J. Brady Crouch
ConocoPhillips Company
Risk Management & Remediation
Program Manager

600 N. Dairy Ashford
EC3-06-W056
Houston, TX 77079
Phone: 832-486-3016

ConocoPhillips

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

March 21, 2017

Re: NMOCD Case No. 3R-084, 2016 Annual Groundwater Monitoring and Remediation Report

Dear Mr. Bayliss:

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

Please let me know if you have any questions.

Sincerely,

Joseph B. Crouch

J. Brady Crouch

Enc

2016 Annual Groundwater Monitoring Report

ConocoPhillips Farmington B Com No. 1E
San Juan County, New Mexico
API# 30-045-24774
NMOCD# 3R-084

ConocoPhillips Company

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

074938| Report No 7 | March 21, 2017

Table of Contents

Figure Index

Table Index

Appendix Index

1. Introduction

This report presents the results of the annual groundwater monitoring and in situ chemical oxidation (ISCO) events completed by GHD Services, Inc. (GHD) at the Farmington B Com No. 1E site (Site). The Site is located on private property near the corner of East Murray Drive and South Carlton Avenue in southeast Farmington, New Mexico. Geographical coordinates for the Site are 36.721137° North and 108.190501° West. The Site consists of a natural gas well and associated equipment. The location and general features of the Site are presented as Figures 1 and 2, respectively. A generalized geological cross section of the Site is included as Figure 3.

1.1 Background

Conoco Inc., predecessor to ConocoPhillips Company (ConocoPhillips), owned the property and operated the gas well between July 1991 and January 1997. Merrion Oil & Gas Company is the current property owner and well operator. A Phase II Environmental Site Assessment associated with the property transfer was conducted by On Site Technologies, Limited (On Site) in March 1997. Soil hydrocarbon impacts were confirmed north of a production storage tank and west of a separator/dehydrator pit (Figure 2). Impacts were described by On Site as limited to a former unlined pit area with hydrocarbon migration primarily occurring vertically through the soil profile due to the porous and permeable subsurface soils. Lateral migration was considered minimal. Soil excavation of the two impacted areas occurred in September 1997. A total of 906 cubic yards of impacted soil were removed from the two excavation areas. Of the 906 cubic yards, 328 were transported offsite and 578 were screened and determined to be suitable for backfill and placed back into the excavated areas along with imported clean fill. During backfill activities, approximately 10 gallons of liquid fertilizer was sprayed into both excavations to enhance in situ degradation of residual hydrocarbons.

Groundwater monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 were installed at the Site in February and August 1998 under the supervision of On Site. During 1998 and 1999, results from groundwater samples collected from MW 2 through MW 6 did not have benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in excess of New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards. On Site then requested that groundwater quality monitoring in wells MW 2 through MW 6 be discontinued. The request was approved by the New Mexico Energy, Minerals, and Natural Resources Department in a letter to Ms. Shirley Ebert of Conoco Inc.

Although monitoring wells MW-2 through MW-6 showed no hydrocarbon impacts during 1998 and 1999, light non aqueous phase liquid (LNAPL) had been observed in monitoring well MW-1 since its installation and recovery efforts occurred. Souder Miller and Associates (SMA) placed active and passive skimmers in MW-1 in May 2004.

The passive skimmer collected a small amount of LNAPL; the active skimmer did not collect any LNAPL. SMA determined that an active skimmer was not a viable method of LNAPL recovery in MW-1 and proposed passive skimming or periodic hand bailing.

Tetra Tech, Inc. (Tetra Tech) began groundwater quality monitoring at the Site in May 2005. Tetra Tech monitored MW-1 and MW-6, which is located down gradient of MW 1. Quarterly groundwater pumping events were conducted at MW 1 from October 2004 to March 2008. Pumping events were completed using a vacuum truck.

On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to GHD of Albuquerque, NM. Quarterly groundwater sampling of MW-1 and MW-6 was continued by GHD. After 12 consecutive quarters of sampling with BTEX constituents below NMWQCC standards, BTEX analysis was discontinued following the December 2011 sampling event and annual sampling for dissolved iron and dissolved manganese only, the two remaining constituents of concern above standards, was initiated.

Two injection wells, TW-1 and TW-2, were drilled and installed east and west of monitor well MW-1 to aid in in-situ chemical oxidation (ISCO) injections. A catalyzed sodium persulfate was injected into these wells and into MW-1 in November, 2014 and again in March, 2015, to address elevated dissolved manganese and iron in groundwater. A summary of the Farmington B Com No. 1E Site history is presented in Table 1.

2. In Situ Chemical Oxidation Event

GHD injected approximately 8,920 gallons of catalyzed sodium persulfate solution in TW-1, TW-2 and MW-1 in October of 2016. This was the third ISCO injection event for the Site. Proportionally more of the solution was injected into Site groundwater than during the first two ISCO events to have a greater effect on metals contaminants as concentrations had rebounded since the last injection event in 2015. Results of the scheduled March 2017 quarterly groundwater monitor will be a first assessment of the effectiveness of the third ISCO event. Results will be used to plan potential additional ISCO injection in Site groundwater.

3. Groundwater Monitoring Summary

Quarterly groundwater sampling was conducted by GHD on March 28, June 22, September 7 and November 28 of 2016. Groundwater elevation measurements were recorded for monitoring wells MW-1 through MW-6 using an oil/water interface probe and are presented in Table 2. Based on elevation measurements, the groundwater gradient during 2016 ranged between 0.0064 feet per foot (ft/ft) and 0.0067 ft/ft to the west southwest. These data are consistent with historical records at this Site. An irrigation canal is located immediately south of the Site, comprising a portion of its southern boundary. The Animas River is approximately ¾ miles northwest of the Site and flows west. Flow in both of these surface water features likely affects seasonal groundwater elevations and flow direction as measured in Site monitoring wells. Groundwater potentiometric surface maps are presented as Figures 3 through 6.

3.1 Groundwater Monitoring Methodology

All Site monitoring wells (MW-1 through MW-6) were sampled during September 2016. Only monitoring wells MW-3, MW-4, MW-5 and MW-6 were sampled during November 2016. Prior to

sample collection, wells were purged of at least three well volumes with a dedicated polyethylene 1.5 inch disposable bailer. During purging, field parameters including pH, conductivity, dissolved oxygen, temperature and oxidation/reduction potential were measured periodically and recorded on field sampling forms. Field parameters are summarized in Table 3. Collected groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Pace Analytical Services, Inc. of Lenexa, Kansas. The samples were analyzed for the presence of dissolved iron and manganese according to EPA Method 6010.

3.2 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. Groundwater concentrations above NMWQCC standards during the 2016 sampling events are discussed below:

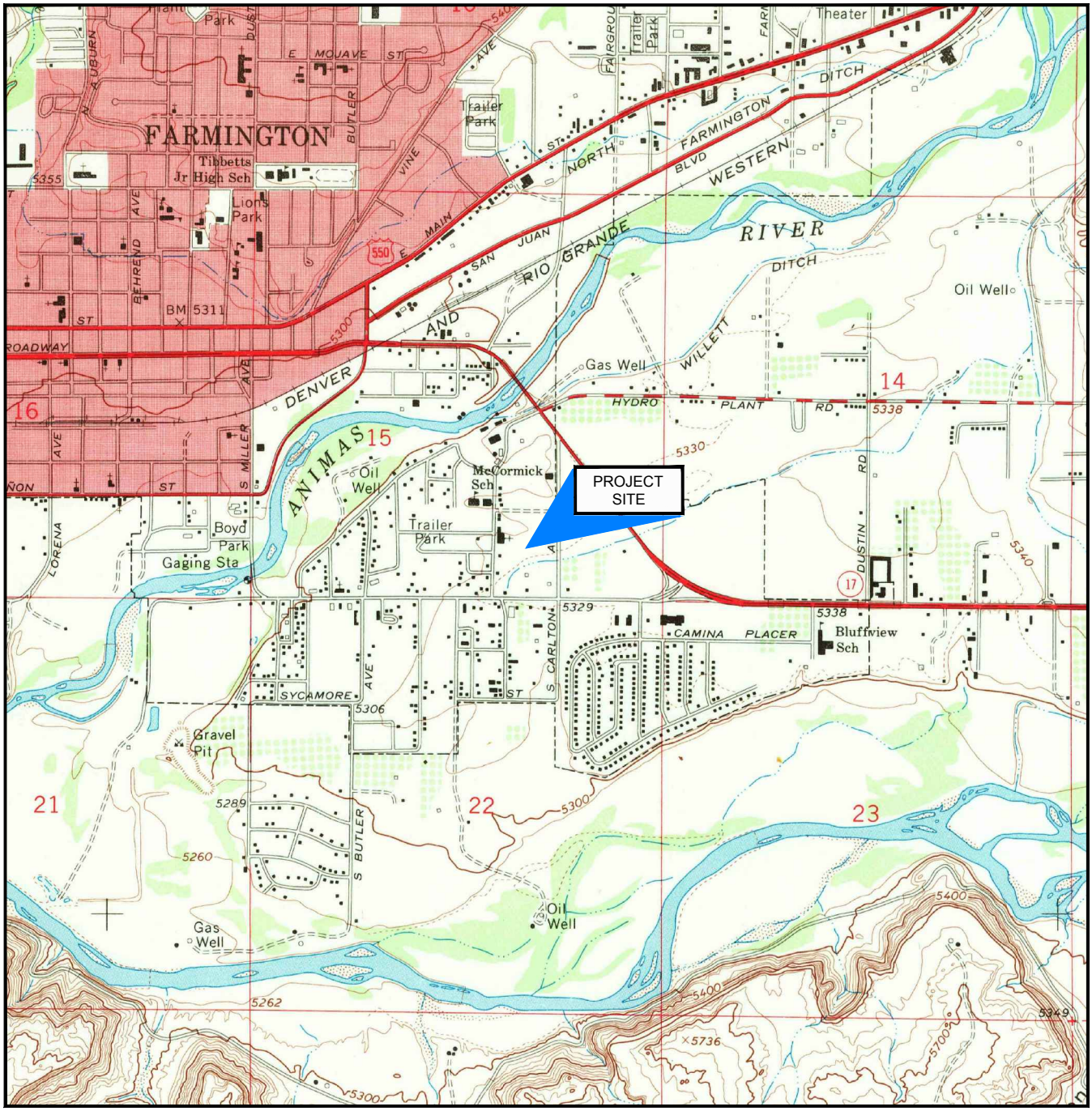
- Dissolved Manganese
  - The groundwater sample collected from monitoring well MW-1 (1.77 mg/L) exceeded the 0.2 mg/L standard for dissolved manganese during all of 2016. Concentrations of dissolved manganese in MW-1 had remained above NMWQCC standard following the September, 2016 ISCO injection events.
- Dissolved Iron
  - Groundwater collected from monitoring wells MW-1 and MW-6 were below the NMWQCC standard during 2016 sampling events. Concentrations of dissolved iron have remained below the standard since the November 2014 ISCO injection.
- Sulfate
  - Groundwater collected from monitoring wells MW-1 and MW-6 exceeded the standard of 600 mg/L during 2016 sampling events. The concentration collected from monitor well MW-6 in November was anomalously high and is likely influenced by the October injection of the catalyzed sodium persulfate solution.

Laboratory analytical results are summarized in Table 4. Laboratory analytical reports for 2016 groundwater monitoring are included in Appendix A.

4. Conclusions and Recommendations

An October 2016 ISCO injection event introduced 8,920 gallons of a 15% catalyzed sodium persulfate solution into temporary wells TW-1 and TW-2 and into MW-1. The treatment was the third ISCO injection designed to address elevated dissolved iron and manganese in Site groundwater. Additional ISCO treatments and the continuation of quarterly monitoring of Site groundwater is recommended. The next groundwater monitoring event is scheduled for March 2017.

Figures



SOURCE: USGS 7.5 MINUTE QUAD
"FARMINGTON, NEW MEXICO"

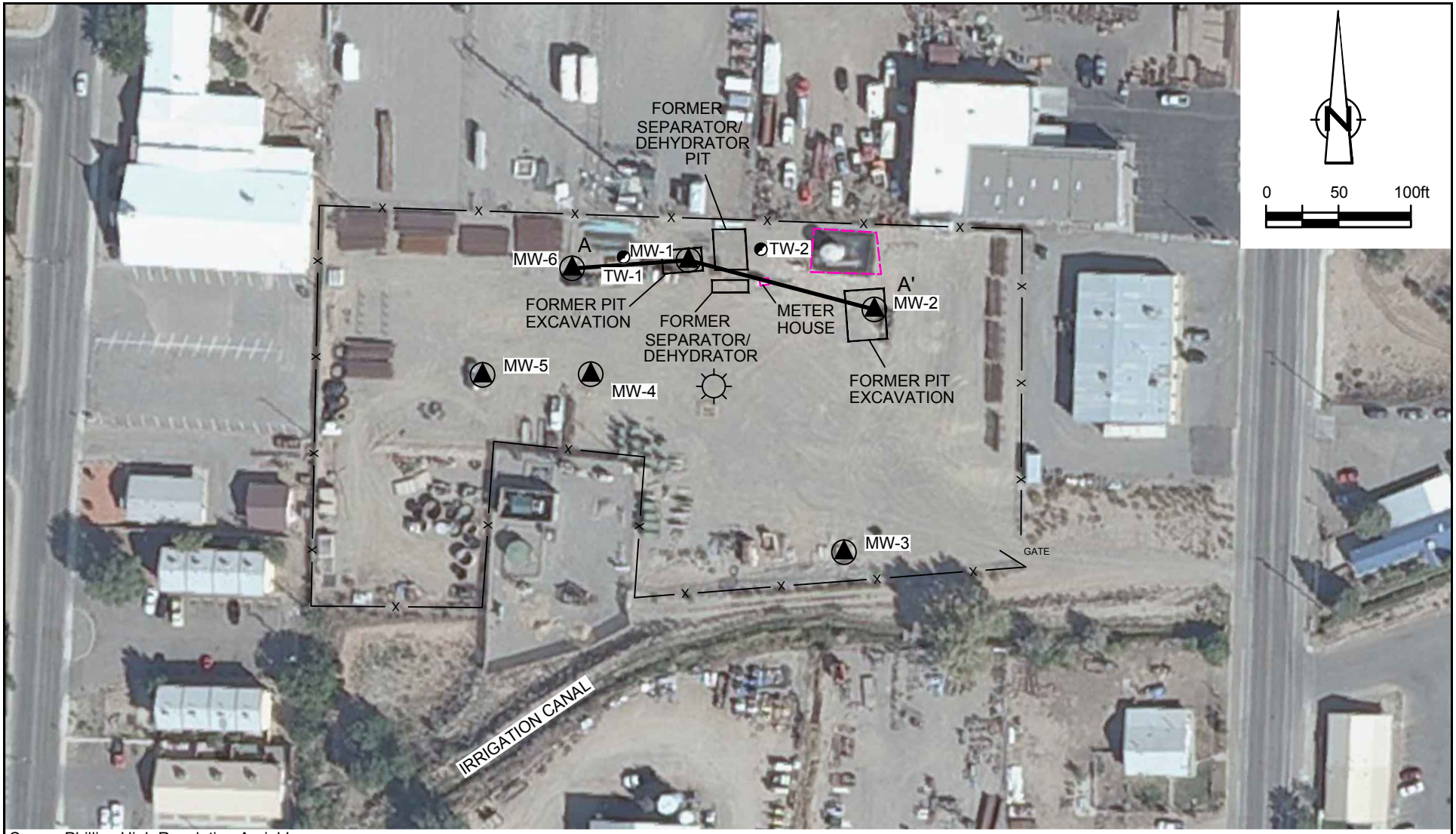
N

0 1000 2000ft

GHD

Figure 1

SITE VICINITY MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



ConocoPhillips High Resolution Aerial Imagery

LEGEND

- WELLHEAD
- MONITORING WELL
- TEMPORARY INJECTION WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT

Figure 2

SITE PLAN
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company

074938-95(007)GN-DL002_SD JUN 24, 2016

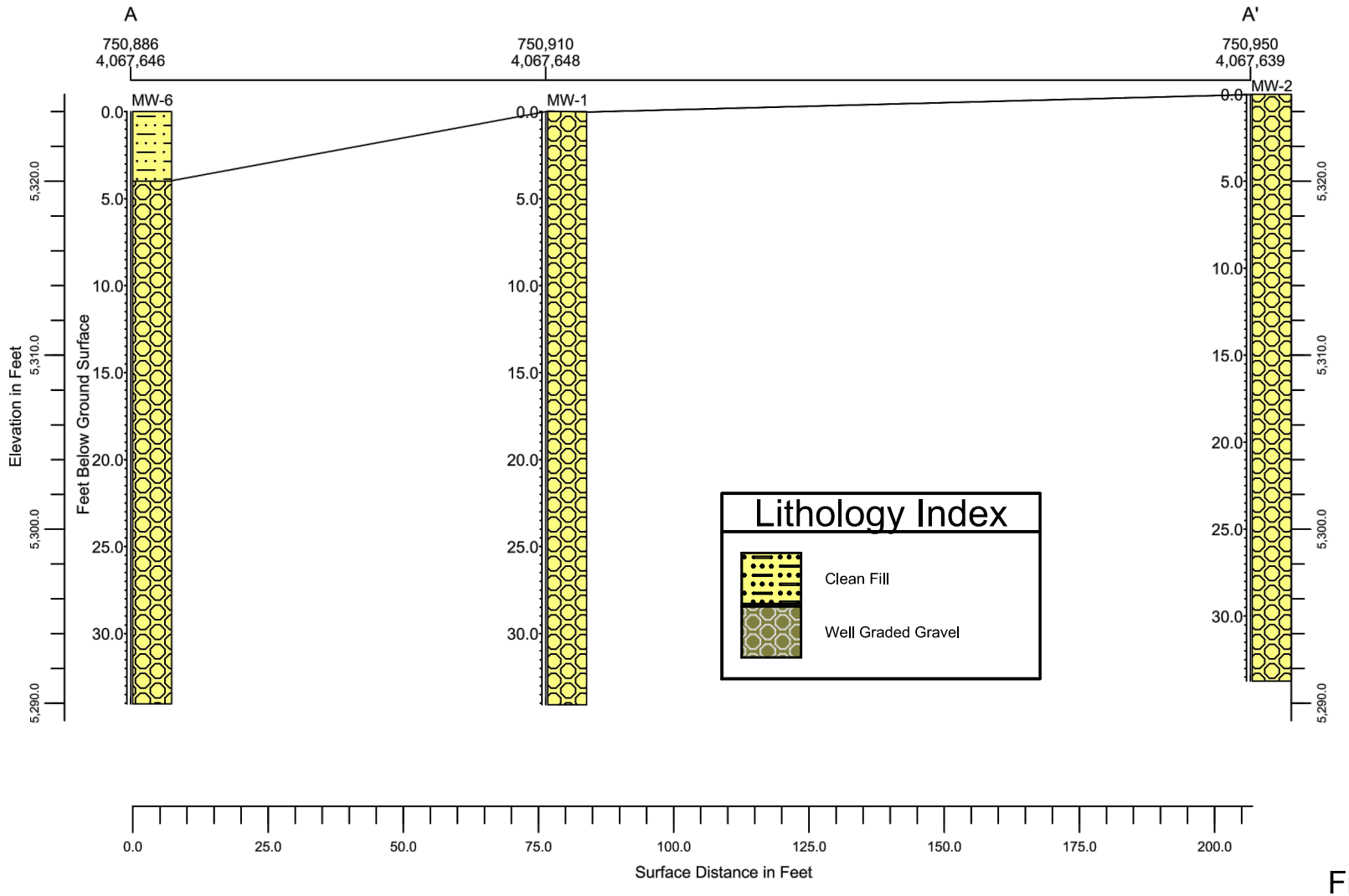
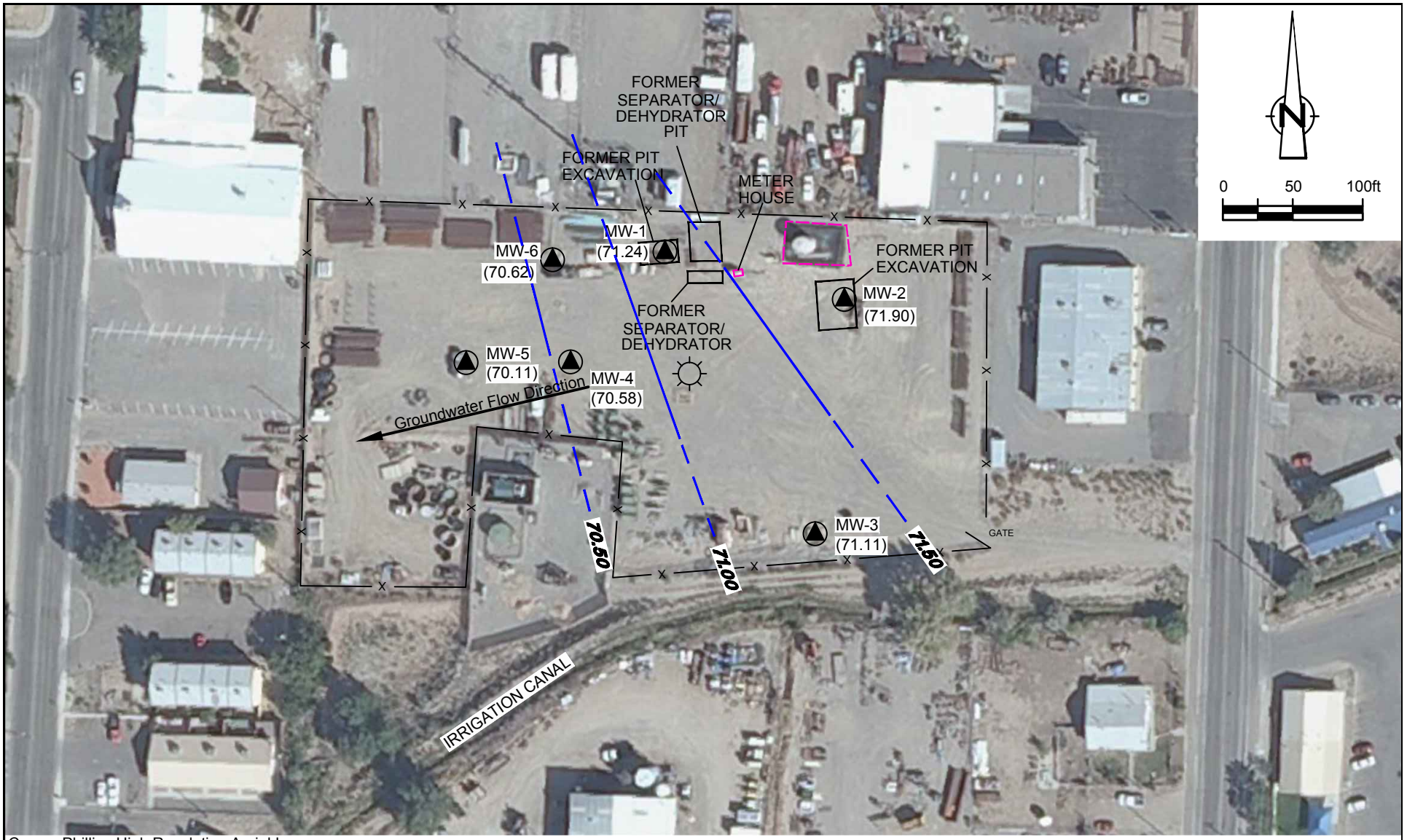


Figure 3

GENERALIZED GEOLOGIC CROSS SECTION
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



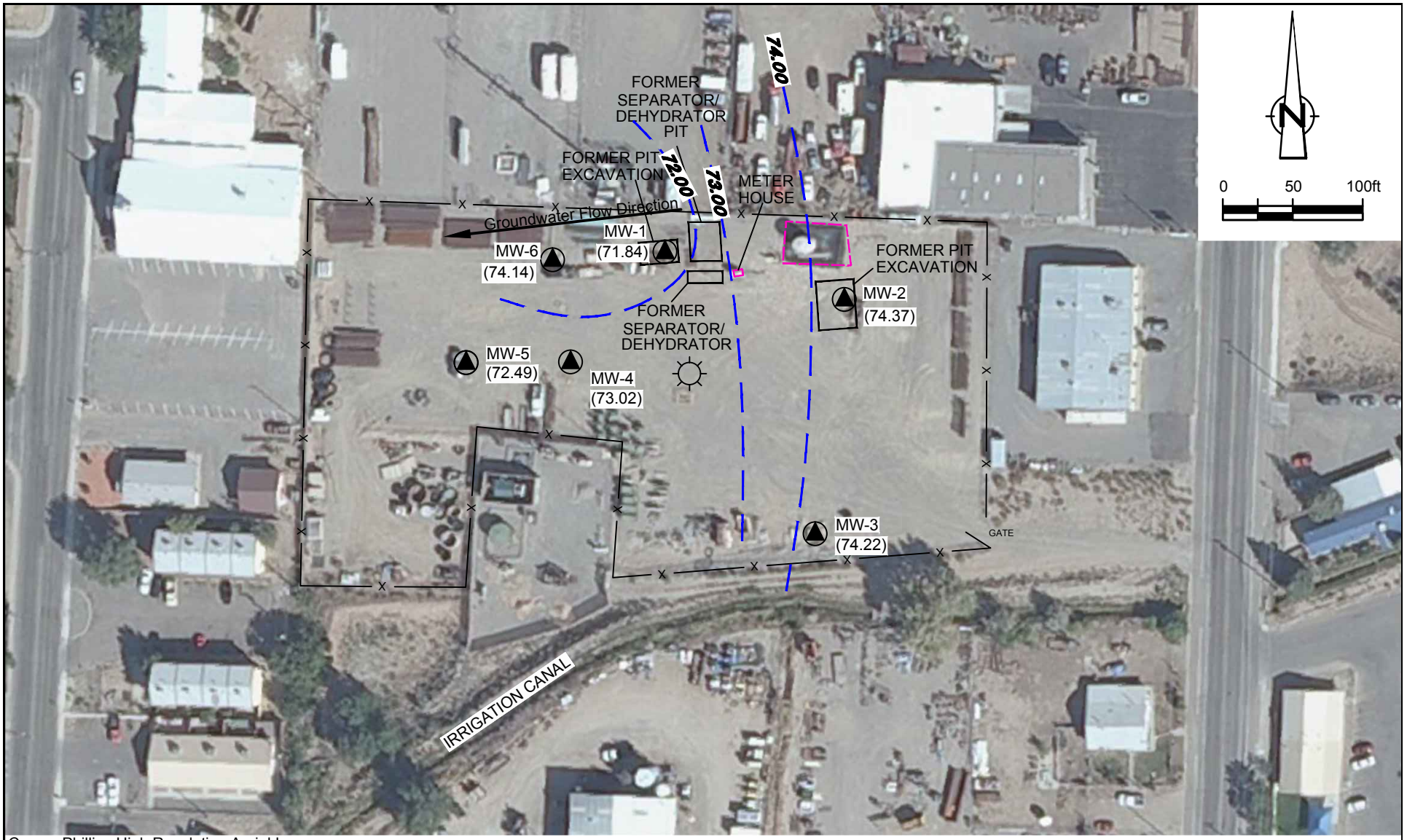
ConocoPhillips High Resolution Aerial Imagery

LEGEND

- NATURAL GAS WELLHEAD
- MONITORING WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT
- (70.11) GROUNDWATER ELEVATION, Ft
- 75.0 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

Figure 4

MARCH 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



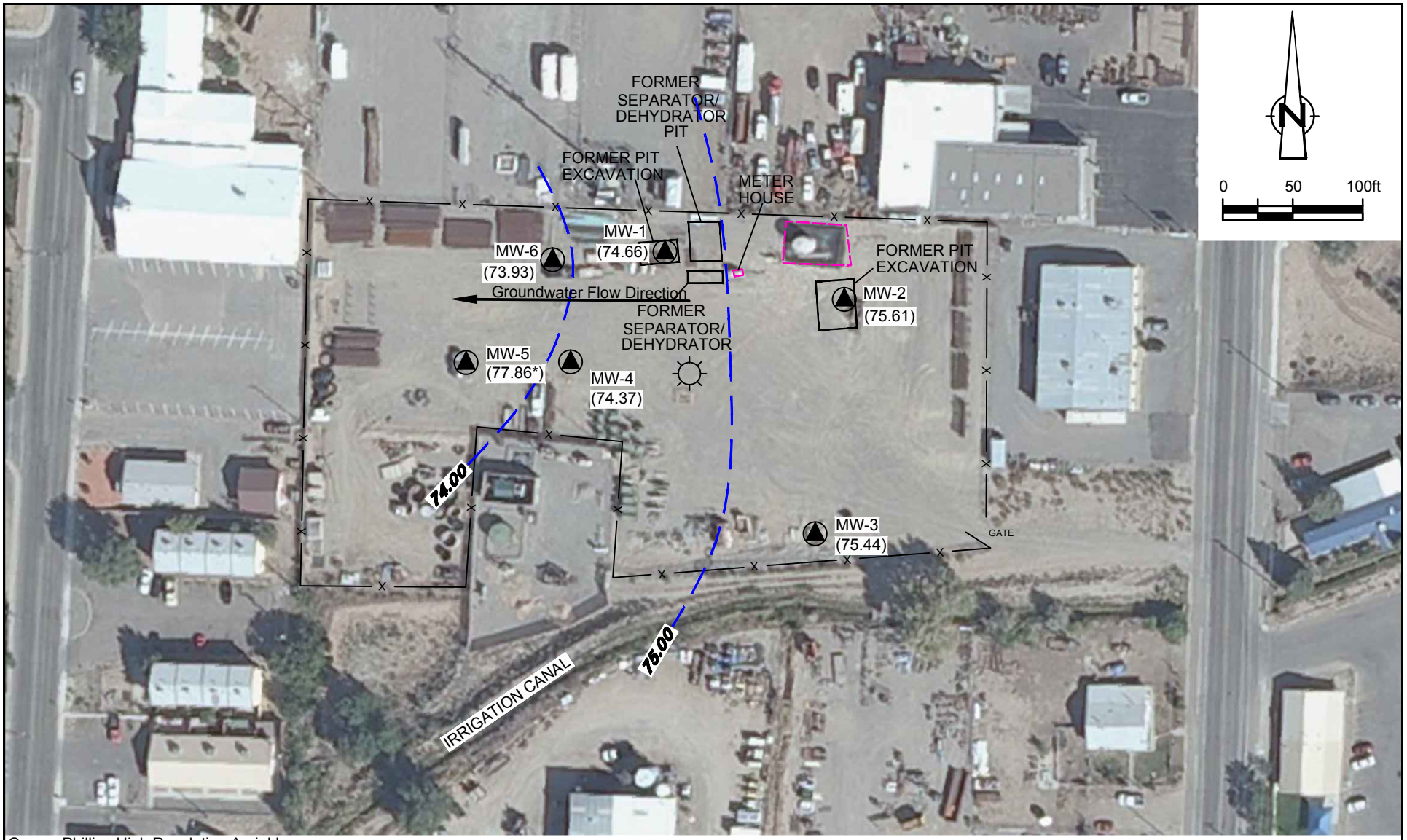
ConocoPhillips High Resolution Aerial Imagery

LEGEND

- NATURAL GAS WELLHEAD
- MONITORING WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT
- (72.49) GROUNDWATER ELEVATION, Ft
- 75.0 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

Figure 5

JUNE 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



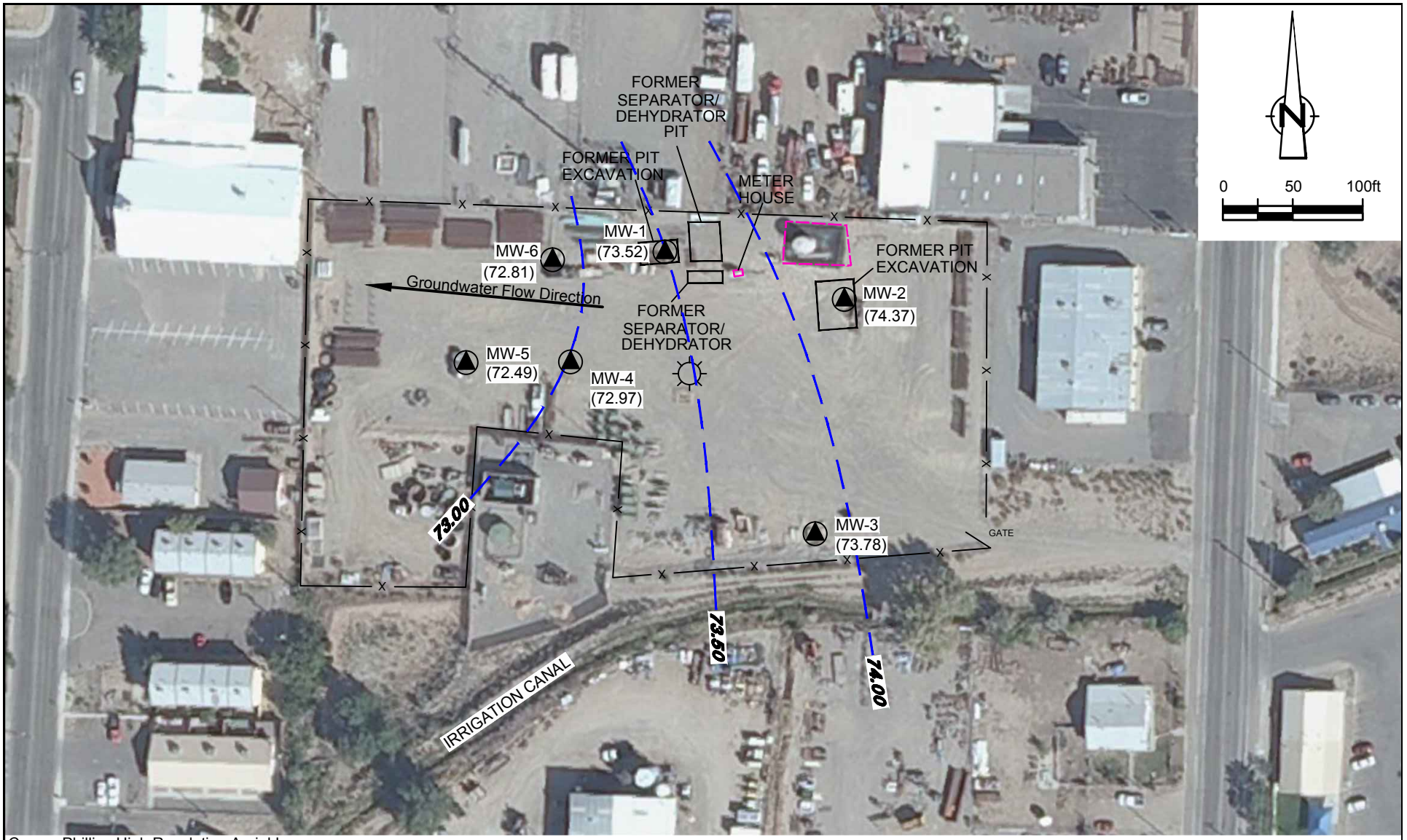
ConocoPhillips High Resolution Aerial Imagery

LEGEND

- NATURAL GAS WELLHEAD
- MONITORING WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT
- (77.86) GROUNDWATER ELEVATION, Ft
- 75.0 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

Figure 6

SEPTEMBER 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



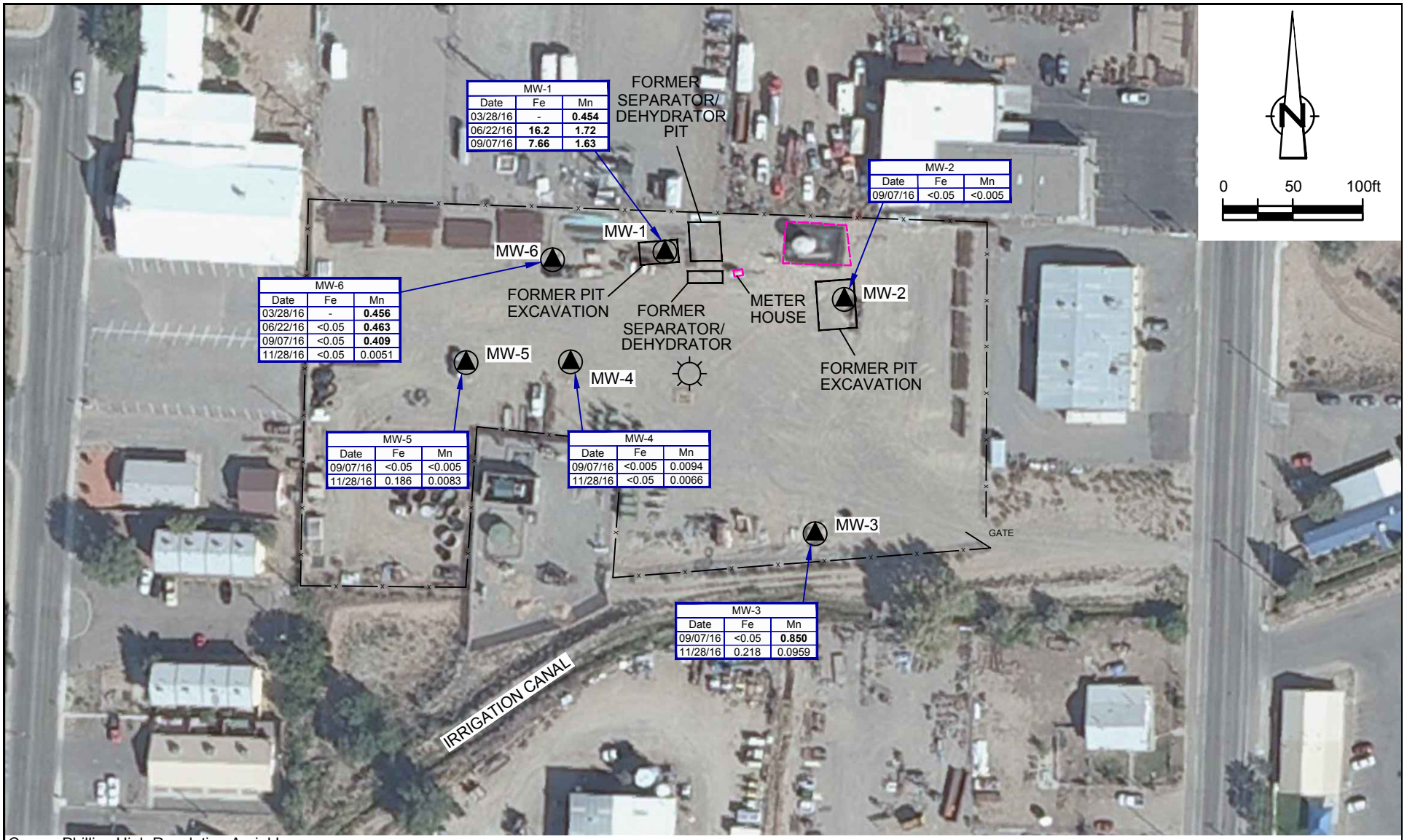
ConocoPhillips High Resolution Aerial Imagery

LEGEND

- NATURAL GAS WELLHEAD
- MONITORING WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT
- (72.49) GROUNDWATER ELEVATION, Ft
- 75.0 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

Figure 7

NOVEMBER 2016 GROUNDWATER POTENTIOMETRIC SURFACE MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company



ConocoPhillips High Resolution Aerial Imagery

LEGEND

- NATURAL GAS WELLHEAD
- MONITORING WELL
- FENCE
- EXISTING MERRION OIL EQUIPMENT
- Fe DISSOLVED IRON CONCENTRATION (MG/L)
- Mn DISSOLVED MANGANESE CONCENTRATION (MG/L)
- **Bold** ABOVE NMWQCC STANDARD

GHD

Figure 8

2016 GROUNDWATER CONCENTRATIONS MAP
FARMINGTON B-COM No. 1E
FARMINGTON, NEW MEXICO
ConocoPhillips Company

Tables

Table 1

Site History Timeline
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

DATE	*Event/Action*	*ACTIVITY*
February 18, 1982	Well Completed	Pioneer Production Corp. completed the Farmington B-COM No. 1E gas production well.
July 1, 1991	Conoco Inc. well purchase	Conoco Inc. purchases wellsite from Mesa Operating Limited Partnership of Amarillo, Texas.
January 1, 1997	Change of ownership	Conoco Inc. sold the property and mineral lease to Merrion Oil & Gas Co.
March, 1997	Site Assessment	Phase II Environmental Site Assessment is conducted by On Site Technologies.Three test holes advanced with Auger refusal encountered at 7 feet below ground surface (bgs) due to gravel and cobbles. No samples collected. On Site Technologies later excavates four additional test holes ranging in depth from 14 to 19 feet bgs. Soil samples are collected from each excavation. TPH and BTEX contamination is found in the vicinity of a former unlined pit.
September, 1997	Soil Excavation	On Site Technologies oversees soil excavation of two pits. 906 cubic yards of impacted soil were removed; of which 328 were disposed of offsite and 578 cubic yards were placed back in the pits along with clean fill. Approximately 10 gallons of liquid fertilizer was sprayed into each pit during backfill.
February and August 1998	Monitor Well Installation	Six monitor wells (MW-1 through MW-6) installed at the site under the supervision of On Site.
October 29, 2004	Groundwater Removal from Monitor Well MW-1	First removal of groundwater - 160 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
November 1, 2004	Groundwater Removal from Monitor Well MW-1	40 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
December 3, 2004	Groundwater Removal from Monitor Well MW-1	150 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
May 9th and 10th, 2005	Monitor Well Sampling	Tetra Tech begins quarterly monitoring at the site. Groundwater samples collected from monitor wells MW-1 and MW-6. A sheen is noted in MW-1; an oil absorbant sock is placed in the well.
July 6, 2005	Groundwater Removal from Monitor Well MW-1	138 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
October 19, 2005	Groundwater Removal from Monitor Well MW-1 and Monitor Well Sampling	Groundwater samples collected from monitor wells MW-1 and MW-6. 186 gallons removed from MW-1; a sheen is observed in purge water and oil absorbant sock is replaced.
February 16, 2006	Groundwater Removal from Monitor Well MW-1	144 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
May 15, 2006		152 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
August 2, 2006		457 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
November 14, 2006		423 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
November 14, 2006	Monitor Well Sampling	Third sampling of monitor wells MW-1 and MW-6 conducted by Tetra Tech.
February 20, 2007	Groundwater Removal from Monitor Well MW-1	220 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
May 15, 2007		364 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
August 21, 2007		684 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
November 7, 2007		651 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.

Table 1

Site History Timeline
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

DATE	*Event/Action*	*ACTIVITY*
November 7, 2007	Monitor Well Sampling	Fourth sampling of monitor wells MW-1 and MW-6 conducted by Tetra Tech.
January 16, 2008	Groundwater Removal from Monitor Well MW-1	149 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
March 18, 2008	Groundwater Removal from Monitor Well MW-1	93 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM.
July 24, 2008	Monitor Well Sampling	Initiation of quarterly sampling for monitor wells MW-1 and MW-6.
October 22, 2008	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6.
January 21, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. MW-1 not sampled due to presence of free product. Oil absorbent sock placed in the well.
April 1, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. First quarter of compliance for all BTEX constituents.
June 10, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. Second quarter of compliance for all BTEX constituents.
October 1, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. Third quarter of compliance for all BTEX constituents.
December 17, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. Fourth quarter of compliance for all BTEX constituents.
March 29, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. Fifth quarter of compliance for all BTEX constituents.
June 11, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. Sixth quarter of compliance for all BTEX constituents.
September 24, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. Seventh quarter of compliance for all BTEX constituents.
February 7, 2011	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. Eighth quarter of compliance with NMWQCC standards for BTEX; however, dissolved manganese concentrations in MW-1 and MW-6 were above standards.
March 18, 2011	Monitor Well Sampling	Continuation of quarterly groundwater sampling for monitor wells MW-1 and MW-6. Nineth quarter of compliance with NMWQCC standards for BTEX; however, dissolved manganese concentration in MW-1 was above standard.
June 15, 2011	Transfer of Site Consulting Responsibilities	Site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to Conestoga-Rovers & Associates of Albuquerque, NM.
June 20, 2011	Monitor Well Sampling	Continuation of quarterly groundwater sampling for monitor wells MW-1 and MW-6. Tenth quarter of compliance with NMWQCC standards for BTEX; however, dissolved manganese concentration in both MW-1 and MW-6 were above standard. LNAPL sheen present in MW-1.
September 30, 2011	Monitor Well Sampling	Continuation of quarterly groundwater sampling for monitor wells MW-1 and MW-6. 11th quarter of compliance with NMWQCC standards for BTEX; however, dissolved manganese and dissolved iron concentrations were above standards in MW-1. LNAPL sheen present in MW-1.

Table 1

Site History Timeline
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

DATE	*Event/Action*	*ACTIVITY*
December 15, 2011	Monitor Well Sampling	Continuation of quarterly groundwater sampling for monitor wells MW-1 and MW-6. 12th quarter of compliance with NMWQCC standards for BTEX; however, dissolved manganese and dissolved iron concentrations were above standards in MW-1 and dissolved manganese concentration was above standard in MW-6. LNAPL sheen present in MW-1.
September 21, 2012	Monitor Well Sampling	Analysis for BTEX discontinued. Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved manganese and dissolved iron. LNAPL sheen present in MW-1.
April 4, 2013	Monitor Well Sampling	Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6 sampled and analyzed for dissolved manganese and dissolved iron. LNAPL sheen present in MW-1.
September 30, 2013	Monitor Well Sampling	Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6 sampled and analyzed for dissolved manganese and dissolved iron. LNAPL sheen present in MW-1. Monitor Well MW-1 also sampled and analyzed for metals treatability study.
September 26, 2014	Monitor Well Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, Ca, Mg, Na, K, sulfate, and chloride. LNAPL sheen present in MW-1.
October 18, 2014	Well Installations	Installation of TMW-1 & TMW-2 via air-rotary casing hammer. These wells are for ISCO injections.
November 4-6, 2014	In-Situ Chemical Oxydation	Injection of 4,650 gallons catalyzed sodium persulfate into TMW-1 & TMW-2 and MW-1 to address concentrations of dissolved Fe & Mn.
December 28, 2014	Post ISCO Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, total Mn, total Fe, and TPH.
January 28, 2015	Post ISCO Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, total Mn, and total Fe.
March 17-19, 2015	2nd ISCO Event	2nd Injection event. 5525 gal catalyzed sodium persulfate injected into MW-1, TMW-1 & TMW-2.
June 18, 2015	Post ISCO Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, and sulfate.
September 23, 2015	Annual Groundwater Sampling	Monitor Wells MW-1 through MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, and sulfate.
December 3, 2015	Quarterly Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn, dissolved Fe, dissolved Na, total Mn, total Fe and sulfate. Dissolved Mn concentration in MW-1 was above standard.
March 28, 2016	Quarterly Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Mn. Dissolved Mn concentrations in MW-1 and MW-6 were above standard.
June 22, 2016	Quarterly Groundwater Sampling	Monitor Wells MW-1 and MW-6 sampled and analyzed for dissolved Fe and Mn. Dissolved Mn concentrations in MW-1 and MW-6 were above standard. Dissoved Fe was over in
September 7, 2019	Quarterly Groundwater Sampling	Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 sampled for dissolved Fe, dissolved Mn, and sulfate.
October 18-20, 2016	3rd ISCO Event	3rd Injection event. 8920 gal catalyzed sodium persulfate injected into MW-1, TMW-1 & TMW-2.
November 28, 2016	Quarterly Groundwater Sampling	Monitor Wells MW-3, MW-4, MW-5 and MW-6 sampled for dissolved Fe, dissolved Mn, and sulfate.

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

Well ID	*Total Depth (ft)*	*Surface Elevation**	*Screen Interval (ft bgs)*	*Date Measured*	*Depth to Product (ft below TOC)*	*Depth to Groundwater (ft below TOC)*	*Relative Water Level**
MW-1	34.09	101.37	19.09 - 34.09	5/9/2005	Sheen	28.30	73.07
				7/6/2005	-	26.50	74.87
				10/19/2005	Sheen	25.12	76.25
				2/16/2006	-	28.23	73.14
				5/15/2006	-	27.02	74.35
				8/2/2006	-	24.37	77.00
				11/14/2006	Sheen	26.48	74.89
				2/20/2007	Sheen	29.03	72.34
				5/15/2007	-	26.97	74.40
				8/21/2007	Sheen	25.20	76.17
				11/7/2007	26.1	26.30	75.07
				1/16/2008	27.88	29.24	72.13
				3/18/2008	29.27	29.27	72.10
				7/24/2008	Sheen	25.73	75.64
				10/22/2008	Sheen	25.35	76.02
				1/21/2009	27.9	28.25	73.12
				4/1/2009	-	29.47	71.90
				6/10/2009	-	26.75	74.62
				10/1/2009	-	23.14	78.23
				12/17/2009	-	26.31	75.06
				3/29/2010	28.68	28.71	72.66
				6/11/2010	Sheen	25.98	75.39
				9/24/2010	Sheen	25.26	76.11
				2/7/2011	Sheen	28.83	72.54
				3/18/2011	29.71	29.73	71.64
				6/20/2011	Sheen	27.00	74.37
				9/30/2011	Sheen	24.32	77.05
				12/15/2011	Sheen	26.90	74.47
				9/21/2012	Sheen	24.52	76.85
				4/4/2013	Sheen	29.74	71.63
				9/30/2013	Sheen	24.92	76.45
				9/26/2014	Sheen	25.92	75.45
				12/18/2014	--	27.81	73.56
				1/28/2015	Sheen	28.87	72.50
				6/18/2015	-	27.33	74.04
				9/23/2015	-	26.52	74.85
				12/3/2015	-	27.85	73.52
				3/28/2016	-	30.13	71.24
				6/22/2016	-	29.53	71.84
				9/6/2016	-	26.71	74.66
				11/28/2016	-	27.85	73.52
MW-2	33.72	101.57	18.72 - 33.72	5/9/2005	-	27.28	74.29
				7/6/2005	-	25.52	76.05
				10/19/2005	-	24.30	77.27
				2/16/2006	-	27.38	74.19
				5/15/2006	-	25.62	75.95
				8/2/2006	-	23.51	78.06
				11/14/2006	-	26.08	75.49
				2/20/2007	-	28.13	73.44
				5/15/2007	-	25.86	75.71
				8/21/2007	-	24.45	77.12
				11/7/2007	-	25.31	76.26
				1/16/2008	-	27.27	74.30
				3/18/2008	-	28.68	72.89
				7/24/2008	-	24.77	76.80
				10/22/2008	-	24.55	77.02
				1/21/2009	-	27.23	74.34
				4/1/2009	-	28.76	72.81
				6/10/2009	-	25.76	75.81
				10/1/2009	-	22.22	79.35
				12/17/2009	-	25.62	75.95
				3/29/2010	-	27.96	73.61
				6/11/2010	-	24.99	76.58
				9/24/2010	-	24.54	77.03
				2/7/2011	-	28.22	73.35
				3/18/2011	-	29.14	72.43
				6/20/2011	-	26.20	75.37
				9/30/2011	-	23.51	78.06
				12/15/2011	-	26.22	75.35
				9/21/2012	-	23.81	77.76
				4/4/2013	-	29.16	72.41
				9/30/2013	-	24.29	77.28
				9/26/2014	-	25.18	76.39
				12/18/2014	-	27.18	74.39
				1/28/2015	-	NM	-
				6/18/2015	-	27.73	73.84
				9/23/2015	-	25.74	75.83
				12/3/2015	-	27.23	74.34
				3/28/2016	-	29.67	71.90
				6/22/2016	-	27.20	74.37
				9/6/2016	-	25.96	75.61
				11/28/2016	-	27.20	74.37

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

Well ID	*Total Depth (ft)*	*Surface Elevation**	*Screen Interval (ft bgs)*	*Date Measured*	*Depth to Product (ft below TOC)*	*Depth to Groundwater (ft below TOC)*	*Relative Water Level**
MW-3	32.44	102.1	17.44 - 32.44	5/9/2005	-	27.81	74.29
				7/6/2005	-	26.03	76.07
				10/19/2005	-	25.06	77.04
				2/16/2006	-	28.57	73.53
				5/15/2006	-	26.15	75.95
				8/2/2006	-	23.83	78.27
				11/14/2006	-	26.75	75.35
				2/20/2007	-	29.31	72.79
				5/15/2007	-	26.23	75.87
				8/21/2007	-	25.00	77.10
				11/7/2007	-	26.12	75.98
				1/16/2008	-	28.46	73.64
				3/18/2008	-	29.97	72.13
				7/24/2008	-	25.27	76.83
				10/22/2008	-	25.35	76.75
				1/21/2009	-	28.56	73.54
				4/1/2009	-	30.20	71.90
				6/10/2009	-	26.55	75.55
				10/1/2009	-	23.00	79.10
				12/17/2009	-	26.86	75.24
				3/29/2010	-	29.41	72.69
				6/11/2010	-	25.62	76.48
				9/24/2010	-	25.23	76.87
				2/7/2011	-	29.47	72.63
				3/18/2011	-	30.40	71.70
				6/20/2011	-	26.83	75.27
				9/30/2011	-	23.95	78.15
				12/15/2011	-	27.41	74.69
				9/21/2012	-	24.55	77.55
				4/4/2013	-	30.52	71.58
				9/30/2013	-	25.27	76.83
				9/26/2014	-	25.91	76.19
				12/18/2014	-	28.30	73.80
				1/28/2015	-	NM	-
				6/18/2015	-	27.53	74.57
				9/23/2015	-	26.33	75.77
				12/3/2015	-	28.33	73.77
				3/28/2016	-	30.99	71.11
				6/22/2016	-	27.88	74.22
				9/6/2016	-	26.66	75.44
				11/28/2016	-	28.32	73.78
MW-4	32.72	101.4	17.72 - 32.72	5/9/2005	-	28.73	72.67
				7/6/2005	-	26.66	74.74
				10/19/2005	-	25.62	75.78
				2/16/2006	-	28.91	72.49
				5/15/2006	-	26.86	74.54
				8/2/2006	-	24.59	76.81
				11/14/2006	-	27.02	74.38
				2/20/2007	-	29.61	71.79
				5/15/2007	-	27.25	74.15
				8/21/2007	-	25.56	75.84
				11/7/2007	-	26.50	74.90
				1/16/2008	-	28.55	72.85
				3/18/2008	-	29.99	71.41
				7/24/2008	-	26.02	75.38
				10/22/2008	-	25.84	75.56
				1/21/2009	-	28.69	72.71
				4/1/2009	-	30.22	71.18
				6/10/2009	-	27.31	74.09
				10/1/2009	-	23.80	77.60
				12/17/2009	-	27.07	74.33
				3/29/2010	-	29.51	71.89
				6/11/2010	-	26.43	74.97
				9/24/2010	-	25.70	75.70
				2/7/2011	-	29.49	71.91
				3/18/2011	-	30.38	71.02
				6/20/2011	-	27.34	74.06
				9/30/2011	-	24.68	76.72
				12/15/2011	-	27.58	73.82
				9/21/2012	-	25.01	76.39
				4/4/2013	-	30.46	70.94
				9/30/2013	-	25.55	75.85
				9/26/2014	-	26.27	75.13
				12/18/2014	-	28.38	73.02
				1/28/2015	-	NM	-
				6/18/2015	-	26.60	74.80
				9/23/2015	-	26.77	74.63
				12/3/2015	-	28.41	72.99
				3/28/2016	-	30.82	70.58
				6/22/2016	-	28.38	73.02
				9/6/2016	-	27.03	74.37
				11/28/2016	-	28.43	72.97

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

Well ID	*Total Depth (ft)*	*Surface Elevation**	*Screen Interval (ft bgs)*	*Date Measured*	*Depth to Product (ft below TOC)*	*Depth to Groundwater (ft below TOC)*	*Relative Water Level**
MW-5	34.09	100.52	19.09 - 34.09	5/9/2005	-	28.50	72.02
				7/6/2005	-	26.32	74.20
				10/19/2005	-	25.30	75.22
				2/16/2006	-	28.62	71.90
				5/15/2006	-	26.55	73.97
				8/2/2006	-	24.23	76.29
				11/14/2006	-	27.67	72.85
				2/20/2007	-	29.34	71.18
				5/15/2007	-	27.04	73.48
				8/21/2007	-	25.21	75.31
				11/7/2007	-	26.13	74.39
				1/16/2008	-	28.18	72.34
				3/18/2008	-	29.65	70.87
				7/24/2008	-	25.73	74.79
				10/22/2008	-	25.49	75.03
				1/21/2009	-	28.38	72.14
				4/1/2009	-	29.92	70.60
				6/10/2009	-	27.09	73.43
				10/1/2009	-	23.50	77.02
				12/17/2009	-	26.77	73.75
				3/29/2010	-	29.21	71.31
				6/11/2010	-	26.16	74.36
				9/24/2010	-	25.31	75.21
				2/7/2011	-	29.13	71.39
				3/18/2011	-	30.10	70.42
				6/20/2011	-	27.03	73.49
				9/30/2011	-	24.35	76.17
				12/15/2011	-	27.25	73.27
				9/21/2012	-	24.65	75.87
				4/4/2013	-	30.10	70.42
				9/30/2013	-	25.16	75.36
				9/26/2014	-	25.88	74.64
				12/18/2014	-	27.98	72.54
				1/28/2015	-	NM	-
				6/18/2015	-	NM	-
				9/23/2015	-	26.41	74.11
				12/3/2015	-	28.00	72.52
				3/28/2016	-	30.41	70.11
				6/22/2016	-	28.03	72.49
				9/6/2016	-	22.66	77.86
				11/28/2016	-	28.03	72.49
MW-6	34.02	102.14	19.02 - 34.02	5/9/2005	-	29.94	72.20
				7/6/2005	-	27.89	74.25
				10/19/2005	-	26.70	75.44
				2/16/2006	-	29.85	72.29
				5/15/2006	-	28.11	74.03
				8/2/2006	-	25.83	76.31
				11/14/2006	-	27.91	74.23
				2/20/2007	-	30.52	71.62
				5/15/2007	-	28.61	73.53
				8/21/2007	-	26.67	75.47
				11/7/2007	-	27.52	74.62
				1/16/2008	-	29.43	72.71
				3/18/2008	-	30.85	71.29
				7/24/2008	-	27.26	74.88
				10/22/2008	-	26.85	75.29
				1/21/2009	-	29.52	72.62
				4/1/2009	-	31.00	71.14
				6/10/2009	-	28.44	73.70
				10/1/2009	-	24.75	77.39
				12/17/2009	-	27.90	74.24
				3/29/2010	-	30.29	71.85
				6/11/2010	-	27.58	74.56
				9/24/2010	-	26.74	75.40
				2/7/2011	-	30.35	71.79
				3/18/2011	-	31.21	70.93
				6/20/2011	-	28.50	73.64
				9/30/2011	-	25.85	76.29
				12/15/2011	-	28.41	73.73
				9/21/2012	-	26.03	76.11
				4/4/2013	-	31.24	70.90
				9/30/2013	-	25.43	76.71
				9/26/2014	-	27.38	74.76
				12/18/2014	-	29.28	72.86
				1/28/2015	-	30.33	71.81
				6/18/2015	-	28.73	73.41
				9/23/2015	-	27.91	74.23
				12/3/2015	-	29.31	72.83
				3/28/2016	-	31.52	70.62
				6/22/2016	-	28.00	74.14
				9/6/2016	-	28.21	73.93
				11/28/2016	-	29.33	72.81

Notes:
1. bgs = feet below ground surface
2. ft = Feet
3. TOC = Top of casing
4. * Elevations relative to an arbitrary point set at 100 feet
5. NM = Not measured

Table 3

Field Parameters Summary
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

Well ID	*Sample Date*	*Temperature (°C)*	*pH*	*TDS (g/L)*	*Conductivity (µS/cm)*	*DO (mg/L)*	*ORP (mV)*	*Volume (gallons)*
MW-1	9/26/2014	18.30	7.17	0.824	1268	1.60	-198.0	3.50
	9/26/2014	18.23	7.17	0.810	1245	0.98	-210.3	3.75
	9/26/2014	18.15	7.18	0.800	1231	1.01	-221.4	4.00
	12/18/2014	18.93	12.95	10.310	15860	25.02	-166.1	2.00
	12/18/2014	19.28	12.80	8.800	15732	23.02	-161.7	2.50
	12/18/2014	19.35	12.76	10.270	15765	24.24	-159.5	3.00
	1/28/2015	18.78	11.91	4.202	6495	10.54	-36.4	1.75
	1/28/2015	18.78	12.01	3.378	5192	10.11	-48.4	2.25
	1/28/2015	18.76	12.06	3.249	5014	9.89	-57.4	2.75
	6/18/2015	17.81	9.44	13.390	21782	1.34	42.0	3.25
	6/18/2015	17.37	9.52	14.140	21793	1.27	46.5	3.50
	6/18/2015	17.00	9.59	14.610	22480	1.41	51.7	3.75
	6/18/2015	16.88	9.62	14.640	22830	1.51	61.5	4.00
	6/18/2015	16.87	9.64	14.640	22516	2.07	63.3	4.25
	9/23/2015	17.97	7.90	3.224	4960	1.41	-127.6	2.50
	9/23/2015	17.86	7.97	3.126	4808	1.92	-122.7	3.00
	9/23/2015	17.82	8.10	3.013	4033	1.61	-120.3	3.50
	12/3/2015	17.42	7.98	1.404	2158	7.79	-144.8	1.25
	12/3/2015	18.03	7.93	1.344	2068	3.55	-191.4	1.75
	12/3/2015	17.97	7.92	1.311	2016	2.45	-200.0	2.25
	3/28/2016	18.35	7.35	0.800	1190	3.77	-101.0	2.00
	6/22/2016	16.70	7.30	--	2620	0.50	-176.1	2.25
	9/7/2016	17.54	6.65	2.083	3205	1.10	-127.8	3.50
MW-2	9/23/2015	18.01	7.11	0.782	1204	2.86	0.9	3.50
	9/23/2015	18.05	7.06	0.790	1217	2.79	-1.4	4.00
	9/23/2015	18.06	7.01	0.798	1227	2.99	-2.8	4.50
	9/7/2016	17.45	6.95	0.703	1081	3.89	5.7	4.00
MW-3	9/23/2015	17.49	7.28	0.787	1211	9.40	-45.2	3.25
	9/23/2015	17.29	7.11	0.769	1182	4.40	-38.7	3.75
	9/7/2016	16.37	6.81	0.673	1035	3.54	17.5	3.50
	11/28/2016	16.68	7.92	--	1072	4.09	62.3	3.50

Table 3

Field Parameters Summary
ConocoPhillips Company
Farmington B Com No. 1E
San Juan County, New Mexico

Well ID	Sample Date	Temperature (°C)	pH	TDS (g/L)	Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Volume (gallons)
MW-4	9/23/2015	17.73	7.52	0.411	632	10.50	-18.5	3.25
	9/23/2015	17.61	7.11	0.709	1091	2.90	-48.1	3.50
	9/7/2016	16.75	6.80	0.693	1066	3.59	14.9	2.50
	11/28/2016	16.93	7.32	--	1003	3.11	113.1	2.00
MW-5	9/23/2015	18.12	7.04	0.892	1373	6.29	-109.5	2.75
	9/23/2015	18.06	7.03	0.888	1366	6.41	-101.7	3.25
	9/23/2015	17.77	6.99	0.885	1362	6.16	-103.8	3.75
	9/7/2016	16.82	6.90	0.931	1433	6.49	41.1	4.50
	11/28/2016	17.58	7.37	--	1141	6.64	104.1	2.00
MW-6	9/26/2014	17.65	7.22	0.712	1096	1.38	-39.5	2.75
	9/26/2014	17.65	7.21	0.712	1096	1.39	-42.7	3.00
	9/26/2014	17.62	7.21	0.711	1094	1.29	-45.9	3.25
	12/18/2014	18.09	7.83	0.933	1436	2.61	-148.7	1.25
	12/18/2014	18.28	7.86	0.975	1500	1.95	-158.7	1.75
	12/18/2014	18.31	7.87	0.985	1515	1.99	-161.7	2.25
	1/28/2015	17.73	7.52	0.868	1335	4.17	-122.1	1.50
	1/28/2015	17.70	7.52	0.862	1326	3.08	-125.1	2.00
	1/28/2015	17.60	7.52	0.860	1323	2.84	-125.3	2.50
	6/18/2015	17.33	8.27	1.232	1895	5.75	-69.8	1.50
	6/18/2015	17.24	8.16	1.236	1901	2.28	-49.0	2.00
	6/18/2015	17.09	8.18	1.194	1836	1.81	-89.5	2.50
	9/23/2015	18.03	8.55	0.982	1511	3.46	-78.2	2.00
	9/23/2015	18.08	8.25	1.014	1560	2.56	-73.4	2.50
	9/23/2015	17.98	8.10	1.014	1559	2.45	-73.5	3.00
	12/3/2015	17.72	8.20	0.936	1441	4.02	-136.6	1.25
	12/3/2015	18.00	8.09	0.937	1441	2.63	-163.4	1.75
	12/3/2015	18.04	8.06	0.931	1433	4.07	-177.6	2.25
	3/28/2016	18.05	7.04	0.600	1000	5.16	-9.0	1.25
	6/22/2016	17.00	7.38	--	1060	1.63	1.8	3.00
	9/7/2016	16.94	7.03	0.777	1196	2.46	8.5	2.50
	11/28/2016	17.79	9.12	--	3150	3.50	115.9	2.00
TMW-1	12/3/2015	17.12	8.23	2.072	3188	7.40	-205.6	--
TMW-2	12/3/2015	17054.00	9.40	5.043	7761	2.47	-231.2	--

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

Table 4

Groundwater Laboratory Analytical Results Summary
ConocoPhillips Company
Farmington B Com No. 1E
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)	TPH GRO (mg/L)	TPH DRO (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sodium (dissolved) (mg/L)	Iron (total) (mg/L)	Manganese (total) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)
NMWQCC Groundwater Quality Standards				**0.01**	**0.75**	**0.75**	**0.62**	**NE**	**NE**	**1.0**	**0.2**	**NE**	**NE**	**NE**	**10**	**600**
MW-1	MW-1	2/19/1998	(orig)	**0.21**	0.034	0.37	**2.044**	--	--	--	--	--	--	--	--	--
	MW-1	12/29/1998	(orig)	**0.35**	ND	0.42	**2.8**	--	--	--	--	--	--	--	--	--
	MW-1	5/9/2005	(orig)	**0.017**	< 0.0007	0.074	0.25	--	--	--	--	--	--	--	< 0.40	77.8
	MW-1	10/19/2005	(orig)	**0.034**	< 0.001	0.17	**1.4**	--	--	--	--	--	--	--	0.15	39.9
	MW-1	11/14/2006	(orig)	**0.018**	< 0.0007	0.19	**1.6**	--	--	--	--	--	--	--	< 0.015	145
	MW-1	11/7/2007	(orig)	0.007	< 0.0007	0.12	0.25	--	--	--	--	--	--	--	< 0.015	38.4
	MW-1	7/24/2008	(orig)	< 0.005	< 0.005	0.09	0.035	--	--	--	--	--	--	--	< 0.5	4.76
	MW-1 Duplicate	7/24/2008	(orig)	< 0.005	< 0.005	0.11	0.059	--	--	--	--	--	--	--	--	--
	MW-1	10/22/2008	(orig)	< 0.005	< 0.005	0.088	0.165	--	--	--	--	--	--	--	< 0.5	17
	MW-1 Duplicate	10/22/2008	(orig)	< 0.005	< 0.005	0.095	0.186	--	--	--	--	--	--	--	--	--
	MW-1	1/21/2009	Free Product - Not Sampled													
	MW-1	4/1/2009	(orig)	< 0.005	< 0.005	0.011	< 0.005	--	--	--	--	--	--	--	--	--
	MW-1	6/10/2009	(orig)	< 0.005	< 0.005	0.096	< 0.005	--	--	--	--	--	--	--	--	--
	MW-1	10/1/2009	(orig)	0.0013	< 0.001	0.058	0.142	--	--	0.233	--	--	--	--	--	--
	MW-1	12/17/2009	(orig)	0.0014	< 0.001	0.1	0.0028	--	--	0.521	--	--	--	--	--	--
	MW-1	3/29/2010	(orig)	< 0.001	< 0.001	0.051	< 0.001	--	--	0.0803	--	--	--	--	--	--
	MW-1	6/11/2010	(orig)	0.0011	< 0.001	0.098	0.0018	--	--	0.0217	--	--	--	--	--	--
	MW-1	9/24/2010	(orig)	< 0.001	< 0.001	0.092	0.0278	--	--	0.0285	--	--	--	--	--	--
	MW-1	2/7/2011	(orig)	< 0.001	< 0.001	0.026	< 0.001	--	--	--	**0.459**	--	--	--	--	--
	MW-1	3/18/2011	(orig)	< 0.001	< 0.001	0.01	< 0.001	--	--	< 0.02	**0.477**	--	--	--	--	--
	GW-BCOM-062011-CMB-002	6/20/2011	(orig)	< 0.0010	< 0.0010	0.0912	0.0018	--	--	0.157	**0.424**	--	--	--	--	--
	GW-BCOM-062011-CMB-003	6/20/2011	(Duplicate)	< 0.0010	< 0.0010	0.0952	< 0.0030	--	--	--	--	--	--	--	--	--
	GW-074938-093011-CM-005	9/30/2011	(orig)	< 0.001	< 0.001	0.058	0.0048	--	--	**4.1**	**0.268**	--	--	--	--	--
	GW-074938-093011-CM-006	9/30/2011	(Duplicate)	< 0.001	< 0.001	0.0618	0.0052	--	--	--	--	--	--	--	--	--
	GW-074938-121511-CB-MW-1	12/15/2011	(orig)	< 0.001	< 0.001	0.0848	0.0095	--	--	**1.91**	**0.35**	--	--	--	--	--
	GW-074938-121511-CB-DUP	12/15/2011	(Duplicate)	< 0.001	< 0.001	0.0807	0.0092	--	--	**--**	**--**	--	--	--	--	--
	GW-074938-092112-JP-MW-1	9/21/2012	(orig)	--	--	--	--	--	--	**2.9**	**0.27**	--	--	--	--	--
	GW-074938-040413-CM-MW-1	4/4/2013	(orig)	--	--	--	--	--	--	**1.8**	**0.47**	--	--	--	--	--
	GW-074938-093013-CM-MW-1	9/30/2013	(orig)	--	--	--	--	--	--	**1.7**	**0.29**	--	--	--	--	--
	GW-074938-092614-CM-MW-1	9/26/2014	(orig)	--	--	--	--	--	--	**2.3**	**0.34**	--	--	--	--	16.3
	--	11/5/2014	IN SITU CHEMICAL OXIDATION INJECTION EVENT													
	GW-074938-121814-CM-MW-1	12/18/2014	(orig)	--	--	--	--	< 0.5	17.6	0.0805	< 0.005	1,280	139	0.844	--	**1,420**
	GW-074938-012815-JW-MW-1	1/28/2015	(orig)	--	--	--	--	--	--	< 0.050	< 0.005	333	3.92	0.0335	--	217
		3/17/2015	IN SITU CHEMICAL OXIDATION - 2nd INJECTION EVENT													
	GW-074938-061815-CB-MW-1	6/18/2015	(orig)	--	--	--	--	--	--	< 0.5	< 0.05	5,560	--	--	--	**8,230**
	GW-074938-061815-CB-DUP	6/18/2015	(Duplicate)	--	--	--	--	--	--	< 0.5	< 0.05	5,800	--	--	--	--
	GW-074938-092315-CB-MW-1	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	970	--	--	--	**1370**
	GW-074938-092315-CB-DUP	9/23/2015	(Duplicate)	--	--	--	--	--	--	< 0.05	< 0.005	989	--	--	--	--
	GW-074938-12315-CB-MW-1	12/3/2015	(orig)	--	--	--	--	--	--	0.678	**0.568**	264	9.27	0.671	--	300
	GW-074938-12315-CB-DUP	12/3/2015	(Duplicate)	--	--	--	--	--	--	0.776	**0.597**	265	--	--	--	--
	GW-074938-032816-CM-MW-1	3/28/2016	(orig)	--	--	--	--	--	--	--	**0.454**	--	--	--	--	--
	GW-074938-032816-CM-DUP	3/28/2016	(Duplicate)	--	--	--	--	--	--	--	**0.445**	--	--	--	--	--
	GW-074938-062216-SP-MW-1	6/22/2016	(orig)	--	--	--	--	--	--	**16.2***	**1.72***	--	--	--	--	--
	GW-074938-090716-SP-MW-1	9/7/2016	(orig)	--	--	--	--	--	--	**7.66**	**1.63**	--	--	--	--	**689**
	GW-074938-090716-SP-DUP	9/7/2016	(Duplicate)	--	--	--	--	--	--	**10.2**	**1.77**	--	--	--	--	**767**
MW-2	GW-074938-040413-CM-MW-2	4/4/2013	(orig)	--	--	--	--	--	--	< 0.05	0.046	--	--	--	--	--
	GW-074938-093013-CM-MW-2	9/30/2013	(orig)	--	--	--	--	--	--	< 0.05	0.0077	--	--	--	--	--
	GW-074938-092315-CB-MW-2	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	213
	GW-074938-090716-SP-MW-2	9/7/2016	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	106
MW-3	GW-074938-121511-CB-MW-3	12/15/2011	(orig)	--	--	--	--	--	--	0.246	0.112	--	--	--	--	--
	GW-074938-040413-CM-MW-3	4/4/2013	(orig)	--	--	--	--	--	--	0.34	**0.28**	--	--	--	--	--
	GW-074938-093013-CM-MW-3	9/30/2013	(orig)	--	--	--	--	--	--	< 0.05	0.047	--	--	--	--	--
	GW-074938-092315-CB-MW-3	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	0.121	--	--	--	--	219
	GW-074938-090716-SP-MW-3	9/7/2016	(orig)	--	--	--	--	--	--	< 0.05	**0.85**	--	--	--	--	192
	GW-074938-112816-CN-MW-3	11/28/2016	(orig)	--	--	--	--	--	--	0.218	0.0959	--	--	--	--	214

Table 4

Groundwater Laboratory Analytical Results Summary
ConocoPhillips Company
Farmington B Com No. 1E
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)	TPH GRO (mg/L)	TPH DRO (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)	Sodium (dissolved) (mg/L)	Iron (total) (mg/L)	Manganese (total) (mg/L)	Nitrate (as N) (mg/L)	Sulfate (mg/L)
NMWQCC Groundwater Quality Standards				**0.01**	**0.75**	**0.75**	**0.62**	**NE**	**NE**	**1.0**	**0.2**	**NE**	**NE**	**NE**	**10**	**600**
MW-4	GW-074938-040413-CM-MW-4	4/4/2013	(orig)	--	--	--	--	--	--	< 0.05	0.069	--	--	--	--	--
	GW-074938-093013-CM-MW-4	9/30/2013	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	--
	GW-074938-092315-CB-MW-4	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	86.8
	GW-074938-090716-SP-MW-4	9/7/2016	(orig)	--	--	--	--	--	--	< 0.05	0.0094	--	--	--	--	70.5
	GW-074938-112816-CN-MW-4	11/28/2016	(orig)	--	--	--	--	--	--	< 0.05	0.0066	--	--	--	--	112
MW-5	GW-074938-040413-CM-MW-5	4/4/2013	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	--
	GW-074938-040413-CM-DUP	4/4/2013	(Duplicate)	--	--	--	--	--	--	0.62*	0.025*	--	--	--	--	--
	GW-074938-093013-CM-MW-5	9/30/2013	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	--
	GW-074938-092315-CB-MW-5	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	115
	GW-074938-090716-SP-MW-5	9/7/2016	(orig)	--	--	--	--	--	--	< 0.05	< 0.005	--	--	--	--	144
	GW-074938-112816-CN-MW-5	11/28/2016	(orig)	--	--	--	--	--	--	0.186	0.0083	--	--	--	--	155
MW-6	MW-6	9/15/1998	(orig)	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	MW-6	12/29/1998	(orig)	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	MW-6	3/3/1999	(orig)	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	MW-6	6/15/1999	(orig)	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	MW-6	9/15/1999	(orig)	ND	0.0007	0.0011	ND	--	--	--	--	--	--	--	--	--
	MW-6	12/14/1999	(orig)	ND	0.0018	0.0007	0.0019	--	--	--	--	--	--	--	--	--
	MW-6	1/22/2004	(orig)	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	MW-6	5/9/2005	(orig)	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--	--	--	--	--	--	--	< 0.4	97
	MW-6	10/19/2005	(orig)	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--	--	--	--	--	--	--	5.4	52.6
	MW-6	11/14/2006	(orig)	< 0.0005	< 0.0007	< 0.0008	0.001	--	--	--	--	--	--	--	< 0.015	159
	MW-6	11/7/2007	(orig)	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--	--	--	--	--	--	--	< 0.015	112
	MW-6	7/24/2008	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	< 0.5	44.4
	MW-6	10/22/2008	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	< 0.5	43.7
	MW-6	1/21/2009	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	< 0.5	31.1
	MW-6	4/1/2009	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	--	--
	MW-6	6/10/2009	(orig)	< 0.005	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	--	--
	MW-6	10/1/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	< 0.02	--	--	--	--	--	--
	MW-6	12/17/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	0.0511	--	--	--	--	--	--
	MW-6	3/29/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	< 0.0200	--	--	--	--	--	--
	MW-6	6/11/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	< 0.0200	--	--	--	--	--	--
	MW-6	9/24/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	< 0.0200	--	--	--	--	--	--
	MW-6	2/7/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	**0.543**	--	--	--	--	--
	MW-6	3/18/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	--	--	< 0.02	0.0679	--	--	--	--	--
	GW-BCOM-062011-CMB-001	6/20/2011	(orig)	< 0.0010	< 0.0010	< 0.0010	< 0.0030	--	--	< 0.1	**0.43**	--	--	--	--	--
	GW-074938-093011-CM-004	9/30/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	< 0.05	0.0261	--	--	--	--	--
	GW-074938-121511-CB-MW-6	12/15/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	--	--	0.429	**1.06**	--	--	--	--	--
	GW-074938-092112-JP-MW-6	9/21/2012	(orig)	--	--	--	--	--	--	< 0.05	0.058	--	--	--	--	--
	GW-074938-092112-JP-DUP	9/21/2012	(Duplicate)	--	--	--	--	--	--	< 0.06	0.055	--	--	--	--	--
	GW-074938-040413-CM-MW-6	4/4/2013	(orig)	--	--	--	--	--	--	0.056	**0.33**	--	--	--	--	--
	GW-074938-093013-CM-MW-6	9/30/2013	(orig)	--	--	--	--	--	--	< 0.05	0.17	--	--	--	--	--
	GW-074938-093013-CM-DUP	9/30/2013	(Duplicate)	--	--	--	--	--	--	< 0.05	0.17	--	--	--	--	--
	GW-074938-092614-CM-MW-1	9/26/2014	(orig)	--	--	--	--	--	--	0.24	**0.44**	--	--	--	--	
	GW-074938-092614-CM-DUP	9/26/2014	(Duplicate)	--	--	--	--	--	--	0.27	**0.41**	--	--	--	--	--
	--	11/5/2014	IN SITU CHEMICAL OXIDATION INJECTION EVENT													
	GW-074938-121814-CM-MW-6	12/18/2014	(orig)	--	--	--	--	< 0.50	< 0.50	**1.33**	**0.268**	177	4.6	0.351	--	112
	GW-074938-121814-CM-MW-DUP	12/18/2014	(Duplicate)	--	--	--	--	--	--	**1.11**	**0.255**	166	--	--	--	112
	GW-074938-012815-JW-MW-6	1/28/2015	(orig)	--	--	--	--	--	--	< 0.05	**0.402**	93.5	13.9	.0868	--	29.8
		3/17/2015	IN SITU CHEMICAL OXIDATION - 2nd INJECTION EVENT													
	GW-074938-061815-CB-MW-6	6/18/2015	(orig)	--	--	--	--	--	--	0.0636	**0.0225**	402	--	--	--	236
	GW-074938-092315-CB-MW-6	9/23/2015	(orig)	--	--	--	--	--	--	< 0.05	0.0152	342		--	--	238
	GW-074938-12315-CB-MW-6	12/3/2015	(orig)	--	--	--	--	--	--	0.0709	0.194	252	7.810	0.428	--	75.8
	GW-074938-032816-CM-MW-6	3/28/2016	(orig)	--	--	--	--	--	--	--	**0.456**	--	--	--	--	--
	GW-074938-062216-SP-MW-6	6/22/2016	(orig)	--	--	--	--	--	--	< 0.05	**0.463**	--	--	--	--	--
	GW-074938-090716-SP-MW-6	9/7/2016	(orig)	--	--	--	--	--	--	< 0.05	**0.409**	--	--	--	--	86.7
	GW-074938-112816-CN-MW-6	11/28/2016	(orig)	--	--	--	--	--	--	< 0.05	0.0051	--	--	--	--	**1130**

Notes:
1. MW = monitoring well
2. NMWQCC = New Mexico Water Quality Control Commission
3. Constituents in **BOLD** are in excess of NMWQCC groundwater quality standards
4. mg/L = milligrams per liter (parts per million)
5. < 1.0 = Below laboratory detection limit of 1.0 mg/L
6. ND = Below laboratory detection limit

Appendix A
Groundwater Laboratory Analytical Reports

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

April 07, 2016

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

RE: Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Dear Jeffrey Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on March 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

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

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

CERTIFICATIONS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

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

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

SAMPLE SUMMARY

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60215814001	**GW-074938-032816-CM-MW-1**	Water	03/28/16 15:15	03/29/16 08:50
60215814002	**GW-074938-032816-CM-MW-6**	Water	03/28/16 15:30	03/29/16 08:50
60215814003	**GW-074938-032816-CM-DUP**	Water	03/28/16 08:00	03/29/16 08:50

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60215814001	**GW-074938-032816-CM-MW-1**	EPA 6010	JGP	1
60215814002	**GW-074938-032816-CM-MW-6**	EPA 6010	JGP	1
60215814003	**GW-074938-032816-CM-DUP**	EPA 6010	JGP	1

REPORT OF LABORATORY ANALYSIS

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

PROJECT NARRATIVE

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

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

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 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:

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

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

ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Sample: GW-074938-032816-CM-MW-1 **Lab ID: 60215814001** Collected: 03/28/16 15:15 Received: 03/29/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**454**	ug/L	5.0	1	04/01/16 15:30	04/05/16 12:20	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Sample: GW-074938-032816-CM-MW-6 **Lab ID: 60215814002** Collected: 03/28/16 15:30 Received: 03/29/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**456**	ug/L	5.0	1	04/01/16 15:30	04/05/16 12:24	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Sample: GW-074938-032816-CM-DUP **Lab ID: 60215814003** Collected: 03/28/16 08:00 Received: 03/29/16 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Manganese, Dissolved	**445**	ug/L	5.0	1	04/01/16 15:30	04/05/16 12:28	7439-96-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

QC Batch: MPRP/35416 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60215814001, 60215814002, 60215814003

METHOD BLANK: 1734700 Matrix: Water
Associated Lab Samples: 60215814001, 60215814002, 60215814003

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

LABORATORY CONTROL SAMPLE: 1734701

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1734702 1734703

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

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074938 B-COM No 1E COP
Pace Project No.: 60215814

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60215814001	**GW-074938-032816-CM-MW-1**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60215814002	**GW-074938-032816-CM-MW-6**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911
60215814003	**GW-074938-032816-CM-DUP**	EPA 3010	MPRP/35416	EPA 6010	ICP/25911

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Sample Condition Upon Receipt

WO# : 60215814

60215814

Client Name: GHD Services

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 6508 8165 2037 Pace Shipping Label Used? Yes ☐ No ☑

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

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

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

Cooler Temperature: 5.4

Date and initials of person examining contents: BB 3/29/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time requested: 3/29 BB	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☑Yes ☐No ☐N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased):	☐Yes ☐No ☑N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☑N/A	18.

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AAF Date: 3/29/16

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd. NE St2	Copy To:	Jeff Walker	Company Name:	
	Albuquerque, NM 87110		Angela Bown	Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-884-0672 Fax:	Project Name:	074938 B-COM No 1E COP	Pace Project Manager:	alice.flanagan@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	

Regulatory Agency	
State / Location	NM

ITEM #	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	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	Requested Analysis Filtered (Y/N): Dissolved Mn-field filtered	Residual Chlorine (Y/N)	60215814
																					2.0
1	GW-074938-032816-CM-MW-1	WT	G			3-28-16	1515		2			2						X			2BPSF 001
2	GW-074938-032816-CM-MW-6	↓	↓			↓	1530		1			1						X			BPSF 002
3	GW-074938-032816-CM-DUP	↓	↓			↓	—		1			1						X			↓ 003
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
METALS WERE FIELD FILTERED	GHD	3-28-16	1600		3/29/16	0850	5.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: CALE KIRKPATRICK

SIGNATURE of SAMPLER: [signature] DATE Signed: 3-28-16

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

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

June 29, 2016

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

RE: Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on June 27, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

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

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

CERTIFICATIONS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

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

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

SAMPLE SUMMARY

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60222233001	**GW-074938-062216-SP-MW-6**	Water	06/22/16 17:00	06/27/16 08:30
60222233002	**GW-074938-062216-SP-MW-1**	Water	06/22/16 17:15	06/27/16 08:30

Pace Analytical Services, Inc.
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SAMPLE ANALYTE COUNT

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60222233001	**GW-074938-062216-SP-MW-6**	EPA 6010	JGP	2
60222233002	**GW-074938-062216-SP-MW-1**	EPA 6010	JGP	2

REPORT OF LABORATORY ANALYSIS

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

PROJECT NARRATIVE

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: June 29, 2016

General Information:
2 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:

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

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Sample: GW-074938-062216-SP-MW-6 **Lab ID: 60222233001** Collected: 06/22/16 17:00 Received: 06/27/16 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	ug/L	50.0	1	06/28/16 10:45	06/29/16 09:58	7439-89-6	
Manganese, Dissolved	**463**	ug/L	5.0	1	06/28/16 10:45	06/29/16 09:58	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Sample: GW-074938-062216-SP-MW-1 **Lab ID: 60222233002** Collected: 06/22/16 17:15 Received: 06/27/16 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	**16200**	ug/L	50.0	1	06/28/16 10:45	06/29/16 10:02	7439-89-6	
Manganese, Dissolved	**1700**	ug/L	5.0	1	06/28/16 10:45	06/29/16 10:02	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

QC Batch: MPRP/36479 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60222233001, 60222233002

METHOD BLANK: 1784029 Matrix: Water
Associated Lab Samples: 60222233001, 60222233002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	ND	50.0	06/29/16 09:13	
Manganese, Dissolved	ug/L	ND	5.0	06/29/16 09:13	

LABORATORY CONTROL SAMPLE: 1784030

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	10000	9740	97	80-120	
Manganese, Dissolved	ug/L	1000	972	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1784031 1784032

Parameter	Units	60222267002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	1830	10000	10000	11200	11400	94	95	75-125	1	20	
Manganese, Dissolved	ug/L	2260	1000	1000	3110	3120	85	85	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074938 B-COM No 1E COP
Pace Project No.: 60222233

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60222233001	**GW-074938-062216-SP-MW-6**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591
60222233002	**GW-074938-062216-SP-MW-1**	EPA 3010	MPRP/36479	EPA 6010	ICP/26591

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60222233

60222233

Client Name: GHD COP

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 6703 1644 5912 Pace Shipping Label Used? Yes ☐ No ☐

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

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

Thermometer Used: CF -0.1 T-239 / CF 0.0 T-262 **Type of Ice:** Wet Blue (None) (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 23.9

Date and initials of person examining contents: JB 6/27

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☒Yes ☐No ☐N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☐Yes ☒No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☒N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒N/A	18.

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.	
Start: 0920	Start:
End: 0926	End:
Temp:	Temp:

Project Manager Review: AAF Date: 06/27/16

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd, NE St2	Copy To:	Jeff Walker	Company Name:	
Albuquerque, NM 87110			Angela Bown	Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-884-0672 Fax:	Project Name:	074938 B-COM No 1E COP	Pace Project Manager:	alice.flanagan@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	

Regulatory Agency	State / Location
	NM

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Dissolved Mn-field filtered	Dissolved Fe-Acid Filtered	Residual Chlorine (Y/N)	6022233
1	GW-074938-062216-SP-MW-6	WT	G	6/22/16	1700	—			2			X							X	X		(2) BP3F 250 001
2	GW-074938-062216-SP-MW-1	↓	↓	↓	1715	—			2			X							X	X		↓ 002
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Steve Perez/GHD	6/23/16	1525		6/27	0830	23.9	N	Y	Y

SAMPLER NAME AND SIGNATURE		
PRINT Name of SAMPLER:	Steven Perez	
SIGNATURE of SAMPLER:	Steven Perez	DATE Signed: 6/23/16

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

September 26, 2016

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

RE: Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

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

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

CERTIFICATIONS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

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

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

SAMPLE SUMMARY

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60227338001	**GW-074938-090716-SP-MW-1**	Water	09/07/16 16:55	09/09/16 08:18
60227338002	**GW-074938-090716-SP-MW-2**	Water	09/07/16 16:40	09/09/16 08:18
60227338003	**GW-074938-090716-SP-MW-3**	Water	09/07/16 16:45	09/09/16 08:18
60227338004	**GW-074938-090716-SP-MW-4**	Water	09/07/16 16:50	09/09/16 08:18
60227338005	**GW-074938-090716-SP-MW-5**	Water	09/07/16 17:05	09/09/16 08:18
60227338006	**GW-074938-090716-SP-MW-6**	Water	09/07/16 17:10	09/09/16 08:18
60227338007	**GW-074938-090716-SP-DUP**	Water	09/07/16 00:00	09/09/16 08:18

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

SAMPLE ANALYTE COUNT

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60227338001	**GW-074938-090716-SP-MW-1**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338002	**GW-074938-090716-SP-MW-2**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338003	**GW-074938-090716-SP-MW-3**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338004	**GW-074938-090716-SP-MW-4**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338005	**GW-074938-090716-SP-MW-5**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338006	**GW-074938-090716-SP-MW-6**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60227338007	**GW-074938-090716-SP-DUP**	EPA 6010	JGP	2
		EPA 300.0	OL	1

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PROJECT NARRATIVE

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: September 26, 2016

General Information:
7 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: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: September 26, 2016

General Information:
7 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.

QC Batch: 447859

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60227338007,60227557001

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

- MSD (Lab ID: 1832448)
  - Sulfate

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-1 **Lab ID: 60227338001** Collected: 09/07/16 16:55 Received: 09/09/16 08:18 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							
Iron, Dissolved	**7660**	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:02	7439-89-6	
Manganese, Dissolved	**1630**	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:02	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**689**	mg/L	50.0	50		09/24/16 17:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-2 **Lab ID: 60227338002** Collected: 09/07/16 16:40 Received: 09/09/16 08:18 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							
Iron, Dissolved	ND	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:06	7439-89-6	
Manganese, Dissolved	ND	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:06	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**106**	mg/L	10.0	10		09/24/16 17:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-3 **Lab ID: 60227338003** Collected: 09/07/16 16:45 Received: 09/09/16 08:18 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							
Iron, Dissolved	ND	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:09	7439-89-6	
Manganese, Dissolved	**850**	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:09	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**192**	mg/L	20.0	20		09/24/16 17:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-4 **Lab ID: 60227338004** Collected: 09/07/16 16:50 Received: 09/09/16 08:18 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							
Iron, Dissolved	ND	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:13	7439-89-6	
Manganese, Dissolved	**9.4**	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:13	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**70.5**	mg/L	5.0	5		09/24/16 17:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-5 **Lab ID: 60227338005** Collected: 09/07/16 17:05 Received: 09/09/16 08:18 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							
Iron, Dissolved	ND	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:17	7439-89-6	
Manganese, Dissolved	ND	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:17	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**144**	mg/L	10.0	10		09/24/16 18:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-MW-6 **Lab ID: 60227338006** Collected: 09/07/16 17:10 Received: 09/09/16 08:18 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							
Iron, Dissolved	ND	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:20	7439-89-6	
Manganese, Dissolved	**409**	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:20	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**86.7**	mg/L	10.0	10		09/24/16 18:26	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Sample: GW-074938-090716-SP-DUP **Lab ID: 60227338007** Collected: 09/07/16 00:00 Received: 09/09/16 08:18 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							
Iron, Dissolved	**10200**	ug/L	50.0	1	09/12/16 16:00	09/14/16 12:24	7439-89-6	
Manganese, Dissolved	**1770**	ug/L	5.0	1	09/12/16 16:00	09/14/16 12:24	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**767**	mg/L	50.0	50		09/25/16 13:06	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

QC Batch: 446196 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60227338001, 60227338002, 60227338003, 60227338004, 60227338005, 60227338006, 60227338007

METHOD BLANK: 1824209 Matrix: Water
Associated Lab Samples: 60227338001, 60227338002, 60227338003, 60227338004, 60227338005, 60227338006, 60227338007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	ND	50.0	09/14/16 11:55	
Manganese, Dissolved	ug/L	ND	5.0	09/14/16 11:55	

LABORATORY CONTROL SAMPLE: 1824210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	10000	9580	96	80-120	
Manganese, Dissolved	ug/L	1000	1040	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1824211 1824212

Parameter	Units	60227340003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	6070	10000	10000	15100	15800	91	97	75-125	4	20	
Manganese, Dissolved	ug/L	1110	1000	1000	2080	2160	97	105	75-125	4	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: 074938 B-COM No 1E COP
Pace Project No.: 60227338

QC Batch: 447841 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227338001, 60227338002, 60227338003, 60227338004, 60227338005, 60227338006

METHOD BLANK: 1832280 Matrix: Water
Associated Lab Samples: 60227338001, 60227338002, 60227338003, 60227338004, 60227338005, 60227338006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	09/24/16 12:18	

LABORATORY CONTROL SAMPLE: 1832281

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: 1832282 1832283

Parameter	Units	60227293002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	131	50	50	179	179	97	96	80-120	0	15	

MATRIX SPIKE SAMPLE: 1832284

Parameter	Units	60227293005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	104	50	155	103	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074938 B-COM No 1E COP
Pace Project No.: 60227338

QC Batch: 447859
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60227338007

METHOD BLANK: 1832445 Matrix: Water
Associated Lab Samples: 60227338007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	09/25/16 12:26	

LABORATORY CONTROL SAMPLE: 1832446

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: 1832447 1832448

Parameter	Units	60227338007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	767	250	250	983	937	87	68	80-120	5	15	M1

MATRIX SPIKE SAMPLE: 1832449

Parameter	Units	60227557001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	479	250	766	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: 074938 B-COM No 1E COP
Pace Project No.: 60227338

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.

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: 074938 B-COM No 1E COP
Pace Project No.: 60227338

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60227338001	**GW-074938-090716-SP-MW-1**	EPA 3010	446196	EPA 6010	446250
60227338002	**GW-074938-090716-SP-MW-2**	EPA 3010	446196	EPA 6010	446250
60227338003	**GW-074938-090716-SP-MW-3**	EPA 3010	446196	EPA 6010	446250
60227338004	**GW-074938-090716-SP-MW-4**	EPA 3010	446196	EPA 6010	446250
60227338005	**GW-074938-090716-SP-MW-5**	EPA 3010	446196	EPA 6010	446250
60227338006	**GW-074938-090716-SP-MW-6**	EPA 3010	446196	EPA 6010	446250
60227338007	**GW-074938-090716-SP-DUP**	EPA 3010	446196	EPA 6010	446250
60227338001	**GW-074938-090716-SP-MW-1**	EPA 300.0	447841		
60227338002	**GW-074938-090716-SP-MW-2**	EPA 300.0	447841		
60227338003	**GW-074938-090716-SP-MW-3**	EPA 300.0	447841		
60227338004	**GW-074938-090716-SP-MW-4**	EPA 300.0	447841		
60227338005	**GW-074938-090716-SP-MW-5**	EPA 300.0	447841		
60227338006	**GW-074938-090716-SP-MW-6**	EPA 300.0	447841		
60227338007	**GW-074938-090716-SP-DUP**	EPA 300.0	447859		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60227338

60227338

Client Name: GHD COP NM

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

Tracking #: 7644 6521 7904 Pace Shipping Label Used? Yes ☐ No ☒

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

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

Thermometer Used: CF +1.1 T-266 / CF -0.1 T-239 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.7 **Corr. Factor** CF +1.1 CF -0.1 **Corrected** 3.8

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

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☒Yes ☐No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: water	☐Yes ☐No ☒N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	
Cyanide water sample checks: ☐ N/A		
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: alice Date: 09/12/16

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

Start: 1200	Start:
End: 1205	End:
Temp:	Temp:

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Christine Mathews	Attention:	
Address:	6212 Indian School Rd. NE St2	Copy To:	Jeff Walker, Cale Kanack	Company Name:	
Albuquerque, NM 87110				Address:	
Email:	christine.mathews@ghd.com	Purchase Order #:	34005851	Pace Quote:	
Phone:	505-884-0672 Fax	Project Name:	074938 B-COM No 1E COP	Pace Project Manager:	alice.spiller@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8644, 19

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 Fe,Mn-field filtered	300.0 Sulfate	Residual Chlorine (Y/N)	60227336
1	GW-074938-090716-SP-MW-1	WT	G	9-7-16	1655				2										X	X		001
2	GW-074938-090716-SP-MW-2				1640				2													002
3	GW-074938-090716-SP-MW-3				1645				2													003
4	GW-074938-090716-SP-MW-4				1650				2													004
5	GW-074938-090716-SP-MW-5				1705				2													005
6	GW-074938-090716-SP-MW-6				1710				2													006
7	GW-074938-090716-SP-DUP								2													007
8																						
9																						
10																						
11																						
12																						

1(BPSW) 1(BPSF) 1S

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Steve Perez	9-8-16	1627		9/9/16	850	3.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE					
PRINT Name of SAMPLER:	Steve Perez	Steve Perez			
SIGNATURE of SAMPLER:	Steve Perez	DATE Signed:	9-8-16	TEMP in C	Received on Ice (Y/N) / Custody Sealed Cooler (Y/N) / Samples Intact (Y/N)

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

December 19, 2016

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

RE: Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Dear Jeffrey Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on December 01, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Spiller

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, GHD Services, Inc,

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

CERTIFICATIONS

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

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
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60233393001	**GW-074938-112816-CN-MW3**	Water	11/28/16 15:00	12/01/16 08:55
60233393002	**GW-074938-112816-CN-MW4**	Water	11/28/16 16:04	12/01/16 08:55
60233393003	**GW-074938-112816-CN-MW5**	Water	11/28/16 16:25	12/01/16 08:55
60233393004	**GW-074938-112816-CN-MW6**	Water	11/28/16 16:48	12/01/16 08:55

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SAMPLE ANALYTE COUNT

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60233393001	**GW-074938-112816-CN-MW3**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60233393002	**GW-074938-112816-CN-MW4**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60233393003	**GW-074938-112816-CN-MW5**	EPA 6010	JGP	2
		EPA 300.0	OL	1
60233393004	**GW-074938-112816-CN-MW6**	EPA 6010	JGP	2
		EPA 300.0	OL	1

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PROJECT NARRATIVE

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

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

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

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

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

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

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

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

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

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

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

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

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

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

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Sample: GW-074938-112816-CN-MW3 **Lab ID: 60233393001** Collected: 11/28/16 15:00 Received: 12/01/16 08:55 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							
Iron, Dissolved	**218**	ug/L	50.0	1	12/07/16 11:10	12/14/16 11:15	7439-89-6	
Manganese, Dissolved	**95.9**	ug/L	5.0	1	12/07/16 11:10	12/14/16 11:15	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**214**	mg/L	50.0	50		12/17/16 01:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Sample: GW-074938-112816-CN-MW4 **Lab ID: 60233393002** Collected: 11/28/16 16:04 Received: 12/01/16 08:55 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							
Iron, Dissolved	ND	ug/L	50.0	1	12/07/16 11:10	12/14/16 11:30	7439-89-6	
Manganese, Dissolved	**6.6**	ug/L	5.0	1	12/07/16 11:10	12/14/16 11:30	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**112**	mg/L	10.0	10		12/17/16 19:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Sample: GW-074938-112816-CN-MW5 **Lab ID: 60233393003** Collected: 11/28/16 16:25 Received: 12/01/16 08:55 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							
Iron, Dissolved	**186**	ug/L	50.0	1	12/07/16 11:10	12/14/16 11:34	7439-89-6	
Manganese, Dissolved	**8.3**	ug/L	5.0	1	12/07/16 11:10	12/14/16 11:34	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**155**	mg/L	10.0	10		12/17/16 20:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Sample: GW-074938-112816-CN-MW6 **Lab ID: 60233393004** Collected: 11/28/16 16:48 Received: 12/01/16 08:55 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							
Iron, Dissolved	ND	ug/L	50.0	1	12/07/16 11:10	12/14/16 11:37	7439-89-6	
Manganese, Dissolved	**5.1**	ug/L	5.0	1	12/07/16 11:10	12/14/16 11:37	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1130**	mg/L	100	100		12/17/16 20:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

QC Batch: 457895 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60233393001, 60233393002, 60233393003, 60233393004

METHOD BLANK: 1874477 Matrix: Water
Associated Lab Samples: 60233393001, 60233393002, 60233393003, 60233393004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	ND	50.0	12/14/16 11:08	
Manganese, Dissolved	ug/L	ND	5.0	12/14/16 11:08	

LABORATORY CONTROL SAMPLE: 1874478

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	10000	10000	100	80-120	
Manganese, Dissolved	ug/L	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1874479 1874481

Parameter	Units	60233393001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	218	10000	10000	9940	9880	97	97	75-125	1	20	
Manganese, Dissolved	ug/L	95.9	1000	1000	1080	1060	98	97	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

QC Batch: 458964 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60233393001

METHOD BLANK: 1878848 Matrix: Water
Associated Lab Samples: 60233393001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	12/16/16 20:23	

LABORATORY CONTROL SAMPLE: 1878849

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: 1878850 1878851

Parameter	Units	60233306001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	6.4	5	5	11.5	11.6	102	104	80-120	1	15	

MATRIX SPIKE SAMPLE: 1878852

Parameter	Units	60233306002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	ND	5	5.1	101	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

QC Batch: 459370 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60233393002, 60233393003, 60233393004

METHOD BLANK: 1880949 Matrix: Water
Associated Lab Samples: 60233393002, 60233393003, 60233393004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	12/17/16 18:53	

LABORATORY CONTROL SAMPLE: 1880950

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: 1880951 1880952

Parameter	Units	60233393002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	112	50	50	163	161	102	97	80-120	2	15	

MATRIX SPIKE SAMPLE: 1880953

Parameter	Units	60233393003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	155	50	205	99	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: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074938 B-COM NO 1E COP
Pace Project No.: 60233393

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60233393001	**GW-074938-112816-CN-MW3**	EPA 3010	457895	EPA 6010	457953
60233393002	**GW-074938-112816-CN-MW4**	EPA 3010	457895	EPA 6010	457953
60233393003	**GW-074938-112816-CN-MW5**	EPA 3010	457895	EPA 6010	457953
60233393004	**GW-074938-112816-CN-MW6**	EPA 3010	457895	EPA 6010	457953
60233393001	**GW-074938-112816-CN-MW3**	EPA 300.0	458964		
60233393002	**GW-074938-112816-CN-MW4**	EPA 300.0	459370		
60233393003	**GW-074938-112816-CN-MW5**	EPA 300.0	459370		
60233393004	**GW-074938-112816-CN-MW6**	EPA 300.0	459370		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60233393

60233393

ATY

Client Name: GHD

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

Tracking #: 7044 6656 7540 Pace Shipping Label Used? Yes ☐ No ☑

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

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

Thermometer Used: CF +0.7 T-266 / CF -0.5 T-239 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 14.1 **Corr. Factor** CF +0.7 CF -0.5 **Corrected** 14.8

Date and initials of person examining contents: DV 12/1/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	No ice with samples.
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	DV 12/1/16
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix:	☐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:	☐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: move forward with analysis

Project Manager Review: Alica Date: 12/1/16

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

Start: 1035	Start:
End: 1040	End:
Temp:	Temp:

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	~~Christine Mathews~~	Attention:	
Address:	6212 Indian School Rd. NE St2	Copy To:	Jeff Walker, ~~Sale Kenack~~	Company Name:	
	Albuquerque, NM 87110			Address:	
Email:	~~christine.mathews@ghd.com~~ jeff.walker@	Purchase Order #:	34005851	Pace Quote:	
Phone:	505-884-0672 Fax:	Project Name:	074938 B-COM No 1E COP	Pace Project Manager:	alice.spiller@pacelabs.com,
Requested Due Date:		Project #:	074938	Pace Profile #:	8644, 19

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	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Dissolved Fe,Mn-field filtered	300.0 Sulfate	Residual Chlorine (Y/N)	60233593
1	GW-074938-112816-CN-MW3	GW	G	11/28/16	1500	—	—	A	2	X		X							X	X		IB2M IB3F 2-0 01
2	GW-074938-112816-CN-MW4				1604														X	X		02
3	GW-074938-112816-CN-MW5				1625														X	X		03
4	GW-074938-112816-CN-MW6				1648														X	X		04
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

A ambient

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)
	J Walker/GHD	113016	1117	PantPAST	12/1/16	~~1448~~ 0855	14.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff Walker for CN

SIGNATURE of SAMPLER: J Walker DATE Signed: 11/30/16