May 30, 2017 Reference No.074937

Ms. Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410

Dear Ms. Fields:

Re: ConocoPhillips Co. Wilmuth No. 1 (NMOCD Site No. 3RP-430)
Letter Report on Temporary Well Installation and Groundwater Sampling

GHD Services, Inc. (GHD), on behalf of ConocoPhillips Company is pleased to present this letter report detailing the installation and sampling of a temporary groundwater monitoring well, located upgradient of the Wilmuth No. 1 gas well site (hereinafter referred to as the "Site"). The Site is located off County Road 2800, just east of the Animas River, in San Juan County New Mexico

1. Introduction

The work described herein was detailed in a workplan submitted to the New Mexico Oil Conservation Division (NMOCD) on January 27, 2017and approved on February 13, 2017. The purpose of the installation and sampling of a temporary groundwater monitor well (TW) upgradient of the Site was to determine of concentrations of inorganic constituents occurring in onSite wells are at background levels. Based on the results of the upgradient groundwater quality sampling, a no further action determination could be based on background concentrations being equal to onSite groundwater quality.

2. Temporary Monitor Well Installation and Sampling

GHD and subcontractor Cascade Drilling mobilized to the Site on May 3, 2017 to drill and install a temporary groundwater monitor well. The well location was approximately 130 feet northeast of onSite well MW-4, in the Site landowner's irrigated field (Fig. 1). A boring was drilled in the afternoon of May 3 and, as prescribed by the NMOCD, left open to let the groundwater in this confined aquifer equilibrate overnight. The boring encountered silty clay soils that were observed to be wet at 6 ft below ground surface (ft bgs). A total depth of 20 feet was reached with indications that groundwater was coming into the boring. Water was detected at approximately 10 ft bgs and no further drilling was conducted May 3.

Soil samples were collected at 5 ft intervals by grab sample (first 5 ft of hand auguring) and by split-spoon sampler at 10 ft and 15 ft bgs. Soil samples were collected in laboratory provided glassware and submitted for analysis of manganese by EPA Method 6010. Soil sample results show concentrations of manganese well below published New Mexico Environment Department residential and industrial/occupational soil screening levels1 of 1,007 milligrams per kilogram (mg/kg) and 14,500 mg/kg,

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respectively. The TW boring manganese in soil sample results for the 5 ft, 10 ft and 15 ft bgs samples were 471 mg/kg, 463 mg/kg and 151 mg/kg, respectively. The complete laboratory report is included as an attachment to this letter report.

Depth to water in the open TW borehole was measured at 9.9 ft bgs the morning of May 4, 2017., It was agreed by onSite representatives of ConocoPhillips, NMOCD and GHD to construct a well in the open borehole at the previous day's total depth of 20 ft bgs. A monitor well was then constructed using 2 inch diameter schedule 40 PVC material. The well was screened from 9.9 ft to 19.9 ft bgs using 0.01 inch factory slotted screen. A 10/20 silica sand pack was placed in the annulus from 3 ft to 19.9 ft bgs. Hydrated 3/8 inch bentonite chips were placed above the sand pack to the surface. A boring log and well completion diagram is presented as an attachment to this report.

After installation, the monitor well was developed using a Monsoon pump. Field parameters including pH, temperature and conductivity were measured once turbidity began to clear up after the first 30 gallons of groundwater were pumped out. After 40 gallons, field parameters had stabilized to within 5 percent and NMOCD agreed a sample could be collected. A groundwater sampled was collected and analyzed for dissolved manganese, total dissolved solids (TDS) and sulfate. Existing Site monitor wells MW-1, MW-2, MW-3 and MW-4 were also sampled on May 4, 2017. Wells were gauged for depth to groundwater (see attached Figure 2 and Table 1) and then were hand bailed to purge the well bore volume. During purging, monitor wells were also monitored for field parameters pH, temperature and conductivity. The monitor wells were sampled and analyzed for dissolved manganese, TDS and conductivity. All groundwater samples were preserved on ice and shipped under chain-of custody documentation to Pace Analytical Laboratories in Lenexa, Kansas.

Immediately after sampling, TW-1 was plugged and abandoned in accordance with the New Mexico Office of the State Engineer's approved Plugging Plan of Operations using a cement/bentonite grout.

3. Groundwater Analytical Results

Dissolved manganese, TDS and sulfate concentrations in groundwater of the temporary well TW-1 were as high, or higher than those found in existing onsite monitor wells MW-1, MW-2, MW-3 and MW-4. Concentrations of analyzed constituents in existing Site monitor wells were consistent with historical results (see Table 2). Concentrations of TDS and sulfate in the groundwater of upgradient TW-1 were significantly higher than in onsite monitor wells. It is not immediately clear as to why, but these concentrations may be a by-product of fertilizer application in the field where TW-1 was located.

4. Conclusions/Recommendations

A temporary groundwater monitor well was drilled and sampled upgradient from the Site where onsite monitor wells are affected by above-standard concentrations of dissolved manganese. The NMOCD agreed that a one-time groundwater sample from the temporary monitor well could be used to make a

comparison between upgradient and onSite groundwater quality. If upgradient levels of dissolved manganese, TDS and sulfate were of similar concentration, an request for closure of Site monitor wells could be made.

Results of the May 4, 2017 sampling event show that concentrations of these inorganic constituents in the upgradient monitor well are indeed as high or higher than onSite concentrations. Therefore, GHD, recommends no further action be granted with respect to groundwater monitoring at the Site.

Sincerely,

GHD

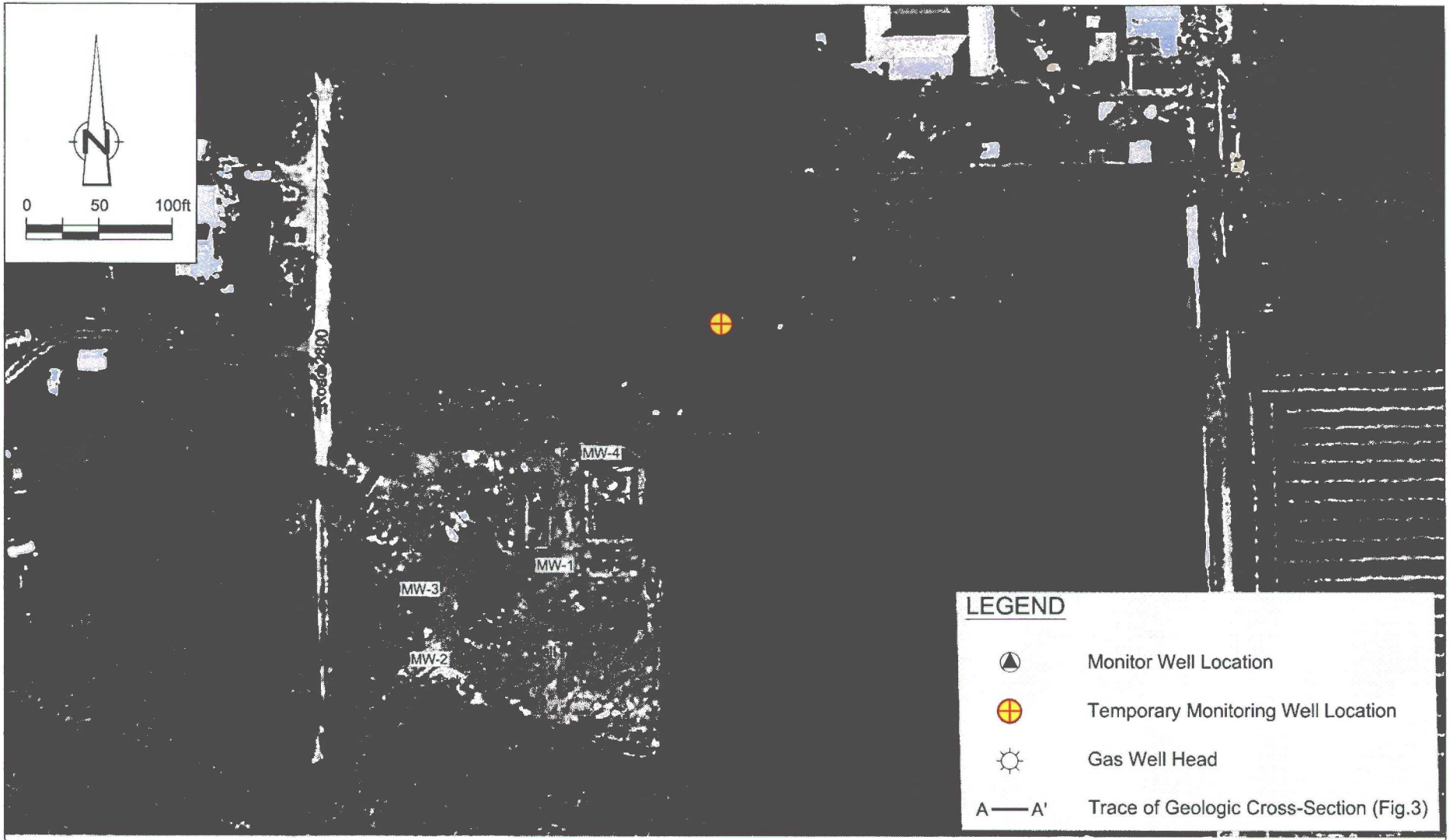
Jeff Walker
Senior Project Manager

Bernard Bockisch
New Mexico Operations Manager

JW/mc/01

Encl. (5)

- Figure 1-Site Plan
- Figure 2-May 2017Groundwater Potentiometric Surface Map
- Table 1- Monitoring Well Specifications and Groundwater Elevations
- Table 2-Groundwater Laboratory Analytical Results Summary
- Boring Log/Well Completion Diagram
- Pace Analytical Soil/Groundwater Analytical Report



ConocoPhillips high resolution aerial imagery 2008.

Figure 1

SITE PLAN
WILMUTH No. 1 NATURAL GAS WELL SITE
SECTION 26, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

074937-4AS00(008)GN-DL001 MAY 22, 2017

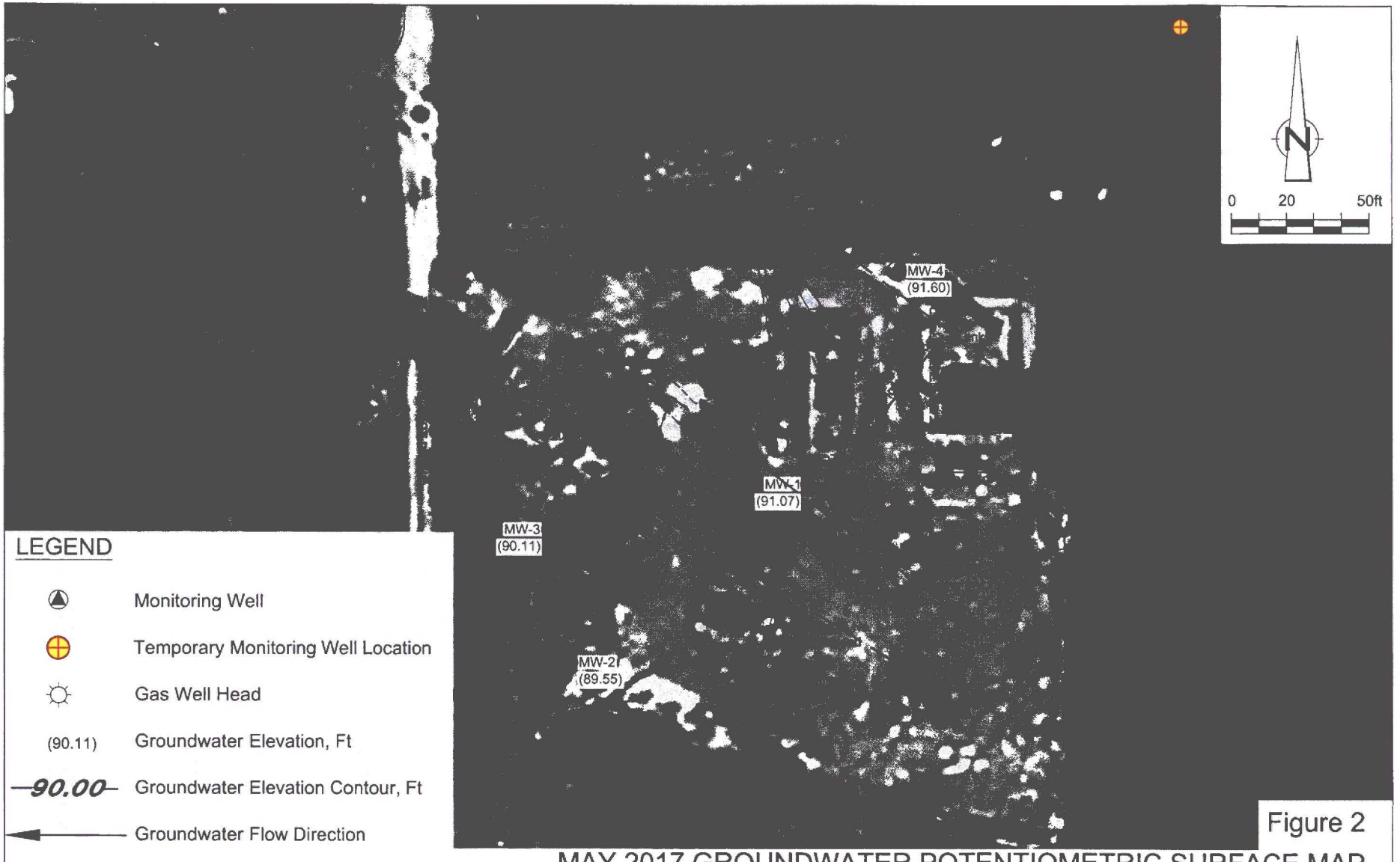


Figure 2

MAY 2017 GROUNDWATER POTENTIOMETRIC SURFACE MAP
WILMUTH No. 1 NATURAL GAS WELL PRODUCTION SITE
SECTION 26, T31-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

074937-4AS00(008)GN-DL002 MAY 23, 2017

Table 1

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

Well ID	Total Depth (feet bgs)	Top of Casing Elevation*	Screen Interval (feet bgs)	Date Measured	Depth to Groundwater (feet below TOC)	Relative Water Level*
MW-1	30	95.8	4.5 - 29.5	4/8/2010	5.21	90.59
				6/9/2010	1.94	93.86
				9/20/2010	1.51	94.29
				12/16/2010	3.31	92.49
				3/16/2011	4.98	90.82
				6/22/2011	2.45	93.35
				10/12/2011	0[(1)]	95.80[(1)]
				12/14/2011	2.62	93.18
				3/7/2012	4.36	91.44
				6/6/2012	1.11	94.69
				9/19/2012	0[(1)]	95.80[(1)]
				12/12/2012	2.56	93.24
				3/18/2013	4.52	91.28
				6/14/2013	0.90	94.90
				9/12/2013	0.21	95.59
				12/12/2013	2.70	93.10
				4/3/2014	4.28	91.52
				6/19/2014	0.88	94.92
				9/15/2014	0.40	95.40
				12/15/2014	3.20	92.60
				3/16/2015	5.05	90.75
				6/15/2015	2.22	93.58
				9/14/2015	0.18	95.62
				11/30/2015	3.21	92.59
				9/14/2016	0.30	95.50
				5/4/2017	4.73	91.07
MW-2	30	95.8	4.5 - 29.5	4/8/2010	6.48	89.32
				6/9/2010	3.68	92.12
				9/20/2010	3.28	92.52
				12/16/2010	4.83	90.97
				3/16/2011	6.31	89.49
				6/22/2011	4.11	91.69
				10/12/2011	1.88	93.92
				12/14/2011	4.25	91.55
				3/7/2012	5.67	90.13
				6/6/2012	3.05	92.75
				9/19/2012	2.05	93.75
				12/12/2012	4.31	91.49
				3/18/2013	5.96	89.84
				6/14/2013	2.96	92.84
				9/12/2013	2.41	93.39
				12/12/2013	4.43	91.37
				4/3/2014	5.84	89.96
				6/19/2014	2.88	92.92
				9/15/2014	2.50	93.30
				12/15/2014	4.99	90.81
				3/16/2015	6.60	89.20
				6/15/2015	4.13	91.67
				9/14/2015	2.45	93.35
				11/30/2015	5.00	90.80
				9/14/2016	2.54	93.26
				5/4/2017	6.25	89.55

Table 1

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

Well ID	Total Depth (feet bgs)	Top of Casing Elevation*	Screen Interval (feet bgs)	Date Measured	Depth to Groundwater (feet below TOC)	Relative Water Level*
MW-3	30	96.32	4.5 - 29.5	4/8/2010	6.37	89.95
				6/9/2010	3.39	92.93
				9/20/2010	3.02	93.30
				12/16/2010	4.65	91.67
				3/16/2011	6.20	90.12
				6/22/2011	3.91	92.41
				10/12/2011	1.55	94.77
				12/14/2011	4.04	92.28
				3/7/2012	5.59	90.73
				6/6/2012	2.75	93.57
				9/19/2012	1.71	94.61
				12/12/2012	4.09	92.23
				3/18/2013	5.89	90.43
				6/14/2013	2.72	93.60
				9/12/2013	2.13	94.19
				12/12/2013	4.27	92.05
				4/3/2014	5.73	90.59
				6/19/2014	2.26	94.06
				9/15/2014	2.35	93.97
				12/15/2014	4.88	91.44
				3/16/2015	6.56	89.76
				6/15/2015	3.95	92.37
				9/14/2015	2.21	94.11
				11/30/2015	4.87	91.45
				9/14/2016	2.28	94.04
				5/4/2017	6.21	90.11
MW-4	35	98.7	9.5 - 34.5	4/8/2010	9.68(2)	89.02
				6/9/2010	4.41	94.29
				9/20/2010	3.78	94.92
				12/16/2010	5.70	93.00
				3/16/2011	7.44	91.26
				6/22/2011	4.81	93.89
				10/12/2011	2.05	96.65
				12/14/2011	5.01	93.69
				3/7/2012	6.83	91.87
				6/6/2012	3.34	95.36
				9/19/2012	2.11	96.59
				12/12/2012	4.93	93.77
				3/18/2013	6.96	91.74
				6/14/2013	3.10	95.60
				9/12/2013	2.42	96.28
				12/12/2013	5.08	93.62
				4/3/2014	6.59	92.11
				6/19/2014	2.85	95.85
				9/15/2014	2.55	96.15
				12/15/2014	5.60	93.10
				3/16/2015	7.50	91.20
				6/15/2015	4.49	94.21
				9/14/2015	2.39	96.31
				11/30/2015	5.57	93.13
				9/14/2016	2.48	96.22
				5/4/2017	7.10	91.60

Notes:

TOC = Top of casing
bgs = Below ground surface
* = Elevation relative to an arbitrary reference elevation of 100 feet
(1) = Water flowing up and out of well casing.
(2) = Anomalous data point

Table 2

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

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Manganese (dissolved) (mg/L)	Total dissolved solids (TDS) (mg/L)
	NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**250**	**600**	**0.2**	**1000**
MW-1	MW-1	4/8/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	143	**879**	**3.03**	**1780**
	MW-1 Duplicate	4/8/2010	(Duplicate)	< 0.001	0.0011	< 0.001	0.001	--	--	--	--
	MW-1	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	26.9	375	**1.08**	**1190**
	MW-1 Duplicate	6/9/2010	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--
	MW-1	9/20/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	30.0	425	**0.933**	**1020**
	MW-1 Duplicate	9/20/2010	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--
	MW-1	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	381	**0.896**	**1010**
	MW-1 Duplicate	12/16/2010	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--
	MW-1	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	26.0	499	**2.36**	**1200**
	MW-1 Duplicate	3/16/2011	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--
	GW-74937-062211-PG-04	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	21.6	585	**2.32**	**1100**
	GW-74937-062211-PG-05	6/22/2011	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--
	GW-074937-101211-CM-009	10/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.04**	939
	GW-074937-101211-CM-010	10/12/2011	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--
	GW-074937-121411-CB-MW-1	12/14/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**0.972**	913
	GW-074937-121411-CB-DUP	12/14/2011	(Duplicate)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	--	--
	GW-074937-3712-CB-MW-1	3/7/2012	(orig)	--	--	--	--	--	--	**0.955**	980
	GW-074937-060612-CB-MW-1	6/6/2012	(orig)	--	--	--	--	--	--	**0.886**	851
	GW-074937-091912-JP-MW-1	9/19/2012	(orig)	--	--	--	--	--	--	**0.915**	853
	GW-074937-091912-JP-DUP	9/19/2012	(Duplicate)	--	--	--	--	--	--	**0.939**	--
	GW-074937-121212-CM-MW-1	12/12/2012	(orig)	--	--	--	--	--	--	**0.979**	927
	GW-074937-031813-CM-MW-1	3/18/2013	(orig)	--	--	--	--	--	--	**1.120**	**1070**
	074937-061413-JK-MW1	6/14/2013	(orig)	--	--	--	--	--	--	**0.930**	831
	GW-074937-091213-CM-MW-1	9/12/2013	(orig)	--	--	--	--	--	--	**0.921**	942
	GW-074937-091213-CM-DUP	9/12/2013	(Duplicate)	--	--	--	--	--	--	--	870
	GW-074937-121213-CM-MW-1	12/12/2013	(orig)	--	--	--	--	--	--	**1.10**	930
	GW-074937-040314-CM-MW-1	4/3/2014	(orig)	--	--	--	--	--	--	--	979
	GW-074937-040314-CK-MW-1	6/19/2014	(orig)	--	--	--	--	--	--	**0.96**	885
	GW-074937-091514-CB-MW-1	9/15/2014	(orig)	--	--	--	--	--	--	**1.04**	952
	GW-074937-121514-CM-MW-1	12/15/2014	(orig)	--	--	--	--	--	--	**1.03**	817
	GW-074937-031615-CM-MW-1	3/16/2015	(orig)	--	--	--	--	--	--	**1.39**	**1060**
	GW-074937-061515-CB-MW-1	6/15/2015	(orig)	--	--	--	--	--	--	**1.01**	772
	GW-074937-061515-CB-DUP	6/15/2015	(Duplicate)	--	--	--	--	--	--	**1.03**	--
	GW-074937-091415-CK-MW-1	9/14/2015	(orig)	--	--	--	--	--	--	**1.04**	903
	GW-074937-091415-CK-DUP	9/14/2015	(Duplicate)	--	--	--	--	--	--	**1.03**	851
	GW-074937-113015-CB-MW-1	11/30/2015	(orig)	--	--	--	--	--	--	**1.18**	900
	GW-074937-091316-CM-MW-1	9/13/2016	(orig)							**1.11**	906
	GW-074937-050417-MW1-JW	05/04/2017	(orig)						334	**0.905**	892

Table 2

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

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Manganese (dissolved) (mg/L)	Total dissolved solids (TDS) (mg/L)
	NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**250**	**600**	**0.2**	**1000**
MW-2	MW-2	4/8/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	27.7	533	**2.48**	**1120**
	MW-2	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	19.8	337	**1.66**	**1070**
	MW-2	9/20/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	20.4	304	**0.822**	**1130**
	MW-2	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	281	**1.37**	**1410**
	MW-2	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	20.1	280	**1.57**	858
	GW-74937-062211-PG-02	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	18.5	324	**1.51**	718
	GW-074937-101211-CM-007	10/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.49**	743
	GW-074937-121411-CB-MW-2	12/14/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.47**	812
	GW-074937-3712-CB-MW-2	3/7/2012	(orig)	--	--	--	--	--	--	**1.62**	857
	GW-074937-060612-CB-MW-2	6/6/2012	(orig)	--	--	--	--	--	--	**1.26**	688
	GW-074937-091912-JP-MW-2	9/19/2012	(orig)	--	--	--	--	--	--	**1.39**	736
	GW-074937-121212-CM-MW-2	12/12/2012	(orig)	--	--	--	--	--	--	**1.11**	709
	GW-074937-031813-CM-MW-2	3/18/2013	(orig)	--	--	--	--	--	--	**1.56**	804
	074937-061413-JK-MW2	6/14/2013	(orig)	--	--	--	--	--	--	**1.38**	699
	GW-074937-091213-CM-MW-2	9/12/2013	(orig)	--	--	--	--	--	--	**1.450**	760
	GW-074937-121213-CM-MW-2	12/12/2013	(orig)	--	--	--	--	--	--	**1.30**	747
	GW-074937-040314-CM-MW-2	4/3/2014	(orig)	--	--	--	--	--	--	--	819
	GW-074937-061914-CK-MW-2	6/19/2014	(orig)	--	--	--	--	--	--	**1.3**	825
	GW-074937-091514-CB-MW-2	9/15/2014	(orig)	--	--	--	--	--	--	**1.53**	817
	GW-074937-121514-CM-MW-2	12/15/2014	(orig)	--	--	--	--	--	--	**1.31**	778
	GW-074937-031615-CM-MW-2	3/16/2015	(orig)	--	--	--	--	--	--	**1.69**	856
	GW-074937-031615-CM-DUP	3/16/2015	(Duplicate)	--	--	--	--	--	--	**1.71**	831
	GW-074937-061515-CB-MW-2	6/15/2015	(orig)	--	--	--	--	--	--	**1.88**	793
	GW-074937-091415-CK-MW-2	9/14/2015	(orig)	--	--	--	--	--	--	**1.85**	876
	GW-074937-113015-CB-MW-2	11/30/2015	(orig)	--	--	--	--	--	--	**1.68**	796
	GW-074937-091316-CM-MW-2	9/13/2016	(orig)							**1.74**	857
	GW-074937-050417-MW2-JW	05/04/2017	(orig)						307	**1.38**	815

Table 2

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

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Manganese (dissolved) (mg/L)	Total dissolved solids (TDS) (mg/L)
	NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**250**	**600**	**0.2**	**1000**
MW-3	MW-3	4/8/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	19.2	259	**1.38**	930
	MW-3	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	18.5	241	**1.43**	769
	MW-3	9/20/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	20.3	271	**0.736**	830
	MW-3	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	265	**1.33**	**1200**
	MW-3	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	18.1	263	**1.57**	896
	GW-74937-062211-PG-01	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	19.2	324	**1.71**	726
	GW-074937-101211-CM-008	10/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.67**	716
	GW-074937-121411-CB-MW-3	12/14/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.56**	713
	GW-074937-3712-CB-MW-3	3/7/2012	(orig)	--	--	--	--	--	--	**1.69**	739
	GW-074937-060612-CB-MW-3	6/6/2012	(orig)	--	--	--	--	--	--	**1.74**	709
	GW-074937-091912-JP-MW-3	9/19/2012	(orig)	--	--	--	--	--	--	**1.60**	723
	GW-074937-121212-CM-MW-3	12/12/2012	(orig)	--	--	--	--	--	--	**1.57**	709
	GW-074937-121212-CM-DUP	12/12/2012	(Duplicate)	--	--	--	--	--	--	**--**	717
	GW-074937-031813-CM-MW-3	3/18/2013	(orig)	--	--	--	--	--	--	**1.58**	770
	GW-074937-031813-CM-DUP	3/18/2013	(Duplicate)	--	--	--	--	--	--	--	766
	074937-061413-JK-MW3	6/14/2013	(orig)	--	--	--	--	--	--	**1.64**	711
	GW-074937-091213-CM-MW-3	9/12/2013	(orig)	--	--	--	--	--	--	**1.650**	764
	GW-074937-121213-CM-MW-3	12/12/2013	(orig)	--	--	--	--	--	--	**1.50**	756
	GW-074937-040314-CM-MW-3	4/3/2014	(orig)	--	--	--	--	--	--	--	764
	GW-074937-040314-CM-DUP	4/3/2014	(Duplicate)	--	--	--	--	--	--	--	783
	GW-074937-061914-CK-MW-3	6/19/2014	(orig)	--	--	--	--	--	--	**1.5**	820
	GW-074937-091514-CB-MW-3	9/15/2014	(orig)	--	--	--	--	--	--	**1.79**	795
	GW-074937-121514-CM-MW-3	12/15/2014	(orig)	--	--	--	--	--	--	**1.82**	782
	GW-074937-121514-CM-DUP	12/15/2014	(Duplicate)	--	--	--	--	--	--	--	786
	GW-074937-031615-CM-MW-3	3/16/2015	(orig)	--	--	--	--	--	--	**1.83**	808
	GW-074937-061515-CB-MW-3	6/15/2015	(orig)	--	--	--	--	--	--	**1.90**	777
	GW-074937-091415-CK-MW-3	9/14/2015	(orig)	--	--	--	--	--	--	**1.98**	**1170**
	GW-074937-113015-CB-MW-3	11/30/2015	(orig)	--	--	--	--	--	--	**1.91**	793
	GW-074937-091316-CM-MW-3	9/13/2016	(orig)							**1.86**	847
	GW-074937-050417-MW3-JW	05/04/2017	(orig)						299	**1.44**	809

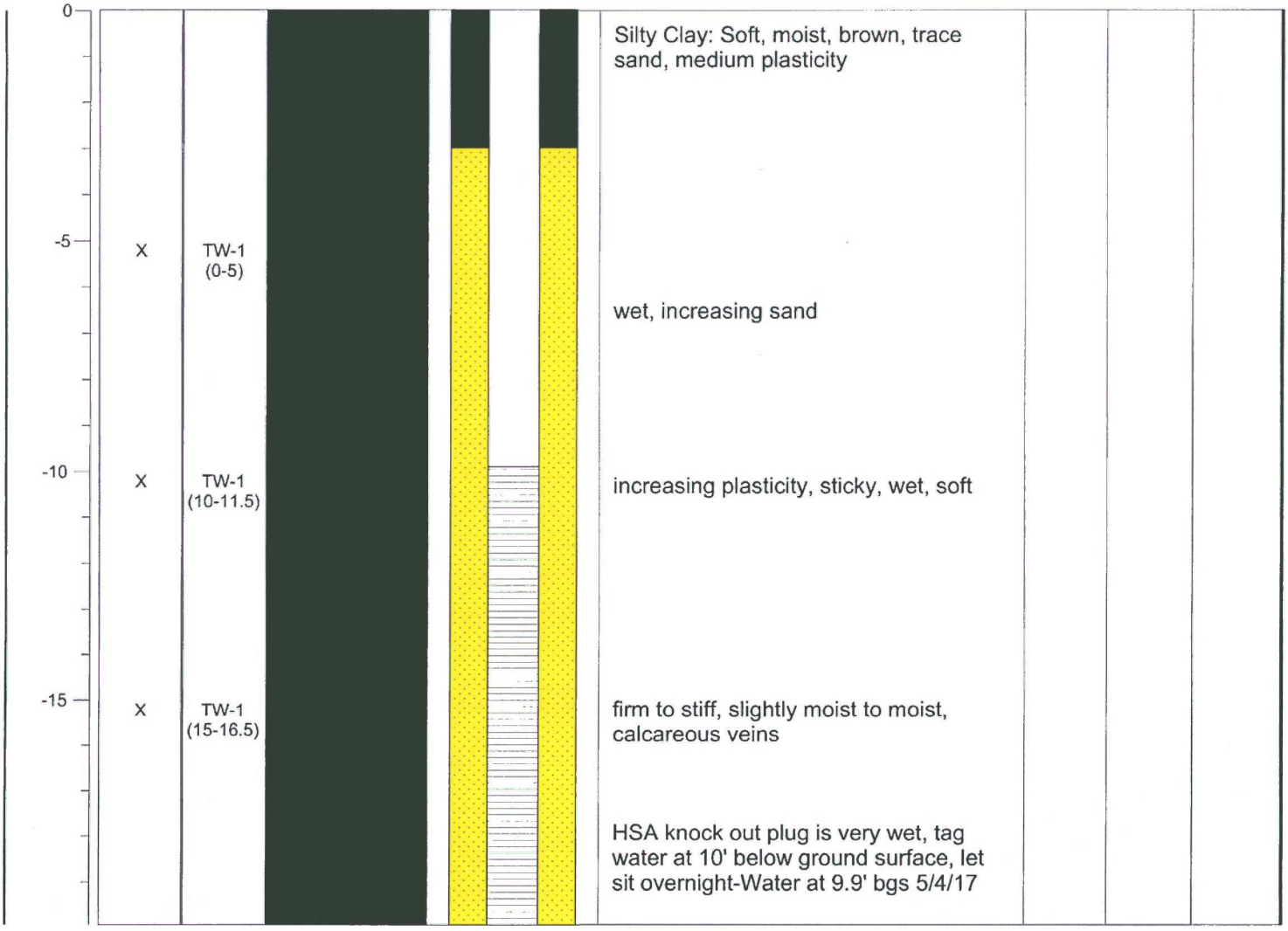
Table 2

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

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Manganese (dissolved) (mg/L)	Total dissolved solids (TDS) (mg/L)
	NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**250**	**600**	**0.2**	**1000**
MW-4	MW-4	4/8/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	40	**918**	**3.94**	**1900**
	MW-4	6/9/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	29.6	542	**3.44**	**1380**
	MW-4	9/20/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	22.4	445	**2.59**	**1160**
	MW-4	12/16/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	464	**2.85**	**1350**
	MW-4	3/16/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	20.6	385	**2.18**	970
	GW-74937-062211-PG-03	6/22/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	22.1	408	**2.31**	814
	GW-074937-101211-CM-006	10/12/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**2.13**	779
	GW-074937-121411-CB-MW-4	12/14/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	**1.94**	776
	GW-074937-3712-CB-MW-4	3/7/2012	(orig)	--	--	--	--	--	--	**1.70**	772
	GW-074937-060612-CB-MW-4	6/6/2012	(orig)	--	--	--	--	--	--	**1.46**	662
	GW-074937-091912-JP-MW-4	9/19/2012	(orig)	--	--	--	--	--	--	**1.90**	771
	GW-074937-121212-CM-MW-4	12/12/2012	(orig)	--	--	--	--	--	--	**1.42**	731
	GW-074937-031813-CM-MW-4	3/18/2013	(orig)	--	--	--	--	--	--	**1.54**	766
	074937-061413-JK-MW4	6/14/2013	(orig)	--	--	--	--	--	--	**1.74**	676
	GW-074937-091213-CM-MW-4	9/12/2013	(orig)	--	--	--	--	--	--	**1.810**	822
	GW-074937-121213-CM-MW-4	12/12/2013	(orig)	--	--	--	--	--	--	**1.20**	776
	GW-074937-121213-CM-DUP	12/12/2013	(Duplicate)	--	--	--	--	--	--	**1.20**	795
	GW-074937-040314-CM-MW-4	4/3/2014	(orig)	--	--	--	--	--	--	--	788
	GW-074937-061914-CK-MW-4	6/19/2014	(orig)	--	--	--	--	--	--	**1.6**	805
	GW-074937-091514-CB-MW-4	9/15/2014	(orig)	--	--	--	--	--	--	**1.82**	813
	GW-074937-121514-CM-MW-4	12/15/2014	(orig)	--	--	--	--	--	--	**1.82**	783
	GW-074937-031615-CM-MW-4	3/16/2015	(orig)	--	--	--	--	--	--	**1.70**	811
	GW-074937-061515-CB-MW-4	6/15/2015	(orig)	--	--	--	--	--	--	**2.16**	800
	GW-074937-091415-CK-MW-4	9/14/2015	(orig)	--	--	--	--	--	--	**2.03**	839
	GW-074937-113015-CB-MW-4	11/30/2015	(orig)	--	--	--	--	--	--	**1.91**	809
	GW-074937-113015-CB-DUP	11/30/2015	(Duplicate)	--	--	--	--	--	--	**1.82**	--
	GW-074937-091316-CM-MW-4	9/13/2016	(orig)	--	--	--	--	--	--	**2.01**	865
	GW-074937-091316-CM-MW-DUP	9/13/2016	(Duplicate)	--	--	--	--	--	--	**1.75**	
	GW-074937-050417-MW4-JW	05/04/2017	(orig)						304	**1.49**	825
TW	GW-074937-050417-TW-JW	05/04/2017	(orig)	--	--	--	--	--	**1350**	**1.86**	**2420**

Notes:
MW = monitoring well
NMWQCC = New Mexico Water Quality Control Commission
Constituents in **BOLD** are in excess of NMWQCC groundwater quality standards
mg/L = milligrams per liter (parts per million)
< 1.0 = Below laboratory detection limit of 1.0 mg/L
-- = not analyzed

PROJECT NAME: Wilmuth No. 1	SOIL BORING NO: TW-1
LOCATION: San Juan County, NM	DRILL TYPE: Hollow Stem Auger
FIELD LOGGED BY: Jeff Walker	CME-85
SURFACE ELEVATION (msl): 5689'	BORE HOLE DIAMETER: 7 7/8"
GROUNDWATER ELEVATION (msl): -9.9'	DRILLED BY: Cascade Drilling
REMARKS: Well: 2" PVC, 0.01" Slot Screen	DATE/TIME HOLE STARTED: 5/3/2017 @ 1415
20/20 Silica Sand, P&A after sampled	DATE/TIME HOLE COMPLETED: 5/04/2017 @ 1600
COORDINATES: 36.86529N, 107.96394W	



DEPTH (bgs) - ft	SAMPLE TO LAB	SAMPLE ID	STRATAGRAPHIC SEQUENCE	COMPLETION INFORMATION	CLASSIFICATION AND DESCRIPTION	TPH-GRO (mg/kg)	BTEX (mg/kg)	Chloride (mg/kg)
0					Silty Clay: Soft, moist, brown, trace sand, medium plasticity			
-5	X	TW-1 (0-5)			wet, increasing sand			
-10	X	TW-1 (10-11.5)			increasing plasticity, sticky, wet, soft			
-15	X	TW-1 (15-16.5)			firm to stiff, slightly moist to moist, calcareous veins			
					HSA knock out plug is very wet, tag water at 10' below ground surface, let sit overnight-Water at 9.9' bgs 5/4/17			

TD = 19.9 feet bgs

BORING LOG AND WELL COMPLETION FORM

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

May 16, 2017

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

RE: Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on May 06, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
(913)563-1409
Project Manager

Enclosures

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

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 15-016-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60243713001	S-074937-050317-TW@5'-JW	Solid	05/03/17 14:25	05/06/17 08:25
60243713002	S-074937-050317-TW@10'-JW	Solid	05/03/17 14:50	05/06/17 08:25
60243713003	S-074937-050317-TW@15'-JW	Solid	05/03/17 15:05	05/06/17 08:25
60243713004	W-074937-050417-TW-JW	Water	05/04/17 09:45	05/06/17 08:25
60243713005	W-074937-050417-MW1-JW	Water	05/04/17 14:35	05/06/17 08:25
60243713006	W-074937-050417-MW2-JW	Water	05/04/17 14:55	05/06/17 08:25
60243713007	W-074937-050417-MW3-JW	Water	05/04/17 15:15	05/06/17 08:25
60243713008	W-074937-050417-MW4-JW	Water	05/04/17 15:30	05/06/17 08:25

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SAMPLE ANALYTE COUNT

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60243713001	S-074937-050317-TW@5'-JW	EPA 6010	JGP	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
60243713002	S-074937-050317-TW@10'-JW	EPA 6010	JGP	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
60243713003	S-074937-050317-TW@15'-JW	EPA 6010	JGP	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
60243713004	W-074937-050417-TW-JW	EPA 6010	JGP	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 300.0	RAD	1	PASI-K
60243713005	W-074937-050417-MW1-JW	EPA 6010	JGP	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 300.0	RAD	1	PASI-K
60243713006	W-074937-050417-MW2-JW	EPA 6010	JGP	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 300.0	RAD	1	PASI-K
60243713007	W-074937-050417-MW3-JW	EPA 6010	JGP	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 300.0	RAD	1	PASI-K
60243713008	W-074937-050417-MW4-JW	EPA 6010	JGP	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 300.0	RAD	1	PASI-K

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PROJECT NARRATIVE

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Method: **EPA 6010**
Description: 6010 MET ICP Red. Interference
Client: GHD Services_COP NM
Date: May 16, 2017

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

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

Sample Preparation:
The samples were prepared in accordance with EPA 3050 with any exceptions noted below.

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

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

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

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

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

QC Batch: 476725

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60243625005

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

- MS (Lab ID: 1952049)
  - Manganese
- MSD (Lab ID: 1952050)
  - Manganese

Additional Comments:

Analyte Comments:

QC Batch: 476725

1e: Post Digestion Spike Performed - 90.3% Recovery

- MS (Lab ID: 1952049)
  - Manganese

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved (LF)
Client: GHD Services_COP NM
Date: May 16, 2017

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

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

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

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

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

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

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: GHD Services_COP NM
Date: May 16, 2017

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

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

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

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

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: May 16, 2017

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

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

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

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

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: S-074937-050317-TW@5'-JW **Lab ID: 60243713001** Collected: 05/03/17 14:25 Received: 05/06/17 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Manganese	**471**	mg/kg	0.58	1	05/12/17 17:15	05/15/17 14:27	7439-96-5	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**19.6**	%	0.50	1		05/15/17 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: S-074937-050317-TW@10'-JW **Lab ID: 60243713002** Collected: 05/03/17 14:50 Received: 05/06/17 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Manganese	**463**	mg/kg	0.61	1	05/12/17 17:15	05/15/17 14:31	7439-96-5	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**25.5**	%	0.50	1		05/15/17 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: S-074937-050317-TW@15'-JW **Lab ID: 60243713003** Collected: 05/03/17 15:05 Received: 05/06/17 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Manganese	**151**	mg/kg	0.41	1	05/12/17 17:15	05/15/17 14:43	7439-96-5	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**20.2**	%	0.50	1		05/15/17 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: W-074937-050417-TW-JW **Lab ID: 60243713004** Collected: 05/04/17 09:45 Received: 05/06/17 08:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1860**	ug/L	5.0	1	05/09/17 16:40	05/11/17 11:19	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**2420**	mg/L	5.0	1		05/10/17 10:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1350**	mg/L	100	100		05/10/17 18:25	14808-79-8	

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: W-074937-050417-MW1-JW **Lab ID: 60243713005** Collected: 05/04/17 14:35 Received: 05/06/17 08:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**905**	ug/L	5.0	1	05/09/17 16:40	05/11/17 11:33	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**892**	mg/L	5.0	1		05/10/17 10:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**334**	mg/L	25.0	25		05/10/17 18:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: W-074937-050417-MW2-JW **Lab ID: 60243713006** Collected: 05/04/17 14:55 Received: 05/06/17 08:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1380**	ug/L	5.0	1	05/09/17 16:40	05/11/17 11:37	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**815**	mg/L	5.0	1		05/10/17 10:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**307**	mg/L	25.0	25		05/10/17 18:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: W-074937-050417-MW3-JW **Lab ID: 60243713007** Collected: 05/04/17 15:15 Received: 05/06/17 08:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1440**	ug/L	5.0	1	05/09/17 16:40	05/11/17 11:41	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**809**	mg/L	5.0	1		05/10/17 10:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**299**	mg/L	25.0	25		05/10/17 19:09	14808-79-8	

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ANALYTICAL RESULTS

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

Sample: W-074937-050417-MW4-JW **Lab ID: 60243713008** Collected: 05/04/17 15:30 Received: 05/06/17 08:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**1490**	ug/L	5.0	1	05/09/17 16:40	05/11/17 11:52	7439-96-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**825**	mg/L	5.0	1		05/10/17 10:36		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**304**	mg/L	25.0	25		05/10/17 19:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

QC Batch: 476725 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 60243713001, 60243713002, 60243713003

METHOD BLANK: 1952047 Matrix: Solid
Associated Lab Samples: 60243713001, 60243713002, 60243713003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese	mg/kg	ND	0.50	05/15/17 14:02	

LABORATORY CONTROL SAMPLE: 1952048

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese	mg/kg	50	51.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1952049 1952050

Parameter	Units	60243625005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese	mg/kg	189	44.8	44.8	248	206	133	40	75-125	19	20	1e,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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QUALITY CONTROL DATA

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

QC Batch: 476137 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

METHOD BLANK: 1949666 Matrix: Water
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	05/11/17 11:08	

LABORATORY CONTROL SAMPLE: 1949667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	968	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1949668 1949669

Parameter	Units	60243713004 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	1860	1000	1000	2720	2720	86	86	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

QC Batch: 476817 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 60243713001, 60243713002, 60243713003

METHOD BLANK: 1952721 Matrix: Solid
Associated Lab Samples: 60243713001, 60243713002, 60243713003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	05/15/17 00:00	

SAMPLE DUPLICATE: 1952722

Parameter	Units	60243702001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.4	4.5	2	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

QC Batch: 476234 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

METHOD BLANK: 1949969 Matrix: Water
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	05/10/17 10:28	

LABORATORY CONTROL SAMPLE: 1949970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	986	99	80-120	

SAMPLE DUPLICATE: 1949971

Parameter	Units	60243695001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	891	876	2	10	

SAMPLE DUPLICATE: 1949972

Parameter	Units	60243713007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	809	821	1	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074937 WILMUTH COP
Pace Project No.: 60243713

QC Batch: 476200 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

METHOD BLANK: 1949876 Matrix: Water
Associated Lab Samples: 60243713004, 60243713005, 60243713006, 60243713007, 60243713008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	05/10/17 08:23	

LABORATORY CONTROL SAMPLE: 1949877

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1949878 1949879

Parameter	Units	60243835001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	425	1000	1000	1400	1400	98	98	80-120	0	15	

MATRIX SPIKE SAMPLE: 1950079

Parameter	Units	60243866001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	65.0	250	310	98	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: 074937 WILMUTH COP
Pace Project No.: 60243713

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

1e	Post Digestion Spike Performed - 90.3% Recovery
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: 074937 WILMUTH COP
Pace Project No.: 60243713

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60243713001	S-074937-050317-TW@5'-JW	EPA 3050	476725	EPA 6010	476864
60243713002	S-074937-050317-TW@10'-JW	EPA 3050	476725	EPA 6010	476864
60243713003	S-074937-050317-TW@15'-JW	EPA 3050	476725	EPA 6010	476864
60243713004	W-074937-050417-TW-JW	EPA 3010	476137	EPA 6010	476211
60243713005	W-074937-050417-MW1-JW	EPA 3010	476137	EPA 6010	476211
60243713006	W-074937-050417-MW2-JW	EPA 3010	476137	EPA 6010	476211
60243713007	W-074937-050417-MW3-JW	EPA 3010	476137	EPA 6010	476211
60243713008	W-074937-050417-MW4-JW	EPA 3010	476137	EPA 6010	476211
60243713001	S-074937-050317-TW@5'-JW	ASTM D2974	476817		
60243713002	S-074937-050317-TW@10'-JW	ASTM D2974	476817		
60243713003	S-074937-050317-TW@15'-JW	ASTM D2974	476817		
60243713004	W-074937-050417-TW-JW	SM 2540C	476234		
60243713005	W-074937-050417-MW1-JW	SM 2540C	476234		
60243713006	W-074937-050417-MW2-JW	SM 2540C	476234		
60243713007	W-074937-050417-MW3-JW	SM 2540C	476234		
60243713008	W-074937-050417-MW4-JW	SM 2540C	476234		
60243713004	W-074937-050417-TW-JW	EPA 300.0	476200		
60243713005	W-074937-050417-MW1-JW	EPA 300.0	476200		
60243713006	W-074937-050417-MW2-JW	EPA 300.0	476200		
60243713007	W-074937-050417-MW3-JW	EPA 300.0	476200		
60243713008	W-074937-050417-MW4-JW	EPA 300.0	476200		

Pace Analytical
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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60243713

60243713

Client Name: GHD COP

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

Tracking #: 7790 7961 8242 Pace Shipping Label Used? Yes ☐ No ☐

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

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☐

Thermometer Used: CF +1.5 T-266 / CF +0.2 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 2.4 Corr. Factor CF +1.5 CF +0.2 **Corrected** 2.6

Date and initials of person examining contents: JB 5/8/17

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: SL 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	
Cyanide water sample checks: ☒ N/A Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State: NM	☐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: _____ Date: 5/8/17

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

Start:	Start:
End:	End:
Temp:	Temp:

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Jeffrey Walker	Attention:	
Address:	6121 Indian School Rd NE	Copy To:		Company Name:	
	Albuquerque, NM 87110			Address:	
Email:	jeff.walker@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-377-3920 Fax:	Project Name:	074937 Wilmuth COP	Pace Project Manager:	alice.spiller@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8644, Line 21 WT, Line 35 SL

Regulatory Agency	
State / Location	NM

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dissolved Mn - lab filtered	Total Dissolved Solids	300.0 Sulfate	6010 Mn	Residual Chlorine (Y/N)	60243713
1	S-074937-050317-TW25'-JW	S	G	5/3/17	1425	—	—		2	X											X			2 WGFU 01
2	S-074937-050317-TW10'-JW	S	G	5/3/17	1450	—	—		2	X											X			02
3	S-074937-050317-TW15'-JW	S	G	5/3/17	1505	—	—		2	X											X			03
4																								-
5	W-074937-050417-TW-JW	W	G	5/4/17	0945	—	—		1	X									X	X	X			BPZH 04
6	W-074937-050417-MW1-JW				1435	—	—		1	X									X	X	X			05
7	W-074937-050417-MW2-JW				1455	—	—		1	X									X	X	X			06
8	W-074937-050417-MW3-JW				1515	—	—		1	X									X	X	X			07
9	W-074937-050417-MW4-JW				1530	—	—		1	X									X	X	X			08
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Water samples not field filtered Please lab filter!	Jeff Walker/GHD	5/5/17	1145		5/6/17	0825	2.6	Y	Y	Y

SAMPLER NAME AND SIGNATURE						
PRINT Name of SAMPLER:	Jeff Walker		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
SIGNATURE of SAMPLER:		DATE Signed: 5/5/17				

Transmittal

Date: May 30, 2017 Reference No.: 074937

To: Ms. Vanessa Fields, Environmental Specialist
Oil Conservation Division-Energy, Minerals & Natural Resources
1000 East Brazos
Aztec, NM 87410

Subject: 3RP-430 Wilmuth No. 1 Temp Well Installation and Sampling Report

No. of Copies	Description/Title	Drawing No./ Document Ref.	Issue
1	Monitor Well Installation and Sampling Report		

Issued for: Your information ☐ As requested ☐ Construction ☐ Quotation
Your approval/comments ☐ Returned to you ☐ For re-submission

Sent by: X Overnight courier ☐ Same day courier ☐ Mailed under separate cover ☐ Mail enclosed
☐ Other: _____

Remarks:

As requested

Copy to: Gwen Frost, COP

Completed by: Jeff Walker [Please Print] Signed: _____

Filing: Correspondence File

OIL CONS. DIV DIST. 3
MAY 31 2017

GHD Services, Inc.
6121 Indian School Dr., Suite 200, Albuquerque, NM 87110
T 505 884 0672 F 505 884 4932 W www.ghd.com