3R – 071

2014 AGWMR

04 / 16 / 2015

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ConocoPhillips

Mr. Glenn von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

April 16, 2015

Re: NMOCD Case No. 3RP-071, 2014 Annual Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed is the 2014 Annual Groundwater Monitoring Report for the Johnston Federal No. 4 site. This report, prepared by Conestoga-Rovers & Associates (CRA), contains the results of the annual groundwater monitoring and mobile dual phase extraction event conducted during September and November, 2014, respectively, at the referenced site.

Please let me know if you have any questions.

Sincerely,

Rick Greiner

Enc

CONESTOGA-ROVERS & ASSOCIATES

www.CRAworld.com

2014 Annual Groundwater Monitoring Report

ConocoPhillips Johnston Federal No. 4 Metering Station
San Juan County, New Mexico
API# 30-045-10130
NMOCD # 3RP-071

Prepared for: ConocoPhillips Company

Conestoga-Rovers & Associates
6121 Indian School Road, NE Suite 200
Albuquerque, New Mexico 87110

February 2015 • 074925 • Report No. 5

Partners in Sustainability

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Section 1.0 Introduction

This report presents the results of the 2014 annual groundwater monitoring event, a mobile dual phase extraction (MDPE) event, and post-MDPE groundwater monitoring events conducted by Conestoga-Rovers & Associates (CRA) at the ConocoPhillips Company (ConocoPhillips) Johnston Federal No. 4 Metering Station (Site). The Site is located on Bureau of Land Management (BLM) land, approximately 13 miles east-northeast of Aztec, San Juan County, New Mexico in Unit Letter M, Section 27, Township 31N, Range 9W (**Figure 1**). A Site detail map is included as **Figure 2**. The Johnston Federal No. 4 wellhead, API # 30-045-10130, is located approximately one-half mile to the southwest of the metering station.

1.1 Background

Burlington Resources (Burlington) conducted initial site assessments of two production pits in August 1998. Soil from the separator pit was collected and analyzed for total petroleum hydrocarbons (TPH). The concentration of TPH in separator pit (Production Pit #1, Figure 2) soil was found to be below New Mexico Oil Conservation Division (NMOCD) recommended action levels for this constituent, and the pit was subsequently granted closure by NMOCD. Soil from the tank drain pit (Production Pit #2, Figure 2) was collected and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and TPH. Concentrations of these constituents were found to be above NMOCD recommended action levels. Following laboratory results, approximately 3,055 cubic yards of hydrocarbon-impacted soil was excavated in December 1998. Once complete, the excavation was backfilled with clean fill material, and the NMOCD granted pit closure.

A groundwater monitoring well, MW-1, was installed at the Site to a depth of 50 feet below ground surface (bgs) in May of 1999. Burlington sampled MW-1 on a quarterly basis until the acquisition of Burlington by ConocoPhillips in March of 2006. Tetra Tech, Inc. (Tetra Tech) began sampling MW-1 in November 2007. In August 2008, three additional groundwater monitoring wells were installed under the supervision of Tetra Tech by WDC Exploration and Drilling of Peralta, NM. With information obtained during monitoring well installation in 2008, a generalized geologic cross section was completed for the Site and is presented as **Figure 3**. The existing Burlington/ConocoPhillips monitoring well network at the Site includes MW-1, MW-2, MW-3, and MW-4. Monitoring wells MW-1, MW-2, MW-3, and MW-4 were incorporated into an annual sampling schedule beginning on October 24, 2008.

El Paso CGP Company (El Paso) owns 12 additional Site monitoring wells with the last six of those wells being installed in late 2013.The El Paso-owned monitoring wells are scheduled on a semi-annual basis and free product is also being recovered.

On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to CRA of Albuquerque, NM.

A historical timeline for the Site is presented in **Table 1**.

Section 2.0 Mobile Dual Phase Extraction

CRA provided oversight for an MDPE event conducted on November 12 and 13, 2014 by AcuVac of Houston, TX. MDPE is a process combining soil vapor extraction (SVE) with groundwater depression to maximize mass removal of liquid and vapor phase hydrocarbons. A submersible pump is used to simultaneously remove dissolved-phase contaminated groundwater, induce a hydraulic gradient toward the extraction well, and to create the groundwater depression, exposing the capillary fringe or smear zone to SVE. Recovered liquids were discharged to the on-site evaporation tank. Recovered vapors were used as fuel and burned in the MDPE internal combustion engine (ICE). Power generated by the ICE is used to create the induced vacuum for SVE.

During the two days of MDPE, approximately 44 gallons of hydrocarbons (liquid and vapor) were extracted from monitoring well MW-1. The November 2014 MDPE event follows an August 2013 MDPE event in which 94 gallons of hydrocarbons were extracted from MW-1. Data from the January 2015 groundwater monitoring event indicate that, while the MDPE events were very effective in removing a mass of hydrocarbons, elevated concentrations remain in the groundwater in the vicinity of MW-1 (see Section 3.2). The complete report for MDPE activities performed at the Site was provided by AcuVac and is included as **Appendix A.**

Section 3.0 Groundwater Sampling Methodology and Analytical Results

3.1 Groundwater Sampling Methodology

Groundwater Elevation Measurements

On September 23, 2014, groundwater elevation measurements were obtained for monitoring wells MW-1, MW-2, MW-3, and MW-4 using an oil/water interface probe. Groundwater elevations are detailed in **Table 2**. A groundwater potentiometric surface map is presented as **Figure 4.** Based on September 2014 monitoring event data, groundwater flow is to the east-southeast and is consistent with historical data at the Site.

There was no measurable thickness of product present in the Site monitoring wells during the 2014 annual groundwater sampling event; however, a slight but continuous hydrocarbon sheen was observed in the purge water generated from monitoring well MW-1.

Groundwater sampling

On September 23, 2014, groundwater samples were collected from monitoring wells MW-1, MW-2, MW-3, and MW-4. Approximately three well volumes were purged from each monitoring well with a dedicated polyethylene 1.5-inch disposable bailer prior to sampling. While bailing each well, groundwater parameter data, including temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential were collected using a multi-parameter sonde. Field parameters are summarized on **Table 3**.

Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Pace Analytical Services, Inc. of Lenexa, Kansas. The samples were analyzed for the presence of BTEX in accordance with Environmental Protection Agency (EPA) Method 8260, naphthalene by EPA Method 8270, sulfate by EPA Method 300.0, and for dissolved manganese and iron by EPA Method 6010.

Additionally, groundwater samples were collected from monitoring wells MW-3 and MW-4 on December 17, 2014 and from monitoring well MW-1 on January 8, 2015, in order to assess the effectiveness of the November 2014 MDPE event. The samples were analyzed for BTEX by EPA Method 8260 and for naphthalene by EPA Method 8270. The associated laboratory analytical reports are included as **Appendix B**.

3.2 Groundwater Analytical Results

The New Mexico Water Quality Control Commission (NMWQCC) mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedances of NMWQCC groundwater quality standards in Site monitoring wells are discussed below. Results are summarized in **Table 4**.

September 2014

- **Benzene**
  - The NMWQCC standard for benzene is 0.01 milligrams per liter (mg/L). The groundwater sample collected from MW-1 exceeded the standard for benzene with a concentration of 2.97 mg/L.

- **Toluene**
  - The NMWQCC standard for toluene is 0.75 mg/L. The groundwater sample collected from MW-1 exceeded the standard for toluene with a concentration of 4.25 mg/L.

- **Ethylbenzene**
  - The NMWQCC standard for ethylbenzene is 0.75 mg/L. The groundwater sample collected from MW-1 exceeded the standard for ethylbenzene with a concentration of 0.778 mg/L.

- **Total Xylenes**
  - The NMWQCC standard for total xylenes is 0.620 mg/L. The groundwater sample collected from MW-1 exceeded the standard for xylenes with a concentration of 6.89 mg/L.

- **Naphthalene**
  - The NMWQCC standard for naphthalene is 0.03 mg/L. The groundwater sample collected from MW-1 exceeded the standard for naphthalene with a concentration of 0.0446 mg/L.

- **Sulfate**
  - The NMWQCC standard for sulfate is 600 mg/L. The groundwater samples collected from MW-2 and MW-4 exceeded the standard for sulfate with concentrations of 1,190 mg/L and 905 mg/L, respectively.

- **Dissolved Manganese**
  - The NMWQCC standard for dissolved manganese is 0.2 mg/L. The groundwater samples collected from MW-1, MW-3, and MW-4 exceeded the standard for dissolved manganese with concentrations of 0.85 mg/L, 0.65 mg/L, and 2.2 mg/L, respectively.

December 2014/January 2015

- **Benzene**
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for benzene with a concentration of 4.35 mg/L.

- **Toluene**
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for toluene with a concentration of 6.15 mg/L.

- **Ethylbenzene**
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for ethylbenzene with a concentration of 1.07 mg/L.

- **Xylenes**
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for xylenes with a concentration of 10.0 mg/L.

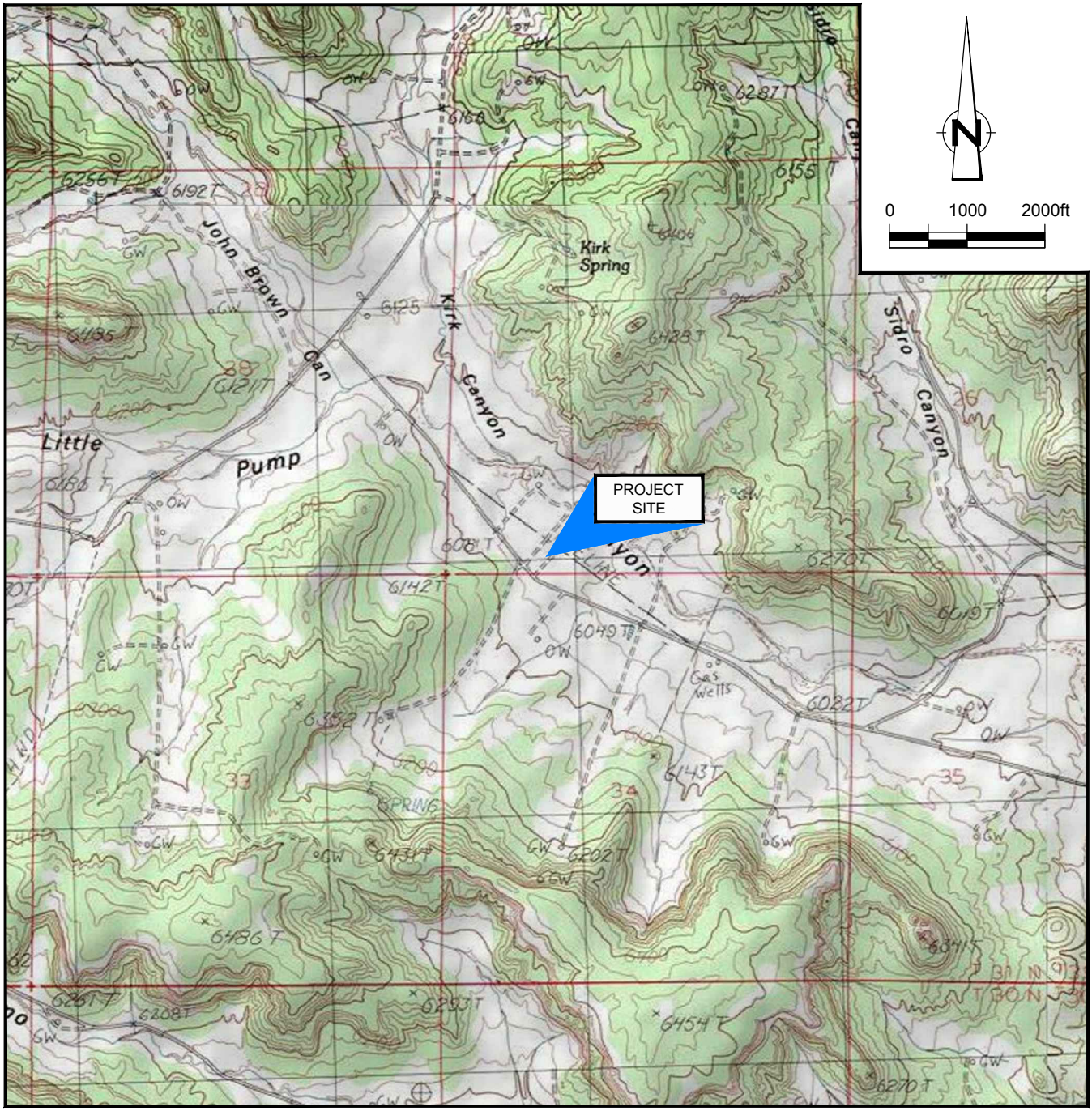
Section 4.0 Conclusions and Recommendations

Approximately 44 gallons of hydrocarbons were successfully removed from the subsurface at monitoring well MW-1 during the November 2014 MDPE event. The concentration of BTEX in MW-1 increased between the September 2014 and December 2014/January 2015 sampling events. Additionally, the concentration of benzene in MW-4, down-gradient from MW-1, has been reduced to below the NMWQCC standard. This same Site phenomenon, increased concentrations at the extraction well (MW-1), and decreased concentrations down-gradient (MW-4) was observed after the 2013 MDPE event. This serves as evidence of the beneficial plume-shrinking effect of the induced gradient toward the extraction well as a result of the MDPE event. CRA recommends conducting additional MDPE events at the Site to remediate the dissolved-phase hydrocarbon plume.

Concentrations of sulfate and dissolved manganese continue to be detected above NMWQCC groundwater quality standards in Site monitoring wells. CRA recommends continued annual sampling of Site monitoring wells until all monitored groundwater quality parameters approach NMWQCC standards. CRA will begin a quarterly sampling schedule once all parameters are near or below NMWQCC standards or background levels.

The next groundwater monitoring event at the Site is scheduled to take place during September of 2015 and will include analyses for BTEX, naphthalene, dissolved manganese, dissolved iron, and sulfate.

Figures



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

LAT/LONG: 36.8626° NORTH, 107.7723° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO WEST

Figure 1

SITE LOCATION MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

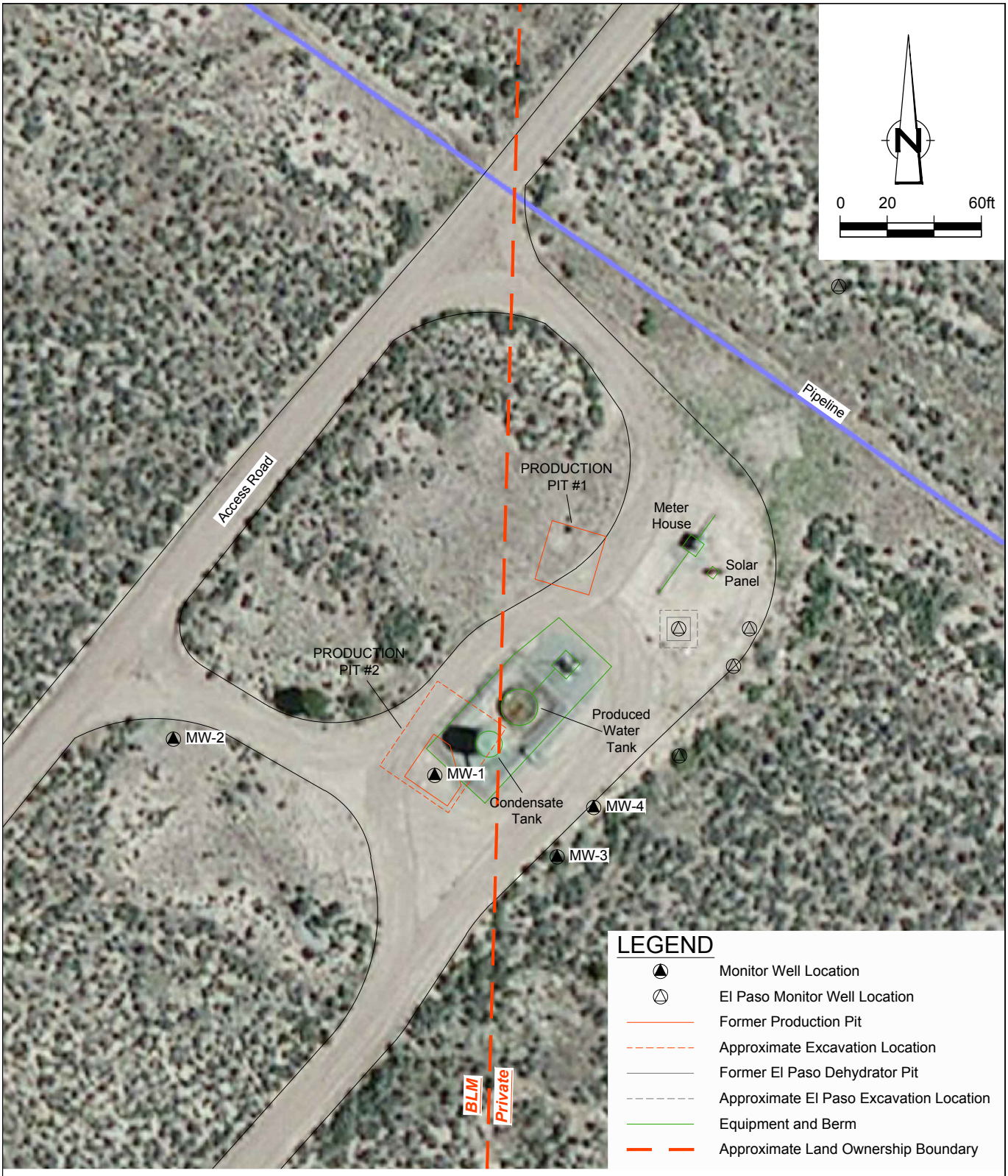


Figure 2

SITE PLAN
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

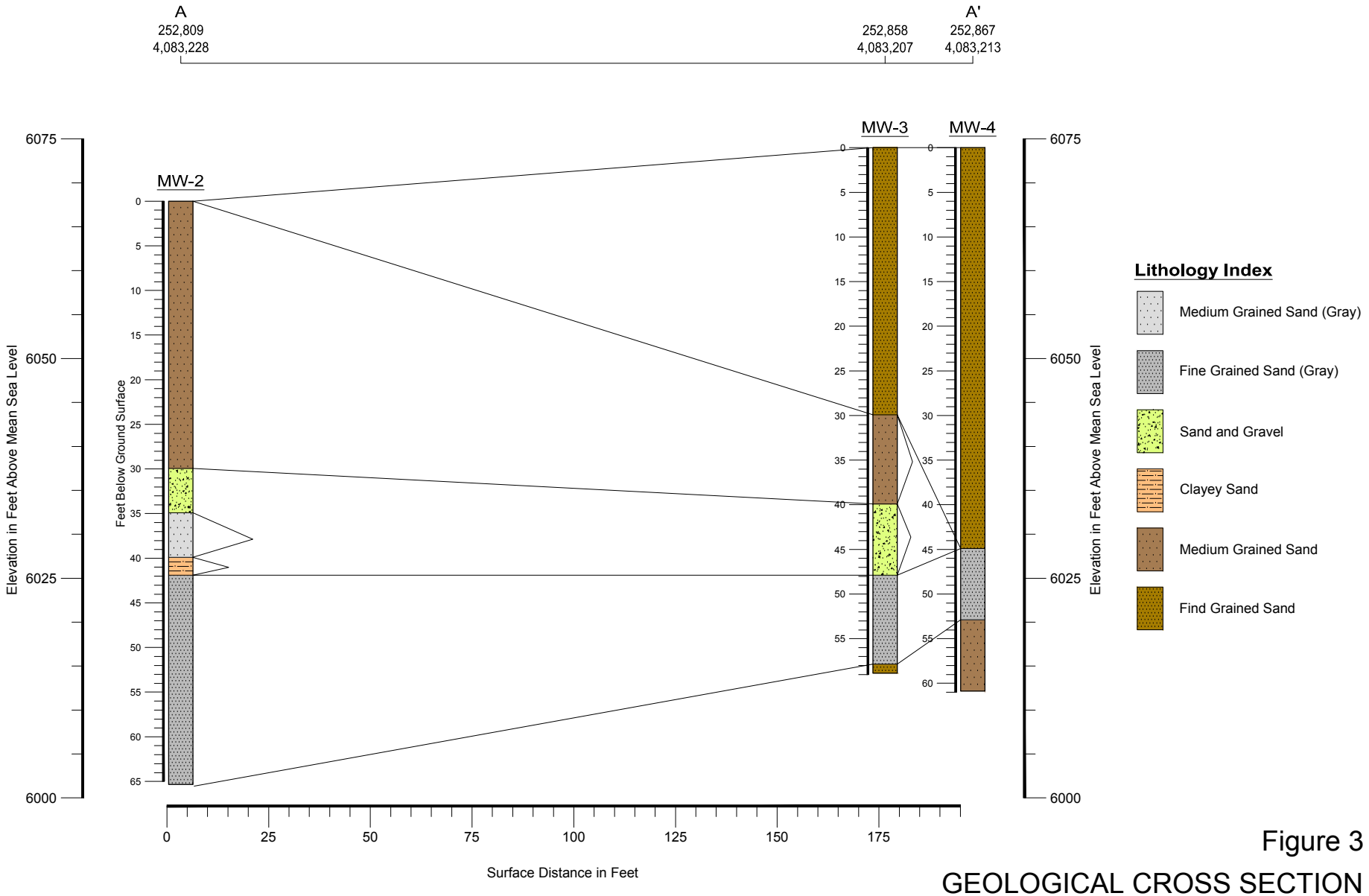


Figure 3

GEOLOGICAL CROSS SECTION
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

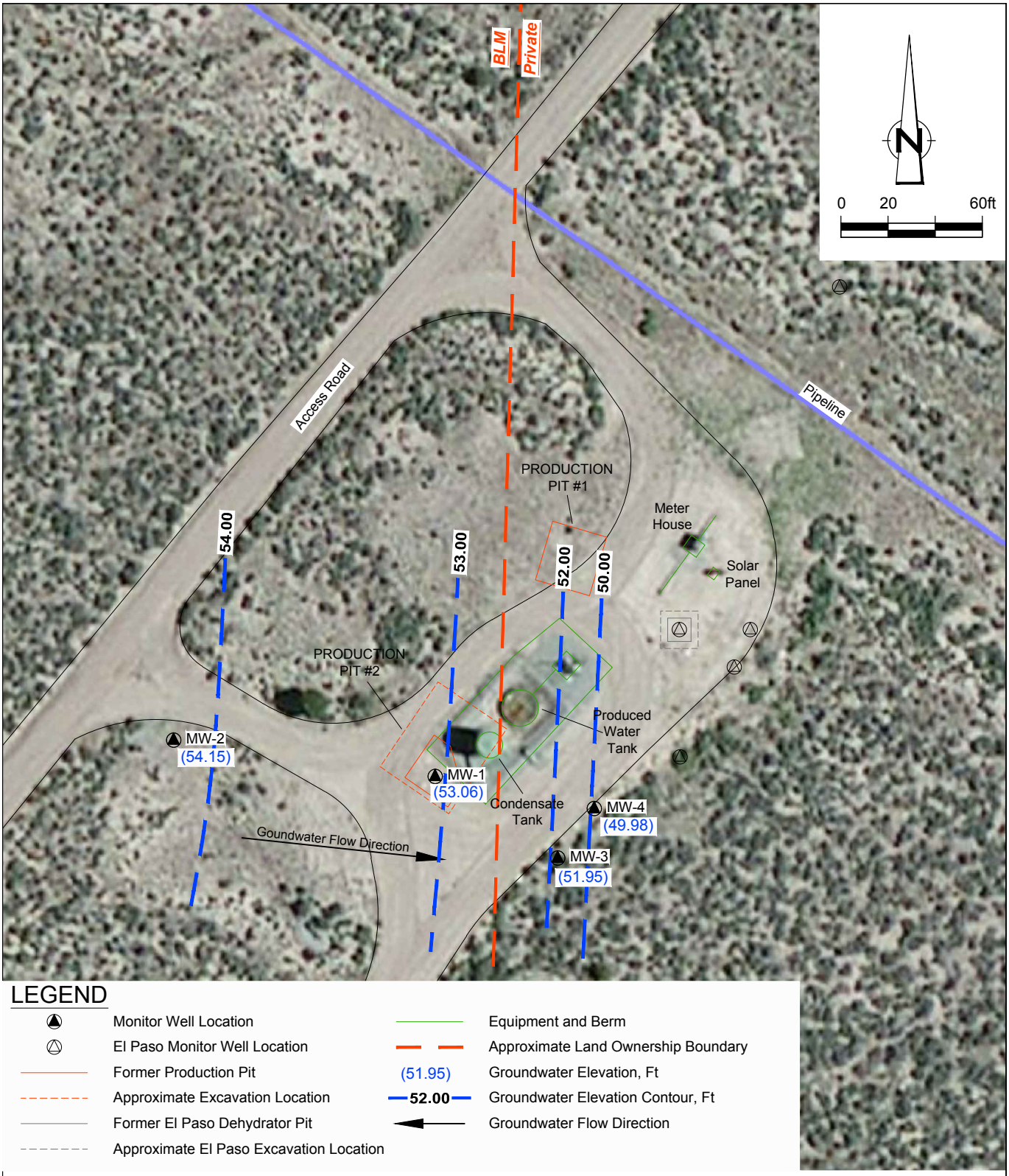


Figure 4

SEPTEMBER 2014 GROUNDWATER POTENTIOMETRIC SURFACE MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074925-95(005)GN-DL001 OCT 29/2014

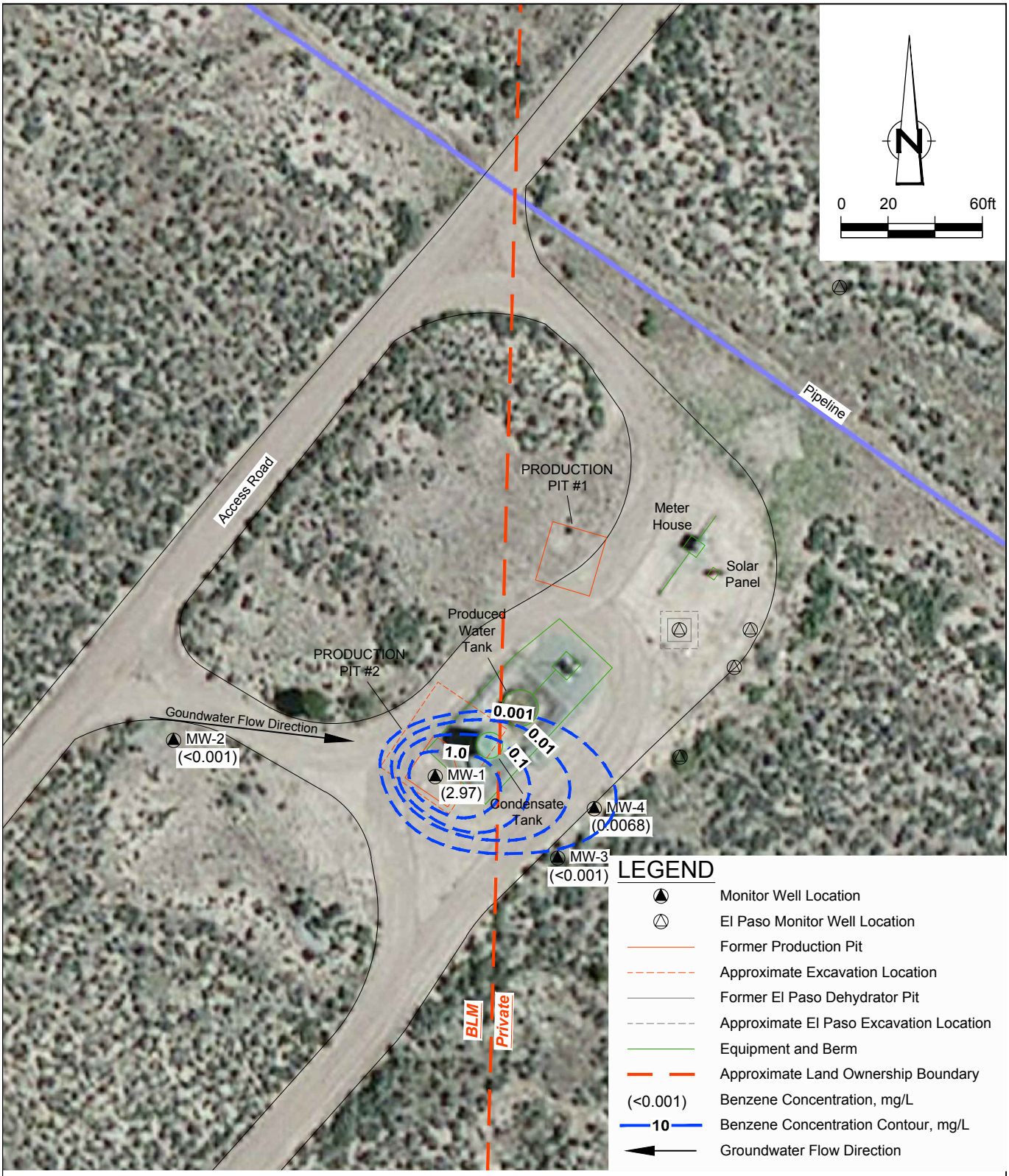


Figure 5

SEPTEMBER 2014 BENZENE CONCENTRATION MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

Tables

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4 METERING STATION
SAN JUAN COUNTY, NEW MEXICO

Date/Time Period	*Event/Action*	*Description/Comments*
August 1952	Well Spudded	Well was spudded by Anderson-Prichard Oil Corporation on August 21, 1952.
April 1961	Transfer of Well Ownership	Ownership of the well transferred from Anderson-Prichard Oil Corporation to Union Texas Natural Gas Corporation on April 26, 1961.
September 1971	Transfer of Well Ownership	Meridian Oil Inc., a wholly-owned subsidiary of Burlington Resources, took over operation of well from Union Texas Petroleum Corporation on September 17, 1991.
August 1994	Initial Site Assesment	El Paso Energy conducted a site assessment of a former unlined pit near the metering station.
September 1994	Pit Excavation	El Paso Energy excavated ~60 cubic yards of soil from their former unlined pit.
August 1995	Monitor Well Installation	El Paso contracted Philip Environmental Services Corporation to install a monitor well in the vicinity of their former pit on August 9, 1995.
December 1995	Monitor Well Installation	El Paso contracted Philip Environmental Services Corporation to install two downgradient monitor wells between December 12 and 15, 1995.
August 1997	Product Removal	El Paso Energy commenced product removal from their MW-1 on August 26, 1997.
September 1997	Piezometer Installation	El Paso contracted Philip Environmental Services Corp. to install 3 temporary piezometers on September 15, 1997.
July 1998	NMOCD Communication With Site Operators	New Mexico Oil Conservation Division (NMOCD) issued a response letter to El Paso Field Services (EPFS) on July 8, 1998, indicating that they would be sending letters to the operators of the sites (including Burlington Resources) and that EPFS should work cooperatively with the operators on investigation and remediation activities.
July 1998	NMOCD Requests Groundwater Investigation by Burlington Resources	NMOCD issued a letter to Burlington Resources on July 9, 1998, referencing work done at the Site by EPFS and requiring Burlington Resources (BR) to immediately implement their previously approved pit closure plan. The letter also required BR to submit a comprehensive groundwater investigation and remediation plan for all pit closure Sites in the San Juan Basin that encounter groundwater.
August 1998	Burlington Resources Granted Closure of Pit #1	Burlington Resources sampled Pit #1 on August 10, 1998 and laboratory analytical results indicated closure was warranted.
August 1998	Initial Site Assessment	Initial site assessment conducted on the site separator pit. Soil from this area was collected and analyzed for total petroleum hydrocarbons (TPH) and was found to contain TPH below NMOCD recommended action levels. The pit was subsequently granted closed status by NMOCD.
August 1998	Initial Site Assessment	Initial site assessment conducted on the tank drain pit. Soil from this area was collected and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and for TPH. Concentrations of these constituents were found to be above NMOCD recommended action levels.
December 1998	Pit Excavation	Burlington Resources excavated ~3,055 cubic yards of hydrocarbon-impacted soil from Pit #2 (58 ft x 45 ft x 30 ft deep), starting on December 17, 1998. The excavation extended to ~30 feet below ground surface (practical extent). The bottom of the excavation was sampled on December 28, 1998.
May 1999	Monitor Well Installation	Monitor Well MW-1 installed to a depth of 50 feet below ground surface (bgs); the screened interval was placed from 35 to 50 feet bgs, and was installed in the center of pit #2. Burlington Resources began monitoring MW-1 on a quarterly basis.
June 1999	Confirmation of Groundwater Impacts	Laboratory analysis of groundwater from MW-1 shows levels of benzene, toluene, and total xylenes in excess of New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards. Burlington Resources notified NMOCD via E-mail on June 1, 1999.
July 2001	NMOCD Communication With Site Operators	NMOCD response letter sent to EPFS on July 18, 2001 again urges EPFS to work cooperatively with the operators to investigate and remediate contaminated groundwater.

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4 METERING STATION
SAN JUAN COUNTY, NEW MEXICO

Date/Time Period	*Event/Action*	*Description/Comments*
April 2003	NMOCD Requests Monitor Well Installation	NMOCD response letter to EPFS sent on April 3, 2003, requires EPFS to install additional monitor wells to determine the real extent of groundwater impacts.
March 2006	Acquisition of Burlington Resources by ConocoPhilips Company	ConocoPhillips Company acquired Burlington Resources on March 31, 2006.
November 2007 and January 2008	3rd and 4th Quarter 2007 Groundwater Monitoring	Johnston Federal No. 4 Monitoring Station groundwater sampled during November 2007 and January 2008 by Tetra Tech.
March 2008	Reporting	2007 Annual Groundwater Monitoring Report submitted to NMOCD.
March 2008	Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX.
April 2008	NMOCD Requests Further Investigation	NMOCD indicates additional investigation and sampling is necessary for closure consideration during a meeting with Glenn Von Gonten.
April 2008	1st Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX in MW-1 on April 30, 2008. Note: Prior to this date the location of MW-1 was not clear and the incorrect well was sampled. This was the first quarter that ConocoPhillips MW-1 was sampled. BTEX constituents were found to be above NMWQCC standards in MW-1.
July 2008	2nd Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX in MW-1.
August 2008	Groundwater Monitor Well Installation	Monitor Wells MW-2, MW-3, and MW-4 installed under the supervision of Tetra Tech by WDC Exploration and Wells of Peralta, NM.
October 2008	3rd Quarter 2008 groundwater Monitoring	Tetra Tech conducts quarterly monitoring at the Site for MW-1 through MW-4. MW-2, MW-3 and MW-4 groundwater samples are analyzed for baseline parameters including major ions, total metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) including BTEX, diesel range organics, and gasoline range organics as requested by the NMOCD. In addition, an expanded list (beyond BTEX analysis) of VOCs were included for MW-1.
January 2009	4th Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly monitoring at the Site for MW-1 through MW-4. The groundwater sample obtained for MW-1 is analyzed for baseline parameters including major ions, total metals, SVOCs, VOCs, diesel range organics, and gasoline range organics. As of January 2009, baseline parameters have been collected for all 4 groundwater monitor wells at the Site.
September 25, 2009	2009 Annual Groundwater Monitoring	Tetra Tech conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Fe and Mn and sulfate.
September 22, 2010	2010 Annual Groundwater Monitoring	Tetra Tech conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn and sulfate.
June 15, 2011	Transfer of Site Consulting Responsibilities	Site consulting responsibilities tranferred from Tetra Tech, Inc. to Conestoga-Rovers & Associates, Inc. (CRA) of Albuquerque, NM.
September 28, 2011	2011 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
September 26, 2012	2012 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
August 23, 2013 - August 27, 2013	Dual-Phase Extraction	AcuVac, under CRA oversight, performs three days of dual-phase extraction on MW-1.
September 17, 2013	2013 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
September 23, 2014	2014 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
November 12, 2014 - November 13, 2014	Dual-Phase Extraction	AcuVac, under CRA oversight, performs two days of dual-phase extraction on MW-1.
December 17, 2014 and January 8, 2015	2014 Post-MDPE Groundwater Monitoring	CRA conducts post-MDPE groundwater monitoring at the Site for MW-1, MW-3, and MW-4 with analyses for BTEX and naphthalene.

TABLE 2

MONITORING WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
SAN JUAN COUNTY, NEW MEXICO

Well ID	*Total Depth (ft bgs)*	*Screen Interval (ft)*	**Elevation (ft) (TOC)*	*Date Measured*	*Depth to Groundwater (ft below TOC)*	*Relative Groundwater Elevation*
MW-1	51.79	35 - 50	100	5/25/1999	NM	NM
				9/1/1999	47.02	52.98
				12/1/1999	46.96	53.04
				1/18/2000	44.05	55.95
				5/17/2000	46.90	53.10
				9/8/2000	46.91	53.09
				12/20/2000	46.88	53.12
				3/27/2001	NM	NM
				6/27/2001	47.05	52.95
				9/17/2001	46.93	53.07
				12/19/2001	46.97	53.03
				3/25/2002	46.99	53.01
				6/25/2002	47.01	52.99
				9/24/2002	46.98	53.02
				12/30/2002	47.40	52.60
				3/27/2003	NM	NM
				6/27/2003	NM	NM
				10/10/2003	NM	NM
				12/10/2003	NM	NM
				3/16/2004	47.28	52.72
				6/22/2004	47.06	52.94
				9/30/2004	47.24	52.76
				12/13/2004	47.14	52.86
				3/23/2005	46.91	53.09
				6/22/2005	46.93	53.07
				10/28/2005	46.87	53.13
				12/14/2005	46.72	53.28
				3/20/2006	46.75	53.25
				6/21/2006	46.84	53.16
				10/20/2006	46.89	53.11
				12/13/2006	46.92	53.08
				11/9/2007	NM	NM
				1/15/2008	NM	NM
				4/30/2008	46.45	53.55
				7/23/2008	46.63	53.37
				10/24/2008	46.60	53.40
				1/29/2009	46.57	53.43
				4/23/2009	46.40	53.60
				9/25/2009	46.52	53.48
				9/22/2010	46.60	53.40
				9/28/2011	46.65	53.35
				9/26/2012	46.80	53.20
				9/17/2013	46.88	53.12
				9/23/2014	46.94	53.06
				12/17/2014	46.94	53.06

TABLE 2

MONITORING WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
SAN JUAN COUNTY, NEW MEXICO

Well ID	*Total Depth (ft bgs)*	*Screen Interval (ft)*	**Elevation (ft) (TOC)*	*Date Measured*	*Depth to Groundwater (ft below TOC)*	*Relative Groundwater Elevation*
MW-2	65.5	41.5 - 61.5	97.71	10/24/2008	42.85	54.86
				1/29/2009	42.83	54.88
				4/23/2009	42.75	54.96
				9/25/2009	42.82	54.89
				9/22/2010	43.01	54.70
				9/28/2011	43.14	54.57
				9/26/2012	43.33	54.38
				9/17/2013	43.51	54.20
				9/23/2014	43.56	54.15
				12/17/2014	43.59	54.12
MW-3	59	35 - 55	94.65	10/24/2008	43.91	50.74
				1/29/2009	41.97	52.68
				4/23/2009	41.87	52.78
				9/25/2009	42.04	52.61
				9/22/2010	42.17	52.48
				9/28/2011	42.22	52.43
				9/26/2012	42.36	52.29
				9/17/2013	42.47	52.18
				9/23/2014	42.70	51.95
				12/17/2014	42.62	52.03
MW-4	61	37 - 57	94.79	10/24/2008	43.11	51.68
				1/29/2009	43.11	51.68
				4/23/2009	43.06	51.73
				9/25/2009	43.20	51.59
				9/22/2010	43.39	51.40
				9/28/2011	43.45	51.34
				9/26/2012	43.57	51.22
				9/17/2013	43.65	51.14
				9/23/2014	44.81	49.98
				12/17/2014	44.80	49.99

Notes:
ft = Feet
TOC = Top of casing
bgs = below ground surface
* Elevation relative to the TOC of MW-1, set at arbitrary 100 feet.
NM = Not measured

TABLE 3

FIELD PARAMETERS SUMMARY
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
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	9/23/2014	No parameters collected due to LNAPL sheen.						
MW-2	9/23/2014	15.00	7.22	1.50	2310	11.30	57.0	9.50
	9/23/2014	14.80	7.18	1.50	2360	10.89	63.0	10.00
	9/23/2014	14.80	7.17	1.50	2360	10.70	67.0	10.50
MW-3	9/23/2014	15.70	7.01	1.20	1820	10.13	-104.0	6.25
	9/23/2014	15.70	7.01	1.20	1840	9.12	-127.0	6.75
	9/23/2014	15.70	7.01	1.20	1850	8.48	-137.0	7.25
	12/17/2014	14.76	7.48	1.379	2123	2.40	-149.1	5.75
	12/17/2014	14.72	7.48	1.402	2158	2.66	-159.7	6.25
	12/17/2014	14.78	7.49	1.441	2218	2.39	-164.0	6.75
MW-4	9/23/2014	16.40	6.65	1.400	2130	10.81	-124.0	3.50
	9/23/2014	16.00	6.72	1.400	2110	9.17	-136.0	4.00
	9/23/2014	15.80	6.77	1.300	2110	8.42	-142.0	4.50
	9/23/2014	15.90	6.81	1.300	2110	8.10	-150.0	5.00
	12/17/2014	14.79	7.22	1.508	2320	4.74	-145.4	6.25
	12/17/2014	14.91	7.35	1.511	2324	3.70	-158.7	6.75
	12/17/2014	14.98	7.37	1.509	2323	2.94	-166.6	7.25

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

TABLE 4

GROUNDWATER LABORATORY ANALYTICAL RESULTS SUMMARY
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
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)*	*Napthalene (mg/L)*	*Sulfate (mg/L)*	*Iron (dissolved) (mg/L)*	*Manganese (dissolved) (mg/L)*
NMWQCC Groundwater Quality Standards				**0.01**	**0.75**	**0.75**	**0.62**	**0.03**	**600**	**1**	**0.2**
MW-1	MW-1	5/25/1999	(orig)	**8.7**	**2.9**	**2.8**	**2.9**	--	--	--	--
	MW-1	12/1/1999	(orig)	**4.7**	**1.3**	**0.9**	**10**	--	--	--	--
	MW-1	1/18/2000	(orig)	**3.6**	**0.82**	**0.84**	**7.5**	--	--	--	--
	MW-1	5/17/2000	(orig)	**6.9**	**1.1**	**1.5**	**17**	--	--	--	--
	MW-1	9/8/2000	(orig)	**4.6**	0.62	**0.93**	**10**	--	--	--	--
	MW-1	12/20/2000	(orig)	< 0.0002	0.0005	0.034	0.061	--	--	--	--
	MW-1	3/27/2001	(orig)	**5.43**	0.641	**0.991**	**9.83**	--	--	--	--
	MW-1	6/27/2001	(orig)	**5.87**	**0.9**	**0.99**	**10.4**	--	--	--	--
	MW-1	9/17/2001	(orig)	**5.91**	0.75	**0.98**	**10.7**	--	--	--	--
	MW-1	12/19/2001	(orig)	**7.2**	0.65	**1.02**	**11.3**	--	--	--	--
	MW-1	3/25/2002	(orig)	**5.52**	**0.83**	**1.19**	**10.5**	--	--	--	--
	MW-1	6/26/2002	(orig)	**0.516**	0.0662	0.0787	**0.863**	--	--	--	--
	MW-1	9/24/2002	(orig)	**5.31**	**8**	**0.88**	**13.96**	--	--	--	--
	MW-1	12/30/2002	(orig)	**7.66**	**10.2**	**0.76**	**14.14**	--	--	--	--
	MW-1	6/22/2004	(orig)	**6.16**	**8.1**	0.47	**15.84**	--	--	--	--
	MW-1	3/20/2006	(orig)	**3.17**	**3.74**	**1.06**	**30.13**	--	--	--	--
	MW-1	6/21/2006	(orig)	**4.9**	**3.28**	0.448	**2.39**	--	--	--	--
	MW-1	12/13/2006	(orig)	**5.3**	**7.2**	**0.87**	**15.45**	--	--	--	--
	MW-1	3/27/2007	(orig)	**6.87**	**5.72**	0.21	**12.16**	--	--	--	--
	MW-1	6/25/2007	(orig)	**5.68**	**1.83**	0.4	**9.48**	--	--	--	--
	MW-1	4/30/2008	(orig)	**6.3**	**1.8**	0.28 J	**8.6**	--	--	--	--
	MW-1	7/23/2008	(orig)	**7.1**	**2.2**	0.45	**10.6**	--	--	--	--
	MW-1	10/24/2008	(orig)	**6**	**2.1**	0.4	**9**	**0.044**	--	--	--
	MW-1	1/29/2009	(orig)	**6.7**	**2.2**	0.63	**14.5**	**0.061**	315	--	--
	MW-1	9/25/2009	(orig)	**3.9**	**1.5**	0.68	**9.8**	**0.04**	429	< 0.02	**1.11**
	MW-1	9/22/2010	(orig)	**3.5**	**0.98**	0.63	**7.5**	**0.049**	190	--	**0.752**
	GW-074925-092811-CM-004	9/28/2011	(orig)	**3.36**	**1.05**	0.667	**6.81**	**0.037**	202	< 0.05	**0.774**
	GW-074925-092811-CM-005	9/28/2011	(Duplicate)	**3.43**	**1.12**	**0.779**	**8.29**	--	--	--	--
	GW-074925-092612-CM-MW-1	9/26/2012	(orig)	**3.07**	0.599	0.577	**5.16**	**0.0398**	113	< 0.05	**0.67**
	GW-074925-091713-CM-MW-1	9/17/2013	(orig)	**4.69**	**7.55**	**1.17**	**11.0**	**0.0365**	371	< 0.05	**0.89**
	GW-074925-091713-CM-DUP	9/17/2013	(Duplicate)	**4.70**	**7.21**	**1.04**	**9.97**	--	--	--	--
	GW-074925-092314-SP-MW-1	9/23/2014	(orig)	**2.970**	**4.250**	**0.778**	**6.89**	**0.0446**	155	<0.050	**0.85**
	GW-074925-092314-SP-DUP	9/23/2014	(Duplicate)	**2.820**	**3.880**	**0.754**	**6.690**	--	--	--	--
	GW-074925-010815-JW-MW-1	1/8/2015	(orig)	**4.35**	**6.15**	**1.07**	**10.0**	**0.0787**	--	--	--
MW-2	MW-2	10/24/2008	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.005	**974**	--	--
	MW-2	1/29/2009	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-2	9/25/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001	**1260**	< 0.02	0.04
	MW-2	9/22/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**1350**	--	0.0074
	GW-074925-092811-CM-002	9/28/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0001	**1290**	**2.49**	0.0956
	GW-074925-092612-CM-MW-2	9/26/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0005	**1210**	< 0.05	< 0.005
	GW-074925-091713-CM-MW-2	9/17/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0005	**1230**	< 0.05	< 0.005
	GW-074925-092314-SP-MW-2	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00045	**1190**	< 0.05	< 0.005
MW-3	MW-3	10/24/2008	(orig)	**0.02**	< 0.0005	< 0.0005	0.024	< 0.005	**714**	--	--
	MW-3	1/29/2009	(orig)	**0.012**	< 0.0005	< 0.0005	0.005	--	--	--	--
	MW-3	9/25/2009	(orig)	0.0021	< 0.001	< 0.001	< 0.002	< 0.001	**1070**	< 0.02	**1.24**
	MW-3	9/22/2010	(orig)	0.0042	< 0.001	< 0.001	< 0.001	< 0.001	**1060**	--	**1.11**
	GW-074925-092811-CM-003	9/28/2011	(orig)	0.0038	< 0.001	< 0.001	< 0.003	< 0.0001	**809**	**1.58**	**0.704**
	GW-074925-092612-CM-MW-3	9/26/2012	(orig)	0.0016	< 0.001	< 0.001	< 0.003	< 0.0005	**892**	0.063	**0.67**
	GW-074925-091713-CM-MW-3	9/17/2013	(orig)	0.0012	< 0.001	< 0.001	< 0.003	< 0.0005	**808**	0.80	**0.67**
	GW-074925-092314-SP-MW-3	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00053	598	0.83	**0.65**
	GW-074925-121714-CM-MW-3	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00045	--	--	--
MW-4	MW-4	10/24/2008	(orig)	**0.024**	< 0.0005	0.006	0.01	< 0.005	**678**	--	--
	MW-4	1/29/2009	(orig)	**0.11**	0.006	0.009	0.147	< 0.005	--	--	--
	MW-4	9/25/2009	(orig)	0.0088	< 0.001	0.0057	0.002	< 0.001	**968**	0.508	**1.24**
	MW-4	9/22/2010	(orig)	**0.019**	0.005	0.0069	0.0057	< 0.001	**1040**	--	**1.27**
	GW-074925-092811-CM-001	9/28/2011	(orig)	**0.0256**	0.0078	0.0017	0.0106	< 0.0001	**960**	0.532	**1.82**
	GW-074925-092612-CM-MW-4	9/26/2012	(orig)	**0.0124**	0.0023	< 0.001	< 0.003	< 0.0005	**949**	0.57	**1.5**
	GW-074925-092612-CM-DUP	9/26/2012	(Duplicate)	**0.0130**	0.0022	< 0.001	0.0031	--	**--**	--	**--**
	GW-074925-091713-CM-MW-4	9/17/2013	(orig)	0.0065	< 0.001	< 0.001	< 0.003	< 0.0005	**925**	0.51	**1.6**
	GW-074925-092314-SP-MW-4	9/23/2014	(orig)	0.0068	< 0.001	0.0011	< 0.003	< 0.00053	**905**	0.39	**2.2**
	GW-074925-121714-CM-MW-4	12/17/2014	(orig)	0.003	< 0.001	< 0.001	< 0.003	< 0.00045	--	--	--
	GW-074925-092314-CM-DUP	12/17/2014	(Duplicate)	0.0039	< 0.001	< 0.001	< 0.003	--	--	--	--

Notes:
NMWQCC = New Mexico Water Quality Control Commission
mg/L = milligrams per liter (parts per million)
<0.7 = Below laboratory detection limit of 0.7 mg/L
J = Estimated value between MDL and PQL
Bold = concentrations that exceed the NMWQCC groundwater quality standard

Appendix A

November 2014 Mobile Dual Phase Extraction Report

AcuVac Remediation, LLC
1656-H Townhurst, Houston, Texas 77043
713.468.6688 • www.acuvac.com

November 17, 2014

Mr. Jeff Walker, CPG, PMP
Project Manager
Conestoga-Rovers & Associates
6121 Indian School Road NE
Albuquerque, NM 67110

Dear Jeff:

Re: MDP Events, Johnston Federal No. 4, Aztec, NM

Enclosed is a copy of the Operating Data collected during the Mobile Dual Phase (MDP) Events #4A and 4B, at the above location on November 12 and 13, 2014. Table #1 is the Summary Well Data and Table #2 is the Summary Recovery Data on well MW-1. PSH is referred to as LNAPL in this report. GW samples are taken frequently in a 2,000 ml beaker, to determine the average LNAPL percentage and volume.

OBJECTIVES

The Objectives of an MDP Event are to:

- Evaluate the potential for removing liquid and vapor phase LNAPL (PSH) from the groundwater (GW) and soils in the subsurface formations.
- Expose the capillary fringe area and below to the Extraction Well (EW) induced vacuums.
- Increase the GW and contaminant specific yields with high induced vacuums.
- Provide an induced hydraulic gradient to gain hydraulic control of the area during the Event period.
- Select the GW depression and pump rates to accomplish the above objectives.

METHODS AND EQUIPMENT

The tests were conducted using AcuVac's I-6 System, with Roots RAI-33 and RAI-22 blowers, various instrumentation, including the HORIBA® Analyzer, Solinst Interface Probes, Lumidor O_2 Meter, flow gauges, a sensitive instrument to determine barometric pressure, V-1 vacuum box to capture non-diluted vapor samples, Redi-Flo 2 total fluids pump and other special equipment.

The vacuum extraction portion of the AcuVac System consists of a vacuum pump driven by an internal combustion (IC) engine. The vacuum pump is connected to the extraction well and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the GW to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC Engine where they are burned as part of the normal combustion process. Propane is used as auxiliary fuel to help power the engine if the well vapors do not provide the required BTU.

Emissions from the engine are passed through three catalytic converters to ensure maximum destruction of removed hydrocarbon vapors. The engine's fuel to air ratio can be adjusted to maintain efficient combustion. Because the engine is the power source for all equipment, all systems

stop when the engine stops. This eliminates any uncontrolled release of hydrocarbons. Since the AcuVac System is held entirely under vacuum, any leaks in the seals or connections are leaked into the System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure or overheating.

The GW Extraction is provided by an in-well, Redi-Flo 2 total fluids pump that has the discharge line connected to a total volume meter. The discharge line from the volume meter is then connected to the stand-by collection tank. The electrical power for the GW pump was supplied from a 120v Honda generator. The GW flow rate can be adjusted to maintain a target level. Interface meters are used to measure all DTGW/DTLNAPL.

In order to monitor the TPH content of the well vapors, AcuVac utilizes a HORIBA® gas analyzer that is capable of detecting hydrocarbons up to 100,000 ppmv using undiluted samples. The samples are collected directly from the Well Vapor Flow within the manifold attached to the Extraction Well. The undiluted samples are processed immediately on site and the results recorded. Samples are generally collected every 60 minutes during the course of the Event, and more often if the circumstances dictate. The average of the vapor samples obtained along with the average Well Vapor Flow Rate are used to calculate the volume of vapors recovered in pounds per day and burned as IC Engine fuel in gallons per hour. The volume of vapors burned as fuel along with any auxiliary propane that is consumed is then reconciled to the known capabilities of the IC Engine of the AcuVac System to ensure overall accuracy.

The design of the AcuVac System enables complete independent control of both the Induced Well Vacuum and the GW pumping functions such that the AcuVac team can control the IHG to expose the maximum amount of the formation to SVE. The ability to separate the vacuum and liquid flows improves the LNAPL recovery rates, and enables the AcuVac team to record data specific to each.

SUMMARY OF MDP EVENT #4A - WELL MW-1

- The total Event time was 8.0 hours. The Event was conducted on November 12, 2014.The data is compared to Event #3 conducted on August 27, 2013 which had a total Event time of 8.0 hours.
- The total liquid volume recovered was 143 gals, with an estimated volume of 1.0 gal of LNAPL.
- Total vapor LNAPL burned as IC engine fuel was 20.08 gals, **for a total liquid and vapor LNAPL recovery of 21.08 gals. This equates to an average of 2.63 gals/hr.**
- Average HORIBA® Analytical Data from the influent vapor samples was: HC = 43,708 ppmv, CO_2 = 5.85%, CO = 1.07%, O_2 = 9.0% and H_2S = 8.33 ppm.
- Compared with MDP Event #3 data, the average TPH levels decreased 12,444 ppmv, CO_2 decreased 1.49%, CO decreased 0.55%, O_2 increased 4.5% and H_2S decreased 8.33 ppm.
- The maximum HORIBA® Analytical Data from the influent vapor samples for TPH was 51,640 ppmv. Compared with MDP Event #3 data, the maximum TPH levels decreased 5,980 ppmv.

- The Average Induced Vacuum was 51"H_2O with a maximum vacuum of 60"H_2O. Compared with MDP Event #3 data, the average induced vacuum decreased 19"H_2O and the maximum induced vacuum decreased 10"H_2O.
- The average EW well vapor flow was 29.32 scfm with a maximum well vapor flow of 33.07 scfm. Compared with MDP Event #3 data, the average EW well vapor flow decreased 3.83 scfm, and the maximum well flow decreased at 5.93 scfm.
- The Total Depth of the well was measured at 51.67 ft BTOC. The GW pump inlet was set at 51.0 ft BTOC, which is essentially the bottom of the well. The average GW pump rate was 0.29 gpm, and the maximum GW pump rate was 0.50 gpm.
- The average GW depression, based on the positioning of the GW pump, was 4.0 ft below static level.
- There was no LNAPL thickness recorded prior to the start of Event #4A and a LNAPL thickness of 0.03 ft was recorded at the conclusion of the Event.

The total LNAPL removed, including liquid and vapor, during the 8.0 hour Event #4A Well MW-1 was 21.08 gals.

ADDITIONAL INFORMATION

- An estimated volume of 1.0 gal of liquid LNAPL was recovered during the 8.0 hour Event.
- The recovered groundwater was cloudy with biomass at the start of the Event and then cleared after approximately 1.0 hr.
- The high TPH vapor levels indicate contaminant in the LNAPL range.
- The TPH vapor levels remained mostly steady throughout the Event.
- The low O_2 levels in the influent vapors indicate SVE short circuiting from the ground surface did not occur.
- The H_2S levels varied from a high of 12.0 ppm to a low of 1.0 ppm.

SUMMARY OF MDP EVENT #4B: WELL MW-1

- The total Event time was 8.0 hours. The Event was conducted on November 13, 2014. The data is compared to Event #4A conducted on November 12, 2014 which had a total Event time of 8.0 hours.
- The total liquid volume recovered was 48 gals, of which 1.0 gals were LNAPL.
- Total vapor LNAPL burned as IC engine fuel was 21.89 gals, **for a total liquid and vapor LNAPL recovery of 22.89 gals. This equates to an average of 2.86 gals/hr.**
- Average HORIBA® Analytical Data from the influent vapor samples was: HC = 43,419 ppmv, CO_2 = 5.29%, CO = 0.93%, O_2 = 9.1% and H_2S = 1.13 ppm.
- Compared with MDP Event #4A data, the TPH levels decreased 289 ppmv, CO_2 decreased 0.56%, CO decreased 0.14%, O_2 increased 0.1% and H_2S decreased 7.20 ppm.
- The maximum HORIBA® Analytical Data from the influent vapor samples for TPH was 45,590 ppmv. Compared with MDP Event #4A data, the maximum TPH levels decreased 6,050 ppmv.
- The average EW well vapor flow was 32.40 scfm with a maximum well vapor flow of 32.73 scfm. Compared with MDP Event #4A data, the average EW well vapor flow increased 2.88 scfm, and the maximum well flow decreased 0.34 scfm.

- The Total Depth of the well was measured at 51.67 ft BTOC. The GW pump inlet was set at 51.0 ft BTOC, which is essentially the bottom of the well. The average GW pump rate was 0.10 gpm, and the maximum GW pump rate was 0.10 gpm.
- The average GW depression, based on the positioning of the GW pump, was 4.0 ft below static level.
- A LNAPL thickness of 0.01 ft was recorded prior to the start of Event #4B and no LNAPL was recorded at the conclusion of the Event.

The total LNAPL removed, including liquid and vapor, during the 8.0 hour Event #4B Well MW-1 was 22.89 gals.

ADDITIONAL INFORMATION

- An estimated volume of 1.0 gals of liquid LNAPL were recovered during the 8.0 hour Event.
- The high TPH vapor levels indicate contaminant in the LNAPL range.
- The TPH vapors levels remained mostly steady throughout the Event.
- The low O_2 levels in the influent vapors indicate SVE short circuiting from the ground surface did not occur.

OTHER INFORMATION - EVENTS #1 & 2

The total LNAPL removed, including liquid and vapor, during the 16.0 hr Events #1 & 2 (Well MW-1) was 43.97 gals. This equates to 2.75 gals/hr.

GENERAL OVERVIEW

The vadose zone and the exposed saturated zone is highly contaminated with LNAPL. This conclusion is based on the high TPH levels and the fact that the influent LNAPL vapors provided 80% of the Internal Combustion Engine's fuel, i.e., little propane was required. There may be some liquid LNAPL pooled in an area outside of the Induced Hydraulic Gradient (IHG) Radius of Influence (ROI). The IHG occurs when the LNAPL/GW depression in the extraction well is maintained during the Event period. The IHG at this site is estimated to have an ROI of 25 to 30 ft. The estimated total liquid LNAPL recovery of 5.0 gals during the three Event periods was based on the sheen of LNAPL observed in the collection tank and observed slugs of LNAPL passing through the clear sight tube of the liquid volume discharge line.

Schedule A illustrates the changes in the TPH levels during each of the five Events. Overall, the TPH levels are decreasing during each Event, and decreasing with each successive Event.

Given the decrease in the average TPH levels measured in ppmv from Event #1 to the subsequent Events, as well as the ending TPH level for each Event, this site would benefit from a program of regular MDP Events to fully remediate the site.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane and CO_2. In all subsequent Events, the test data will be compared to the previous Event to evaluate the progress for this remediation project.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

ADDITIONAL INFORMATION INCLUDED WITH REPORT

- Table #1A Summary Well Data for Well mw-1
- Table #1B Summary Recovery Data for Well mw-1
- Recorded Data
- Photographs of the MDP System and well MW-1.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide this service.

Sincerely,

ACUVAC REMEDIATION, LLC

Paul D. Faucher
Vice President, Operations

Summary Well Data
Table #1A

Event		4A	4B
WELL NO.		**MW-1**	**MW-1**
Total Event Hours		8.0	8.0
Cumulative Event Hours		32.0	40.0
TD	ft	51.67	51.67
Well Screen	ft	15' to 45'	15' to 45'
Well Size	in	2.0	2.0
Well Data			
DTGW - Static - Start Event	ft	46.97	47.32
DTLNAPL - Static - Start Event	ft	-	47.31
NAPL	ft	-	0.01
Hydro-Equivalent- Beginning	ft	46.97	47.31
DTGW - End Event	ft	47.78	45.72
DTLNAPL - End Event	ft	47.75	-
LNAPL	ft	0.03	-
Hydro-Equivalent- Ending	ft	47.76	45.72
Extraction Data			
Average Extraction Well Vacuum	"H_2O	51.00	77.06
Maximum Extraction Well Vacuum	"H_2O	60.00	80.00
Average Extraction Well Vapor Flow	scfm	29.37	32.40
Maximum Extraction Well Vapor Flow	scfm	33.07	32.73
Average GW/LNAPL Pump Rate	gpm	0.29	0.10
Maximum GW/LNAPL Pump Rate	gpm	0.50	0.10
Influent Data			
Maximum TPH	ppmv	51,640	45,590
Average TPH	ppmv	43,708	43,419
Average CO_2	%	5.85	5.29
Average CO	%	1.07	0.93
Average O_2	%	9.0	9.1
Average H_2S	ppm	8.33	1.13

Summary Recovery Data
Table #1B

Event		4A	4B
WELL NO.		**MW-1**	**MW-1**
Recovery Data- Current Event			
Total Liquid Volume Recovered	gals	143	48
Total Liquid LNAPL Recovered	gals	1.00	1.00
Total Liquid LNAPL Recovered / Total Liquid	%	0.70	2.08
Total Liquid LNAPL Recovered / Total LNAPL	%	4.74	4.37
Total Vapor LNAPL Recovered	gals	20.08	21.89
Total Vapor LNAPL Recovered / Total LNAPL	%	95.26	95.63
Total Vapor and Liquid LNAPL Recovered	gals	21.08	22.89
Average LNAPL Recovery	gals/hr	2.63	2.86
Total LNAPL Recovered	lbs	147	160
Total Volume of Well Vapors	cu. ft	14,170	15,552
Recovery Data- Cumulative			
Total Liquid Volume Recovered	gals	547	595
Total Liquid LNAPL Recovered	gals	35.45	36.45
Total Vapor LNAPL Recovered	gals	109.15	131.04
Total Vapor and Liquid LNAPL Recovered	gals	114.65	137.54
Average LNAPL Recovery	gals/hr	3.58	3.44
Total LNAPL Recovered	lbs	803	963
Total Volume of Well Vapors	cu. ft	60,989	76,541

OPERATING DATA - EVENT # 4A **PAGE # 1** **ACUVAC MOBILE DUAL PHASE SYSTEM**

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Date:	11/12/14					
	Parameters	Time 0730	Time 0800	Time 0830	Time 0900	Time 0930	Time 1000
	WELL # **MW-1**	Hr Meter 7002.5	Hr Meter 7003.0	Hr Meter 7003.5	Hr Meter 7004.0	Hr Meter 7004.5	Hr Meter 7005.0
ENGINE/BLOWER	R.P.M.	2100	2100	2200	2200	2200	2200
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	120	120	120	120	120	130
	Volts	14	14	14	14	14	14
	Intake Vacuum "Hg	8	8	8	8	8	8
	Gas Flow Fuel/Propane cfh	50	50	20	10	10	10
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	22.58	22.58	33.07	33.07	33.07	33.07
	Extraction Well Vacuum "H_2O	40	40	60	60	60	60
	Pump Rate gals/min	.5	.5	.5	.25	.25	.25
	Total Volume gals	-	15	30	45	53	60
	Influent Vapor Temp. °F	54	54	54	54	54	56
	Air Temperature °F	33.2	33.4	36.5	38.3	45.7	50.1
	Barometric Pressure "Hg	29.98	29.98	29.98	29.98	29.98	29.99
	Absolute Pressure "Hg	-	-	-	-	-	-
VAPOR /INFLUENT	HC ppmv	-	47760	-	28.290		29580
	CO_2 %	-	6.40	-	3.88		3.72
	CO %	-	1.08	-	.75		.84
	O_2 %	-	9.0	-	10.5		10.7
	H_2S ppm	-	8	-	1		2
NOTES	ARRIVED ON SITE AT 0645 HRS. MOBILIZED THE ACUVAC SYSTEM. GAUGED THE WELL DTGW 46.97 FT BTOC NO LIQUID NAPL IN THE WELL. TD 51.67 FT BTOC. PLACED TOTAL FLUIDS PUMP INLET AT 51 FT BTOC PROVIDING A 4 FT GWD. INITIAL INDUCED WELL VAC SET AT 40" H_2O RESULTING IN A WVF OF 22.58 SCFM AT 0830 HRS INCREASED INDUCED WELL VAC TO 60" H_2O RESULTING IN A WVF OF 33.07 SCFM INITIAL TOTAL FLUIDS PUMP RATE SET AT .5 GPM AND DECREASED TO .25 GPM AT 0900 HRS. TPH VAPOR SAMPLE CONTENTS & AT 0900 HRS AS A RESULT OF SHORT CIRCUITING						
MANIFOLD	LNAPL % Vol Gals	-/-	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN
	Depth of GW Depression ft	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
	Extraction Well DTLNAPL ft	-					
	Extraction Well DTGW ft	46.97					

( ) Indicates Well Pressure

LNAPL 4

7FORMS/TestForms/1210017B

OPERATING DATA - EVENT # 4A **PAGE # 2** **ACUVAC MOBILE DUAL PHASE SYSTEM**

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Date:	11/12/14					
	Parameters	Time 1030	Time 1100	Time 1130	Time 1200	Time 1230	Time 1300
	WELL # **MW- 1**	Hr Meter 7005.5	Hr Meter 7006.0	Hr Meter 7006.5	Hr Meter 7007.0	Hr Meter 7007.5	Hr Meter 7008.0
ENGINE/BLOWER	R.P.M.	2200	2100	2100	2100	2100	2100
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	130	130	130	130	130	130
	Volts	14	14	14	14	14	14
	Intake Vacuum "Hg	8	10	10	10	10	10
	Gas Flow Fuel/Propane cfh	10	15	15	15	15	15
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	33.07	25.92	28.75	28.75	28.75	28.75
	Extraction Well Vacuum "H_2O	60	40	50	50	50	50
	Pump Rate gals/min	.25	.25	.25	.25	.25	.25
	Total Volume gals	68	75	83	90	98	105
	Influent Vapor Temp. °F	56	56	56	56	56	56
	Air Temperature °F	51.3	52.7	53.6	54.2	54.6	55.1
	Barometric Pressure "Hg	29.99	29.98	29.97	29.96	29.95	29.95
	Absolute Pressure "Hg	-	-	-	-	-	-
VAPOR /INFLUENT	HC ppmv	1	51,640	48,170	47,850	-	46,950
	CO_2 %	-	7.08	6.42	6.45	-	6.12
	CO %	-	1.40	1.20	1.15	-	1.06
	O_2 %	-	5.7	8.2	8.8	-	8.9
	H_2S ppm	-	12	8	12	-	12

NOTES

AT 1100 HRS INDUCED WELL VAC↓ TO 40" H_2O TO DETERMINE EXTENT OF SVE SHORT CIRCUITING. TPH VAPOR CONTENT ↑ TO 51,640 PPMV. AT 1130 HRS OBTAINED TPH SAMPLE AT 50" H_2O INDUCED WELL VAC. 1130 HRS SAMPLE COMPARABLE TO 1100 HRS SAMPLE. IT WAS CONCLUDED THAT 50" H_2O WELL VAC IS MOST LIKELY THE MAX VAC BEFORE SHORT CIRCUITING OCCURS.

MANIFOLD	LNAPL % Vol Gals	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN
	Depth of GW Depression ft	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
	Extraction Well DTLNAPL ft						
	Extraction Well DTGW ft						

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 4A PAGE # 3

ACUVAC
MOBILE DUAL PHASE SYSTEM

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Date:	11/12/14					
	Parameters	Time 1330	Time 1400	Time 1430	Time 1500	Time 1530	Time
	WELL # MW-	Hr Meter 7008.5	Hr Meter 7009.0	Hr Meter 7009.5	Hr Meter 7010.0	Hr Meter 7010.5	Hr Meter
ENGINE/BLOWER	R.P.M.	2100	2100	2100	2100	2100	
	Oil Pressure psi	50	50	50	50	50	
	Water Temp °F	130	130	130	130	130	
	Volts	14	14	14	14	14	
	Intake Vacuum "Hg	10	10	10	10	10	
	Gas Flow Fuel/Propane cfh	15	15	15	15	15	
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump ON/OFF	ON	ON	ON	ON	OFF	
	Extraction Well Flow scfm	29.57	29.57	29.57	29.57	29.57	
	Extraction Well Vacuum "H_2O	50	50	50	50	50	
	Pump Rate gals/min	.25	.25	.25	.25	.25	
	Total Volume gals	113	120	128	135	143	
	Influent Vapor Temp. °F	56	56	56	56	54	
	Air Temperature °F	57.3	59.2	Cloudy 55.6	54.7	53.1	
	Barometric Pressure "Hg	29.94	29.93	29.92	29.92	29.91	
	Absolute Pressure "Hg	-	-	-	-	-	
VAPOR /INFLUENT	HC ppmv	-	46220	-	46910	-	
	CO_2 %	-	6.28	-	6.32	-	
	CO %	-	1.08	-	1.05	-	
	O_2 %	-	9.5	-	9.3	-	
	H_2S ppm	-	11	-	9		

NOTES

WELL VAC AND WVP STEADY DURING PERIOD. TPH VAPORS MOSTLY STEADY DURING PERIOD. AT 1530 HRS EVENT CONCLUDED. .03 FT OF LNAPL PRESENT IN THE WELL. DEMOBILIZED ACUVAC SYSTEM, SECURED SITE, DEPARTED.

AT THE CONCLUSION OF THE EVENT LIQUID LNAPL WAS PRESENT IN THE SITE GAUGE. IT IS ESTIMATED THAT 1 GAL OF LIQUID LNAPL WAS RECOVERED DURING THE EVENT.

MANIFOLD	LNAPL % Vol Gals	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	
	Depth of GW Depression ft	-4.0	-4.0	-4.0	-4.0	-4.0	
	Extraction Well DTLNAPL ft					47.75	
	Extraction Well DTGW ft					47.78	

( ) Indicates Well Pressure

7FORMS/TestForms/1210017B

LNAPL .03

OPERATING DATA - EVENT # 4B **PAGE # 1**

ACUVAC MOBILE DUAL PHASE SYSTEM

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Date:	11/13/14					
	Parameters	Time 0730	Time 0800	Time 0830	Time 0900	Time 0930	Time 1000
	WELL # **MW-1**	Hr Meter 7010.5	Hr Meter 7011.0	Hr Meter 7011.5	Hr Meter 7012.0	Hr Meter 7012.5	Hr Meter 7013.0
ENGINE/BLOWER	R.P.M.	2100	2100	2200	2200	2200	2200
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	120	120	120	120	120	120
	Volts	14	14	14	14	14	14
	Intake Vacuum "Hg	8	8	12	12	12	12
	Gas Flow Fuel/Propane cfh	20	20	20	20	20	20
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF
	Extraction Well Flow scfm	29.24	30.47	32.73	32.73	32.73	32.73
	Extraction Well Vacuum "H_2O	50	60	80	80	80	80
	Pump Rate gals/min	.1	.1	.1	.1	.1	.1
	Total Volume gals	-	3	6	9	12	15
	Influent Vapor Temp. °F	52	50	50	50	50	50
	Air Temperature °F	35.1	35.9	36.5	37.4	38.8	39.3
	Barometric Pressure "Hg	30.16	30.16	30.18	30.19	30.20	30.20
	Absolute Pressure "Hg	-	-	-	-	-	-
VAPOR /INFLUENT	HC ppmv	-	45,190	-	48,590	-	42,840
	CO_2 %	-	5.82	-	6.31	-	4.62
	CO %	-	1.06	-	1.05	-	.89
	O_2 %	-	9.6	-	9.3	-	10.1
	H_2S ppm	-	2	-	3	-	1.
MANIFOLD	LNAPL % Vol Gals	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEET	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN
	Depth of GW Depression ft	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
	Extraction Well DTLNAPL ft	47.31					
	Extraction Well DTGW ft	47.32					

NOTES

ARRIVED ON SITE AT 0745 HRS. MOBILIZED THE ACUVAC SYSTEM. GAUGED WELL MW-1. PLACED THE INLET TO THE TOTAL FLUIDS PUMP AT 51 FT BTOC PROVIDING A 4 FT GWD. SET INITIAL INDUCED WELL VAC AT 50" H_2O RESULTING IN A WVF OF 29.24 SCFM. AT 0800 HRS INDUCED VAC ↑ 60 H_2O, WVF ↑ 30.47 SCFM. AT 0830 INDUCED WELL VAC ↑ 80" H_2O, WVF ↑ 32.73 SCFM. AT 1000 HRS INDUCED WELL VAC ↑ 85" H_2O, WVF ↑ 33.26 SCFM. TPH VAPORS SLIGHTLY LESS THAN EVENT #4A, BUT STEADY DURING PERIOD.

( ) Indicates Well Pressure

7FORMS/TestForms/1210017B

OPERATING DATA - EVENT # 4B **PAGE # 2** **ACUVAC MOBILE DUAL PHASE SYSTEM**

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Date:	11/13/14					
	Parameters	Time 1030	Time 1100	Time 1130	Time 1200	Time 1230	Time 1300
	WELL # MW-1	Hr Meter 7013.5	Hr Meter 7014.0	Hr Meter 7014.5	Hr Meter 7015.0	Hr Meter 7015.5	Hr Meter 7016.0
ENGINE/BLOWER	R.P.M.	2200	2200	2200	2200	2200	2200
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	120	120	120	120	130	130
	Volts	14	14	14	14	14	14
	Intake Vacuum "Hg	12	12	12	12	12	12
	Gas Flow Fuel/Propane cfh	20	20	20	20	20	20
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF
	Extraction Well Flow scfm	32.73	32.73	32.73	32.73	32.73	32.73
	Extraction Well Vacuum "H_2O	80	80	80	80	80	80
	Pump Rate gals/min	.1	.1	.1	.1	.1	.1
	Total Volume gals	18	21	24	27	30	33
	Influent Vapor Temp. °F	50	50	50	50	50	50
	Air Temperature °F	SUN 45.2	46.1	46.7	47.4 CLOUDY	46.3	46.5
	Barometric Pressure "Hg	30.19	30.18	30.17	30.16	30.14	30.12
	Absolute Pressure "Hg	-	-	-	-	-	-
VAPOR /INFLUENT	HC ppmv	-	43,810	-	44,110	-	42690
	CO_2 %	-	6.04	-	6.30	-	5.94
	CO %	-	.95	-	.96	-	.76
	O_2 %	-	9.2	-	8.6	-	9.3
	H_2S ppm	-	1	-	1	-	0
NOTES	INDUCED WELL VAC AND WVF STEADY AT 80" H_2O AND 32.73 SCFM.						
	LIQUID RECOVERY EXTREMELY LOW, SIMILAR TO PREVIOUS EVENTS #2 AND #3.						
	TPH MOSTLY STEADY BUT SLIGHTLY DECREASING.						
MANIFOLD	LNAPL % Vol Gals	LIGHT SHEEN	LIGHT SHEEN	LIGHT SHEEN	LIGHT SHEEN	LIGHT SHEEN	LIGHT SHEEN
	Depth of GW Depression ft	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
	Extraction Well DTLNAPL ft						
	Extraction Well DTGW ft						

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 4B **PAGE # 3** **ACUVAC MOBILE DUAL PHASE SYSTEM**

Location: Johnston Federal #4, San Juan County, NM **Project Managers: Faucher/George**

	Parameters							
	Date:		11/13/14					
	Time		1330	1400	1430	1500	1530	
	WELL # MW-1	Hr Meter	7016.5	7017.0	7017.5	7018.0	7018.5	
ENGINE/BLOWER	R.P.M.		2200	2200	2200	2200	2200	
	Oil Pressure	psi	50	50	50	50	50	
	Water Temp	°F	130	130	130	130	130	
	Volts		14	14	14	14	14	
	Intake Vacuum	"Hg	12	12	12	12	12	
	Gas Flow Fuel/Propane	cfh	20	20	20	20	20	
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF	ON/OFF	
	Extraction Well Flow	scfm	32.73	32.73	32.73	32.73	32.73	
	Extraction Well Vacuum	"H_2O	80	80	80	80	80	
	Pump Rate	gals/min	.1	.1	.1	.1	.1	
	Total Volume	gals	36	39	42	45	48	
	Influent Vapor Temp.	°F	50	50	50	50	50	
	Air Temperature	°F	46.8	46.7	47.3	48.2	47.8	
	Barometric Pressure	"Hg	30.10	30.08	30.06	30.06	30.05	
	Absolute Pressure	"Hg	–	–	–	–	–	
VAPOR /INFLUENT	HC	ppmv	–	40,130	–	42540	–	
	CO_2	%	–	7.04	–	.24	–	
	CO	%	–	.85	–	.90	–	
	O_2	%	–	8.8	–	8.2	–	
	H_2S	ppm	–	0	–	1	–	
MANIFOLD	LNAPL % Vol / Gals		SLIGHT SHEEN	SLIGHT SHEET	SLIGHT SHEEN	SLIGHT SHEEN	SLIGHT SHEEN	
	Depth of GW Depression	ft	-4.0	-4.0	-4.0	-4.0	-4.0	
	Extraction Well DTLNAPL	ft					–	
	Extraction Well DTGW	ft					45.72	

NOTES

INDUCED WELL VAC AND WVF STEADY DURING PERIOD. VERY LOW LIQUID RECOVERY. TPH VAPORS MOSTLY STEADY DURING PERIOD. AT 1530 HRS EVENT CONCLUDED. WELL MW-1 WAS GAUGED. NO LIQUID LNAPL PRESENT IN THE WELL. DEMOBILIZED ACUVAC SYSTEM. SECURED SITE. DEPARTED.

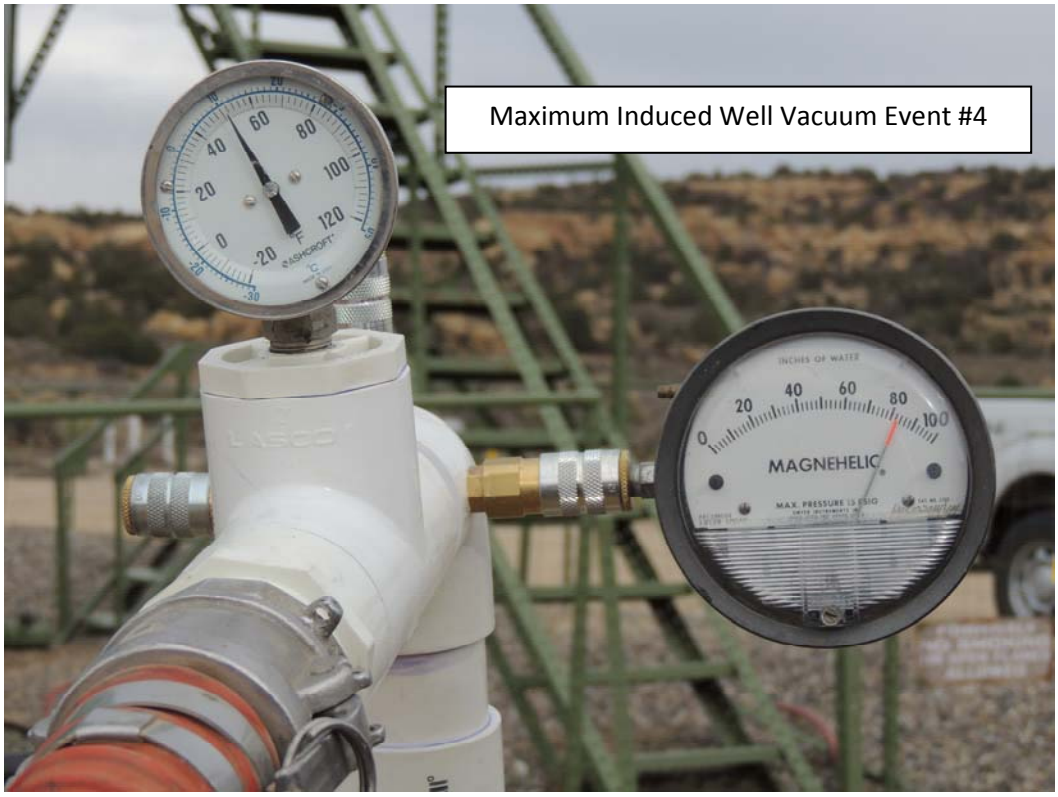
( ) Indicates Well Pressure

7FORMS/TestForms/1210017B

LNAPL Ø

JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM

JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM



JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM

Appendix B

Groundwater Laboratory Analytical Reports

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

October 08, 2014

Christine Matthews
CRA
6121 Indian School Rd NE
Suite 200
Albuquerque, NM 87110

RE: Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Dear Christine Matthews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2014. 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, COP Conestoga-Rovers & Associa
Angela Bown, Conestoga Rovers & Associates
Chris Fetters, COP Conestoga-Rovers & Associa
Jeff Walker, COP Conestoga-Rovers & Associa

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

CERTIFICATIONS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

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

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60178711001	**GW-074925-092314-SP-MW-1**	Water	09/23/14 09:45	09/24/14 08:35
60178711002	**GW-074925-092314-SP-MW-2**	Water	09/23/14 11:00	09/24/14 08:35
60178711003	**GW-074925-092314-SP-MW-3**	Water	09/23/14 11:15	09/24/14 08:35
60178711004	**GW-074925-092314-SP-MW-4**	Water	09/23/14 10:40	09/24/14 08:35
60178711005	**GW-074925-092314-SP-DUP**	Water	09/23/14 00:00	09/24/14 08:35
60178711006	**TRIP BLANK**	Water	09/23/14 17:00	09/24/14 08:35

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SAMPLE ANALYTE COUNT

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60178711001	**GW-074925-092314-SP-MW-1**	EPA 6010	TDS	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60178711002	**GW-074925-092314-SP-MW-2**	EPA 6010	TDS	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60178711003	**GW-074925-092314-SP-MW-3**	EPA 6010	TDS	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60178711004	**GW-074925-092314-SP-MW-4**	EPA 6010	TDS	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60178711005	**GW-074925-092314-SP-DUP**	EPA 5030B/8260	PRG	8
60178711006	**TRIP BLANK**	EPA 5030B/8260	PRG	8

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PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: CRA Conoco New Mexico
Date: October 08, 2014

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

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:

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

PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: CRA Conoco New Mexico
Date: October 08, 2014

General Information:
4 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below.

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 3510C with any exceptions noted below.

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

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

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

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

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

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

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

QC Batch: OEXT/46287

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

Additional Comments:

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

PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: CRA Conoco New Mexico
Date: October 08, 2014

General Information:
6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below.

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

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

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

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

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

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

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

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

QC Batch: MSV/64726

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

Additional Comments:

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

PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: CRA Conoco New Mexico
Date: October 08, 2014

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

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

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

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

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

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

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: GW-074925-092314-SP-MW-1 **Lab ID: 60178711001** Collected: 09/23/14 09:45 Received: 09/24/14 08:35 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	mg/L	0.050	1	09/26/14 17:15	10/02/14 12:44	7439-89-6	
Manganese, Dissolved	**0.85**	mg/L	0.0050	1	09/26/14 17:15	10/02/14 12:44	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	**44.6**	ug/L	2.6	5	09/25/14 00:00	10/06/14 19:45	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	69	%	36-120	1	09/25/14 00:00	10/01/14 18:16	321-60-8	
Terphenyl-d14 (S)	79	%	29-134	1	09/25/14 00:00	10/01/14 18:16	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**2970**	ug/L	50.0	50		09/25/14 19:16	71-43-2	
Ethylbenzene	**778**	ug/L	50.0	50		09/25/14 19:16	100-41-4	
Toluene	**4250**	ug/L	50.0	50		09/25/14 19:16	108-88-3	
Xylene (Total)	**6890**	ug/L	150	50		09/25/14 19:16	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	99	%	80-120	50		09/25/14 19:16	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120	50		09/25/14 19:16	17060-07-0	
Toluene-d8 (S)	101	%	80-120	50		09/25/14 19:16	2037-26-5	
Preservation pH	**1.0**		0.10	50		09/25/14 19:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**155**	mg/L	10.0	10		10/03/14 12:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: GW-074925-092314-SP-MW-2 **Lab ID: 60178711002** Collected: 09/23/14 11:00 Received: 09/24/14 08:35 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	mg/L	0.050	1	09/26/14 17:15	10/02/14 12:47	7439-89-6	
Manganese, Dissolved	ND	mg/L	0.0050	1	09/26/14 17:15	10/02/14 12:47	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.45	1	09/25/14 00:00	10/01/14 18:36	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	68	%	36-120	1	09/25/14 00:00	10/01/14 18:36	321-60-8	
Terphenyl-d14 (S)	90	%	29-134	1	09/25/14 00:00	10/01/14 18:36	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/25/14 19:32	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/25/14 19:32	100-41-4	
Toluene	ND	ug/L	1.0	1		09/25/14 19:32	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/25/14 19:32	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	100	%	80-120	1		09/25/14 19:32	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		09/25/14 19:32	17060-07-0	
Toluene-d8 (S)	99	%	80-120	1		09/25/14 19:32	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/25/14 19:32		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1190**	mg/L	100	100		10/03/14 12:35	14808-79-8	

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: GW-074925-092314-SP-MW-3 **Lab ID: 60178711003** Collected: 09/23/14 11:15 Received: 09/24/14 08:35 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	**0.83**	mg/L	0.25	5	09/26/14 17:15	10/02/14 12:21	7439-89-6	
Manganese, Dissolved	**0.65**	mg/L	0.025	5	09/26/14 17:15	10/02/14 12:21	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.53	1	09/25/14 00:00	10/01/14 18:57	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	67	%	36-120	1	09/25/14 00:00	10/01/14 18:57	321-60-8	
Terphenyl-d14 (S)	75	%	29-134	1	09/25/14 00:00	10/01/14 18:57	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/25/14 19:48	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/25/14 19:48	100-41-4	
Toluene	ND	ug/L	1.0	1		09/25/14 19:48	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/25/14 19:48	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	98	%	80-120	1		09/25/14 19:48	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		09/25/14 19:48	17060-07-0	
Toluene-d8 (S)	98	%	80-120	1		09/25/14 19:48	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/25/14 19:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**598**	mg/L	50.0	50		10/03/14 12:51	14808-79-8	

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: GW-074925-092314-SP-MW-4 **Lab ID: 60178711004** Collected: 09/23/14 10:40 Received: 09/24/14 08:35 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	**0.39**	mg/L	0.25	5	09/26/14 17:15	10/02/14 12:28	7439-89-6	
Manganese, Dissolved	**2.2**	mg/L	0.025	5	09/26/14 17:15	10/02/14 12:28	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.53	1	09/25/14 00:00	10/01/14 19:17	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	65	%	36-120	1	09/25/14 00:00	10/01/14 19:17	321-60-8	
Terphenyl-d14 (S)	86	%	29-134	1	09/25/14 00:00	10/01/14 19:17	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**6.8**	ug/L	1.0	1		09/25/14 20:05	71-43-2	
Ethylbenzene	**1.1**	ug/L	1.0	1		09/25/14 20:05	100-41-4	
Toluene	ND	ug/L	1.0	1		09/25/14 20:05	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/25/14 20:05	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	99	%	80-120	1		09/25/14 20:05	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		09/25/14 20:05	17060-07-0	
Toluene-d8 (S)	99	%	80-120	1		09/25/14 20:05	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/25/14 20:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**905**	mg/L	100	100		10/03/14 13:06	14808-79-8	

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: GW-074925-092314-SP-DUP **Lab ID: 60178711005** Collected: 09/23/14 00:00 Received: 09/24/14 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**2820**	ug/L	100	100		09/30/14 07:54	71-43-2	
Ethylbenzene	**754**	ug/L	100	100		09/30/14 07:54	100-41-4	
Toluene	**3880**	ug/L	100	100		09/30/14 07:54	108-88-3	
Xylene (Total)	**6690**	ug/L	300	100		09/30/14 07:54	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	100	%	80-120	100		09/30/14 07:54	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	100		09/30/14 07:54	17060-07-0	
Toluene-d8 (S)	99	%	80-120	100		09/30/14 07:54	2037-26-5	
Preservation pH	**1.0**		0.10	100		09/30/14 07:54		

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Sample: TRIP BLANK **Lab ID: 60178711006** Collected: 09/23/14 17:00 Received: 09/24/14 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/30/14 05:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/14 05:12	100-41-4	
Toluene	ND	ug/L	1.0	1		09/30/14 05:12	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/30/14 05:12	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	96	%	80-120	1		09/30/14 05:12	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		09/30/14 05:12	17060-07-0	
Toluene-d8 (S)	98	%	80-120	1		09/30/14 05:12	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/30/14 05:12		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

QC Batch: MPRP/29080 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

METHOD BLANK: 1449940 Matrix: Water
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	mg/L	ND	0.050	10/02/14 11:34	
Manganese, Dissolved	mg/L	ND	0.0050	10/02/14 11:34	

LABORATORY CONTROL SAMPLE: 1449941

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	mg/L	10	9.9	99	80-120	
Manganese, Dissolved	mg/L	1	0.96	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1449942 1449943

Parameter	Units	60178510001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	mg/L	216 ug/L	10	10	9.7	10.3	95	101	75-125	5	20	
Manganese, Dissolved	mg/L	18.8 ug/L	1	1	0.97	0.99	95	97	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

QC Batch: MSV/64640 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

METHOD BLANK: 1448937 Matrix: Water
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/25/14 16:19	
Ethylbenzene	ug/L	ND	1.0	09/25/14 16:19	
Toluene	ug/L	ND	1.0	09/25/14 16:19	
Xylene (Total)	ug/L	ND	3.0	09/25/14 16:19	
1,2-Dichloroethane-d4 (S)	%	99	80-120	09/25/14 16:19	
4-Bromofluorobenzene (S)	%	99	80-120	09/25/14 16:19	
Toluene-d8 (S)	%	100	80-120	09/25/14 16:19	

LABORATORY CONTROL SAMPLE: 1448938

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.4	97	80-120	
Ethylbenzene	ug/L	20	21.0	105	80-121	
Toluene	ug/L	20	19.7	99	80-122	
Xylene (Total)	ug/L	60	63.3	106	80-121	
1,2-Dichloroethane-d4 (S)	%			99	80-120	
4-Bromofluorobenzene (S)	%			100	80-120	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1448939 1448940

Parameter	Units	60178755003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	19.4	19.1	95	94	37-157	2	32	
Ethylbenzene	ug/L	ND	20	20	20.2	20.0	99	98	31-160	1	32	
Toluene	ug/L	ND	20	20	19.6	19.2	96	94	35-157	2	37	
Xylene (Total)	ug/L	ND	60	60	61.6	61.0	103	102	34-156	1	37	
1,2-Dichloroethane-d4 (S)	%						100	98	80-120			
4-Bromofluorobenzene (S)	%						103	102	80-120			
Toluene-d8 (S)	%						99	100	80-120			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

QC Batch: MSV/64726
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60178711005, 60178711006

METHOD BLANK: 1450880
Matrix: Water
Associated Lab Samples: 60178711005, 60178711006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/30/14 04:56	
Ethylbenzene	ug/L	ND	1.0	09/30/14 04:56	
Toluene	ug/L	ND	1.0	09/30/14 04:56	
Xylene (Total)	ug/L	ND	3.0	09/30/14 04:56	
1,2-Dichloroethane-d4 (S)	%	100	80-120	09/30/14 04:56	
4-Bromofluorobenzene (S)	%	100	80-120	09/30/14 04:56	
Toluene-d8 (S)	%	99	80-120	09/30/14 04:56	

LABORATORY CONTROL SAMPLE: 1450881

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.9	95	80-120	
Ethylbenzene	ug/L	20	20.3	101	80-121	
Toluene	ug/L	20	19.0	95	80-122	
Xylene (Total)	ug/L	60	61.9	103	80-121	
1,2-Dichloroethane-d4 (S)	%			101	80-120	
4-Bromofluorobenzene (S)	%			100	80-120	
Toluene-d8 (S)	%			98	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

QC Batch: OEXT/46287 Analysis Method: EPA 8270C by SIM
QC Batch Method: EPA 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

METHOD BLANK: 1448734 Matrix: Water
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	10/01/14 11:44	
2-Fluorobiphenyl (S)	%	80	36-120	10/01/14 11:44	
Terphenyl-d14 (S)	%	80	29-134	10/01/14 11:44	

LABORATORY CONTROL SAMPLE: 1448735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	8.7	87	44-120	
2-Fluorobiphenyl (S)	%			80	36-120	
Terphenyl-d14 (S)	%			74	29-134	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

QC Batch: WETA/31201 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

METHOD BLANK: 1454631 Matrix: Water
Associated Lab Samples: 60178711001, 60178711002, 60178711003, 60178711004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/03/14 10:01	

LABORATORY CONTROL SAMPLE: 1454632

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1452655 1452656

Parameter	Units	60178693008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	2640	2500	2500	5150	5150	100	101	80-120	0	15	

MATRIX SPIKE SAMPLE: 1452657

Parameter	Units	60178711001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	155	50	207	103	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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.

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TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: OEXT/46287

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

Batch: MSV/64726

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60178711

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60178711001	**GW-074925-092314-SP-MW-1**	EPA 3010	MPRP/29080	EPA 6010	ICP/21882
60178711002	**GW-074925-092314-SP-MW-2**	EPA 3010	MPRP/29080	EPA 6010	ICP/21882
60178711003	**GW-074925-092314-SP-MW-3**	EPA 3010	MPRP/29080	EPA 6010	ICP/21882
60178711004	**GW-074925-092314-SP-MW-4**	EPA 3010	MPRP/29080	EPA 6010	ICP/21882
60178711001	**GW-074925-092314-SP-MW-1**	EPA 3510C	OEXT/46287	EPA 8270C by SIM	MSSV/14907
60178711002	**GW-074925-092314-SP-MW-2**	EPA 3510C	OEXT/46287	EPA 8270C by SIM	MSSV/14907
60178711003	**GW-074925-092314-SP-MW-3**	EPA 3510C	OEXT/46287	EPA 8270C by SIM	MSSV/14907
60178711004	**GW-074925-092314-SP-MW-4**	EPA 3510C	OEXT/46287	EPA 8270C by SIM	MSSV/14907
60178711001	**GW-074925-092314-SP-MW-1**	EPA 5030B/8260	MSV/64640		
60178711002	**GW-074925-092314-SP-MW-2**	EPA 5030B/8260	MSV/64640		
60178711003	**GW-074925-092314-SP-MW-3**	EPA 5030B/8260	MSV/64640		
60178711004	**GW-074925-092314-SP-MW-4**	EPA 5030B/8260	MSV/64640		
60178711005	**GW-074925-092314-SP-DUP**	EPA 5030B/8260	MSV/64726		
60178711006	**TRIP BLANK**	EPA 5030B/8260	MSV/64726		
60178711001	**GW-074925-092314-SP-MW-1**	EPA 300.0	WETA/31201		
60178711002	**GW-074925-092314-SP-MW-2**	EPA 300.0	WETA/31201		
60178711003	**GW-074925-092314-SP-MW-3**	EPA 300.0	WETA/31201		
60178711004	**GW-074925-092314-SP-MW-4**	EPA 300.0	WETA/31201		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO#: 60178711

60178711

Client Name: CRA COP NM

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 6113 5280 0880 Pace Shipping Label Used? Yes ☐ No ☐

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

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

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

Cooler Temperature: 1.2

Date and initials of person examining contents: JB 9/24

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, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☒Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 9/10/14		15.
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: DMF Date 9/24/14

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

Start: 1115	Start:
End: 1120	End:
Temp.	Temp:

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company:	CRA COP NM
Address:	6121 Indian School Rd NE, Ste 200
	Albequerque, NM 87110
Email To:	cmathews@craworld.com
Phone: (505)884-0672	Fax: (505)884-4932
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Christine Mathews
Copy To:	Jeff Walker, Angela Bown
Purchase Order No.:	
Project Name:	Johnston Federal No. 4
Project Number:	74925

Section C Invoice Information:

Attention:	CRA
Company Name:	Angela Bown
Address:	
Pace Quote Reference:	
Pace Project Manager:	Alice Flanagan
Pace Profile #:	7801, 20

REGULATORY AGENCY

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

Site Location STATE: NM

Section D Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	8270 Napthalene	6010 Dissolved Fe & Mn	300.0 Sulfate						Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GW-074925-092314-SP-MW-1	WT	G	—	—	9-23-14	0945		7	3		1	3					X	X	X	X	BP3N	BP3F	(2)	A4H	(3)	D6+H		601787.11 001
2	GW-074925-092314-SP-MW-2	WT	G	—	—	9-23-14	1100		7	3		1	3					X	X	X	X								002
3	GW-074925-092314-SP-MW-3	WT	G	—	—	9-23-14	1115		7	3		1	3					X	X	X	X								003
4	GW-074925-092314-SP-MW-4	WT	G	—	—	9-23-14	1040		7	3		1	3					X	X	X	X								004
5	GW-074925-092314-SP-~~MW~~DUP	WT	G	—	—	9-23-14			3				3					X											005
6	trip blank					9-23-14	1700		3				3					X								(3) D6+H TB			006
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Metals have been field filtered	Cassie Brown/CRA	9/23/14	1700	[signature]	9/24	0835	1.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cassie Brown

SIGNATURE of SAMPLER: Cassie Brown DATE Signed (MM/DD/YY): 9/23/14

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

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

Pace Analytical Services, Inc.
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January 05, 2015

Christine Mathews
CRA
6121 Indian School Rd NE
Suite 200
Albuquerque, NM 87110

RE: Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on December 18, 2014. 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, COP Conestoga-Rovers & Associa
Angela Bown, Conestoga Rovers & Associates
Chris Fetters, COP Conestoga-Rovers & Associa
Jeff Walker, COP Conestoga-Rovers & Associa

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CERTIFICATIONS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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SAMPLE SUMMARY

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60184906001	**GW-074925-121714-CM-MW-3**	Water	12/17/14 10:00	12/18/14 09:00
60184906002	**GW-074925-121714-CM-MW-4**	Water	12/17/14 09:50	12/18/14 09:00
60184906003	**GW-074925-121714-CM-DUP**	Water	12/17/14 08:00	12/18/14 09:00
60184906004	**TB-074925-121714-CM-TRIP BLANK**	Water	12/17/14 13:00	12/18/14 09:00

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SAMPLE ANALYTE COUNT

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60184906001	**GW-074925-121714-CM-MW-3**	EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
60184906002	**GW-074925-121714-CM-MW-4**	EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
60184906003	**GW-074925-121714-CM-DUP**	EPA 5030B/8260	PRG	8
60184906004	**TB-074925-121714-CM-TRIP BLANK**	EPA 5030B/8260	PRG	8

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: CRA Conoco New Mexico
Date: January 05, 2015

General Information:
2 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below.

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 3510C with any exceptions noted below.

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

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

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

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

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

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

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

QC Batch: OEXT/47580

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: CRA Conoco New Mexico
Date: January 05, 2015

General Information:
4 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below.

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

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

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

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

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

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

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

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

QC Batch: MSV/66610

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Sample: GW-074925-121714-CM-MW-3 **Lab ID: 60184906001** Collected: 12/17/14 10:00 Received: 12/18/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.45	1	12/18/14 00:00	12/23/14 22:48	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	77	%	58-115	1	12/18/14 00:00	12/23/14 22:48	321-60-8	
Terphenyl-d14 (S)	96	%	53-127	1	12/18/14 00:00	12/23/14 22:48	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		12/20/14 08:26	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/20/14 08:26	100-41-4	
Toluene	ND	ug/L	1.0	1		12/20/14 08:26	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/20/14 08:26	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	98	%	80-120	1		12/20/14 08:26	460-00-4	
1,2-Dichloroethane-d4 (S)	89	%	80-120	1		12/20/14 08:26	17060-07-0	
Toluene-d8 (S)	97	%	80-120	1		12/20/14 08:26	2037-26-5	
Preservation pH	**1.0**		0.10	1		12/20/14 08:26		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Sample: GW-074925-121714-CM-MW-4 **Lab ID: 60184906002** Collected: 12/17/14 09:50 Received: 12/18/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.45	1	12/18/14 00:00	12/23/14 23:09	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	79	%	58-115	1	12/18/14 00:00	12/23/14 23:09	321-60-8	
Terphenyl-d14 (S)	101	%	53-127	1	12/18/14 00:00	12/23/14 23:09	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**3.0**	ug/L	1.0	1		12/20/14 08:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/20/14 08:40	100-41-4	
Toluene	ND	ug/L	1.0	1		12/20/14 08:40	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/20/14 08:40	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	98	%	80-120	1		12/20/14 08:40	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	80-120	1		12/20/14 08:40	17060-07-0	
Toluene-d8 (S)	97	%	80-120	1		12/20/14 08:40	2037-26-5	
Preservation pH	**1.0**		0.10	1		12/20/14 08:40		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Sample: GW-074925-121714-CM-DUP **Lab ID: 60184906003** Collected: 12/17/14 08:00 Received: 12/18/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**3.9**	ug/L	1.0	1		12/20/14 08:55	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/20/14 08:55	100-41-4	
Toluene	ND	ug/L	1.0	1		12/20/14 08:55	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/20/14 08:55	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	95	%	80-120	1		12/20/14 08:55	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	80-120	1		12/20/14 08:55	17060-07-0	
Toluene-d8 (S)	99	%	80-120	1		12/20/14 08:55	2037-26-5	
Preservation pH	**1.0**		0.10	1		12/20/14 08:55		

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Sample: TB-074925-121714-CM-TRIP BLANK **Lab ID: 60184906004** Collected: 12/17/14 13:00 Received: 12/18/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		12/20/14 05:43	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		12/20/14 05:43	100-41-4	
Toluene	ND	ug/L	1.0	1		12/20/14 05:43	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		12/20/14 05:43	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	95	%	80-120	1		12/20/14 05:43	460-00-4	
1,2-Dichloroethane-d4 (S)	87	%	80-120	1		12/20/14 05:43	17060-07-0	
Toluene-d8 (S)	100	%	80-120	1		12/20/14 05:43	2037-26-5	
Preservation pH	**1.0**		0.10	1		12/20/14 05:43		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

QC Batch: MSV/66610 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60184906001, 60184906002, 60184906003, 60184906004

METHOD BLANK: 1497478 Matrix: Water
Associated Lab Samples: 60184906001, 60184906002, 60184906003, 60184906004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	12/20/14 04:45	
Ethylbenzene	ug/L	ND	1.0	12/20/14 04:45	
Toluene	ug/L	ND	1.0	12/20/14 04:45	
Xylene (Total)	ug/L	ND	3.0	12/20/14 04:45	
1,2-Dichloroethane-d4 (S)	%	88	80-120	12/20/14 04:45	
4-Bromofluorobenzene (S)	%	96	80-120	12/20/14 04:45	
Toluene-d8 (S)	%	99	80-120	12/20/14 04:45	

LABORATORY CONTROL SAMPLE: 1497479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.1	106	80-120	
Ethylbenzene	ug/L	20	20.7	103	80-120	
Toluene	ug/L	20	20.6	103	80-120	
Xylene (Total)	ug/L	60	63.8	106	80-120	
1,2-Dichloroethane-d4 (S)	%			88	80-120	
4-Bromofluorobenzene (S)	%			97	80-120	
Toluene-d8 (S)	%			100	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

QC Batch: OEXT/47580
QC Batch Method: EPA 3510C
Analysis Method: EPA 8270C by SIM
Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60184906001, 60184906002

METHOD BLANK: 1497295 Matrix: Water
Associated Lab Samples: 60184906001, 60184906002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	12/23/14 21:06	
2-Fluorobiphenyl (S)	%	75	58-115	12/23/14 21:06	
Terphenyl-d14 (S)	%	93	53-127	12/23/14 21:06	

LABORATORY CONTROL SAMPLE: 1497296

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	9.4	94	47-113	
2-Fluorobiphenyl (S)	%			84	58-115	
Terphenyl-d14 (S)	%			95	53-127	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: OEXT/47580

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

Batch: MSV/66610

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60184906

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60184906001	**GW-074925-121714-CM-MW-3**	EPA 3510C	OEXT/47580	EPA 8270C by SIM	MSSV/15381
60184906002	**GW-074925-121714-CM-MW-4**	EPA 3510C	OEXT/47580	EPA 8270C by SIM	MSSV/15381
60184906001	**GW-074925-121714-CM-MW-3**	EPA 5030B/8260	MSV/66610		
60184906002	**GW-074925-121714-CM-MW-4**	EPA 5030B/8260	MSV/66610		
60184906003	**GW-074925-121714-CM-DUP**	EPA 5030B/8260	MSV/66610		
60184906004	**TB-074925-121714-CM-TRIP BLANK**	EPA 5030B/8260	MSV/66610		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60184906

60184906

Optional
Proj Due Date:
Proj Name:

Client Name: COP CPA NM

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

Tracking #: 6262 7064 4780 Pace Shipping Label Used? Yes ☐ No ☑

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

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

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

Cooler Temperature: 3.1

Date and initials of person examining contents: JM 12/18/14 1155

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: water		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, TOC, O&G, WI-DRO (water), Phenolics	☑Yes ☐No	Initial when completed: MM / Lot # of added preservative:
Trip Blank present:	☑Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 120114-3		15.
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: MF Date: 12/18/14

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

Start: 1150	Start:
End: 1155	End:
Temp:	Temp:

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:

Company:	CRA COP NM
Address:	6121 Indian School Rd NE, Ste 200
	Albequerque, NM 87110
Email To:	cmathews@craworld.com
Phone: (505)884-0672	Fax: (505)884-4932
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Christine Mathews
Copy To:	Jeff Walker, Angela Bown
Purchase Order No.:	4071737
Project Name:	Johnston Federal No. 4
Project Number:	74925

Section C Invoice Information:

Attention:	CRA
Company Name:	Angela Bown
Address:	
Pace Quote Reference:	
Pace Project Manager:	Alice Flanagan
Pace Profile #:	7801, 20

REGULATORY AGENCY

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

Site Location STATE: NM

Section D Required Client Information

Valid Matrix Codes

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 BTEX	8270 Napthalene		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GW-074925-121714-CM-MW-3	WT	G			12/17/14	1000		5	X			X						Y	X				3(DCHH) 2(HCl)
2	GW-074925-121714-CM-MW-4	WT	G			12/17/14	0950		5	X			X						Y	X				
3	GW-074925-121714-CM-dup	WT	G			12/17/14	—		3				X						Y			3(DCHH)		
4	~~TB~~																							
5	TB-074925-121714-CM-trip Blank					12/17/14	1300						X							X				3(DCHH)
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Pace Project No./ Lab I.D.: 60184906

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Cassie Brown/CRA	12/17/14	1520	[signature]	12/18/14	900	3.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cassie Brown

SIGNATURE of SAMPLER: Cassie Brown DATE Signed (MM/DD/YY): 12/17/14

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

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

Pace Analytical Services, Inc.
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January 16, 2015

Christine Mathews
CRA
6121 Indian School Rd NE
Suite 200
Albuquerque, NM 87110

RE: Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on January 10, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

cc: Angela Bown, COP Conestoga-Rovers & Associa
Angela Bown, Conestoga Rovers & Associates
Chris Fetters, COP Conestoga-Rovers & Associa
Jeff Walker, COP Conestoga-Rovers & Associa

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CERTIFICATIONS

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

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

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SAMPLE SUMMARY

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60185940001	**GW-074925-010815-JW-MW-1**	Water	01/08/15 13:05	01/10/15 08:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60185940001	**GW-074925-010815-JW-MW-1**	EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8

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PROJECT NARRATIVE

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: CRA Conoco New Mexico
Date: January 16, 2015

General Information:
1 sample was analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below.

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 3510C with any exceptions noted below.

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

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

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

QC Batch: OEXT/47760

IO: The internal standard response was outside the laboratory acceptance limits confirmed by reanalysis. The results reported are from the most QC compliant analysis.

- GW-074925-010815-JW-MW-1 (Lab ID: 60185940001)
  - 2-Fluorobiphenyl (S)

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

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

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

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

QC Batch: OEXT/47760

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: CRA Conoco New Mexico
Date: January 16, 2015

General Information:
1 sample was analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below.

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

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

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

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

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

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

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

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

QC Batch: MSV/67013

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Sample: GW-074925-010815-JW-MW-1 **Lab ID: 60185940001** Collected: 01/08/15 13:05 Received: 01/10/15 08:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	**78.7**	ug/L	4.5	10	01/13/15 00:00	01/14/15 19:56	91-20-3	
Surrogates								
2-Fluorobiphenyl (S)	76	%	58-115	1	01/13/15 00:00	01/14/15 15:50	321-60-8	IO
Terphenyl-d14 (S)	64	%	53-127	1	01/13/15 00:00	01/14/15 15:50	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**4350**	ug/L	100	100		01/15/15 13:15	71-43-2	
Ethylbenzene	**1070**	ug/L	20.0	20		01/14/15 15:05	100-41-4	
Toluene	**6150**	ug/L	100	100		01/15/15 13:15	108-88-3	
Xylene (Total)	**10000**	ug/L	60.0	20		01/14/15 15:05	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	105	%	80-120	20		01/14/15 15:05	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120	20		01/14/15 15:05	17060-07-0	
Toluene-d8 (S)	102	%	80-120	20		01/14/15 15:05	2037-26-5	
Preservation pH	**1.0**		0.10	20		01/14/15 15:05		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

QC Batch: MSV/66988
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60185940001

METHOD BLANK: 1505785 Matrix: Water
Associated Lab Samples: 60185940001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/L	ND	1.0	01/14/15 08:48	
Xylene (Total)	ug/L	ND	3.0	01/14/15 08:48	
1,2-Dichloroethane-d4 (S)	%	100	80-120	01/14/15 08:48	
4-Bromofluorobenzene (S)	%	97	80-120	01/14/15 08:48	
Toluene-d8 (S)	%	102	80-120	01/14/15 08:48	

LABORATORY CONTROL SAMPLE: 1505786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylbenzene	ug/L	20	21.1	106	80-120	
Xylene (Total)	ug/L	60	59.9	100	80-120	
1,2-Dichloroethane-d4 (S)	%			99	80-120	
4-Bromofluorobenzene (S)	%			100	80-120	
Toluene-d8 (S)	%			102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1505787 1505788

Parameter	Units	60186000004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethylbenzene	ug/L	ND	20	20	21.3	21.4	106	107	51-148	1	14	
Xylene (Total)	ug/L	ND	60	60	60.0	62.2	100	104	39-158	3	15	
1,2-Dichloroethane-d4 (S)	%						100	100	80-120			
4-Bromofluorobenzene (S)	%						101	101	80-120			
Toluene-d8 (S)	%						101	100	80-120			
Preservation pH		1.0			1.0	1.0				0		

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

QC Batch: MSV/67013
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60185940001

METHOD BLANK: 1506487
Matrix: Water
Associated Lab Samples: 60185940001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	01/15/15 12:26	
Toluene	ug/L	ND	1.0	01/15/15 12:26	
1,2-Dichloroethane-d4 (S)	%	97	80-120	01/15/15 12:26	
4-Bromofluorobenzene (S)	%	96	80-120	01/15/15 12:26	
Toluene-d8 (S)	%	102	80-120	01/15/15 12:26	

LABORATORY CONTROL SAMPLE: 1506488

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.7	103	80-120	
Toluene	ug/L	20	20.0	100	80-120	
1,2-Dichloroethane-d4 (S)	%			101	80-120	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			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

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

QC Batch: OEXT/47760
QC Batch Method: EPA 3510C
Analysis Method: EPA 8270C by SIM
Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60185940001

METHOD BLANK: 1505104 Matrix: Water
Associated Lab Samples: 60185940001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	01/14/15 15:09	
2-Fluorobiphenyl (S)	%	90	58-115	01/14/15 15:09	
Terphenyl-d14 (S)	%	95	53-127	01/14/15 15:09	

LABORATORY CONTROL SAMPLE: 1505105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	9.3	93	47-113	
2-Fluorobiphenyl (S)	%			89	58-115	
Terphenyl-d14 (S)	%			91	53-127	

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: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: OEXT/47760

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

Batch: MSV/67013

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

ANALYTE QUALIFIERS

IO The internal standard response was outside the laboratory acceptance limits confirmed by reanalysis. The results reported are from the most QC compliant analysis.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074925 JOHNSON FEDERAL NO 4
Pace Project No.: 60185940

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60185940001	**GW-074925-010815-JW-MW-1**	EPA 3510C	OEXT/47760	EPA 8270C by SIM	MSSV/15436
60185940001	**GW-074925-010815-JW-MW-1**	EPA 5030B/8260	MSV/66988		
60185940001	**GW-074925-010815-JW-MW-1**	EPA 5030B/8260	MSV/67013		

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Sample Condition Upon Receipt

WO# : 60185940

60185940

Client Name: CRA

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 8070 4031 3237 Pace Shipping Label Used? Yes ☐ No ☐

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

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

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

Cooler Temperature: 1.7

Temperature should be above freezing to 6°C

Date and initials of person examining contents: JD 1/12

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, TOC, O&G, WI-DRO (water), Phenolics	☒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:

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: 01/12/15

CHAIN OF CUSTODY RECORD

COC NO.: 32793

PAGE 1 OF 1

CONESTOGA-ROVERS & ASSOCIATES

Address: 6121 INDIAN SCHOOL NE, STE 200, ABQ, NM 87110

Phone: 505-884-0672 Fax: _____

60184940

(See Reverse Side for Instructions)

Project No/ Phase/Task Code: 074925	**Laboratory Name:** PACE	**Lab Location:** LENEXA, KS	**SSOW ID:**
Project Name: JOHNSTON FEDERAL No. 4	**Lab Contact:** ALICE FLANAGAN	**Lab Quote No:**	**Cooler No:**
Project Location: SAN JUAN CO., NM			**Carrier:**
Chemistry Contact: ANGIE BOWN			**Airbill No:**
Sampler(s): JEFF WALKER, CALE KANACK			**Date Shipped:** 1/9/14

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Container Quantity & Preservation: Unpreserved	HCl	HNO_3	H_2SO_4	NaOH	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	Analysis Requested: 8260 BTEX	8270 NAPTHALENE								MS/MSD Request	Comments/ Special Instructions:
1	GW-074925-010814-JW-MW-1	1/8/15	1305	WT	G	2	3							5	X	X	(3)DG4B	(2)AG4U							"010814" INCL SAMPLE NAME SHOULD BE "010815"
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									

TAT Required in business days (use separate COCs for different TATs):

☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☒ Other: STD

Total Number of Containers: 5

All Samples in Cooler must be on COC

Notes/ Special Requirements:

Temp 1.7 °C

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	CRA	1-9-14	1315	1.	Pace	1/10	0810
2.				2.			
3.				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10B (20110804)