3R-425

2018 AGWMR
&
CONDITIONS

Date

FEBRUARY 2019

2018 Annual Groundwater Monitoring Report

San Juan 29-7 Unit 37
Rio Arriba County, New Mexico
API# 30-039-07643
NMOCD# 3R-425

Hilcorp Energy Company

D3 RCVD 1/22/2019

ACCEPTED FOR RECORD AND CONDITIONS
2/11/19

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

11146005| MN00| Report No 2 | January 2019

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Monday, February 11, 2019 11:35 AM
To: Clara Cardoza
Cc: filing@craworld.com; 'Jeff.Walker@ghd.com'; Griswold, Jim, EMNRD; Fields, Vanessa, EMNRD
Subject: RE: 3R-425 San Juan 29-7 #37 2018 GWM Rpt ~RPT-11146005~

Clara,

OCD has received and Reviewed the 2018 AGWMR for 3R-425 San Juan 29-7 #37 and has accepted it for record with the following conditions:

- OCD concurs with GHD recommendations, wells that never had elevated BTEX COC or if they did and have 8 consecutive quarters of clean samples can cease sampling for the contaminates of concerns. (OCD would recommend annual samples as site conditions could change or if there Is long period of time from closure OCD may request additional samples)
- OCD concurs with GHD that sulfate and TDS appear to be background
- HEC must start active remediation please submit no later than Q3 2019 a remediation plan for the site.

These conditions will be scanned into the 3RP-425 online well file along with the 2018 AGWMR.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Jeff.Walker@ghd.com <Jeff.Walker@ghd.com>
Sent: Wednesday, January 23, 2019 3:30 PM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Clara Cardoza <ccardoza@hilcorp.com>; filing@craworld.com
Subject: [EXT] 3R-425 San Juan 29-7 #37 2018 GWM Rpt ~RPT-11146005~

Vanessa/Cory,

Please find attached the 2018 Annual Groundwater Monitoring report for the subject site, submitted on behalf of Hilcorp Energy. Please let Clara or me know if you have any questions regarding this document or the site.

Also, please acknowledge receipt for record keeping.

Thank you-Jeff

Jeffrey L. Walker
Sr. Project Manager

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1. Introduction

This Annual Groundwater Monitoring Report presents groundwater data collected during the 2018 reporting period conducted by GHD Services, Inc. (GHD) and by Hilcorp Energy Company (Hilcorp) at the San Juan 29-7 Unit 37 natural gas well (Site). Hilcorp acquired the Site with the sale of San Juan Basin assets from ConocoPhillips in August 2017. The Site is located within Unit Letter N, Section 12, Township 29N, Range 7W, Rio Arriba County, New Mexico (Latitude: 36.73552N; Longitude: 107.52488W) (Figure 1). The Site is located on private land. A Site detail map is included as Figure 2.

1.1 Site History

ConocoPhillips discovered a leaking inspection plate gasket on the above ground condensate tank on August 26, 2010. Approximately 23 barrels of condensate were released and fully contained within the berm; however, no liquids were recovered. The release was immediately reported to the New Mexico Oil Conservation Division (NMOCD) with a C-141 Release Notification and Corrective Action form, filed by ConocoPhillips on September 16, 2010.

Site characterization activities were conducted at the Site in 2010 and 2011 to delineate soil and groundwater impacted by the release. Site characterization indicated hydrocarbon impacts from the release exceeded New Mexico Water Quality Control Commission (NMWQCC) standards, including benzene, toluene and total xylenes in groundwater and total benzene, toluene, ethylbenzene, and xylenes (BTEX), and total petroleum hydrocarbons (TPH) in the vadose zone soil. Over 3,000 cubic yards of impacted soils were excavated from the release area and hauled away for off-Site disposal. Groundwater was impacted in the immediate area of the release and extended to approximately 60 feet down gradient from the release. A total of 18 soil borings and eight monitoring wells have been utilized to characterize and monitor subsurface soil and groundwater conditions. Soil and groundwater impacts at the Site were treated in 2012 and 2013 with chemical oxidant.

1.2 Site Setting

The Site is located in Rio Arriba County, New Mexico, on privately owned ranch land. The elevation at the Site is approximately 6,292 feet above mean sea level (amsl).

The Tertiary aged San Jose Formation crops out as sandstone bluffs visible to the north and south of the Site and locally reaching an elevation of approximately 6,652 feet amsl.

Subsurface soils at the Site consist primarily of silts inter bedded with fine sands and clays. Groundwater is located at approximately 110 feet (ft) below ground surface (bgs) and locally flows towards the south and southwest.

2. Groundwater Monitoring Summary

Groundwater sampling events were conducted at the Site on March 14, June 26 and September 5, 2018 by GHD and on December 14, 2018 by Hilcorp. Prior to collection of groundwater samples from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8R, depth to groundwater in each well was measured using an electronic water level meter. Groundwater elevations are detailed in Table 1. Groundwater potentiometric surface maps from quarterly 2018 data are presented as Figures 3, 4, 5, and 6, respectively. The groundwater potentiometric surface elevations have been consistent with little variability by season and throughout the history of monitoring the wells at the Site. Groundwater was encountered across the Site at approximately 110 feet bgs during the 2018 reporting period, consistent with historical data.

For all of these monitoring periods, the groundwater flow at the site was towards the southwest at an average 0.002 feet per foot gradient, consistent with historical results. Site groundwater elevations have been decreasing slightly with a decline of approximately 0.25 ft over the last 5 years.

2.1 Groundwater Monitoring Methodology

Prior to sampling, at least three well volumes were purged from Site monitoring wells with a Monsoon™ submersible pump or a dedicated, polyethylene, 1.5 inch disposable bailer. Purge water was placed in the on Site produced water tank. While purging each well, groundwater parameter data including temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential were collected using a multi parameter sonde. Field parameters were not collected during the December 2018 sampling event. Field parameters are summarized on Table 2. Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Pace Analytical Services.

Groundwater samples were analyzed for the presence of BTEX by EPA method 8260 (MW-8R only), dissolved manganese (all wells) and selenium (MW-2, MW-4 and MW-6) by EPA method 6010 and for sulfate and total dissolved solids, (TDS, MW 4 and 6) by EPA method 300.0 and method SM 2540C, respectively. A summary of analytical results is presented in Table 3. Completed groundwater laboratory analytical results are presented in Appendix A.

2.2 Groundwater Monitoring Analytical Results

The NMWQCC regulates groundwater quality in New Mexico under 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. The groundwater standards for benzene, toluene and ethylbenzene were revised by the NMWQCC in December 2018. These revised standards are noted on the Table 3 Groundwater Analytical Results Summary.

A Concentrations in Groundwater Map is presented as Figure 7. Groundwater analytical results for the 2018 reporting period are discussed below:

Petroleum Hydrocarbons

- BTEX: The NMWQCC groundwater standard for benzene was revised down from 0.010 mg/L to 0.005 mg/L in December 2018. Benzene was not detected above the laboratory reporting limit in groundwater of monitoring well MW-8R during the 2018 reporting period. The toluene standard was revised up to 1.0 mg/L from 0.75 mg/L and the standard for ethylbenzene was revised down from 0.75 mg/L to 0.70 mg/L. Toluene was detected in MW-8R in March 2018 but at a concentration below the revised NMWQCC standard. No other BTEX constituents were detected in groundwater above laboratory detection limits in this well during 2018.

Inorganics

- TDS and sulfate were detected in groundwater of monitor wells MW-4 and MW-6, the only two wells tested for these compounds during 2018. TDS and sulfate have historically been detected in all Site monitoring wells at concentrations above NMWQCC standards, including in up-gradient monitor well MW-4. The NMWQCC standard for TDS is 1000 mg/L and the standard for sulfate is 600 mg/L. Manganese was detected in groundwater of monitoring wells MW-1, MW-3, MW-4, MW-6 and MW-8R for all or some of the reporting period at a concentration above the standard. NMWQCC domestic water supply groundwater quality standard for dissolved manganese is 0.2 mg/L. Dissolved selenium was detected in groundwater of monitor wells MW-2, MW-4 and MW-6. Well MW-2 remains the only Site monitor well in which dissolved selenium has been detected above the NMWQCC standard (0.05 mg/L) since 2013.

A Concentrations in Groundwater Map summarizing analytical results for 2018 is presented on Figure 7. Complete laboratory analytical reports are also presented in Appendix A.

3. Conclusions and Recommendations

Concentrations of benzene in groundwater samples collected from monitor well MW-8R continued to be detected at levels below the NMWQCC standard. Other BTEX also remained below their respective standards in 2018. December 2018 marks the 7th consecutive quarter of below standard BTEX concentrations in MW-8R.

Groundwater samples from Site monitoring wells continue to exceed NMWQCC standards for inorganic constituents including dissolved manganese and selenium, sulfate, and TDS.

Monitoring well MW-4 is located up gradient of the hydrocarbon release area and therefore can be considered to represent background conditions. Sulfate and TDS concentrations in groundwater samples collected from this well consistently exceed NMWQCC standards. Sulfate and TDS concentrations in down gradient monitoring wells are within the same order of magnitude as the background concentrations (MW-4) suggesting these compounds are naturally occurring in Site groundwater.

All Site monitoring wells, with the exception of MW-8R, have displayed at least eight consecutive quarters of BTEX concentrations below the NMWQCC standards and therefore discontinuation of analysis for BTEX constituents in these wells is warranted.

BTEX constituents in monitoring wells downgradient from MW-8R (MWs-2, 3, 5 and 6) have not been detected in over 5 years indicating the plume of BTEX in groundwater of MW-8R is stable and confined to the immediate vicinity of this well. The correlation between declining BTEX concentrations at MW-8R and the slowly declining water table should become better understood as time progresses, especially should groundwater levels rise. The continuation of quarterly groundwater monitoring at the Site is recommended. The next scheduled event is March 2018.

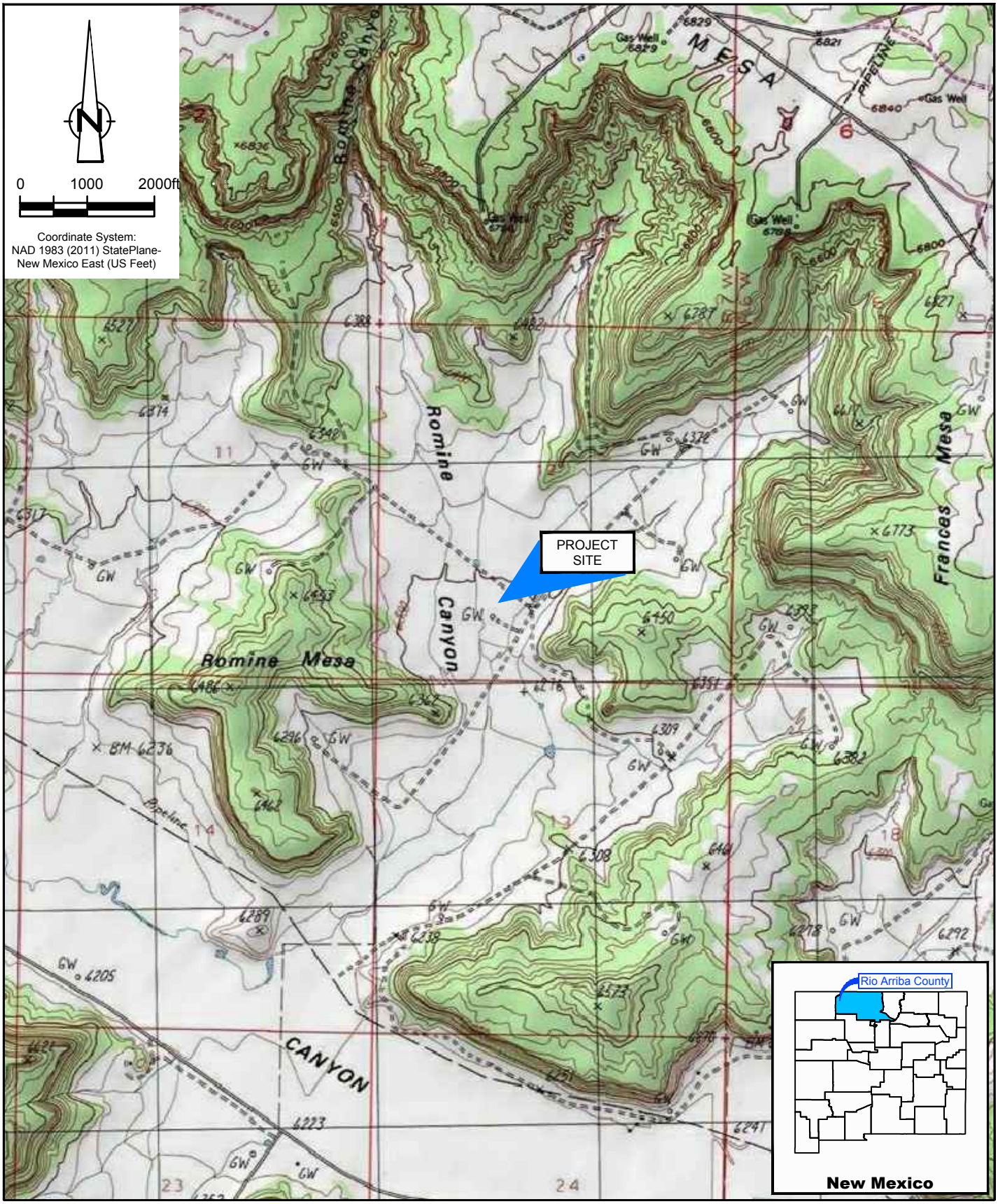
Respectfully Submitted,

GHD

Jeff Walker
Senior Project Manager

Alan Brandon
Senior Project Manager

Figures



Source: USGS 7.5 Minute Quad "Delgadita, New Mexico"

Lat/Long: 36.736131° North, 107.525100° West

HILCORP ENERGY COMPANY
UNIT LETTER N. SEC 12, T29N, R07W, RIO ARRIBA COUNTY, NEW MEXICO
SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

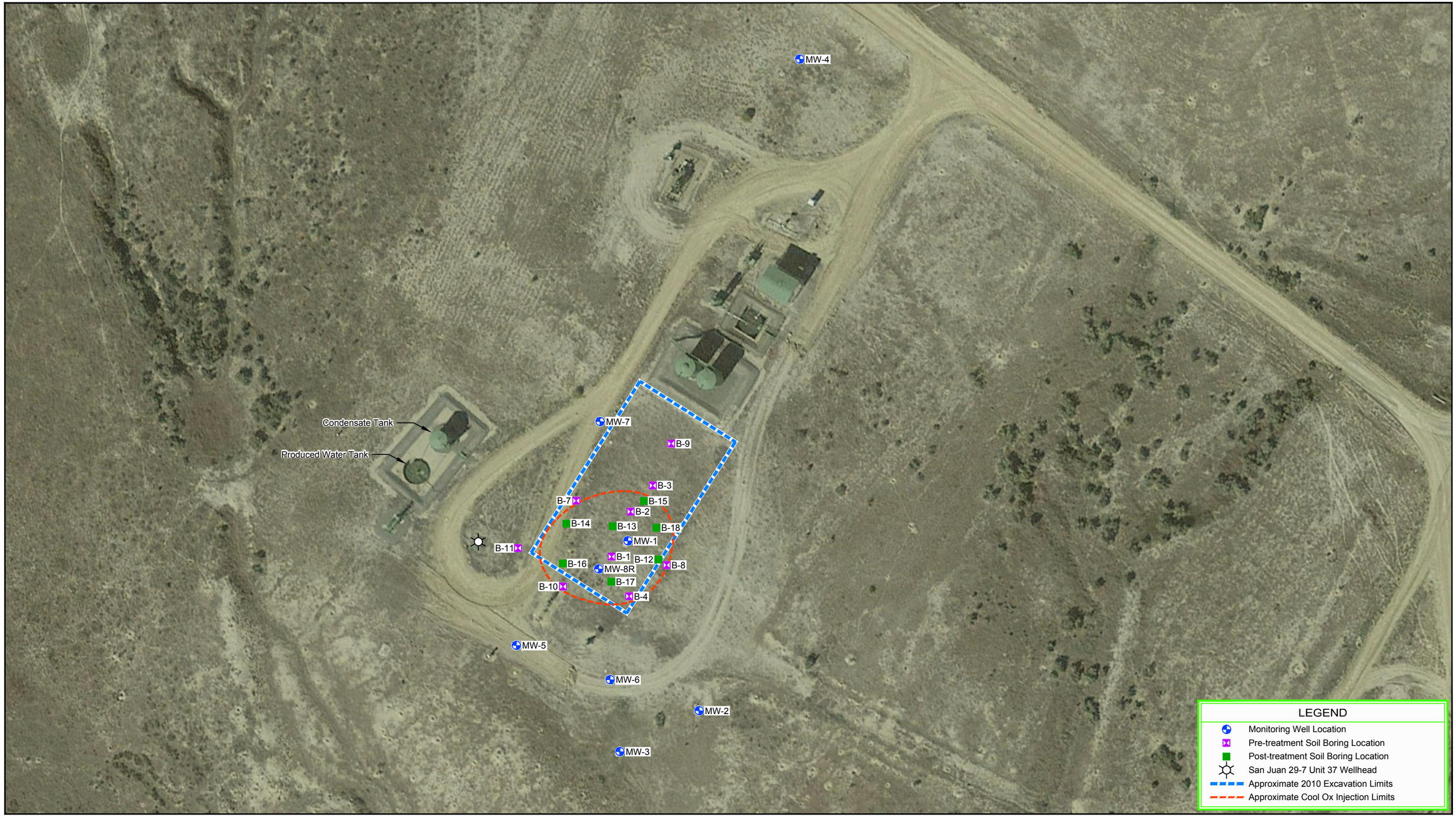
11146005-00

Aug 29, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1114----\11146005-Hilcorp-San Juan 29-7 Unit 37\11146005-00\11146005-00(002)\11146005-00(002)GN-DL001.dwg



Source: Image © 2017 Google - Imagery Date: October 5, 2016

Lat/Long: 36.736131° North, 107.525100° West

0 30 60ft

Coordinate System:
NAD 1983 StatePlane-
Oklahoma North (US Feet)

HILCORP ENERGY COMPANY
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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

11146005-00

Aug 29, 2018

SITE DETAILS MAP

FIGURE 2

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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

GROUNDWATER POTENTIOMETRIC SURFACE MAP - MARCH 2018

11146005-00

Jan 16, 2019

FIGURE 3

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GHD

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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

GROUNDWATER POTENTIOMETRIC SURFACE MAP - JUNE 2018

11146005-00

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FIGURE 4

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Lat/Long: 36.736131° North, 107.525100° West

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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

GROUNDWATER POTENTIOMETRIC SURFACE MAP - SEPTEMBER 2018

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FIGURE 5

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Lat/Long: 36.736131° North, 107.525100° West

0 30 60ft

Coordinate System:
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Oklahoma North (US Feet)

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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

GROUNDWATER POTENTIOMETRIC SURFACE MAP - DECEMBER 2018

11146005-00

Jan 16, 2019

FIGURE 6

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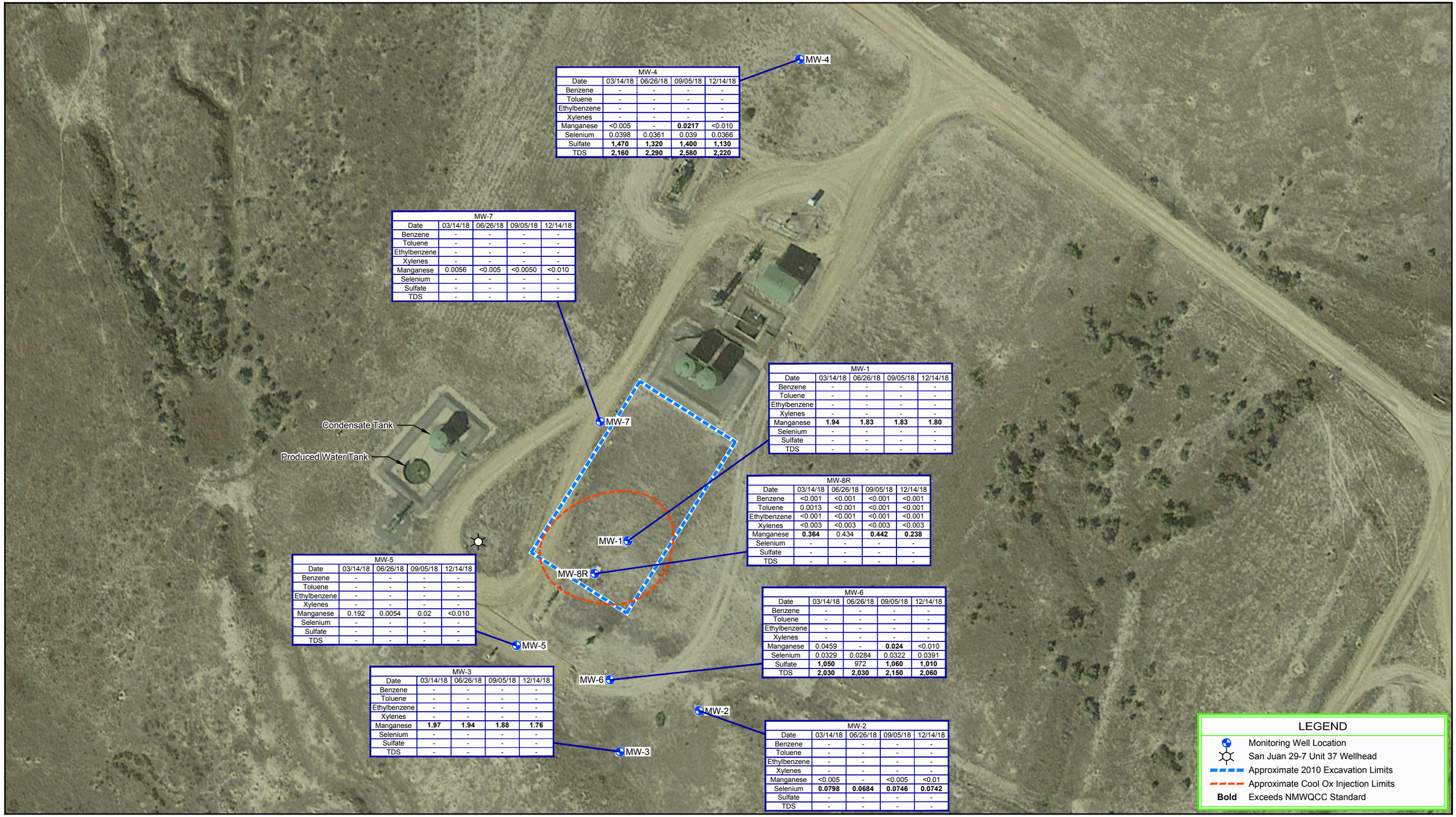

MW-4				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	<0.005	-	**0.0217**	<0.010
Selenium	0.0398	0.0361	0.039	0.0366
Sulfate	**1,470**	**1,320**	**1,400**	**1,130**
TDS	**2,160**	**2,290**	**2,580**	**2,220**

MW-7				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	0.0056	<0.005	<0.0050	<0.010
Selenium	-	-	-	-
Sulfate	-	-	-	-
TDS	-	-	-	-

MW-1				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	**1.94**	**1.83**	**1.83**	**1.80**
Selenium	-	-	-	-
Sulfate	-	-	-	-
TDS	-	-	-	-

MW-8R				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	<0.001	<0.001	<0.001	<0.001
Toluene	0.0013	<0.001	<0.001	<0.001
Ethylbenzene	<0.001	<0.001	<0.001	<0.001
Xylenes	<0.003	<0.003	<0.003	<0.003
Manganese	**0.364**	0.434	**0.442**	**0.238**
Selenium	-	-	-	-
Sulfate	-	-	-	-
TDS	-	-	-	-

MW-5				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	0.192	0.0054	0.02	<0.010
Selenium	-	-	-	-
Sulfate	-	-	-	-
TDS	-	-	-	-

MW-6				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	0.0459	-	**0.024**	<0.010
Selenium	0.0329	0.0284	0.0322	0.0391
Sulfate	**1,050**	972	**1,060**	**1,010**
TDS	**2,030**	**2,030**	**2,150**	**2,060**

MW-3				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	**1.97**	**1.94**	**1.88**	**1.76**
Selenium	-	-	-	-
Sulfate	-	-	-	-
TDS	-	-	-	-

MW-2				
Date	03/14/18	06/26/18	09/05/18	12/14/18
Benzene	-	-	-	-
Toluene	-	-	-	-
Ethylbenzene	-	-	-	-
Xylenes	-	-	-	-
Manganese	<0.005	-	<0.005	<0.01
Selenium	**0.0798**	**0.0684**	**0.0746**	**0.0742**
Sulfate	-	-	-	-
TDS	-	-	-	-

Source: Microsoft Product Screen shot(s) Reprinted with permission from Microsoft Corporation

Lat/Long: 36.736131° North, 107.525100° West

0 30 60ft

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NOTES:

1. Analytical results reported in milligrams per liter (mg/L).
2. Bold notation indactes a level that exceeds the New Mexico Water Quality Control Commission standard.

HILCORP ENERGY COMPANY
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SAN JUAN 29-7 UNIT 37, NATURAL GAS WELL SITE

11146005-00

Jan 16, 2019

2018 CONCENTRATIONS IN GROUNDWATER MAP

FIGURE 7

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Tables

Table 1

Monitoring Well Specifications and Groundwater Elevations
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	**TOC Elevation (ft)*	*Date Measured*	*Depth to Groundwater (ft-below TOC)*	*Groundwater Elevation (ft)*
MW-1	189.24	3/17/2011	108.91	80.33
		8/17/2011	108.81	80.43
		10/18/2011	108.87	80.37
		2/23/2012	108.74	80.50
		6/5/2012	108.75	80.49
		9/18/2012	108.68	80.56
		1/8/2013	108.62	80.62
		3/26/2013	108.69	80.55
		6/11/2013	108.81	80.43
		9/10/2013	109.04	80.2
		1/7/2014	109.26	79.98
		3/18/2014	109.10	80.14
		6/16/2014	109.31	79.93
		9/25/2014	109.54	79.70
		12/16/2014	109.59	79.65
		3/17/2015	109.61	79.63
		6/16/2015	109.68	79.56
		9/15/2015	109.62	79.62
		12/1/2015	109.78	79.46
		3/29/2016	109.61	79.63
		6/21/2016	109.89	79.35
		9/7/2016	109.87	79.37
		11/30/2016	109.89	79.35
		3/7/2017	109.92	79.32
		6/13/2017	110.06	79.18
		9/26/2017	110.00	79.24
		12/19/2017	109.99	79.25
		3/14/2018	109.93	79.31
		6/26/2018	110.02	79.22
		9/5/2018	110.06	79.18
		12/14/2018	110.04	79.20
MW-2	189.6	3/17/2011	109.20	80.40
		8/17/2011	109.10	80.50
		10/18/2011	109.13	80.47
		2/23/2012	109.05	80.55
		6/5/2012	109.10	80.50
		9/18/2012	109.28	80.32
		1/8/2013	109.07	80.53
		3/26/2013	109.12	80.48
		6/11/2013	109.32	80.28
		9/10/2013	109.32	80.28
		1/7/2014	109.71	79.89
		3/18/2014	109.71	79.89
		6/16/2014	109.83	79.77
		9/16/2014	109.94	79.66
		12/16/2014	110.04	79.56
		3/17/2015	110.09	79.51
		6/16/2015	110.17	79.43
		9/15/2015	110.14	79.46
		12/1/2015	110.23	79.37
		3/29/2016	110.26	79.34
		6/21/2016	110.31	79.29
		9/7/2016	110.33	79.27
		11/30/2016	110.39	79.21
		3/7/2017	110.37	79.23
		6/13/2017	110.35	79.25
		9/26/2017	110.54	79.06
		12/19/2017	110.50	79.10
		3/14/2018	110.54	79.06
		6/26/2018	110.55	79.05
		9/5/2018	110.60	79.00
		12/14/2018	110.51	79.09

Table 1

Monitoring Well Specifications and Groundwater Elevations
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	**TOC Elevation (ft)*	*Date Measured*	*Depth to Groundwater (ft-below TOC)*	*Groundwater Elevation (ft)*
MW-3	189.13	3/17/2011	109.42	79.71
		8/17/2011	109.35	79.78
		10/18/2011	109.37	79.76
		2/23/2012	109.26	79.87
		6/5/2012	109.28	79.85
		9/18/2012	109.3	79.83
		1/8/2013	109.28	79.85
		3/26/2013	109.33	79.80
		6/11/2013	109.41	79.72
		9/10/2013	109.58	79.55
		1/7/2014	109.7	79.43
		3/18/2014	109.68	79.45
		6/16/2014	109.84	79.29
		9/16/2014	109.97	79.16
		12/16/2014	110.08	79.05
		3/17/2015	110.03	79.10
		6/16/2015	110.08	79.05
		9/15/2015	110.08	79.05
		12/1/2015	110.24	78.89
		3/29/2016	110.04	79.09
		6/21/2016	110.15	78.98
		9/7/2016	110.27	78.86
		11/30/2016	110.26	78.87
		3/7/2017	110.25	78.88
		6/13/2017	110.36	78.77
		9/26/2017	110.48	78.65
		12/19/2017	110.39	78.74
		3/14/2018	110.35	78.78
		6/26/2018	110.4	78.73
		9/5/2018	110.55	78.58
		12/14/2018	110.3	78.83
MW-4	197.6	3/17/2011	111.11	86.49
		8/17/2011	111.10	86.50
		10/18/2011	111.16	86.44
		2/23/2012	111.14	86.46
		6/5/2012	111.20	86.40
		9/18/2012	111.12	86.48
		1/8/2013	111.14	86.46
		3/26/2013	111.23	86.37
		6/11/2013	111.41	86.19
		9/10/2013	111.47	86.13
		1/7/2014	111.66	85.94
		3/18/2014	111.60	86.00
		6/16/2014	111.68	85.92
		9/25/2014	111.77	85.83
		12/16/2014	111.80	85.80
		3/17/2015	111.77	85.83
		6/16/2015	111.78	85.82
		9/15/2015	111.76	85.84
		12/1/2015	111.89	85.71
		3/29/2016	111.92	85.68
		6/21/2016	111.95	85.65
		9/7/2016	111.33	86.27
		11/30/2016	112.03	85.57
		3/7/2017	111.90	85.70
		6/13/2017	111.92	85.68
		9/26/2017	112.01	85.59
		12/19/2017	112.05	85.55
		3/15/2018	112.02	85.58
		6/26/2018	112.02	85.58
		9/5/2018	112.05	85.55
		12/14/2018	112.02	85.58

Table 1

Monitoring Well Specifications and Groundwater Elevations
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	**TOC Elevation (ft)*	*Date Measured*	*Depth to Groundwater (ft-below TOC)*	*Groundwater Elevation (ft)*
MW-5	188.7	10/18/2011	118.05	70.65
		2/23/2012	108.44	80.26
		6/5/2012	108.38	80.32
		9/18/2012	108.11	80.59
		1/8/2013	108.36	80.34
		3/26/2013	108.72	79.98
		6/11/2013	108.56	80.14
		9/10/2013	108.77	79.93
		1/7/2014	108.91	79.79
		3/18/2014	108.91	79.79
		6/16/2014	109.01	79.69
		9/16/2014	109.2	79.5
		12/16/2014	109.22	79.48
		3/17/2015	109.25	79.45
		6/16/2015	109.33	79.37
		9/15/2015	109.37	79.33
		12/1/2015	109.37	79.33
		3/29/2016	109.38	79.32
		6/21/2016	109.63	79.07
		9/7/2016	109.58	79.12
		11/30/2016	109.54	79.16
		3/7/2017	109.63	79.07
		6/13/2017	109.65	79.05
		9/26/2017	109.72	78.98
		12/19/2017	110.64	78.06
		3/14/2018	109.72	78.98
		6/26/2018	109.73	78.97
		9/5/2018	109.74	78.96
		12/14/2018	109.72	78.98
MW-6	188.03	10/18/2011	109.55	78.48
		2/23/2012	108.01	80.02
		6/5/2012	108.05	79.98
		9/18/2012	108.06	79.97
		1/8/2013	108.07	79.96
		3/26/2013	108.09	79.94
		6/11/2013	108.25	79.78
		9/10/2013	108.43	79.6
		1/7/2014	108.70	79.33
		3/18/2014	108.70	79.33
		6/16/2014	108.85	79.18
		9/16/2014	108.99	79.04
		12/16/2014	109.10	78.93
		3/17/2015	109.14	78.89
		6/16/2015	109.23	78.80
		9/15/2015	109.20	78.83
		12/1/2015	109.30	78.73
		3/29/2016	109.34	78.69
		6/21/2016	108.58	79.45
		9/7/2016	109.47	78.56
		11/30/2016	109.51	78.52
		3/7/2017	109.47	78.56
		6/13/2017	109.48	78.55
		9/26/2017	109.64	78.39
		12/19/2017	109.64	78.39
		3/15/2018	109.66	78.37
		6/26/2018	109.99	78.04
		9/5/2018	109.75	78.28
		12/14/2018	109.64	78.39

Table 1

Monitoring Well Specifications and Groundwater Elevations
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	**TOC Elevation (ft)*	*Date Measured*	*Depth to Groundwater (ft-below TOC)*	*Groundwater Elevation (ft)*
MW-7	189.93	10/18/2011	119.70	70.23
		2/23/2012	106.58	83.35
		6/5/2012	107.95	81.98
		9/18/2012	108.1	81.83
		1/8/2013	108.13	81.8
		3/26/2013	108.24	81.69
		6/11/2013	108.45	81.48
		9/10/2013	108.64	81.29
		1/7/2014	108.80	81.13
		3/18/2014	108.83	81.10
		6/16/2014	108.96	80.97
		9/25/2014	109.1	80.83
		12/16/2014	109.13	80.80
		3/17/2015	109.12	80.81
		6/16/2015	109.14	80.79
		9/15/2015	109.07	80.86
		12/1/2015	109.15	80.78
		3/29/2016	109.23	80.70
		6/21/2016	109.39	80.54
		9/7/2016	109.42	80.51
		11/30/2016	109.51	80.42
		3/7/2017	109.44	80.49
		6/13/2017	109.38	80.55
		9/26/2017	109.52	80.41
		12/19/2017	109.52	80.41
		3/14/2018	109.49	80.44
		6/26/2018	109.57	80.36
		9/5/2018	109.55	80.38
		12/14/2018	109.50	80.43
MW-8	189.86	10/19/2011	--	--
		2/23/2012	108.71	81.15
		6/5/2012	108.65	81.21
		9/20/2012	108.64	81.22
		1/8/2013	108.56	81.30
		3/26/2013	108.63	81.23
		6/11/2013	108.85	81.01
		7/13/2013	Plugged and Abandoned	
MW-8R	--	9/10/2013	108.39	--
		1/7/2014	108.65	--
		3/18/2014	108.62	--
		6/16/2014	108.77	--
		9/25/2014	108.91	--
		12/16/2014	108.95	--
		3/17/2015	109.00	--
		6/16/2015	109.12	--
		9/15/2015	109.01	--
		12/1/2015	109.18	--
		3/29/2016	109.12	--
		6/21/2016	109.32	--
		9/7/2016	109.31	--
		11/30/2016	109.26	--
		3/7/2017	109.31	--
		6/13/2017	109.27	--
		9/26/2017	109.40	--
		12/19/2017	109.39	--
		3/14/2018	109.34	--
		6/26/2018	109.42	--
		9/5/2018	109.48	--
		12/14/2018	109.37	--

Notes:

ft = Feet

TOC = Top of Casing

* = Elevation relative to an arbitrary 200 feet

-- = No data

Table 2

Field Parameters Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba 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	3/17/2015	18.10	7.28	2.200	3380	--	53.0	2.75
	6/16/2015	17.70	7.30	1.970	3030	1.39	-12.4	7.00
	9/15/2015	16.12	7.13	2.212	3403	1.09	50.2	7.00
	12/1/2015	16.63	7.72	2.361	3632	1.08	-100.5	6.50
	3/29/2016	16.64	7.22	2.100	3350	4.20	126.0	7.00
	6/21/2016	17.10	7.44	--	3320	0.46	6.5	7.00
	9/7/2016	16.31	7.34	2.139	3290	0.56	-66.0	6.75
	12/1/2016	12.71	7.55	--	2989	5.29	23.5	7.00
	3/7/2017	15.36	7.55	2.377	3657	1.25	-108.8	7.00
	6/13/2017	18.42	7.38	2.109	3245	1.67	-103.7	1.50
	9/26/2017	21.00	7.05	--	2844	--	--	--
	12/19/2017	13.89	7.37	--	3232	--	--	--
	3/14/2018	17.90	7.41	--	3141	0.28	3.5	--
	6/26/2018	21.15	7.37	--	3100.62	0.29	23.11	--
	9/5/2018	20.93	7.64	--	2912.68	0.03	44.94	1.5
MW-2	3/17/20015	14.80	7.30	2.200	3430	--	165.0	5.00
	6/16/2015	14.90	6.91	1.925	2961	6.23	25.2	5.25
	9/15/2015	14.62	6.99	2.162	3327	6.27	75.5	3.75
	12/1/2015	13.50	7.61	2.277	3504	5.27	80.8	5.25
	3/29/2016	--	--	--	--	--	--	5.25
	6/21/2016	15.40	7.38	--	2850	0.56	-121.6	5.25
	9/7/2016	13.96	6.98	2.064	3175	6.37	60.7	5.25
	12/1/2016	13.33	7.92	--	2932	7.31	29.7	5.00
	3/7/2017	12.71	7.30	2.320	3570	3.81	-84.5	5.00
	6/13/2017	15.03	7.24	2.075	3191	5.55	-12.2	1.00
	9/26/2017	15.67	6.83	--	2795	--	--	--
	12/19/2017	11.60	7.05	--	3176	--	--	--
	3/14/2018	14.81	7.14	--	3135	4.53	70.3	--
	6/26/2018	17.31	7.08	--	3009.85	3.47	54.91	--
	9/5/2018	17.39	7.39	--	2890.46	3.86	67.4	1.5
MW-3	3/17/2015	15.10	7.45	1.900	3040	--	-94.0	5.50
	6/16/2015	15.09	7.31	1.717	2641	1.23	-123.5	5.50
	9/15/2015	15.03	7.30	1.912	2941	1.39	-125.0	5.75
	12/1/2015	13.73	7.78	2.044	3144	1.48	-164.2	5.50
	3/29/2016	15.82	7.34	1.900	2940	5.66	-103.0	5.75
	6/21/2016	14.70	7.00	--	3230	4.62	56.2	5.50
	9/7/2016	14.55	7.10	1.816	2794	1.50	-102.7	5.50
	12/1/2016	14.91	7.74	--	2556	1.97	-116.2	5.50
	3/7/2017	12.81	7.63	2.044	3144	0.39	-192.6	5.00
	6/13/2017	14.77	7.58	1.819	2801	0.42	-123.9	1.00
	9/26/2017	15.05	7.25	--	2425	--	--	--
	12/19/2017	12.36	7.48	--	2776	--	--	--
	3/14/2018	15.72	7.63	--	2208	0.00	-139.6	--
	6/26/2018	18.48	7.63	--	2589	0.22	-146.3	--
	9/5/2018	17.28	7.87	--	2500.33	-0.07	-124.26	1.5

Table 2

Field Parameters Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Sample Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Volume (gallons)
MW-4	3/17/2015	16.30	7.43	2.000	3120	--	125.0	3.00
	6/16/2015	14.68	7.38	1.760	2707	6.38	13.6	5.75
	9/15/2015	14.75	6.99	1.980	3047	7.23	48.3	5.75
	12/1/2015	14.57	7.89	1.451	2231	5.92	-12.2	5.50
	3/29/2016	16.94	7.33	1.900	3030	7.71	110.0	5.50
	6/21/2016	15.30	7.62	--	2980	4.10	58.9	5.50
	9/7/2016	14.52	7.50	1.919	2953	6.36	65.1	5.75
	12/2/2016	12.48	7.81	--	2688	9.18	76.9	5.50
	3/7/2017	--	--	--	--	--	--	--
	9/26/2017	12.75	7.25	--	2537	--	--	6.00
	12/19/2017	12.22	7.49	--	2914	--	--	--
	3/14/2018	14.13	7.57	--	28	5.95	55.1	--
	6/26/2018	15.95	7.64	--	2681.7	4.63	33.8	--
	9/5/2018	14.99	7.84	--	2625.2	6.35	51.2	6
MW-5	3/17/2015	18.00	6.80	2.400	3790	--	87.0	3.50
	6/16/2015	17.17	6.49	2.174	3345	2.36	63.2	5.00
	9/15/2015	16.10	6.64	2.468	3796	1.97	64.7	5.00
	12/1/2015	15.73	7.10	2.603	4004	2.66	168.2	5.00
	3/29/2016	19.44	6.87	2.400	3750	3.01	66.0	5.00
	6/21/2016	18.00	6.68	--	3660	0.92	91.1	5.00
	9/7/2016	15.71	6.89	2.331	3586	3.99	55.4	5.00
	12/1/2016	16.15	7.40	--	3266	3.55	22.4	5.00
	3/7/2017	13.27	7.64	2.617	4026	3.10	-64.7	15.00
	9/26/2017	14.09	6.85	--	3030	--	--	4.50
	12/19/2017	12.49	6.85	--	3513	--	--	--
	3/14/2018	15.02	6.92	--	3476	1.37	70.5	--
	6/26/2018	16.65	7.05	--	3124	1.64	47.6	5
	9/5/2018	16.1	7.47	--	3185.9	3.88	63.6	5
MW-6	3/17/2015	17.30	6.90	1.800	2800	--	103.0	3.25
	6/16/2015	17.77	6.73	1.584	2437	2.12	1.9	4.00
	9/15/2015	15.96	6.57	1.784	2745	2.87	84.3	3.75
	12/1/2015	16.18	7.32	1.867	2873	2.93	82.9	3.75
	3/29/2016	16.64	6.77	1.700	2630	4.89	103.0	3.75
	6/21/2016	17.00	7.11	--	27	3.86	59.8	4.25
	9/7/2016	16.48	7.00	1.676	2578	1.87	8.7	3.75
	12/2/2016	12.07	7.29	--	2409	4.10	50.8	4.00
	3/7/2017	14.16	7.10	1.936	2979	2.01	-63.8	3.50
	6/13/2017	16.86	7.00	1.716	2640	2.29	-36.8	1.00
	9/26/2017	16.61	6.51	--	2287	--	--	1.50
	12/19/2017	13.49	6.85	--	2640	--	--	--
	3/14/2018	16.20	6.94	--	2581	2.36	68.9	--
	6/26/2018	22.89	6.91	--	2493.76	2.2	52.76	--
	9/5/2018	20.66	7.18	--	2381.18	2.13	65	1

Table 2

Field Parameters Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Sample Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Volume (gallons)
MW-7	3/17/2015	17.40	7.64	2.600	4100	--	118.0	3.50
	6/16/2015	17.05	8.28	2.366	3639	3.73	-48.2	6.25
	9/15/2015	16.47	7.66	2.663	4096	6.44	85.4	6.25
	12/1/2015	16.03	7.90	2.853	4389	2.00	-65.0	6.00
	3/29/2016	18.42	7.45	2.600	4050	7.12	108.0	6.25
	6/21/2016	16.40	7.50	--	3990	5.73	58.1	6.00
	9/7/2016	16.04	7.54	2.581	3970	6.15	59.2	6.00
	12/2/2016	14.19	7.57	--	3604	5.91	47.7	6.00
	3/7/2017	13.80	7.59	2.853	4390	8.58	-29.4	5.50
	6/13/2017	17.73	7.47	2.510	3863	9.30	-2.2	1.00
	9/26/2017	16.71	7.07	--	3337	--	--	--
	12/19/2017	13.35	7.33	--	3799	--	--	--
	3/14/2018	16.21	7.26	--	3674	8.57	71.9	--
	6/26/2018	18.13	7.2	--	3596.21	8.44	56.53	--
	9/5/2018	21.46	7.59	--	3437.83	6.08	65.48	1.75
MW-8R	3/17/2015	19.30	6.96	2.100	3310	--	30.0	3.00
	6/16/2015	17.82	7.07	1.970	3033	0.48	-50.3	5.00
	9/15/2015	18.30	6.91	2.222	3431	1.20	-10.7	5.25
	12/1/2015	16.75	7.41	2.341	3595	1.08	-91.3	5.00
	3/29/2016	15.86	7.24	2.100	3340	4.49	-56.0	5.25
	6/21/2016	18.20	7.15	--	3230	0.18	-104.8	5.00
	9/7/2016	17.21	7.07	2.128	3274	0.53	-81.1	5.00
	12/1/2016	13.01	7.10	--	2930	2.36	39.6	5.00
	3/7/2017	14.89	7.40	2.368	3644	2.40	-144.1	5.00
	6/13/2017	17.30	7.13	2.061	3171	0.49	-103.0	1.50
	9/26/2017	19.77	6.97	--	2860	--	--	--
	12/19/2017	14.97	7.11	--	3176	--	--	--
	3/14/2018	19.03	7.09	--	3127	0.04	-3.6	--
	6/26/2018	21.51	7.04	--	3015	0.26	-13.91	--
	9/5/2018	21.78	7.32	--	2871.99	0.05	8.26	2.75

Notes:

TDS = total dissolved solids

DO = dissolved oxygen

ORP = oxidation-reduction potential

°C = degrees Centigrade

mg/L = milligrams per liter

µS/cm = micro Siemens per centimeter

mV = millivolts

Table 3

Groundwater Analytical Results Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Manganese (dissolved) (mg/L)	Selenium (dissolved) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (TDS) (mg/L)	Heterotrophic Plate Count (CFU/mL)
NMWQCC Standards		0.010/0.005*	0.75/1.0*	0.75/0.70*	0.62	NE	NE	0.2	0.05	10	600	1,000	NE
MW-1	3/17/2011	**0.066**	0.39	0.011	0.084	0.28	1.5	**2.77**	< 0.01	<0.500	**1,610**	**2,730**	NA
	8/17/2011	**0.0189**	0.0068	< 0.001	0.0044	< 0.50	< 0.50	**0.318**	< 0.015	0.25	**1,500**	**2,480**	180,000
	10/18/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**6.40**	**0.055**	0.78	**1,710**	**2,480**	23,000
	6/5/2012	< 0.001	0.002	< 0.001	< 0.003	NA	NA	**5.15**	0.033	9.4	**1,520**	NA	93,000
	6/5/2012 (DUP)	< 0.001	0.002	< 0.001	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.60**	0.044	**27.5**	**1,070**	**2,140**	>80000
	9/18/2012 (DUP)	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	NA	NA	NA	NA	NA	>80,000
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.10**	**0.568**	**25.3**	**1,150**	**2,180**	76,000
	1/8/2013 (DUP)	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**NA**	**NA**	**NA**	**NA**	**NA**	142,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.49**	**0.079**	**37**	**1,000**	**1,980**	280,000
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.52**	**0.056**	**31.1**	**1,050**	NA	81,500
	6/11/2013 (DUP)	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.164	0.0492	**18.7**	**1,130**	**2,090**	2,300
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.132	0.0349	**22.5**	**1,040**	**1,990**	335,000
	3/18/2014	0.0036	< 0.001	< 0.001	< 0.003	NA	NA	**0.643**	< 0.015	**20.1**	**1,170**	**2,270**	6,700
	6/16/2014	NA	NA	NA	NA	NA	NA	**1.200**	< 0.015	5.7	**1,380**	**2,300**	NA
	9/25/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.570**	< 0.015	4.4	**1,690**	NA	NA
	12/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.49**	< 0.015	2.9	**1,580**	**2,410**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.60**	< 0.015	3.4	**1,430**	**2,560**	NA
	6/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.36**	< 0.015	2.5	**1,470**	**1,920**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.52**	< 0.015	2.8	**1,500**	**2,400**	NA
	12/1/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.76**	< 0.015	1.2	**1,420**	**2,370**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.86**	< 0.015	0.4	**1,600**	**2,260**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.72**	< 0.015	1.1	**1,390**	**2,250**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.38**	< 0.015	1.7	**1,560**	**2,230**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**--**	--	0.5	**1,450**	**2,410**	NA
	3/7/2017	--	--	--	--	--	--	**1.90**	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	**1.76**	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	**2.04**	< 0.015	--	--	--	--
	12/19/2017	--	--	--	--	--	--	**1.75**	--	--	--	--	--
	3/14/2018	--	--	--	--	--	--	**1.94**	--	--	--	--	--
	6/26/2018	--	--	--	--	--	--	**1.83**	--	--	--	--	--
	9/5/2018	--	--	--	--	--	--	**1.83**	--	--	--	--	--
	12/14/2018	--	--	--	--	--	--	**1.8**	--	--	--	--	--
MW-2	3/17/2011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.11	< 0.1	**0.334**	**0.0664**	**55.8**	**1,000**	**2950**	NA
	8/17/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.50	< 0.50	0.179	**0.0726**	**71.9 E / 54.1**	**1,040**	**2110**	61,000
	10/18/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	124,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0360	**0.059**	**44.9**	**1,350**	**2,220**	14,900
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0078	**0.061**	4.3	**1,500**	NA	32,000
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0194	**0.067**	**42.5**	**1,150**	**2,440**	6,500
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0057	**0.0688**	**41.8**	**1,230**	**2,590**	29,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0188	**0.0728**	**43.3**	**1,200**	**1,930**	4,100
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0086	**0.0666**	**40.6**	**1,230**	NA	18,000
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	< 0.0050	**0.0657**	**35.6**	**1,200**	**2,210**	160
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0069	**0.0745**	**33.5**	**1,300**	**2,390**	2,435
	3/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.281**	**0.080**	**40.2**	**1,320**	**2,580**	670
	6/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.09	**0.073**	**22.2**	**1,280**	**2,360**	NA
	9/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.783**	**0.0734**	**34**	**1,140**	**2,440**	NA
	12/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.746**	**0.0715**	**31.0**	**1,380**	**2,360**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0195	**0.0774**	**38.3**	**1,330**	**2,570**	NA
	6/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0703	**0.0776**	**32.7**	**1,310**	**1,840**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	< 0.005	**0.0811**	**37.4**	**1,310**	**2,360**	NA
	12/1/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0144	**0.0779**	**34.7**	**1,250**	**2,840**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	< 0.005	**0.0806**	**36.1**	**1,340**	**2,150**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0099	**0.0764**	**40.6**	**1,260**	**2,190**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0104	**0.074**	**29.9**	**1,390**	**2,320**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	< 0.005	**0.0759**	**33.6**	**1,290**	**2,410**	NA
	3/7/2017	--	--	--	--	--	--	< 0.005	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	< 0.005	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	< 0.005	**0.0725**	--	--	--	--
	12/19/2017	--	--	--	--	--	--	< 0.005	**0.0756**	--	--	--	--
	3/14/2018	--	--	--	--	--	--	< 0.005	**0.0798**	--	--	--	--
	6/26/2018	--	--	--	--	--	--	--	**0.0684**	--	--	--	--
	9/5/2018	--	--	--	--	--	--	< 0.005	**0.0746**	--	--	--	--
	12/14/2016	--	--	--	--	--	--	< 0.01	**0.0742**	--	--	--	--

Table 3

Groundwater Analytical Results Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Manganese (dissolved) (mg/L)	Selenium (dissolved) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (TDS) (mg/L)	Heterotrophic Plate Count (CFU/mL)
NMWQCC Standards		0.010/0.005*	0.75/1.0*	0.75/0.70*	0.62	NE	NE	0.2	0.05	10	600	1,000	NE
MW-3	3/17/2011	< 0.001	0.013	< 0.001	0.0042	< 0.1	< 0.1	**1.79**	0.0316	**29.7**	**857**	**2360**	NA
	8/17/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.50	< 0.50	**1.42**	**0.0524**	**33.0**	**972**	**1960**	18,000
	10/18/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.600**	0.038	**22.0**	**1,140**	**2,050**	11,900
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.43**	0.048	**15.0**	**1,380**	NA	22,000
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.24**	0.032	**12.2**	**1,050**	**2,150**	23,000
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.62**	**0.0673**	**24.6**	**1,140**	**2,240**	51,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.83**	< 0.015	0.42	**1,080**	**2,030**	70
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.75**	< 0.015	0.76	**1,110**	NA	830
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.7**	< 0.015	1.4	**1,120**	**1,910**	110
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.77**	< 0.015	0.15	**1,180**	**1,970**	284
	1/7/2014 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350
	3/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.81**	< 0.015	0.11	**1,150**	**2,050**	870
	6/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2**	0.024	8.8	**1,130**	**1,190**	NA
	9/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.29**	0.0261	**11.3**	**1,060**	**2,240**	NA
	12/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.06**	< 0.015	6.1	**1,210**	**2,110**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.06**	< 0.015	4.3	**1,150**	**2,100**	NA
	6/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.88**	< 0.015	6	**1,120**	**1,380**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.1**	< 0.015	8.1	**1,120**	**2,040**	NA
	12/1/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.17**	< 0.015	7.2	**1,040**	**2,210**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**2.14**	< 0.015	8.2	**1,130**	**2,020**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.92**	< 0.015	**10.6**	**1,060**	**1,930**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.88**	< 0.015	2.3	**1,190**	**1,780**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.98**	< 0.015	6.9	**1,080**	**1,970**	NA
	3/7/2017	--	--	--	--	--	--	**2.22**	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	**1.87**	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	**1.82**	<0.015	--	--	--	--
	12/19/2017	--	--	--	--	--	--	**1.82**	--	--	--	--	--
	3/14/2018	--	--	--	--	--	--	**1.97**	--	--	--	--	--
	6/26/2018	--	--	--	--	--	--	**1.94**	--	--	--	--	--
	9/5/2018	--	--	--	--	--	--	**1.88**	--	--	--	--	--
	12/14/2018	--	--	--	--	--	--	**1.76**	--	--	--	--	--
MW-4	3/17/2011	< 0.001	< 0.001	< 0.001	< 0.001	0.14	< 0.1	0.022	0.042	**10.4**	**1,290**	**2,650**	NA
	8/17/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.50	< 0.50	0.0062	0.0402	9.4	**1,240**	**2,000**	9,800
	10/18/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0170	0.0350	8.6	**1,380**	**2,070**	40,000
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0814	0.0369	7.5	**1,540**	NA	49,000
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.1030	0.0394	7.8	**1,190**	**2,180**	4,000
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0289	0.0386	9.3	**1,240**	**2,230**	202,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0605	0.0441	8.9	**1,200**	**1,950**	42,500
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0484	0.0369	7.3	**1,260**	NA	33,000
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0303	0.0369	8.6	**1,180**	**2,090**	910
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0265	0.0381	5.5	**1,350**	**1,960**	1,160
	3/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0227	0.0410	8.2	**1,280**	**2,180**	1,865
	6/16/2014	NA	NA	NA	NA	NA	NA	0.0080	0.0340	6.5	**1,240**	**1,950**	NA
	9/25/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0160	0.0335	7	**1,260**	NA	NA
	12/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0155	0.0314	6.8	**1,330**	**2,250**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0156	0.0432	6.7	**1,300**	**2,280**	NA
	6/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0226	0.0408	5.6	**1,280**	**2,100**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0088	0.0406	7.1	**1,260**	**1,960**	NA
	12/1/2015	< 0.001	0.0023	< 0.001	< 0.003	NA	NA	0.0118	0.0402	7.1	**1,210**	**2,320**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0134	0.0416	7.7	**1,300**	**2,080**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0713	0.0427	9.3	**1,210**	**2,210**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0138	0.0354	6.3	**1,340**	**2,140**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	--	--	6.9	**1,250**	**1,950**	NA
	3/7/2017	--	--	--	--	--	--	--	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	--	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	0.0538	0.0358	--	--	--	--
	12/19/2017	--	--	--	--	--	--	0.1280	0.0433	--	--	--	--
	3/14/2018	--	--	--	--	--	--	<0.005	0.0398	--	**1470**	**2160**	--
	6/26/2018	--	--	--	--	--	--	--	0.0361	--	**1,320**	**2,290**	--
	9/5/2018	--	--	--	--	--	--	**0.0217**	0.039	--	**1,400**	**2,580**	--
	12/14/2018	--	--	--	--	--	--	<0.010	0.0366	--	**1,130**	**2,220**	--

Table 3

Groundwater Analytical Results Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Manganese (dissolved) (mg/L)	Selenium (dissolved) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (TDS) (mg/L)	Heterotrophic Plate Count (CFU/mL)
NMWQCC Standards		0.010/0.005*	0.75/1.0*	0.75/0.70*	0.62	NE	NE	0.2	0.05	10	600	1,000	NE
MW-5	10/18/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.5	< 0.5	NA	NA	NA	NA	NA	970,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.10**	< 0.015	0.12	**3,500**	**2,760**	252,000
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.868**	< 0.015	< 0.10	**2,040**	NA	63,000
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.791**	< 0.015	< 0.10	**1,620**	**2,830**	130,000
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.58**	< 0.015	< 0.10	**1,710**	**2,950**	102,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.356**	< 0.015	0.3	**1,700**	**2,370**	16,950
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.609**	< 0.015	0.25	**1,630**	NA	20,500
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.368**	< 0.015	< 0.10	**1,640**	**2,540**	660
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.396**	< 0.015	< 0.10	**1,740**	**2,770**	5,450
	3/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.606**	< 0.015	< 0.10	**1,760**	**2,800**	1,315
	6/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.93**	< 0.015	0.17	**1,730**	**2,320**	NA
	9/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.433**	< 0.015	0.14	**1,490**	**2,850**	NA
	12/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0706	< 0.015	0.13	**1,790**	**2,710**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0433	< 0.015	0.11	**1,730**	**3,030**	NA
	6/16/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0331	< 0.015	< 0.10	**1,720**	**2,780**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0215	< 0.015	0.14	**1,810**	**3,180**	NA
	12/1/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0163	< 0.015	0.16	**1,670**	**3,100**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.128	< 0.015	< 0.10	**1,760**	**2,700**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0109	< 0.015	0.11	**1,610**	**2,630**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.235**	< 0.015	< 0.10	**1,850**	**2,760**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.214**	< 0.015	< 0.10	**1,680**	**2,630**	NA
	3/7/2017	--	--	--	--	--	--	0.0405	--	--	**--**	**--**	--
	6/13/2017	--	--	--	--	--	--	--	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	**1.54**	<0.0015	--	--	--	--
	12/19/2017	--	--	--	--	--	--	0.182	--	--	--	--	--
	3/14/2018	--	--	--	--	--	--	0.192	--	--	--	--	--
	6/26/2018	--	--	--	--	--	--	0.0054	--	--	--	--	--
	9/5/2018	--	--	--	--	--	--	0.02	--	--	--	--	--
	12/14/2018	--	--	--	--	--	--	<0.010	--	--	--	--	--
MW-6	10/18/2011	**0.033**	< 0.001	< 0.001	0.012	< 0.5	< 0.5	NA	NA	NA	NA	NA	720,000
	2/23/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	<0.005	**0.0590**	**25.8**	**950**	**1,760**	8,900
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.600**	0.0454	**35.0**	**1,090**	NA	35,000
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**1.110**	0.0460	**29.5**	**955**	**1,990**	12,000
	1/8/2013	0.0012	< 0.001	< 0.001	< 0.003	NA	NA	0.158	**0.0536**	**25.6**	**978**	**1,980**	1,910,000
	3/26/2013	0.0022	< 0.001	< 0.001	< 0.003	NA	NA	**0.282**	**0.0602**	**30.9**	**945**	**1,740**	25,500
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.328**	**0.0621**	**27.6**	**946**	NA	4,750
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.299**	0.0389	**22.7**	**929**	**1,710**	65
	1/7/2014	0.0026	< 0.001	< 0.001	0.0034	NA	NA	**0.268**	0.0417	**19.5**	**984**	**2,060**	2,460
	3/18/2014	0.0012	< 0.001	< 0.001	< 0.003	NA	NA	**0.246**	0.0392	**23.6**	**1,000**	**2,000**	710
	6/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.140	0.0360	4.6	**955**	**1,780**	NA
	9/16/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.115	0.0386	**23.2**	**846**	**1,930**	NA
	12/16/2014	0.0014	< 0.001	< 0.001	< 0.003	NA	NA	0.147	0.0343	**27.2**	**1,000**	**1,830**	NA
	3/17/2015	< 0.001	0.0018	< 0.001	< 0.003	NA	NA	0.114	0.0360	**26**	**986**	**1,990**	NA
	6/16/2015	< 0.001	0.002	< 0.001	0.0037	NA	NA	0.0917	0.0370	**22.2**	**988**	**1,400**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0456	0.0369	**26.4**	**980**	**1,940**	NA
	12/1/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0396	0.0373	**25.3**	**904**	**2,130**	NA
	3/29/2016	0.0020	0.0034	0.0015	0.0048	NA	NA	0.0338	0.0364	**24.6**	**963**	**1,900**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0819	0.0296	**26.2**	**884**	**1,880**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.1070	0.0272	**22.4**	**1,000**	**1,940**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	--	--	**24.8**	**936**	**1,860**	NA
	3/7/2017	--	--	--	--	--	--	0.1290	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	0.0734	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	0.0787	0.0277	--	--	--	--
	12/19/2017	--	--	--	--	--	--	0.0481	0.0358	--	**800**	**2060**	--
	3/14/2018	--	--	--	--	--	--	0.0459	0.0329	--	**1050**	**2030**	--
	6/26/2018	--	--	--	--	--	--	--	0.0284	--	**972**	**2,030**	--
	9/5/2018	--	--	--	--	--	--	**0.024**	0.0322	--	**1,060**	**2,150**	--
	12/14/2018	--	--	--	--	--	--	<0.010	0.0391	--	**1,010**	**2,060**	--

Table 3

Groundwater Analytical Results Summary
Hilcorp Energy Company
San Juan 29-7 Unit 37
Rio Arriba County, New Mexico

Well ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Manganese (dissolved) (mg/L)	Selenium (dissolved) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (TDS) (mg/L)	Heterotrophic Plate Count (CFU/mL)
NMWQCC Standards		0.010/0.005*	0.75/1.0*	0.75/0.70*	0.62	NE	NE	0.2	0.05	10	600	1,000	NE
MW-7	10/18/2011	< 0.001	< 0.001	< 0.001	< 0.003	< 0.5	< 0.5	NA	NA	NA	NA	NA	2,000,000
	2/23/2012	< 0.001	0.0011	< 0.001	0.0034	NA	NA	< 0.005	0.022	4.6	**3,320**	**4,660**	< 1
	6/5/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.019	0.030	1.1	**1,820**	NA	8
	9/18/2012	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.012	0.024	1.0	**1,610**	**4,280**	1,900
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0093	0.0164	1.3	**1,770**	**3,400**	145,000
	3/26/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	<0.005	< 0.015	5.3	**1,730**	**3,050**	79
	6/11/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0082	< 0.015	**18.7**	**1,700**	NA	18
	9/10/2013	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.168	< 0.015	**31.4**	**1,740**	**3,080**	110
	1/7/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.452**	< 0.015	**28.5**	**1,950**	**3,320**	8,300
	3/18/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.438**	< 0.015	**35**	**1,920**	**3,350**	940
	6/16/2014	NA	NA	NA	NA	NA	NA	**0.49**	< 0.015	2.7	**1,930**	**2,940**	NA
	9/25/2014	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.231**	< 0.015	**29.7**	**1,970**	NA	NA
	12/16/2014	0.0013	0.0031	< 0.001	< 0.003	NA	NA	**0.435**	< 0.015	3.9	**2,140**	**2,610**	NA
	3/17/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.321**	< 0.015	**23.9**	**2,030**	**3,530**	NA
	6/16/2015	0.0023	0.0071	< 0.001	0.0045	NA	NA	**0.256**	< 0.015	**18.2**	**1,970**	**2,300**	NA
	9/15/2015	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	**0.227**	< 0.015	**20.2**	**2,010**	**3,100**	NA
	12/1/2015	0.0012	0.0053	< 0.001	< 0.003	NA	NA	0.108	< 0.015	**20.2**	**1,900**	**2,600**	NA
	3/29/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.102	< 0.015	**17.2**	**2,080**	**3,120**	NA
	6/21/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0552	< 0.015	**21.2**	**1,900**	**2,960**	NA
	9/7/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	0.0387	< 0.015	**16**	**2,160**	**2,910**	NA
	12/2/2016	< 0.001	< 0.001	< 0.001	< 0.003	NA	NA	--	--	**17.3**	**1,950**	**3,090**	NA
	3/7/2017	--	--	--	--	--	--	0.0077	--	--	--	--	--
	6/13/2017	--	--	--	--	--	--	<0.005	--	--	--	--	--
	9/26/2017	--	--	--	--	--	--	**0.2620**	<0.015	--	--	--	--
	12/19/2017	--	--	--	--	--	--	<0 .0050	--	--	--	--	--
	3/14/2018	--	--	--	--	--	--	0.0056	--	--	--	--	--
	6/26/2018	--	--	--	--	--	--	<0 .0050	--	--	--	--	--
	9/5/2018	--	--	--	--	--	--	<0 .0050	--	--	--	--	--
	12/14/2018	--	--	--	--	--	--	<0 .010	--	--	--	--	--
MW-8	10/19/2011	**0.15**	**1.24**	0.070	**1.43**	< 0.5	7.1	NA	NA	NA	NA	NA	2,300,000
	2/23/2012	**0.036**	**0.772**	0.054	**1.35**	NA	NA	<0.005	0.049	3.2	**813**	**5,790**	14
	2/23/2012 (DUP)	**0.069**	**0.876**	0.109	**1.66**	NA	NA	NA	NA	NA	NA	NA	NA
	6/5/2012	**0.013**	0.120	0.025	0.447	NA	NA	0.022	0.045	**18.1**	**793**	NA	630
	9/20/2012	0.0098	0.002	0.006	0.342	NA	NA	NA	NA	**21.8**	**1,130**	**2,960**	NA
	1/8/2013	**0.0369**	0.0199	0.0018	0.0488	NA	NA	NA	NA	**30.4**	**1,260**	**2,700**	222,000
	3/26/2013	Not sampled due to damaged well casing.											
	6/11/2013	Not sampled due to damaged well casing.											
	7/13/2013	Plugged and Abandoned											
MW-8R	9/10/2013	**0.0100**	0.0171	0.0017	0.0615	NA	NA	**0.395**	0.038	**38.6**	**1,230**	**2,430**	5,700
	9/10/2013 (DUP)	0.0083	0.0125	0.0018	0.0443	NA	NA	NA	NA	NA	NA	NA	8,700
	1/7/2014	**0.179**	0.353	0.0105	**0.69**	NA	NA	**0.255**	0.0374	**28.3**	**1,360**	**2,900**	425,000
	1/7/2014 (DUP)	**0.192**	0.344	0.0107	**0.715**	NA	NA	NA	NA	NA	NA	NA	NA
	3/18/2014	**0.103**	0.154	0.0076	0.164	NA	NA	0.106	< 0.015	**35.0**	**1,290**	**2,460**	8,550
	3/18/2014 (DUP)	**0.116**	0.149	0.0077	0.156	NA	NA	NA	NA	NA	NA	NA	NA
	6/16/2014	**0.319**	**0.846**	0.0305	0.505	NA	NA	**1.5**	< 0.015	4.4	**1,510**	**2,330**	NA
	6/16/2014 (DUP)	**0.291**	**0.816**	0.0296	**0.642**	NA	NA	NA	NA	NA	NA	NA	NA
	9/25/2014	**0.172**	0.0022	< 0.001	0.0067	NA	NA	**1.38**	< 0.015	6.6	**1,530**	NA	NA
	9/25/2014 (DUP)	**0.182**	0.0025	< 0.001	0.0068	NA	NA	NA	NA	NA	NA	NA	NA
	12/16/2014	**0.187**	0.301	0.0248	0.368	NA	NA	**1.01**	< 0.015	**13**	**1,470**	**2,440**	NA
	12/16/2014 (DUP)	**0.195**	0.283	0.0246	0.353	NA	NA	NA	NA	NA	NA	NA	NA
	3/17/2015	**0.262**	0.0205	0.714	0.501	NA	NA	**0.323**	0.021	**27**	**1,320**	**2,240**	NA
	3/17/2015(DUP)	**0.263**	0.0205	0.701	0.494	NA	NA	NA	NA	NA	NA	NA	NA
	6/16/2015	**0.191**	0.418	0.0147	0.300	NA	NA	**0.707**	< 0.015	**11.2**	**1,410**	**2,040**	NA
	6/16/2015 (DUP)	**0.193**	0.412	0.0141	0.293	NA	NA	NA	NA	NA	NA	NA	NA
	9/15/2015	**0.451**	**1.04**	0.0587	**0.881**	NA	NA	**0.7**	< 0.015	**18**	**1,340**	**2,340**	NA
	9/15/2015 (DUP)	**0.449**	**0.965**	0.0603	**0.83**	NA	NA	NA	NA	NA	NA	NA	NA
	12/1/2015	**0.412**	**0.873**	0.0257	0.508	NA	NA	**0.84**	< 0.015	**13.1**	**1,290**	**2,180**	NA
	12/1/2015 (DUP)	**0.418**	**0.922**	0.0264	0.526	NA	NA	NA	NA	NA	NA	NA	NA
	3/29/2016	**0.173**	0.313	0.0136	0.222	NA	NA	**1.16**	< 0.015	2.8	**1560**	**2280**	NA
	3/29/2016 (DUP)	**0.17**	0.278	0.0148	0.247	NA	NA	**NA**	NA	NA	NA	NA	NA
	6/21/2016	**0.193**	0.586	0.0168	0.466	NA	NA	**0.431**	< 0.015	**20.7**	**1280**	**2180**	NA
	6/21/2016 (DUP)	**0.204**	0.625	0.0182	0.456	NA	NA	NA	NA	NA	NA	NA	NA
	9/7/2016	**0.27**	**0.901**	0.0291	**0.670**	NA	NA	**0.758**	< 0.015	**13.7**	**1500**	**2300**	NA
	9/7/2016 (DUP)	**0.3**	**1.12**	0.0372	**0.812**	NA	NA	NA	NA	NA	NA	NA	NA
	12/2/2016	**0.162**	0.122	< 0.005	0.246	NA	NA	**0.488**	< 0.015	**17.6**	**1320**	**2260**	NA
	3/7/2017	**0.0186**	<0.001	<0.001	<0.003	--	--	**0.437**	--	--	--	--	--
	6/13/2017	0.0037	0.0047	<0.001	0.0089	--	--	**0.396**	--	--	--	--	--
	9/26/2017	0.0032	0.0029	<0.001	0.0088	--	--	0.0218	<0.015	--	--	--	--
	12/19/2017	0.0014	0.0022	< 0.001	0.0059	--	--	**0.432**	--	--	--	--	--
	3/14/2018	<0.001	0.0013	<0.001	<0.003	--	--	**0.364**	--	--	--	--	--
	6/26/2018	<0.001	<0.001	<0.001	<0.003	--	--	**0.434**	--	--	--	--	--
	9/5/2018	<0.001	<0.001	<0.001	<0.003	--	--	**0.442**	--	--	--	--	--
	12/14/2018	<0.001	<0.001	<0.001	<0.003	--	--	**0.238**	--	--	--	--	--

Notes:

MW = Monitoring Well

NMWQCC = New Mexico Water Quality Control Commission

BOLD = Exceeds NMWQCC Groundwater Quality Standard

mg/L = milligrams per liter (parts per million)

'<' = Analyte not detected above set laboratory detection limit

-- = No data

* NMWQCC Standard Revised 12/2018

E = Analyte concentration exceeded the calibration range

NE = Not Established

NA = Not analyzed

TPH DRO = total petroleum hydrocarbons diesel range organics

TPH GRO = total petroleum hydrocarbons gasoline range organics

Cells shaded in gray indicate groundwater samples collected prior to CoolOx™ treatment

Appendix A
Groundwater Laboratory Analytical Report

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

March 27, 2018

Jeff Walker
GHD Services
6121 indian School Rd
Ste 200
Albuquerque, NM 87110

RE: Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Dear Jeff Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on March 17, 2018. 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,

Colleen Clyne

Colleen Clyne
colleen.clyne@pacelabs.com
1(913)563-1406
Project Manager

Enclosures

cc: Angela Bown, GHD Services
Christine Mathews, GHD Services

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
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CERTIFICATIONS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60266197001	**GW-11146005-031418-JW-MW1**	Water	03/14/18 13:25	03/17/18 08:05
60266197002	**GW-11146005-031418-JW-MW2**	Water	03/14/18 12:30	03/17/18 08:05
60266197003	**GW-11146005-031418-JW-MW3**	Water	03/14/18 11:50	03/17/18 08:05
60266197004	**GW-11146005-031418-JW-MW4**	Water	03/14/18 15:50	03/17/18 08:05
60266197005	**GW-11146005-031418-JW-MW5**	Water	03/14/18 10:00	03/17/18 08:05
60266197006	**GW-11146005-031418-JW-MW6**	Water	03/14/18 10:55	03/17/18 08:05
60266197007	**GW-11146005-031418-JW-MW7**	Water	03/14/18 14:25	03/17/18 08:05
60266197008	**GW-11146005-031418-JW-MW8R**	Water	03/14/18 15:15	03/17/18 08:05

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60266197001	**GW-11146005-031418-JW-MW1**	EPA 6010	JGP	1	PASI-K
60266197002	**GW-11146005-031418-JW-MW2**	EPA 6010	JGP	2	PASI-K
60266197003	**GW-11146005-031418-JW-MW3**	EPA 6010	JGP	1	PASI-K
60266197004	**GW-11146005-031418-JW-MW4**	EPA 6010	JGP	2	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 300.0	AGO	1	PASI-K
60266197005	**GW-11146005-031418-JW-MW5**	EPA 6010	JGP	1	PASI-K
60266197006	**GW-11146005-031418-JW-MW6**	EPA 6010	JGP	2	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 300.0	AGO	1	PASI-K
60266197007	**GW-11146005-031418-JW-MW7**	EPA 6010	JGP	1	PASI-K
60266197008	**GW-11146005-031418-JW-MW8R**	EPA 6010	JGP	1	PASI-K
		EPA 8260	EAG	8	PASI-K

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW1 **Lab ID: 60266197001** Collected: 03/14/18 13:25 Received: 03/17/18 08:05 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	**1940**	ug/L	5.0	1	03/21/18 11:30	03/22/18 13:48	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW2 **Lab ID: 60266197002** Collected: 03/14/18 12:30 Received: 03/17/18 08:05 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	ND	ug/L	5.0	1	03/21/18 11:30	03/22/18 13:51	7439-96-5	
Selenium, Dissolved	**79.8**	ug/L	15.0	1	03/21/18 11:30	03/22/18 13:51	7782-49-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW3 **Lab ID: 60266197003** Collected: 03/14/18 11:50 Received: 03/17/18 08:05 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	**1970**	ug/L	5.0	1	03/21/18 11:30	03/22/18 13:53	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW4 **Lab ID: 60266197004** Collected: 03/14/18 15:50 Received: 03/17/18 08:05 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	ND	ug/L	5.0	1	03/21/18 11:30	03/22/18 14:01	7439-96-5	
Selenium, Dissolved	**39.8**	ug/L	15.0	1	03/21/18 11:30	03/22/18 14:01	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2160**	mg/L	5.0	1		03/21/18 14:22		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1470**	mg/L	200	200		03/26/18 17:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW5 **Lab ID: 60266197005** Collected: 03/14/18 10:00 Received: 03/17/18 08:05 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	**192**	ug/L	5.0	1	03/21/18 11:30	03/22/18 14:04	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW6 **Lab ID: 60266197006** Collected: 03/14/18 10:55 Received: 03/17/18 08:05 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	**45.9**	ug/L	5.0	1	03/21/18 11:30	03/22/18 14:07	7439-96-5	
Selenium, Dissolved	**32.9**	ug/L	15.0	1	03/21/18 11:30	03/22/18 14:07	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2030**	mg/L	5.0	1		03/21/18 14:22		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1050**	mg/L	100	100		03/26/18 17:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW7 **Lab ID: 60266197007** Collected: 03/14/18 14:25 Received: 03/17/18 08:05 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	**5.6**	ug/L	5.0	1	03/21/18 11:30	03/22/18 14:10	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Sample: GW-11146005-031418-JW-MW8R **Lab ID: 60266197008** Collected: 03/14/18 15:15 Received: 03/17/18 08:05 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	**364**	ug/L	5.0	1	03/21/18 11:30	03/22/18 14:12	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		03/21/18 12:49	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/21/18 12:49	100-41-4	
Toluene	**1.3**	ug/L	1.0	1		03/21/18 12:49	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/21/18 12:49	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-115	1		03/21/18 12:49	2037-26-5	
4-Bromofluorobenzene (S)	100	%	80-119	1		03/21/18 12:49	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117	1		03/21/18 12:49	17060-07-0	
Preservation pH	**1.0**		1.0	1		03/21/18 12:49		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

QC Batch: 518527 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60266197001, 60266197002, 60266197003, 60266197004, 60266197005, 60266197006, 60266197007, 60266197008

METHOD BLANK: 2122445 Matrix: Water
Associated Lab Samples: 60266197001, 60266197002, 60266197003, 60266197004, 60266197005, 60266197006, 60266197007, 60266197008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	03/22/18 13:04	
Selenium, Dissolved	ug/L	ND	15.0	03/22/18 13:04	

LABORATORY CONTROL SAMPLE: 2122446

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	1010	101	80-120	
Selenium, Dissolved	ug/L	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2122447 2122448

Parameter	Units	60265784002 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	83.7	1000	1000	1080	1100	100	101	75-125	2	20	
Selenium, Dissolved	ug/L	ND	1000	1000	1030	1030	103	103	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

QC Batch: 518516 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60266197008

METHOD BLANK: 2122409 Matrix: Water
Associated Lab Samples: 60266197008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/21/18 11:24	
Ethylbenzene	ug/L	ND	1.0	03/21/18 11:24	
Toluene	ug/L	ND	1.0	03/21/18 11:24	
Xylene (Total)	ug/L	ND	3.0	03/21/18 11:24	
1,2-Dichloroethane-d4 (S)	%	102	80-117	03/21/18 11:24	
4-Bromofluorobenzene (S)	%	100	80-119	03/21/18 11:24	
Toluene-d8 (S)	%	99	80-115	03/21/18 11:24	

LABORATORY CONTROL SAMPLE: 2122410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.0	90	81-118	
Ethylbenzene	ug/L	20	18.0	90	80-118	
Toluene	ug/L	20	18.1	90	82-118	
Xylene (Total)	ug/L	60	54.8	91	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

QC Batch: 518460 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60266197004, 60266197006

METHOD BLANK: 2122198 Matrix: Water
Associated Lab Samples: 60266197004, 60266197006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	03/21/18 14:21	

LABORATORY CONTROL SAMPLE: 2122199

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	950	95	80-120	

SAMPLE DUPLICATE: 2122200

Parameter	Units	7583856004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4070	4140	2	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

QC Batch: 519081 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60266197004, 60266197006

METHOD BLANK: 2125183 Matrix: Water
Associated Lab Samples: 60266197004, 60266197006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	03/26/18 13:36	

LABORATORY CONTROL SAMPLE: 2125184

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2125185 2125186

Parameter	Units	2072651019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	194	100	100	304	303	109	109	80-120	0	15	

MATRIX SPIKE SAMPLE: 2125187

Parameter	Units	60266194004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1370	1000	2520	115	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

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.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 518516

[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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60266197

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60266197001	**GW-11146005-031418-JW-MW1**	EPA 3010	518527	EPA 6010	518583
60266197002	**GW-11146005-031418-JW-MW2**	EPA 3010	518527	EPA 6010	518583
60266197003	**GW-11146005-031418-JW-MW3**	EPA 3010	518527	EPA 6010	518583
60266197004	**GW-11146005-031418-JW-MW4**	EPA 3010	518527	EPA 6010	518583
60266197005	**GW-11146005-031418-JW-MW5**	EPA 3010	518527	EPA 6010	518583
60266197006	**GW-11146005-031418-JW-MW6**	EPA 3010	518527	EPA 6010	518583
60266197007	**GW-11146005-031418-JW-MW7**	EPA 3010	518527	EPA 6010	518583
60266197008	**GW-11146005-031418-JW-MW8R**	EPA 3010	518527	EPA 6010	518583
60266197008	**GW-11146005-031418-JW-MW8R**	EPA 8260	518516		
60266197004	**GW-11146005-031418-JW-MW4**	SM 2540C	518460		
60266197006	**GW-11146005-031418-JW-MW6**	SM 2540C	518460		
60266197004	**GW-11146005-031418-JW-MW4**	EPA 300.0	519081		
60266197006	**GW-11146005-031418-JW-MW6**	EPA 300.0	519081		

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Sample Condition Upon Receipt

WO# : 60266197

60266197

Client Name: GHD NM

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

Tracking #: 7801 1642 0336 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: 266 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.7 **Corr. Factor** +0.2 **Corrected** 3.9

CK

Date and initials of person examining contents:

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 03/19/18	
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	List sample IDs, volumes, lot #'s of preservative and the date/time added.
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:

Project Manager Review: Colleen Clyne Date: 03/21/2018

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, New Mexico
Address: 6121 indian School Rd
Albuquerque, NM 87110
Email: jeff.walker@ghd.com
Phone: 505-884-0672 Fax:
Requested Due Date:

Section B — Required Project Information:

Report To: Jeff Walker
Copy To:
Purchase Order #:
Project Name: 11146005 San Juan 29-7 No 37
Project #:

Section C — Invoice Information:

Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: colleen.clyne@pacelabs.com
Pace Profile #: 10540 line 1

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: 8260 BTEX	6010 Dissolved Mn-field filte	6010 Dissolved Se-field filte	300.0 Chloride	300.0 Sulfate	2540 TDS	Residual Chlorine (Y/N)	
1	GW-11146005-031418-SW-MW1	GW	G				1325		1	1									X						BP3F
2	GW-11146005-031418-SW-MW2		G			3/14	1230		1	1									X	X						
3	GW-11146005-031418-SW-MW3		G			3/14	1150		1	1									X							
4	GW-11146005-031418-SW-MW4		G			3/14	1550		3	1									X	X		X	X		BP2N BP3N	
5	GW-11146005-031418-SW-MW5		G			3/14	1000		1	1									X							
6	GW-11146005-031418-SW-MW6		G			3/14	1055		3	1									X	X		X	X			
7	GW-11146005-031418-SW-MW7		G			3/14	1425		1	1									X							
8	GW-11146005-031418-SW-MW8R		G			3/14	1515		4	1									X	X					(3)BG4H	
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

6026647

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Jeff Walker	3-16-18	0937		3/17	0905	3.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Walker

SIGNATURE of SAMPLER: Jeff Walker

DATE Signed: 3-14-18

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
(913)599-5665

July 15, 2018

Jeff Walker
GHD Services
6121 indian School Rd
Ste 200
Albuquerque, NM 87110

RE: Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Dear Jeff Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on June 29, 2018. 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,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Angela Bown, GHD Services
Christine Mathews, GHD Services

Pace Analytical Services, LLC
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Lenexa, KS 66219
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CERTIFICATIONS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60273867001	**GW-11146005-062618-CM-MW-1**	Water	06/26/18 17:00	06/29/18 09:00
60273867002	**GW-11146005-062618-CM-MW-2**	Water	06/26/18 14:00	06/29/18 09:00
60273867003	**GW-11146005-062618-CM-MW-3**	Water	06/26/18 13:10	06/29/18 09:00
60273867004	**GW-11146005-062618-CM-MW-4**	Water	06/26/18 18:15	06/29/18 09:00
60273867005	**GW-11146005-062618-CM-MW-5**	Water	06/26/18 12:25	06/29/18 09:00
60273867006	**GW-11146005-062618-CM-MW-6**	Water	06/26/18 11:50	06/29/18 09:00
60273867007	**GW-11146005-062618-CM-MW-7**	Water	06/26/18 17:55	06/29/18 09:00
60273867008	**GW-11146005-062618-CM-MW-8R**	Water	06/26/18 16:15	06/29/18 09:00

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SAMPLE ANALYTE COUNT

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60273867001	**GW-11146005-062618-CM-MW-1**	EPA 6010	TDS	1	PASI-K
60273867002	**GW-11146005-062618-CM-MW-2**	EPA 6010	TDS	1	PASI-K
60273867003	**GW-11146005-062618-CM-MW-3**	EPA 6010	TDS	1	PASI-K
60273867004	**GW-11146005-062618-CM-MW-4**	EPA 6010	TDS	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
60273867005	**GW-11146005-062618-CM-MW-5**	EPA 6010	TDS	1	PASI-K
60273867006	**GW-11146005-062618-CM-MW-6**	EPA 6010	TDS	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
60273867007	**GW-11146005-062618-CM-MW-7**	EPA 6010	TDS	1	PASI-K
60273867008	**GW-11146005-062618-CM-MW-8R**	EPA 6010	TDS	1	PASI-K
		EPA 8260	PGH	8	PASI-K

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-1 **Lab ID: 60273867001** Collected: 06/26/18 17:00 Received: 06/29/18 09:00 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	**1830**	ug/L	5.0	1	07/03/18 10:15	07/13/18 20:40	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-2 **Lab ID: 60273867002** Collected: 06/26/18 14:00 Received: 06/29/18 09:00 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							
Selenium, Dissolved	**68.4**	ug/L	15.0	1	07/03/18 10:15	07/13/18 20:42	7782-49-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-3 **Lab ID: 60273867003** Collected: 06/26/18 13:10 Received: 06/29/18 09:00 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	**1940**	ug/L	5.0	1	07/03/18 10:15	07/13/18 20:45	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-4 **Lab ID: 60273867004** Collected: 06/26/18 18:15 Received: 06/29/18 09:00 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							
Selenium, Dissolved	**36.1**	ug/L	15.0	1	07/03/18 10:15	07/13/18 20:47	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2290**	mg/L	5.0	1		07/02/18 17:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1320**	mg/L	100	100		07/11/18 10:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-5 **Lab ID: 60273867005** Collected: 06/26/18 12:25 Received: 06/29/18 09:00 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	**5.4**	ug/L	5.0	1	07/03/18 10:15	07/13/18 20:49	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-6 **Lab ID: 60273867006** Collected: 06/26/18 11:50 Received: 06/29/18 09:00 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							
Selenium, Dissolved	**28.4**	ug/L	15.0	1	07/03/18 10:15	07/13/18 20:56	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2030**	mg/L	5.0	1		07/02/18 17:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**972**	mg/L	100	100		07/10/18 17:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-7 **Lab ID: 60273867007** Collected: 06/26/18 17:55 Received: 06/29/18 09:00 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	ND	ug/L	5.0	1	07/03/18 10:15	07/13/18 20:58	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Sample: GW-11146005-062618-CM-MW-8R **Lab ID: 60273867008** Collected: 06/26/18 16:15 Received: 06/29/18 09:00 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	**434**	ug/L	5.0	1	07/03/18 10:15	07/13/18 21:00	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/07/18 10:41	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/07/18 10:41	100-41-4	
Toluene	ND	ug/L	1.0	1		07/07/18 10:41	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/07/18 10:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	80-115	1		07/07/18 10:41	2037-26-5	
4-Bromofluorobenzene (S)	96	%	80-119	1		07/07/18 10:41	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	80-117	1		07/07/18 10:41	17060-07-0	
Preservation pH	**1.0**		1.0	1		07/07/18 10:41		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

QC Batch: 532692 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60273867001, 60273867002, 60273867003, 60273867004, 60273867005, 60273867006, 60273867007, 60273867008

METHOD BLANK: 2181855 Matrix: Water
Associated Lab Samples: 60273867001, 60273867002, 60273867003, 60273867004, 60273867005, 60273867006, 60273867007, 60273867008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	07/13/18 20:08	
Selenium, Dissolved	ug/L	ND	15.0	07/13/18 20:08	

LABORATORY CONTROL SAMPLE: 2181856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	1040	104	80-120	
Selenium, Dissolved	ug/L	1000	987	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2181857 2181858

Parameter	Units	60273713001 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	570	1000	1000	1630	1640	106	107	75-125	1	20	
Selenium, Dissolved	ug/L	ND	1000	1000	993	1000	99	100	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

QC Batch: 533251 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60273867008

METHOD BLANK: 2183978 Matrix: Water
Associated Lab Samples: 60273867008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	07/07/18 08:20	
Ethylbenzene	ug/L	ND	1.0	07/07/18 08:20	
Toluene	ug/L	ND	1.0	07/07/18 08:20	
Xylene (Total)	ug/L	ND	3.0	07/07/18 08:20	
1,2-Dichloroethane-d4 (S)	%	96	80-117	07/07/18 08:20	
4-Bromofluorobenzene (S)	%	98	80-119	07/07/18 08:20	
Toluene-d8 (S)	%	108	80-115	07/07/18 08:20	

LABORATORY CONTROL SAMPLE: 2183979

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.3	97	81-118	
Ethylbenzene	ug/L	20	21.9	110	80-118	
Toluene	ug/L	20	22.2	111	82-118	
Xylene (Total)	ug/L	60	66.3	110	81-120	
1,2-Dichloroethane-d4 (S)	%			94	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			106	80-115	

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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

QC Batch: 532621 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60273867004, 60273867006

METHOD BLANK: 2181595 Matrix: Water
Associated Lab Samples: 60273867004, 60273867006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	07/02/18 17:40	

LABORATORY CONTROL SAMPLE: 2181596

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1000	100	80-120	

SAMPLE DUPLICATE: 2181597

Parameter	Units	60273826001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1820	1820	0	10	

SAMPLE DUPLICATE: 2181598

Parameter	Units	60273651001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	963	961	0	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

QC Batch: 533742 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60273867006

METHOD BLANK: 2185763 Matrix: Water
Associated Lab Samples: 60273867006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	07/10/18 15:27	

LABORATORY CONTROL SAMPLE: 2185764

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

MATRIX SPIKE SAMPLE: 2185767

Parameter	Units	60273809007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1570	1000	2520	95	90-110	

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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

QC Batch: 533816 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60273867004

METHOD BLANK: 2186127 Matrix: Water
Associated Lab Samples: 60273867004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	07/11/18 09:38	

LABORATORY CONTROL SAMPLE: 2186128

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2186129 2186130

Parameter	Units	60273826004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	1230	1000	1000	2040	2290	81	105	90-110	11	15	M1

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 533251

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

ANALYTE QUALIFIERS

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60273867

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60273867001	**GW-11146005-062618-CM-MW-1**	EPA 3010	532692	EPA 6010	532752
60273867002	**GW-11146005-062618-CM-MW-2**	EPA 3010	532692	EPA 6010	532752
60273867003	**GW-11146005-062618-CM-MW-3**	EPA 3010	532692	EPA 6010	532752
60273867004	**GW-11146005-062618-CM-MW-4**	EPA 3010	532692	EPA 6010	532752
60273867005	**GW-11146005-062618-CM-MW-5**	EPA 3010	532692	EPA 6010	532752
60273867006	**GW-11146005-062618-CM-MW-6**	EPA 3010	532692	EPA 6010	532752
60273867007	**GW-11146005-062618-CM-MW-7**	EPA 3010	532692	EPA 6010	532752
60273867008	**GW-11146005-062618-CM-MW-8R**	EPA 3010	532692	EPA 6010	532752
60273867008	**GW-11146005-062618-CM-MW-8R**	EPA 8260	533251		
60273867004	**GW-11146005-062618-CM-MW-4**	SM 2540C	532621		
60273867006	**GW-11146005-062618-CM-MW-6**	SM 2540C	532621		
60273867004	**GW-11146005-062618-CM-MW-4**	EPA 300.0	533816		
60273867006	**GW-11146005-062618-CM-MW-6**	EPA 300.0	533742		

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Sample Condition Upon Receipt

WO# : 60273867

60273867

Client Name: GHD Services, New Mexico

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

Tracking #: 4368 7276 7745 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: T-297 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.4 **Corr. Factor** +0.9 **Corrected** 2.3

Date and initials of person examining contents: JLS AE 6/29

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	
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	6/29/18 AE
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? (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	List sample IDs, volumes, lot #'s of preservative and the date/time added.
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: _____

Jann Check 7/2/18

Project Manager Review: _____ Date: _____

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, New Mexico
Address: 6121 indian School Rd
Albuquerque, NM 87110
Email: jeff.walker@ghd.com
Phone: 505-884-0672 Fax:
Requested Due Date: Standard TAT

Section B
Required Project Information:
Report To: Jeff Walker
Copy To:
Purchase Order #:
Project Name: 11146005 San Juan 29-7 No 37
Project #:

Section C
Invoice Information:
Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: colleen.clyne@pacelabs.com
Pace Profile #: 10540 line 1

Regulatory Agency:
State / Location: NM

Requested Analysis Filtered (Y/N): 6010 Dissolved Mn-field filtered: Y; 6010 Dissolved Se-field filtered: Y

60273867

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	~~H2SO4~~ HNO3	~~HNO3~~	HCl	NaOH	Na2S2O3	Methanol	Other	8260 BTEX	6010 Dissolved Mn-field filtered	6010 Dissolved Se-field filtered	300.0 Chloride	300.0 Sulfate	2540 TDS	Residual Chlorine (Y/N)	Notes	Lab ID
1	GW-1146005-062618-CM-MW-1	WT	G	6/26/18	1700				1		1								X						BP3F	001
2	GW-1146005-062618-CM-MW-2	WT	G	6/26/18	1400				1		1								X	X					↓	002
3	GW-1146005-062618-CM-MW-3	WT	G	6/26/18	1310				1		1								X							003
4	GW-1146005-062618-CM-MW-4	WT	G	6/26/18	1815				3	2	1								X	X	X	X			BP2U BP3U; BP3F	004
5	GW-1146005-062618-CM-MW-5	WT	G	6/26/18	1225				1		1								X							005
6	GW-1146005-062618-CM-MW-6	WT	G	6/26/18	1150				3	2	1								X	X	X	X			BP2U BP3U	006
7	GW-1146005-062618-CM-MW-7	WT	G	6/26/18	1755				1		1								X							007
8	GW-1146005-062618-CM-MW-8	WT	G	6/26/18	1615				4		1		3					X	X						3DG9H	008
9																									2DG9H (TB)	009
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
item #8 should end in MW-8R rather than MW-8. Thank you	[signature] GHD	6/28/18	1600	[signature] PASI	6/29/18	09:00	2.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Christine Mathews
SIGNATURE of SAMPLER: [signature]
DATE Signed: 6/28/18

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

September 18, 2018

Jeff Walker
GHD Services
6121 indian School Rd
Ste 200
Albuquerque, NM 87110

RE: Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Dear Jeff Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on September 08, 2018. 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,

Jamie Church
jamie.church@pacelabs.com
314-838-7223
Project Manager

Enclosures

cc: Angela Bown, GHD Services
Christine Mathews, GHD Services

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CERTIFICATIONS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60280078001	**GW-11146005-090518-CN-MW-1**	Water	09/05/18 13:55	09/08/18 08:30
60280078002	**GW-11146005-090518-CN-MW-2**	Water	09/05/18 13:00	09/08/18 08:30
60280078003	**GW-11146005-090518-CN-MW-3**	Water	09/05/18 12:05	09/08/18 08:30
60280078004	**GW-11146005-090518-CN-MW-4**	Water	09/05/18 16:03	09/08/18 08:30
60280078005	**GW-11146005-090518-CN-MW-5**	Water	09/05/18 10:23	09/08/18 08:30
60280078006	**GW-11146005-090518-CN-MW-6**	Water	09/05/18 11:10	09/08/18 08:30
60280078007	**GW-11146005-090518-CN-MW-7**	Water	09/05/18 14:40	09/08/18 08:30
60280078008	**GW-11146005-090518-CN-MW-8R**	Water	09/05/18 15:40	09/08/18 08:30
60280078009	**TRIP BLANK**	Water	09/05/18 08:00	09/08/18 08:30

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SAMPLE ANALYTE COUNT

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60280078001	**GW-11146005-090518-CN-MW-1**	EPA 6010	TDS	1	PASI-K
60280078002	**GW-11146005-090518-CN-MW-2**	EPA 6010	TDS	2	PASI-K
60280078003	**GW-11146005-090518-CN-MW-3**	EPA 6010	TDS	1	PASI-K
60280078004	**GW-11146005-090518-CN-MW-4**	EPA 6010	TDS	2	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
60280078005	**GW-11146005-090518-CN-MW-5**	EPA 6010	TDS	1	PASI-K
60280078006	**GW-11146005-090518-CN-MW-6**	EPA 6010	TDS	2	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
60280078007	**GW-11146005-090518-CN-MW-7**	EPA 6010	TDS	1	PASI-K
60280078008	**GW-11146005-090518-CN-MW-8R**	EPA 6010	TDS	1	PASI-K
		EPA 8260	JKL	8	PASI-K
60280078009	**TRIP BLANK**	EPA 8260	JKL	8	PASI-K

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-1 **Lab ID: 60280078001** Collected: 09/05/18 13:55 Received: 09/08/18 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	**1830**	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:44	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-2 **Lab ID: 60280078002** Collected: 09/05/18 13:00 Received: 09/08/18 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	ND	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:46	7439-96-5	
Selenium, Dissolved	**74.6**	ug/L	15.0	1	09/11/18 10:15	09/17/18 19:46	7782-49-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-3 **Lab ID: 60280078003** Collected: 09/05/18 12:05 Received: 09/08/18 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	**1880**	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:48	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-4 **Lab ID: 60280078004** Collected: 09/05/18 16:03 Received: 09/08/18 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	**21.7**	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:51	7439-96-5	
Selenium, Dissolved	**39.0**	ug/L	15.0	1	09/11/18 10:15	09/17/18 19:51	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2580**	mg/L	5.0	1		09/12/18 14:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1400**	mg/L	100	100		09/13/18 18:53	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-5 **Lab ID: 60280078005** Collected: 09/05/18 10:23 Received: 09/08/18 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	**20.0**	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:53	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-6 **Lab ID: 60280078006** Collected: 09/05/18 11:10 Received: 09/08/18 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	**24.0**	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:55	7439-96-5	
Selenium, Dissolved	**32.2**	ug/L	15.0	1	09/11/18 10:15	09/17/18 19:55	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2150**	mg/L	5.0	1		09/12/18 14:37		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1060**	mg/L	100	100		09/13/18 19:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-7 **Lab ID: 60280078007** Collected: 09/05/18 14:40 Received: 09/08/18 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	ND	ug/L	5.0	1	09/11/18 10:15	09/17/18 19:57	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: GW-11146005-090518-CN-MW-8R **Lab ID: 60280078008** Collected: 09/05/18 15:40 Received: 09/08/18 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	**442**	ug/L	5.0	1	09/11/18 10:15	09/17/18 20:00	7439-96-5	
8260 MSV UST, Water	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		09/15/18 01:30	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/15/18 01:30	100-41-4	
Toluene	ND	ug/L	1.0	1		09/15/18 01:30	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/15/18 01:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	104	%	80-115	1		09/15/18 01:30	2037-26-5	
4-Bromofluorobenzene (S)	110	%	80-119	1		09/15/18 01:30	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117	1		09/15/18 01:30	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/15/18 01:30		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Sample: TRIP BLANK **Lab ID: 60280078009** Collected: 09/05/18 08:00 Received: 09/08/18 08:30 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		09/15/18 01:46	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/15/18 01:46	100-41-4	
Toluene	ND	ug/L	1.0	1		09/15/18 01:46	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/15/18 01:46	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	80-115	1		09/15/18 01:46	2037-26-5	
4-Bromofluorobenzene (S)	110	%	80-119	1		09/15/18 01:46	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117	1		09/15/18 01:46	17060-07-0	
Preservation pH	**1.0**		1.0	1		09/15/18 01:46		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

QC Batch: 543872 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60280078001, 60280078002, 60280078003, 60280078004, 60280078005, 60280078006, 60280078007, 60280078008

METHOD BLANK: 2228611 Matrix: Water
Associated Lab Samples: 60280078001, 60280078002, 60280078003, 60280078004, 60280078005, 60280078006, 60280078007, 60280078008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	09/17/18 19:02	
Selenium, Dissolved	ug/L	ND	15.0	09/17/18 19:02	

LABORATORY CONTROL SAMPLE: 2228612

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	991	99	80-120	
Selenium, Dissolved	ug/L	1000	978	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2228613 2228614

Parameter	Units	60280043002 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	270	1000	1000	1220	1290	95	102	75-125	6	20	
Selenium, Dissolved	ug/L	ND	1000	1000	971	1040	97	103	75-125	7	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

QC Batch: 544630 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60280078008, 60280078009

METHOD BLANK: 2231716 Matrix: Water
Associated Lab Samples: 60280078008, 60280078009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/15/18 00:14	
Ethylbenzene	ug/L	ND	1.0	09/15/18 00:14	
Toluene	ug/L	ND	1.0	09/15/18 00:14	
Xylene (Total)	ug/L	ND	3.0	09/15/18 00:14	
1,2-Dichloroethane-d4 (S)	%	98	80-117	09/15/18 00:14	
4-Bromofluorobenzene (S)	%	110	80-119	09/15/18 00:14	
Toluene-d8 (S)	%	105	80-115	09/15/18 00:14	

LABORATORY CONTROL SAMPLE: 2231717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.9	85	81-118	
Ethylbenzene	ug/L	20	17.9	90	80-118	
Toluene	ug/L	20	18.4	92	82-118	
Xylene (Total)	ug/L	60	51.5	86	81-120	
1,2-Dichloroethane-d4 (S)	%			97	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			104	80-115	

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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

QC Batch: 544091 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60280078004, 60280078006

METHOD BLANK: 2229368 Matrix: Water
Associated Lab Samples: 60280078004, 60280078006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	09/12/18 14:37	

LABORATORY CONTROL SAMPLE: 2229369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 2229370

Parameter	Units	60279828005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	888	895	1	10	

SAMPLE DUPLICATE: 2229371

Parameter	Units	60279996001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8780	8580	2	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: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

QC Batch: 544408 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60280078004, 60280078006

METHOD BLANK: 2230504 Matrix: Water
Associated Lab Samples: 60280078004, 60280078006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	09/13/18 14:46	

LABORATORY CONTROL SAMPLE: 2230505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2230506 2230507

Parameter	Units	60279789001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	2640	1000	1000	3830	3800	119	116	90-110	1	15	M1

MATRIX SPIKE SAMPLE: 2230508

Parameter	Units	60280078004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1400	500	2010	123	90-110	E,M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 544630

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

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 11146005 SAN JUAN 29-7 NO 37
Pace Project No.: 60280078

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60280078001	**GW-11146005-090518-CN-MW-1**	EPA 3010	543872	EPA 6010	543907
60280078002	**GW-11146005-090518-CN-MW-2**	EPA 3010	543872	EPA 6010	543907
60280078003	**GW-11146005-090518-CN-MW-3**	EPA 3010	543872	EPA 6010	543907
60280078004	**GW-11146005-090518-CN-MW-4**	EPA 3010	543872	EPA 6010	543907
60280078005	**GW-11146005-090518-CN-MW-5**	EPA 3010	543872	EPA 6010	543907
60280078006	**GW-11146005-090518-CN-MW-6**	EPA 3010	543872	EPA 6010	543907
60280078007	**GW-11146005-090518-CN-MW-7**	EPA 3010	543872	EPA 6010	543907
60280078008	**GW-11146005-090518-CN-MW-8R**	EPA 3010	543872	EPA 6010	543907
60280078008	**GW-11146005-090518-CN-MW-8R**	EPA 8260	544630		
60280078009	**TRIP BLANK**	EPA 8260	544630		
60280078004	**GW-11146005-090518-CN-MW-4**	SM 2540C	544091		
60280078006	**GW-11146005-090518-CN-MW-6**	SM 2540C	544091		
60280078004	**GW-11146005-090518-CN-MW-4**	EPA 300.0	544408		
60280078006	**GW-11146005-090518-CN-MW-6**	EPA 300.0	544408		

Jump

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60280078

60280078

Client Name: GHD

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

Tracking #: 7826 8003 8783 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: T298 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.6 **Corr. Factor** 0.0 **Corrected** 2.6

Date and initials of person examining contents: JD 9-8-18

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: WT	☐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	List sample IDs, volumes, lot #'s of preservative and the date/time added.
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: _____

Project Manager Review: Jann Church 9/10/18 Date:

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, New Mexico	Report To:	Jeff Walker	Attention:	
Address:	6121 indian School Rd	Copy To:		Company Name:	
	Albuquerque, NM 87110			Address:	
Email:	jeff.walker@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-884-0672 Fax:	Project Name:	11146005 San Juan 29-7 No 37	Pace Project Manager:	colleen.clyne@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	10540 line 1

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: 8260 BTEX	6010 Dissolved Mn-field filte	6010 Dissolved Se-field filte	300.0 Chloride	300.0 Sulfate	2540 TDS	Residual Chlorine (Y/N)	
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Y/N							60280078
1	GW-11146005-090518-CN-MW-1		G	9-5-18	1355														X					BP3S BP3D	001
2	GW-11146005-090518-CN_MW-2				1300															X					002
3	GW-11146005-090518-CN-MW-3				1205																				003
4	GW-11146005-090518-CN-MW-4				1603															X		X	X		BP2U, BP3U 004
5	GW-11146005-090518-CN-MW-5				1023																				005
6	GW-11146005-090518-CN-MW-6				1110															X		X	X		BP2U, BP3U 006
7	GW-11146005-090518-CN-MW-7				1440																				007
8	GW-11146005-090518-CN-MW-8R				1540														X						DG9H(3) 008
9																									DG9H(2) TB
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Charles Nalley	9-7-18	1352	PACE	9-8-18	0850	2.6	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Charles Nalley

SIGNATURE of SAMPLER: Charles Nalley DATE Signed: 9-7-18

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 31, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1054737
Samples Received:	12/19/2018
Project Number:	
Description:	San Juan 29-7 Unit 37
Site:	S.J. 29-7 UNIT 37
Report To:	Kurt Hoekstra and Jennifer Deal 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

MW1 L1054737-01 GW

Collected by: Kurt | Collected date/time: 12/14/18 11:30 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 09:55	WBD

MW2 L1054737-02 GW

Collected by: Kurt | Collected date/time: 12/14/18 14:00 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213748	1	12/21/18 07:36	12/22/18 08:53	WBD
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 09:58	WBD

MW3 L1054737-03 GW

Collected by: Kurt | Collected date/time: 12/14/18 12:20 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:01	WBD

MW4 L1054737-04 GW

Collected by: Kurt | Collected date/time: 12/14/18 13:35 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214864	1	12/21/18 18:28	12/21/18 18:43	MCG
Wet Chemistry by Method 9056A	WG1216021	100	12/27/18 05:18	12/27/18 05:18	ELN
Metals (ICP) by Method 6010B	WG1213748	1	12/21/18 07:36	12/22/18 09:04	WBD
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:04	WBD

MW5 L1054737-05 GW

Collected by: Kurt | Collected date/time: 12/14/18 10:35 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:06	WBD

MW6 L1054737-06 GW

Collected by: Kurt | Collected date/time: 12/14/18 12:50 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214864	1	12/21/18 18:28	12/21/18 18:43	MCG
Wet Chemistry by Method 9056A	WG1216021	20	12/27/18 05:34	12/27/18 05:34	ELN
Metals (ICP) by Method 6010B	WG1213748	1	12/21/18 07:36	12/22/18 09:07	WBD
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:09	WBD

MW7 L1054737-07 GW

Collected by: Kurt | Collected date/time: 12/14/18 15:15 | Received date/time: 12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:12	WBD

MW8R L1054737-08 GW

Collected by	Collected date/time	Received date/time
Kurt	12/14/18 14:05	12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1213797	1	12/20/18 15:12	12/21/18 10:15	WBD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1214804	1	12/22/18 05:14	12/22/18 05:14	JCP

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	1.80		0.0100	1	12/21/2018 09:55	WG1213797

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.0100	1	12/21/2018 09:58	WG1213797
Selenium	0.0742		0.0100	1	12/22/2018 08:53	WG1213748

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	1.76		0.0100	1	12/21/2018 10:01	WG1213797

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	2220		50.0	1	12/21/2018 18:43	WG1214864

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Sulfate	1130		500	100	12/27/2018 05:18	WG1216021

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.0100	1	12/21/2018 10:04	WG1213797
Selenium	0.0366		0.0100	1	12/22/2018 09:04	WG1213748

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.0100	1	12/21/2018 10:06	WG1213797

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	2060		50.0	1	12/21/2018 18:43	WG1214864

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Sulfate	1010		100	20	12/27/2018 05:34	WG1216021

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.0100	1	12/21/2018 10:09	WG1213797
Selenium	0.0391		0.0100	1	12/22/2018 09:07	WG1213748

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.0100	1	12/21/2018 10:12	WG1213797

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	0.238		0.0100	1	12/21/2018 10:15	WG1213797

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	12/22/2018 05:14	WG1214804
Toluene	ND		0.00100	1	12/22/2018 05:14	WG1214804
Ethylbenzene	ND		0.00100	1	12/22/2018 05:14	WG1214804
Total Xylenes	ND		0.00300	1	12/22/2018 05:14	WG1214804
(S) Toluene-d8	*108*		*80.0-120*		*12/22/2018 05:14*	WG1214804
(S) Dibromofluoromethane	*90.4*		*75.0-120*		*12/22/2018 05:14*	WG1214804
(S) a,a,a-Trifluorotoluene	*100*		*80.0-120*		*12/22/2018 05:14*	WG1214804
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*12/22/2018 05:14*	WG1214804

Method Blank (MB)

(MB) R3370820-1 12/21/18 18:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	20.0		2.82	10.0

L1054737-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1054737-06 12/21/18 18:43 • (DUP) R3370820-3 12/21/18 18:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2060	2130	1	3.34		5

Laboratory Control Sample (LCS)

(LCS) R3370820-2 12/21/18 18:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8700	98.9	85.0-115	

Method Blank (MB)

(MB) R3371468-1 12/26/18 16:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfate	U		0.0774	5.00

L1054744-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1054744-11 12/27/18 00:56 • (DUP) R3371468-9 12/27/18 01:42

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	314	317	20	0.912		15

L1054744-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1054744-02 12/26/18 17:41 • (DUP) R3371468-3 12/26/18 17:57

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	0.553	0.557	1	0.793	J	15

Laboratory Control Sample (LCS)

(LCS) R3371468-2 12/26/18 16:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40.0	39.5	98.6	80.0-120	

L1054744-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054744-02 12/26/18 17:41 • (MS) R3371468-4 12/26/18 18:12 • (MSD) R3371468-5 12/26/18 18:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50.0	0.553	50.2	50.2	99.3	99.2	1	80.0-120			0.0693	15

L1054744-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1054744-11 12/27/18 00:10 • (MS) R3371468-8 12/27/18 00:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	341	360	39.6	1	80.0-120	E V

Method Blank (MB)

(MB) R3370695-1 12/22/18 08:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Selenium	U		0.00740	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3370695-2 12/22/18 08:48 • (LCSD) R3370695-3 12/22/18 08:51

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Selenium	1.00	0.962	0.965	96.2	96.5	80.0-120			0.321	20

L1054737-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054737-02 12/22/18 08:53 • (MS) R3370695-5 12/22/18 08:58 • (MSD) R3370695-6 12/22/18 09:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Selenium	1.00	0.0742	1.10	1.09	102	102	1	75.0-125			0.0105	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3370518-1 12/21/18 09:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Manganese,Dissolved	U		0.00120	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3370518-2 12/21/18 09:22 • (LCSD) R3370518-3 12/21/18 09:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Manganese,Dissolved	1.00	0.968	0.953	96.8	95.3	80.0-120			1.61	20

L1054785-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054785-02 12/21/18 09:27 • (MS) R3370518-5 12/21/18 09:32 • (MSD) R3370518-6 12/21/18 09:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Manganese,Dissolved	1.00	ND	0.978	0.962	97.4	95.8	1	75.0-125			1.67	20

Method Blank (MB)

(MB) R3371024-3 12/21/18 22:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Ethylbenzene	U		0.000384	0.00100
Toluene	U		0.000412	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*108*			*80.0-120*
(S) Dibromofluoromethane	*94.0*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*101*			*80.0-120*
(S) 4-Bromofluorobenzene	*108*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3371024-1 12/21/18 21:18 • (LCSD) R3371024-2 12/21/18 21:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0239	0.0222	95.7	88.9	70.0-123			7.31	20
Ethylbenzene	0.0250	0.0294	0.0263	118	105	79.0-123			11.0	20
Toluene	0.0250	0.0265	0.0240	106	95.9	79.0-120			10.0	20
Xylenes, Total	0.0750	0.0884	0.0800	118	107	79.0-123			9.98	20
(S) Toluene-d8				*107*	*106*	*80.0-120*				
(S) Dibromofluoromethane				*95.5*	*97.6*	*75.0-120*				
(S) a,a,a-Trifluorotoluene				*98.4*	*99.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*101*	*101*	*77.0-126*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

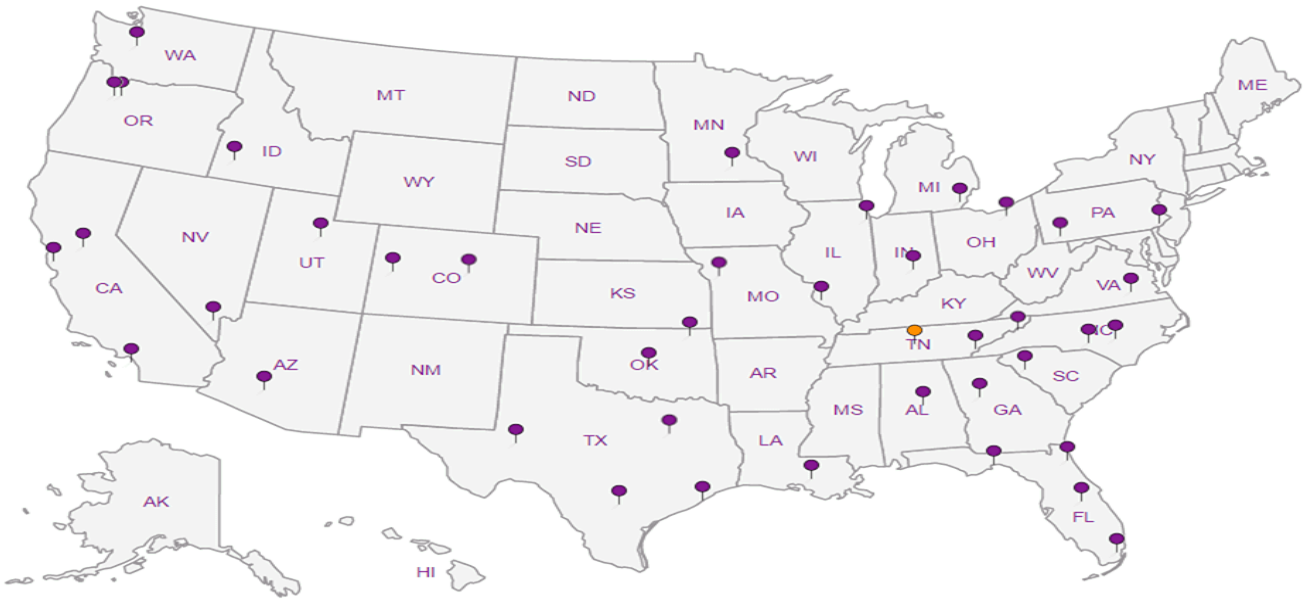
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HilCorp-Farmington, NM

382 Road 3100
Aztec, NM 87401

Billing Information:
PO Box 61529
Houston, TX 77208

Report to: Kurt Hoekstra

Email To: khoekstra@hilcorp.com ccardoza@hilcorp.com

Project Description:

City/State Collected:

Phone: 505-486-9543
Fax:

Client Project #

Lab Project # HILCORANM-HOEKSTRA

Collected by (print): Kurt

Site/Facility ID # S.J. 29-7 Unit 37

P.O. #

Collected by (signature): Kurt Hoekstra

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MnD:CP 250mlHDPE-NoPres Not Field Filtered	SEICP 250mlHDPE-HNO3	SULFATE, TDS 250mlHDPE-NoPres	V8260BTEX 40mlAmb-HCl	Remarks	Sample # (lab only)
MW1		GW	110.04	12-14	11:30	1	X					-01
MW2		GW	110.51	12-14	2:00	2	X	X				-02
MW3		GW	110.30	12-17	12:20	1	X					-03
MW4		GW	112.02	12-13	1:35	3	X	X	X			-04
MW5		GW	109.72	12-17	10:35	1	X					-05
MW6		GW	109.64	12-14	12:50	3	X	X	X			-06
MW7		GW	109.50	12-13	3:15	1	X					-07
MW8R		GW	109.37	12-17	2:05	4	X			X		-08
		GW				4	X			X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 4624 3005 1677

Relinquished by: (Signature) Kurt Hoekstra — Date: 12-18-18 — Time: 6:15 — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 0.2 +0.1 -0.3 °C — Bottles Received: 16

Date: 12/19/18 — Time: 9:15

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <0.5 mR/hr

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1054737
A213

Acctnum: HILCORANM
Template: T142963
Prelogin: P680922
TSR: 288 - Daphne Richards
PB: 11-14-18

Shipped Via: FedEX Ground