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ConocoPhillips

Mr. Randolph Bayliss, P. E.
District III & IV Hydrologist
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

March 21, 2017

Re: NMOCD Case No. 3R-340, 2016 Annual Groundwater Monitoring and Remediation Report

Dear Mr. Bayliss:

Enclosed is the 2016 Annual Groundwater Monitoring and Site Assessment Report for the Randleman No. 1 site. This report, prepared by GHD Services, Inc., contains the results of groundwater monitoring and site assessment activities in 2016.

Please let me know if you have any questions.

Sincerely,

Joseph B. Crouch

J. Brady Crouch

Enc

2016 Annual Groundwater Monitoring Report

ConocoPhillips Randleman No. 1
San Juan County, New Mexico
API# 30-045-10698
NMOCD# 3R-340

ConocoPhillips Company

GHD | 6121 Indian School Rd NE Suite 200 Albuquerque NM 87110 USA

074933| Report No 8 | March 21, 2017

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1. Introduction

This report discusses the 2016 groundwater monitoring well plugging/abandonment, new well installation and quarterly monitoring events performed on behalf of ConocoPhillips Company (ConocoPhillips) by GHD Services, Inc. (GHD), at the Randleman No. 1 site located north of Aztec, New Mexico (Site). The Site is situated on private land in Section 13, Township 31N, Range 11W, of San Juan County, New Mexico. Geographical coordinates for the Site are 36°53'46.09"North and 107°56'43.78"West. A Site location map and detail map are included as Figures 1 and 2, respectively.

1.1 Background

In April 1997, an unlined surface impoundment was discovered to have been impacted by petroleum hydrocarbons. On April 29, 1997, excavation of the soil beneath the impoundment began. A total of 613 cubic yards of hydrocarbon impacted soil were removed and land farmed at the nearby Randleman No. 3 site. Three monitoring wells were installed at the Site on May 14, 1997, and quarterly groundwater monitoring was conducted through March 1998. Evaluation of groundwater monitoring results led to another excavation in April 1998. In total, 2,220 cubic yards of hydrocarbon impacted soil were excavated to address residual soil contamination extending to the south of the original excavated area. Quarterly groundwater monitoring was continued through September 2000. After four consecutive quarters of groundwater monitoring results below New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards for benzene, toluene, ethylbenzene, and total xylenes (BTEX), Williams Environmental Services (Williams) requested that the New Mexico Oil Conservation Division (NMOCD) grant closure status for the Site. In June 2002, the NMOCD granted closure for the Site, provided that Williams plug and abandon all Site groundwater monitoring wells according to NMOCD standards. The Williams groundwater monitoring wells were indeed plugged and abandoned. The historical excavation area and historical groundwater monitoring wells are displayed in Figure 2.

On February 23, 2009, a release of approximately 60 barrels of condensate occurred as a result of a hole in an on Site production tank. Envirotech Inc. of Farmington, NM (Envirotech) excavated an area of approximately 42 foot by 51 foot by 7 foot deep on February 26, 2009. Seven composite soil samples were collected during excavation activities and were field analyzed for total petroleum hydrocarbons (TPH) using EPA Method 418.1. TPH results ranged from 8 to 1,080 parts per million (ppm) in the walls of the excavation. Additionally, samples were field analyzed for organic vapors using a photoionization detector and heated headspace techniques. Organic vapor concentrations ranged from 6.8 ppm to 898 ppm.

Because TPH and organic vapor levels were found to be above NMOCD action levels, the excavation was continued on February 27, 2009. The total area of excavation measured 81 ft x 43 ft x 20 ft deep. The excavation area is depicted in Figure 2a.

On March 2, 2009, groundwater was found seeping into the southeast corner of the excavation at a depth of approximately 20 feet below ground surface (bgs). A vacuum truck was utilized to recover

groundwater from the excavation. After removal of accumulated groundwater, Envirotech obtained a soil sample from the southeast corner of the excavation at a depth of 20 feet bgs. TPH and organic vapor results were found to be above NMOCD action levels. During field analysis of the soil sample, groundwater continued to seep into the excavation. Groundwater was again removed from the excavation, and additional excavation was performed to obtain a soil sample below NMOCD action levels. A groundwater sample was collected and sent for laboratory analysis of volatile organic compounds by EPA Method 8260B. The groundwater sample was found to contain benzene, total xylenes and total naphthalene above NMWQCC groundwater quality standards. Soon after the groundwater sample was taken, the excavation sidewalls collapsed, making further water removal via the vacuum truck impossible.

A total of 611 cubic yards of soil were removed from the Site and were transported to an NMOCD permitted facility. Clean fill was obtained from the landowner to backfill the excavation. Envirotech recommended the installation of groundwater monitoring wells at the Site under NMOCD guidelines.

Tetra Tech, Inc. (Tetra Tech) installed four groundwater monitoring wells at the Site between June 9 and 10, 2009. A generalized geologic cross section was produced using soil boring data collected during monitoring well installation (Figure 3).

Tetra Tech began conducting groundwater monitoring events at the Site on June 12, 2009. Hydrocarbon absorbent socks were placed in monitoring wells MW 2 and MW 3 on June 18, 2009 due to a light non aqueous phase liquid (LNAPL) sheen being observed intermittently in purge water during groundwater sampling. The socks were removed during the March 2010 sampling event. Since the removal of the socks, LNAPL has not been detected in MW 2 or in MW 3. Soil and groundwater samples were collected from the Kiffen Canyon Wash in October 2009 and analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) to assess potential off Site migration of hydrocarbon. BTEX constituents were found to be below NMWQCC standards in both the soil and groundwater collected from Kiffen Canyon Wash.

Site consulting responsibilities were transferred from Tetra Tech to GHD Services, Inc. (formerly CRA) On June 15, 2011. GHD has continued quarterly groundwater monitoring since that time.

A new monitoring well, MW-5, was installed between May 23 and 25, 2013, at the Randleman 01A/01M gas well site, approximately 2000 feet north of the Site (Figure 2b). MW 5 was installed to monitor groundwater quality in the up gradient direction. An October 30, 2014 meeting between GHD, COP and the NMOCD resulted in the agreement that MW 5 cannot be considered a viable up gradient well due to its distance from the Randleman No. 1 Site. Monitor well MW 5 was removed from the groundwater sampling schedule beginning in December 2014 and it was abandoned on September 13, 2016. GHD installed monitor well MW 6 on September 13, 2016 to replace monitor well MW 5. MW 6 was installed approximately 225 feet to the north of the Site (Figure 2).The historical timeline for the Site is presented in Table 1.

2. Groundwater Monitoring Well Abandonment and Monitoring Well Installation

2.1 Groundwater Monitoring Well Abandonment

Monitoring well MW-5 was plugged and abandoned on September 13, 2016. Plugging and abandonment of monitor well MW-5 was performed in general accordance with New Mexico Office of State Engineer (NMOSE) requirements. A well plugging plan was submitted to the NMOSE for their approval prior to well abandonment. Plugging operations were not performed until approval of the plugging plan was received from the NMOSE.

The well was plugged by pumping a high solids bentonite grout, from the bottom to the well top through a tremie pipe. The surface completion was removed, the well casing was cut off below ground surface, and the soil was returned to grade.

An NMOSE Plugging Record for the well was submitted by the drilling subcontractor following completion of plugging and abandonment activities.

2.2 Groundwater Monitoring Well Installation

Monitor well MW-6 was installed on September 13, 2016. The monitor well location was proposed in a workplan submitted to the NMOCD.

Prior to initiation of the monitor well installation activities, a permit was submitted to and approved by the NMOSE and a utility clearance protocol was completed. The boring was pre drilled to a depth of 5 feet below ground surface (ft bgs) using hydro excavation.

National Exploration, Wells, and Pumps of Peralta, New Mexico, installed the monitoring well under the supervision of GHD. The borehole was drilled using a CME 85 drill rig equipped with hollow stem auger. The boring for MW 6 encountered cobbles, boulders and sand that were hydroexcavated to a depth of 7 ft bgs. A very fine-grained sand was encountered from 7 to 12 ft bgs followed by a silty-clay to a depth of 21 ft bgs. A weathered clay was encountered from 21 to 23 ft bgs. A fractured, medium cemented sandstone was encountered from 23 to the bottom of the boring at 40 ft bgs. The Boring Log and Well Completion Form is included as Appendix A.

A two inch diameter, schedule 40 PVC monitoring well was installed in the boring. The well was installed to a depth of 40 ft bgs and constructed with 15 ft of 2-inch machine slot 0.01 inch PVC screen. Above the screened interval, the well was completed with 2 inch PVC blank casing.

The annulus in the borehole was backfilled with a 10/20 silica sand pack from the bottom to approximately 2 feet above the well screen. A 2 foot thick seal of 3/8 inch hydrated bentonite chips was placed above the sand pack. The remainder of the borehole annulus was filled with a high solids bentonite grout mix.

Monitor well MW-6 was completed with a traffic-rated flush mount well cover embedded in a 2 foot by 2 foot by 4-inch thick concrete pad.

Well development was performed by bailing and surging the wells until turbidity visibly cleared and field parameters of pH, temperature, and conductivity stabilized (within a 10% margin). Well development water was placed in the on Site produced water tank.

3. Groundwater Monitoring Methodology and Analytical Results

3.1 Groundwater Monitoring Summary

Quarterly groundwater monitoring events were conducted on March 30, June 22, September 8, and December 1, 2016 that included monitoring wells MW-1, MW-2, MW-3, and MW-4. Monitoring well MW 6 was sampled in September and December.

Prior to collection of groundwater samples from monitoring wells MW-1, MW-2, MW-3, MW-4, and MW 6, depth to groundwater in each well was measured using an oil/water interface probe (Table 2). Groundwater potentiometric surface maps compiled utilizing 2016 quarterly monitoring measurements are presented as Figures 4, 5, 6, and 7. Groundwater flow direction at the Site varies from south southeast to nearly due south and appears to be influenced by surface water flow in the Kiffen Canyon Wash that borders the Site to the east.

3.2 Groundwater Monitoring Methodology

During groundwater monitoring events, Site monitoring wells were purged of at least three casing volumes of groundwater using a 1.5 inch diameter, polyethylene, and dedicated bailer. Groundwater parameters including pH, temperature, conductivity and oxidation reduction potential, were collected during purging using a multi-parameter meter. Field results were recorded and are summarized on Table 3.

Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Pace Analytical Services, Inc. of Lenexa, Kansas. Groundwater samples were analyzed for BTEX by EPA Method 8260; sulfate and chloride by EPA Method E300.0; total dissolved solids (TDS) by EPA Method 2540C; and dissolved manganese by EPA Method 6010. Analytical results are summarized in Table 4.

3.3 Groundwater Monitoring Analytical Results

The NMWQCC mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedances of NMWQCC groundwater quality standards in Site monitoring wells are discussed below.

Benzene

- The NMWQCC domestic water supply groundwater quality standard for benzene is 0.010 milligrams per liter (mg/L). Groundwater samples collected from all Site monitoring wells

were either below laboratory detection limits or below the NMWQCC standard for benzene during 2016.

Chloride

- The NMWQCC domestic water supply groundwater quality standard for chloride is 250 mg/L. Groundwater samples collected from monitoring well MW-4 contained chloride above NMWQCC standard during all quarterly sampling events in 2016. Monitoring well MW-6, located upgradient of the release, contained chloride above the standard in September and December. All other site wells contained concentrations of chloride below NMWQCC standard during 2016.

Dissolved Manganese

- The NMWQCC domestic water supply groundwater quality standard for dissolved manganese is 0.2 mg/L. Samples collected from Site monitoring wells MW-2, MW-3, and MW-4 contained concentrations of dissolved manganese that exceeded the NMWQCC standard for this constituent during the four 2016 quarterly sampling events. Monitoring well MW-6, located upgradient of the release, exceeded the standard in September and December. Concentrations from MW-1 were below NMWQCC standard during 2016.

Sulfate

- The NMWQCC domestic water supply groundwater quality standard for sulfate is 600 mg/L. Groundwater samples collected from all Site monitoring wells that were sampled exceeded the NMWQCC standard for sulfate during 2016 quarterly sampling events.

Total Dissolved Solids

- The NMWQCC groundwater quality standard for TDS is 1,000 mg/L. Groundwater samples collected from all Site monitoring wells that were sampled exceeded the NMWQCC standard for TDS during 2016 quarterly sampling events.

The corresponding laboratory analytical reports, including quality control summaries, are included as Appendix A.

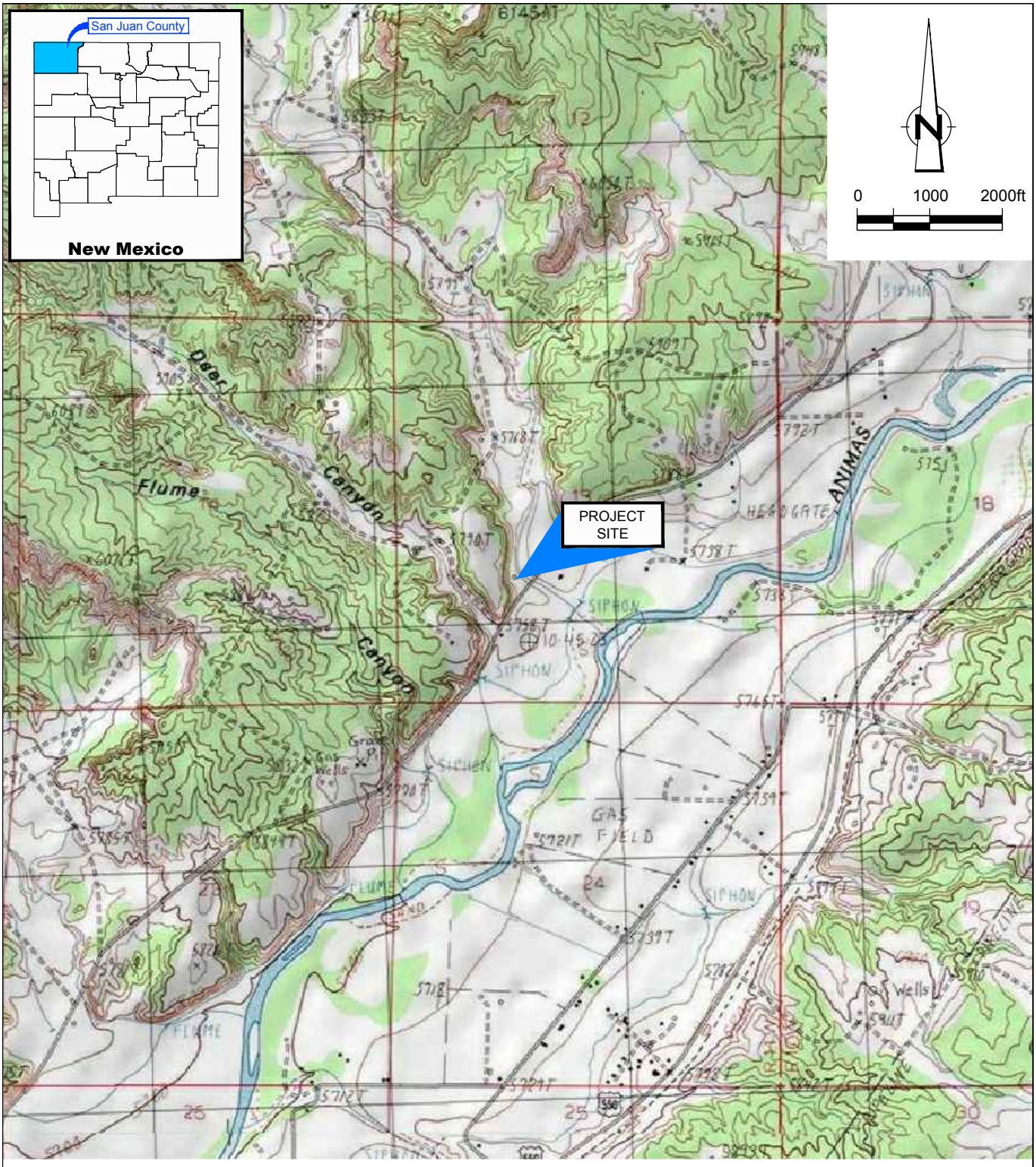
4. Conclusions and Recommendations

Concentrations of BTEX constituents have been below NMWQCC standards in MW 3 for seven consecutive quarters, below the standards in MW-1, MW-2, and MW-4 for eight or more consecutive quarters, and below the standards in MW-6 for two consecutive quarters. BTEX constituents were not detected in Site wells at concentrations above NMWQCC standards in 2016.

Inorganic constituents TDS, dissolved manganese, sulfates, and chlorides continue to occur at concentrations above standards in all or some Site monitoring wells. Groundwater analytical data from the newly installed upgradient monitoring well MW-6 will aid in understanding naturally occurring inorganic constituents in Site wells as compared to like constituents that may have resulted from historical releases.

The continuation of quarterly groundwater monitoring of BTEX and inorganic constituents is recommended.

Figures



SOURCE: USGS 7.5 MINUTE QUAD
"CEDAR HILL, NEW MEXICO"

LAT/LONG: 36.8960° NORTH, 107.9455° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO WEST

Figure 1

SITE LOCATION MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

ConocoPhillips high resolution aerial imagery 2008.

Figure 2

SITE PLAN
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074933-95(008)GN-DL002_SD MAR 2, 2017

ConocoPhillips high resolution aerial imagery 2008.

Figure 2a

SITE PLAN- MW-5 LOCATION
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074933-95(008)GN-DL002_SD FEB 22, 2017

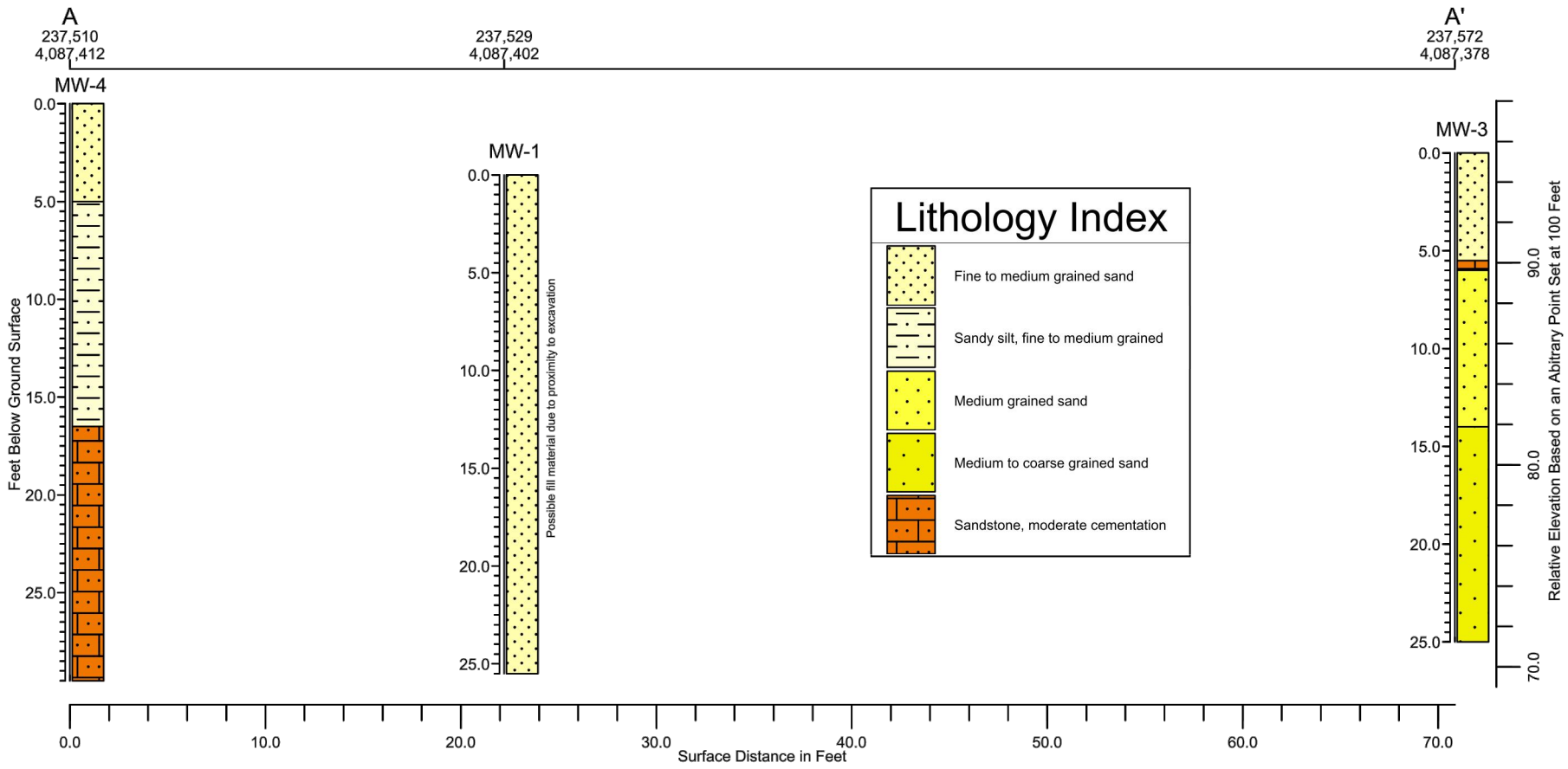
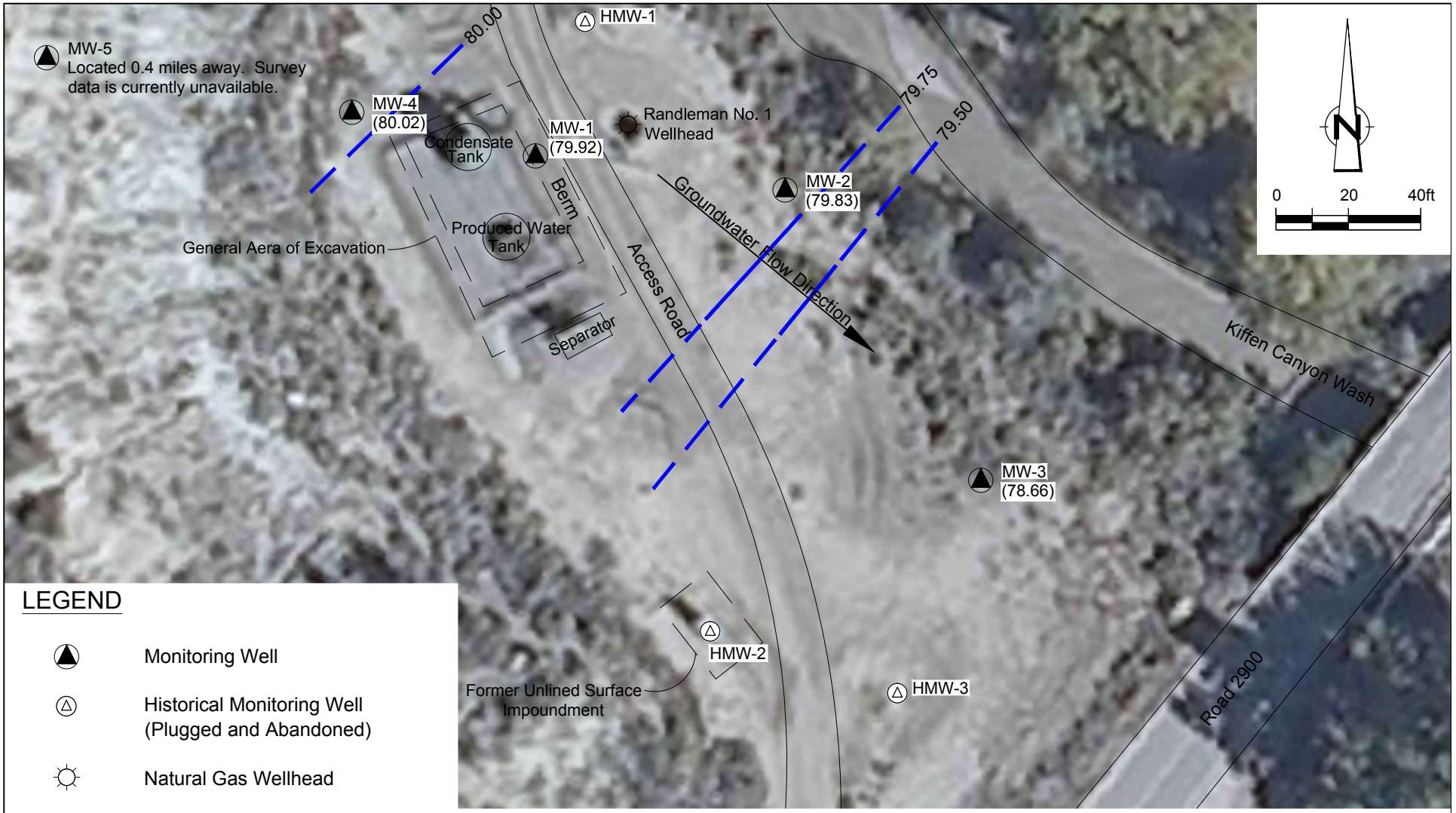


Figure 3

GEOLOGICAL CROSS SECTION
RANDLEMAN NO. 1 NATURAL GAS WELL SITE
SECTION 13, T31N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company



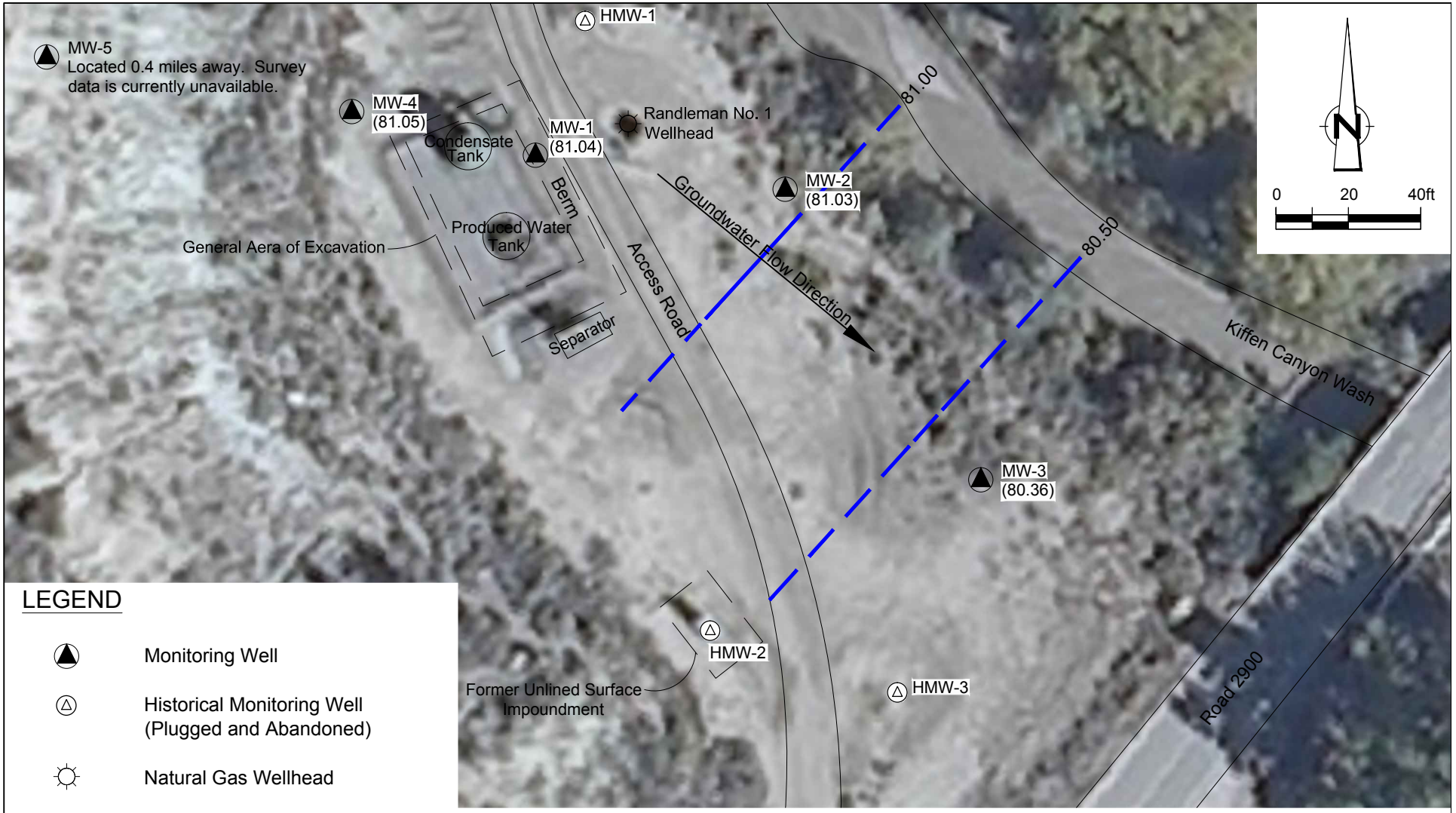
LEGEND

- Monitoring Well
- Historical Monitoring Well (Plugged and Abandoned)
- Natural Gas Wellhead
- (78.66) Groundwater Elevation, Ft
- 80.00 Groundwater Elevation Contour, Ft
- Groundwater Flow Direction

ConocoPhillips high resolution aerial imagery 2008.

Figure 4

MARCH 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company



LEGEND

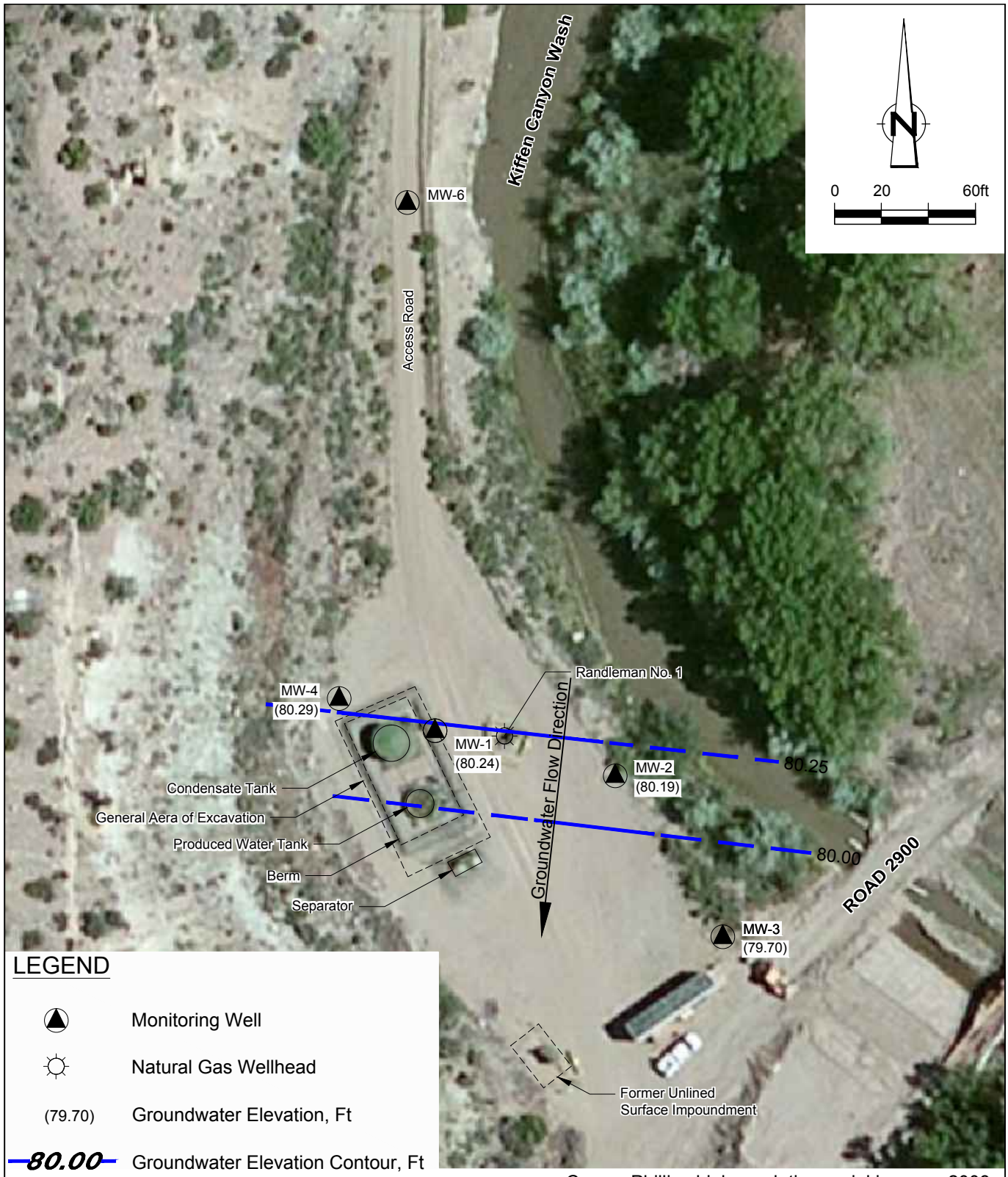
- Monitoring Well
- Historical Monitoring Well (Plugged and Abandoned)
- Natural Gas Wellhead
- (80.36) Groundwater Elevation, Ft
- 80.00 Groundwater Elevation Contour, Ft
- Groundwater Flow Direction

ConocoPhillips high resolution aerial imagery 2008.

Figure 5

JUNE 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074933-95(008)GN-DL003_GG FEB 22, 2017



ConocoPhillips high resolution aerial imagery 2008.

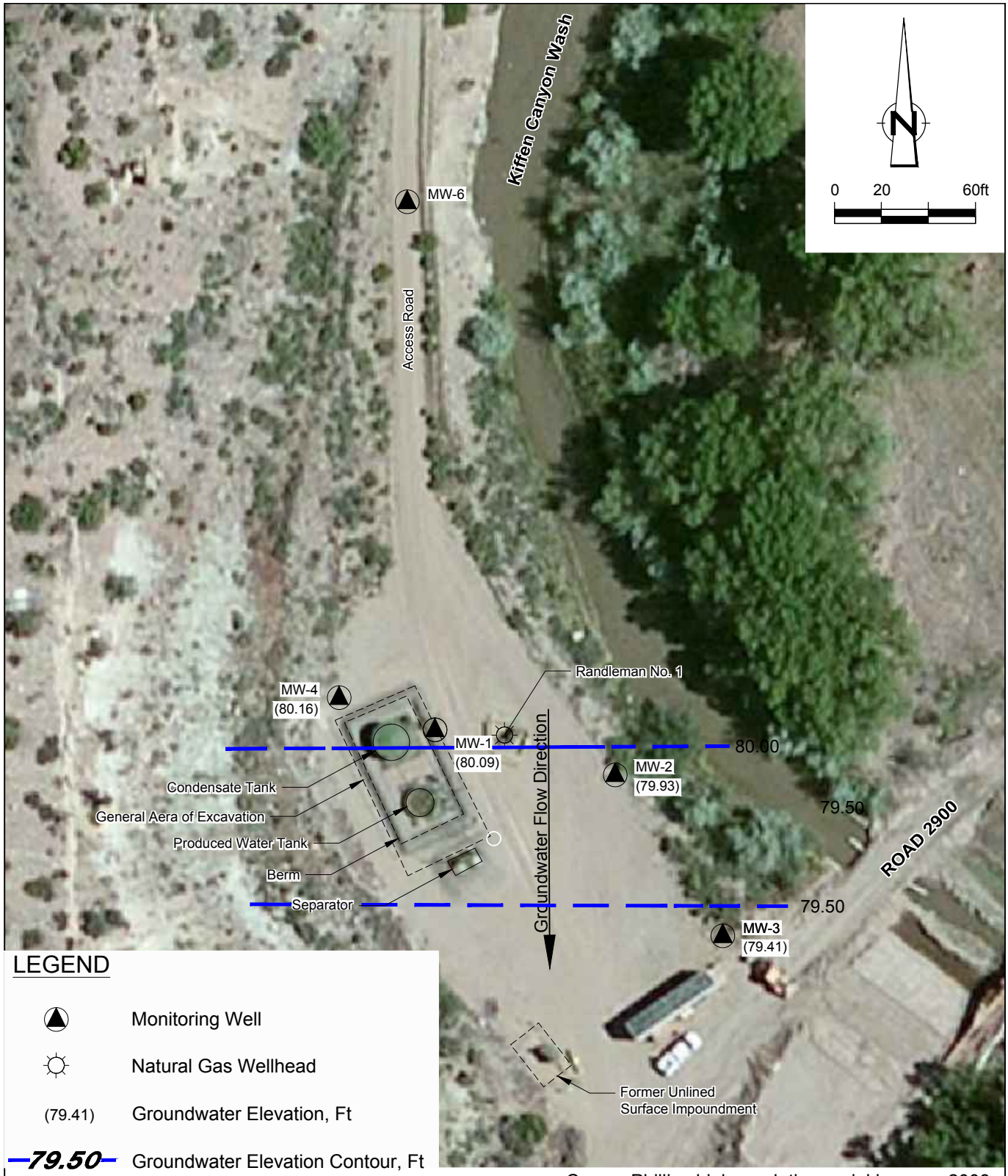
Figure 6

SEPTEMBER 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO

ConocoPhillips Company

GHD

074933-95(008)GN-DL003_GG_NEW MAR 2, 2017



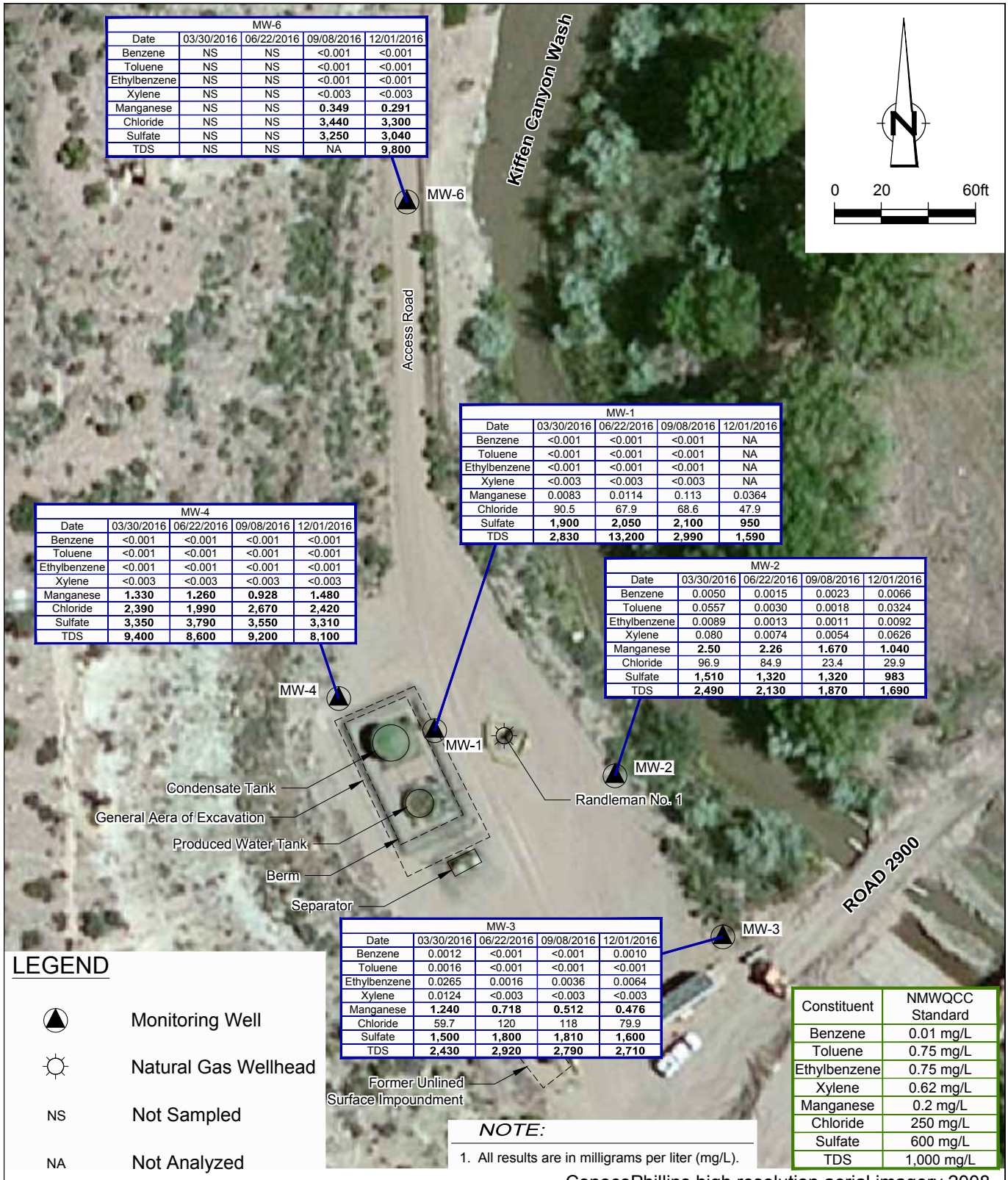
ConocoPhillips high resolution aerial imagery 2008.

Figure 7

DECEMBER 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

074933-95(008)GN-DL003_GG_NEW MAR 2, 2017



MW-6				
Date	03/30/2016	06/22/2016	09/08/2016	12/01/2016
Benzene	NS	NS	<0.001	<0.001
Toluene	NS	NS	<0.001	<0.001
Ethylbenzene	NS	NS	<0.001	<0.001
Xylene	NS	NS	<0.003	<0.003
Manganese	NS	NS	**0.349**	**0.291**
Chloride	NS	NS	**3,440**	**3,300**
Sulfate	NS	NS	**3,250**	**3,040**
TDS	NS	NS	NA	**9,800**

MW-1				
Date	03/30/2016	06/22/2016	09/08/2016	12/01/2016
Benzene	<0.001	<0.001	<0.001	NA
Toluene	<0.001	<0.001	<0.001	NA
Ethylbenzene	<0.001	<0.001	<0.001	NA
Xylene	<0.003	<0.003	<0.003	NA
Manganese	0.0083	0.0114	0.113	0.0364
Chloride	90.5	67.9	68.6	47.9
Sulfate	**1,900**	**2,050**	**2,100**	**950**
TDS	**2,830**	**13,200**	**2,990**	**1,590**

MW-4				
Date	03/30/2016	06/22/2016	09/08/2016	12/01/2016
Benzene	<0.001	<0.001	<0.001	<0.001
Toluene	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	<0.001	<0.001	<0.001	<0.001
Xylene	<0.003	<0.003	<0.003	<0.003
Manganese	**1.330**	**1.260**	**0.928**	**1.480**
Chloride	**2,390**	**1,990**	**2,670**	**2,420**
Sulfate	**3,350**	**3,790**	**3,550**	**3,310**
TDS	**9,400**	**8,600**	**9,200**	**8,100**

MW-2				
Date	03/30/2016	06/22/2016	09/08/2016	12/01/2016
Benzene	0.0050	0.0015	0.0023	0.0066
Toluene	0.0557	0.0030	0.0018	0.0324
Ethylbenzene	0.0089	0.0013	0.0011	0.0092
Xylene	0.080	0.0074	0.0054	0.0626
Manganese	**2.50**	**2.26**	**1.670**	**1.040**
Chloride	96.9	84.9	23.4	29.9
Sulfate	**1,510**	**1,320**	**1,320**	**983**
TDS	**2,490**	**2,130**	**1,870**	**1,690**

MW-3				
Date	03/30/2016	06/22/2016	09/08/2016	12/01/2016
Benzene	0.0012	<0.001	<0.001	0.0010
Toluene	0.0016	<0.001	<0.001	<0.001
Ethylbenzene	0.0265	0.0016	0.0036	0.0064
Xylene	0.0124	<0.003	<0.003	<0.003
Manganese	**1.240**	**0.718**	**0.512**	**0.476**
Chloride	59.7	120	118	79.9
Sulfate	**1,500**	**1,800**	**1,810**	**1,600**
TDS	**2,430**	**2,920**	**2,790**	**2,710**

LEGEND

▲	Monitoring Well
☼	Natural Gas Wellhead
NS	Not Sampled
NA	Not Analyzed
Bold	Results Over NMWQCC Standard

NOTE:

1. All results are in milligrams per liter (mg/L).

Constituent	NMWQCC Standard
Benzene	0.01 mg/L
Toluene	0.75 mg/L
Ethylbenzene	0.75 mg/L
Xylene	0.62 mg/L
Manganese	0.2 mg/L
Chloride	250 mg/L
Sulfate	600 mg/L
TDS	1,000 mg/L

ConocoPhillips high resolution aerial imagery 2008.

Figure 8

2016 GROUNDWATER CONCENTRATION MAP
RANDLEMAN No. 1 NATURAL GAS WELL SITE
SECTION 13, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

Tables

Table 1

Site History Timeline
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Date/Time Period	*Event/Action*	*Description/Comments*
September 20, 1951	Well spudded	Well spudded by Southern Union Gas Company.
August 1, 1952	Transfer of ownership	Well acquired by Aztec Oil and Gas Company.
December 1, 1976	Transfer of ownership	Southland Royalty Company acquired Aztec Oil and Gas Company.
November 22, 1985	Transfer of ownership	Southland Royalty Company acquired by Burlington Resources.
April 1, 1997	Discovery of impacted soil	An unlined surface impoundment was discovered to have been impacted by petroleum hydrocarbons.
April 29, 1997	Excavation of impacted soil	Excavation of the soil beneath the impoundment began; once complete, a total of 613 cubic yards of hydrocarbon impacted soil were removed and landfarmed at the nearby Randleman #3 site.
May 14, 1997	Installation of monitor wells	Three groundwater monitor wells were installed at the Site. Groundwater monitoring was initiated on a quarterly basis through March 1998.
April 1, 1998	Excavation of impacted soil	Evaluation of groundwater monitoring results initiated another excavation of 2,220 cubic yards of hydrocarbon impacted soil "to address residual soil contamination extending to the south of the original excavated area" (Williams, 2002).
February 1, 2002	Closure requested	Quarterly groundwater monitoring was continued through September 2000, and after 4 consecutive quarters of groundwater quality monitoring results below New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards for benzene, toluene, ethylbenzene, and total xylenes (BTEX), Williams Environmental Services (Williams) requested that the New Mexico Oil Conservation Division (OCD) grant closure status for the Site.
June 1, 2002	Closure granted by NMOCD	OCD granted closure for the Site, provided that Williams plug and abandon all Site groundwater monitoring wells according to OCD standards (NMEMNRD, 2002). The historical excavation area and historical groundwater monitor wells are displayed in Figure 2.
March 31, 2006	Transfer of ownership	ConocoPhillips Company acquired Burlington Resources and all assets.
February 23, 2009	Release from condensate tank	Approximately 60 barrels of condensate were found to have spilled from a hole located on the back side of an on-Site condensate tank into the bermed area. The spilled fluids remained in the berm and none of the condensate was recovered. Form C-141 stated that the spill impacted the soil on the ground surface around the tank, that the production tank was to be removed, and the affected soils were to be excavated.
February 26, 2009	Excavation and site assessment	Envirotech Inc. of Farmington, NM (Envirotech) performed the soil excavation and collected soil samples for analysis. The area of release was excavated to approximately 42 feet by 51 feet by 7 feet deep. 7 composite soil samples were collected from the excavation and were analyzed for total petroleum hydrocarbons (TPH) using EPA Method 418.1. Additionally, organic vapors were measured using a Photoionization Detector (PID). TPH results ranged from 8 parts per million (ppm) in the north wall sample to 1,080 ppm in the south wall sample. The OCD recommended action level for TPH at the Site was determined to be 100 ppm. Organic vapor concentrations ranged from 6.8 ppm from the north wall sample, to 898 ppm in the south wall sample. Due to high levels of TPH and organic vapors, the excavation was continued on February 27, 2009.
February 27, 2009	Further excavation and site assessment	Envirotech continued the excavation and sampling activities. Samples collected from the north, west, and east ends of the excavation on February 26, 2009 were found to be below OCD action levels for TPH, the focus of the excavation on February 27, 2009 was the south wall, the southeast wall, and the bottom of the southeast corner. The final excavation measured 81 feet by 43 feet by 20 feet deep (total depth is given for the deepest part of the excavation; other areas determined to be below OCD action levels went to approximately 8 feet bgs). Eight soil samples were collected and analyzed in the field for TPH and organic vapors. Excavation continued until all samples were found to be below 100 ppm for both TPH and organic vapors.
March 2, 2009	Further excavation and site assessment	Groundwater began to seep into the southeast corner of the excavation at 20 feet bgs. A vacuum truck was contracted to remove groundwater from the excavation. After removal of groundwater, a soil sample from the southeast corner of the excavation was collected. TPH and organic vapor results were found to be above OCD action levels. More water was then removed from the excavation, and additional soil removal was performed. A groundwater sample was collected from the area where water continued to seep into the excavation, and was analyzed for volatile organic compounds by EPA Method 8260. The groundwater sample was found to contain benzene, total xylenes and total naphthalenes above New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards. Once this sample had been obtained, the excavation caved in, making further water removal impossible (Envirotech, 2009). A total of 611 cubic yards of soil were romoved from the Site. Clean fill was used to backfill the excavation.

Table 1

Site History Timeline
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Date/Time Period	*Event/Action*	*Description/Comments*
June 9 through 11, 2009	Installation of monitor wells	Tetra Tech installs four groundwater monitor wells at the Site; MW-1, MW-2, MW-3 and MW-4.
June 12, 2009	Groundwater monitoring	Tetra Tech conducts the first groundwater monitoring event at the Site.
June 17, 2009	Depth to water measurements	Depth to water measurements were taken by Tetra Tech in Site monitor wells to determine if hydrocarbons were accumulating in the water column. Hydrocarbon sheen was detected in MW-2 and MW-3.
June 18, 2009	Absorbent socks placed in wells	Hydrocarbon-absorbent socks were placed in monitor wells MW-2 and MW-3 by Tetra Tech.
September 23, 2009	Groundwater monitoring	Second quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
October 1, 2009	Site assessment	Tetra Tech on Site to hand auger one boring near the Kiffen Canyon Wash, which is located downgradient and east of the Site. Groundwater and soil samples collected from boring. No BTEX impacts were found.
December 16, 2009	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
April 1, 2010	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
June 9, 2010	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
September 20, 2010	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech. Lock and cap were observed missing from MW-4. The ground surface near MW-3 shifted, resulting in the well casing sticking out of the completion. The PVC casing was cut and the site was resurveyed by Tetra Tech.
December 17, 2010	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
March 16, 2011	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
June 15, 2011	Transfer of Site consulting responsibilities	Site consulting responsibilities transferred from Tetra Tech of Albuquerque, NM to CRA of Albuquerque, NM.
June 22, 2011	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
September 27, 2011	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
December 13, 2011	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
March 8, 2012	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
June 6, 2012	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
September 20, 2012	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
December 12, 2012	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
March 27, 2013	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
May 23, 2013	Installation of monitor well	National Exploration, Wells, & Pumps installs an upgradient groundwater monitoring well, MW-5.
June 19, 2013	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
September 12, 2013	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
October 1, 2013	Groundwater monitoring	Supplemental metals treatability sampling from MW-3
December 12, 2013	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
March 20, 2014	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
June 18, 2014	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
September 18, 2014	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
December 18, 2014	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
March 18, 2015	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by CRA.
June 2015	--	No sampling occurred due to other work being performed at the Site.
September 16, 2015	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.
December 2, 2015	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.
March 30, 2016	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.
June 22, 2016	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.
September 8, 2016	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.
September 13, 2016	Plug and abandon and installation of well	Plug and abandon MW-5; install upgradient monitoring well MW-6.
December 1, 2016	Groundwater monitoring	Quarterly groundwater monitoring event at the Site conducted by GHD.

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Total Depth (ft below TOC)	Top of Casing Elevation*	Screen Interval (ft bgs)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level (ft)
MW-1	25.5	95.19	9 - 24	6/12/2009	13.98	81.21
				6/14/2009	13.96	81.23
				9/23/2009	13.97	81.22
				12/16/2009	14.30	80.89
				4/1/2010	14.39	80.80
				6/9/2010	13.99	81.20
		94.9		9/20/2010	14.54	80.36
				12/17/2010	14.40	80.50
				3/16/2011	14.78	80.12
				6/22/2011	13.65	81.25
				9/27/2011	13.59	81.31
				12/13/2011	14.01	80.89
				3/8/2012	14.49	80.41
				6/6/2012	13.62	81.28
				9/20/2012	14.22	80.68
				12/12/2012	14.55	80.35
				3/27/2013	14.54	80.36
				6/19/2013	14.33	80.57
				9/12/2013	14.63	80.27
				12/12/2013	14.67	80.23
				3/20/2014	15.09	79.81
				6/18/2014	14.15	80.75
				9/18/2014	13.84	81.06
				12/18/2014	14.58	80.32
				3/18/2015	14.96	79.94
				9/16/2015	14.06	80.84
				12/2/2015	14.40	80.50
				3/30/2016	14.98	79.92
				6/22/2016	13.86	81.04
				9/8/2016	14.66	80.24
				12/1/2016	14.81	80.09
MW-2	23.8	96.79	8.9 - 23.8	6/12/2009	15.57	81.22
				6/14/2009	15.63	81.16
				9/23/2009	15.67	81.12
				12/16/2009	16.41	80.38
				4/1/2010	16.75	80.04
				6/9/2010	15.71	81.08
		96.51		9/20/2010	16.28	80.23
				12/17/2010	16.67	79.84
				3/16/2011	16.52	79.99
				6/22/2011	15.32	81.19
				9/27/2011	15.29	81.22
				12/13/2011	15.81	80.70
				3/8/2012	16.21	80.30
				6/6/2012	15.25	81.26
				9/20/2012	15.97	80.54
				12/12/2012	16.30	80.21
				3/27/2013	16.34	80.17
				6/19/2013	16.05	80.46
				9/12/2013	16.27	80.24
				12/12/2013	16.40	80.11
				3/20/2014	16.83	79.68
				6/18/2014	15.84	80.67
				9/18/2014	15.48	81.03
				12/18/2014	16.31	80.20
				3/18/2015	16.67	79.84
				9/16/2015	15.70	80.81
				12/2/2015	16.07	80.44
				3/30/2016	16.68	79.83
				6/22/2016	15.48	81.03
				9/8/2016	16.32	80.19
				12/1/2016	16.58	79.93

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Total Depth (ft below TOC)	Top of Casing Elevation*	Screen Interval (ft bgs)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level (ft)
MW-3	22	96.31	6.5 - 21.5	6/12/2009	16.00	80.31
				6/14/2009	15.97	80.34
				9/23/2009	15.78	80.53
				12/16/2009	16.77	79.54
				4/1/2010	16.79	79.52
				6/9/2010	15.89	80.42
		96.07		9/20/2010	16.95	79.12
				12/17/2010	17.95	78.12
				3/16/2011	17.36	78.71
				6/22/2011	15.54	80.53
				9/27/2011	15.27	80.80
				12/13/2011	16.04	80.03
				3/8/2012	16.96	79.11
				6/6/2012	15.52	80.55
				9/20/2012	16.10	79.97
				12/12/2012	16.63	79.44
				3/27/2013	17.23	78.84
				6/19/2013	16.52	79.55
				9/12/2013	16.64	79.43
				12/12/2013	16.93	79.14
				3/20/2014	17.69	78.38
				6/18/2014	16.17	79.90
				9/18/2014	15.59	80.48
				12/18/2014	16.74	79.33
				3/18/2015	17.44	78.63
				9/16/2015	15.79	80.28
				12/2/2015	16.28	79.79
				3/30/2016	17.41	78.66
				6/22/2016	15.71	80.36
				9/8/2016	16.37	79.70
				12/1/2016	16.66	79.41
MW-4	29.5	98.83	11 - 26	6/12/2009	17.68	81.15
				6/14/2009	17.52	81.31
				9/23/2009	17.56	81.27
				12/16/2009	17.86	80.97
				4/1/2010	17.94	80.89
				6/9/2010	17.57	81.26
		98.54		9/20/2010	18.06	80.48
				12/17/2010	16.14	82.40
				3/16/2011	18.27	80.27
				6/22/2011	17.23	81.31
				9/27/2011	17.19	81.35
				12/13/2011	17.61	80.93
				3/8/2012	18.02	80.52
				6/6/2012	17.21	81.33
				9/20/2012	17.80	80.74
				12/12/2012	18.09	80.45
				3/27/2013	18.03	80.51
				6/19/2013	17.93	80.61
				9/12/2013	18.12	80.42
				12/12/2013	18.15	80.39
				3/20/2014	18.52	80.02
				6/18/2014	17.70	80.84
				9/18/2014	17.41	81.13
				12/18/2014	18.10	80.44
				3/18/2015	18.44	80.10
				9/16/2015	17.66	80.88
				12/2/2015	17.99	80.55
				3/30/2016	18.52	80.02
				6/22/2016	17.49	81.05
				9/8/2016	18.25	80.29
				12/1/2016	18.38	80.16
MW-5	59.23	--	--	6/19/2013	18.13	--
				9/12/2013	19.53	--
				12/12/2013	21.44	--
				3/20/2014	22.80	--
				6/18/2014	19.98	--
				9/18/2014	19.80	--
				Well to no longer be gauged and sampled.		
MW-6	40	100.09	25-40	9/26/16	16.71	83.38
				12/1/16	13.29	86.80

Notes:
ft = Feet
TOC = Top of casing
bgs = below ground surface
* Elevation relative to an arbitrary data point of 100 feet; resurveyed during 9/20/10 sampling event

Table 3

Field Parameters Summary
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Sample Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Volume (gallons)
MW-1	3/18/2015	13.30	6.91	2.00	3060	--	-3.0	4.25
	9/16/2015	15.40	6.88	2.443	3757	3.12	-88.3	4.50
	12/2/2015	14.75	7.20	2.680	4130	3.89	79.2	4.50
	3/30/2016	13.79	7.08	2.400	3780	7.35	145.0	4.25
	6/22/2016	12.90	7.12	--	3850	3.20	-91.7	4.75
	9/8/2016	14.63	7.61	2.266	3484	6.01	-125.6	4.50
	12/1/2016	14.44	7.34	--	2199	3.12	-72.7	4.50
MW-2	3/18/2015	12.00	7.32	1.60	2530	--	-276.0	4.75
	9/16/2015	13.31	7.25	1.515	2331	1.92	-242.0	5.25
	12/2/2015	13.36	7.73	1.572	2420	2.45	-238.8	5.00
	3/30/2016	12.72	7.92	1.900	3040	4.96	-290.0	4.75
	6/22/2016	11.70	7.37	--	2490	1.36	-180.9	5.50
	9/8/2016	12.31	7.89	1.308	2012	8.28	-247.3	5.00
	12/1/2016	13.12	7.58	--	1926	2.42	-256.6	5.00
MW-3	3/18/2015	12.30	7.13	1.90	2990	--	-268.0	3.50
	9/16/2015	13.59	7.07	2.259	3474	10.58	-131.1	3.50
	12/2/2015	13.52	7.24	2.225	3423	4.07	-147.2	2.50
	3/30/2016	12.28	7.72	2.000	3190	7.31	-286.0	2.00
	6/22/2016	11.80	6.90	--	3430	3.27	-136.9	4.25
	9/8/2016	13.33	7.81	1.923	2959	7.36	-129.0	4.00
	12/1/2016	13.52	7.31	--	2888	2.91	-186.2	4.00
MW-4	3/18/2015	14.40	7.57	8.00	12800	--	-19.0	4.75
	9/16/20015	15.21	7.20	8.155	12543	2.81	-71.8	5.25
	12/2/2015	14.31	7.14	8.962	13789	3.05	64.0	5.00
	3/30/2016	14.64	7.89	8.000	14	6.02	-201.0	4.75
	6/22/2016	13.60	7.15	--	12	2.91	-64.2	5.25
	9/8/2016	14.04	8.06	7.776	11962	2.72	-118.7	5.00
	12/1/2016	14.55	7.63	--	12040	2.02	-129.3	5.00
MW-6	12/1/2016	No Parameters Collected Due to Insufficient Volume						

Notes:
TDS = total dissolved solids
DO = dissolved oxygen
ORP = oxidation-reduction potential

Table 4

Groundwater Analytical Results Summary
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Naphthalene (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Total dissolved solids (TDS) (mg/L)
NMWQCC Groundwater Quality Standards				***0.01***	***0.75***	***0.75***	***0.62***	***0.03***	***1***	***0.2***	***250***	***600***	***1000***
MW-1	MW-1	6/14/2009	(orig)	0.0051	0.0076	< 0.005	0.0097	< 0.005	**--**	**--**	119	**1690**	--
	MW-1	9/23/2009	(orig)	**0.018**	0.0054	0.0013	0.0116	< 0.001	< 0.02	0.17	80.5	**1640**	**2880**
	MW-1	12/16/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.108	127	**1960**	**3140**
	MW-1	4/1/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.0849	72.3	**1440**	**2850**
	MW-1	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.114	83.8	**1450**	**3340**
	MW-1	9/20/2010	(orig)	0.0053	< 0.001	< 0.001	< 0.001	--	--	**0.207**	84.9	**1710**	**4070**
	MW-1	12/17/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.131	93.5	**2100**	**4340**
	MW-1	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.102	120	**1690**	**3230**
	GW-74933-062211-PG-04	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.015	95.7	**2060**	**3120**
	GW-074933-092711-CM-009	9/27/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0988	107	**2240**	**3420**
	GW-074933-121311-CB-MW-1	12/13/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.518**	113	**2600**	**4050**
	GW-074933-121311-CB-MW-DUP	12/13/2011	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--	--	--
	GW-074933-3812-CB-MW-1	3/8/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.23**	99	**2230**	**3590**
	GW-074933-3812-CB-DUP	3/8/2012	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--	--	--
	GW-074933-060612-CB-MW-1	6/6/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0175	122	**1780**	**3250**
	GW-074933-092012-JP-MW-1	9/20/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0177	79.2	--	**3260**
	GW-074933-121212-CM-MW-1	12/12/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0227	99.1	**1850**	**3100**
	GW-074933-032713-JK-MW1	3/27/2013	(orig)	0.008	0.0051	0.0508	0.0856	--	--	**1.27**	**829**	**1940**	**4240**
	GW-074933-032713-JK-DUP	3/27/2013	(Duplicate)	0.008	0.0047	0.0493	0.078	--	--	--	--	--	--
	GW-074933-061913-JK-MW1	6/19/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.005	73.6	**1400**	--
	GW-074933-091213-CM-MW-1	9/12/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0315	133	**1590**	**3870**
	GW-074933-121213-CM-MW-1	12/12/2013	(orig)	< 0.001	< 0.001	0.001	< 0.003	--	--	0.0065	77.8	**1470**	**2370**
	GW-074933-032014-CK-MW-1	3/20/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.14	112	**1520**	**2650**
	GW-074933-032014-CK-DUP	3/20/2014	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--	--	--
	GW-074933-061814-CK-MW-1	6/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0064	84.1	**1590**	**2760**
	GW-074933-061814-CK-DUP	6/18/2014	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--	--	--
	GW-074933-091814-CB-MW-1	9/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0188	92.5	**1690**	**3020**
	GW-074933-091814-CB-DUP	9/18/2014	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--	--	--
	GW-074933-121814-CM-MW-1	12/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.005	84.2	**1660**	**2690**
	GW-074933-031815-CM-MW-1	3/18/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0153	85.3	**1340**	**2480**
	GW-074933-091615-CK-MW-1	9/16/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.005	127	**1840**	**2920**
	GW-074933-12215-CB-MW-1	12/2/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.005	84	**1750**	**3340**
	GW-074933-033016-CM-MW-1	3/30/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0083	90.5	**1900**	**2830**
	GW-074933-062116-SP-MW-1	6/22/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.0114	67.9	**2050**	**13200**
	GW-074933-062116-SP-MW-1	9/8/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.113	68.6	**2100**	**2990**
	GW-074933-120116-JK-MW-1	12/1/2016	(orig)	--	--	--	--	--	--	0.0364	47.9	**950**	**1590**

Table 4

Groundwater Analytical Results Summary
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Naphthalene (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Total dissolved solids (TDS) (mg/L)
NMWQCC Groundwater Quality Standards				***0.01***	***0.75***	***0.75***	***0.62***	***0.03***	***1***	***0.2***	***250***	***600***	***1000***
MW-2	MW-2	6/14/2009	(orig)	0.0094	**1.1**	0.18	**2.28**	0.021	**--**	**--**	40.1	**1360**	--
	MW-2	9/23/2009	(orig)	0.0077	< 0.001	0.11	**0.72**	0.016	0.0239	**6.82**	39.4	**1390**	**2480**
	MW-2	12/16/2009	(orig)	**0.02**	0.0079	0.24	**0.7778**	--	--	**5.26**	63.3	**1510**	**2390**
	MW-2	4/1/2010	(orig)	0.009	0.027	0.18	0.547	--	--	**4.1**	56.5	**1170**	**2460**
	MW-2	6/9/2010	(orig)	0.0038	0.0093	0.099	0.2656	--	--	**3.24**	48.7	**1280**	**2590**
	MW-2	9/20/2010	(orig)	0.005	0.0076	0.061	0.1365	--	--	**2.7**	48.7	**1390**	**2440**
	MW-2	12/17/2010	(orig)	0.0068	0.019	0.071	0.1177	--	--	**2.28**	38.3	**1520**	**2760**
	MW-2	3/16/2011	(orig)	0.0088	0.093	0.083	0.259	--	--	**2.94**	66.7	**1470**	**2680**
	GW-74933-062211-PG-03	6/22/2011	(orig)	0.0013	0.0036	0.0058	0.018	--	--	**2.59**	39.8	**1730**	**2510**
	GW-074933-092711-CM-008	9/27/2011	(orig)	0.0076	0.0091	0.0104	0.0316	--	--	**1.92**	34.4	**1330**	**2070**
	GW-074933-092711-CM-010	9/27/2011	(Duplicate)	0.0075	0.0093	0.0104	0.0314	--	--	--	--	--	--
	GW-074933-121311-CB-MW-2	12/13/2011	(orig)	0.009	0.0476	0.0144	0.07	--	--	**2.08**	36.9	**1150**	**2170**
	GW-074933-3812-CB-MW-2	3/8/2012	(orig)	**0.0107**	0.0959	0.0232	0.149	--	--	**2.01**	66	**1380**	**2500**
	GW-074933-060612-CB-MW-2	6/6/2012	(orig)	0.0054	0.0404	0.0139	0.0797	--	--	**2.12**	76.9	**1640**	**2560**
	GW-074933-060612-CB-DUP	6/6/2012	(Duplicate)	0.0066	0.0405	0.0135	0.0728	--	--	--	--	--	--
	GW-074933-092012-JP-MW-2	9/20/2012	(orig)	0.0063	0.0329	0.012	0.0612	--	--	**1.8**	32.7	--	**2150**
	GW-074933-092012-JP-DUP	9/20/2012	(Duplicate)	0.0066	0.0338	0.01	0.0623	--	--	**--**	--	--	**--**
	GW-074933-121212-CM-MW-2	12/12/2012	(orig)	**0.0106**	0.067	0.0147	0.0991	--	--	**1.22**	40.3	**1160**	**2040**
	GW-074933-121212-CM-DUP	12/12/2012	(Duplicate)	**0.0103**	0.0662	0.0156	0.0984	--	--	--	--	--	--
	GW-074933-032713-JK-MW2	3/27/2013	(orig)	**0.0215**	0.0171	0.0263	0.11	--	--	**1.06**	70	**1150**	**2050**
	GW-074933-061913-JK-MW2	6/19/2013	(orig)	**0.0318**	0.104	0.0696	0.41	--	--	**1.19**	63.7	**1000**	--
	GW-074933-061913-JK-DUP	6/19/2013	(Duplicate)	**0.032**	0.0986	0.0625	0.4	--	--	--	--	--	--
	GW-074933-091213-CM-MW-2	9/12/2013	(orig)	0.0043	0.0429	0.0118	0.0747	--	--	**2.2**	32.4	**1390**	**2210**
	GW-074933-091213-CM-DUP	9/12/2013	(Duplicate)	0.0032	0.0303	0.0084	0.0529	--	--	--	--	--	--
	GW-074933-121213-CM-MW-2	12/12/2013	(orig)	0.0084	0.109	0.0181	0.14	--	--	**1.39**	46.6	**1220**	**2080**
	GW-074933-121213-CM-DUP	12/12/2013	(Duplicate)	0.0073	0.108	0.0177	0.138	--	--	--	--	--	--
	GW-074933-032014-CK-MW-2	3/20/2014	(orig)	0.0066	0.046	0.0108	0.0885	--	--	**1.54**	45.7	**1280**	**2240**
	GW-074933-061814-CK-MW-2	6/18/2014	(orig)	0.0038	0.0197	0.008	0.0451	--	--	**2.2**	46.3	**1300**	**2130**
	GW-074933-091814-CB-MW-2	9/18/2014	(orig)	<0.001	<0.001	<0.001	<0.003	--	--	**2.22**	23.8	**1200**	**2240**
	GW-074933-121814-CM-MW-2	12/18/2014	(orig)	0.0051	0.117	0.0142	0.0842	--	--	**1.37**	37	**1100**	**1740**
	GW-074933-031815-CM-MW-2	3/18/2015	(orig)	0.0045	0.0415	0.0207	0.138	--	--	**1.54**	32.4	**1100**	**2140**
	GW-074933-091615-CK-MW-2	9/16/2015	(orig)	0.002	0.002	0.0019	0.007	--	--	**2.17**	18.3	**1210**	**1880**
	GW-074933-091615-CK-DUP	9/16/2015	(Duplicate)	0.0035	0.0036	0.0037	0.0137	--	--	--	--	--	--
	GW-074933-12215-CB-MW-2	12/2/2015	(orig)	0.0038	0.0127	0.0036	0.023	--	--	**1.56**	26.8	**983**	**1870**
	GW-074933-033016-CM-MW-2	3/30/2016	(orig)	0.005	0.0557	0.0089	0.08	--	--	**2.5**	96.9	**1510**	**2490**
	GW-074933-033016-CM-DUP	3/30/2016	(Duplicate)	0.005	0.0543	0.0087	0.0774	--	--	**--**	--	**--**	**--**
	GW-074933-062116-SP-MW-2	6/22/2016	(orig)	0.0015	0.003	0.0013	0.0074	--	--	**2.26**	84.9	**1320**	**2130**
	GW-074933-062116-SP-DUP	6/22/2016	(Duplicate)	0.0023	0.0083	0.0034	0.0204	--	--	**--**	--	**--**	**--**
	GW-074933-090816-SP-MW-2	9/8/2016	(orig)	0.0023	0.0018	0.0011	0.0054	--	--	**1.67**	23.4	**1320**	**1870**
	GW-074933-090816-SP-DUP	9/8/2016	(Duplicate)	0.0023	0.002	0.0013	0.0055	--	--	**--**	--	**--**	**--**
	GW-074933-120116-JK-MW-2	12/1/2016	(orig)	0.0066	0.0324	0.0092	0.0626	--	--	**1.04**	29.9	**983**	**1690**

Table 4

Groundwater Analytical Results Summary
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Naphthalene (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Total dissolved solids (TDS) (mg/L)
NMWQCC Groundwater Quality Standards				***0.01***	***0.75***	***0.75***	***0.62***	***0.03***	***1***	***0.2***	***250***	***600***	***1000***
MW-3	MW-3	6/14/2009	(orig)	0.01	**1.4**	0.49	**4.05**	**0.036**	--	--	40.3	**1510**	--
	MW-3 duplicate	6/14/2009	(Duplicate)	0.01	**1.4**	0.54	**4.3**	--	--	--	--	--	--
	MW-3	9/23/2009	(orig)	**0.013**	0.0085	0.089	0.32	0.0039	0.0486	**1.11**	64.5	**1500**	**2720**
	MW-3	12/16/2009	(orig)	**0.018**	0.017	0.096	0.28	--	--	**0.932**	99.1	**1920**	**2560**
	MW-3	4/1/2010	(orig)	**0.018**	0.076	0.19	0.59	--	--	**1.04**	5.34	**796**	**1650**
	MW-3	6/9/2010	(orig)	**0.012**	0.02	0.024	0.069	--	--	0.193	30.8	**989**	**2200**
	MW-3	9/20/2010	(orig)	0.009	0.011	0.079	0.142	--	--	**0.818**	49.9	493	**2840**
	MW-3	12/17/2010	(orig)	0.004	0.0034	0.048	0.071	--	--	**0.41**	64.8	**1760**	**2590**
	MW-3	3/16/2011	(orig)	0.0077	0.028	0.22	0.44	--	--	**1.63**	63.4	**1180**	**2500**
	GW-74933-062211-PG-01	6/22/2011	(orig)	0.0024	0.0203	0.0502	0.098	--	--	**0.906**	92.2	**1780**	**3270**
	GW-74933-062211-PG-02	6/22/2011	(Duplicate)	0.0026	0.0224	0.0548	0.107	--	--	--	--	--	--
	GW-074933-092711-CM-007	9/27/2011	(orig)	< 0.001	< 0.001	0.0034	0.0043	--	--	**0.842**	**272**	**2130**	**2940**
	GW-074933-121311-CB-MW-3	12/13/2011	(orig)	0.00079 J	0.00053 J	0.0042	0.0042	--	--	**0.747**	82.7	**1840**	**2810**
	GW-074933-3812-CB-MW-3	3/8/2012	(orig)	**0.016**	0.032	0.143	0.226	--	--	**1.76**	63.4	**1460**	**2730**
	GW-074933-060612-CB-MW-3	6/6/2012	(orig)	< 0.001	0.0038	0.0273	0.0267	--	--	**0.5**	88.8	**2100**	**3000**
	GW-074933-092012-JP-MW-3	9/20/2012	(orig)	0.0038	< 0.001	0.0428	0.0288	--	--	**0.578**	105	--	**2990**
	GW-074933-121212-CM-MW-3	12/12/2012	(orig)	**0.0137**	0.0132	0.0442	0.0613	--	--	**0.509**	72.1	**1550**	**2650**
	GW-074933-032713-JK-MW3	3/27/2013	(orig)	< 0.001	< 0.001	0.14	0.168	--	--	**1.81**	52.7	**1530**	**2500**
	GW-074933-061913-JK-MW3	6/19/2013	(orig)	< 0.001	< 0.001	0.0534	0.048	--	--	**1.66**	81.6	**1240**	**--**
	GW-074933-091213-CM-MW-3	9/12/2013	(orig)	0.0036	< 0.001	0.0403	0.0485	--	--	**0.989**	87.2	**920**	**2120**
	GW-074933-121213-CM-MW-3	12/12/2013	(orig)	0.0056	0.0131	0.0583	0.0761	--	--	**1.2**	57.8	**1290**	**2080**
	GW-074933-032014-CK-MW-3	3/20/2014	(orig)	0.0059	0.0152	0.0257	0.125	--	--	**2.17**	55.7	**1350**	**2520**
	GW-074933-061814-CK-MW-3	6/18/2014	(orig)	0.0021	0.008	0.0355	0.122	--	--	**3.28**	109	**1540**	**2810**
	GW-074933-091814-CB-MW-3	9/18/2014	(orig)	< 0.001	< 0.001	0.0173	0.0106	--	--	**1.84**	92	**1540**	**3660**
	GW-074933-121848-CK-MW-3	12/18/2014	(orig)	**0.0121**	0.0173	0.0109	0.0316	--	--	**2.61**	66.6	**751**	**3100**
	GW-074933-121814-CM-DUP	12/18/2014	(Duplicate)	**0.0106**	0.0152	0.0097	0.0274	--	--	--	--	--	--
	GW-074933-031815-CM-MW-3	3/18/2015	(orig)	0.0086	0.0122	0.01	0.0274	--	--	**1.8**	59.3	**1380**	**2460**
	GW-074933-031815-CM-DUP	3/18/2015	(Duplicate)	0.0091	0.0135	0.011	0.03	--	--	--	--	--	--
	GW-074933-091615-CK-MW-3	9/16/2015	(orig)	0.0014	< 0.001	0.0098	< 0.003			**0.897**	114	**1560**	**2520**
	GW-074933-12215-CB-MW-3	12/2/2015	(orig)	< 0.001	< 0.001	0.0013	< 0.003	--	--	**0.99**	60.9	**1580**	**2640**
	GW-074933-12215-CB-DUP	12/2/2015	(Duplicate)	< 0.001	< 0.001	0.0011	< 0.003	--	--	--	--	--	--
	GW-074933-033016-CM-MW-3	3/30/2016	(orig)	0.0012	0.0016	0.0265	0.0124	--	--	**1.24**	59.7	**1500**	**2430**
	GW-074933-062116-SP-MW-3	6/22/2016	(orig)	< 0.001	< 0.001	0.0016	< 0.003	--	--	**0.718**	120	**1800**	**2920**
	GW-074933-090816-SP-MW-3	9/8/2016	(orig)	< 0.001	< 0.001	0.0036	< 0.003	--	--	**0.512**	118	**1810**	**2790**
	GW-074933-120116-JK-MW-3	12/1/2016	(orig)	0.001	< 0.001	0.0064	< 0.003	--	--	**0.476**	79.9	**1600**	**2710**

Table 4

Groundwater Analytical Results Summary
ConocoPhillips Company
Randleman No. 1
San Juan County, New Mexico

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Naphthalene (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Total dissolved solids (TDS) (mg/L)
NMWQCC Groundwater Quality Standards				*0.01*	*0.75*	*0.75*	*0.62*	*0.03*	*1*	*0.2*	*250*	*600*	*1000*
MW-4	MW-4	6/14/2009	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--	--	**2310**	**4190**	--
	MW-4	9/23/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0308	**2.73**	**2130**	**3320**	**8600**
	MW-4	12/16/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.8**	**3430**	**4110**	**9600**
	MW-4	4/1/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.52**	**2350**	**3110**	**8560**
	MW-4	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.06**	**2190**	**2710**	**4720**
	MW-4	9/20/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.24**	**2640**	**3260**	**9550**
	MW-4	12/17/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.68**	**2350**	**3570**	**9400**
	MW-4	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	**1.82**	**2310**	**3300**	**8440**
	GW-74933-062211-PG-05	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.61**	**2150**	**4050**	**8760**
	GW-074933-092711-CM-006	9/27/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.31**	**2350**	**3650**	**8270**
	GW-074933-121311-CB-MW-4	12/13/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.82**	**2240**	**1530**	**7850**
	GW-074933-3812-CB-MW-4	3/8/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.106	**2610**	**3250**	**8700**
	GW-074933-060612-CB-MW-4	6/6/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.29**	**2520**	**3740**	**8270**
	GW-074933-092012-JP-MW-4	9/20/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.32**	**2420**	--	**7590**
	GW-074933-121212-CM-MW-4	12/12/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.51**	**2460**	**3250**	**8830**
	GW-074933-032713-JK-MW4	3/27/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.46**	**2270**	**3180**	**8320**
	GW-074933-061913-JK-MW4	6/19/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.44**	**2000**	**2790**	--
	GW-074933-091213-CM-MW-4	9/12/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.18**	**2520**	**3080**	**6570**
	GW-074933-121213-CM-MW-4	12/12/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.61**	**2570**	**3320**	**8430**
	GW-074933-032014-CK-MW-4	3/20/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.34**	**2470**	**3420**	**8600**
	GW-074933-061814-CK-MW-4	6/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.32**	**2470**	**3010**	**8300**
	GW-074933-091814-CB-MW-4	9/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.89**	**1890**	**2950**	**8820**
	GW-074933-121814-CM-MW-4	12/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.45**	**2510**	**3480**	**8440**
	GW-074933-031518-CM-MW-4	3/18/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.32**	**2400**	**3170**	**9220**
	GW-074933-091615-CK-MW-4	9/16/20015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.44**	**2000**	**3370**	**7300**
	GW-074933-12215-CB-MW-4	12/2/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.17**	**2390**	**3090**	**10800**
	GW-074933-033016-CM-MW-4	3/30/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.33**	**2390**	**3350**	**9400**
	GW-074933-062116-SP-MW-4	6/22/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.26**	**1990**	**3790**	**8600**
	GW-074933-090816-SP-MW-4	9/8/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.928**	**2670**	**3550**	**9200**
	GW-074933-120116-JK-MW-4	12/1/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.48**	**2420**	**3310**	**8100**
MW-5	GW-074933-061913-JK-MW5	6/19/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.255**	**3900**	**1550**	--
	GW-074933-091213-CM-MW-5	9/12/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.245**	**4040**	**1630**	**10800**
	GW-074933-121213-CM-MW-5	12/12/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.232**	**4130**	**1870**	**8250**
	GW-074933-032014-CK-MW-5	3/20/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.244**	**4050**	**1630**	**9530**
	GW-074933-061814-CK-MW-5	6/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.204**	**3690**	**1580**	**9820**
	GW-074933-091814-CB-MW-5	9/18/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.214**	**3840**	**1540**	**17900**
		9/13/2016	MW-5 PLUGGED AND ABANDONED										
MW-6	GW-074933-120116-JK-MW-6	9/26/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.349**	**3440**	**3250**	--
	GW-074933-120116-JK-MW-6	12/1/2016	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.291**	**3300**	**3040**	**9800**

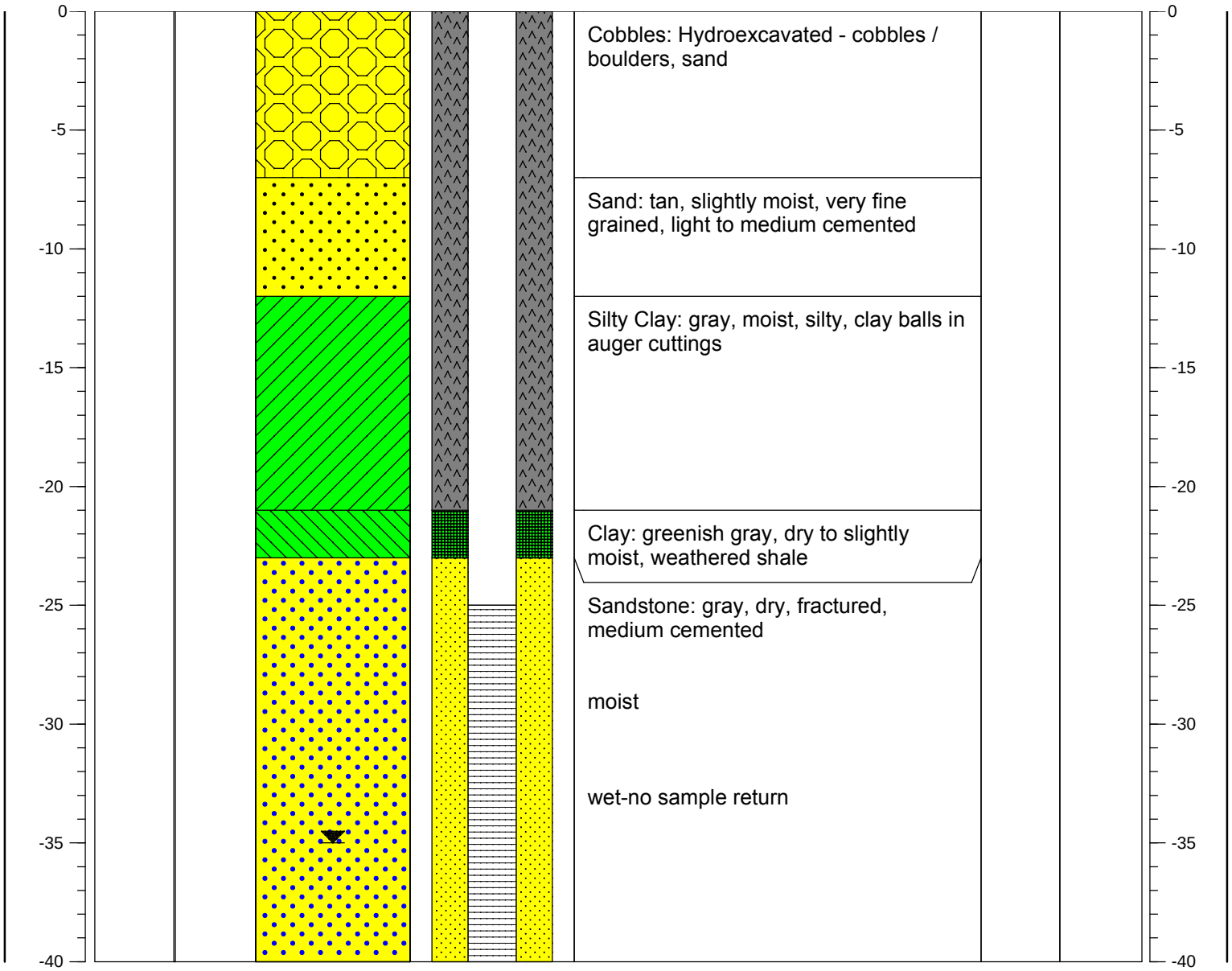
Notes:
MW = monitoring well
NMWQCC = New Mexico Water Quality Control Commission
Constituents in **BOLD** are in excess of NMWQCC groundwater quality standards
mg/L = milligrams per liter (parts per million)
< 1.0 = Below laboratory detection limit of 1.0 mg/L

Appendix A
Boring Logs

PROJECT NAME: Randleman No. 1
LOCATION: Aztec, New Mexico
FIELD LOGGED BY: Jeff Walker
SURFACE ELEVATION (msl): N/A
GROUNDWATER ELEVATION: -33
REMARKS: Boring completed as 2" PVC Groundwater Monitoring Well
COORDINATES: 36.901478, -107.947044

SOIL BORING NO: MW-6
DRILL TYPE: Hollow Stem Auger
BORE HOLE DIAMETER: 7 7/8"
DRILLED BY: National EWP
DATE/TIME HOLE STARTED: September 13, 2016 at 1014
DATE/TIME HOLE COMPLETED: September 13, 2016 at 1700

DEPTH (bgs) - ft	SAMPLE TO LAB	SAMPLE ID	STRATAGRAPHIC SEQUENCE	COMPLETION INFORMATION	CLASSIFICATION AND DESCRIPTION	USCS Symbol	PID (ppm)	DEPTH (bgs) - ft



TD = 40 feet

GHD Services Inc.

BORING LOG AND WELL COMPLETION FORM

Appendix B
Groundwater Laboratory Analytical Reports

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

April 07, 2016

Jeffrey Walker
GHD Services, Inc
6121 Indian School Rd NE
Ste 200
Albuquerque, NM 87110

RE: Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Dear Jeffrey Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2016. 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,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,
Cassie Brown, GHD Services, Inc,
Cale Kanack, GHD

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

CERTIFICATIONS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
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
Kansas Field Laboratory Accreditation: # E-92587

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60216015001	**GW-074933-033016-CM-MW-1**	Water	03/30/16 11:55	03/31/16 13:25
60216015002	**GW-074933-033016-CM-MW-2**	Water	03/30/16 12:10	03/31/16 13:25
60216015003	**GW-074933-033016-CM-MW-3**	Water	03/30/16 12:30	03/31/16 13:25
60216015004	**GW-074933-033016-CM-MW-4**	Water	03/30/16 12:40	03/31/16 13:25
60216015005	**GW-074933-033016-CM-DUP**	Water	03/30/16 08:00	03/31/16 13:25
60216015006	**TB-074933-033016-CM-001**	Water	03/30/16 15:15	03/31/16 13:25

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SAMPLE ANALYTE COUNT

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60216015001	**GW-074933-033016-CM-MW-1**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	AGO	1
		EPA 300.0	OL	2
60216015002	**GW-074933-033016-CM-MW-2**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	AGO	1
		EPA 300.0	OL	2
60216015003	**GW-074933-033016-CM-MW-3**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	AGO	1
		EPA 300.0	OL	2
60216015004	**GW-074933-033016-CM-MW-4**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	AGO	1
		EPA 300.0	OL	2
60216015005	**GW-074933-033016-CM-DUP**	EPA 8260	JTK	8
60216015006	**TB-074933-033016-CM-001**	EPA 8260	JTK	8

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: April 07, 2016

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Method: **EPA 8260**
Description: 8260 MSV UST, Water
Client: GHD Services_COP NM
Date: April 07, 2016

General Information:
6 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: GHD Services_COP NM
Date: April 07, 2016

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: April 07, 2016

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: GW-074933-033016-CM-MW-1 **Lab ID: 60216015001** Collected: 03/30/16 11:55 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**8.3**	ug/L	5.0	1	04/01/16 15:30	04/05/16 13:42	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/16 06:46	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/16 06:46	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/16 06:46	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/16 06:46	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	80-120	1		04/02/16 06:46	2037-26-5	
4-Bromofluorobenzene (S)	101	%	77-130	1		04/02/16 06:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	81-127	1		04/02/16 06:46	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 06:46		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2830**	mg/L	5.0	1		04/05/16 09:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**90.5**	mg/L	5.0	5		04/05/16 22:13	16887-00-6	
Sulfate	**1900**	mg/L	200	200		04/05/16 22:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: GW-074933-033016-CM-MW-2 **Lab ID: 60216015002** Collected: 03/30/16 12:10 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**2500**	ug/L	5.0	1	04/01/16 15:30	04/05/16 13:46	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**5.0**	ug/L	1.0	1		04/02/16 07:01	71-43-2	
Ethylbenzene	**8.9**	ug/L	1.0	1		04/02/16 07:01	100-41-4	
Toluene	**55.7**	ug/L	1.0	1		04/02/16 07:01	108-88-3	
Xylene (Total)	**80.0**	ug/L	3.0	1		04/02/16 07:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	80-120	1		04/02/16 07:01	2037-26-5	
4-Bromofluorobenzene (S)	100	%	77-130	1		04/02/16 07:01	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	81-127	1		04/02/16 07:01	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 07:01		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2490**	mg/L	5.0	1		04/05/16 09:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**96.9**	mg/L	10.0	10		04/05/16 22:44	16887-00-6	
Sulfate	**1510**	mg/L	100	100		04/05/16 22:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: GW-074933-033016-CM-MW-3 **Lab ID: 60216015003** Collected: 03/30/16 12:30 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1240**	ug/L	5.0	1	04/01/16 15:30	04/05/16 13:50	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**1.2**	ug/L	1.0	1		04/02/16 07:45	71-43-2	
Ethylbenzene	**26.5**	ug/L	1.0	1		04/02/16 07:45	100-41-4	
Toluene	**1.6**	ug/L	1.0	1		04/02/16 07:45	108-88-3	
Xylene (Total)	**12.4**	ug/L	3.0	1		04/02/16 07:45	1330-20-7	
Surrogates								
Toluene-d8 (S)	106	%	80-120	1		04/02/16 07:45	2037-26-5	
4-Bromofluorobenzene (S)	102	%	77-130	1		04/02/16 07:45	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	81-127	1		04/02/16 07:45	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 07:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2430**	mg/L	5.0	1		04/05/16 09:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**59.7**	mg/L	5.0	5		04/05/16 23:44	16887-00-6	
Sulfate	**1500**	mg/L	100	100		04/06/16 00:00	14808-79-8	

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: GW-074933-033016-CM-MW-4 **Lab ID: 60216015004** Collected: 03/30/16 12:40 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1330**	ug/L	5.0	1	04/01/16 15:30	04/05/16 13:54	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/16 08:00	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/16 08:00	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/16 08:00	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/16 08:00	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	80-120	1		04/02/16 08:00	2037-26-5	
4-Bromofluorobenzene (S)	102	%	77-130	1		04/02/16 08:00	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	81-127	1		04/02/16 08:00	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 08:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**9400**	mg/L	5.0	1		04/05/16 09:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**2390**	mg/L	200	200		04/06/16 00:15	16887-00-6	
Sulfate	**3350**	mg/L	200	200		04/06/16 00:15	14808-79-8	

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: GW-074933-033016-CM-DUP **Lab ID: 60216015005** Collected: 03/30/16 08:00 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**5.0**	ug/L	1.0	1		04/02/16 08:15	71-43-2	
Ethylbenzene	**8.7**	ug/L	1.0	1		04/02/16 08:15	100-41-4	
Toluene	**54.3**	ug/L	1.0	1		04/02/16 08:15	108-88-3	
Xylene (Total)	**77.4**	ug/L	3.0	1		04/02/16 08:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	104	%	80-120	1		04/02/16 08:15	2037-26-5	
4-Bromofluorobenzene (S)	101	%	77-130	1		04/02/16 08:15	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	81-127	1		04/02/16 08:15	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 08:15		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Sample: TB-074933-033016-CM-001 **Lab ID: 60216015006** Collected: 03/30/16 15:15 Received: 03/31/16 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/02/16 08:30	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/16 08:30	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/16 08:30	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/16 08:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	80-120	1		04/02/16 08:30	2037-26-5	
4-Bromofluorobenzene (S)	101	%	77-130	1		04/02/16 08:30	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	81-127	1		04/02/16 08:30	17060-07-0	
Preservation pH	**1.0**		1.0	1		04/02/16 08:30		

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

QC Batch: MPRP/35416 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

METHOD BLANK: 1734700 Matrix: Water
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	04/05/16 12:06	

LABORATORY CONTROL SAMPLE: 1734701

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1734702 1734703

Parameter	Units	60216014002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	0.13 mg/L	1000	1000	1140	1120	101	99	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

QC Batch: MSV/75033 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004, 60216015005, 60216015006

METHOD BLANK: 1734975 Matrix: Water
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004, 60216015005, 60216015006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/02/16 05:48	
Ethylbenzene	ug/L	ND	1.0	04/02/16 05:48	
Toluene	ug/L	ND	1.0	04/02/16 05:48	
Xylene (Total)	ug/L	ND	3.0	04/02/16 05:48	
1,2-Dichloroethane-d4 (S)	%	99	81-127	04/02/16 05:48	
4-Bromofluorobenzene (S)	%	102	77-130	04/02/16 05:48	
Toluene-d8 (S)	%	108	80-120	04/02/16 05:48	

LABORATORY CONTROL SAMPLE: 1734976

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.3	96	79-116	
Ethylbenzene	ug/L	20	20.1	100	81-110	
Toluene	ug/L	20	20.3	101	82-111	
Xylene (Total)	ug/L	60	61.6	103	80-111	
1,2-Dichloroethane-d4 (S)	%			97	81-127	
4-Bromofluorobenzene (S)	%			101	77-130	
Toluene-d8 (S)	%			108	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.

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

QC Batch: WET/60996 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

METHOD BLANK: 1735821 Matrix: Water
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	04/05/16 09:10	

LABORATORY CONTROL SAMPLE: 1735822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	980	98	80-120	

SAMPLE DUPLICATE: 1735823

Parameter	Units	60215933004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	16100	14800	8	10	

SAMPLE DUPLICATE: 1735824

Parameter	Units	60216013002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	627	622	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.

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

QC Batch: WETA/38839 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

METHOD BLANK: 1735884 Matrix: Water
Associated Lab Samples: 60216015001, 60216015002, 60216015003, 60216015004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/05/16 09:00	
Sulfate	mg/L	ND	1.0	04/05/16 09:00	

LABORATORY CONTROL SAMPLE: 1735885

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1735886 1735887

Parameter	Units	60215915002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	11.4	10	10	21.0	21.1	97	98	80-120	0	15	
Sulfate	mg/L	20.6	10	10	31.0	30.9	104	103	80-120	0	15	

MATRIX SPIKE SAMPLE: 1735888

Parameter	Units	60215915003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	11.4	5	16.1	95	80-120	
Sulfate	mg/L	19.0	5	23.8	96	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.
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QUALIFIERS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60216015

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60216015001	**GW-074933-033016-CM-MW-1**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60216015002	**GW-074933-033016-CM-MW-2**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60216015003	**GW-074933-033016-CM-MW-3**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60216015004	**GW-074933-033016-CM-MW-4**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60216015001	**GW-074933-033016-CM-MW-1**	EPA 8260	MSV/75033		
60216015002	**GW-074933-033016-CM-MW-2**	EPA 8260	MSV/75033		
60216015003	**GW-074933-033016-CM-MW-3**	EPA 8260	MSV/75033		
60216015004	**GW-074933-033016-CM-MW-4**	EPA 8260	MSV/75033		
60216015005	**GW-074933-033016-CM-DUP**	EPA 8260	MSV/75033		
60216015006	**TB-074933-033016-CM-001**	EPA 8260	MSV/75033		
60216015001	**GW-074933-033016-CM-MW-1**	SM 2540C	WET/60996		
60216015002	**GW-074933-033016-CM-MW-2**	SM 2540C	WET/60996		
60216015003	**GW-074933-033016-CM-MW-3**	SM 2540C	WET/60996		
60216015004	**GW-074933-033016-CM-MW-4**	SM 2540C	WET/60996		
60216015001	**GW-074933-033016-CM-MW-1**	EPA 300.0	WETA/38839		
60216015002	**GW-074933-033016-CM-MW-2**	EPA 300.0	WETA/38839		
60216015003	**GW-074933-033016-CM-MW-3**	EPA 300.0	WETA/38839		
60216015004	**GW-074933-033016-CM-MW-4**	EPA 300.0	WETA/38839		

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www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60216015

60216015

Client Name: GHD

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 6508 8165 2000 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 +1.0 T-239 / CF 0.0 T-262 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun. (circle one)

Cooler Temperature: 3.4

Date and initials of person examining contents: JB 3/31

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.	
Short Hold Time analyses (<72hr):	☐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		
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): 2/25/16		15.	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.	
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:	
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒N/A	18.	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMF Date: 3/31/16

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:	GHD Services_COP NM
Address:	6212 Indian School Rd. NE St2
	Albuquerque, NM 87110
Email:	christine.mathews@ghd.com
Phone:	505-884-0672 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Christine Mathews
Copy To:	Jeff Walker
	Angela Bown
Purchase Order #:	
Project Name:	074933 Randleman No 1 COP
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	alice.flanagan@pacelabs.com,
Pace Profile #:	

Regulatory Agency:

State / Location: NM

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260 BTEX	Sulfate, Chloride by 300.0	Dissolved Mn -field filtered	TDS	Residual Chlorine (Y/N)	6021/6015
1	GW-074933-033016-CM-MW-1	WT	G			3/30/16	1155		5	1		1	3						X	X	X	X			01
2	GW-074933-033016-CM-MW-2	WT	G			3/30/16	1210		8	1		1	6						X	X	X	X			02
3	~~GW-074933-033016-CM-MW-~~	~~WT~~	G			3/30/16																			—
4	GW-074933-033016-CM-MW-3	WT	G			3/30/16	1230		5	1		1	3						X	X	X	X			03
5	GW-074933-033016-CM-MW-4	WT	G			3/30/16	1240		5	1		1	3						X	X	X	X			04
6	GW-074933-033016-CM-DUP	WT	G			3/30/16	—		3				3						X						05
7	TB-074933-033016-CM-001	WT				3/30/16	1515		3				3						X						06
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Christine Mathews/GHD	3/30/16	1530		3/31	1325	7.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Christine Mathews

SIGNATURE of SAMPLER: Christine Mathews DATE Signed: 3/30/16

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

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

July 08, 2016

Christine Mathews
GHD Services, Inc.
6212 Indian School Rd. NE St2
Albuquerque, NM 87110

RE: Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on June 27, 2016. 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,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,
Jeffrey Walker, GHD Services, Inc

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
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
Kansas Field Laboratory Accreditation: # E-92587

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60222267001	**GW-074933-062216-SP-MW-3**	Water	06/22/16 13:55	06/27/16 08:30
60222267002	**GW-074933-062216-SP-MW-2**	Water	06/22/16 14:21	06/27/16 08:30
60222267003	**GW-074933-062216-SP-MW-1**	Water	06/22/16 14:45	06/27/16 08:30
60222267004	**GW-074933-062216-SP-MW-4**	Water	06/22/16 15:00	06/27/16 08:30
60222267005	**GW-074933-062216-SP-DUP**	Water	06/22/16 08:00	06/27/16 08:30
60222267006	**TRIP BLANK**	Water	06/22/16 08:00	06/27/16 08:30

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SAMPLE ANALYTE COUNT

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60222267001	**GW-074933-062216-SP-MW-3**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	HAC	1
		EPA 300.0	OL	2
60222267002	**GW-074933-062216-SP-MW-2**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	HAC	1
		EPA 300.0	OL	2
60222267003	**GW-074933-062216-SP-MW-1**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	HAC	1
		EPA 300.0	OL	2
60222267004	**GW-074933-062216-SP-MW-4**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	HAC	1
		EPA 300.0	OL	2
60222267005	**GW-074933-062216-SP-DUP**	EPA 8260	JTK	8
60222267006	**TRIP BLANK**	EPA 8260	JTK	8

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: July 08, 2016

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Method: **EPA 8260**
Description: 8260 MSV UST, Water
Client: GHD Services_COP NM
Date: July 08, 2016

General Information:
6 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/76770

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: GHD Services_COP NM
Date: July 08, 2016

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: July 08, 2016

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: GW-074933-062216-SP-MW-3 **Lab ID: 60222267001** Collected: 06/22/16 13:55 Received: 06/27/16 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**718**	ug/L	5.0	1	06/28/16 10:45	06/29/16 09:24	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/01/16 05:53	71-43-2	
Ethylbenzene	**1.6**	ug/L	1.0	1		07/01/16 05:53	100-41-4	
Toluene	ND	ug/L	1.0	1		07/01/16 05:53	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/01/16 05:53	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		07/01/16 05:53	2037-26-5	
4-Bromofluorobenzene (S)	102	%	77-130	1		07/01/16 05:53	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	81-127	1		07/01/16 05:53	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 05:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2920**	mg/L	5.0	1		06/28/16 10:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**120**	mg/L	10.0	10		07/02/16 15:20	16887-00-6	
Sulfate	**1800**	mg/L	200	200		07/03/16 17:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: GW-074933-062216-SP-MW-2 **Lab ID: 60222267002** Collected: 06/22/16 14:21 Received: 06/27/16 08:30 Matrix: Water

Comments: • Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**2260**	ug/L	5.0	1	06/28/16 10:45	06/29/16 09:28	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**1.5**	ug/L	1.0	1		07/01/16 22:05	71-43-2	
Ethylbenzene	**1.3**	ug/L	1.0	1		07/01/16 22:05	100-41-4	
Toluene	**3.0**	ug/L	1.0	1		07/01/16 22:05	108-88-3	
Xylene (Total)	**7.4**	ug/L	3.0	1		07/01/16 22:05	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		07/01/16 22:05	2037-26-5	
4-Bromofluorobenzene (S)	106	%	77-130	1		07/01/16 22:05	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	81-127	1		07/01/16 22:05	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 22:05		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2130**	mg/L	5.0	1		06/28/16 10:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**84.9**	mg/L	10.0	10		07/02/16 15:35	16887-00-6	
Sulfate	**1320**	mg/L	100	100		07/03/16 18:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: GW-074933-062216-SP-MW-1 **Lab ID: 60222267003** Collected: 06/22/16 14:45 Received: 06/27/16 08:30 Matrix: Water

Comments: • Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**11.4**	ug/L	5.0	1	06/28/16 10:45	06/29/16 09:43	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/01/16 06:52	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/01/16 06:52	100-41-4	
Toluene	ND	ug/L	1.0	1		07/01/16 06:52	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/01/16 06:52	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	80-120	1		07/01/16 06:52	2037-26-5	
4-Bromofluorobenzene (S)	103	%	77-130	1		07/01/16 06:52	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	81-127	1		07/01/16 06:52	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 06:52		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**13200**	mg/L	5.0	1		06/28/16 10:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**67.9**	mg/L	10.0	10		07/02/16 16:05	16887-00-6	
Sulfate	**2050**	mg/L	200	200		07/03/16 18:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: GW-074933-062216-SP-MW-4 **Lab ID: 60222267004** Collected: 06/22/16 15:00 Received: 06/27/16 08:30 Matrix: Water

Comments: • Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1260**	ug/L	5.0	1	06/28/16 10:45	06/29/16 09:47	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/01/16 07:07	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/01/16 07:07	100-41-4	
Toluene	ND	ug/L	1.0	1		07/01/16 07:07	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/01/16 07:07	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		07/01/16 07:07	2037-26-5	
4-Bromofluorobenzene (S)	106	%	77-130	1		07/01/16 07:07	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	81-127	1		07/01/16 07:07	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 07:07		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**8600**	mg/L	5.0	1		06/28/16 10:36		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**1990**	mg/L	200	200		07/03/16 18:43	16887-00-6	
Sulfate	**3790**	mg/L	200	200		07/03/16 18:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: GW-074933-062216-SP-DUP **Lab ID: 60222267005** Collected: 06/22/16 08:00 Received: 06/27/16 08:30 Matrix: Water

Comments: • Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**2.3**	ug/L	1.0	1		07/01/16 07:22	71-43-2	
Ethylbenzene	**3.4**	ug/L	1.0	1		07/01/16 07:22	100-41-4	
Toluene	**8.3**	ug/L	1.0	1		07/01/16 07:22	108-88-3	
Xylene (Total)	**20.4**	ug/L	3.0	1		07/01/16 07:22	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		07/01/16 07:22	2037-26-5	
4-Bromofluorobenzene (S)	103	%	77-130	1		07/01/16 07:22	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	81-127	1		07/01/16 07:22	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 07:22		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Sample: TRIP BLANK **Lab ID: 60222267006** Collected: 06/22/16 08:00 Received: 06/27/16 08:30 Matrix: Water

Comments: • Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/01/16 07:36	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/01/16 07:36	100-41-4	
Toluene	ND	ug/L	1.0	1		07/01/16 07:36	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/01/16 07:36	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		07/01/16 07:36	2037-26-5	
4-Bromofluorobenzene (S)	102	%	77-130	1		07/01/16 07:36	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	81-127	1		07/01/16 07:36	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/01/16 07:36		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: MPRP/36479 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

METHOD BLANK: 1784029 Matrix: Water
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	06/29/16 09:13	

LABORATORY CONTROL SAMPLE: 1784030

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	972	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1784031 1784032

Parameter	Units	60222267002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	2260	1000	1000	3110	3120	85	85	75-125	0	20	

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: MSV/76770 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60222267001, 60222267003, 60222267004, 60222267005, 60222267006

METHOD BLANK: 1786536 Matrix: Water
Associated Lab Samples: 60222267001, 60222267003, 60222267004, 60222267005, 60222267006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	07/01/16 05:38	
Ethylbenzene	ug/L	ND	1.0	07/01/16 05:38	
Toluene	ug/L	ND	1.0	07/01/16 05:38	
Xylene (Total)	ug/L	ND	3.0	07/01/16 05:38	
1,2-Dichloroethane-d4 (S)	%	99	81-127	07/01/16 05:38	
4-Bromofluorobenzene (S)	%	104	77-130	07/01/16 05:38	
Toluene-d8 (S)	%	102	80-120	07/01/16 05:38	

LABORATORY CONTROL SAMPLE: 1786537

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.0	100	79-116	
Ethylbenzene	ug/L	20	20.1	100	81-110	
Toluene	ug/L	20	20.1	100	82-111	
Xylene (Total)	ug/L	60	59.5	99	80-111	
1,2-Dichloroethane-d4 (S)	%			102	81-127	
4-Bromofluorobenzene (S)	%			102	77-130	
Toluene-d8 (S)	%			100	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: MSV/76796
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60222267002

METHOD BLANK: 1787478 Matrix: Water
Associated Lab Samples: 60222267002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	07/01/16 17:23	
Ethylbenzene	ug/L	ND	1.0	07/01/16 17:23	
Toluene	ug/L	ND	1.0	07/01/16 17:23	
Xylene (Total)	ug/L	ND	3.0	07/01/16 17:23	
1,2-Dichloroethane-d4 (S)	%	102	81-127	07/01/16 17:23	
4-Bromofluorobenzene (S)	%	103	77-130	07/01/16 17:23	
Toluene-d8 (S)	%	100	80-120	07/01/16 17:23	

LABORATORY CONTROL SAMPLE: 1787479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.5	98	79-116	
Ethylbenzene	ug/L	20	20.1	101	81-110	
Toluene	ug/L	20	19.9	99	82-111	
Xylene (Total)	ug/L	60	58.7	98	80-111	
1,2-Dichloroethane-d4 (S)	%			99	81-127	
4-Bromofluorobenzene (S)	%			98	77-130	
Toluene-d8 (S)	%			101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1787480 1787481

Parameter	Units	60222267002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	1.5	20	20	20.2	20.2	93	94	37-151	0	40	
Ethylbenzene	ug/L	1.3	20	20	20.0	20.3	94	95	29-151	1	45	
Toluene	ug/L	3.0	20	20	22.4	22.4	97	97	37-147	0	43	
Xylene (Total)	ug/L	7.4	60	60	64.1	64.5	94	95	27-156	1	46	
1,2-Dichloroethane-d4 (S)	%						100	98	81-127			
4-Bromofluorobenzene (S)	%						102	97	77-130			
Toluene-d8 (S)	%						102	101	80-120			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: WET/62658 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

METHOD BLANK: 1784043 Matrix: Water
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	06/28/16 10:29	

LABORATORY CONTROL SAMPLE: 1784044

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	962	96	80-120	

SAMPLE DUPLICATE: 1784045

Parameter	Units	60222267002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2130	2120	0	10	

SAMPLE DUPLICATE: 1784046

Parameter	Units	60222021001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1450	1440	1	10	

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: WETA/40378 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60222267001, 60222267002, 60222267003

METHOD BLANK: 1787651 Matrix: Water
Associated Lab Samples: 60222267001, 60222267002, 60222267003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	07/02/16 09:29	

LABORATORY CONTROL SAMPLE: 1787652

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	

MATRIX SPIKE SAMPLE: 1787655

Parameter	Units	60222267002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	84.9	50	139	107	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

QC Batch: WETA/40386 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

METHOD BLANK: 1787911 Matrix: Water
Associated Lab Samples: 60222267001, 60222267002, 60222267003, 60222267004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	07/03/16 09:02	
Sulfate	mg/L	ND	1.0	07/03/16 09:02	

LABORATORY CONTROL SAMPLE: 1787912

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	99	90-110	
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1787913 1787914

Parameter	Units	60222007003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	117	50	50	175	175	115	115	80-120	0	15	
Sulfate	mg/L	88.3	50	50	142	142	108	108	80-120	0	15	

MATRIX SPIKE SAMPLE: 1787916

Parameter	Units	60222267002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1320	500	1890	112	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

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.

BATCH QUALIFIERS

Batch: MSV/76770

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60222267

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60222267001	**GW-074933-062216-SP-MW-3**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591
60222267002	**GW-074933-062216-SP-MW-2**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591
60222267003	**GW-074933-062216-SP-MW-1**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591
60222267004	**GW-074933-062216-SP-MW-4**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591
60222267001	**GW-074933-062216-SP-MW-3**	EPA 8260	MSV/76770		
60222267002	**GW-074933-062216-SP-MW-2**	EPA 8260	MSV/76796		
60222267003	**GW-074933-062216-SP-MW-1**	EPA 8260	MSV/76770		
60222267004	**GW-074933-062216-SP-MW-4**	EPA 8260	MSV/76770		
60222267005	**GW-074933-062216-SP-DUP**	EPA 8260	MSV/76770		
60222267006	**TRIP BLANK**	EPA 8260	MSV/76770		
60222267001	**GW-074933-062216-SP-MW-3**	SM 2540C	WET/62658		
60222267002	**GW-074933-062216-SP-MW-2**	SM 2540C	WET/62658		
60222267003	**GW-074933-062216-SP-MW-1**	SM 2540C	WET/62658		
60222267004	**GW-074933-062216-SP-MW-4**	SM 2540C	WET/62658		
60222267001	**GW-074933-062216-SP-MW-3**	EPA 300.0	WETA/40378		
60222267001	**GW-074933-062216-SP-MW-3**	EPA 300.0	WETA/40386		
60222267002	**GW-074933-062216-SP-MW-2**	EPA 300.0	WETA/40378		
60222267002	**GW-074933-062216-SP-MW-2**	EPA 300.0	WETA/40386		
60222267003	**GW-074933-062216-SP-MW-1**	EPA 300.0	WETA/40378		
60222267003	**GW-074933-062216-SP-MW-1**	EPA 300.0	WETA/40386		
60222267004	**GW-074933-062216-SP-MW-4**	EPA 300.0	WETA/40386		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60222267

60222267

Client Name: GHD COP

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 8677 5876 4430 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 0.0 T-262 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 14.5

Date and initials of person examining contents:

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1. Out of temp, ice melted
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.
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): 6/14/16		15.
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒N/A	18.

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

Person Contacted: J Walker Date/Time: 6/27/16 email

Comments/ Resolution: Move forward w/ analysis.

Project Manager Review: [signature] Date: 6/27/16

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Start: 1050	Start:
End: 1057	End:
Temp:	Temp:

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd. NE St2	Copy To:	Jeff Walker	Company Name:	
Albuquerque, NM 87110		Angela Bown		Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-884-0672 Fax:	Project Name:	074933 Randleman No 1 COP	Pace Project Manager:	alice.flanagan@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	Scott, Alice

Regulatory Agency:

State / Location: NM

Requested Analysis Filtered (Y/N)

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

60222267

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260 BTEX	Sulfate, Chloride by 300.0	Dissolved Mn -field filtered	TDS		Residual Chlorine (Y/N)	
1	GW-074933-062216-SP-MW-3	WT	G	6-22-16	1355	—			5			X	X						X	X	X	X	BR3H BR3F (3) DG4H		001
2	GW-074933-062216-SP-MW-2	↓	↓	↓	1421	—			8			X	X						X	X	X	X	(6) DG4H		QA/QC sample included 002
3	GW-074933-062216-SP-MW-1	↓	↓	↓	1445	—			5			X	X						X	X	X	X	(3) DG4H		003
4	GW-074933-062216-SP-MW-4	↓	↓	↓	1500	—			5			X	X						X	X	X	X	↓		004
5	GW-074933-062216-SP-DUP	↓	↓	↓		—			3				X						X				(3) DG4H		005
6																							(3) DG4H TB		006
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Steven Perez	6/23/16	1525	[illegible]	6/27	0330	19.5	N	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: Steven Perez

SIGNATURE of SAMPLER: Steven Perez

DATE Signed: 6/23/16

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

September 22, 2016

Christine Mathews
GHD Services, Inc.
6212 Indian School Rd. NE St2
Albuquerque, NM 87110

RE: Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 09, 2016. 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,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,
Jeffrey Walker, GHD Services, Inc

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
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
Kansas Field Laboratory Accreditation: # E-92587

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60227292001	**GW-074933-090816-SP-MW-1**	Water	09/08/16 12:35	09/09/16 08:50
60227292002	**GW-074933-090816-SP-MW-2**	Water	09/08/16 12:20	09/09/16 08:50
60227292003	**GW-074933-090816-SP-MW-3**	Water	09/08/16 13:05	09/09/16 08:50
60227292004	**GW-074933-090816-SP-MW-4**	Water	09/08/16 12:58	09/09/16 08:50
60227292005	**GW-074933-090816-SP-DUP**	Water	09/08/16 00:00	09/09/16 08:50
60227292006	**TRIP BLANK**	Water	09/08/16 00:00	09/09/16 08:50

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SAMPLE ANALYTE COUNT

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60227292001	**GW-074933-090816-SP-MW-1**	EPA 6010	TDS	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60227292002	**GW-074933-090816-SP-MW-2**	EPA 6010	TDS	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60227292003	**GW-074933-090816-SP-MW-3**	EPA 6010	TDS	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60227292004	**GW-074933-090816-SP-MW-4**	EPA 6010	TDS	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60227292005	**GW-074933-090816-SP-DUP**	EPA 8260	JTK	8

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: September 22, 2016

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Method: **EPA 8260**
Description: 8260 MSV UST, Water
Client: GHD Services_COP NM
Date: September 22, 2016

General Information:
5 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: GHD Services_COP NM
Date: September 22, 2016

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: September 22, 2016

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Sample: GW-074933-090816-SP-MW-1 **Lab ID: 60227292001** Collected: 09/08/16 12:35 Received: 09/09/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**113**	ug/L	5.0	1	09/12/16 12:15	09/13/16 12:17	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		09/10/16 08:11	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/10/16 08:11	100-41-4	
Toluene	ND	ug/L	1.0	1		09/10/16 08:11	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/10/16 08:11	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		09/10/16 08:11	2037-26-5	
4-Bromofluorobenzene (S)	106	%	77-130	1		09/10/16 08:11	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	81-127	1		09/10/16 08:11	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/10/16 08:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2990**	mg/L	5.0	1		09/14/16 13:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**68.6**	mg/L	10.0	10		09/20/16 21:14	16887-00-6	
Sulfate	**2100**	mg/L	200	200		09/21/16 14:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Sample: GW-074933-090816-SP-MW-2 **Lab ID: 60227292002** Collected: 09/08/16 12:20 Received: 09/09/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1670**	ug/L	5.0	1	09/12/16 12:15	09/13/16 12:19	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**2.3**	ug/L	1.0	1		09/10/16 08:26	71-43-2	
Ethylbenzene	**1.1**	ug/L	1.0	1		09/10/16 08:26	100-41-4	
Toluene	**1.8**	ug/L	1.0	1		09/10/16 08:26	108-88-3	
Xylene (Total)	**5.4**	ug/L	3.0	1		09/10/16 08:26	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		09/10/16 08:26	2037-26-5	
4-Bromofluorobenzene (S)	102	%	77-130	1		09/10/16 08:26	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	81-127	1		09/10/16 08:26	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/10/16 08:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1870**	mg/L	5.0	1		09/14/16 13:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**23.4**	mg/L	2.0	2		09/21/16 14:33	16887-00-6	
Sulfate	**1320**	mg/L	100	100		09/21/16 15:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Sample: GW-074933-090816-SP-MW-3 **Lab ID: 60227292003** Collected: 09/08/16 13:05 Received: 09/09/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**512**	ug/L	5.0	1	09/12/16 12:15	09/13/16 12:28	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		09/10/16 09:11	71-43-2	
Ethylbenzene	**3.6**	ug/L	1.0	1		09/10/16 09:11	100-41-4	
Toluene	ND	ug/L	1.0	1		09/10/16 09:11	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/10/16 09:11	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	80-120	1		09/10/16 09:11	2037-26-5	
4-Bromofluorobenzene (S)	104	%	77-130	1		09/10/16 09:11	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	81-127	1		09/10/16 09:11	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/10/16 09:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2790**	mg/L	5.0	1		09/14/16 13:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**118**	mg/L	10.0	10		09/20/16 22:11	16887-00-6	
Sulfate	**1810**	mg/L	200	200		09/21/16 15:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Sample: GW-074933-090816-SP-MW-4 **Lab ID: 60227292004** Collected: 09/08/16 12:58 Received: 09/09/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**928**	ug/L	5.0	1	09/12/16 12:15	09/13/16 12:31	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		09/10/16 09:26	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/10/16 09:26	100-41-4	
Toluene	ND	ug/L	1.0	1		09/10/16 09:26	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/10/16 09:26	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		09/10/16 09:26	2037-26-5	
4-Bromofluorobenzene (S)	103	%	77-130	1		09/10/16 09:26	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	81-127	1		09/10/16 09:26	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/10/16 09:26		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**9200**	mg/L	5.0	1		09/14/16 13:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**2670**	mg/L	500	500		09/21/16 15:44	16887-00-6	
Sulfate	**3550**	mg/L	500	500		09/21/16 15:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Sample: GW-074933-090816-SP-DUP **Lab ID: 60227292005** Collected: 09/08/16 00:00 Received: 09/09/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**2.3**	ug/L	1.0	1		09/10/16 09:41	71-43-2	
Ethylbenzene	**1.3**	ug/L	1.0	1		09/10/16 09:41	100-41-4	
Toluene	**2.0**	ug/L	1.0	1		09/10/16 09:41	108-88-3	
Xylene (Total)	**5.5**	ug/L	3.0	1		09/10/16 09:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		09/10/16 09:41	2037-26-5	
4-Bromofluorobenzene (S)	101	%	77-130	1		09/10/16 09:41	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	81-127	1		09/10/16 09:41	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/10/16 09:41		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

QC Batch: 446110 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

METHOD BLANK: 1824025 Matrix: Water
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	09/13/16 12:12	

LABORATORY CONTROL SAMPLE: 1824026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	960	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1824027 1824028

Parameter	Units	60227292002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	1670	1000	1000	2600	2630	93	96	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1824029 1824030

Parameter	Units	60227293005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	2070	1000	1000	3000	3020	94	95	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: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

QC Batch: 446046 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004, 60227292005

METHOD BLANK: 1823489 Matrix: Water
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004, 60227292005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/10/16 06:13	
Ethylbenzene	ug/L	ND	1.0	09/10/16 06:13	
Toluene	ug/L	ND	1.0	09/10/16 06:13	
Xylene (Total)	ug/L	ND	3.0	09/10/16 06:13	
1,2-Dichloroethane-d4 (S)	%	96	81-127	09/10/16 06:13	
4-Bromofluorobenzene (S)	%	104	77-130	09/10/16 06:13	
Toluene-d8 (S)	%	100	80-120	09/10/16 06:13	

LABORATORY CONTROL SAMPLE: 1823490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.6	103	79-116	
Ethylbenzene	ug/L	20	19.3	97	81-110	
Toluene	ug/L	20	20.2	101	82-111	
Xylene (Total)	ug/L	60	56.1	94	80-111	
1,2-Dichloroethane-d4 (S)	%			97	81-127	
4-Bromofluorobenzene (S)	%			99	77-130	
Toluene-d8 (S)	%			99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1823491 1823492

Parameter	Units	60227292002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	2.3	20	20	23.5	23.0	106	103	37-151	2	40	
Ethylbenzene	ug/L	1.1	20	20	20.4	19.7	96	93	29-151	3	45	
Toluene	ug/L	1.8	20	20	22.1	21.6	101	99	37-147	2	43	
Xylene (Total)	ug/L	5.4	60	60	61.6	59.0	94	89	27-156	4	46	
1,2-Dichloroethane-d4 (S)	%						95	97	81-127			
4-Bromofluorobenzene (S)	%						101	99	77-130			
Toluene-d8 (S)	%						98	99	80-120			
Preservation pH		1.0			1.0	1.0				0		

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.
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

QC Batch: 446523 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

METHOD BLANK: 1825604 Matrix: Water
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	09/14/16 13:26	

LABORATORY CONTROL SAMPLE: 1825605

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	991	99	80-120	

SAMPLE DUPLICATE: 1825606

Parameter	Units	60227223001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1330	1390	4	10	

SAMPLE DUPLICATE: 1825607

Parameter	Units	60227292002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1870	1880	1	10	

SAMPLE DUPLICATE: 1825608

Parameter	Units	60227172005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	802	839	5	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

QC Batch: 447176 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227292001, 60227292003

METHOD BLANK: 1829066 Matrix: Water
Associated Lab Samples: 60227292001, 60227292003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	09/20/16 15:48	

LABORATORY CONTROL SAMPLE: 1829067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	

MATRIX SPIKE SAMPLE: 1829070

Parameter	Units	60227092001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	38.2	50	85.9	95	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: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

QC Batch: 447397 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

METHOD BLANK: 1830059 Matrix: Water
Associated Lab Samples: 60227292001, 60227292002, 60227292003, 60227292004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	09/21/16 09:23	
Sulfate	mg/L	ND	1.0	09/21/16 09:23	

LABORATORY CONTROL SAMPLE: 1830060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1830061 1830062

Parameter	Units	60227098001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	28.8	10	10	39.6	39.6	108	107	80-120	0	15	

MATRIX SPIKE SAMPLE: 1830063

Parameter	Units	60227292002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	23.4	10	32.8	94	80-120	
Sulfate	mg/L	1320	500	1800	97	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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QUALIFIERS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60227292

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227292001	**GW-074933-090816-SP-MW-1**	EPA 3010	446110	EPA 6010	446261
60227292002	**GW-074933-090816-SP-MW-2**	EPA 3010	446110	EPA 6010	446261
60227292003	**GW-074933-090816-SP-MW-3**	EPA 3010	446110	EPA 6010	446261
60227292004	**GW-074933-090816-SP-MW-4**	EPA 3010	446110	EPA 6010	446261
60227292001	**GW-074933-090816-SP-MW-1**	EPA 8260	446046		
60227292002	**GW-074933-090816-SP-MW-2**	EPA 8260	446046		
60227292003	**GW-074933-090816-SP-MW-3**	EPA 8260	446046		
60227292004	**GW-074933-090816-SP-MW-4**	EPA 8260	446046		
60227292005	**GW-074933-090816-SP-DUP**	EPA 8260	446046		
60227292001	**GW-074933-090816-SP-MW-1**	SM 2540C	446523		
60227292002	**GW-074933-090816-SP-MW-2**	SM 2540C	446523		
60227292003	**GW-074933-090816-SP-MW-3**	SM 2540C	446523		
60227292004	**GW-074933-090816-SP-MW-4**	SM 2540C	446523		
60227292001	**GW-074933-090816-SP-MW-1**	EPA 300.0	447176		
60227292001	**GW-074933-090816-SP-MW-1**	EPA 300.0	447397		
60227292002	**GW-074933-090816-SP-MW-2**	EPA 300.0	447397		
60227292003	**GW-074933-090816-SP-MW-3**	EPA 300.0	447176		
60227292003	**GW-074933-090816-SP-MW-3**	EPA 300.0	447397		
60227292004	**GW-074933-090816-SP-MW-4**	EPA 300.0	447397		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60227292

60227292

AFS

Client Name: GHD - CoP NM

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

Tracking #: 7044 6652 7992 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 +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 2.9 **Corr. Factor** CF +1.1 CF -0.1 **Corrected** 4.0

Date and initials of person examining contents: 9/9/16 TS 1000

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: water	☐Yes ☐No ☑N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☑Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Start: 955	Start:
End: 1000	End:
Temp:	Temp:

Project Manager Review: alice Date: 09/09/16

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd. NE St2	Copy To:	Jeff Walker, Angela Bown	Company Name:	
	Albuquerque, NM 87110			Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:	34005854	Pace Quote:	
Phone:	505-884-0672 Fax	Project Name:	074933 Randleman No 1 COP	Pace Project Manager:	alice.spiller@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	8644 , 4

Regulatory Agency
State / Location
NM

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260 BTEX	300.0 Sulfate, Chloride	Dissolved Mn -field filtered	Total Dissolved Solids	Residual Chlorine (Y/N)	6022792
1	GW-074933-090816-SP-MW-1	WT	G	9-8-16	1235			8.3	5										X	X	X	X		001
2	GW-074933-090816-SP-MW-2				1220			8	8															DUP/MS sample collected 002
3	GW-074933-090816-SP-MW-3				1305			8	5															003
4	GW-074933-090816-SP-MW-4				1258			5	5															004
5	GW-074933-090816-SP-DUP							8.3	3															005
6																								006
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Steven Reed	9-8-16	1625		9/9/16	850	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Steven Reed

SIGNATURE of SAMPLER: Steven Reed

DATE Signed: 9-8-16

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

Pace Analytical Services, LLC
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Lenexa, KS 66219
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October 10, 2016

Christine Mathews
GHD Services, Inc.
6212 Indian School Rd. NE St2
Albuquerque, NM 87110

RE: Project: 074933 Randleman No.1
Pace Project No.: 60228834

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,
Jeffrey Walker, GHD Services, Inc

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
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
Kansas Field Laboratory Accreditation: # E-92587

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SAMPLE SUMMARY

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60228834001	**GW-074933-092616-CN-MW6**	Water	09/26/16 16:45	09/29/16 08:55

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SAMPLE ANALYTE COUNT

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60228834001	**GW-074933-092616-CN-MW6**	EPA 6010	SMW	1
		EPA 8260	JDH	8
		SM 2320B	HMM	1
		EPA 300.0	OL	2

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PROJECT NARRATIVE

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved (LF)
Client: GHD Services_COP NM
Date: October 10, 2016

General Information:
1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Method: **EPA 8260**
Description: 8260 MSV UST, Water
Client: GHD Services_COP NM
Date: October 10, 2016

General Information:
1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 448720

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 1836169)
  - Ethylbenzene
  - Toluene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 448720

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: GHD Services_COP NM
Date: October 10, 2016

General Information:
1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: October 10, 2016

General Information:
1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Sample: GW-074933-092616-CN-MW6 **Lab ID: 60228834001** Collected: 09/26/16 16:45 Received: 09/29/16 08:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**349**	ug/L	5.0	1	10/05/16 09:10	10/06/16 13:58	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		09/30/16 19:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/16 19:42	100-41-4	L3
Toluene	ND	ug/L	1.0	1		09/30/16 19:42	108-88-3	L3
Xylene (Total)	ND	ug/L	3.0	1		09/30/16 19:42	1330-20-7	LS
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		09/30/16 19:42	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130	1		09/30/16 19:42	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	81-127	1		09/30/16 19:42	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/30/16 19:42		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**71.8**	mg/L	20.0	1		10/06/16 14:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**3440**	mg/L	500	500		10/09/16 22:02	16887-00-6	
Sulfate	**3250**	mg/L	500	500		10/09/16 22:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 074933 Randleman No.1
Pace Project No.: 60228834

QC Batch: 449188
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60228834001

METHOD BLANK: 1837969
Matrix: Water
Associated Lab Samples: 60228834001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	10/06/16 13:52	

LABORATORY CONTROL SAMPLE: 1837970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	1030	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1837971 1837972

Parameter	Units	60229103001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	1.7 mg/L	1000	1000	2690	2660	97	94	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

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9608 Loiret Blvd.
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(913)599-5665

QUALITY CONTROL DATA

Project: 074933 Randleman No.1
Pace Project No.: 60228834

QC Batch: 448720 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60228834001

METHOD BLANK: 1836168 Matrix: Water
Associated Lab Samples: 60228834001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/30/16 18:26	
Ethylbenzene	ug/L	ND	1.0	09/30/16 18:26	
Toluene	ug/L	ND	1.0	09/30/16 18:26	
Xylene (Total)	ug/L	ND	3.0	09/30/16 18:26	
1,2-Dichloroethane-d4 (S)	%	103	81-127	09/30/16 18:26	
4-Bromofluorobenzene (S)	%	107	77-130	09/30/16 18:26	
Toluene-d8 (S)	%	101	80-120	09/30/16 18:26	

LABORATORY CONTROL SAMPLE: 1836169

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.6	108	79-116	
Ethylbenzene	ug/L	20	23.1	115	81-110	L0
Toluene	ug/L	20	22.3	112	82-111	L0
Xylene (Total)	ug/L	60	70.1	117	80-111	LS
1,2-Dichloroethane-d4 (S)	%			100	81-127	
4-Bromofluorobenzene (S)	%			102	77-130	
Toluene-d8 (S)	%			112	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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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: 074933 Randleman No.1
Pace Project No.: 60228834

QC Batch: 449323 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60228834001

METHOD BLANK: 1838645 Matrix: Water
Associated Lab Samples: 60228834001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	10/06/16 11:49	

LABORATORY CONTROL SAMPLE: 1838646

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	487	97	90-110	

SAMPLE DUPLICATE: 1838648

Parameter	Units	60228765007 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	436	434	0	10	

SAMPLE DUPLICATE: 1839462

Parameter	Units	60228765001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	351	363	3	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: 074933 Randleman No.1
Pace Project No.: 60228834

QC Batch: 449709 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60228834001

METHOD BLANK: 1840640 Matrix: Water
Associated Lab Samples: 60228834001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/09/16 09:59	
Sulfate	mg/L	ND	1.0	10/09/16 09:59	

LABORATORY CONTROL SAMPLE: 1840641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	5.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1840642 1840643

Parameter	Units	60228562001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	111	50	50	161	162	101	103	80-120	1	15	

MATRIX SPIKE SAMPLE: 1840644

Parameter	Units	60228563001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	871	500	1380	101	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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QUALIFIERS

Project: 074933 Randleman No.1
Pace Project No.: 60228834

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.

BATCH QUALIFIERS

Batch: 448720

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

ANALYTE QUALIFIERS

L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
LS	Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analytes used in the calculated result.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074933 Randleman No.1
Pace Project No.: 60228834

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60228834001	**GW-074933-092616-CN-MW6**	EPA 3010	449188	EPA 6010	449265
60228834001	**GW-074933-092616-CN-MW6**	EPA 8260	448720		
60228834001	**GW-074933-092616-CN-MW6**	SM 2320B	449323		
60228834001	**GW-074933-092616-CN-MW6**	EPA 300.0	449709		

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Sample Condition Upon Receipt

WO# : 60228834

60228834

Client Name: GHD

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

Tracking #: 7773 4162 0831 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 +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** Wet / Blue / None

Cooler Temperature (°C): **As-read** 2.8 **Corr. Factor** CF +1.1 / CF -0.1 **Corrected** 3.9

Date and initials of person examining contents: JB 9/29

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☐Yes ☒No ☐N/A	No preserved volume for Dissolved MN
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☒No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☒N/A JB 9/29/16	
Cyanide water sample checks: ☒ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☒No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Alice Date: 9/29/16

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: of

1525033

Section A Required Client Information:

- Company: GHD
- Address: 6121 Indian Sch. Rd Suite 200 Alb, NM
- Email To: jeff.walker@ghd.com
- Phone: 505-884-0672 Fax:
- Requested Due Date/TAT: Std

Section B Required Project Information:

- Report To: Jeff Walker - GHD
- Copy To: ConocoPhillips
- Purchase Order No.:
- Project Name: Randleman No 1
- Project Number: 074933

Section C Invoice Information:

- Attention:
- Company Name:
- Address:
- Pace Quote Reference:
- Pace Project Manager:
- Pace Profile #:

REGULATORY AGENCY

- [ ] NPDES
- [X] GROUND WATER
- [ ] DRINKING WATER
- [ ] UST
- [ ] RCRA
- [ ] OTHER ________

Site Location STATE: NM

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

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

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	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	BTEX 8260 (N)	Sulfate, Chloride (N)	Dissolved Mn						Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60228834
1	GW-074933-092616-CN-MW6	WT	G	9/26	1645	—	—		3				X											(2) AG 3H		(2) BP 3H		(3) DG4H → 001
2	"	↓	↓	↓	↓				1	X										X								
3	"	↓	↓	↓	↓				1	X											X							
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Mn sample needs filtering	J Walker GHD	9/28/16	1340	[signature]	9/29	0855	3.9	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

- PRINT Name of SAMPLER:
- SIGNATURE of SAMPLER:
- DATE Signed (MM/DD/YY):

*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.07, 15-May-2007

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

December 19, 2016

Jeffrey Walker
GHD Services, Inc
6121 Indian School Rd NE
Ste 200
Albuquerque, NM 87110

RE: Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Dear Jeffrey Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on December 03, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
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
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60233544001	**GW-074933-120116-JK-MW-1**	Water	12/01/16 10:07	12/03/16 08:20
60233544002	**GW-074933-120116-JK-MW-2**	Water	12/01/16 09:30	12/03/16 08:20
60233544003	**GW-074933-120116-JK-MW-3**	Water	12/01/16 09:45	12/03/16 08:20
60233544004	**GW-074933-120116-JK-MW-4**	Water	12/01/16 10:00	12/03/16 08:20
60233544005	**GW-074933-120116-JK-MW-6**	Water	12/01/16 10:50	12/03/16 08:20
60233544006	**TRIP BLANK**	Water	12/01/16 09:30	12/03/16 08:20

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SAMPLE ANALYTE COUNT

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60233544001	**GW-074933-120116-JK-MW-1**	EPA 6010	TDS	1
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60233544002	**GW-074933-120116-JK-MW-2**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60233544003	**GW-074933-120116-JK-MW-3**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60233544004	**GW-074933-120116-JK-MW-4**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2
60233544005	**GW-074933-120116-JK-MW-6**	EPA 6010	JGP	1
		EPA 8260	JTK	8
		SM 2540C	JSS	1
		EPA 300.0	OL	2

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: December 19, 2016

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved (LF)
Client: GHD Services_COP NM
Date: December 19, 2016

General Information:
1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Method: **EPA 8260**
Description: 8260 MSV UST, Water
Client: GHD Services_COP NM
Date: December 19, 2016

General Information:
4 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 458436

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: GHD Services_COP NM
Date: December 19, 2016

General Information:
5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 457694

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 1873782)
  - Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: December 19, 2016

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Sample: GW-074933-120116-JK-MW-1 **Lab ID: 60233544001** Collected: 12/01/16 10:07 Received: 12/03/16 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**36.4**	ug/L	5.0	1	12/05/16 15:30	12/09/16 11:30	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1590**	mg/L	5.0	1		12/08/16 08:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**47.9**	mg/L	5.0	5		12/17/16 14:01	16887-00-6	
Sulfate	**950**	mg/L	50.0	50		12/17/16 14:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Sample: GW-074933-120116-JK-MW-2 **Lab ID: 60233544002** Collected: 12/01/16 09:30 Received: 12/03/16 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1040**	ug/L	5.0	1	12/07/16 11:10	12/14/16 12:08	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**6.6**	ug/L	1.0	1		12/12/16 22:42	71-43-2	
Ethylbenzene	**9.2**	ug/L	1.0	1		12/12/16 22:42	100-41-4	
Toluene	**32.4**	ug/L	1.0	1		12/12/16 22:42	108-88-3	
Xylene (Total)	**62.6**	ug/L	3.0	1		12/12/16 22:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	106	%	80-120	1		12/12/16 22:42	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130	1		12/12/16 22:42	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	81-127	1		12/12/16 22:42	17060-07-0	
Preservation pH	**1.0**		1.0	1		12/12/16 22:42		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**1690**	mg/L	5.0	1		12/05/16 16:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**29.9**	mg/L	5.0	5		12/17/16 14:29	16887-00-6	
Sulfate	**983**	mg/L	50.0	50		12/17/16 14:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Sample: GW-074933-120116-JK-MW-3 **Lab ID: 60233544003** Collected: 12/01/16 09:45 Received: 12/03/16 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**476**	ug/L	5.0	1	12/07/16 11:10	12/14/16 12:12	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	**1.1**	ug/L	1.0	1		12/12/16 22:57	71-43-2	
Ethylbenzene	**6.4**	ug/L	1.0	1		12/12/16 22:57	100-41-4	
Toluene	ND	ug/L	1.0	1		12/12/16 22:57	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/12/16 22:57	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	80-120	1		12/12/16 22:57	2037-26-5	
4-Bromofluorobenzene (S)	100	%	77-130	1		12/12/16 22:57	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	81-127	1		12/12/16 22:57	17060-07-0	
Preservation pH	**1.0**		1.0	1		12/12/16 22:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2710**	mg/L	5.0	1		12/05/16 16:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**79.9**	mg/L	5.0	5		12/17/16 15:25	16887-00-6	
Sulfate	**1600**	mg/L	100	100		12/17/16 15:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Sample: GW-074933-120116-JK-MW-4 **Lab ID: 60233544004** Collected: 12/01/16 10:00 Received: 12/03/16 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1480**	ug/L	5.0	1	12/07/16 11:10	12/14/16 12:15	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		12/12/16 23:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/12/16 23:12	100-41-4	
Toluene	ND	ug/L	1.0	1		12/12/16 23:12	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/12/16 23:12	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	80-120	1		12/12/16 23:12	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130	1		12/12/16 23:12	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	81-127	1		12/12/16 23:12	17060-07-0	
Preservation pH	**1.0**		1.0	1		12/12/16 23:12		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**8100**	mg/L	5.0	1		12/05/16 16:53		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**2420**	mg/L	200	200		12/17/16 15:52	16887-00-6	
Sulfate	**3310**	mg/L	200	200		12/17/16 15:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Sample: GW-074933-120116-JK-MW-6 **Lab ID: 60233544005** Collected: 12/01/16 10:50 Received: 12/03/16 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**291**	ug/L	5.0	1	12/07/16 11:10	12/14/16 12:19	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		12/12/16 23:27	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/12/16 23:27	100-41-4	
Toluene	ND	ug/L	1.0	1		12/12/16 23:27	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/12/16 23:27	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	80-120	1		12/12/16 23:27	2037-26-5	
4-Bromofluorobenzene (S)	99	%	77-130	1		12/12/16 23:27	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	81-127	1		12/12/16 23:27	17060-07-0	
Preservation pH	**1.0**		1.0	1		12/12/16 23:27		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**9800**	mg/L	5.0	1		12/05/16 16:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**3300**	mg/L	500	500		12/17/16 16:06	16887-00-6	
Sulfate	**3040**	mg/L	500	500		12/17/16 16:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 457895 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

METHOD BLANK: 1874477 Matrix: Water
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	12/14/16 11:08	

LABORATORY CONTROL SAMPLE: 1874478

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1874479 1874481

Parameter	Units	60233393001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	95.9	1000	1000	1080	1060	98	97	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

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 457686
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60233544001

METHOD BLANK: 1873723 Matrix: Water
Associated Lab Samples: 60233544001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	12/09/16 10:55	

LABORATORY CONTROL SAMPLE: 1873724

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1873725 1873726

Parameter	Units	60233432002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	1.1 mg/L	1000	1000	2040	2100	97	103	75-125	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 458436 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

METHOD BLANK: 1876730 Matrix: Water
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	12/12/16 20:29	
Ethylbenzene	ug/L	ND	1.0	12/12/16 20:29	
Toluene	ug/L	ND	1.0	12/12/16 20:29	
Xylene (Total)	ug/L	ND	3.0	12/12/16 20:29	
1,2-Dichloroethane-d4 (S)	%	95	81-127	12/12/16 20:29	
4-Bromofluorobenzene (S)	%	99	77-130	12/12/16 20:29	
Toluene-d8 (S)	%	104	80-120	12/12/16 20:29	

LABORATORY CONTROL SAMPLE: 1876731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	17.0	85	79-116	
Ethylbenzene	ug/L	20	18.8	94	81-110	
Toluene	ug/L	20	18.1	90	82-111	
Xylene (Total)	ug/L	60	57.3	96	80-111	
1,2-Dichloroethane-d4 (S)	%			94	81-127	
4-Bromofluorobenzene (S)	%			100	77-130	
Toluene-d8 (S)	%			105	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 457694 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

METHOD BLANK: 1873749 Matrix: Water
Associated Lab Samples: 60233544002, 60233544003, 60233544004, 60233544005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	12/06/16 09:38	

LABORATORY CONTROL SAMPLE: 1873750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	982	98	80-120	

SAMPLE DUPLICATE: 1873751

Parameter	Units	60233544003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2710	2680	1	10	

SAMPLE DUPLICATE: 1873782

Parameter	Units	60233568002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	73.0	62.0	16	10	D6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 458055 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60233544001

METHOD BLANK: 1875247 Matrix: Water
Associated Lab Samples: 60233544001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	12/08/16 08:55	

LABORATORY CONTROL SAMPLE: 1875248

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	969	97	80-120	

SAMPLE DUPLICATE: 1875249

Parameter	Units	60233762004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	962	970	1	10	

SAMPLE DUPLICATE: 1875250

Parameter	Units	60233819001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1780	1750	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

QC Batch: 458963 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60233544001, 60233544002, 60233544003, 60233544004, 60233544005

METHOD BLANK: 1878843 Matrix: Water
Associated Lab Samples: 60233544001, 60233544002, 60233544003, 60233544004, 60233544005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	12/17/16 09:14	
Sulfate	mg/L	ND	1.0	12/17/16 09:14	

LABORATORY CONTROL SAMPLE: 1878844

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1878845 1878846

Parameter	Units	60233523001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	500	500	514	520	92	94	80-120	1	15	
Sulfate	mg/L	1450	500	500	1990	1980	108	107	80-120	0	15	

MATRIX SPIKE SAMPLE: 1878847

Parameter	Units	60233523002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	ND	500	537	94	80-120	
Sulfate	mg/L	1290	500	1820	105	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

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.

BATCH QUALIFIERS

Batch: 458436

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

ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074933 RANDLEMAN NO 1 COP
Pace Project No.: 60233544

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60233544002	**GW-074933-120116-JK-MW-2**	EPA 3010	457895	EPA 6010	457953
60233544003	**GW-074933-120116-JK-MW-3**	EPA 3010	457895	EPA 6010	457953
60233544004	**GW-074933-120116-JK-MW-4**	EPA 3010	457895	EPA 6010	457953
60233544005	**GW-074933-120116-JK-MW-6**	EPA 3010	457895	EPA 6010	457953
60233544001	**GW-074933-120116-JK-MW-1**	EPA 3010	457686	EPA 6010	457730
60233544002	**GW-074933-120116-JK-MW-2**	EPA 8260	458436		
60233544003	**GW-074933-120116-JK-MW-3**	EPA 8260	458436		
60233544004	**GW-074933-120116-JK-MW-4**	EPA 8260	458436		
60233544005	**GW-074933-120116-JK-MW-6**	EPA 8260	458436		
60233544001	**GW-074933-120116-JK-MW-1**	SM 2540C	458055		
60233544002	**GW-074933-120116-JK-MW-2**	SM 2540C	457694		
60233544003	**GW-074933-120116-JK-MW-3**	SM 2540C	457694		
60233544004	**GW-074933-120116-JK-MW-4**	SM 2540C	457694		
60233544005	**GW-074933-120116-JK-MW-6**	SM 2540C	457694		
60233544001	**GW-074933-120116-JK-MW-1**	EPA 300.0	458963		
60233544002	**GW-074933-120116-JK-MW-2**	EPA 300.0	458963		
60233544003	**GW-074933-120116-JK-MW-3**	EPA 300.0	458963		
60233544004	**GW-074933-120116-JK-MW-4**	EPA 300.0	458963		
60233544005	**GW-074933-120116-JK-MW-6**	EPA 300.0	458963		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60233544

60233544

Client Name: GHD COP

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

Tracking #: 7044 6656 7610 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 +0.7) T-266 / (CF -0.5) T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.7 **Corr. Factor** (CF +0.7) CF -0.5 **Corrected** 4.0

Date and initials of person examining contents: JB 12/3

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	~~☒Yes~~ JB 12/3 ☐No ☐N/A	No preserved volume for MW-1
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☒Yes ☐No ~~☒N/A~~ JB 12/3	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: ☒ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Alice Date: 12/5/16

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Start: 0947	Start:
End: 0955	End:
Temp:	Temp:

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd NE St2	Copy To:	Jeff Walker, Angela Bown	Company Name:	
Albuquerque, NM 87110				Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:	34005854	Pace Quote:	
Phone:	505-884-0672 Fax	Project Name:	074933 Randleman No 1 COP	Pace Project Manager:	alice.spiller@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8644 , 4

Regulatory Agency

State / Location: NM

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260 BTEX	300.0 Sulfate, Chloride	Dissolved Mn -field filtered	Total Dissolved Solids	Residual Chlorine (Y/N)	607335144
1	GW-074933-120116-JK-MW-1	WT	G	12-01-16	1007				5	1		1	3						X	X	X	X		BP3U (1) D69H 01
2	GW-074933-120116-JK-MW-2	WT	G	12-01-16	0930				5	1		1	3						X	X	X	X		BP3F (3) D69H 02
3	GW-074933-120116-JK-MW-3	WT	G	12-01-16	0945				5	1		1	3						X	X	X	X		03
4	GW-074933-120116-JK-MW-4	WT	G	12-01-16	1000				5	1		1	3						X	X	X	X		04
5	GW-074933-120116-JK-MW-6	WT	G	12-01-16	1050				5	1		1	3						X	X	X	X		05 (2) D69H 06
6																									
7																									
8																									
9																									
10																									
11																									
12																									

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Charlie McLeigh / GHD	12-02-16	1500		12/3	0820	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)