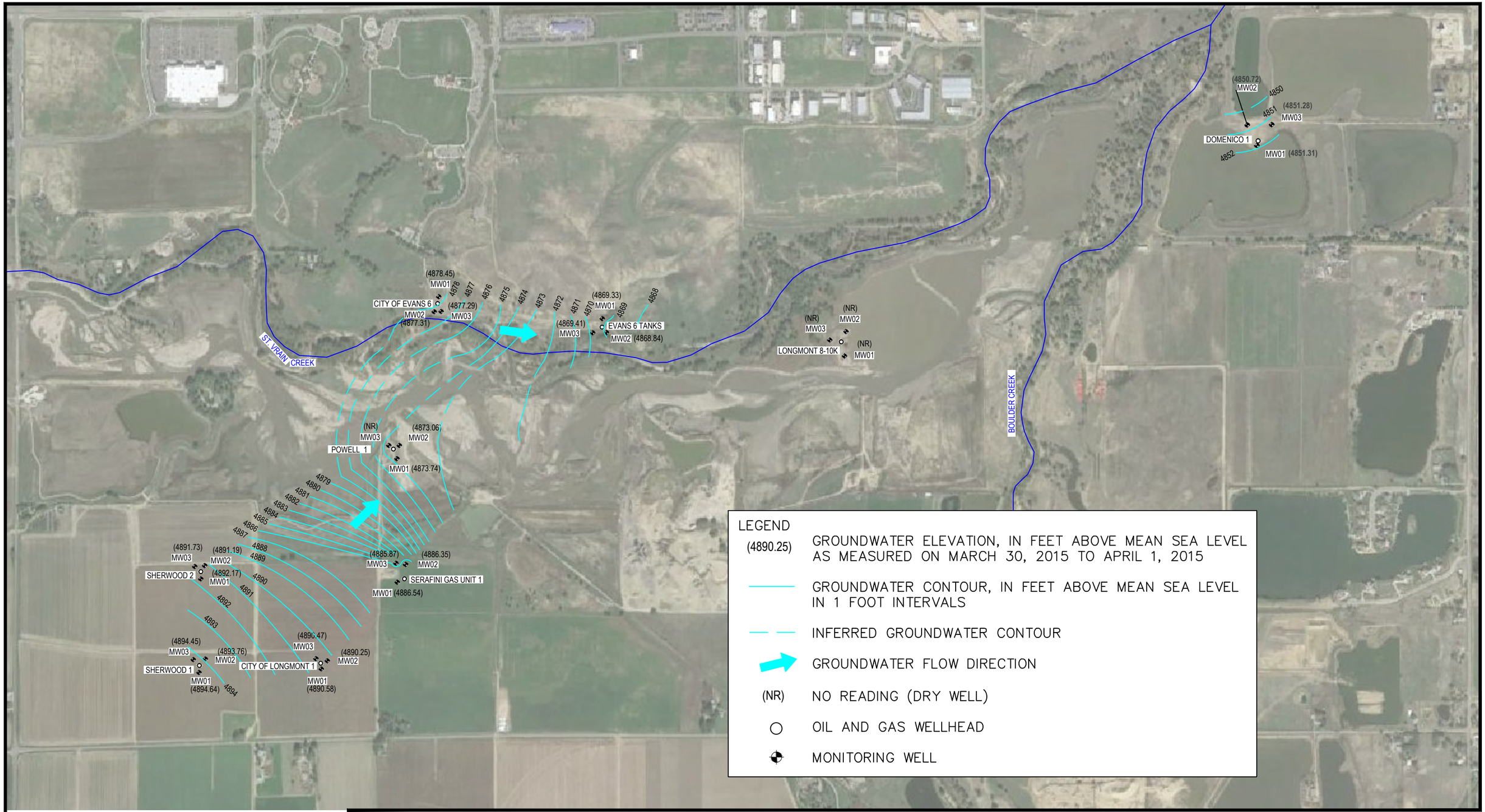
Figure No: 1



LEGEND

(4890.25)	GROUNDWATER ELEVATION, IN FEET ABOVE MEAN SEA LEVEL AS MEASURED ON MARCH 30, 2015 TO APRIL 1, 2015
	GROUNDWATER CONTOUR, IN FEET ABOVE MEAN SEA LEVEL IN 1 FOOT INTERVALS
	INFERRED GROUNDWATER CONTOUR
	GROUNDWATER FLOW DIRECTION
(NR)	NO READING (DRY WELL)
	OIL AND GAS WELLHEAD
	MONITORING WELL

N

0 500 1000 2000 ft

SCALE

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DRAWN BY:	SJB
CHECKED BY:	MJS
APPROVED BY:	DFS
PROJECT NO:	25147063
SCALE:	AS SHOWN
FILE NAME:	FIGURE 2.DWG
DATE:	05.06.2015

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POTENTIOMETRIC SURFACE MAP - VARIOUS WELL SITES

GROUNDWATER QUALITY MONITORING
CITY OF LONGMONT
LONGMONT, COLORADO

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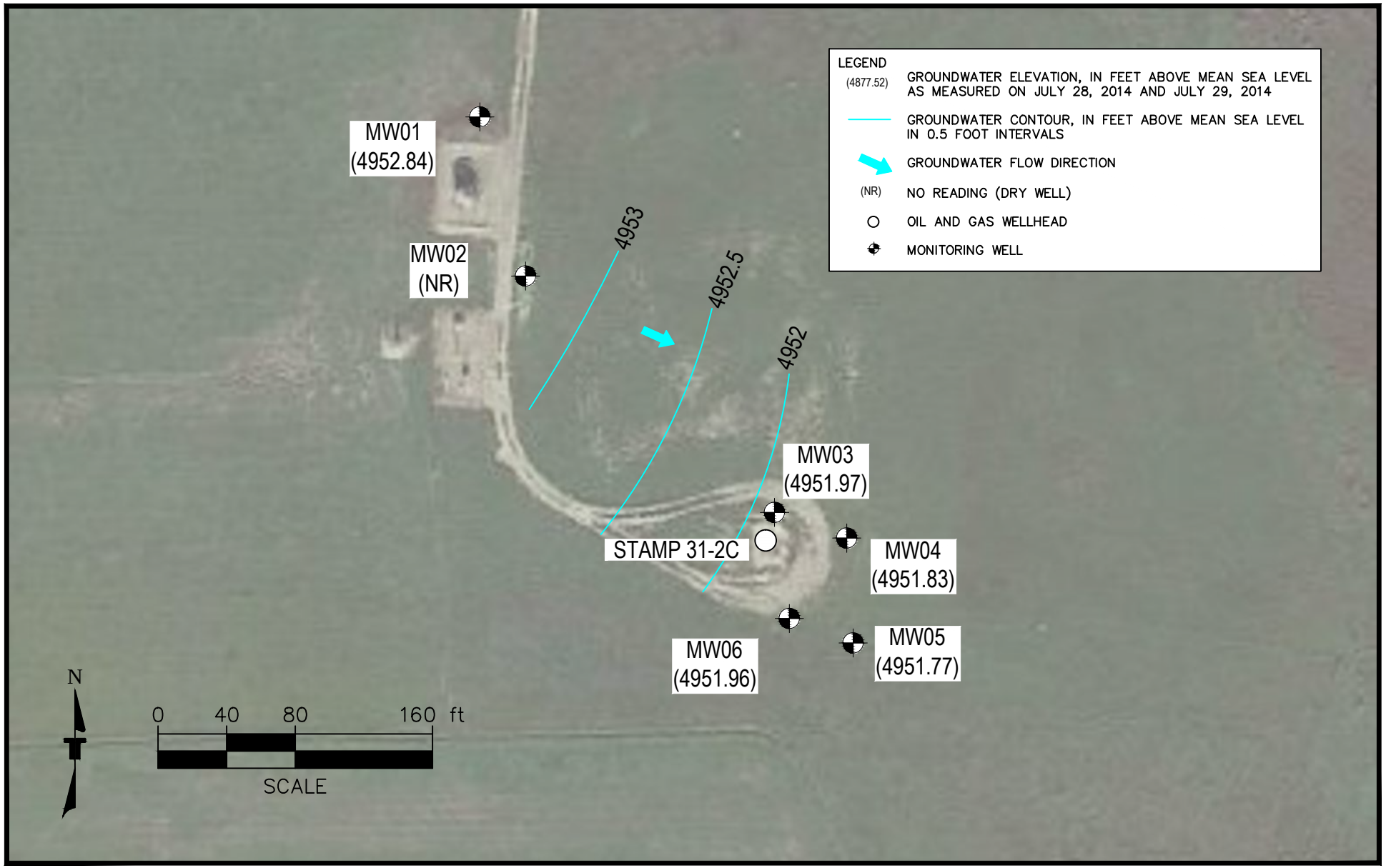
Figure Number:

2



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DATE:	05.12.2015

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POTENTIOMETRIC SURFACE MAP - STAMP 31-2C

GROUNDWATER QUALITY MONITORING
CITY OF LONGMONT
LONGMONT, COLORADO

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Figure No: 3

Table 1 - Groundwater Elevation Data
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

Well ID	Top of Casing Elevation	Date Measured	Depth to Groundwater	Groundwater Elevation
Sherwood #1 Wellhead				
SH1-MW01	4902.75	3/18/2013	8.49	4894.26
		10/23/2013	6.70	4896.05
		3/30/2015	8.11	4894.64
SH1-MW02	4900.99	3/18/2013	7.41	4893.58
		10/23/2013	6.30	4894.69
		3/30/2015	7.23	4893.76
SH1-MW03	4901.80	3/18/2013	7.64	4894.16
		10/23/2013	6.33	4895.47
		3/30/2015	7.35	4894.45
Sherwood #2 Wellhead				
SH2-MW01	4896.76	3/18/2013	5.20	4891.56
		3/30/2015	4.59	4892.17
SH2-MW02	4896.15	3/18/2013	5.71	4890.44
		3/30/2015	4.96	4891.19
SH2-MW03	4896.32	3/18/2013	5.11	4891.21
		3/30/2015	4.59	4891.73
City of Longmont #1 Wellhead				
CL1-MW01	4896.99	3/20/2013	6.42	4890.57
		3/30/2015	6.41	4890.58
CL1-MW02	4896.04	3/20/2013	5.75	4890.29
		3/30/2015	5.79	4890.25
CL1-MW03	4896.33	3/20/2013	5.86	4890.47
		3/30/2015	5.86	4890.47
Serafini Gas Unit				
SGU-MW01	4892.37	3/20/2013	5.52	4886.85
		10/22/2013	3.49	4888.88
		3/30/2015	5.83	4886.54
SGU-MW02	4891.42	3/21/2013	5.17	4886.25
		10/22/2013	3.45	4887.97
		3/30/2015	5.07	4886.35
SGU-MW03	4891.72	3/21/2013	5.59	4886.13
		10/22/2013	3.59	4888.13
		3/30/2015	5.85	4885.87
Powell #1 Wellhead				
PL1-MW01	4885.90	3/20/2013	11.91	4873.99
		3/31/2015	12.16	4873.74
PL1-MW02	4885.58	3/19/2013	12.00	4873.58
		3/31/2015	12.52	4873.06
PL1-MW03	4887.26	3/19/2013	13.04	4874.22
		3/31/2015	NR	<4873.40
Evans #6 Wellhead				
E6W-MW01	4882.37	3/22/2013	4.50	4877.87
		10/23/2013	4.80	4877.57
		7/28/2014	4.85	4877.52
		3/31/2015	3.92	4878.45
E6W-MW02	4882.45	3/22/2013	5.19	4877.26
		10/23/2013	6.50	4875.95
		7/28/2014	5.80	4876.65
		3/31/2015	5.14	4877.31
E6W-MW03	4881.53	3/22/2013	4.41	4877.12
		10/23/2013	5.15	4876.38
		7/28/2014	4.95	4876.58
		3/31/2015	4.24	4877.29

Table 1 - Groundwater Elevation Data
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

Well ID	Top of Casing Elevation	Date Measured	Depth to Groundwater	Groundwater Elevation
Evans #6 Tank Battery				
E6T-MW01	4879.08	3/22/2013	8.01	4871.07
		10/23/2013	8.16	4870.92
		7/28/2014	8.93	4870.15
		3/31/2015	9.75	4869.33
E6T-MW02	4877.68	3/22/2013	6.40	4871.28
		10/23/2013	7.47	4870.21
		7/28/2014	8.54	4869.14
		3/31/2015	8.84	4868.84
E6T-MW03	4878.03	3/22/2013	6.61	4871.42
		10/23/2013	7.62	4870.41
		7/28/2014	8.44	4869.59
		3/31/2015	8.62	4869.41
Longmont #8-10K Wellhead				
LG8-MW01	4868.80	3/22/2013	3.64	4865.16
		3/31/2015	NR	<4859.05
LG8-MW02	4869.03	3/22/2013	4.32	4864.71
		3/31/2015	NR	<4859.36
LG8-MW03	4869.11	3/22/2013	3.21	4865.90
		3/31/2015	NR	<4860.08
Domenico #1 Wellsite				
DM1-MW01	4857.64	3/19/2013	7.41	4850.23
		7/29/2014	6.11	4851.53
		3/31/2015	6.33	4851.31
DM1-MW02	4854.17	3/19/2013	3.97	4850.20
		7/29/2014	3.18	4850.99
		4/1/2015	3.45	4850.72
DM1-MW03	4855.27	3/19/2013	5.15	4850.12
		7/29/2014	9.05	4846.22
		4/1/2015	3.99	4851.28
Stamp 31-2C Wellsite				
S31-MW01	4957.15	3/22/2013	6.00	4951.15
		10/24/2013	3.08	4954.07
		7/29/2014	2.92	4954.23
		4/1/2015	4.31	4952.84
S31-MW02	4958.62	3/22/2013	8.55	4950.07
		10/24/2013	3.92	4954.70
		7/29/2014	NR	<4956.74
		4/1/2015	NR	<4956.74
S31-MW03	4958.27	10/24/2013	4.91	4953.36
		7/29/2014	5.24	4953.03
		4/1/2015	6.30	4951.97
S31-MW04	4957.11	3/22/2013	9.22	4947.89
		10/24/2013	4.11	4953.00
		7/29/2014	4.41	4952.70
		4/1/2015	5.28	4951.83
S31-MW05	4956.89	10/24/2013	4.11	4952.78
		7/29/2014	4.61	4952.28
		4/1/2015	5.12	4951.77
S31-MW06	4957.57	10/24/2013	4.20	4953.37
		7/29/2014	4.62	4952.95
		4/1/2015	5.61	4951.96

Table 1 - Groundwater Elevation Data
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

Well ID	Top of Casing Elevation	Date Measured	Depth to Groundwater	Groundwater Elevation
Rider #1 Wellsite				
RD1-MW01	Not Measured	7/30/2014	7.62	Not Measured
		4/1/2015	8.52	
RD1-MW02	Not Measured	7/30/2014	7.72	Not Measured
		4/1/2015	8.61	
RD1-MW03R	Not Measured	7/30/2014	7.22	Not Measured
		4/1/2015	8.18	
RD1-MW04	Not Measured	7/30/2014	7.70	Not Measured
		4/1/2015	8.58	
RD1-MW05	Not Measured	7/30/2014	7.95	Not Measured
		4/1/2015	8.71	
RD1-MW06	Not Measured	7/30/2014	4.75	Not Measured
		4/1/2015	5.91	

*All survey information is in Datum: NAD 83, Colorado North Zone NAVD 88
Elevation is measured in feet above mean sea level
Depth to groundwater is mesured in feet below top of casing
NR - No Reading

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Sherwood #1 Wellhead								
				Well ID	SH1-MW1			SH1-MW2			SH1-MW3		
				Date	3/18/2013	10/23/2013	3/30/2015	3/18/2013	10/23/2013	3/30/2015	3/18/2013	10/23/2013	3/30/2015
Volatile Organic Compounds													
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds													
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	**0.0091**	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters													
7440-70-2	Calcium, Dissolved	---	---	mg/L	**92.1**	**82.8**	**98.4**	**101**	**91.1**	**92.5**	**92.8**	**84.2**	**91.6**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**110**	**107**	**137**	**99.7**	**96.4**	**122**	**107**	**106**	**126**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**2.57**	**1.63**	**1.43**	**3.06**	**1.85**	**1.37**	**2.26**	**1.68**	**1.42**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**118**	**110**	**152**	**117**	**111**	**139**	**115**	**107**	**136**
7440-24-6	Strontium	---	---	mg/L	**5.91**	**4.56**	**2.92**	**3.47**	**2.74**	**2.38**	**2.83**	**2.51**	**2.54**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**345**	**388**	**422**	**365**	**388**	**393**	**349**	**370**	**376**
	Alkalinity, Total as CaCO3	---	---	mg/L	**345**	**388**	**422**	**365**	**388**	**393**	**349**	**370**	**376**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	**1.2**	**1.8**	ND (1.0)	**1.2**	**1.5**	ND (1.0)	**1.1**	**1.4**
16887-00-6	Chloride	56.6*	250	mg/L	**37.5**	**35.7**	**50.6**	**37.5**	**45.2**	**44.4**	**36.6**	**35.8**	**43.9**
	Nitrogen as Nitrate	---	10	mg/L	**8.3**	**8.6**	**11.2**	**7.9**	**10.6**	**10.5**	**5.7**	**7.8**	**9.8**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**8.4**	**8.6**	**11.2**	**8**	**10.6**	**10.5**	**5.8**	**7.8**	**9.8**
14808-79-8	Sulfate	1040*	250	mg/L	**486**	**415**	**621**	**431**	**428**	**545**	**452**	**425**	**568**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	ND (0.050)	ND (0.050)	NS	ND (0.050)	ND (0.050)	NS
General Parameters													
	Specific Conductance	---	---	umhos/cm	**1590**	**1450**	**1923**	**1570**	**1500**	**1730**	**1600**	**1440**	**1788**
	pH	---	6.5 - 8.5	Std. Units	**7.6**	**7.0**	**7.52**	**7.5**	**7.0**	**7.58**	**7.6**	**7.0**	**7.56**

COGCC - Colorado Oil and Gas Conservation Commission
CDPHE - Colorado Department of Public Health and Environment
mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Sherwood #2 Wellhead					
				Well ID	SH2-MW1		SH2-MW2		SH2-MW3	
				Date	3/18/2013	3/30/2015	3/18/2013	3/30/2015	3/18/2013	3/30/2015
Volatile Organic Compounds										
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds										
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters										
7440-70-2	Calcium, Dissolved	---	---	mg/L	**189**	**169**	**225**	**183**	**220**	**192**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**121**	**107**	**121**	**105**	**115**	**93.9**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**3.86**	**1.21**	**5.72**	**3.61**	**4.69**	**5.74**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**102**	**108**	**111**	**110**	**104**	**109**
7440-24-6	Strontium	---	---	mg/L	**3.44**	**3.72**	**3.87**	**4.18**	**4.52**	**4.46**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**345**	**386**	**315**	**367**	**324**	**367**
	Alkalinity, Total as CaCO3	---	---	mg/L	**345**	**386**	**315**	**367**	**324**	**367**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**40.2**	**33.6**	**43.8**	**37.8**	**44.8**	**37.6**
	Nitrogen as Nitrate	---	10	mg/L	**11.4**	**11.0**	**13.6**	**11.8**	**13**	**11.4**
	Nitrogen as Nitrite	---	1	mg/L	**0.63**	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**12**	**11.0**	**13.8**	**11.8**	**13.1**	**11.4**
14808-79-8	Sulfate	1040*	250	mg/L	**799**	**712**	**824**	**749**	**847**	**802**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	ND (0.050)	NS	ND (0.050)	NS
General Parameters										
	Specific Conductance	---	---	umhos/cm	**1940**	**1935**	**2060**	**2029**	**2080**	**2007**
	pH	---	6.5 - 8.5	Std. Units	**7.5**	**7.47**	**7.4**	**7.43**	**7.4**	**7.36**

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CDPHE - Colorado Department of Public Health and Environment
mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	City of Longmont #1 Wellhead					
				Well ID	CL1-MW1		CL1-MW2		CL1-MW3	
				Date	3/20/2013	3/30/2015	3/20/2013	3/30/2015	3/21/2013	3/30/2015
Volatile Organic Compounds										
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds										
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters										
7440-70-2	Calcium, Dissolved	---	---	mg/L	**81.3**	**92.2**	**77.0**	**89.0**	**85.5**	**88.5**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**72.2**	**85.5**	**67.4**	**79.3**	**75.1**	**82.0**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**2.83**	**1.45**	**2.10**	**1.37**	**2.83**	**1.34**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**61.7**	**91.8**	**60.4**	**86.0**	**63.6**	**85.8**
7440-24-6	Strontium	---	---	mg/L	**2.38**	**2.53**	**4.26**	**2.34**	**3.45**	**2.59**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**377**	**427**	**354**	**420**	**389**	**423**
	Alkalinity, Total as CaCO3	---	---	mg/L	**377**	**427**	**354**	**420**	**389**	**423**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	**1.4**	ND (1.0)	**1.3**	ND (1.0)	**1.5**
16887-00-6	Chloride	56.6*	250	mg/L	**34.1**	**43.5**	**32.7**	**42.4**	**35.3**	**43.1**
	Nitrogen as Nitrate	---	10	mg/L	**13.9**	**16.7**	**2.6**	**16**	**14.8**	**16.6**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.50)	ND (1.0)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.50)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**13.9**	**16.7**	**2.6**	**16**	**14.9**	**16.6**
14808-79-8	Sulfate	1040*	250	mg/L	**182**	**254**	**171**	**243**	**189**	**247**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	ND (0.050)	NS	ND (0.050)	NS
General Parameters										
	Specific Conductance	---	---	umhos/cm	**1160**	**1390**	**1090**	**1333**	**1130**	**1357**
	pH	---	6.5 - 8.5	Std. Units	**7.9**	**7.51**	**7.9**	**7.53**	**7.7**	**7.56**

COGCC - Colorado Oil and Gas Conservation Commission
CDPHE - Colorado Department of Public Health and Environment
mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Serafini Gas Unit								
				Well ID	SGU-MW1			SGU-MW2			SGU-MW3		
				Date	3/20/2013	10/22/2013	3/30/2015	3/21/2013	10/22/2013	3/30/2015	3/21/2013	10/22/2013	3/30/2015
Volatile Organic Compounds													
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds													
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	**0.0087**	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters													
7440-70-2	Calcium, Dissolved	---	---	mg/L	**81.4**	**77.2**	**97.7**	**92.6**	**88.5**	**98.0**	**88.2**	**96.1**	**112**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	**0.208**	ND (0.050)	ND (0.050)	**0.381**	ND (0.050)	ND (0.050)	**0.0760**	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**53.7**	**54.7**	**63.8**	**57.8**	**54.5**	**63.7**	**49**	**50.5**	**59.1**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**3.59**	**2.88**	**2.46**	**3.39**	**2.63**	**2.23**	**3.94**	**1.91**	**1.74**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**67.2**	**62.5**	**76.8**	**78.6**	**53.3**	**59.3**	**47.7**	**50.3**	**64.0**
7440-24-6	Strontium	---	---	mg/L	**2.96**	**2.32**	**2.77**	**1.72**	**3.12**	**2.31**	**4.07**	**2.47**	**2.83**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**328**	**345**	**392**	**359**	**364**	**420**	**632**	**365**	**416**
	Alkalinity, Total as CaCO3	---	---	mg/L	**328**	**345**	**392**	**359**	**364**	**420**	**632**	**365**	**416**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**29.8**	**30.3**	**32.8**	**34.2**	**33.2**	**31.9**	**28.3**	**34.5**	**33.9**
	Nitrogen as Nitrate	---	10	mg/L	**5.9**	**7.4**	**8.4**	**7.2**	**8.4**	**8.0**	**4.4**	**10.1**	**8.6**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.20)	ND (0.50)	ND (0.50)	ND (0.20)	ND (0.50)	ND (0.50)	ND (0.10)	ND (1.0)	ND (1.0)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**5.9**	**7.4**	**8.4**	**7.3**	**8.4**	**8.0**	**4.4**	**10.1**	**8.6**
14808-79-8	Sulfate	1040*	250	mg/L	**191**	**292**	**263**	**228**	**243**	**258**	**152**	**252**	**259**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	ND (0.050)	ND (0.050)	NS	ND (0.050)	ND (0.050)	ND (0.050)
General Parameters													
	Specific Conductance	---	---	umhos/cm	**1060**	**1190**	**1322**	**1100**	**1150**	**1135**	**917**	**1160**	**1139**
	pH	---	6.5 - 8.5	Std. Units	**7.8**	**7.3**	**7.51**	**7.9**	**7.3**	**7.59**	**7.6**	**7.3**	**7.57**

COGCC - Colorado Oil and Gas Conservation Commission
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mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Powell #1 Wellhead				
				Well ID	PL1-MW1		PL1-MW2		PL1-MW3
				Date	3/20/2013	3/31/2015	3/19/2013	3/31/2015	3/19/2013
Volatile Organic Compounds									
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds									
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters									
7440-70-2	Calcium, Dissolved	---	---	mg/L	**95.3**	**92.1**	**106**	**129**	**86**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	0.393	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**73.2**	**71.8**	**75.9**	**95.9**	**63**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**2.28**	**1.25**	**2.33**	**2.25**	**3.02**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**65.3**	**63.5**	**115**	**119**	**58.6**
7440-24-6	Strontium	---	---	mg/L	**1.82**	**1.78**	**1.83**	**2.12**	**1.9**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**295**	**259**	**311**	**318**	**296**
	Alkalinity, Total as CaCO3	---	---	mg/L	**295**	**259**	**311**	**318**	**296**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	**1.1**	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**31.8**	**38.9**	**32.8**	**39.6**	**32.3**
	Nitrogen as Nitrate	---	10	mg/L	**5.9**	**10.0**	ND (0.10)	ND (0.10)	**0.58**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.20)	ND (1.0)	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**5.9**	**10.0**	ND (0.10)	ND (0.10)	**0.57**
14808-79-8	Sulfate	1040*	250	mg/L	**369**	**427**	**484**	**633**	**265**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	ND (0.050)	NS	ND (0.050)
General Parameters									
	Specific Conductance	---	---	umhos/cm	**1280**	**1315**	**1480**	**1707**	**1090**
	pH	---	6.5 - 8.5	Std. Units	**7.9**	**7.10**	**7.4**	**7.19**	**7.4**

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ND - Parameter not detected above the laboratory detection limit (Detection Limit)
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Bold indicates detected constituents
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*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
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Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Evans #6 Wellhead							
				Well ID	E6W-MW01				E6W-MW02			
				Date	3/22/2013	10/23/2013	07/28/2014	3/31/2015	3/22/2013	10/23/2013	7/28/2014	3/31/2015
Volatile Organic Compounds												
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds												
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	**0.0278**	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters												
7440-70-2	Calcium, Dissolved	---	---	mg/L	**183**	**281**	**206**	**207**	**207**	**329**	**187**	**181**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**126**	**182**	**133**	**136**	**175**	**279**	**139**	**150**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**6.52**	**7.58**	**6.41**	**4.36**	**10.6**	**42.4**	**22.7**	**15.3**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**157**	**236**	**181**	**172**	**212**	**419**	**189**	**188**
7440-24-6	Strontium	---	---	mg/L	**4.04**	**5.52**	**4.19**	**4.29**	**5.94**	**7.28**	**4.48**	**4.02**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**307**	**381**	**326**	**351**	**312**	**426**	**309**	**307**
	Alkalinity, Total as CaCO3	---	---	mg/L	**307**	**381**	**326**	**351**	**321**	**426**	**309**	**307**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	**1.5**	**1.0**	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**32.7**	**72.2**	**50.0**	**42.9**	**34.4**	**110**	**38.4**	**35.4**
	Nitrogen as Nitrate	---	10	mg/L	**0.44**	**5.0**	**0.84**	**0.83**	ND (0.10)	**14.5**	**2.6**	**0.58**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (1.0)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**0.44**	**5.0**	**0.84**	**0.83**	ND (0.10)	**14.5**	**2.6**	**0.58**
14808-79-8	Sulfate	1040*	250	mg/L	**987**	**1710**	**1130**	**1090**	**1380**	**2630**	**1350**	**1160**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS	ND (0.050)	ND (0.050)	NS	NS
General Parameters												
	Specific Conductance	---	---	umhos/cm	**2070**	**4960**	**2074**	**2397**	**2200**	**7000**	**2358**	**2472**
	pH	---	6.5 - 8.5	Std. Units	**7.6**	**6.0**	**7.18**	**7.27**	**7.8**	**6.0**	**7.27**	**7.47**

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CDPHE - Colorado Department of Public Health and Environment
mg/L - milligrams per liter
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Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Evans #6 Wellhead			
				Well ID	E6W-MW03			
				Date	3/22/2013	10/23/2013	07/28/2014	3/31/2015
Volatile Organic Compounds								
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds								
74-82-8	Methane	---	---	mg/L	**0.0141**	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters								
7440-70-2	Calcium, Dissolved	---	---	mg/L	**192**	**363**	**264**	**200**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**150**	**255**	**167**	**133**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**9.22**	**31.1**	**13.1**	**8.49**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**184**	**333**	**217**	**178**
7440-24-6	Strontium	---	---	mg/L	**5.73**	**7.09**	**5.34**	**4.02**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**312**	**367**	**315**	**327**
	Alkalinity, Total as CaCO3	---	---	mg/L	**312**	**367**	**315**	**327**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**31.1**	**96.2**	**52.4**	**40.8**
	Nitrogen as Nitrate	---	10	mg/L	**0.11**	**6.2**	**1.9**	**1.4**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**0.12**	**6.2**	**1.9**	**1.4**
14808-79-8	Sulfate	1040*	250	mg/L	**1130**	**2420**	**1550**	**1180**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS
General Parameters								
	Specific Conductance	---	---	umhos/cm	**2280**	**6320**	**2635**	**2481**
	pH	---	6.5 - 8.5	Std. Units	**7.6**	**6.0**	**7.15**	**7.34**

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mg/L - milligrams per liter
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umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
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Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Evans #6 Tank Battery							
				Well ID	E6T-MW01				E6T-MW02			
				Date	3/22/2013	10/23/2013	07/28/2014	3/31/2015	3/22/2013	10/23/2013	07/28/2014	3/31/2015
Volatile Organic Compounds												
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds												
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	ND (0.0066)	**0.0076**	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters												
7440-70-2	Calcium, Dissolved	---	---	mg/L	**326**	**306**	**280**	**258**	**238**	**271**	**393**	**430**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**285**	**256**	**215**	**205**	**181**	**210**	**297**	**392**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**12.1**	**6.61**	**5.80**	**4.81**	**7.41**	**6.58**	**7.56**	**7.24**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**593**	**666**	**446**	**608**	**247**	**334**	**356**	**563**
7440-24-6	Strontium	---	---	mg/L	**6.14**	**4.03**	**4.54**	**4.05**	**4.52**	**4.45**	**7.04**	**8.27**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**334**	**401**	**340**	**324**	**346**	**391**	**346**	**277**
	Alkalinity, Total as CaCO3	---	---	mg/L	**334**	**401**	**340**	**324**	**346**	**391**	**346**	**277**
24959-67-9	Bromide	---	---	mg/L	**1.2**	ND (1.0)	ND (1.0)	ND (1.0)	**1.2**	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**112**	**111**	**104**	**96.5**	**63.9**	**68.6**	**113**	**129**
	Nitrogen as Nitrate	---	10	mg/L	**0.93**	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	**16.6**	ND (0.10)	ND (0.10)
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (1.0)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**0.93**	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	**17.0**	ND (0.10)	ND (0.10)
14808-79-8	Sulfate	1040*	250	mg/L	**3060**	**3190**	**2840**	**2590**	**1560**	**1770**	**3080**	**3610**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS	ND (0.050)	ND (0.050)	NS	NS
General Parameters												
	Specific Conductance	---	---	umhos/cm	**5030**	**8280**	**4100**	**4706**	**2960**	**5640**	**3968**	**5745**
	pH	---	6.5 - 8.5	Std. Units	**7.8**	**7.0**	**7.47**	**7.42**	**7.6**	**6.0**	**7.44**	**7.28**

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CDPHE - Colorado Department of Public Health and Environment
mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Evans #6 Tank Battery			
				Well ID	E6T-MW03			
				Date	3/22/2013	10/23/2013	07/28/2014	3/31/2015
Volatile Organic Compounds								
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds								
74-82-8	Methane	---	---	mg/L	**0.0068**	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters								
7440-70-2	Calcium, Dissolved	---	---	mg/L	**354**	**516**	**530**	**432**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	**0.212**	ND (0.050)	**9.73**
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**350**	**644**	**680**	**543**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**11**	**8.43**	**7.48**	**6.25**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**500**	**992**	**1010**	**840**
7440-24-6	Strontium	---	---	mg/L	**7.86**	**10.1**	**2.51**	**9.29**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**524**	**732**	**468**	**301**
	Alkalinity, Total as CaCO3	---	---	mg/L	**524**	**732**	**468**	**301**
24959-67-9	Bromide	---	---	mg/L	**1.3**	**1.2**	**1.1**	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**103**	**249**	**254**	**165**
	Nitrogen as Nitrate	---	10	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
14808-79-8	Sulfate	1040*	250	mg/L	**2650**	**5200**	**6240**	**4970**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS
General Parameters								
	Specific Conductance	---	---	umhos/cm	**4830**	**13200**	**7162**	**7557**
	pH	---	6.5 - 8.5	Std. Units	**7.4**	**6.0**	**7.35**	**7.16**

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mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
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Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Longmont 8-10K Wellhead		
				Well ID	LG8-MW01	LG8-MW02	LG8-MW03
				Date	3/22/2013	3/22/2013	3/22/2013
Volatile Organic Compounds							
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds							
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters							
7440-70-2	Calcium, Dissolved	---	---	mg/L	**74.5**	**85.1**	**87**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**79.1**	**88.6**	**94.1**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**5.87**	**5.39**	**5.65**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**106**	**131**	**122**
7440-24-6	Strontium	---	---	mg/L	**3.03**	**1.97**	**2.87**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**204**	**234**	**244**
	Alkalinity, Total as CaCO3	---	---	mg/L	**204**	**234**	**244**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**40.1**	**42.9**	**42.1**
	Nitrogen as Nitrate	---	10	mg/L	**0.23**	**0.28**	ND (0.10)
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**0.24**	**0.29**	ND (0.10)
14808-79-8	Sulfate	1040*	250	mg/L	**496**	**548**	**530**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	ND (0.050)
General Parameters							
	Specific Conductance	---	---	umhos/cm	**1350**	**1540**	**1530**
	pH	---	6.5 - 8.5	Std. Units	**7.5**	**7.6**	**7.4**

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Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
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Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Domenico #1 Wellsite					
				Well ID	DMI-MW01			DMI-MW02		
				Date	3/19/2013	07/29/2014	3/31/2015	3/19/2013	07/29/2014	4/1/2015
Volatile Organic Compounds										
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds										
74-82-8	Methane	---	---	mg/L	**0.0253**	ND (0.0066)	**0.0625**	**0.0071**	**0.0291**	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters										
7440-70-2	Calcium, Dissolved	---	---	mg/L	**86**	**52.7**	**33.8**	**57.7**	**114**	**82.9**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**93.1**	**56.9**	**53.0**	**84.8**	**93.2**	**68.6**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**3.4**	**1.64**	**1.72**	**6.21**	**6.46**	**4.67**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**254**	**175**	**145**	**214**	**276**	**215**
7440-24-6	Strontium	---	---	mg/L	**1.83**	**0.853**	**0.710**	**0.965**	**1.59**	**0.986**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**484**	**305**	**351**	**307**	**525**	**529**
	Alkalinity, Total as CaCO3	---	---	mg/L	**484**	**305**	**351**	**307**	**525**	**529**
24959-67-9	Bromide	---	---	mg/L	**4.8**	**3.0**	**2.1**	**3.4**	**4.6**	**4.1**
16887-00-6	Chloride	56.6*	250	mg/L	**136**	**92.0**	**72.2**	**123**	**157**	**112**
	Nitrogen as Nitrate	---	10	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	**1.4**	ND (0.10)
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	**0.13**	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	**1.6**	ND (0.10)
14808-79-8	Sulfate	1040*	250	mg/L	**494**	**373**	**183**	**492**	**685**	**339**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	NS	ND (0.050)	NS	NS
General Parameters										
	Specific Conductance	---	---	umhos/cm	**1970**	**1023**	**1189**	**1720**	**2215**	**1750**
	pH	---	6.5 - 8.5	Std. Units	**7.5**	**7.36**	**7.52**	**7.5**	**7.13**	**7.32**

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Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Domenico #1 Wellsite			
				Well ID	DMI-MW03			
				Date	3/19/2013	6/24/2013	07/29/2014	4/1/2015
Volatile Organic Compounds								
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	NS	ND (0.0030)	ND (0.0030)
Other Organic Compounds								
74-82-8	Methane	---	---	mg/L	ND (0.0066)	NS	**0.0119**	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	NS	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	NS	ND (0.0062)	ND (0.0062)
Inorganic Parameters								
7440-70-2	Calcium, Dissolved	---	---	mg/L	**99.2**	NS	**88.7**	**116**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	NS	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**55.1**	NS	**51.5**	**70.3**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**3.18**	NS	**1.76**	**1.96**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**161**	NS	**145**	**167**
7440-24-6	Strontium	---	---	mg/L	**2.14**	NS	**1.11**	**1.12**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	NS	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**284**	NS	**275**	**287**
	Alkalinity, Total as CaCO3	---	---	mg/L	**284**	NS	**275**	**287**
24959-67-9	Bromide	---	---	mg/L	**2.2**	NS	**2.7**	**2.8**
16887-00-6	Chloride	56.6*	250	mg/L	**91.5**	NS	**91.1**	**108**
	Nitrogen as Nitrate	---	10	mg/L	**0.27**	NS	**2.8**	**3.5**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	NS	ND (0.10)	ND (0.20)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**0.3**	NS	**2.8**	**3.5**
14808-79-8	Sulfate	1040*	250	mg/L	**448**	NS	**423**	**577**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	NS	NS
General Parameters								
	Specific Conductance	---	---	umhos/cm	**1640**	NS	**1293**	**1722**
	pH	---	6.5 - 8.5	Std. Units	**7.4**	NS	**7.09**	**7.11**

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Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Stamp 31-2C Wellsite								
				Well ID	MW01				MW02		MW03		
				Date	3/22/2013	10/24/2013	07/29/2014	4/1/2015	3/22/2013	10/24/2013	10/24/2013	07/29/2014	4/1/2015
Volatile Organic Compounds													
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	**0.0014**	**0.0946**	**0.0549**	**0.0062**	**0.0018**	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	**0.0022**	ND (0.0010)	ND (0.0010)	ND (0.0010)	**0.0102**	**0.0013**	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	**0.0110**	**0.186**	**0.0232**	ND (0.0010)	ND (0.0010)	ND (0.0010)	**0.0012**
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds													
74-82-8	Methane	---	---	mg/L	**0.0137**	**0.101**	**0.142**	**0.372**	**0.0323**	**0.0506**	**0.0485**	**0.111**	**0.104**
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	**0.0094**	**0.0119**	**0.0169**	**0.0076**	**0.0236**	**0.0228**
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters													
7440-70-2	Calcium, Dissolved	---	---	mg/L	**365**	**340**	**356**	**318**	**377**	**352**	**362**	**383**	**405**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	**0.196**	**0.192**	ND (0.050)	ND (0.050)	ND (0.050)	**0.204**	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**1400**	**814**	**986**	**687**	**872**	**655**	**814**	**750**	**711**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**26.5**	**14.5**	**16.2**	**10.4**	**18.4**	**12.3**	**7.83**	**8.72**	**9.83**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**2850**	**2060**	**2680**	**2260**	**1940**	**1600**	**1860**	**1520**	**1490**
7440-24-6	Strontium	---	---	mg/L	**9.7**	**8.01**	**8.99**	**11.9**	**7.99**	**6.28**	**11.5**	**9.85**	**9.15**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (40.0)	ND (20.0)	ND (20.0)	ND (40.0)	ND (40.0)	ND (40.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**606**	**642**	**829**	**1120**	**860**	**771**	**1340**	**1410**	**1790**
	Alkalinity, Total as CaCO3	---	---	mg/L	**606**	**642**	**829**	**1120**	**860**	**771**	**1340**	**1410**	**1790**
24959-67-9	Bromide	---	---	mg/L	**1.8**	**3.6**	**3.1**	**8.0**	**1.5**	**2.4**	**2.3**	**1.8**	**1.7**
16887-00-6	Chloride	56.6*	250	mg/L	**381**	**369**	**725**	**762**	**150**	**181**	**253**	**176**	**162**
	Nitrogen as Nitrate	---	10	mg/L	**2.8**	**1.5**	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrite	---	1	mg/L	**0.32**	**0.16**	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**3.1**	**1.6**	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
14808-79-8	Sulfate	1040*	250	mg/L	**13200**	**8340**	**8930**	**7340**	**9110**	**6330**	**7050**	**6480**	**5860**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS	ND (0.050)	ND (0.050)	ND (0.050)	NS	NS
General Parameters													
	Specific Conductance	---	---	umhos/cm	**17200**	**5670**	**11866**	**12985**	**12500**	**4060**	**4760**	**8796**	**10227**
	pH	---	6.5 - 8.5	Std. Units	**7.5**	**7.2**	**7.13**	**7.21**	**7.2**	**7.0**	**7.1**	**7.09**	**7.01**

COGCC - Colorado Oil and Gas Conservation Commission
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mg/L - milligrams per liter
ND - Parameter not detected above the laboratory detection limit (Detection Limit)
Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Stamp 31-2C Wellsite								
				Well ID	MW04					MW05			
				Date	3/22/2013	10/24/2013	07/29/2014	07/31/2014	4/1/2015	10/24/2013	07/29/2014	07/30/2014	4/1/2015
Volatile Organic Compounds													
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)	ND (0.0010)	ND (0.0010)	NS	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	NS	ND (0.0030)	ND (0.0030)	ND (0.0030)	NS	ND (0.0030)
Other Organic Compounds													
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)	NS	ND (0.0066)	ND (0.0066)	ND (0.0066)	NS	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	NS	ND (0.0062)	ND (0.0062)	ND (0.0062)	NS	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	NS	ND (0.0062)	ND (0.0062)	ND (0.0062)	NS	ND (0.0062)
Inorganic Parameters													
7440-70-2	Calcium, Dissolved	---	---	mg/L	**383**	**345**	NS	**382**	**382**	**361**	NS	**362**	**381**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	**0.216**	NS	ND (0.050)	ND (0.050)	**0.0794**	NS	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**759**	**710**	NS	**796**	**776**	**627**	NS	**554**	**570**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**19.6**	**13.4**	NS	**10.6**	**12.2**	**12.0**	NS	**9.36**	**10.7**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**1380**	**1660**	NS	**1560**	**1530**	**1250**	NS	**1030**	**1020**
7440-24-6	Strontium	---	---	mg/L	**9.55**	**7.70**	NS	**8.43**	**9.03**	**6.94**	NS	**7.14**	**7.12**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	NS	ND (20.0)	ND (20.0)	ND (20.0)	NS	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**480**	**497**	**480**	NS	**528**	**464**	**434**	NS	**468**
	Alkalinity, Total as CaCO3	---	---	mg/L	**480**	**497**	**480**	NS	**528**	**464**	**434**	NS	**468**
24959-67-9	Bromide	---	---	mg/L	**4.4**	**1.5**	**2.4**	NS	**2.8**	**1.1**	**1.4**	NS	**1.4**
16887-00-6	Chloride	56.6*	250	mg/L	**85.2**	**75.1**	**105**	NS	**119**	**60.4**	**59.4**	NS	**64.8**
	Nitrogen as Nitrate	---	10	mg/L	**1.9**	**0.46**	**0.75**	NS	**1.3**	**0.17**	**0.23**	NS	**0.43**
	Nitrogen as Nitrite	---	1	mg/L	**0.21**	ND (0.10)	ND (0.10)	NS	ND (0.10)	ND (0.10)	ND (0.10)	NS	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**2.1**	**0.46**	**0.75**	NS	**1.3**	**0.17**	**0.23**	NS	**0.44**
14808-79-8	Sulfate	1040*	250	mg/L	**7180**	**6710**	**6960**	NS	**7100**	**6060**	**5740**	NS	**5250**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	ND (0.050)	NS	NS	NS	ND (0.050)	NS	NS	NS
General Parameters													
	Specific Conductance	---	---	umhos/cm	**9980**	**4250**	**8258**	**10164**	**10363**	**3770**	**6148**	NS	**7915**
	pH	---	6.5 - 8.5	Std. Units	**7.5**	**7.3**	**7.42**	**7.49**	**7.36**	**7.2**	**7.37**	NS	**7.29**

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Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Stamp 31-2C Wellsite		
				Well ID	MW06		
				Date	10/24/2013	07/29/2014	4/1/2015
Volatile Organic Compounds							
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds							
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters							
7440-70-2	Calcium, Dissolved	---	---	mg/L	**366**	**386**	**372**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**497**	**554**	**605**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**11.1**	**9.16**	**11.0**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**1120**	**1010**	**1110**
7440-24-6	Strontium	---	---	mg/L	**6.74**	**7.13**	**8.28**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**485**	**465**	**494**
	Alkalinity, Total as CaCO3	---	---	mg/L	**485**	**465**	**494**
24959-67-9	Bromide	---	---	mg/L	**1.0**	**1.5**	**1.5**
16887-00-6	Chloride	56.6*	250	mg/L	**56.5**	**66.7**	**77.6**
	Nitrogen as Nitrate	---	10	mg/L	ND (0.10)	ND (0.10)	**0.60**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.10)	ND (0.10)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	ND (0.10)	ND (0.10)	**0.60**
14808-79-8	Sulfate	1040*	250	mg/L	**5380**	**5540**	**5690**
18496-25-8	Sulfide, Total	---	---	mg/L	ND (0.050)	NS	NS
General Parameters							
	Specific Conductance	---	---	umhos/cm	**3440**	**6147**	**8375**
	pH	---	6.5 - 8.5	Std. Units	**7.2**	**7.33**	**7.26**

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Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
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Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Rider #1 Wellsite					
				Well ID	RD1-MW01		RD1-MW02		RD1-MW03R	
				Date	07/30/2014	4/1/2015	07/30/2014	4/1/2015	07/30/2014	4/1/2015
Volatile Organic Compounds										
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	**0.0025**	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	**0.0133**	ND (0.0030)
Other Organic Compounds										
74-82-8	Methane	---	---	mg/L	ND (0.0066)	ND (0.0066)	**0.0094**	**0.0392**	**0.0347**	**0.0734**
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters										
7440-70-2	Calcium, Dissolved	---	---	mg/L	**86.9**	**93.7**	**88.0**	**88.7**	**84.8**	**85.6**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**74.8**	**80.0**	**80.8**	**80.6**	**78.2**	**79.7**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**2.78**	**1.90**	**1.89**	**1.73**	**2.12**	**2.00**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**127**	**120**	**104**	**104**	**100**	**102**
7440-24-6	Strontium	---	---	mg/L	**3.18**	**3.07**	**3.06**	**2.67**	**3.53**	**2.94**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**407**	**430**	**471**	**437**	**555**	**423**
	Alkalinity, Total as CaCO3	---	---	mg/L	**407**	**430**	**471**	**437**	**555**	**423**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**34.5**	**32.0**	**31.8**	**34.5**	**31.5**	**32.5**
	Nitrogen as Nitrate	---	10	mg/L	**4.8**	**4.9**	**3.8**	**3.8**	**3.8**	**3.6**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.20)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**4.8**	**4.9**	**3.8**	**3.8**	**3.8**	**3.7**
14808-79-8	Sulfate	1040*	250	mg/L	**323**	**365**	**305**	**336**	**290**	**310**
18496-25-8	Sulfide, Total	---	---	mg/L	NS	NS	NS	NS	NS	NS
General Parameters										
	Specific Conductance	---	---	umhos/cm	**1115**	**1438**	**1099**	**1376**	**1028**	**1318**
	pH	---	6.5 - 8.5	Std. Units	**7.03**	**7.41**	**7.21**	**7.37**	**7.35**	**7.39**

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Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

Table 2 - Groundwater Analytical Results
City of Longmont - Groundwater Quality Monitoring
Project Number 25147063

CAS #	Parameter	COGCC Table 910-1	CDPHE Basic Standards for Groundwater	Wellsite	Rider #1 Wellsite					
				Well ID	RD1-MW04		RD1-MW05		RD1-MW06	
				Date	07/30/2014	4/1/2015	07/30/2014	4/1/2015	07/30/2014	4/1/2015
Volatile Organic Compounds										
71-43-2	Benzene	0.005	0.005	mg/L	ND (0.010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
108-88-3	Toluene	0.56 to 1	0.56 to 1[M]	mg/L	ND (0.010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
100-41-4	Ethylbenzene	0.7	0.7	mg/L	**0.0778**	**0.0021**	**0.0088**	ND (0.0010)	ND (0.0010)	ND (0.0010)
1330-20-7	Xylenes (Total)	1.4 to 10	1.4 to 10[M]	mg/L	**1.14**	**0.0253**	**0.0594**	ND (0.0030)	ND (0.0030)	ND (0.0030)
Other Organic Compounds										
74-82-8	Methane	---	---	mg/L	**0.0316**	**0.0092**	**0.406**	**0.0067**	ND (0.0066)	ND (0.0066)
74-84-0	Ethane	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
74-85-1	Ethene	---	---	mg/L	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
Inorganic Parameters										
7440-70-2	Calcium, Dissolved	---	---	mg/L	**92.4**	**91.0**	**82.1**	**87.2**	**82.7**	**82.2**
7439-89-6	Iron, Dissolved	---	0.3 to 5[M]	mg/L	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
7439-95-4	Magnesium, Dissolved	---	---	mg/L	**81.4**	**80.3**	**76.2**	**78.6**	**79.9**	**80.1**
7440-09-7	Potassium, Dissolved	---	---	mg/L	**2.33**	**2.07**	**2.47**	**2.08**	**1.90**	**1.81**
7440-23-5	Sodium, Dissolved	---	---	mg/L	**114**	**112**	**102**	**108**	**92.7**	**90.3**
7440-24-6	Strontium	---	---	mg/L	**3.37**	**2.85**	**3.08**	**2.82**	**3.60**	**2.65**
	Alkalinity, Carbonate (CaCO3)	---	---	mg/L	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)	ND (20.0)
	Alkalinity, Bicarbonate (CaCO3)	---	---	mg/L	**552**	**419**	**584**	**407**	**536**	**424**
	Alkalinity, Total as CaCO3	---	---	mg/L	**552**	**419**	**584**	**407**	**536**	**424**
24959-67-9	Bromide	---	---	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
16887-00-6	Chloride	56.6*	250	mg/L	**33.7**	**34.5**	**31.8**	**30.1**	**38.6**	**33.4**
	Nitrogen as Nitrate	---	10	mg/L	**4.2**	**4.9**	**3.7**	**4.9**	**2.2**	**2.9**
	Nitrogen as Nitrite	---	1	mg/L	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.20)	ND (0.10)	ND (0.20)
	Nitrogen as Nitrate and Nitrite	---	10	mg/L	**4.2**	**4.9**	**3.7**	**4.9**	**2.2**	**2.9**
14808-79-8	Sulfate	1040*	250	mg/L	**320**	**367**	**291**	**335**	**306**	**294**
18496-25-8	Sulfide, Total	---	---	mg/L	NS	NS	NS	NS	NS	NS
General Parameters										
	Specific Conductance	---	---	umhos/cm	**1109**	**1396**	**1045**	**1352**	**1077**	**1284**
	pH	---	6.5 - 8.5	Std. Units	**7.2**	**7.39**	**7.31**	**7.4**	**7.3**	**7.44**

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Highlighted column indicates recent sampling event
Bold indicates detected constituents
Gray shading indicates constituents detected above their respective standards
*Value derived from 1.25*Background concentration
umhos/cm - microsiemens per centimeter
M - Drinking water maximum contaminant level
NS - Not Sampled
Bkg - Background
--- indicates no regulatory standard

APPENDIX B
ANALYTICAL REPORT AND CHAIN OF CUSTODY

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April 07, 2015

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Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60190809001	**CL1-MW02**	Water	03/30/15 13:20	03/31/15 10:10
60190809002	**CL1-MW01**	Water	03/30/15 12:50	03/31/15 10:10
60190809003	**CL1-MW03**	Water	03/30/15 13:50	03/31/15 10:10
60190809004	**SGU-MW01**	Water	03/30/15 14:20	03/31/15 10:10
60190809005	**SGU-MW03**	Water	03/30/15 14:55	03/31/15 10:10

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60190809001	**CL1-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190809002	**CL1-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190809003	**CL1-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190809004	**SGU-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190809005	**SGU-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Sample: CL1-MW02 **Lab ID: 60190809001** Collected: 03/30/15 13:20 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:56	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:56	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:56	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2340**	ug/L	10.0	1	03/31/15 15:30	04/03/15 13:58	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 12:59	7439-89-6	
Calcium, Dissolved	**89000**	ug/L	100	1	04/01/15 10:55	04/06/15 12:59	7440-70-2	M1
Magnesium, Dissolved	**79300**	ug/L	50.0	1	04/01/15 10:55	04/03/15 14:38	7439-95-4	
Sodium, Dissolved	**86000**	ug/L	500	1	04/01/15 10:55	04/03/15 14:38	7440-23-5	
Potassium, Dissolved	**1370**	ug/L	500	1	04/01/15 10:55	04/03/15 14:38	7440-09-7	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 00:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 00:40	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 00:40	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 00:40	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/02/15 00:40	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/02/15 00:40	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	82-119	1		04/02/15 00:40	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 00:40		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**420**	mg/L	20.0	1		04/02/15 14:19		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:19		
Alkalinity, Total as CaCO3	**420**	mg/L	20.0	1		04/02/15 14:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.3**	mg/L	1.0	1		04/03/15 23:39	24959-67-9	
Chloride	**42.4**	mg/L	5.0	5		04/06/15 00:49	16887-00-6	
Sulfate	**243**	mg/L	20.0	20		04/06/15 01:32	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**16.0**	mg/L	1.0	10		03/31/15 15:11		
Nitrogen, Nitrite	ND	mg/L	1.0	10		03/31/15 15:11		
Nitrogen, NO2 plus NO3	**16.0**	mg/L	1.0	10		03/31/15 15:11		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Sample: CL1-MW01 **Lab ID: 60190809002** Collected: 03/30/15 12:50 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 21:21	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 21:21	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 21:21	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2530**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:04	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**92200**	ug/L	100	1	04/01/15 10:55	04/06/15 13:10	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:10	7439-89-6	
Magnesium, Dissolved	**85500**	ug/L	50.0	1	04/01/15 10:55	04/03/15 14:54	7439-95-4	
Potassium, Dissolved	**1450**	ug/L	500	1	04/01/15 10:55	04/03/15 14:54	7440-09-7	
Sodium, Dissolved	**91800**	ug/L	500	1	04/01/15 10:55	04/03/15 14:54	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 00:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 00:56	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 00:56	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 00:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 00:56	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/02/15 00:56	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/02/15 00:56	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 00:56		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**427**	mg/L	20.0	1		04/02/15 14:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:25		
Alkalinity, Total as CaCO3	**427**	mg/L	20.0	1		04/02/15 14:25		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.4**	mg/L	1.0	1		04/04/15 00:23	24959-67-9	
Chloride	**43.5**	mg/L	5.0	5		04/06/15 02:15	16887-00-6	
Sulfate	**254**	mg/L	20.0	20		04/06/15 02:43	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**16.7**	mg/L	1.0	10		03/31/15 15:14		
Nitrogen, Nitrite	ND	mg/L	1.0	10		03/31/15 15:14		
Nitrogen, NO2 plus NO3	**16.7**	mg/L	1.0	10		03/31/15 15:14		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Sample: CL1-MW03 **Lab ID: 60190809003** Collected: 03/30/15 13:50 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 21:38	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 21:38	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 21:38	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2590**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:07	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**88500**	ug/L	100	1	04/01/15 10:55	04/06/15 13:12	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:12	7439-89-6	
Magnesium, Dissolved	**82000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 14:56	7439-95-4	
Potassium, Dissolved	**1340**	ug/L	500	1	04/01/15 10:55	04/03/15 14:56	7440-09-7	
Sodium, Dissolved	**85800**	ug/L	500	1	04/01/15 10:55	04/03/15 14:56	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 01:11	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 01:11	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 01:11	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 01:11	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/02/15 01:11	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/02/15 01:11	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 01:11	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 01:11		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**423**	mg/L	20.0	1		04/02/15 14:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:30		
Alkalinity, Total as CaCO3	**423**	mg/L	20.0	1		04/02/15 14:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.5**	mg/L	1.0	1		04/04/15 00:53	24959-67-9	
Chloride	**43.1**	mg/L	5.0	5		04/06/15 03:40	16887-00-6	
Sulfate	**247**	mg/L	20.0	20		04/06/15 03:54	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**16.6**	mg/L	1.0	10		03/31/15 15:15		
Nitrogen, Nitrite	ND	mg/L	1.0	10		03/31/15 15:15		
Nitrogen, NO2 plus NO3	**16.6**	mg/L	1.0	10		03/31/15 15:15		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Sample: SGU-MW01 **Lab ID: 60190809004** Collected: 03/30/15 14:20 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 21:46	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 21:46	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 21:46	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2770**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:09	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**97700**	ug/L	100	1	04/01/15 10:55	04/06/15 13:14	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:14	7439-89-6	
Magnesium, Dissolved	**63800**	ug/L	50.0	1	04/01/15 10:55	04/03/15 14:58	7439-95-4	
Potassium, Dissolved	**2460**	ug/L	500	1	04/01/15 10:55	04/03/15 14:58	7440-09-7	
Sodium, Dissolved	**76800**	ug/L	500	1	04/01/15 10:55	04/03/15 14:58	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 01:27	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 01:27	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 01:27	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 01:27	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 01:27	2037-26-5	
4-Bromofluorobenzene (S)	97	%	80-120	1		04/02/15 01:27	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	82-119	1		04/02/15 01:27	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 01:27		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**392**	mg/L	20.0	1		04/02/15 14:43		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:43		
Alkalinity, Total as CaCO3	**392**	mg/L	20.0	1		04/02/15 14:43		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/04/15 01:08	24959-67-9	
Chloride	**32.8**	mg/L	5.0	5		04/06/15 04:08	16887-00-6	
Sulfate	**263**	mg/L	20.0	20		04/06/15 04:22	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**8.4**	mg/L	0.50	5		03/31/15 14:54		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:54		
Nitrogen, NO2 plus NO3	**8.4**	mg/L	0.50	5		03/31/15 14:54		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Sample: SGU-MW03 **Lab ID: 60190809005** Collected: 03/30/15 14:55 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 21:54	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 21:54	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 21:54	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2830**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:11	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**112000**	ug/L	100	1	04/01/15 10:55	04/06/15 13:16	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:16	7439-89-6	
Magnesium, Dissolved	**59100**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:01	7439-95-4	
Potassium, Dissolved	**1740**	ug/L	500	1	04/01/15 10:55	04/03/15 15:01	7440-09-7	
Sodium, Dissolved	**64000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:01	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 23:41	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 23:41	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 23:41	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 23:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 23:41	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/02/15 23:41	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	82-119	1		04/02/15 23:41	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 23:41		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**416**	mg/L	20.0	1		04/02/15 14:50		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:50		
Alkalinity, Total as CaCO3	**416**	mg/L	20.0	1		04/02/15 14:50		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/04/15 01:53	24959-67-9	
Chloride	**33.9**	mg/L	5.0	5		04/06/15 04:37	16887-00-6	
Sulfate	**259**	mg/L	20.0	20		04/06/15 04:51	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**8.6**	mg/L	0.50	5		03/31/15 14:54		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:54		
Nitrogen, NO2 plus NO3	**8.6**	mg/L	0.50	5		03/31/15 14:54		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: AIR/22911 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1930066 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/01/15 16:13	
Ethene	ug/L	ND	6.2	04/01/15 16:13	
Methane	ug/L	ND	6.6	04/01/15 16:13	

LABORATORY CONTROL SAMPLE: 1930067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethane	ug/L	114	109	96	85-115	
Ethene	ug/L	106	100	95	85-115	
Methane	ug/L	60.7	56.2	93	85-115	

SAMPLE DUPLICATE: 1930069

Parameter	Units	35181353001 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	2200	2430	10	20	
Ethene	ug/L	3.1U	ND		20	
Methane	ug/L	20900	23100	10	20	E,H1

SAMPLE DUPLICATE: 1930070

Parameter	Units	60190809002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: MPRP/31260 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1542015 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/03/15 13:56	

LABORATORY CONTROL SAMPLE: 1542016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1060	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542017 1542018

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	2340	1000	1000	3490	3460	115	112	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: MPRP/31270 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1542527 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/06/15 12:56	
Iron, Dissolved	ug/L	ND	50.0	04/06/15 12:56	
Magnesium, Dissolved	ug/L	ND	50.0	04/03/15 14:36	
Potassium, Dissolved	ug/L	ND	500	04/03/15 14:36	
Sodium, Dissolved	ug/L	ND	500	04/03/15 14:36	

LABORATORY CONTROL SAMPLE: 1542528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9750	97	80-120	
Iron, Dissolved	ug/L	10000	9620	96	80-120	
Magnesium, Dissolved	ug/L	10000	10200	102	80-120	
Potassium, Dissolved	ug/L	10000	9830	98	80-120	
Sodium, Dissolved	ug/L	10000	10800	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542529 1542530

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	89000	10000	10000	97600	96200	86	72	75-125	1	20	M1
Iron, Dissolved	ug/L	ND	10000	10000	9330	9170	93	92	75-125	2	20	
Magnesium, Dissolved	ug/L	79300	10000	10000	89600	88600	104	93	75-125	1	20	
Potassium, Dissolved	ug/L	1370	10000	10000	11900	11900	106	105	75-125	1	20	
Sodium, Dissolved	ug/L	86000	10000	10000	97200	97200	112	112	75-125	0	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: MSV/68549 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004

METHOD BLANK: 1542644 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/01/15 23:07	
Ethylbenzene	ug/L	ND	1.0	04/01/15 23:07	
Toluene	ug/L	ND	1.0	04/01/15 23:07	
Xylene (Total)	ug/L	ND	3.0	04/01/15 23:07	
1,2-Dichloroethane-d4 (S)	%	95	82-119	04/01/15 23:07	
4-Bromofluorobenzene (S)	%	99	80-120	04/01/15 23:07	
Toluene-d8 (S)	%	100	80-120	04/01/15 23:07	

LABORATORY CONTROL SAMPLE: 1542645

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.2	101	80-120	
Ethylbenzene	ug/L	20	20.9	105	80-120	
Toluene	ug/L	20	20.6	103	80-120	
Xylene (Total)	ug/L	60	64.0	107	80-120	
1,2-Dichloroethane-d4 (S)	%			95	82-119	
4-Bromofluorobenzene (S)	%			97	80-120	
Toluene-d8 (S)	%			100	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: MSV/68575
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190809005

METHOD BLANK: 1543343
Matrix: Water
Associated Lab Samples: 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/02/15 22:59	
Ethylbenzene	ug/L	ND	1.0	04/02/15 22:59	
Toluene	ug/L	ND	1.0	04/02/15 22:59	
Xylene (Total)	ug/L	ND	3.0	04/02/15 22:59	
1,2-Dichloroethane-d4 (S)	%	100	82-119	04/02/15 22:59	
4-Bromofluorobenzene (S)	%	100	80-120	04/02/15 22:59	
Toluene-d8 (S)	%	100	80-120	04/02/15 22:59	

LABORATORY CONTROL SAMPLE: 1543344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.0	95	80-120	
Ethylbenzene	ug/L	20	18.9	95	80-120	
Toluene	ug/L	20	18.4	92	80-120	
Xylene (Total)	ug/L	60	56.3	94	80-120	
1,2-Dichloroethane-d4 (S)	%			99	82-119	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543345 1543346

Parameter	Units	60190583002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	34.6	22.8	172	113	46-155	41	13	M1,R1
Ethylbenzene	ug/L	ND	20	20	36.4	23.3	182	116	51-148	44	14	M1,R1
Toluene	ug/L	ND	20	20	34.5	22.5	172	112	47-149	42	16	M1,R1
Xylene (Total)	ug/L	ND	60	60	108	69.1	180	115	39-158	44	15	MS,RS
1,2-Dichloroethane-d4 (S)	%						100	100	82-119			
4-Bromofluorobenzene (S)	%						101	101	80-120			
Toluene-d8 (S)	%						100	100	80-120			
Preservation pH		11.0			11.0	11.0				0		

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: WET/53879 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1543051 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/02/15 12:44	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/02/15 12:44	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/02/15 12:44	

LABORATORY CONTROL SAMPLE: 1543052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	502	100	90-110	

SAMPLE DUPLICATE: 1543053

Parameter	Units	60190563008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	88.4	86.2	3	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	88.4	86.2	3	10	

SAMPLE DUPLICATE: 1543054

Parameter	Units	60190653002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	182	185	2	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	182	185	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: WETA/33476 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1543792 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/03/15 22:54	

METHOD BLANK: 1545328 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/05/15 23:53	
Sulfate	mg/L	ND	1.0	04/05/15 23:53	

LABORATORY CONTROL SAMPLE: 1543793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 1545329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543794 1543795

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	1.3	5	5	6.4	6.7	102	107	80-120	4	15	
Chloride	mg/L	42.4	25	25	69.3	69.1	108	107	80-120	0	15	
Sulfate	mg/L	243	100	100	343	338	100	96	80-120	1	15	

MATRIX SPIKE SAMPLE: 1543796

Parameter	Units	60190809002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1.4	5	6.6	103	80-120	
Chloride	mg/L	43.5	25	68.6	101	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

MATRIX SPIKE SAMPLE: 1543796

Parameter	Units	60190809002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	254	100	351	97	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

QC Batch: WETA/33414 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

METHOD BLANK: 1541411 Matrix: Water
Associated Lab Samples: 60190809001, 60190809002, 60190809003, 60190809004, 60190809005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	03/31/15 14:11	
Nitrogen, Nitrite	mg/L	ND	0.10	03/31/15 14:11	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	03/31/15 14:11	

LABORATORY CONTROL SAMPLE: 1541412

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.6	100	85-115	
Nitrogen, Nitrite	mg/L	.4	0.43	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	101	90-110	

MATRIX SPIKE SAMPLE: 1541413

Parameter	Units	60190776001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1.6	1.7	100	85-115	
Nitrogen, Nitrite	mg/L	ND	.4	0.44	110	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.1	102	90-110	

MATRIX SPIKE SAMPLE: 1541896

Parameter	Units	60190809001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	16.0	16	29.6	86	85-115	
Nitrogen, Nitrite	mg/L	ND	4	4.3	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	16.0	20	34.0	90	90-110	

SAMPLE DUPLICATE: 1541414

Parameter	Units	60190776006 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.56	0.56	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	0.56	0.56	0	20	

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QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68549

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
R1	RPD value was outside control limits.
RS	The RPD value in one of the constituent analytes was outside the control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190809

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60190809001	**CL1-MW02**	RSK 175	AIR/22911		
60190809002	**CL1-MW01**	RSK 175	AIR/22911		
60190809003	**CL1-MW03**	RSK 175	AIR/22911		
60190809004	**SGU-MW01**	RSK 175	AIR/22911		
60190809005	**SGU-MW03**	RSK 175	AIR/22911		
60190809001	**CL1-MW02**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190809002	**CL1-MW01**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190809003	**CL1-MW03**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190809004	**SGU-MW01**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190809005	**SGU-MW03**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190809001	**CL1-MW02**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190809002	**CL1-MW01**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190809003	**CL1-MW03**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190809004	**SGU-MW01**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190809005	**SGU-MW03**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190809001	**CL1-MW02**	EPA 8260	MSV/68549		
60190809002	**CL1-MW01**	EPA 8260	MSV/68549		
60190809003	**CL1-MW03**	EPA 8260	MSV/68549		
60190809004	**SGU-MW01**	EPA 8260	MSV/68549		
60190809005	**SGU-MW03**	EPA 8260	MSV/68575		
60190809001	**CL1-MW02**	SM 2320B	WET/53879		
60190809002	**CL1-MW01**	SM 2320B	WET/53879		
60190809003	**CL1-MW03**	SM 2320B	WET/53879		
60190809004	**SGU-MW01**	SM 2320B	WET/53879		
60190809005	**SGU-MW03**	SM 2320B	WET/53879		
60190809001	**CL1-MW02**	EPA 300.0	WETA/33476		
60190809002	**CL1-MW01**	EPA 300.0	WETA/33476		
60190809003	**CL1-MW03**	EPA 300.0	WETA/33476		
60190809004	**SGU-MW01**	EPA 300.0	WETA/33476		
60190809005	**SGU-MW03**	EPA 300.0	WETA/33476		
60190809001	**CL1-MW02**	EPA 353.2	WETA/33414		
60190809002	**CL1-MW01**	EPA 353.2	WETA/33414		
60190809003	**CL1-MW03**	EPA 353.2	WETA/33414		
60190809004	**SGU-MW01**	EPA 353.2	WETA/33414		
60190809005	**SGU-MW03**	EPA 353.2	WETA/33414		

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Sample Condition Upon Receipt

WO# : 60190809

60190809

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☑ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☑ None ☐ Other ☑ 2pLC

Thermometer Used: T-239 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 3.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: AMW 3/31/15

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. NO2 NO3
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	Did not receive sample SGu-mw02
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
Exceptions: (VOA), Coliform, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): 020915-3	☑Yes ☐No ☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Jon Anstey Date/Time: 3/31/15

Comments/ Resolution: Notified we didn't receive SGu-mw02 AMW 3/31/15
Per Jon Anstey - sample wasn't sent - will send with today's samples AMW 3/31/15

Project Manager Review: AMW Date: 3/31/15

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Page: 1 of 1

Section A — **Required** Client Information:

Company:	Terracon
Address:	10625 N. I-70 Frontage Rd.
	Wheat Ridge, CO 80033
Email To:	JPANSTEY @Terracon
Phone: 303-423-3300	Fax:
Requested Due Date/TAT:	Per contract

Section B — **Required** Project Information:

Report To:	Jon Anstey
Copy To:	AKSAFULKO@Terracon.com
Purchase Order No.:	
Project Name:	O&G Wellsite GW
Project Number:	25147063

Section C — Invoice Information:

Attention:	Jon Anstey
Company Name:	Terracon
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson
Pace Profile #:	6694, 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: CO

Section D — **Required** Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	CL1-MW02	WT	G			3/30/15	1320		9	5		1	3	1B	3U	1B	3U	Y	X	X	X	X	X	X	X		6019089
2	CL1-MW01	WT	G			3/30/15	1250		9	5		1	3						X	X	X	X	X	X	X		
3	CL1-MW03	WT	G			3/30/15	1350		9	5		1	3						X	X	X	X	X	X	X		
4	SGU-MW01	WT	G			3/30/15	1420		9	5		1	3						X	X	X	X	X	X	X		
5	~~SGU-MW02~~	~~WT~~	~~G~~			~~3/30/15~~	~~1440~~		9	5		1	3						X	X	X	X	X	X	X		
6	SGU-MW03	WT	G			3/30/15	1455		9	5		1	3						X	X	X	X	X	X	Y		
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*Ca, Mg, Na, Fe, K		3/30/15	1600		3/31/15	1010	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Sarah Burns

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/30/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

RUSH!

Pace Analytical®
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10301224

Workorder: 60190809 **Workorder Name:**25147063 O&G WELLSITE GW **Owner Received Date:** 3/31/2015 **Results Requested By:** 4/7/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	RSK-175 MEE	LAB USE ONLY
1	CL1-MW02	PS	3/30/2015 13:20	60190809001	Water	1	X	001
2	CL1-MW01	PS	3/30/2015 12:50	60190809002	Water	1	X	002
3	CL1-MW03	PS	3/30/2015 13:50	60190809003	Water	1	X	003
4	SGU-MW01	PS	3/30/2015 14:20	60190809004	Water	1	X	004
5	SGU-MW03	PS	3/30/2015 14:55	60190809005	Water	1	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	3/31/15 1700	[signature]	3/31/15 1630
2				
3				

Comments

Cooler Temperature on Receipt 5.9 °C **Custody Seal** Y or N **Received on Ice** Y or N **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Feb2014 Page 1 of 1
	Document No.: F-MN-L-213-rev.09	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO# : 10301224

10301224

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 6346 0247 4051

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other: Foam **Temp Blank?** ☑ Yes ☐ No

Thermom. Used: ☑ B88A9130516413 ☐ B88A912167504 ☐ B88A9132521491 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 5.7 **Cooler Temp Corrected (°C):** 5.9 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.2 **Date and Initials of Person Examining Contents:** RH 4/1/15

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Kalen Kvong **Date:** April 1, 2015

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

April 07, 2015

Jon Anstey
Terracon
10625 W. I-70 Frontage Rd N
Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60190811001	**SH1-MW01**	Water	03/30/15 09:35	03/31/15 10:10
60190811002	**SH1-MW02**	Water	03/30/15 10:10	03/31/15 10:10
60190811003	**SH1-MW03**	Water	03/30/15 10:40	03/31/15 10:10
60190811004	**SH2-MW01**	Water	03/30/15 11:20	03/31/15 10:10
60190811005	**SH2-MW03**	Water	03/30/15 11:50	03/31/15 10:10
60190811006	**SH2-MW02**	Water	03/30/15 12:20	03/31/15 10:10

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60190811001	**SH1-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190811002	**SH1-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190811003	**SH1-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190811004	**SH2-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190811005	**SH2-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190811006	**SH2-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH1-MW01 **Lab ID: 60190811001** Collected: 03/30/15 09:35 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:05	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:05	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:05	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2920**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:13	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**98400**	ug/L	100	1	04/01/15 10:55	04/06/15 13:19	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:19	7439-89-6	
Magnesium, Dissolved	**137000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:03	7439-95-4	
Potassium, Dissolved	**1430**	ug/L	500	1	04/01/15 10:55	04/03/15 15:03	7440-09-7	
Sodium, Dissolved	**152000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:03	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 01:58	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 01:58	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 01:58	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 01:58	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 01:58	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/02/15 01:58	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 01:58	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 01:58		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**422**	mg/L	20.0	1		04/02/15 14:55		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 14:55		
Alkalinity, Total as CaCO3	**422**	mg/L	20.0	1		04/02/15 14:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.8**	mg/L	1.0	1		04/04/15 02:08	24959-67-9	
Chloride	**50.6**	mg/L	5.0	5		04/06/15 05:05	16887-00-6	
Sulfate	**621**	mg/L	100	100		04/06/15 05:19	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**11.2**	mg/L	0.50	5		03/31/15 14:55		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:55		
Nitrogen, NO2 plus NO3	**11.2**	mg/L	0.50	5		03/31/15 14:55		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH1-MW02 **Lab ID: 60190811002** Collected: 03/30/15 10:10 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:13	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:13	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:13	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2380**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:16	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**92500**	ug/L	100	1	04/01/15 10:55	04/06/15 13:21	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:21	7439-89-6	
Magnesium, Dissolved	**122000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:05	7439-95-4	
Potassium, Dissolved	**1370**	ug/L	500	1	04/01/15 10:55	04/03/15 15:05	7440-09-7	
Sodium, Dissolved	**139000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:05	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 02:13	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 02:13	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 02:13	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 02:13	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/02/15 02:13	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/02/15 02:13	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 02:13	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 02:13		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**393**	mg/L	20.0	1		04/02/15 15:01		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/02/15 15:01		
Alkalinity, Total as CaCO3	**393**	mg/L	20.0	1		04/02/15 15:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.5**	mg/L	1.0	1		04/04/15 02:23	24959-67-9	
Chloride	**44.4**	mg/L	5.0	5		04/06/15 05:33	16887-00-6	
Sulfate	**545**	mg/L	50.0	50		04/06/15 05:47	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**10.5**	mg/L	0.50	5		03/31/15 14:56		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:56		
Nitrogen, NO2 plus NO3	**10.5**	mg/L	0.50	5		03/31/15 14:56		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH1-MW03 **Lab ID: 60190811003** Collected: 03/30/15 10:40 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:22	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:22	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:22	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2540**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:22	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**91600**	ug/L	100	1	04/01/15 10:55	04/06/15 13:23	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:23	7439-89-6	
Magnesium, Dissolved	**126000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:07	7439-95-4	
Potassium, Dissolved	**1420**	ug/L	500	1	04/01/15 10:55	04/03/15 15:07	7440-09-7	
Sodium, Dissolved	**136000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:07	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 02:29	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 02:29	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 02:29	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 02:29	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/02/15 02:29	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/02/15 02:29	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/02/15 02:29	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 02:29		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**376**	mg/L	20.0	1		04/04/15 08:32		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 08:32		
Alkalinity, Total as CaCO3	**376**	mg/L	20.0	1		04/04/15 08:32		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.4**	mg/L	1.0	1		04/04/15 02:37	24959-67-9	
Chloride	**43.9**	mg/L	5.0	5		04/06/15 06:30	16887-00-6	
Sulfate	**568**	mg/L	100	100		04/06/15 06:44	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**9.8**	mg/L	0.50	5		03/31/15 14:57		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:57		
Nitrogen, NO2 plus NO3	**9.8**	mg/L	0.50	5		03/31/15 14:57		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH2-MW01 **Lab ID: 60190811004** Collected: 03/30/15 11:20 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:30	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:30	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:30	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**3720**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:25	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**169000**	ug/L	100	1	04/01/15 10:55	04/06/15 13:25	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:25	7439-89-6	
Magnesium, Dissolved	**107000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:10	7439-95-4	
Potassium, Dissolved	**1210**	ug/L	500	1	04/01/15 10:55	04/03/15 15:10	7440-09-7	
Sodium, Dissolved	**108000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:10	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 02:44	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 02:44	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 02:44	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 02:44	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 02:44	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/02/15 02:44	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/02/15 02:44	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 02:44		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**386**	mg/L	20.0	1		04/04/15 08:44		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 08:44		
Alkalinity, Total as CaCO3	**386**	mg/L	20.0	1		04/04/15 08:44		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/04/15 02:52	24959-67-9	
Chloride	**33.6**	mg/L	5.0	5		04/06/15 06:58	16887-00-6	
Sulfate	**712**	mg/L	100	100		04/06/15 07:13	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**11.0**	mg/L	0.50	5		03/31/15 14:58		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:58		
Nitrogen, NO2 plus NO3	**11.0**	mg/L	0.50	5		03/31/15 14:58		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH2-MW03 **Lab ID: 60190811005** Collected: 03/30/15 11:50 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:38	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:38	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:38	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4460**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:27	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**192000**	ug/L	100	1	04/01/15 10:55	04/06/15 13:28	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:28	7439-89-6	
Magnesium, Dissolved	**93900**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:16	7439-95-4	
Potassium, Dissolved	**5740**	ug/L	500	1	04/01/15 10:55	04/03/15 15:16	7440-09-7	
Sodium, Dissolved	**109000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:16	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 03:00	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 03:00	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 03:00	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 03:00	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/02/15 03:00	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/02/15 03:00	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	82-119	1		04/02/15 03:00	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 03:00		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**367**	mg/L	20.0	1		04/04/15 08:49		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 08:49		
Alkalinity, Total as CaCO3	**367**	mg/L	20.0	1		04/04/15 08:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/04/15 03:07	24959-67-9	
Chloride	**37.6**	mg/L	5.0	5		04/06/15 07:27	16887-00-6	
Sulfate	**802**	mg/L	100	100		04/06/15 07:41	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**11.4**	mg/L	0.50	5		03/31/15 14:59		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 14:59		
Nitrogen, NO2 plus NO3	**11.4**	mg/L	0.50	5		03/31/15 14:59		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Sample: SH2-MW02 **Lab ID: 60190811006** Collected: 03/30/15 12:20 Received: 03/31/15 10:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/01/15 20:47	74-84-0	
Ethene	ND	ug/L	6.2	1		04/01/15 20:47	74-85-1	
Methane	ND	ug/L	6.6	1		04/01/15 20:47	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4180**	ug/L	10.0	1	03/31/15 15:30	04/03/15 14:29	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**183000**	ug/L	100	1	04/01/15 10:55	04/06/15 13:30	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 10:55	04/06/15 13:30	7439-89-6	
Magnesium, Dissolved	**105000**	ug/L	50.0	1	04/01/15 10:55	04/03/15 15:19	7439-95-4	
Potassium, Dissolved	**3610**	ug/L	500	1	04/01/15 10:55	04/03/15 15:19	7440-09-7	
Sodium, Dissolved	**110000**	ug/L	500	1	04/01/15 10:55	04/03/15 15:19	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 03:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 03:15	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 03:15	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 03:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 03:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/02/15 03:15	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 03:15	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 03:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**367**	mg/L	20.0	1		04/04/15 08:55		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 08:55		
Alkalinity, Total as CaCO3	**367**	mg/L	20.0	1		04/04/15 08:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/04/15 03:22	24959-67-9	
Chloride	**37.8**	mg/L	5.0	5		04/06/15 07:55	16887-00-6	
Sulfate	**749**	mg/L	100	100		04/06/15 08:09	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**11.8**	mg/L	0.50	5		03/31/15 15:00		
Nitrogen, Nitrite	ND	mg/L	0.50	5		03/31/15 15:00		
Nitrogen, NO2 plus NO3	**11.8**	mg/L	0.50	5		03/31/15 15:00		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: AIR/22911 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1930066 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/01/15 16:13	
Ethene	ug/L	ND	6.2	04/01/15 16:13	
Methane	ug/L	ND	6.6	04/01/15 16:13	

LABORATORY CONTROL SAMPLE: 1930067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethane	ug/L	114	109	96	85-115	
Ethene	ug/L	106	100	95	85-115	
Methane	ug/L	60.7	56.2	93	85-115	

SAMPLE DUPLICATE: 1930069

Parameter	Units	35181353001 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	2200	2430	10	20	
Ethene	ug/L	3.1U	ND		20	
Methane	ug/L	20900	23100	10	20	E,H1

SAMPLE DUPLICATE: 1930070

Parameter	Units	60190809002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: MPRP/31260 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1542015 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/03/15 13:56	

LABORATORY CONTROL SAMPLE: 1542016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1060	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542017 1542018

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	2340	1000	1000	3490	3460	115	112	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: MPRP/31270 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1542527 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/06/15 12:56	
Iron, Dissolved	ug/L	ND	50.0	04/06/15 12:56	
Magnesium, Dissolved	ug/L	ND	50.0	04/03/15 14:36	
Potassium, Dissolved	ug/L	ND	500	04/03/15 14:36	
Sodium, Dissolved	ug/L	ND	500	04/03/15 14:36	

LABORATORY CONTROL SAMPLE: 1542528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9750	97	80-120	
Iron, Dissolved	ug/L	10000	9620	96	80-120	
Magnesium, Dissolved	ug/L	10000	10200	102	80-120	
Potassium, Dissolved	ug/L	10000	9830	98	80-120	
Sodium, Dissolved	ug/L	10000	10800	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542529 1542530

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	89000	10000	10000	97600	96200	86	72	75-125	1	20	M1
Iron, Dissolved	ug/L	ND	10000	10000	9330	9170	93	92	75-125	2	20	
Magnesium, Dissolved	ug/L	79300	10000	10000	89600	88600	104	93	75-125	1	20	
Potassium, Dissolved	ug/L	1370	10000	10000	11900	11900	106	105	75-125	1	20	
Sodium, Dissolved	ug/L	86000	10000	10000	97200	97200	112	112	75-125	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: MSV/68549 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1542644 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/01/15 23:07	
Ethylbenzene	ug/L	ND	1.0	04/01/15 23:07	
Toluene	ug/L	ND	1.0	04/01/15 23:07	
Xylene (Total)	ug/L	ND	3.0	04/01/15 23:07	
1,2-Dichloroethane-d4 (S)	%	95	82-119	04/01/15 23:07	
4-Bromofluorobenzene (S)	%	99	80-120	04/01/15 23:07	
Toluene-d8 (S)	%	100	80-120	04/01/15 23:07	

LABORATORY CONTROL SAMPLE: 1542645

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.2	101	80-120	
Ethylbenzene	ug/L	20	20.9	105	80-120	
Toluene	ug/L	20	20.6	103	80-120	
Xylene (Total)	ug/L	60	64.0	107	80-120	
1,2-Dichloroethane-d4 (S)	%			95	82-119	
4-Bromofluorobenzene (S)	%			97	80-120	
Toluene-d8 (S)	%			100	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: WET/53879 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190811001, 60190811002

METHOD BLANK: 1543051 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/02/15 12:44	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/02/15 12:44	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/02/15 12:44	

LABORATORY CONTROL SAMPLE: 1543052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	502	100	90-110	

SAMPLE DUPLICATE: 1543053

Parameter	Units	60190563008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	88.4	86.2	3	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	88.4	86.2	3	10	

SAMPLE DUPLICATE: 1543054

Parameter	Units	60190653002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	182	185	2	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	182	185	2	10	

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: WET/53906 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1544302 Matrix: Water
Associated Lab Samples: 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/04/15 08:18	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/04/15 08:18	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/04/15 08:18	

LABORATORY CONTROL SAMPLE: 1544303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	508	102	90-110	

SAMPLE DUPLICATE: 1544304

Parameter	Units	60190811003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	376	378	0	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	376	378	0	10	

SAMPLE DUPLICATE: 1544305

Parameter	Units	60190779002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	331	329	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	331	329	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: WETA/33476 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1543792 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/03/15 22:54	

METHOD BLANK: 1545328 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/05/15 23:53	
Sulfate	mg/L	ND	1.0	04/05/15 23:53	

LABORATORY CONTROL SAMPLE: 1543793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.0	100	90-110	

LABORATORY CONTROL SAMPLE: 1545329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543794 1543795

Parameter	Units	60190809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	1.3	5	5	6.4	6.7	102	107	80-120	4	15	
Chloride	mg/L	42.4	25	25	69.3	69.1	108	107	80-120	0	15	
Sulfate	mg/L	243	100	100	343	338	100	96	80-120	1	15	

MATRIX SPIKE SAMPLE: 1543796

Parameter	Units	60190809002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1.4	5	6.6	103	80-120	
Chloride	mg/L	43.5	25	68.6	101	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

MATRIX SPIKE SAMPLE: 1543796

Parameter	Units	60190809002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	254	100	351	97	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

QC Batch: WETA/33414 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

METHOD BLANK: 1541411 Matrix: Water
Associated Lab Samples: 60190811001, 60190811002, 60190811003, 60190811004, 60190811005, 60190811006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	03/31/15 14:11	
Nitrogen, Nitrite	mg/L	ND	0.10	03/31/15 14:11	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	03/31/15 14:11	

LABORATORY CONTROL SAMPLE: 1541412

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.6	100	85-115	
Nitrogen, Nitrite	mg/L	.4	0.43	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	101	90-110	

MATRIX SPIKE SAMPLE: 1541413

Parameter	Units	60190776001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1.6	1.7	100	85-115	
Nitrogen, Nitrite	mg/L	ND	.4	0.44	110	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.1	102	90-110	

MATRIX SPIKE SAMPLE: 1541896

Parameter	Units	60190809001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	16.0	16	29.6	86	85-115	
Nitrogen, Nitrite	mg/L	ND	4	4.3	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	16.0	20	34.0	90	90-110	

SAMPLE DUPLICATE: 1541414

Parameter	Units	60190776006 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.56	0.56	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	0.56	0.56	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68549

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190811

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60190811001	**SH1-MW01**	RSK 175	AIR/22911		
60190811002	**SH1-MW02**	RSK 175	AIR/22911		
60190811003	**SH1-MW03**	RSK 175	AIR/22911		
60190811004	**SH2-MW01**	RSK 175	AIR/22911		
60190811005	**SH2-MW03**	RSK 175	AIR/22911		
60190811006	**SH2-MW02**	RSK 175	AIR/22911		
60190811001	**SH1-MW01**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811002	**SH1-MW02**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811003	**SH1-MW03**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811004	**SH2-MW01**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811005	**SH2-MW03**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811006	**SH2-MW02**	EPA 3010	MPRP/31260	EPA 6010	ICP/23269
60190811001	**SH1-MW01**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811002	**SH1-MW02**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811003	**SH1-MW03**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811004	**SH2-MW01**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811005	**SH2-MW03**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811006	**SH2-MW02**	EPA 3010	MPRP/31270	EPA 6010	ICP/23274
60190811001	**SH1-MW01**	EPA 8260	MSV/68549		
60190811002	**SH1-MW02**	EPA 8260	MSV/68549		
60190811003	**SH1-MW03**	EPA 8260	MSV/68549		
60190811004	**SH2-MW01**	EPA 8260	MSV/68549		
60190811005	**SH2-MW03**	EPA 8260	MSV/68549		
60190811006	**SH2-MW02**	EPA 8260	MSV/68549		
60190811001	**SH1-MW01**	SM 2320B	WET/53879		
60190811002	**SH1-MW02**	SM 2320B	WET/53879		
60190811003	**SH1-MW03**	SM 2320B	WET/53906		
60190811004	**SH2-MW01**	SM 2320B	WET/53906		
60190811005	**SH2-MW03**	SM 2320B	WET/53906		
60190811006	**SH2-MW02**	SM 2320B	WET/53906		
60190811001	**SH1-MW01**	EPA 300.0	WETA/33476		
60190811002	**SH1-MW02**	EPA 300.0	WETA/33476		
60190811003	**SH1-MW03**	EPA 300.0	WETA/33476		
60190811004	**SH2-MW01**	EPA 300.0	WETA/33476		
60190811005	**SH2-MW03**	EPA 300.0	WETA/33476		
60190811006	**SH2-MW02**	EPA 300.0	WETA/33476		
60190811001	**SH1-MW01**	EPA 353.2	WETA/33414		
60190811002	**SH1-MW02**	EPA 353.2	WETA/33414		
60190811003	**SH1-MW03**	EPA 353.2	WETA/33414		
60190811004	**SH2-MW01**	EPA 353.2	WETA/33414		
60190811005	**SH2-MW03**	EPA 353.2	WETA/33414		
60190811006	**SH2-MW02**	EPA 353.2	WETA/33414		

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Sample Condition Upon Receipt

WO# : 60190811

60190811

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☑ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☐ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ziplc

Thermometer Used: T-238 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 3.5

Temperature should be above freezing to 6°C

Date and initials of person examining contents: MS 3/31/15

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. NO NO3
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☑Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 020915-3		15.
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [signature] Date: 3/31/15

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

Section A Required Client Information:

Company:	Terracon
Address:	10625 N. I-70 Frontage Rd.
	Wheat Ridge, CO 80033
Email To:	JPANSTEY@TERRACON.COM
Phone: 303-423-3300	Fax:
Requested Due Date/TAT:	PER CONTRACT

Section B Required Project Information:

Report To:	JPANSTEY@TERRACON.COM
Copy To:	AKSAMUELS@TERRACON.COM
Purchase Order No.:	
Project Name:	O&G Wellsite GW
Project Number:	25147063

Section C Invoice Information:

Attention:	JON ANSTEY
Company Name:	TERRACOM
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson
Pace Profile #:	6694, 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: CO

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	Sample ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SH1-MW01	WT	G			3/30/15	0935		9	5		1	3	1B	P3U	1B	P3U	Y	X	X	X	X	X	X	X	/	60190811 1B P2U 3D6AH 3V64U 01
2	SH1-MW02	WT	G			3/30/15	1010		9	5		1	3				1		X	X	X	X	X	X	X			02
3	SH1-MW03	WT	G			3/30/15	1040		9	5		1	3						X	X	X	X	X	X	X			03
4	SH2-MW01	WT	G			3/30/15	1120		9	5		1	3						X	X	X	X	X	X	X			04
5	SH2-MW03	WT	G			3/30/15	1150		9	5		1	3						X	X	X	X	X	X	X			05
6	SH2-MW02	WT	G			3/31/15	1220		9	5		1	3					↓	X	X	X	X	X	X	X			06
7																												2D6AH TB 07
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*Ca, Mg, Na, Fe, K	[signature] TC	3/30/15	1600	[signature] PACE	3/31/15	1010	3-5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ANDREW SAMUELS

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/30/15

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

RUSH!

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10301223

Workorder: 60190811 **Workorder Name:**25147063 O&G WELLSITE GW **Owner Received Date:** 3/31/2015 **Results Requested By:** 4/7/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	RSK-175 MEE	LAB USE ONLY
1	SH1-MW01	PS	3/30/2015 09:35	60190811001	Water	1	X	001
2	SH1-MW02	PS	3/30/2015 10:10	60190811002	Water	1	X	002
3	SH1-MW03	PS	3/30/2015 10:40	60190811003	Water	1	X	003
4	SH2-MW01	PS	3/30/2015 11:20	60190811004	Water	1	X	004
5	SH2-MW03	PS	3/30/2015 11:50	60190811005	Water	1	X	005
6	SH2-MW02	PS	3/30/2015 12:20	60190811006	Water	1	X	006

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	3/31/15 7:40	[signature] Pace	4/1/15 10:10
2				
3				

Cooler Temperature on Receipt 5.9 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pace Analytical®	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 28Feb2014 Page 1 of 1
	Document No.: **F-MN-L-213-rev.09**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO#: 10301223

10301223

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 6346 0247 4051

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☑ Other: Foam **Temp Blank?** ☑ Yes ☐ No

Thermom. Used: ☑ B88A9130516413 ☐ B88A912167504 ☐ B88A9132521491 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 5.7 **Cooler Temp Corrected (°C):** 5.9 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.2 **Date and Initials of Person Examining Contents:** RH 4/1/15

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Kuli Kong **Date:** 4/1/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

April 08, 2015

Jon Anstey
Terracon
10625 W. I-70 Frontage Rd N
Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on April 01, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60190897001	**SGU-MW02**	Water	03/30/15 14:40	04/01/15 09:55
60190897002	**EGT-MW01**	Water	03/31/15 10:40	04/01/15 09:55
60190897003	**EGT-MW02**	Water	03/31/15 10:45	04/01/15 09:55
60190897004	**EGT-MW03**	Water	03/31/15 11:10	04/01/15 09:55
60190897005	**EGW-MW01**	Water	03/31/15 11:35	04/01/15 09:55
60190897006	**EGW-MW02**	Water	03/31/15 12:00	04/01/15 09:55

Pace Analytical Services, Inc.
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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60190897001	**SGU-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190897002	**EGT-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190897003	**EGT-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190897004	**EGT-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190897005	**EGW-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190897006	**EGW-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

Pace Analytical Services, Inc.
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(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: SGU-MW02 **Lab ID: 60190897001** Collected: 03/30/15 14:40 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 18:57	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 18:57	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 18:57	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2310**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:07	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**98000**	ug/L	100	1	04/01/15 14:15	04/07/15 10:51	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 10:51	7439-89-6	
Magnesium, Dissolved	**63700**	ug/L	50.0	1	04/01/15 14:15	04/07/15 10:51	7439-95-4	
Potassium, Dissolved	**2230**	ug/L	500	1	04/01/15 14:15	04/07/15 10:51	7440-09-7	
Sodium, Dissolved	**59300**	ug/L	500	1	04/01/15 14:15	04/07/15 10:51	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 18:04	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 18:04	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 18:04	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 18:04	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/03/15 18:04	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-120	1		04/03/15 18:04	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/03/15 18:04	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 18:04		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**420**	mg/L	20.0	1		04/04/15 10:54		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 10:54		
Alkalinity, Total as CaCO3	**420**	mg/L	20.0	1		04/04/15 10:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 22:25	24959-67-9	
Chloride	**31.9**	mg/L	5.0	5		04/07/15 19:26	16887-00-6	
Sulfate	**258**	mg/L	50.0	50		04/07/15 16:27	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**8.0**	mg/L	0.50	5		04/01/15 13:32		
Nitrogen, Nitrite	ND	mg/L	0.50	5		04/01/15 13:32		
Nitrogen, NO2 plus NO3	**8.0**	mg/L	0.50	5		04/01/15 13:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: EGT-MW01 **Lab ID: 60190897002** Collected: 03/31/15 10:40 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 19:30	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 19:30	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 19:30	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4050**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:09	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**258000**	ug/L	100	1	04/01/15 14:15	04/07/15 10:53	7440-70-2	M1
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 10:53	7439-89-6	
Magnesium, Dissolved	**205000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 10:53	7439-95-4	M1
Potassium, Dissolved	**4810**	ug/L	500	1	04/01/15 14:15	04/07/15 10:53	7440-09-7	
Sodium, Dissolved	**608000**	ug/L	5000	10	04/01/15 14:15	04/07/15 11:26	7440-23-5	M1
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 03:14	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 03:14	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 03:14	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 03:14	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/03/15 03:14	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		04/03/15 03:14	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/03/15 03:14	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 03:14		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**324**	mg/L	20.0	1		04/04/15 10:58		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/04/15 10:58		
Alkalinity, Total as CaCO3	**324**	mg/L	20.0	1		04/04/15 10:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 22:40	24959-67-9	
Chloride	**96.5**	mg/L	10.0	10		04/07/15 19:41	16887-00-6	
Sulfate	**2590**	mg/L	500	500		04/07/15 16:42	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/01/15 13:33		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:33		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/01/15 13:33		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: EGT-MW02 **Lab ID: 60190897003** Collected: 03/31/15 10:45 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 19:38	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 19:38	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 19:38	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**8270**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:12	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**430000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:00	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:00	7439-89-6	
Magnesium, Dissolved	**392000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:00	7439-95-4	
Potassium, Dissolved	**7240**	ug/L	500	1	04/01/15 14:15	04/07/15 11:00	7440-09-7	
Sodium, Dissolved	**563000**	ug/L	5000	10	04/01/15 14:15	04/07/15 11:33	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 03:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 03:28	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 03:28	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 03:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/03/15 03:28	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/03/15 03:28	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	82-119	1		04/03/15 03:28	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 03:28		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**277**	mg/L	20.0	1		04/06/15 18:24		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 18:24		
Alkalinity, Total as CaCO3	**277**	mg/L	20.0	1		04/06/15 18:24		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 22:54	24959-67-9	
Chloride	**129**	mg/L	10.0	10		04/07/15 19:56	16887-00-6	
Sulfate	**3610**	mg/L	500	500		04/07/15 16:57	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/01/15 13:34		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:34		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/01/15 13:34		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: EGT-MW03 **Lab ID: 60190897004** Collected: 03/31/15 11:10 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 19:46	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 19:46	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 19:46	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**9290**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:14	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**432000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:03	7440-70-2	
Iron, Dissolved	**9730**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:03	7439-89-6	
Magnesium, Dissolved	**543000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:03	7439-95-4	
Potassium, Dissolved	**6250**	ug/L	500	1	04/01/15 14:15	04/07/15 11:03	7440-09-7	
Sodium, Dissolved	**840000**	ug/L	5000	10	04/01/15 14:15	04/07/15 11:36	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 03:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 03:42	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 03:42	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 03:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/03/15 03:42	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		04/03/15 03:42	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/03/15 03:42	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 03:42		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**301**	mg/L	20.0	1		04/06/15 18:34		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 18:34		
Alkalinity, Total as CaCO3	**301**	mg/L	20.0	1		04/06/15 18:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 23:09	24959-67-9	
Chloride	**165**	mg/L	20.0	20		04/07/15 20:10	16887-00-6	
Sulfate	**4970**	mg/L	500	500		04/07/15 17:12	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/01/15 13:35		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:35		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/01/15 13:35		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: EGW-MW01 **Lab ID: 60190897005** Collected: 03/31/15 11:35 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 19:54	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 19:54	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 19:54	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4290**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:17	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**207000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:05	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:05	7439-89-6	
Magnesium, Dissolved	**136000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:05	7439-95-4	
Potassium, Dissolved	**4360**	ug/L	500	1	04/01/15 14:15	04/07/15 11:05	7440-09-7	
Sodium, Dissolved	**172000**	ug/L	500	1	04/01/15 14:15	04/07/15 11:05	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 03:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 03:56	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 03:56	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 03:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/03/15 03:56	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-120	1		04/03/15 03:56	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	82-119	1		04/03/15 03:56	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 03:56		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**351**	mg/L	20.0	1		04/06/15 18:48		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 18:48		
Alkalinity, Total as CaCO3	**351**	mg/L	20.0	1		04/06/15 18:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 23:24	24959-67-9	
Chloride	**42.9**	mg/L	5.0	5		04/07/15 20:25	16887-00-6	
Sulfate	**1090**	mg/L	100	100		04/07/15 17:26	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**0.83**	mg/L	0.10	1		04/01/15 13:37		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:37		
Nitrogen, NO2 plus NO3	**0.83**	mg/L	0.10	1		04/01/15 13:37		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Sample: EGW-MW02 **Lab ID: 60190897006** Collected: 03/31/15 12:00 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 20:18	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 20:18	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 20:18	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4020**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:19	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**181000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:08	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:08	7439-89-6	
Magnesium, Dissolved	**150000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:08	7439-95-4	
Potassium, Dissolved	**15300**	ug/L	500	1	04/01/15 14:15	04/07/15 11:08	7440-09-7	
Sodium, Dissolved	**188000**	ug/L	500	1	04/01/15 14:15	04/07/15 11:08	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/15 04:10	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/15 04:10	100-41-4	
Toluene	ND	ug/L	1.0	1		04/03/15 04:10	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/15 04:10	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/03/15 04:10	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/03/15 04:10	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	82-119	1		04/03/15 04:10	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/03/15 04:10		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**307**	mg/L	20.0	1		04/06/15 18:54		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 18:54		
Alkalinity, Total as CaCO3	**307**	mg/L	20.0	1		04/06/15 18:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 23:39	24959-67-9	
Chloride	**35.4**	mg/L	5.0	5		04/07/15 20:40	16887-00-6	
Sulfate	**1160**	mg/L	100	100		04/07/15 17:41	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**0.58**	mg/L	0.10	1		04/01/15 13:38		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:38		
Nitrogen, NO2 plus NO3	**0.58**	mg/L	0.10	1		04/01/15 13:38		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: AIR/22925 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005

METHOD BLANK: 1932412 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/03/15 17:01	
Ethene	ug/L	ND	6.2	04/03/15 17:01	
Methane	ug/L	7.5	6.6	04/03/15 17:01	P8

LABORATORY CONTROL SAMPLE & LCSD: 1932413 1932414

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	114	114	100	101	85-115	1	20	
Ethene	ug/L	106	102	104	96	98	85-115	2	20	
Methane	ug/L	60.7	59.0	59.0	97	97	85-115	0	20	

SAMPLE DUPLICATE: 1932415

Parameter	Units	35180840002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L		ND		20	
Ethene	ug/L		ND		20	
Methane	ug/L	236	272	14	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: AIR/22939
QC Batch Method: RSK 175
Analysis Method: RSK 175
Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60190897006

METHOD BLANK: 1933296 Matrix: Water
Associated Lab Samples: 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/03/15 20:10	
Ethene	ug/L	ND	6.2	04/03/15 20:10	
Methane	ug/L	ND	6.6	04/03/15 20:10	

LABORATORY CONTROL SAMPLE & LCSD: 1933297 1933298

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	114	114	101	100	85-115	0	20	
Ethene	ug/L	106	104	104	98	98	85-115	0	20	
Methane	ug/L	60.7	59.0	58.6	97	97	85-115	1	20	

SAMPLE DUPLICATE: 1933299

Parameter	Units	60190897006 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: MPRP/31281 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1542723 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/02/15 13:00	

LABORATORY CONTROL SAMPLE: 1542724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1050	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542725 1542726

Parameter	Units	60190879001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	3760	1000	1000	4780	4820	102	106	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: MPRP/31280 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1542719 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/07/15 10:46	
Iron, Dissolved	ug/L	ND	50.0	04/07/15 10:46	
Magnesium, Dissolved	ug/L	ND	50.0	04/07/15 10:46	
Potassium, Dissolved	ug/L	ND	500	04/07/15 10:46	
Sodium, Dissolved	ug/L	ND	500	04/07/15 10:46	

LABORATORY CONTROL SAMPLE: 1542720

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	10000	100	80-120	
Iron, Dissolved	ug/L	10000	10100	101	80-120	
Magnesium, Dissolved	ug/L	10000	10600	106	80-120	
Potassium, Dissolved	ug/L	10000	9980	100	80-120	
Sodium, Dissolved	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542721 1542722

Parameter	Units	60190897002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	258000	10000	10000	277000	276000	193	180	75-125	0	20	M1
Iron, Dissolved	ug/L	ND	10000	10000	9780	9920	98	99	75-125	1	20	
Magnesium, Dissolved	ug/L	205000	10000	10000	218000	217000	138	123	75-125	1	20	M1
Potassium, Dissolved	ug/L	4810	10000	10000	16400	16400	116	116	75-125	0	20	
Sodium, Dissolved	ug/L	608000	10000	10000	666000	665000	578	565	75-125	0	20	M1

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: MSV/68575 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1543343 Matrix: Water
Associated Lab Samples: 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/02/15 22:59	
Ethylbenzene	ug/L	ND	1.0	04/02/15 22:59	
Toluene	ug/L	ND	1.0	04/02/15 22:59	
Xylene (Total)	ug/L	ND	3.0	04/02/15 22:59	
1,2-Dichloroethane-d4 (S)	%	100	82-119	04/02/15 22:59	
4-Bromofluorobenzene (S)	%	100	80-120	04/02/15 22:59	
Toluene-d8 (S)	%	100	80-120	04/02/15 22:59	

LABORATORY CONTROL SAMPLE: 1543344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.0	95	80-120	
Ethylbenzene	ug/L	20	18.9	95	80-120	
Toluene	ug/L	20	18.4	92	80-120	
Xylene (Total)	ug/L	60	56.3	94	80-120	
1,2-Dichloroethane-d4 (S)	%			99	82-119	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543345 1543346

Parameter	Units	60190583002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	34.6	22.8	172	113	46-155	41	13	M1,R1
Ethylbenzene	ug/L	ND	20	20	36.4	23.3	182	116	51-148	44	14	M1,R1
Toluene	ug/L	ND	20	20	34.5	22.5	172	112	47-149	42	16	M1,R1
Xylene (Total)	ug/L	ND	60	60	108	69.1	180	115	39-158	44	15	MS,RS
1,2-Dichloroethane-d4 (S)	%						100	100	82-119			
4-Bromofluorobenzene (S)	%						101	101	80-120			
Toluene-d8 (S)	%						100	100	80-120			
Preservation pH		11.0			11.0	11.0				0		

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: MSV/68613
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190897001

METHOD BLANK: 1544162
Matrix: Water
Associated Lab Samples: 60190897001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/03/15 15:15	
Ethylbenzene	ug/L	ND	1.0	04/03/15 15:15	
Toluene	ug/L	ND	1.0	04/03/15 15:15	
Xylene (Total)	ug/L	ND	3.0	04/03/15 15:15	
1,2-Dichloroethane-d4 (S)	%	99	82-119	04/03/15 15:15	
4-Bromofluorobenzene (S)	%	101	80-120	04/03/15 15:15	
Toluene-d8 (S)	%	100	80-120	04/03/15 15:15	

LABORATORY CONTROL SAMPLE: 1544163

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.7	93	80-120	
Ethylbenzene	ug/L	20	19.0	95	80-120	
Toluene	ug/L	20	18.2	91	80-120	
Xylene (Total)	ug/L	60	56.5	94	80-120	
1,2-Dichloroethane-d4 (S)	%			98	82-119	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			100	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: WET/53906 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190897001, 60190897002

METHOD BLANK: 1544302 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/04/15 08:18	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/04/15 08:18	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/04/15 08:18	

LABORATORY CONTROL SAMPLE: 1544303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	508	102	90-110	

SAMPLE DUPLICATE: 1544304

Parameter	Units	60190811003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	376	378	0	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	376	378	0	10	

SAMPLE DUPLICATE: 1544305

Parameter	Units	60190779002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	331	329	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	331	329	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: WET/53926 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1545051 Matrix: Water
Associated Lab Samples: 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/06/15 17:44	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/06/15 17:44	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/06/15 17:44	

LABORATORY CONTROL SAMPLE: 1545052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	513	103	90-110	

SAMPLE DUPLICATE: 1545053

Parameter	Units	60190897003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	277	283	2	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	277	283	2	10	

SAMPLE DUPLICATE: 1545054

Parameter	Units	60190776003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	ND		10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: WETA/33482 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1543896 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/07/15 11:14	
Chloride	mg/L	ND	1.0	04/07/15 11:14	
Sulfate	mg/L	ND	1.0	04/07/15 11:14	

LABORATORY CONTROL SAMPLE: 1543897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.9	99	90-110	
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543898 1543899

Parameter	Units	60190656001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<10.0	50	50	49.5	49.5	99	99	80-120	0	15	
Chloride	mg/L	165	50	50	220	219	110	108	80-120	1	15	
Sulfate	mg/L	449	250	250	741	719	117	108	80-120	3	15	

MATRIX SPIKE SAMPLE: 1543900

Parameter	Units	60190656002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	<10.0	50	49.7	96	80-120	
Chloride	mg/L	190	50	252	123	80-120	M1
Sulfate	mg/L	532	250	807	110	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

QC Batch: WETA/33449 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

METHOD BLANK: 1542674 Matrix: Water
Associated Lab Samples: 60190897001, 60190897002, 60190897003, 60190897004, 60190897005, 60190897006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	04/01/15 13:06	
Nitrogen, Nitrite	mg/L	ND	0.10	04/01/15 13:06	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	04/01/15 13:06	

LABORATORY CONTROL SAMPLE: 1542675

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.5	94	85-115	
Nitrogen, Nitrite	mg/L	.4	0.42	105	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 1542676

Parameter	Units	60190844003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.2	3.2	5.0	87	85-115	
Nitrogen, Nitrite	mg/L	ND	.8	0.90	112	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	2.2	4	5.9	92	90-110	

MATRIX SPIKE SAMPLE: 1542677

Parameter	Units	60190891001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	38.1	32	63.1	78	85-115	M1
Nitrogen, Nitrite	mg/L	ND	8	10.3	118	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	38.9	40	73.4	86	90-110	M1

SAMPLE DUPLICATE: 1542678

Parameter	Units	60190892001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	51.7	51.8	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	52.2	52.2	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68613

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
P8	Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.
R1	RPD value was outside control limits.
RS	The RPD value in one of the constituent analytes was outside the control limits.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190897

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60190897001	**SGU-MW02**	RSK 175	AIR/22925		
60190897002	**EGT-MW01**	RSK 175	AIR/22925		
60190897003	**EGT-MW02**	RSK 175	AIR/22925		
60190897004	**EGT-MW03**	RSK 175	AIR/22925		
60190897005	**EGW-MW01**	RSK 175	AIR/22925		
60190897006	**EGW-MW02**	RSK 175	AIR/22939		
60190897001	**SGU-MW02**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897002	**EGT-MW01**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897003	**EGT-MW02**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897004	**EGT-MW03**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897005	**EGW-MW01**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897006	**EGW-MW02**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190897001	**SGU-MW02**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897002	**EGT-MW01**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897003	**EGT-MW02**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897004	**EGT-MW03**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897005	**EGW-MW01**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897006	**EGW-MW02**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190897001	**SGU-MW02**	EPA 8260	MSV/68613		
60190897002	**EGT-MW01**	EPA 8260	MSV/68575		
60190897003	**EGT-MW02**	EPA 8260	MSV/68575		
60190897004	**EGT-MW03**	EPA 8260	MSV/68575		
60190897005	**EGW-MW01**	EPA 8260	MSV/68575		
60190897006	**EGW-MW02**	EPA 8260	MSV/68575		
60190897001	**SGU-MW02**	SM 2320B	WET/53906		
60190897002	**EGT-MW01**	SM 2320B	WET/53906		
60190897003	**EGT-MW02**	SM 2320B	WET/53926		
60190897004	**EGT-MW03**	SM 2320B	WET/53926		
60190897005	**EGW-MW01**	SM 2320B	WET/53926		
60190897006	**EGW-MW02**	SM 2320B	WET/53926		
60190897001	**SGU-MW02**	EPA 300.0	WETA/33482		
60190897002	**EGT-MW01**	EPA 300.0	WETA/33482		
60190897003	**EGT-MW02**	EPA 300.0	WETA/33482		
60190897004	**EGT-MW03**	EPA 300.0	WETA/33482		
60190897005	**EGW-MW01**	EPA 300.0	WETA/33482		
60190897006	**EGW-MW02**	EPA 300.0	WETA/33482		
60190897001	**SGU-MW02**	EPA 353.2	WETA/33449		
60190897002	**EGT-MW01**	EPA 353.2	WETA/33449		
60190897003	**EGT-MW02**	EPA 353.2	WETA/33449		
60190897004	**EGT-MW03**	EPA 353.2	WETA/33449		
60190897005	**EGW-MW01**	EPA 353.2	WETA/33449		
60190897006	**EGW-MW02**	EPA 353.2	WETA/33449		

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Sample Condition Upon Receipt

WO#: 60190897

60190897

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☒ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ZPLC

Thermometer Used: T-239 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: DWS 04/1/15

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. NONE
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☑Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 020915-3		15.
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW Date: 4/1/15

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A — **Required** Client Information:

Company:	Terracon
Address:	10625 N. I-70 Frontage Rd. Wheat Ridge, CO 80033
Email To:	
Phone:	303-423-3300 Fax:
Requested Due Date/TAT:	PER CONTRACT

Section B — **Required** Project Information:

Report To:	[illegible]@terracon.com
Copy To:	[illegible]@terracon.com
Purchase Order No.:	
Project Name:	O&G Wellsite GW
Project Number:	25147063

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson
Pace Profile #:	6694, 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: CO

Section D — **Required** Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SGU-MW02	WT	G			3/31/15	1440		9	5		1	3	3D6914				X	X	X	X	X	X	X		3V69u 1BP3u 1BP3N 1BP2u 001
2	EGT-MW01	WT	G			3/31/15	1040		9	5		1	3					X	X	X	X	X	X	X		002
3	EGT-MW02	WT	G			3/31/15	1045		9	5		1	3					X	X	X	X	X	X	X		003
4	EGT-MW03	WT	G			3/31/15	1110		9	5		1	3					X	X	X	X	X	X	X		004
5	EGW-MW01	WT	G			3/31/15	1135		9	5		1	3					X	X	X	X	X	X	X		005
6	EGW-MW02	WT	G			3/31/15	1200		9	5		1	3					X	X	X	X	X	X	X		006
7																										2D69HTB 007
8																										
9																										
10																										
11																										
12																										

60190897

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*Ca, Mg, Na, Fe, K	[signature] / TR	3/31/15	1630	[signature] / Pace	3/31/15	1630				
	[signature] / Pace	3/31/15	1630	[signature]	~~3/1/15~~ 4/1/15	0955	0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Andrew Safulko

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/31/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

RUSH EDL 4/2

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10301399

Workorder: 60190897 **Workorder Name:** 25147063 O&G WELLSITE GW **Owner Received Date:** 4/1/2015 **Results Requested By:** 4/8/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	Requested Analysis: RSK-175 MEE	LAB USE ONLY
1	SGU-MW02	PS	3/30/2015 14:40	60190897001	Water	1	X	001
2	EGT-MW01	PS	3/31/2015 10:40	60190897002	Water	1	X	002
3	EGT-MW02	PS	3/31/2015 10:45	60190897003	Water	1	X	003
4	EGT-MW03	PS	3/31/2015 11:10	60190897004	Water	1	X	004
5	EGW-MW01	PS	3/31/2015 11:35	60190897005	Water	1	X	005
6	EGW-MW02	PS	3/31/2015 12:00	60190897006	Water	1	X	006

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/1/15 700	EDL Pace	4/2/15 950
2				
3				

Comments

Cooler Temperature on Receipt 4.1 °C Custody Seal Y or (N) Received on Ice (Y) or N Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Feb2014 Page 1 of 1
	Document No.: F-MN-L-213-rev.09	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO# : 10301399

10301399

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client

[ ] Commercial [ ] Pace [ ] SpeeDee [ ] Other: _____

Tracking Number: 6314 6024 7453 3

Custody Seal on Cooler/Box Present? [ ] Yes [X] No **Seals Intact?** [ ] Yes [X] No

Optional: Proj. Due Date: Proj. Name:

Packing Material: [X] Bubble Wrap [ ] Bubble Bags [ ] None [X] Other: _____ **Temp Blank?** [ ] Yes [X] No

Thermom. Used: [X] B88A9130516413 [ ] B88A912167504 [ ] B88A9132521491 **Type of Ice:** [X] Wet [ ] Blue [ ] None [ ] Samples on ice, cooling process has begun

Cooler Temp Read (°C): 5.9 **Cooler Temp Corrected (°C):** 4.1 **Biological Tissue Frozen?** [ ] Yes [ ] No [X] N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.2 **Date and Initials of Person Examining Contents:** EJL 4/2/15

Comments:

Chain of Custody Present?	[X] Yes	[ ] No	[ ] N/A	1.
Chain of Custody Filled Out?	[X] Yes	[ ] No	[ ] N/A	2.
Chain of Custody Relinquished?	[X] Yes	[ ] No	[ ] N/A	3.
Sampler Name and/or Signature on COC?	[ ] Yes	[X] No	[ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes	[ ] No	[ ] N/A	5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No	[ ] N/A	6.
Rush Turn Around Time Requested?	[X] Yes	[ ] No	[ ] N/A	7.
Sufficient Volume?	[X] Yes	[ ] No	[ ] N/A	8.
Correct Containers Used?	[X] Yes	[ ] No	[ ] N/A	9.
-Pace Containers Used?	[X] Yes	[ ] No	[ ] N/A	
Containers Intact?	[X] Yes	[ ] No	[ ] N/A	10.
Filtered Volume Received for Dissolved Tests?	[ ] Yes	[ ] No	[X] N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	[X] Yes	[ ] No	[ ] N/A	12.
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[X] N/A	13. [ ] HNO_3 [ ] H_2SO_4 [ ] NaOH [ ] HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	[ ] Yes	[ ] No	[X] N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	[ ] Yes	[X] No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	[ ] Yes	[ ] No	[X] N/A	14.
Trip Blank Present?	[ ] Yes	[ ] No	[X] N/A	15.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[X] N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kayla Xiong **Date:** 4/3/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.
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(913)599-5665

April 08, 2015

Jon Anstey
Terracon
10625 W. I-70 Frontage Rd N
Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on April 01, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

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CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60190899001	**EGW-MW03**	Water	03/31/15 12:20	04/01/15 09:55
60190899002	**PL1-MW01**	Water	03/31/15 14:00	04/01/15 09:55
60190899003	**PL1-MW02**	Water	03/31/15 14:30	04/01/15 09:55
60190899004	**DMI-MW01**	Water	03/31/15 15:40	04/01/15 09:55

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60190899001	**EGW-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190899002	**PL1-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190899003	**PL1-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60190899004	**DMI-MW01**	RSK 175	JRB	3	PASI-M
		EPA 6010	JGP	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Sample: EGW-MW03 **Lab ID: 60190899001** Collected: 03/31/15 12:20 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 20:35	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 20:35	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 20:35	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**4020**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:22	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**200000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:15	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:15	7439-89-6	
Magnesium, Dissolved	**133000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:15	7439-95-4	
Potassium, Dissolved	**8490**	ug/L	500	1	04/01/15 14:15	04/07/15 11:15	7440-09-7	
Sodium, Dissolved	**178000**	ug/L	500	1	04/01/15 14:15	04/07/15 11:15	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 03:31	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 03:31	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 03:31	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 03:31	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/02/15 03:31	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/02/15 03:31	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 03:31	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 03:31		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**327**	mg/L	20.0	1		04/06/15 18:58		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 18:58		
Alkalinity, Total as CaCO3	**327**	mg/L	20.0	1		04/06/15 18:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/07/15 23:54	24959-67-9	
Chloride	**40.8**	mg/L	5.0	5		04/07/15 20:55	16887-00-6	
Sulfate	**1180**	mg/L	100	100		04/07/15 17:56	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**1.4**	mg/L	0.10	1		04/01/15 13:39		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:39		
Nitrogen, NO2 plus NO3	**1.4**	mg/L	0.10	1		04/01/15 13:39		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Sample: PL1-MW01 **Lab ID: 60190899002** Collected: 03/31/15 14:00 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 20:43	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 20:43	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 20:43	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**1780**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:29	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**92100**	ug/L	100	1	04/01/15 14:15	04/07/15 11:17	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:17	7439-89-6	
Magnesium, Dissolved	**71800**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:17	7439-95-4	
Potassium, Dissolved	**1250**	ug/L	500	1	04/01/15 14:15	04/07/15 11:17	7440-09-7	
Sodium, Dissolved	**63500**	ug/L	500	1	04/01/15 14:15	04/07/15 11:17	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 03:46	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 03:46	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 03:46	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 03:46	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		04/02/15 03:46	2037-26-5	
4-Bromofluorobenzene (S)	97	%	80-120	1		04/02/15 03:46	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/02/15 03:46	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 03:46		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**259**	mg/L	20.0	1		04/06/15 19:04		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 19:04		
Alkalinity, Total as CaCO3	**259**	mg/L	20.0	1		04/06/15 19:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 00:09	24959-67-9	
Chloride	**38.9**	mg/L	5.0	5		04/07/15 21:10	16887-00-6	
Sulfate	**427**	mg/L	50.0	50		04/07/15 18:11	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**10.0**	mg/L	1.0	10		04/01/15 13:23		
Nitrogen, Nitrite	ND	mg/L	1.0	10		04/01/15 13:23		
Nitrogen, NO2 plus NO3	**10.0**	mg/L	1.0	10		04/01/15 13:23		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Sample: PL1-MW02 **Lab ID: 60190899003** Collected: 03/31/15 14:30 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 20:51	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 20:51	74-85-1	
Methane	ND	ug/L	6.6	1		04/03/15 20:51	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2120**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:31	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**129000**	ug/L	100	1	04/01/15 14:15	04/07/15 11:19	7440-70-2	
Iron, Dissolved	**393**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:19	7439-89-6	
Magnesium, Dissolved	**95900**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:19	7439-95-4	
Potassium, Dissolved	**2250**	ug/L	500	1	04/01/15 14:15	04/07/15 11:19	7440-09-7	
Sodium, Dissolved	**119000**	ug/L	500	1	04/01/15 14:15	04/07/15 11:19	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 04:02	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 04:02	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 04:02	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 04:02	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/02/15 04:02	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/02/15 04:02	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	82-119	1		04/02/15 04:02	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 04:02		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**318**	mg/L	20.0	1		04/06/15 19:09		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 19:09		
Alkalinity, Total as CaCO3	**318**	mg/L	20.0	1		04/06/15 19:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.1**	mg/L	1.0	1		04/08/15 00:24	24959-67-9	
Chloride	**39.6**	mg/L	5.0	5		04/07/15 21:25	16887-00-6	
Sulfate	**633**	mg/L	100	100		04/07/15 18:26	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/01/15 13:40		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:40		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/01/15 13:40		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Sample: DMI-MW01 **Lab ID: 60190899004** Collected: 03/31/15 15:40 Received: 04/01/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/03/15 20:59	74-84-0	
Ethene	ND	ug/L	6.2	1		04/03/15 20:59	74-85-1	
Methane	**62.5**	ug/L	6.6	1		04/03/15 20:59	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**710**	ug/L	10.0	1	04/01/15 14:15	04/02/15 13:33	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**33800**	ug/L	100	1	04/01/15 14:15	04/07/15 11:22	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:22	7439-89-6	
Magnesium, Dissolved	**53000**	ug/L	50.0	1	04/01/15 14:15	04/07/15 11:22	7439-95-4	
Potassium, Dissolved	**1720**	ug/L	500	1	04/01/15 14:15	04/07/15 11:22	7440-09-7	
Sodium, Dissolved	**145000**	ug/L	500	1	04/01/15 14:15	04/07/15 11:22	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/15 04:18	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/15 04:18	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/15 04:18	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/15 04:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/02/15 04:18	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/02/15 04:18	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	82-119	1		04/02/15 04:18	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/02/15 04:18		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**351**	mg/L	20.0	1		04/06/15 19:14		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/06/15 19:14		
Alkalinity, Total as CaCO3	**351**	mg/L	20.0	1		04/06/15 19:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**2.1**	mg/L	1.0	1		04/08/15 01:09	24959-67-9	
Chloride	**72.2**	mg/L	5.0	5		04/07/15 22:10	16887-00-6	
Sulfate	**183**	mg/L	20.0	20		04/07/15 19:11	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/01/15 13:41		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/01/15 13:41		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/01/15 13:41		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: AIR/22939 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1933296 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/03/15 20:10	
Ethene	ug/L	ND	6.2	04/03/15 20:10	
Methane	ug/L	ND	6.6	04/03/15 20:10	

LABORATORY CONTROL SAMPLE & LCSD: 1933297 1933298

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	114	114	101	100	85-115	0	20	
Ethene	ug/L	106	104	104	98	98	85-115	0	20	
Methane	ug/L	60.7	59.0	58.6	97	97	85-115	1	20	

SAMPLE DUPLICATE: 1933299

Parameter	Units	60190897006 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: MPRP/31281 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1542723 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/02/15 13:00	

LABORATORY CONTROL SAMPLE: 1542724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1050	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542725 1542726

Parameter	Units	60190879001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	3760	1000	1000	4780	4820	102	106	75-125	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: MPRP/31280 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1542719 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/07/15 10:46	
Iron, Dissolved	ug/L	ND	50.0	04/07/15 10:46	
Magnesium, Dissolved	ug/L	ND	50.0	04/07/15 10:46	
Potassium, Dissolved	ug/L	ND	500	04/07/15 10:46	
Sodium, Dissolved	ug/L	ND	500	04/07/15 10:46	

LABORATORY CONTROL SAMPLE: 1542720

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	10000	100	80-120	
Iron, Dissolved	ug/L	10000	10100	101	80-120	
Magnesium, Dissolved	ug/L	10000	10600	106	80-120	
Potassium, Dissolved	ug/L	10000	9980	100	80-120	
Sodium, Dissolved	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542721 1542722

Parameter	Units	60190897002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	258000	10000	10000	277000	276000	193	180	75-125	0	20	M1
Iron, Dissolved	ug/L	ND	10000	10000	9780	9920	98	99	75-125	1	20	
Magnesium, Dissolved	ug/L	205000	10000	10000	218000	217000	138	123	75-125	1	20	M1
Potassium, Dissolved	ug/L	4810	10000	10000	16400	16400	116	116	75-125	0	20	
Sodium, Dissolved	ug/L	608000	10000	10000	666000	665000	578	565	75-125	0	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: MSV/68549 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1542644 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/01/15 23:07	
Ethylbenzene	ug/L	ND	1.0	04/01/15 23:07	
Toluene	ug/L	ND	1.0	04/01/15 23:07	
Xylene (Total)	ug/L	ND	3.0	04/01/15 23:07	
1,2-Dichloroethane-d4 (S)	%	95	82-119	04/01/15 23:07	
4-Bromofluorobenzene (S)	%	99	80-120	04/01/15 23:07	
Toluene-d8 (S)	%	100	80-120	04/01/15 23:07	

LABORATORY CONTROL SAMPLE: 1542645

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.2	101	80-120	
Ethylbenzene	ug/L	20	20.9	105	80-120	
Toluene	ug/L	20	20.6	103	80-120	
Xylene (Total)	ug/L	60	64.0	107	80-120	
1,2-Dichloroethane-d4 (S)	%			95	82-119	
4-Bromofluorobenzene (S)	%			97	80-120	
Toluene-d8 (S)	%			100	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: WET/53926 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1545051 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/06/15 17:44	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/06/15 17:44	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/06/15 17:44	

LABORATORY CONTROL SAMPLE: 1545052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	513	103	90-110	

SAMPLE DUPLICATE: 1545053

Parameter	Units	60190897003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	277	283	2	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	277	283	2	10	

SAMPLE DUPLICATE: 1545054

Parameter	Units	60190776003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	ND		10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: WETA/33482 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1543896 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/07/15 11:14	
Chloride	mg/L	ND	1.0	04/07/15 11:14	
Sulfate	mg/L	ND	1.0	04/07/15 11:14	

LABORATORY CONTROL SAMPLE: 1543897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.9	99	90-110	
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1543898 1543899

Parameter	Units	60190656001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<10.0	50	50	49.5	49.5	99	99	80-120	0	15	
Chloride	mg/L	165	50	50	220	219	110	108	80-120	1	15	
Sulfate	mg/L	449	250	250	741	719	117	108	80-120	3	15	

MATRIX SPIKE SAMPLE: 1543900

Parameter	Units	60190656002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	<10.0	50	49.7	96	80-120	
Chloride	mg/L	190	50	252	123	80-120	M1
Sulfate	mg/L	532	250	807	110	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

QC Batch: WETA/33449 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

METHOD BLANK: 1542674 Matrix: Water
Associated Lab Samples: 60190899001, 60190899002, 60190899003, 60190899004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	04/01/15 13:06	
Nitrogen, Nitrite	mg/L	ND	0.10	04/01/15 13:06	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	04/01/15 13:06	

LABORATORY CONTROL SAMPLE: 1542675

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.5	94	85-115	
Nitrogen, Nitrite	mg/L	.4	0.42	105	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 1542676

Parameter	Units	60190844003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	2.2	3.2	5.0	87	85-115	
Nitrogen, Nitrite	mg/L	ND	.8	0.90	112	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	2.2	4	5.9	92	90-110	

MATRIX SPIKE SAMPLE: 1542677

Parameter	Units	60190891001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	38.1	32	63.1	78	85-115	M1
Nitrogen, Nitrite	mg/L	ND	8	10.3	118	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	38.9	40	73.4	86	90-110	M1

SAMPLE DUPLICATE: 1542678

Parameter	Units	60190892001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	51.7	51.8	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	52.2	52.2	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68549

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60190899

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60190899001	**EGW-MW03**	RSK 175	AIR/22939		
60190899002	**PL1-MW01**	RSK 175	AIR/22939		
60190899003	**PL1-MW02**	RSK 175	AIR/22939		
60190899004	**DMI-MW01**	RSK 175	AIR/22939		
60190899001	**EGW-MW03**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190899002	**PL1-MW01**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190899003	**PL1-MW02**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190899004	**DMI-MW01**	EPA 3010	MPRP/31281	EPA 6010	ICP/23280
60190899001	**EGW-MW03**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190899002	**PL1-MW01**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190899003	**PL1-MW02**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190899004	**DMI-MW01**	EPA 3010	MPRP/31280	EPA 6010	ICP/23278
60190899001	**EGW-MW03**	EPA 8260	MSV/68549		
60190899002	**PL1-MW01**	EPA 8260	MSV/68549		
60190899003	**PL1-MW02**	EPA 8260	MSV/68549		
60190899004	**DMI-MW01**	EPA 8260	MSV/68549		
60190899001	**EGW-MW03**	SM 2320B	WET/53926		
60190899002	**PL1-MW01**	SM 2320B	WET/53926		
60190899003	**PL1-MW02**	SM 2320B	WET/53926		
60190899004	**DMI-MW01**	SM 2320B	WET/53926		
60190899001	**EGW-MW03**	EPA 300.0	WETA/33482		
60190899002	**PL1-MW01**	EPA 300.0	WETA/33482		
60190899003	**PL1-MW02**	EPA 300.0	WETA/33482		
60190899004	**DMI-MW01**	EPA 300.0	WETA/33482		
60190899001	**EGW-MW03**	EPA 353.2	WETA/33449		
60190899002	**PL1-MW01**	EPA 353.2	WETA/33449		
60190899003	**PL1-MW02**	EPA 353.2	WETA/33449		
60190899004	**DMI-MW01**	EPA 353.2	WETA/33449		

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Sample Condition Upon Receipt

WO# : 60190899

60190899

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☑ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☑ None ☐ Other ☑ zplc

Thermometer Used: T-239 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: AW 4/1/15

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. NO2 NO3
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA Coliform, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☑Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 020915-3		15.
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW Date: 4/1/15

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A
Required Client Information:

Company:	Terracon
Address:	10625 N. I-70 Frontage Rd. Wheat Ridge, CO 80033
Email To:	
Phone:	303-423-3300 Fax:
Requested Due Date/TAT:	PER CONTRACT

Section B
Required Project Information:

Report To:	J?ANSTEYETERRACON.COM
Copy To:	ANSAFWAKOCTERRACON.COM
Purchase Order No.:	
Project Name:	O&G Wellsite GW
Project Number:	25147063

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson
Pace Profile #:	6694, 2

REGULATORY AGENCY

- ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
- ☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: CO

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D.: 60190899

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	EGW-MW03	WT	G			3/31/15	1220		9	5		1	3	3DG9H			3VG4U		X	X	X	X	X	X	X						1BP3U 1BP3N 1BP2U 01
2	PLI-MW01	WT	C			3/31/15	1400		9	5		1	3						X	X	X	X	X	X	X						02
3	PLI-MW02	WT	G			3/31/15	1430		9	5		1	3						X	X	X	X	X	X	X						03
4	OMI-MW01	WT	G			3/31/15	1540		9	5		1	3						X	X	X	X	X	X	X						04
5																															2DG9H 05
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*Ca, Mg, Na, Fe, K	[signature]	3/31/15	1630	[signature] / PACE	3/31/15	1630				
	[signature] / PACE	3/31/15	1630	[signature] / PASI	4/1/15	0955	1.1	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ANDREW SAFWO
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 03/31/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

RUSH EDL 4/2 10301415

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Workorder: 60190899 **Workorder Name:** 25147063 O&G WELLSITE GW **Owner Received Date:** 4/1/2015 **Results Requested By:** 4/8/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	Requested Analysis: RSK-175 MEE	LAB USE ONLY
1	EGW-MW03	PS	3/31/2015 12:20	60190899001	Water	1	X	001
2	PL1-MW01	PS	3/31/2015 14:00	60190899002	Water	1	X	002
3	PL1-MW02	PS	3/31/2015 14:30	60190899003	Water	1	X	003
4	DMI-MW01	PS	3/31/2015 15:40	60190899004	Water	1	X	004
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1		4/1/15 1700	EDL Pace	4/2/15 900
2				
3				

Comments

Cooler Temperature on Receipt 4.1 °C **Custody Seal** Y or (N) **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Feb2014 Page 1 of 1
	Document No.: F-MN-L-213-rev.09	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO# : 10301415

10301415

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client
[ ] Commercial [ ] Pace [ ] SpeeDee [ ] Other: _____

Tracking Number: 6314 0247 4533

Custody Seal on Cooler/Box Present? [ ] Yes [X] No **Seals Intact?** [ ] Yes [X] No

Optional: Proj. Due Date: Proj. Name:

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [ ] None [X] Other: _____ **Temp Blank?** [ ] Yes [X] No

Thermom. Used: [X] B88A9130516413 [ ] B88A912167504 [ ] B88A9132521491 **Type of Ice:** [X] Wet [ ] Blue [ ] None [ ] Samples on ice, cooling process has begun

Cooler Temp Read (°C): 5.9 **Cooler Temp Corrected (°C):** 4.1 **Biological Tissue Frozen?** [ ] Yes [ ] No [X] N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.2 **Date and Initials of Person Examining Contents:** EM 4/2/15

Comments:

Chain of Custody Present?	[X] Yes	[ ] No	[ ] N/A	1.
Chain of Custody Filled Out?	[X] Yes	[ ] No	[ ] N/A	2.
Chain of Custody Relinquished?	[X] Yes	[ ] No	[ ] N/A	3.
Sampler Name and/or Signature on COC?	[ ] Yes	[X] No	[ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes	[ ] No	[ ] N/A	5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No	[ ] N/A	6.
Rush Turn Around Time Requested?	[X] Yes	[ ] No	[ ] N/A	7.
Sufficient Volume?	[X] Yes	[ ] No	[ ] N/A	8.
Correct Containers Used?	[X] Yes	[ ] No	[ ] N/A	9.
-Pace Containers Used?	[X] Yes	[ ] No	[ ] N/A	
Containers Intact?	[X] Yes	[ ] No	[ ] N/A	10.
Filtered Volume Received for Dissolved Tests?	[ ] Yes	[ ] No	[X] N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	[X] Yes	[ ] No	[ ] N/A	12.
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[X] N/A	13. [ ] HNO_3 [ ] H_2SO_4 [ ] NaOH [ ] HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	[ ] Yes	[ ] No	[X] N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	[ ] Yes	[X] No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	[ ] Yes	[ ] No	[X] N/A	14.
Trip Blank Present?	[ ] Yes	[ ] No	[X] N/A	15.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[X] N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kyle Xiong **Date:** 4/3/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

April 10, 2015

Jon Anstey
Terracon
10625 W. I-70 Frontage Rd N
Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60191118001	**R01-MW01-150401**	Water	04/01/15 11:00	04/03/15 09:55
60191118002	**R01-MW02-150401**	Water	04/01/15 11:30	04/03/15 09:55
60191118003	**R01-MW03R-150401**	Water	04/01/15 11:55	04/03/15 09:55
60191118004	**R01-MW04-150401**	Water	04/01/15 12:25	04/03/15 09:55
60191118005	**R01-MW05-150401**	Water	04/01/15 12:50	04/03/15 09:55
60191118006	**R01-MW06-150401**	Water	04/01/15 13:00	04/03/15 09:55

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60191118001	**R01-MW01-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191118002	**R01-MW02-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191118003	**R01-MW03R-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191118004	**R01-MW04-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	EAK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191118005	**R01-MW05-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191118006	**R01-MW06-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW01-150401 **Lab ID: 60191118001** Collected: 04/01/15 11:00 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 20:09	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 20:09	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 20:09	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**3070**	ug/L	10.0	1	04/03/15 15:30	04/07/15 15:46	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**93700**	ug/L	100	1	04/06/15 15:00	04/09/15 16:54	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 16:54	7439-89-6	
Magnesium, Dissolved	**80000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 16:54	7439-95-4	
Potassium, Dissolved	**1900**	ug/L	500	1	04/06/15 15:00	04/09/15 16:54	7440-09-7	
Sodium, Dissolved	**120000**	ug/L	500	1	04/06/15 15:00	04/09/15 16:54	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/07/15 16:14	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/07/15 16:14	100-41-4	
Toluene	ND	ug/L	1.0	1		04/07/15 16:14	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/07/15 16:14	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/07/15 16:14	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		04/07/15 16:14	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/07/15 16:14	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/07/15 16:14		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**430**	mg/L	20.0	1		04/07/15 16:15		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:15		
Alkalinity, Total as CaCO3	**430**	mg/L	20.0	1		04/07/15 16:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 18:55	24959-67-9	
Chloride	**32.0**	mg/L	5.0	5		04/08/15 14:27	16887-00-6	
Sulfate	**365**	mg/L	50.0	50		04/08/15 09:29	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**4.9**	mg/L	0.20	2		04/03/15 11:21		H1
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 11:21		H1
Nitrogen, NO2 plus NO3	**4.9**	mg/L	0.20	2		04/03/15 11:21		H1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW02-150401 **Lab ID: 60191118002** Collected: 04/01/15 11:30 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 20:18	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 20:18	74-85-1	
Methane	**39.2**	ug/L	6.6	1		04/06/15 20:18	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2670**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:04	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**88700**	ug/L	100	1	04/06/15 15:00	04/09/15 17:00	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:00	7439-89-6	
Magnesium, Dissolved	**80600**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:00	7439-95-4	
Potassium, Dissolved	**1730**	ug/L	500	1	04/06/15 15:00	04/09/15 17:00	7440-09-7	
Sodium, Dissolved	**104000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:00	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/07/15 16:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/07/15 16:28	100-41-4	
Toluene	ND	ug/L	1.0	1		04/07/15 16:28	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/07/15 16:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/07/15 16:28	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		04/07/15 16:28	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/07/15 16:28	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/07/15 16:28		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**437**	mg/L	20.0	1		04/07/15 16:21		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:21		
Alkalinity, Total as CaCO3	**437**	mg/L	20.0	1		04/07/15 16:21		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 20:10	24959-67-9	
Chloride	**34.5**	mg/L	5.0	5		04/08/15 15:12	16887-00-6	
Sulfate	**336**	mg/L	50.0	50		04/08/15 10:14	14808-79-8	M1
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**3.8**	mg/L	0.20	2		04/03/15 10:28		
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 10:28		
Nitrogen, NO2 plus NO3	**3.8**	mg/L	0.20	2		04/03/15 10:28		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW03R-150401 **Lab ID: 60191118003** Collected: 04/01/15 11:55 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 20:26	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 20:26	74-85-1	
Methane	**73.4**	ug/L	6.6	1		04/06/15 20:26	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2940**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:07	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**85600**	ug/L	100	1	04/06/15 15:00	04/09/15 17:02	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:02	7439-89-6	
Magnesium, Dissolved	**79700**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:02	7439-95-4	
Potassium, Dissolved	**2000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:02	7440-09-7	
Sodium, Dissolved	**102000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:02	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/07/15 16:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/07/15 16:42	100-41-4	
Toluene	ND	ug/L	1.0	1		04/07/15 16:42	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/07/15 16:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/07/15 16:42	2037-26-5	
4-Bromofluorobenzene (S)	101	%	80-120	1		04/07/15 16:42	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	82-119	1		04/07/15 16:42	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/07/15 16:42		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**423**	mg/L	20.0	1		04/07/15 16:27		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:27		
Alkalinity, Total as CaCO3	**423**	mg/L	20.0	1		04/07/15 16:27		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 20:40	24959-67-9	
Chloride	**32.5**	mg/L	2.0	2		04/08/15 15:42	16887-00-6	
Sulfate	**310**	mg/L	50.0	50		04/08/15 11:13	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**3.6**	mg/L	0.20	2		04/03/15 11:22		
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 11:22		
Nitrogen, NO2 plus NO3	**3.7**	mg/L	0.20	2		04/03/15 11:22		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW04-150401 **Lab ID: 60191118004** Collected: 04/01/15 12:25 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 20:34	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 20:34	74-85-1	
Methane	**9.2**	ug/L	6.6	1		04/06/15 20:34	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2850**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:11	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**91000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:05	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:05	7439-89-6	
Magnesium, Dissolved	**80300**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:05	7439-95-4	
Potassium, Dissolved	**2070**	ug/L	500	1	04/06/15 15:00	04/09/15 17:05	7440-09-7	
Sodium, Dissolved	**112000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:05	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/07/15 16:56	71-43-2	
Ethylbenzene	**2.1**	ug/L	1.0	1		04/07/15 16:56	100-41-4	
Toluene	ND	ug/L	1.0	1		04/07/15 16:56	108-88-3	
Xylene (Total)	**25.3**	ug/L	3.0	1		04/07/15 16:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/07/15 16:56	2037-26-5	
4-Bromofluorobenzene (S)	102	%	80-120	1		04/07/15 16:56	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	82-119	1		04/07/15 16:56	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/07/15 16:56		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**419**	mg/L	20.0	1		04/07/15 16:33		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:33		
Alkalinity, Total as CaCO3	**419**	mg/L	20.0	1		04/07/15 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 20:55	24959-67-9	
Chloride	**34.5**	mg/L	5.0	5		04/08/15 15:57	16887-00-6	
Sulfate	**367**	mg/L	50.0	50		04/08/15 11:28	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**4.9**	mg/L	0.20	2		04/03/15 10:31		
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 10:31		
Nitrogen, NO2 plus NO3	**4.9**	mg/L	0.20	2		04/03/15 10:31		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW05-150401 **Lab ID: 60191118005** Collected: 04/01/15 12:50 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 20:42	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 20:42	74-85-1	
Methane	**6.7**	ug/L	6.6	1		04/06/15 20:42	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2820**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:14	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**87200**	ug/L	100	1	04/06/15 15:00	04/09/15 17:07	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:07	7439-89-6	
Magnesium, Dissolved	**78600**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:07	7439-95-4	
Potassium, Dissolved	**2080**	ug/L	500	1	04/06/15 15:00	04/09/15 17:07	7440-09-7	
Sodium, Dissolved	**108000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:07	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 13:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 13:33	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 13:33	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 13:33	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	80-120	1		04/08/15 13:33	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 13:33	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	82-119	1		04/08/15 13:33	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 13:33		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**407**	mg/L	20.0	1		04/07/15 16:39		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:39		
Alkalinity, Total as CaCO3	**407**	mg/L	20.0	1		04/07/15 16:39		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 21:10	24959-67-9	
Chloride	**30.1**	mg/L	2.0	2		04/08/15 16:11	16887-00-6	
Sulfate	**335**	mg/L	50.0	50		04/08/15 11:43	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**4.9**	mg/L	0.20	2		04/03/15 11:23		
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 11:23		
Nitrogen, NO2 plus NO3	**4.9**	mg/L	0.20	2		04/03/15 11:23		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Sample: R01-MW06-150401 **Lab ID: 60191118006** Collected: 04/01/15 13:00 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 21:07	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:07	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 21:07	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**2650**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:18	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**82200**	ug/L	100	1	04/06/15 15:00	04/09/15 17:09	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:09	7439-89-6	
Magnesium, Dissolved	**80100**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:09	7439-95-4	
Potassium, Dissolved	**1810**	ug/L	500	1	04/06/15 15:00	04/09/15 17:09	7440-09-7	
Sodium, Dissolved	**90300**	ug/L	500	1	04/06/15 15:00	04/09/15 17:09	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 13:48	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 13:48	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 13:48	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 13:48	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 13:48	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 13:48	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	82-119	1		04/08/15 13:48	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 13:48		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**424**	mg/L	20.0	1		04/07/15 16:58		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 16:58		
Alkalinity, Total as CaCO3	**424**	mg/L	20.0	1		04/07/15 16:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	ND	mg/L	1.0	1		04/08/15 21:24	24959-67-9	
Chloride	**33.4**	mg/L	5.0	5		04/08/15 16:56	16887-00-6	
Sulfate	**294**	mg/L	50.0	50		04/08/15 11:58	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**2.9**	mg/L	0.20	2		04/03/15 11:24		
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 11:24		
Nitrogen, NO2 plus NO3	**2.9**	mg/L	0.20	2		04/03/15 11:24		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: AIR/22943 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

METHOD BLANK: 1933462 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/06/15 18:16	
Ethene	ug/L	ND	6.2	04/06/15 18:16	
Methane	ug/L	ND	6.6	04/06/15 18:16	

LABORATORY CONTROL SAMPLE & LCSD: 1933463 1933464

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	114	117	100	103	85-115	2	20	
Ethene	ug/L	106	104	107	99	101	85-115	2	20	
Methane	ug/L	60.7	58.5	59.5	96	98	85-115	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1933465 1933466

Parameter	Units	60190988006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	ND	114	114	89.0	90.6	78	80	54-148	2	20	
Ethene	ug/L	ND	106	106	83.0	83.6	78	79	50-150	1	20	
Methane	ug/L	ND	60.7	60.7	48.2	48.1	74	74	30-150	0	20	

SAMPLE DUPLICATE: 1933467

Parameter	Units	60191118006 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: MPRP/31322 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

METHOD BLANK: 1544352 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/07/15 15:43	

LABORATORY CONTROL SAMPLE: 1544353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1544354 1544355

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	3070	1000	1000	4270	4040	120	97	75-125	5	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: MPRP/31334 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

METHOD BLANK: 1545133 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/09/15 16:52	
Iron, Dissolved	ug/L	ND	50.0	04/09/15 16:52	
Magnesium, Dissolved	ug/L	ND	50.0	04/09/15 16:52	
Potassium, Dissolved	ug/L	ND	500	04/09/15 16:52	
Sodium, Dissolved	ug/L	ND	500	04/09/15 16:52	

LABORATORY CONTROL SAMPLE: 1545134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9900	99	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Magnesium, Dissolved	ug/L	10000	10100	101	80-120	
Potassium, Dissolved	ug/L	10000	9860	99	80-120	
Sodium, Dissolved	ug/L	10000	9970	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1545135 1545136

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	93700	10000	10000	104000	103000	105	94	75-125	1	20	
Iron, Dissolved	ug/L	ND	10000	10000	9620	9750	96	97	75-125	1	20	
Magnesium, Dissolved	ug/L	80000	10000	10000	90300	89100	103	91	75-125	1	20	
Potassium, Dissolved	ug/L	1900	10000	10000	12400	12500	105	106	75-125	1	20	
Sodium, Dissolved	ug/L	120000	10000	10000	130000	129000	101	92	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: MSV/68663 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004

METHOD BLANK: 1545559 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/07/15 11:52	
Ethylbenzene	ug/L	ND	1.0	04/07/15 11:52	
Toluene	ug/L	ND	1.0	04/07/15 11:52	
Xylene (Total)	ug/L	ND	3.0	04/07/15 11:52	
1,2-Dichloroethane-d4 (S)	%	98	82-119	04/07/15 11:52	
4-Bromofluorobenzene (S)	%	101	80-120	04/07/15 11:52	
Toluene-d8 (S)	%	100	80-120	04/07/15 11:52	

LABORATORY CONTROL SAMPLE: 1545560

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.2	96	80-120	
Ethylbenzene	ug/L	20	19.7	99	80-120	
Toluene	ug/L	20	19.4	97	80-120	
Xylene (Total)	ug/L	60	59.0	98	80-120	
1,2-Dichloroethane-d4 (S)	%			100	82-119	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			100	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: MSV/68703 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60191118005, 60191118006

METHOD BLANK: 1546263 Matrix: Water
Associated Lab Samples: 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/08/15 13:03	
Ethylbenzene	ug/L	ND	1.0	04/08/15 13:03	
Toluene	ug/L	ND	1.0	04/08/15 13:03	
Xylene (Total)	ug/L	ND	3.0	04/08/15 13:03	
1,2-Dichloroethane-d4 (S)	%	101	82-119	04/08/15 13:03	
4-Bromofluorobenzene (S)	%	99	80-120	04/08/15 13:03	
Toluene-d8 (S)	%	100	80-120	04/08/15 13:03	

LABORATORY CONTROL SAMPLE: 1546264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.8	104	80-120	
Ethylbenzene	ug/L	20	21.0	105	80-120	
Toluene	ug/L	20	21.0	105	80-120	
Xylene (Total)	ug/L	60	65.2	109	80-120	
1,2-Dichloroethane-d4 (S)	%			98	82-119	
4-Bromofluorobenzene (S)	%			96	80-120	
Toluene-d8 (S)	%			102	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: WET/53954 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

METHOD BLANK: 1545330 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/07/15 14:58	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/07/15 14:58	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/07/15 14:58	

LABORATORY CONTROL SAMPLE: 1545331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	514	103	90-110	

SAMPLE DUPLICATE: 1545332

Parameter	Units	60190682001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	20.03	ND		10	
Alkalinity, Total as CaCO3	mg/L	189	191	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	189	191	1	10	

SAMPLE DUPLICATE: 1545333

Parameter	Units	60191118005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	407	401	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	407	401	1	10	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: WETA/33510 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

METHOD BLANK: 1545413 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005, 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/08/15 08:59	
Chloride	mg/L	ND	1.0	04/08/15 08:59	
Sulfate	mg/L	ND	1.0	04/08/15 08:59	

LABORATORY CONTROL SAMPLE: 1545414

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.0	100	90-110	
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1545415 1545416

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	ND	5	5	5.4	5.5	101	105	80-120	3	15	
Chloride	mg/L	32.0	25	25	62.1	57.1	120	100	80-120	8	15	
Sulfate	mg/L	365	250	250	621	623	102	103	80-120	0	15	

MATRIX SPIKE SAMPLE: 1545417

Parameter	Units	60191118002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	ND	5	5.4	102	80-120	
Chloride	mg/L	34.5	25	63.4	116	80-120	
Sulfate	mg/L	336	250	700	146	80-120	M1

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: WETA/33468 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005

METHOD BLANK: 1543739 Matrix: Water
Associated Lab Samples: 60191118001, 60191118002, 60191118003, 60191118004, 60191118005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	04/03/15 10:16	
Nitrogen, Nitrite	mg/L	ND	0.10	04/03/15 10:16	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	04/03/15 10:16	

LABORATORY CONTROL SAMPLE: 1543740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.5	94	85-115	
Nitrogen, Nitrite	mg/L	.4	0.42	106	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 1543741

Parameter	Units	60190968002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.79	1.6	2.3	96	85-115	
Nitrogen, Nitrite	mg/L	ND	.4	0.49	119	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	0.80	2	2.8	101	90-110	

MATRIX SPIKE SAMPLE: 1543887

Parameter	Units	60191071002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	13.7	16	26.8	82	85-115	M1
Nitrogen, Nitrite	mg/L	ND	4	5.3	112	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	14.6	20	32.1	88	90-110	M1

SAMPLE DUPLICATE: 1543742

Parameter	Units	60191068002 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.74	0.74	0	20	
Nitrogen, Nitrite	mg/L	ND	.031J		20	
Nitrogen, NO2 plus NO3	mg/L	0.77	0.77	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

QC Batch: WETA/33470
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60191118006

METHOD BLANK: 1543753 Matrix: Water
Associated Lab Samples: 60191118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	04/03/15 10:40	
Nitrogen, Nitrite	mg/L	ND	0.10	04/03/15 10:40	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	04/03/15 10:40	

LABORATORY CONTROL SAMPLE: 1543754

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.5	93	85-115	
Nitrogen, Nitrite	mg/L	.4	0.43	107	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 1543755

Parameter	Units	60191088001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	384	320	637	79	85-115	M1
Nitrogen, Nitrite	mg/L	ND	80	91.2	113	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	385	400	728	86	90-110	M1

MATRIX SPIKE SAMPLE: 1543756

Parameter	Units	60191088015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1.6	1.6	97	85-115	
Nitrogen, Nitrite	mg/L	ND	.4	0.46	113	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.0	100	90-110	

SAMPLE DUPLICATE: 1543757

Parameter	Units	60191088016 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68663

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/68703

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191118

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60191118001	**R01-MW01-150401**	RSK 175	AIR/22943		
60191118002	**R01-MW02-150401**	RSK 175	AIR/22943		
60191118003	**R01-MW03R-150401**	RSK 175	AIR/22943		
60191118004	**R01-MW04-150401**	RSK 175	AIR/22943		
60191118005	**R01-MW05-150401**	RSK 175	AIR/22943		
60191118006	**R01-MW06-150401**	RSK 175	AIR/22943		
60191118001	**R01-MW01-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118002	**R01-MW02-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118003	**R01-MW03R-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118004	**R01-MW04-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118005	**R01-MW05-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118006	**R01-MW06-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191118001	**R01-MW01-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118002	**R01-MW02-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118003	**R01-MW03R-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118004	**R01-MW04-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118005	**R01-MW05-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118006	**R01-MW06-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191118001	**R01-MW01-150401**	EPA 8260	MSV/68663		
60191118002	**R01-MW02-150401**	EPA 8260	MSV/68663		
60191118003	**R01-MW03R-150401**	EPA 8260	MSV/68663		
60191118004	**R01-MW04-150401**	EPA 8260	MSV/68663		
60191118005	**R01-MW05-150401**	EPA 8260	MSV/68703		
60191118006	**R01-MW06-150401**	EPA 8260	MSV/68703		
60191118001	**R01-MW01-150401**	SM 2320B	WET/53954		
60191118002	**R01-MW02-150401**	SM 2320B	WET/53954		
60191118003	**R01-MW03R-150401**	SM 2320B	WET/53954		
60191118004	**R01-MW04-150401**	SM 2320B	WET/53954		
60191118005	**R01-MW05-150401**	SM 2320B	WET/53954		
60191118006	**R01-MW06-150401**	SM 2320B	WET/53954		
60191118001	**R01-MW01-150401**	EPA 300.0	WETA/33510		
60191118002	**R01-MW02-150401**	EPA 300.0	WETA/33510		
60191118003	**R01-MW03R-150401**	EPA 300.0	WETA/33510		
60191118004	**R01-MW04-150401**	EPA 300.0	WETA/33510		
60191118005	**R01-MW05-150401**	EPA 300.0	WETA/33510		
60191118006	**R01-MW06-150401**	EPA 300.0	WETA/33510		
60191118001	**R01-MW01-150401**	EPA 353.2	WETA/33468		
60191118002	**R01-MW02-150401**	EPA 353.2	WETA/33468		
60191118003	**R01-MW03R-150401**	EPA 353.2	WETA/33468		
60191118004	**R01-MW04-150401**	EPA 353.2	WETA/33468		
60191118005	**R01-MW05-150401**	EPA 353.2	WETA/33468		
60191118006	**R01-MW06-150401**	EPA 353.2	WETA/33470		

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Sample Condition Upon Receipt

WO# : 60191118

60191118

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☒ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☒ None ☐ Other ☐

Thermometer Used: CF -0.1 T-239 / CF -1.8 T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0.7

Date and initials of person examining contents: JB 4/3

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	~~☐Yes~~ ☒No ☐N/A	5. MW01 not received in time
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. NO_3 / NO_3
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	~~☐Yes~~ ☒No ☐N/A	MW03R collection time 1150 on sample label MW04 collection time 1055 on sample label
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	MW05 collection time 1125 on sample label
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: (VOA) Coliform, O&G, WI-DRO (water)	☒Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☒Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 3/25/15		15.
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Andrew.safulko Field Data Required? Y / N

Person Contacted: Jon Anstey + Date/Time: 4/3/15

Comments/ Resolution: collected 4/1/15? If so, mountain time or central on COC? dMW 4/3/15

Per Jon Anstey - mountain time, Analyze even if out of hold dMW 4/3/15

Project Manager Review: dMW Date: 4/3/15

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Page: 1 of 1

Section A Required Client Information:
Company: Terracon
Address: 10625 N. I-70 Frontage Rd.
Wheat Ridge, CO 80033
Email To:
Phone: 303-423-3300 Fax:
Requested Due Date/TAT: PER CONTRACT

Section B Required Project Information:
Report To: JPANSTEY@TERRACON.COM
Copy To: AKSAFULKO@TERRACON.COM
Purchase Order No.:
Project Name: O&G Wellsite GW
Project Number: 25147063

Section C Invoice Information:
Attention: JON ANSTEY
Company Name: TERRACON
Address:
Pace Quote Reference:
Pace Project Manager: Heather Wilson
Pace Profile #: 6694, 2

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: CO

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D.: 6019118

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	RD1-MW01-150401	WT	G			4/1/15	1000		9	5		1	3						X	X	X	X	X	X	X	BP2U	BP3U				BP3F (3) DG9H (2) VG9U 01
2	RD1-MW02-150401	WT	G			4/1/15	1030		9	5		1	3						X	X	X	X	X	X	X						02
3	RD1-MW03R-150401	WT	G			4/1/15	1055		9	5		1	3						X	X	X	X	X	X	X						03
4	RD1-MW04-150401	WT	G			4/1/15	1125		9	5		1	3						X	X	X	X	X	X	X						04
5	RD1-MW05-150401	WT	G			4/1/15	1150		9	5		1	3						X	X	X	X	X	X	X						05
6	RD1-MW06-150401	WT	G			4/1/15	1200		9	5		1	3						X	X	X	X	X	X	X						06
7																															(2) DG9H TB 07
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*Ca, Mg, Na, Fe, K	[signature] / TT	4/2/15	1195	[signature] Pace	4/3	0955	0.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: ANDREW SAFULKO
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 04/01/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

PUSH 4 DAYS **RUSH!** 10301701

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Workorder: 60191118 **Workorder Name:** 25147063 O&G WELLSITE GW **Owner Received Date:** 4/3/2015 **Results Requested By:** 4/10/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	Requested Analysis: RSK-175 MEE	LAB USE ONLY
1	R01-MW01-150401	PS	4/1/2015 11:00	60191118001	Water	1	X	001
2	R01-MW02-150401	PS	4/1/2015 11:30	60191118002	Water	1	X	002
3	R01-MW03R-150401	PS	4/1/2015 11:55	60191118003	Water	1	X	003
4	R01-MW04-150401	PS	4/1/2015 12:25	60191118004	Water	1	X	004
5	R01-MW05-150401	PS	4/1/2015 12:50	60191118005	Water	1	X	005
6	R01-MW06-150401	PS	4/1/2015 13:00	60191118006	Water	1	X	006

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/3/15 1600	Alyssa Peck	4/4/15 945
2				
3				

Cooler Temperature on Receipt 3.0 °C **Custody Seal** (Y) or N **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Feb2015 Page 1 of 1
	Document No.: F-MN-L-213-rev.13	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO# : 10301701

10301701

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 6346 0247 5551

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No **Seals Intact?** ☒ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☐ Yes ☒ No

Thermometer Used: ☐ B88A9130516413 ☒ B88A912167504 ☐ B88A0143310098 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.0 **Cooler Temp Corrected (°C):** 3.0 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 **Date and Initials of Person Examining Contents:** AMP 4/4/15

USDA Regulated Soil (☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	7.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☒ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☐ No	☒ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Kyle Xiong **Date:** April 6 2015

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers). KX 4/6/15

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

April 10, 2015

Jon Anstey
Terracon
10625 W. I-70 Frontage Rd N
Suite 3
Wheat Ridge, CO 80033

RE: Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Dear Jon Anstey:
Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: Andrew Safulko, Terracon

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60191121001	**MW01-150401**	Water	04/01/15 13:45	04/03/15 09:55
60191121002	**MW03-150401**	Water	04/01/15 14:10	04/03/15 09:55
60191121003	**MW04-150401**	Water	04/01/15 14:40	04/03/15 09:55
60191121004	**MW05-150401**	Water	04/01/15 15:00	04/03/15 09:55
60191121005	**MW06-150401**	Water	04/01/15 15:20	04/03/15 09:55
60191121006	**DMI-MW02**	Water	04/01/15 16:05	04/03/15 09:55
60191121007	**DMI-MW03**	Water	04/01/15 16:25	04/03/15 09:55

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60191121001	**MW01-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121002	**MW03-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121003	**MW04-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121004	**MW05-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121005	**MW06-150401**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121006	**DMI-MW02**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K
60191121007	**DMI-MW03**	RSK 175	JRB	3	PASI-M
		EPA 6010	NDJ	1	PASI-K
		EPA 6010	JGP	5	PASI-K
		EPA 8260	JTK	8	PASI-K
		SM 2320B	CRT	3	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 353.2	AJM	3	PASI-K

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: MW01-150401 **Lab ID: 60191121001** Collected: 04/01/15 13:45 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	**9.4**	ug/L	6.2	1		04/06/15 21:23	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:23	74-85-1	
Methane	**372**	ug/L	6.6	1		04/06/15 21:23	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**11900**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:21	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**318000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:11	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:11	7439-89-6	
Magnesium, Dissolved	**687000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:11	7439-95-4	
Potassium, Dissolved	**10400**	ug/L	500	1	04/06/15 15:00	04/09/15 17:11	7440-09-7	
Sodium, Dissolved	**2260000**	ug/L	25000	50	04/06/15 15:00	04/10/15 09:18	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	**1.4**	ug/L	1.0	1		04/08/15 14:03	71-43-2	
Ethylbenzene	**186**	ug/L	1.0	1		04/08/15 14:03	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 14:03	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 14:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 14:03	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 14:03	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	82-119	1		04/08/15 14:03	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 14:03		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**1120**	mg/L	40.0	2		04/07/15 17:51		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	40.0	2		04/07/15 17:51		
Alkalinity, Total as CaCO3	**1120**	mg/L	40.0	2		04/07/15 17:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**8.0**	mg/L	1.0	1		04/08/15 21:39	24959-67-9	
Chloride	**762**	mg/L	100	100		04/08/15 17:11	16887-00-6	
Sulfate	**7340**	mg/L	1000	1000		04/08/15 12:13	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/03/15 11:10		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:10		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/03/15 11:10		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: MW03-150401 **Lab ID: 60191121002** Collected: 04/01/15 14:10 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	**22.8**	ug/L	6.2	1		04/06/15 21:31	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:31	74-85-1	
Methane	**104**	ug/L	6.6	1		04/06/15 21:31	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**9150**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:25	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**405000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:18	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:18	7439-89-6	
Magnesium, Dissolved	**711000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:18	7439-95-4	
Potassium, Dissolved	**9830**	ug/L	500	1	04/06/15 15:00	04/09/15 17:18	7440-09-7	
Sodium, Dissolved	**1490000**	ug/L	25000	50	04/06/15 15:00	04/10/15 09:21	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 14:18	71-43-2	
Ethylbenzene	**1.2**	ug/L	1.0	1		04/08/15 14:18	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 14:18	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 14:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 14:18	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 14:18	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	82-119	1		04/08/15 14:18	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 14:18		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**1790**	mg/L	40.0	2		04/07/15 18:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	40.0	2		04/07/15 18:00		
Alkalinity, Total as CaCO3	**1790**	mg/L	40.0	2		04/07/15 18:00		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.7**	mg/L	1.0	1		04/08/15 21:54	24959-67-9	
Chloride	**162**	mg/L	20.0	20		04/08/15 17:26	16887-00-6	
Sulfate	**5860**	mg/L	500	500		04/08/15 12:28	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/03/15 11:11		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:11		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/03/15 11:11		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: MW04-150401 **Lab ID: 60191121003** Collected: 04/01/15 14:40 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 21:39	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:39	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 21:39	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**9030**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:29	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**382000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:20	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:20	7439-89-6	
Magnesium, Dissolved	**776000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:20	7439-95-4	
Potassium, Dissolved	**12200**	ug/L	500	1	04/06/15 15:00	04/09/15 17:20	7440-09-7	
Sodium, Dissolved	**1530000**	ug/L	25000	50	04/06/15 15:00	04/10/15 09:23	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 14:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 14:33	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 14:33	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 14:33	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 14:33	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 14:33	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	82-119	1		04/08/15 14:33	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 14:33		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**528**	mg/L	20.0	1		04/07/15 17:29		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/07/15 17:29		
Alkalinity, Total as CaCO3	**528**	mg/L	20.0	1		04/07/15 17:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**2.8**	mg/L	1.0	1		04/08/15 22:09	24959-67-9	
Chloride	**119**	mg/L	10.0	10		04/08/15 17:41	16887-00-6	
Sulfate	**7100**	mg/L	1000	1000		04/08/15 12:43	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**1.3**	mg/L	0.10	1		04/03/15 11:12		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:12		
Nitrogen, NO2 plus NO3	**1.3**	mg/L	0.10	1		04/03/15 11:12		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: MW05-150401 **Lab ID: 60191121004** Collected: 04/01/15 15:00 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 21:47	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:47	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 21:47	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**7120**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:39	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**381000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:23	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:23	7439-89-6	
Magnesium, Dissolved	**570000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:23	7439-95-4	
Potassium, Dissolved	**10700**	ug/L	500	1	04/06/15 15:00	04/09/15 17:23	7440-09-7	
Sodium, Dissolved	**1020000**	ug/L	25000	50	04/06/15 15:00	04/10/15 09:25	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 14:48	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 14:48	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 14:48	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 14:48	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		04/08/15 14:48	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 14:48	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	82-119	1		04/08/15 14:48	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 14:48		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**468**	mg/L	20.0	1		04/09/15 10:05		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/09/15 10:05		
Alkalinity, Total as CaCO3	**468**	mg/L	20.0	1		04/09/15 10:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.4**	mg/L	1.0	1		04/08/15 22:54	24959-67-9	
Chloride	**64.8**	mg/L	5.0	5		04/08/15 17:56	16887-00-6	
Sulfate	**5250**	mg/L	500	500		04/08/15 12:58	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**0.43**	mg/L	0.10	1		04/03/15 11:13		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:13		
Nitrogen, NO2 plus NO3	**0.44**	mg/L	0.10	1		04/03/15 11:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: MW06-150401 **Lab ID: 60191121005** Collected: 04/01/15 15:20 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 21:56	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 21:56	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 21:56	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**8280**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:43	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**372000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:25	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:25	7439-89-6	
Magnesium, Dissolved	**605000**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:25	7439-95-4	
Potassium, Dissolved	**11000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:25	7440-09-7	
Sodium, Dissolved	**1110000**	ug/L	25000	50	04/06/15 15:00	04/10/15 09:28	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 15:03	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 15:03	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 15:03	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 15:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 15:03	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 15:03	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/08/15 15:03	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 15:03		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**494**	mg/L	20.0	1		04/09/15 10:12		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/09/15 10:12		
Alkalinity, Total as CaCO3	**494**	mg/L	20.0	1		04/09/15 10:12		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.5**	mg/L	1.0	1		04/08/15 23:09	24959-67-9	
Chloride	**77.6**	mg/L	5.0	5		04/08/15 18:11	16887-00-6	
Sulfate	**5690**	mg/L	500	500		04/08/15 13:13	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**0.60**	mg/L	0.10	1		04/03/15 11:13		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:13		
Nitrogen, NO2 plus NO3	**0.60**	mg/L	0.10	1		04/03/15 11:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: DMI-MW02 **Lab ID: 60191121006** Collected: 04/01/15 16:05 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 22:04	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 22:04	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 22:04	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**986**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:47	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**82900**	ug/L	100	1	04/06/15 15:00	04/09/15 17:28	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:28	7439-89-6	
Magnesium, Dissolved	**68600**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:28	7439-95-4	
Potassium, Dissolved	**4670**	ug/L	500	1	04/06/15 15:00	04/09/15 17:28	7440-09-7	
Sodium, Dissolved	**215000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:28	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 15:18	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 15:18	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 15:18	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 15:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 15:18	2037-26-5	
4-Bromofluorobenzene (S)	99	%	80-120	1		04/08/15 15:18	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		04/08/15 15:18	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 15:18		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**529**	mg/L	20.0	1		04/09/15 10:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/09/15 10:25		
Alkalinity, Total as CaCO3	**529**	mg/L	20.0	1		04/09/15 10:25		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**4.1**	mg/L	1.0	1		04/08/15 23:24	24959-67-9	
Chloride	**112**	mg/L	10.0	10		04/08/15 18:26	16887-00-6	
Sulfate	**339**	mg/L	50.0	50		04/08/15 13:57	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	ND	mg/L	0.10	1		04/03/15 11:14		
Nitrogen, Nitrite	ND	mg/L	0.10	1		04/03/15 11:14		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	1		04/03/15 11:14		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Sample: DMI-MW03 **Lab ID: 60191121007** Collected: 04/01/15 16:25 Received: 04/03/15 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace	Analytical Method: RSK 175							
Ethane	ND	ug/L	6.2	1		04/06/15 22:12	74-84-0	
Ethene	ND	ug/L	6.2	1		04/06/15 22:12	74-85-1	
Methane	ND	ug/L	6.6	1		04/06/15 22:12	74-82-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Strontium	**1120**	ug/L	10.0	1	04/03/15 15:30	04/07/15 16:51	7440-24-6	
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Calcium, Dissolved	**116000**	ug/L	100	1	04/06/15 15:00	04/09/15 17:30	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:30	7439-89-6	
Magnesium, Dissolved	**70300**	ug/L	50.0	1	04/06/15 15:00	04/09/15 17:30	7439-95-4	
Potassium, Dissolved	**1960**	ug/L	500	1	04/06/15 15:00	04/09/15 17:30	7440-09-7	
Sodium, Dissolved	**167000**	ug/L	500	1	04/06/15 15:00	04/09/15 17:30	7440-23-5	
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/08/15 15:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/08/15 15:33	100-41-4	
Toluene	ND	ug/L	1.0	1		04/08/15 15:33	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/08/15 15:33	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		04/08/15 15:33	2037-26-5	
4-Bromofluorobenzene (S)	98	%	80-120	1		04/08/15 15:33	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	82-119	1		04/08/15 15:33	17060-07-0	
Preservation pH	**1.0**		0.10	1		04/08/15 15:33		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	**287**	mg/L	20.0	1		04/09/15 10:31		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		04/09/15 10:31		
Alkalinity, Total as CaCO3	**287**	mg/L	20.0	1		04/09/15 10:31		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**2.8**	mg/L	1.0	1		04/08/15 23:39	24959-67-9	
Chloride	**108**	mg/L	10.0	10		04/08/15 18:40	16887-00-6	
Sulfate	**577**	mg/L	50.0	50		04/08/15 14:12	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**3.5**	mg/L	0.20	2		04/03/15 11:51		M1
Nitrogen, Nitrite	ND	mg/L	0.20	2		04/03/15 11:51		M1
Nitrogen, NO2 plus NO3	**3.5**	mg/L	0.20	2		04/03/15 11:51		M1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: AIR/22943 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1933462 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	6.2	04/06/15 18:16	
Ethene	ug/L	ND	6.2	04/06/15 18:16	
Methane	ug/L	ND	6.6	04/06/15 18:16	

LABORATORY CONTROL SAMPLE & LCSD: 1933463 1933464

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	114	117	100	103	85-115	2	20	
Ethene	ug/L	106	104	107	99	101	85-115	2	20	
Methane	ug/L	60.7	58.5	59.5	96	98	85-115	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1933465 1933466

Parameter	Units	60190988006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	ND	114	114	89.0	90.6	78	80	54-148	2	20	
Ethene	ug/L	ND	106	106	83.0	83.6	78	79	50-150	1	20	
Methane	ug/L	ND	60.7	60.7	48.2	48.1	74	74	30-150	0	20	

SAMPLE DUPLICATE: 1933467

Parameter	Units	60191118006 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: MPRP/31322 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1544352 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Strontium	ug/L	ND	10.0	04/07/15 15:43	

LABORATORY CONTROL SAMPLE: 1544353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Strontium	ug/L	1000	1000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1544354 1544355

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Strontium	ug/L	3070	1000	1000	4270	4040	120	97	75-125	5	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: MPRP/31334 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1545133 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	04/09/15 16:52	
Iron, Dissolved	ug/L	ND	50.0	04/09/15 16:52	
Magnesium, Dissolved	ug/L	ND	50.0	04/09/15 16:52	
Potassium, Dissolved	ug/L	ND	500	04/09/15 16:52	
Sodium, Dissolved	ug/L	ND	500	04/09/15 16:52	

LABORATORY CONTROL SAMPLE: 1545134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9900	99	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Magnesium, Dissolved	ug/L	10000	10100	101	80-120	
Potassium, Dissolved	ug/L	10000	9860	99	80-120	
Sodium, Dissolved	ug/L	10000	9970	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1545135 1545136

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	93700	10000	10000	104000	103000	105	94	75-125	1	20	
Iron, Dissolved	ug/L	ND	10000	10000	9620	9750	96	97	75-125	1	20	
Magnesium, Dissolved	ug/L	80000	10000	10000	90300	89100	103	91	75-125	1	20	
Potassium, Dissolved	ug/L	1900	10000	10000	12400	12500	105	106	75-125	1	20	
Sodium, Dissolved	ug/L	120000	10000	10000	130000	129000	101	92	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: MSV/68703 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV MO GRO Oxygenates
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1546263 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/08/15 13:03	
Ethylbenzene	ug/L	ND	1.0	04/08/15 13:03	
Toluene	ug/L	ND	1.0	04/08/15 13:03	
Xylene (Total)	ug/L	ND	3.0	04/08/15 13:03	
1,2-Dichloroethane-d4 (S)	%	101	82-119	04/08/15 13:03	
4-Bromofluorobenzene (S)	%	99	80-120	04/08/15 13:03	
Toluene-d8 (S)	%	100	80-120	04/08/15 13:03	

LABORATORY CONTROL SAMPLE: 1546264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.8	104	80-120	
Ethylbenzene	ug/L	20	21.0	105	80-120	
Toluene	ug/L	20	21.0	105	80-120	
Xylene (Total)	ug/L	60	65.2	109	80-120	
1,2-Dichloroethane-d4 (S)	%			98	82-119	
4-Bromofluorobenzene (S)	%			96	80-120	
Toluene-d8 (S)	%			102	80-120	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: WET/53954 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60191121001, 60191121002, 60191121003

METHOD BLANK: 1545330 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/07/15 14:58	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/07/15 14:58	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/07/15 14:58	

LABORATORY CONTROL SAMPLE: 1545331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	514	103	90-110	

SAMPLE DUPLICATE: 1545332

Parameter	Units	60190682001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	20.03	ND		10	
Alkalinity, Total as CaCO3	mg/L	189	191	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	189	191	1	10	

SAMPLE DUPLICATE: 1545333

Parameter	Units	60191118005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	407	401	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	407	401	1	10	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: WET/54005 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1546474 Matrix: Water
Associated Lab Samples: 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	04/09/15 10:00	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	04/09/15 10:00	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	04/09/15 10:00	

LABORATORY CONTROL SAMPLE: 1546475

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	527	105	90-110	

SAMPLE DUPLICATE: 1546476

Parameter	Units	60191121005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	494	503	2	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	494	503	2	10	

SAMPLE DUPLICATE: 1546477

Parameter	Units	60190855005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity, Total as CaCO3	mg/L	207	209	1	10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	207	209	1	10	

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QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: WETA/33510 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1545413 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	04/08/15 08:59	
Chloride	mg/L	ND	1.0	04/08/15 08:59	
Sulfate	mg/L	ND	1.0	04/08/15 08:59	

LABORATORY CONTROL SAMPLE: 1545414

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.0	100	90-110	
Chloride	mg/L	5	4.9	98	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1545415 1545416

Parameter	Units	60191118001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	ND	5	5	5.4	5.5	101	105	80-120	3	15	
Chloride	mg/L	32.0	25	25	62.1	57.1	120	100	80-120	8	15	
Sulfate	mg/L	365	250	250	621	623	102	103	80-120	0	15	

MATRIX SPIKE SAMPLE: 1545417

Parameter	Units	60191118002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	ND	5	5.4	102	80-120	
Chloride	mg/L	34.5	25	63.4	116	80-120	
Sulfate	mg/L	336	250	700	146	80-120	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

QC Batch: WETA/33483 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

METHOD BLANK: 1543931 Matrix: Water
Associated Lab Samples: 60191121001, 60191121002, 60191121003, 60191121004, 60191121005, 60191121006, 60191121007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	04/03/15 11:08	
Nitrogen, Nitrite	mg/L	ND	0.10	04/03/15 11:08	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	04/03/15 11:08	

LABORATORY CONTROL SAMPLE: 1543932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.5	95	85-115	
Nitrogen, Nitrite	mg/L	.4	0.43	107	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 1543933

Parameter	Units	60191121007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	3.5	3.2	6.0	79	85-115	M1
Nitrogen, Nitrite	mg/L	ND	.8	0.92	113	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	3.5	4	7.0	86	90-110	M1

SAMPLE DUPLICATE: 1543934

Parameter	Units	60191122001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	8.9	9.1	2	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	9.0	9.2	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: MSV/68703

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
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Lenexa, KS 66219
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60191121001	**MW01-150401**	RSK 175	AIR/22943		
60191121002	**MW03-150401**	RSK 175	AIR/22943		
60191121003	**MW04-150401**	RSK 175	AIR/22943		
60191121004	**MW05-150401**	RSK 175	AIR/22943		
60191121005	**MW06-150401**	RSK 175	AIR/22943		
60191121006	**DMI-MW02**	RSK 175	AIR/22943		
60191121007	**DMI-MW03**	RSK 175	AIR/22943		
60191121001	**MW01-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121002	**MW03-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121003	**MW04-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121004	**MW05-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121005	**MW06-150401**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121006	**DMI-MW02**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121007	**DMI-MW03**	EPA 3010	MPRP/31322	EPA 6010	ICP/23304
60191121001	**MW01-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121002	**MW03-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121003	**MW04-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121004	**MW05-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121005	**MW06-150401**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121006	**DMI-MW02**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121007	**DMI-MW03**	EPA 3010	MPRP/31334	EPA 6010	ICP/23313
60191121001	**MW01-150401**	EPA 8260	MSV/68703		
60191121002	**MW03-150401**	EPA 8260	MSV/68703		
60191121003	**MW04-150401**	EPA 8260	MSV/68703		
60191121004	**MW05-150401**	EPA 8260	MSV/68703		
60191121005	**MW06-150401**	EPA 8260	MSV/68703		
60191121006	**DMI-MW02**	EPA 8260	MSV/68703		
60191121007	**DMI-MW03**	EPA 8260	MSV/68703		
60191121001	**MW01-150401**	SM 2320B	WET/53954		
60191121002	**MW03-150401**	SM 2320B	WET/53954		
60191121003	**MW04-150401**	SM 2320B	WET/53954		
60191121004	**MW05-150401**	SM 2320B	WET/54005		
60191121005	**MW06-150401**	SM 2320B	WET/54005		
60191121006	**DMI-MW02**	SM 2320B	WET/54005		
60191121007	**DMI-MW03**	SM 2320B	WET/54005		
60191121001	**MW01-150401**	EPA 300.0	WETA/33510		
60191121002	**MW03-150401**	EPA 300.0	WETA/33510		
60191121003	**MW04-150401**	EPA 300.0	WETA/33510		
60191121004	**MW05-150401**	EPA 300.0	WETA/33510		
60191121005	**MW06-150401**	EPA 300.0	WETA/33510		
60191121006	**DMI-MW02**	EPA 300.0	WETA/33510		
60191121007	**DMI-MW03**	EPA 300.0	WETA/33510		
60191121001	**MW01-150401**	EPA 353.2	WETA/33483		
60191121002	**MW03-150401**	EPA 353.2	WETA/33483		
60191121003	**MW04-150401**	EPA 353.2	WETA/33483		

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25147063 O&G WELLSITE GW
Pace Project No.: 60191121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60191121004	**MW05-150401**	EPA 353.2	WETA/33483		
60191121005	**MW06-150401**	EPA 353.2	WETA/33483		
60191121006	**DMI-MW02**	EPA 353.2	WETA/33483		
60191121007	**DMI-MW03**	EPA 353.2	WETA/33483		

Pace Analytical
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Sample Condition Upon Receipt

WO#: 60191121

60191121

Client Name: Terracon

Optional
Proj Due Date:
Proj Name:

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☒ ECI ☐ Pace ☐ Other ☐ Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☒ None ☐ Other ☐

Thermometer Used: CF -0.1 T-239 / CF -1.8 T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: JB 4/3

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. NO_2 / NO_3
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☒Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☒Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 3/25/15		15.
Headspace in VOA vials (>6mm):	☒Yes ☐No ☐N/A	1 of 3 MW03-150401
		16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? (Y) / N dmw Field Data Required? Y / N

Person Contacted: Jon Anstey Date/Time: 4/3/15 4/3/15

Comments/ Resolution: Times in mountain time dmw 4/3/15

Project Manager Review: dmw Date: 4/3/15

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical www.pacelabs.com

Page: 1 of 1

Section A Required Client Information:

Company:	Terracon
Address:	10625 N. I-70 Frontage Rd. Wheat Ridge, CO 80033
Email To:	JPANSTEY@TERRACON.COM
Phone:	303-423-3300 Fax:
Requested Due Date/TAT:	PER CONTRACT

Section B Required Project Information:

Report To:	JPANSTEY@TERRACON.COM
Copy To:	ANSAFULLVOR "
Purchase Order No.:	
Project Name:	O&G Wellsite GW
Project Number:	25147063

Section C Invoice Information:

Attention:	TOM ANSTEY
Company Name:	TERRACON
Address:	
Pace Quote Reference:	
Pace Project Manager:	Heather Wilson
Pace Profile #:	6694, 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: CO

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Pace Project No./Lab I.D.: 60191121

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	8260 BTEX	RSK-175 MEE	Nitrate & Nitrite	Alkalinity	Bromide, Chloride, Sulfate	6010-Diss Metals*	6010 Total Strontium				Residual Chlorine (Y/N)	Pace Project No./Lab I.D.
1	MW01-150401	WT	G			4/1/15	1245		9	5		1	3					X	X	X	X	X	X	X	BP2U	BP3U	BP3N		(3)DG9H (3)VG9U 01
2	MW03-150401	WT	G			4/1/15	1310		9	5		1	3					X	X	X	X	X	X	X					02
3	MW04-150401	WT	G			4/1/15	1340		9	5		1	3					X	X	X	X	X	X	X					03
4	MW05-150421	WT	G			4/1/15	1900		9	5		1	3					X	X	X	X	X	X	X					04
5	MW06-150401	WT	G			4/1/15	1420		9	5		1	3					X	X	X	X	X	X	X					05
6	DM1-MW02	WT	G			4/1/15	1525		9	5		1	3					X	X	X	X	X	X	X					06
7	DM1-MW03	WT	G			4/1/15	1525		9	5		1	3					X	X	X	X	X	X	X					07
8																													(2)DG9H TB 08
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*Ca, Mg, Na, Fe, K	[signature]	4/2/15	1145	[signature] Pace	4/3	0955	1.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ANDREW SAFULKO

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/01/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

RUSH 4/4/15 **RUSH!** 10301702

Pace Analytical®
www.pacelabs.com

Workorder: 60191121 **Workorder Name:**25147063 O&G WELLSITE GW **Owner Received Date:** 4/3/2015 **Results Requested By:** 4/10/2015

Report To	Subcontract To
Heather Wilson Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	RSK-175 MEE	LAB USE ONLY
1	MW01-150401	PS	4/1/2015 13:45	60191121001	Water	1	X	001
2	MW03-150401	PS	4/1/2015 14:10	60191121002	Water	1	X	002
3	MW04-150401	PS	4/1/2015 14:40	60191121003	Water	1	X	003
4	MW05-150401	PS	4/1/2015 15:00	60191121004	Water	1	X	004
5	MW06-150401	PS	4/1/2015 15:20	60191121005	Water	1	X	005
6	DMI-MW02	PS	4/1/2015 16:05	60191121006	Water	1	X	006
7	DMI-MW03	PS	4/1/2015 16:25	60191121007	Water	1	X	007

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/3/15 1100	[signature]	4/4/15 945
2				
3				

Cooler Temperature on Receipt 3.0 °C **Custody Seal** (Y) or N **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 23Feb2015 Page 1 of 1
	Document No.: **F-MN-L-213-rev.13**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace KS

Project #: WO#: 10301702

10301702

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 6346 0247 5551

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No **Seals Intact?** ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☐ Yes ☒ No

Thermometer Used: ☐ B88A9130516413 ☒ B88A912167504 ☐ B88A0143310098 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.0 **Cooler Temp Corrected (°C):** 3.0 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 **Date and Initials of Person Examining Contents:** AMP 4/4/15

USDA Regulated Soil (☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☒ Yes	☐ No	☐ N/A	7.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☒ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☐ No	☒ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Kathy Kemp **Date:** April 6, 2015

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).