3R - 071

2013 AGWMR

03 / 21 / 2014

Terry S. Lauck
Program Manager

ConocoPhillips Company
Risk Management & Remediation
1380G Plaza Office Building
315 Johnstone Avenue
Bartlesville, OK 74004
Phone: 918.661.0935
E-mail: Terry.S.Lauck@cop.com

ConocoPhillips

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

March 21, 2014

Re: NMOCD Case No. 3RP-071, 2013 Annual Remediation and Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed is the 2013 Annual Groundwater Monitoring Report for the Johnston Federal No. 4 Metering Station site. This report, prepared by Conestoga-Rovers & Associates (CRA), contains the results of the mobile dual phase extraction event and annual groundwater monitoring conducted during August and September 2013, respectively.

Please let me know if you have any questions.

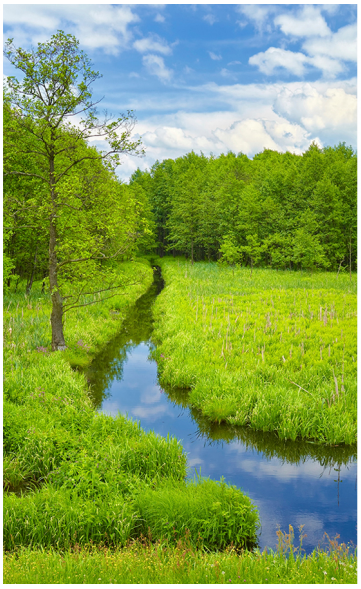
Sincerely,

Terry S. Lauck

Enc

CONESTOGA-ROVERS & ASSOCIATES

www.CRAworld.com



2013 Annual Remediation and Groundwater Monitoring Report

ConocoPhillips Johnston Federal No. 4 Metering Station
San Juan County, New Mexico
API# 30-045-10130
NMOCD # 3RP-71

Prepared for: ConocoPhillips Risk Management and Remediation

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

January 2014 • 074925 • Report No. 4

Partners in Sustainability

Table of Contents

List of Figures
(Following Text)

List of Tables
(Following Text)

List of Appendices

Section 1.0 Introduction

This report presents the results of a mobile dual phase extraction (MDPE) event and annual groundwater monitoring conducted by Conestoga-Rovers & Associates (CRA) on August 24th, 25th, and 27th and September 17, 2013, respectively, at the ConocoPhillips Company (ConocoPhillips) Johnston Federal No. 4 Metering Station (Site) 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 monitor well, MW-1, was installed at the Site to a depth of 50 feet below ground surface (bgs) in May of 1999. Burlington sampled Monitor Well 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 monitor wells were installed under the supervision of Tetra Tech by WDC Exploration and Drilling of Peralta, NM. With information obtained during monitor well installation in 2008, a generalized geologic cross section was completed for the Site and is presented as Figure 3. The existing Burlington/ConocoPhillips monitor well network at the Site includes MW-1, MW-2, MW-3, and MW-4. El Paso Natural Gas (El Paso) owns three additional Site monitor wells. The monitoring schedule of the El Paso-owned monitor wells is not known. Monitor Wells MW-1, MW-2, MW-3, and MW-4 were incorporated into an annual sampling schedule beginning on October 24, 2008.

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

In addition to annual groundwater sampling during September 2013, CRA provided oversight for an MDPE event conducted on August 23rd, 24th, and 27th 2013 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 three days of MDPE, approximately 94 gallons of hydrocarbons (liquid and vapor) were extracted from Monitor Well MW-1. Data from the September 2013 groundwater monitoring event indicate that, while the MDPE event was very effective in removing a significant 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 17, 2013, groundwater elevation measurements were obtained for Monitor 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 2013 monitoring event data, groundwater flow remains to the east-southeast and is consistent with recent and historical records at this Site. There was no measurable thickness of product present in the Site monitor wells during the 2013 annual groundwater sampling event; however, a slight but continuous hydrocarbon sheen was observed in the purge water generated from Monitor Well MW-1.

Groundwater sampling

Groundwater samples were collected from Monitor Wells MW-1, MW-2, MW-3, and MW-4. Approximately three well volumes were purged from each monitor well with a dedicated polyethylene 1.5-inch disposable bailer. 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. Groundwater sampling field forms are included as **Appendix B**. The associated laboratory analytical report is included as **Appendix C**.

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. Exceedences of NMWQCC groundwater quality standards in Site monitor wells are discussed below. Results are summarized in **Table 3**.

- **Benzene**
  - The NMWQCC standard for benzene is 0.010 milligrams per liter (mg/L). The groundwater sample collected from MW-1 in September 2013 contained benzene at a concentration of 4.69 mg/L.

- **Toluene**
  - The NMWQCC standard for toluene is 0.75 mg/L. The groundwater sample collected from MW-1 contained toluene at a concentration of 7.55 mg/L.
- **Ethylbenzene**
  - The NMWQCC standard for ethylbenzene is 0.75 mg/L. The groundwater sample collected from MW-1 contained a concentration of ethylbenzene of 1.17 mg/L.
- **Total Xylenes**
  - The NMWQCC standard for total xylenes is 0.620 mg/L. The groundwater sample collected from MW-1 contained xylenes at a concentration of 11.0 mg/L.

- **Naphthalenes**
  - The NMWQCC standard for naphthalenes is 0.03 mg/L. The groundwater sample collected from MW-1 contained naphthalenes at a concentration of 0.0365 mg/L.
- **Sulfate**
  - The NMWQCC standard for sulfate is 600 mg/L. Groundwater collected from Monitor Wells MW-2, MW-3, and MW-4 was found to exceed the standard for sulfate during September 2013. Sulfate concentrations were 1,230 mg/L, 808 mg/L, and 925 mg/L, respectively.
- **Dissolved Manganese**
  - The NMWQCC standard for dissolved manganese is 0.2 mg/L. Groundwater collected from Monitor Wells MW-1, MW-3, and MW-4 was found to exceed the standard for dissolved manganese during September 2013. Dissolved manganese concentrations were 0.89 mg/L, 0.67 mg/L, and 1.6 mg/L, respectively.

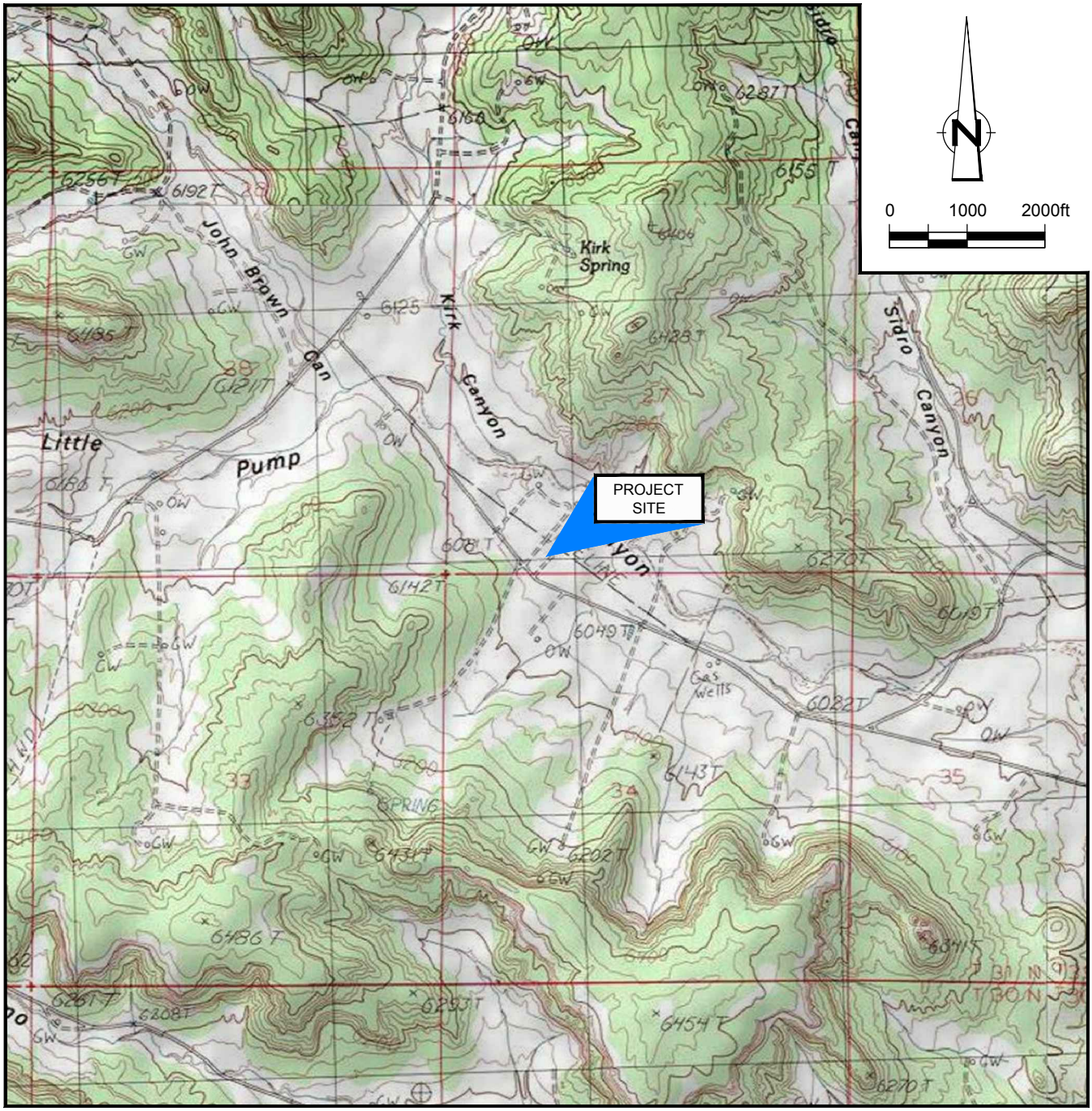
Section 4.0 Conclusions and Recommendations

Approximately 94 gallons of hydrocarbons were successfully removed from the subsurface at Monitor Well MW-1 during the August 2013 MDPE event. The concentration of benzene in groundwater of Monitor Well MW-4, downgradient from MW-1, has also been significantly reduced to below the NMWQCC standard. This serves as further 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 attempt to remove additional hydrocarbons from the subsurface. AcuVac, subsequent to their final September 2013 MDPE event report (Appendix A), further evaluated Site data and recommended a modification to MDPE event methodology. Enhanced Vacuum Recovery, in combination with the MDPE, is recommended to maximize overall mass removal of hydrocarbons and, more specifically, to more efficiently volatilize and remove the dissolved-phase BTEX constituents in the groundwater of MW-1.

Monitor Well MW-1 continues to exceed NMWQCC standards for BTEX constituents. Concentrations of sulfate and dissolved manganese also continue to be detected above NMWQCC groundwater quality standards in Site monitor wells. CRA recommends continued annual sampling of Site monitor 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 Johnston Federal No. 4 Metering Station is scheduled to take place during September of 2014 and will include analyses for BTEX, naphthalene, dissolved manganese, dissolved iron, and sulfate.



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

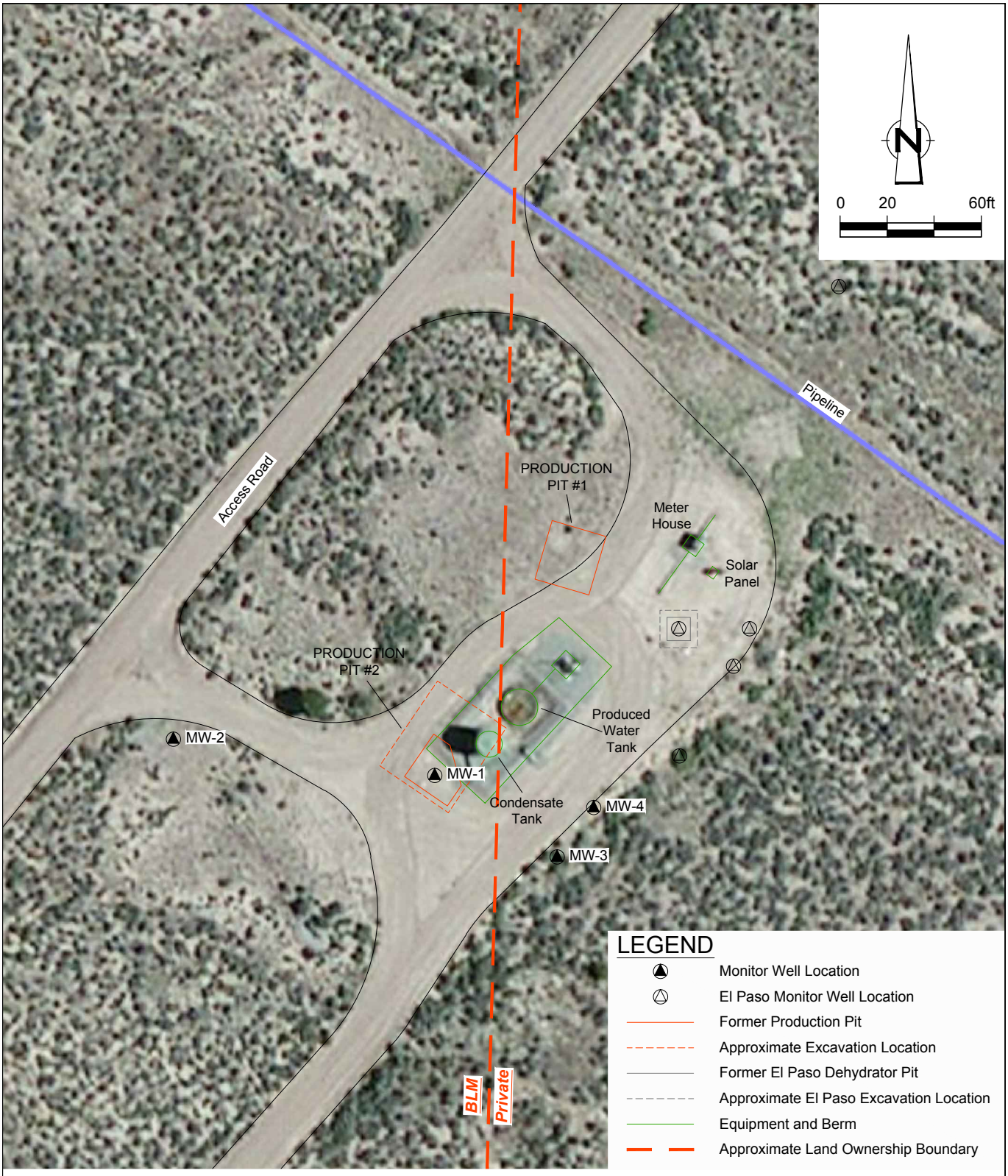


Figure 2

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

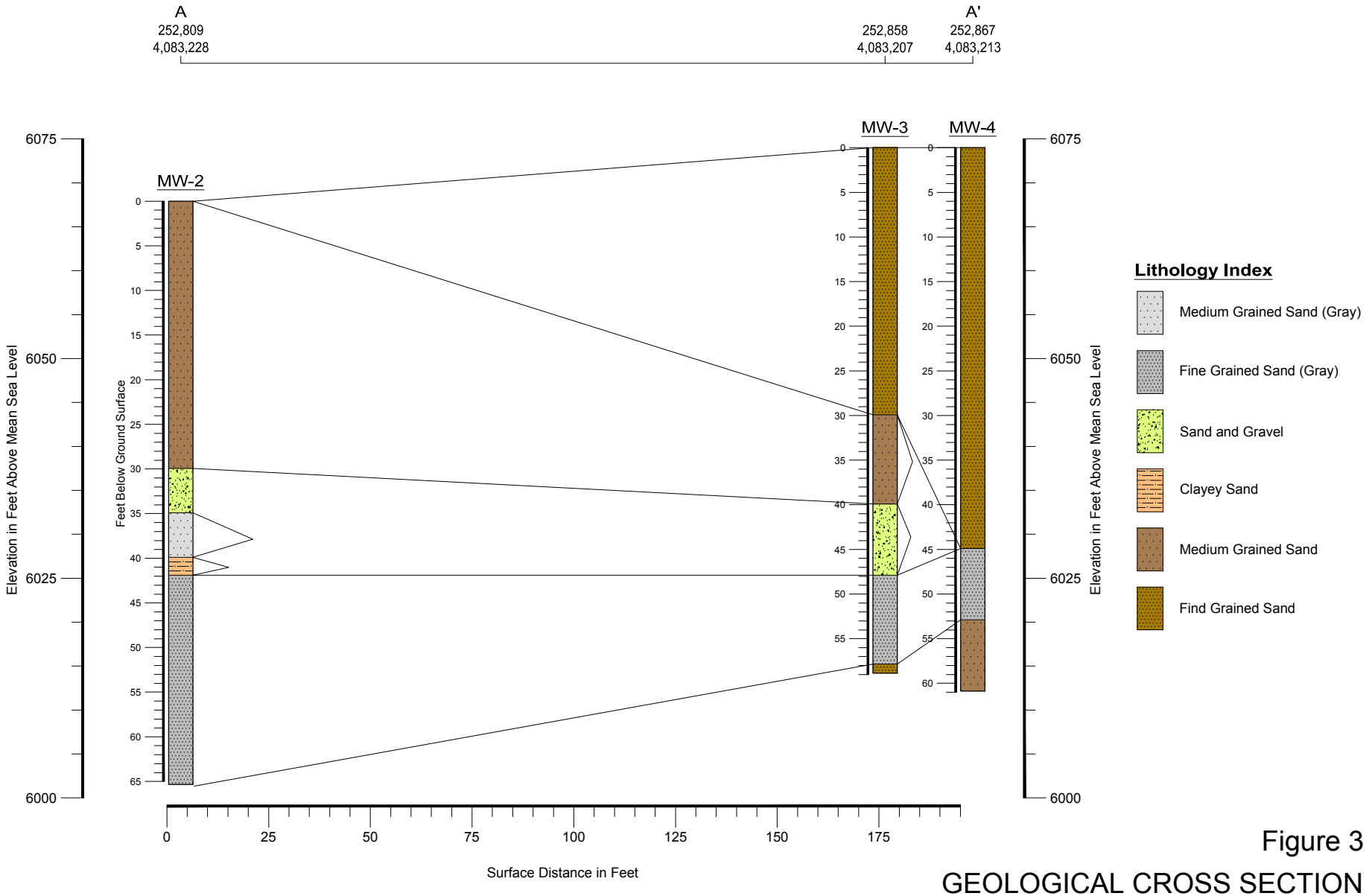


Figure 3

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

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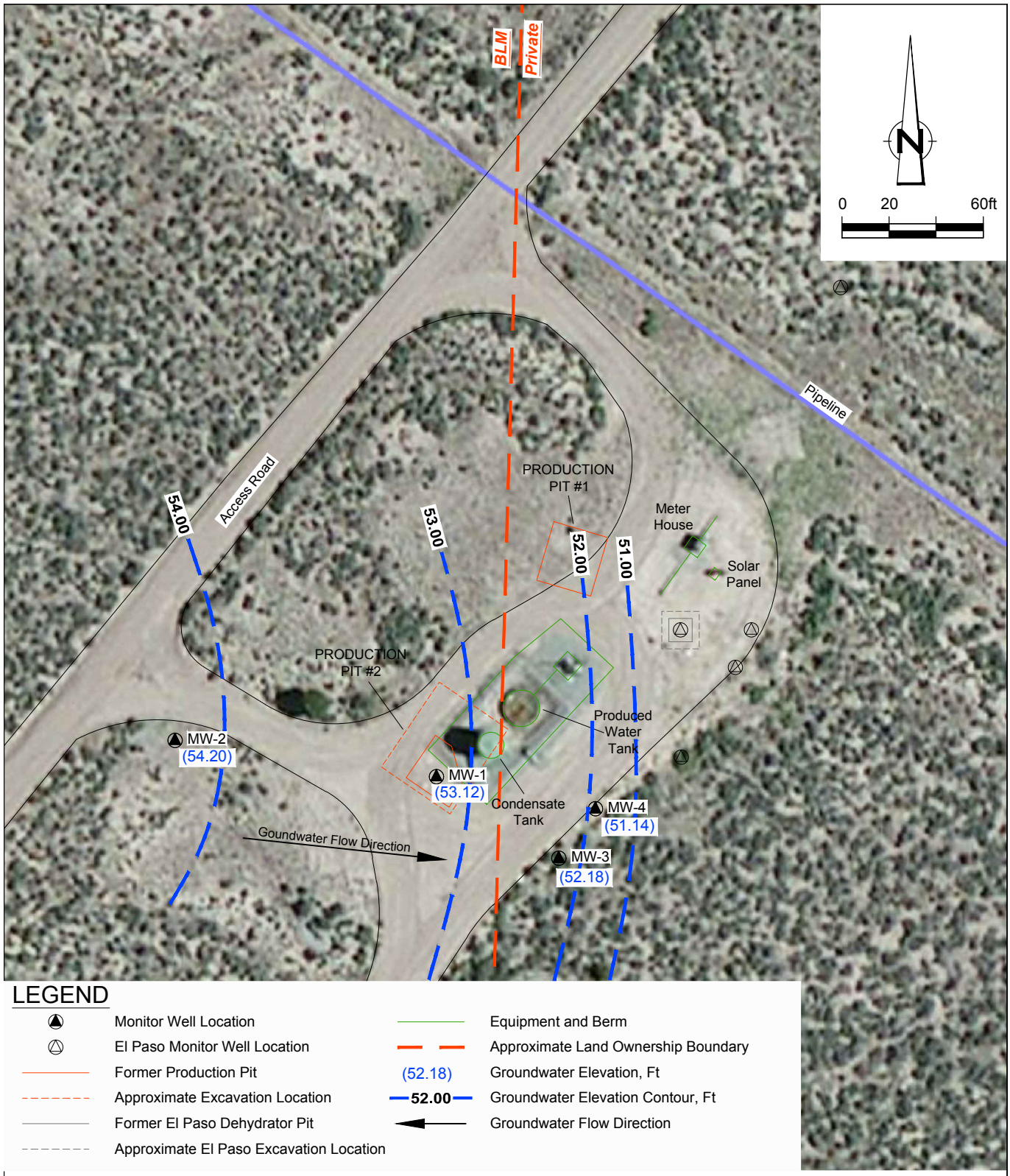


Figure 4

SEPTEMBER 2013 GROUNDWATER POTENTIOMETRIC SURFACE MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074925-95(004)GN-DL001 JAN 30/2014

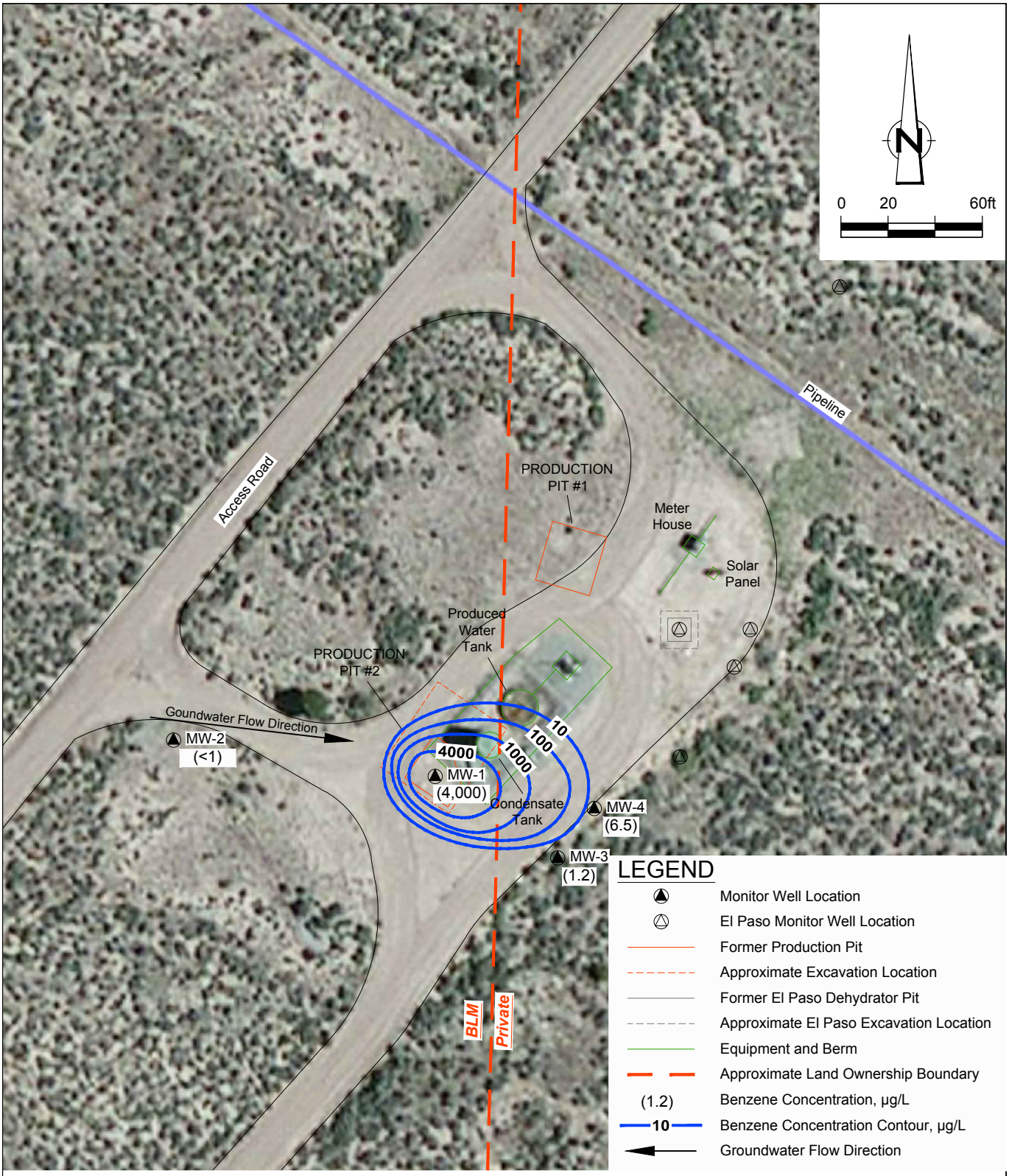


Figure 5

SEPTEMBER 2013 BENZENE CONCENTRATION MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

TABLE 1

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

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, NM

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.

TABLE 2

MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
SAN JUAN COUNTY, NM

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

TABLE 2

MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
SAN JUAN COUNTY, NM

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
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
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

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

GROUNDWATER LABORATORY ANALYTICAL RESULTS SUMMARY
CONOCOPHILLIPS COMPANY
JOHNSTON FEDERAL No. 4
SAN JUAN COUNTY, NM

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)*
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**	**--**	--	--	**--**
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
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**
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**
NMWQCC Groundwater Quality Standards				**0.01**	**0.75**	**0.75**	**0.62**	**0.03**	**600**	**1**	**0.2**

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

August 2013 Mobile Dual Phase Extraction Report

AcuVac Remediation, LLC.

1656-H Townhurst, Houston, Texas 77043
713.468.6688 • Fax: 713.468.6689 • www.acuvac.com

August 30, 2013

Mr. Jeff Walker
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 #1, 2 and 3, at the above location on August 23, 24 and 27, 2013. Table #1 is the Well Data Information on well MW-1. PSH is referred to LNAPL in this report. GW samples are taken frequently in a 2,000 ml beaker, to determine the average LNAPL percentage and volume.

Summary of MDP Event #1 - Well MW-1

- The total Event time was 8.0 hours. There is no comparative data. The Event was conducted on August 23, 2013.
- The total liquid volume recovered was 191 gals, with an estimated volume of 1.0 gal of LNAPL.
- Total vapor LNAPL burned as IC engine fuel was 29.95 gals, **for a total liquid and vapor LNAPL recovery of 30.95 gals. This equates to an average of 3.87 gals/hr.**
- Average HORIBA Analytical Data from the influent vapor samples was: HC = 61,801 ppmv, CO_2 = 7.59%, CO = 2.17%, O_2 = 4.7% and H_2S = 19.53 ppm.
- The Average Induced Vacuum was 71.0"H_2O with a maximum vacuum of 75"H_2O and the average EW well vapor flow was 31.14 scfm.
- The GW pump was set at 50.5 ft BTOC. The average GW pump rate was 0.39 gpm.
- The average GW depression, based on the positioning of the GW pump, was 5.50 ft below static level.
- A LNAPL thickness of 0.02 ft was recorded prior to the start of Event #1 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 #1 Well MW-1 was 30.95 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 dark with biomass at the start of the Event and then cleared after approximately1.0 hr.
- The high HC (TPH) levels indicate contaminant in the LNAPL range.
- The HC (TPH) 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 24.0 ppm to a low of 13.0 ppm.

Summary of MDP Event #2: Well MW-1

- The total Event time was 8.0 hours. The Event was conducted on August 24, 2013. The data is compared to Event #1 conducted on August 23, 2013 which had a total Event time of 8.0 hours.
- The total liquid volume recovered was 108 gals, of which 1.5 gals were LNAPL.
- Total vapor LNAPL burned as IC engine fuel was 30.10 gals, **for a total liquid and vapor LNAPL recovery of 31.60 gals. This equates to an average of 3.95 gals/hr.**
- Average HORIBA Analytical Data from the influent vapor samples was: HC = 58,276 ppmv, CO_2 = 7.95%, CO = 1.88%, O_2 = 5.0% and H_2S = 13.71 ppm.
- Compared with MDP Event #1 data, the TPH levels decreased 3,524 ppmv, CO_2 increased 0.40%, CO decreased 0.29%, O_2 increased 0.3% and H_2S decreased 5.82 ppm.
- The Average Induced Vacuum was 70"H_2O with a maximum vacuum of 70"H_2O and the average EW well vapor flow was 33.20 scfm.
- Compared with Event #1 data, the Average Induced Vacuum decreased 1.0"H_2O, and the average well vapor flow increased 2.06 scfm.
- The GW pump was set at 50.5 ft BTOC. The average GW pump rate was 0.22 gpm.
- The average GW depression, based on the positioning of the GW pump, was 5.5 ft below static level.
- A LNAPL thickness of 0.03 ft was recorded prior to the start of Event #2 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 #2 Well MW-1 was 31.60 gals.

Additional Information:

- An estimated volume of 1.5 gals of liquid LNAPL were recovered during the 8.0 hour Event.
- The high HC (TPH) levels indicate contaminant in the LNAPL range.
- The HC (TPH) 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.

- Well MW-3 (57.0 ft) and Well MW-4 (61.1 ft from Well MW-1) were sealed with plugs designed to accept magnehelic gauges or digital manometers. The wells were then monitored on a periodic basis to determine the influence of the induced vacuum that was applied to Well MW-1. Wells MW-3 and MW-4 were slightly influenced by the induced vacuum, but not to the extent to be considered in the radius of influence.

Summary of MDP Event #3: Well MW-1

- The total Event time was 8.0 hours. The Event was conducted on August 27, 2013. The data is compared to Event #2 conducted on August 24, 2013 which had a total Event time of 8.0 hours.
- The total liquid volume recovered was 106 gals, of which an estimated 2.0 gals were LNAPL.
- Total vapor LNAPL burned as IC engine fuel was 29.01 gals, **for a total liquid and vapor LNAPL recovery of 31.01 gals. This equates to an average of 3.88 gals/hr.**
- Average HORIBA Analytical Data from the influent vapor samples was: HC = 56,152 ppmv, CO_2 = 7.34%, CO =1.62%, O_2 =4.5% and H_2S = 0 ppm.
- Compared with MDP Event #2 data, the TPH levels decreased 2,110 ppmv, CO_2 decreased 0.58%, CO decreased 0.23%, O_2 decreased 0.5% and H_2S decreased 13.59 ppm.
- The Average Induced Vacuum was 70"H_2O with a maximum vacuum of 70"H_2O and the average EW well vapor flow was 33.20 scfm.
- Compared with Event #2 data, the Average Induced Vacuum and the average well vapor flow remained steady.
- The GW pump was set at 50.5 ft BTOC. The average GW pump rate was 0.22 gpm.
- The average GW depression, based on the positioning of the GW pump, was 5.5 ft below static level.
- No LNAPL was recorded prior to the start of Event #3 and a LNAPL thickness of 0.01 ft was recorded at the conclusion of the Event.

The total LNAPL removed, including liquid and vapor, during the 8.0 hour Event #3 (Well MW-1) was 31.01 gals.

Additional Information:

- An occasional slug of LNAPL was recovered with the ground water. Total LNAPL recovered during the 8.0 hour Event is estimated to be 2.0 gals.
- The high HC (TPH) levels indicate contaminant in the LNAPL range.
- The HC (TPH) 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 & 3

The total LNAPL removed, including liquid and vapor, during the 24.0 hr Events #1, 2 & 3 (Well MW-1) was 93.56 gals. This equates to 3.90 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 100% of the Internal Combustions Engine's fuel, i.e., no 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 three Events. During Event #1, the TPH levels increased during the first hour as the Induced Well Vacuum drew the LNAPL vapors into the well bore, and were then on an overall decreasing trend for the remainder of the Event. The TPH levels at the end of Event #1 were at approximately the same level as the start. There was a recovery time of approximately 14 hours between the end of Event #1 and the start of Event #2. At the start of Event #2, the TPH levels were approximately 1,460 ppmv lower than the end of Event #1. For Events #2 and #3, the TPH levels were on a mostly decreasing trend during each Event. The TPH in the formation rebounded slightly as the beginning levels for Event #3 were slightly higher (400 ppmv), than at the end of Event #2.

The average TPH levels for Events #1, 2 & 3 were, 61,801, 58,263 and 56,152, respectively.

The ending TPH levels for Events #1, 2 & 3 were, 60,420, 57,220 and 54,180, respectively.

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.

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

- Schedule A- Summary of the Influent Well Vapors
- 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,

James E. Sadler, VP
Engineering/Environmental

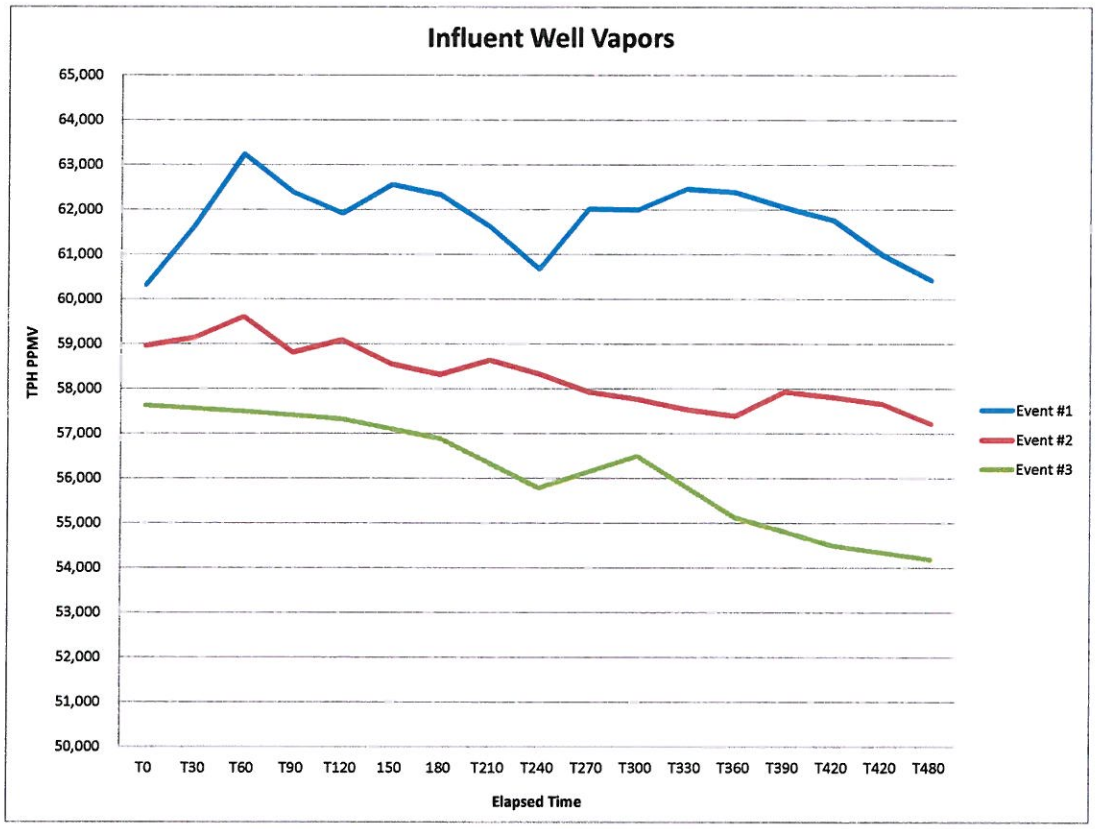
130037.REP

Well and Recovery Data Information

Table #1

Event		1	2	3
WELL NO.		**MW-1**	**MW-1**	**MW-1**
Total Event Hours		8.0	8.0	8.0
TD	ft	52.30	52.30	52.30
Well Screen	ft	15' to 45'	15' to 45'	15' to 45'
Well Size	in	2.0	2.0	2.0
DTGW - Static - Start Event	ft	46.85	47.18	46.89
DTLNAPL - Static - Start Event	ft	46.83	47.15	-
LNAPL	ft	0.02	0.03	-
DTGW - End Event	ft	47.68	47.38	47.38
DTLNAPL - End Event	ft	-	-	47.37
LNAPL	ft	-	-	.01
Average Extraction Well Vacuum	"H_2O	71.0	70.0	70.0
Average Extraction Well Vapor Flow	scfm	31.14	33.20	33.20
Average GW/LNAPL Pump Rate	gpm	0.39	0.22	0.22
Total Liquid Volume Recovered	gals	191	108	106
Average TPH	ppmv	61,801	58,263	56,152
Average CO_2	%	7.59	7.92	7.34
Average CO	%	2.17	1.85	1.62
Average O_2	%	4.7	5.0	4.5
Average H_2S	ppm	19.53	13.59	-
Total Liquid LNAPL Recovered	gals	1.0	1.5	2.0
Total Liquid LNAPL Recovered	%	0.52	1.39	1.89
Total Vapor and Liquid LNAPL Recovered	gals	30.95	31.60	31.01
Total LNAPL Recovered	lbs	216.6	221.2	217.1
Total Volume of Well Vapors	cu. ft	14,947	15,936	15,936

SCHEDULE A
SUMMARY of MDP TESTS
#1, #2 and #3



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

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

	Date:	8-23-13	-	-	-	-	-
	Parameters	Time 0900	Time 0930	Time 1000	Time 1030	Time 1100	Time 1130
	WELL # **MW- 1**	Hr Meter 6538.0	Hr Meter 6538.5	Hr Meter 6539.0	Hr Meter 6539.5	Hr Meter 6540.0	Hr Meter 6540.5
ENGINE/BLOWER	R.P.M.	2300	2200	2200	2200	2300	2300
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	140	160	160	160	160	160
	Volts	13	13	13	13	13	13
	Intake Vacuum "Hg	17	17	17	17	17	16
	Gas Flow Fuel/Propane cfh	10	10	5	5	5	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	OFF/ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	22.95	22.95	24.53	23.72	29.28	30.86
	Extraction Well Vacuum "H_2O	70	70	70	70	70	70
	Pump Rate gals/min	0/0.5	0.5	0.5	0.5	0.5	0.5
	Total Volume gals	-	7.5	22.5	38	53	68
	Influent Vapor Temp. °F	64	64	64	64	64	64
	Air Temperature °F	72.6	74.4	77.9	79.9	81.7	83.5
	Barometric Pressure "Hg	30.18	30.18	30.18	30.18	30.17	30.16
	Absolute Pressure "Hg	24.11	24.11	24.11	24.11	24.10	24.10
VAPOR /INFLUENT	HC ppmv	60,300	61,630	63,230	62,380	61,910	62,550
	CO_2 %	7.44	7.58	6.54	6.48	7.70	7.37
	CO %	2.11	2.11	2.24	2.22	2.16	2.24
	O_2 %	5.2	5.1	5.6	5.2	4.7	5.0
	H_2S ppm	13	18	15	20	22	23

NOTES

0830 Arrived @ location - 1.2 hr drive - Positioned Acuvac System near well MW-1 - Tailgate safety - Mobilized Dual Phase equipment - Set GW/LNAPL pump inlet @ 50.5 ft BTOC - TD = 52.30 ft - 0900 START EVENT - SVE only to vaporize LNAPL on GW 0915 - START GW recovery - No LNAPL in liquid Initial FW induced vacuum set @ 70" H_2O, VWF = 22.95 scfm - GWPR = 0.5 gpm

NOTE: RADIUS INCREASE IN VWF @ constant induced vacuum of 70" H_2O

NOTE: GW dark with biomass at start, clearing after 1.0 hrs

MANIFOLD	LNAPL % Vol / Gals	-	-	-	-	-	-
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL ft	46.83					
	Extraction Well DTGW ft	46.85					

( ) Indicates Well Pressure LNAPL = 0.02'

OPERATING DATA - EVENT # 1 **PAGE # 2** **ACUVAC MOBILE DUAL PHASE SYSTEM**

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

	Parameters						
	Date:	8-23-13	—	—	—	—	—
	Time	1200	1230	1300	1330	1400	1430
	WELL # MW- 1 Hr Meter	6540	6541.5	6542.0	6542.5	6543.0	6543.5
ENGINE/BLOWER	R.P.M.	2300	2300	2300	2300	2300	2300
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	160	160	160	160	160	160
	Volts	13	13	13	13	13	13
	Intake Vacuum "Hg	15	15	15	15	15	15
	Gas Flow Fuel/Propane cfh	0	0	0	0	0	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump ON/OFF	ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	31.65	31.65	31.65	31.65	31.65	31.65
	Extraction Well Vacuum "H_2O	70	70	70	70	70	70
	Pump Rate gals/min	0.5	0.5	0.5	0.4	0.4	0.4
	Total Volume gals	83	98	113	125	137	149
	Influent Vapor Temp. °F	64	64	64	65	65	65
	Air Temperature °F	84.6	85.8	87.9	90.1	91.2	92.3
	Barometric Pressure "Hg	30.14	30.11	30.09	30.08	30.08	30.07
	Absolute Pressure "Hg	24.09	24.07	24.05	24.04	24.04	24.03
VAPOR /INFLUENT	HC ppmv	62,320	61,610	60,670	62,010	61,990	62,450
	CO_2 %	8.02	7.96	7.92	7.84	7.72	7.58
	CO %	2.30	2.26	2.14	2.16	2.08	1.96
	O_2 %	3.9	4.1	4.4	4.5	4.5	4.6
	H_2S ppm	24	24	23	21	18	15
NOTES	FW induced vacuum steady @ 70" H2O, UWP @ 31.65 scfm - GW PR 0.5 gpm NOTE UWP now mostly steady - GW clear - No LNAPL 1430 HRS - INCREASED FW induced vacuum = 75" H2O, UWP = 36.65 scfm GWPR @ 0.4 gpm						
MANIFOLD	LNAPL % Vol Gals	—	—	—	—	—	—
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL ft						
	Extraction Well DTGW ft						

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 1 **PAGE # 3** **ACUVAC MOBILE DUAL PHASE SYSTEM**

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

	Parameters							
	Date:	8-23-13	"	"	"	"		
	Time	1500	1530	1600	1630	1700		Time
	WELL # MW-	Hr Meter 6544.0	Hr Meter 6544.5	Hr Meter 6545.0	Hr Meter 6545.5	Hr Meter 6546.0		Hr Meter
ENGINE/BLOWER	R.P.M.	2400	2400	2400	2400	2400		
	Oil Pressure psi	50	50	50	50	50		
	Water Temp °F	170	170	170	170	170		
	Volts	13	13	13	13	13		
	Intake Vacuum "Hg	12	12	12	12	12		
	Gas Flow Fuel/Propane cfh	0	0	0	0	0		
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump ON/OFF	ON	ON	ON	ON	ON		
	Extraction Well Flow scfm	36.65	36.65	36.65	36.65	36.65		
	Extraction Well Vacuum "H_2O	75	75	75	75	75		
	Pump Rate gals/min	0.4	0.3	0.3	0.2	0.2		
	Total Volume gals	161	170	179	185	191		
	Influent Vapor Temp. °F	65	65	65	65	65		
	Air Temperature °F	92.7	93.1	92.9	93.7	91.8		
	Barometric Pressure "Hg	30.05	30.04	30.03	30.02	30.01		
	Absolute Pressure "Hg	24.01	24.00	24.00	23.99	23.98		
VAPOR /INFLUENT	HC ppmv	62,370	62,040	61,750	60,980	60,420		
	CO_2 %	7.42	7.47	7.52	7.62	7.78		
	CO %	2.20	2.26	2.18	2.16	2.09		
	O_2 %	4.6	4.7	4.8	4.7	4.7		
	H_2S ppm	24	20	18	18	16		
NOTES	FLO induced vacuum = 75" H_2O, UWF = 36.65 scfm - GWPR = 0.4.							
	NOTE, GWPR @ 0.3 gpm - Decreased to 0.2 gpm							
	NOTE Influent vapor TPH levels on slight decreasing trend							
	At 75" H_2O, UWF of 36.65, the LNAPL vapor recovery rate equals approximately +4.00 gpm - NOTE Very difficult to measure the amount of liquid LNAPL recovered as a % of the total 191 liquid gals - Sit tube indicated slight amount of liquid LNAPL estimated at 1.0 gals							
MANIFOLD	LNAPL % Vol Gals	"	"	SEE	NOTE	ABOVE		
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5		
	Extraction Well DTLNAPL ft					TRACE		
	Extraction Well DTGW ft					47.68		

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 2 **PAGE # 1**

ACUVAC MOBILE DUAL PHASE SYSTEM

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

	Date:	8-24-13	"	"	"	"	"
	Parameters	Time 0730	Time 0800	Time 0830	Time 0900	Time 0930	Time 1000
	WELL # **MW-1**	Hr Meter 6546.0	Hr Meter 6546.5	Hr Meter 6547.0	Hr Meter 6547.5	Hr Meter 6548.0	Hr Meter 6548.5
ENGINE/BLOWER	R.P.M.	2100	2200	2200	2200	2300	2300
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	140	160	160	160	160	160
	Volts	13	13	13	13	13	13
	Intake Vacuum "Hg	13	15	15	13	13	13
	Gas Flow Fuel/Propane cfh	20	10	0	0	0	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	OFF	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	22.95	25.72	29.27	31.43	34.61	34.61
	Extraction Well Vacuum "H_2O	70	70	70	70	70	70
	Pump Rate gals/min	OFF	0.3	0.3	0.3	0.3	0.2
	Total Volume gals	—	9	18	27	36	42
	Influent Vapor Temp. °F	61	61	62	62	62	62
	Air Temperature °F	69.6	70.3	71.7	72.6	72.8	71.4
	Barometric Pressure "Hg	30.19	30.20	30.20	30.20	30.21	30.21
	Absolute Pressure "Hg	24.13	24.13	24.13	24.13	24.14	24.14
VAPOR /INFLUENT	HC ppmv	58,960	59,140	59,610	58,810	59,040	58,550
	CO_2 %	7.90	7.91	7.86	7.42	7.96	7.88
	CO %	1.98	2.00	2.04	1.90	1.86	1.81
	O_2 %	5.0	4.9	4.7	4.5	4.4	4.5
	H_2S ppm	16	14	15	15	13	13

NOTES

0715 - Arrived @ location - SAFETY MEETING - Mobilized SVE for quick start - Gauged well - 0730 HRS - START EVENT #2 - SVE ONLY (NO EW pumping) to remove free phase LNAPL 0800 HRS START EW RECOVERY Initial EW induced vacuum set @ 70" H_2O, VWF @ 22.95 scfm - GWFR = 0.3 gpm

NOTE: INCREASING VWF from 22.95 to 34.61 scfm, vacuum @ 70" H_2O

NOTE - WEATHER COOL AND CLOUDY OVERCAST

WELLS MW-3 & 4 5/10 @ 61.1 ft vacuum 0 | -.10/-.10 | -.12/-.12 | -.12/-.11 | -.13/-.13 | -.13/-.13

MANIFOLD	LNAPL % Vol / Gals	—	"	"	"	"	"
	Depth of GW Depression ft	N/A	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL ft	47.15					
	Extraction Well DTGW ft	47.18					

( ) Indicates Well Pressure

LNAPL = 0.03

OPERATING DATA - EVENT # 2 **PAGE # 2**

ACUVAC MOBILE DUAL PHASE SYSTEM

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

	Date:	8-24-13	-	-	-	-	-
	Parameters	Time 1030	Time 1100	Time 1130	Time 1200	Time 1230	Time 1300
	WELL # **MW-1**	Hr Meter 6549.0	Hr Meter 6549.5	Hr Meter 6550.0	Hr Meter 6550.5	Hr Meter 6551.0	Hr Meter 6551.5
ENGINE/BLOWER	R.P.M.	2300	2300	2300	2300	2300	2300
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	160	160	160	160	160	160
	Volts	13	13	13	13	13	13
	Intake Vacuum "Hg	13	13	13	13	13	13
	Gas Flow Fuel/Propane cfh	0	0	0	0	0	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	34.61	34.61	34.61	34.61	34.61	34.61
	Extraction Well Vacuum "H_2O	70	70	70	70	70	70
	Pump Rate gals/min	0.2	0.2	0.2	0.2	0.2	0.2
	Total Volume gals	48	54	60	66	72	78
	Influent Vapor Temp. °F	62	62	62	62	62	62
	Air Temperature °F	72.2	cloudy 73.0	sun 80.7	83.7	85.3	87.2
	Barometric Pressure "Hg	30.21	30.22	30.21	30.20	30.19	30.17
	Absolute Pressure "Hg	24.14	24.15	24.14	24.13	24.13	24.11
VAPOR /INFLUENT	HC ppmv	58,320	58,640	58,330	57,930	57,770	57,540
	CO_2 %	7.92	7.90	7.96	8.02	8.10	8.06
	CO %	1.92	1.94	1.90	1.88	1.86	1.76
	O_2 %	4.6	4.6	4.8	5.3	5.2	5.3
	H_2S ppm	14	13	14	15	14	14
NOTES	EW induced vacuum steady @ 70 "H2O, VWF = 34.61 scfm - GWPR: 0.2 gpm						
	NOTE - Typical levels in influent vapors mostly steady						
	NOTE = Outer well MW-3 on vacuum increase						
	WELL MW-3 & 4 -	-.12/-.11	-.11/-.10	-	.17/.08	-	-.16/.14
MANIFOLD	LNAPL % Vol Gals	-	-	-	-	-	-
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL ft						
	Extraction Well DTGW ft						

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 2 **PAGE # 3** **ACUVAC MOBILE DUAL PHASE SYSTEM**

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

	Date:	8-24-13	—	—	—	—	
	Parameters	Time 1330	Time 1400	Time 1430	Time 1500	Time 1530	Time
	WELL # **MW-1**	Hr Meter 6552.0	Hr Meter 6552.5	Hr Meter 6553.0	Hr Meter 6553.5	Hr Meter 6554.0	Hr Meter
ENGINE/BLOWER	R.P.M.	2330	2300	2300	2300	2300	
	Oil Pressure psi	50	50	50	50	50	
	Water Temp °F	160	160	160	160	160	
	Volts	13	13	13	13	13	
	Intake Vacuum "Hg	13	13	13	13	13	
	Gas Flow Fuel/Propane cfh	0	0	0	0	0	
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	
	Extraction Well Flow scfm	35.65	35.65	35.65	35.65	35.65	
	Extraction Well Vacuum "H_2O	20	20	20	20	20	
	Pump Rate gals/min	0.2	0.2	0.2	0.2	0.2	
	Total Volume gals	84	90	96	102	108	
	Influent Vapor Temp. °F	62	62	62	62	62	
	Air Temperature °F	88.7	84.3	89.7	90.4	91.8	
	Barometric Pressure "Hg	30.17	30.16	30.16	30.14	30.13	
	Absolute Pressure "Hg	24.11	24.10	24.10	24.08	24.07	
VAPOR /INFLUENT	HC ppmv	57,390	57,430	57,816	57,660	57,220	
	CO_2 %	8.02	8.02	7.98	7.92	7.88	
	CO %	1.68	1.88	1.89	1.87	1.78	
	O_2 %	5.2	5.3	5.4	5.6	5.7	
	H_2S ppm	13	15	12	11	12	

NOTES

EW vacuum steady @ 20" H_2O, VWR increased to 35.65 scfm

GWPR = 0.20 - NOTE Influent vapor TPH ppmv mostly steady - PR steady

1530 - EVENT # 2 Completed

1615 - Secured all wells - departed site

NOTE: Observing the slight amount of LNAPL flowing through the clear sight tube, the estimated liquid volume of LNAPL is 1.5 gals Also, sheen in tank

WELLS MW-3 & 4	—	.13 / .10	—	—	—	

MANIFOLD

LNAPL % Vol Gals	—		SEE	NOTE	ABOVE	
Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	
Extraction Well DTLNAPL ft					NO	
Extraction Well DTGW ft					47.38	

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 3 **PAGE # 1** **ACUVAC MOBILE DUAL PHASE SYSTEM**

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

	Parameters							
	Date:		8-27-13	-	-	-	-	-
	WELL # MW-1		Time / Hr Meter	Time / Hr Meter	Time / Hr Meter	Time / Hr Meter	Time / Hr Meter	Time / Hr Meter
			0730 / 6562.5	0800 / 6563.0	0830 / 6563.0	0900 / 6564.0	0930 / 6564.5	1000 / 6565.0
ENGINE/BLOWER	R.P.M.		2300	2300	2300	2300	2300	2300
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	150	160	160	160	160
	Volts		13	13	13	13	13	13
	Intake Vacuum	"Hg	13	13	13	13	13	13
	Gas Flow Fuel/Propane	cfh	0	0	0	0	0	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump	ON/OFF	ON	ON	ON	ON	ON	ON
	Extraction Well Flow	scfm	37.58	37.58	37.58	37.58	37.58	37.58
	Extraction Well Vacuum	"H_2O	70	70	70	70	70	70
	Pump Rate	gals/min	0.3	0.3	0.3	0.3	0.3	0.2
	Total Volume	gals	-	9	18	27	36	42
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temperature	°F	58.9	54.0	64.4	68.5	72.8	75.6
	Barometric Pressure	"Hg	30.24	30.24	30.24	30.24	30.24	30.23
	Absolute Pressure	"Hg	24.16	24.16	24.16	24.16	24.16	24.15
VAPOR /INFLUENT	HC	ppmv	57,620	-	57,490	-	57,320	-
	CO_2	%	7.6	-	7.72	-	7.80	-
	CO	%	1.62	-	1.70	-	1.84	-
	O_2	%	4.2	-	4.4	-	4.0	-
	H_2S	ppm	0	-	0	-	0	-

NOTES

Arrived @ site @ 0710 hrs - Tailgate Safety - Mobilized Acuvac System
Gauged well - No LNAPL - Connected and checked all hoses. OK. Safety check
0730 Hrs - START EVENT #3 - Initial EW induced vacuum = 70" H_2O,
VWF = 37.58 scfm - GW PR = 0.3gpm

MANIFOLD								
	LNAPL % Vol / Gals		-	-	-	-	-	-
	Depth of GW Depression	ft	-5.3	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL	ft	-					
	Extraction Well DTGW	ft	46.89					

( ) Indicates Well Pressure

NO LNAPL

7FORMS/TestForms/1210017B

OPERATING DATA - EVENT # 3 **PAGE # 2** **ACUVAC MOBILE DUAL PHASE SYSTEM**

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

	Date:	8-27-13	-	-	-	-	-
	Parameters	Time 1030	Time 1100	Time 1130	Time 1200	Time 1230	Time 1300
	WELL # **MW- L**	Hr Meter 6565.5	Hr Meter 6566.0	Hr Meter 6566.5	Hr Meter 6567.0	Hr Meter 6562.5	Hr Meter 6568.0
ENGINE/BLOWER	R.P.M.	2300	2300	2300	2300	2300	2300
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	160	160	160	160	160	160
	Volts	13	13	13	13	13	13
	Intake Vacuum "Hg	13	13	13	13	13	13
	Gas Flow Fuel/Propane cfh	0	0	0	0	0	0
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	ON
	Extraction Well Flow scfm	37.58	38.57	38.57	38.57	38.57	38.57
	Extraction Well Vacuum "H_2O	70	70	70	70	70	70
	Pump Rate gals/min	0.2	0.2	0.2	0.2	0.2	0.2
	Total Volume gals	48	54	60	66	72	76
	Influent Vapor Temp. °F	60	60	60	60	60	60
	Air Temperature °F	79.1	80.2	83.6	84.8	86.0	86.9
	Barometric Pressure "Hg	30.23	30.23	30.22	30.20	30.19	30.18
	Absolute Pressure "Hg	24.15	24.15	24.14	24.13	24.12	24.11
VAPOR /INFLUENT	HC ppmv	56,880	-	55,780	-	56,490	-
	CO_2 %	7.36	-	7.12	-	7.24	-
	CO %	1.64	-	1.54	-	1.55	-
	O_2 %	4.3	-	4.5	-	4.4	-
	H_2S ppm	0	-	0	-	0	-
NOTES	EW induced vacuum and UWF steady at 70" H_2O, 37.58 scfm						
	GWR = 0.2gpm						
	1100 HRS - NOTE! UWF increased to 38.57 scfm - Vacuum @ 70" H_2O						
MANIFOLD	LNAPL % Vol Gals	-	-	-	-	-	-
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
	Extraction Well DTLNAPL ft						
	Extraction Well DTGW ft						

( ) Indicates Well Pressure

OPERATING DATA - EVENT # 3 **PAGE # 3**

ACUVAC MOBILE DUAL PHASE SYSTEM

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

	Date:	8-27-13	"	"	"	"	
	Parameters	Time 1330	Time 1400	Time 1430	Time 1500	Time 1530	Time
	WELL # **MW- 1**	Hr Meter 6568.5	Hr Meter 6569.0	Hr Meter 6569.5	Hr Meter 6560.0	Hr Meter 6560.5	Hr Meter
ENGINE/BLOWER	R.P.M.	2300	2300	2300	2300	2300	
	Oil Pressure psi	50	50	50	50	50	
	Water Temp °F	160	160	160	160	160	
	Volts	13	13	13	13	13	
	Intake Vacuum "Hg	12	12	12	12	12	
	Gas Flow Fuel/Propane cfh	0	0	0	0	0	
ATMOSPHERE/VACUUM/AIR PUMP/VOLUME	GW Pump **ON/OFF**	ON	ON	ON	ON	ON	
	Extraction Well Flow scfm	38.57	38.57	38.57	38.57	38.57	
	Extraction Well Vacuum "H_2O	70	70	70	70	70	
	Pump Rate gals/min	0.2	0.2	0.2	0.2	0.2	
	Total Volume gals	82	88	94	100	106	
	Influent Vapor Temp. °F	60	60	60	60	60	
	Air Temperature °F	88.7	91.2	92.3	92.8	93.0	
	Barometric Pressure "Hg	30.17	30.16	30.15	30.14	30.13	
	Absolute Pressure "Hg	24.10	24.10	24.09	24.08	24.07	
VAPOR /INFLUENT	HC ppmv	53,170	"	54,440	"	54,180	
	CO_2 %	6.96	"	7.16	"	7.20	
	CO %	1.45	"	1.58	"	1.62	
	O_2 %	4.6	"	5.2	"	5.3	
	H_2S ppm	0	"	0	"	0	
MANIFOLD	LNAPL % Vol Gals	SHEEN	NONE	ABOVE	"	"	
	Depth of GW Depression ft	-5.5	-5.5	-5.5	-5.5	-5.5	
	Extraction Well DTLNAPL ft					47.37	
	Extraction Well DTGW ft					47.38	

NOTES

GW induced vacuum and VWF steady @ 70" H_2O, 38.57 scfm

GW PR = 0.2 gpm NOTE: An occasional slug (approximately .3L of LNAPL will float through with GW - Total LNAPL for the 8 hour Event is estimated at 2.0 gallons. Sight tube shown on collection tank

1530 HRS - EVENT #3 Completed

1615 HRS - Secured all wells - Departed site

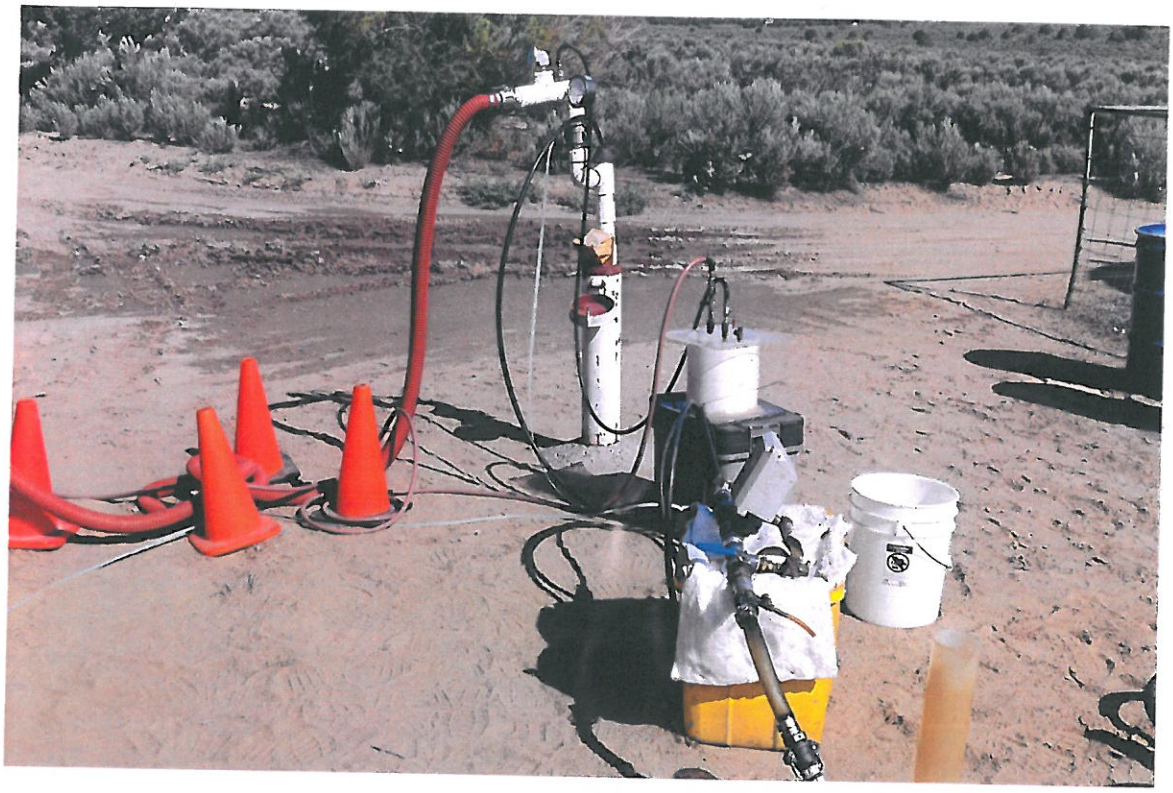
( ) Indicates Well Pressure

7FORMS/TestForms/1210017B

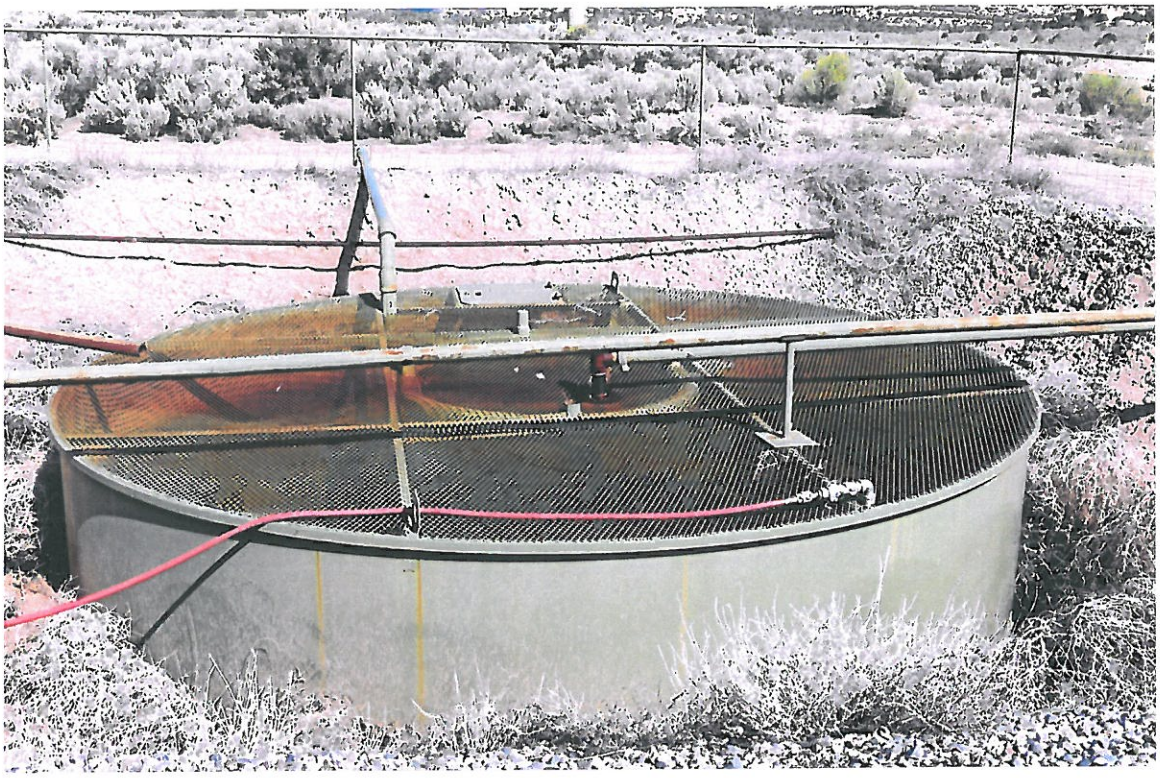
LNAPL - 0.01'

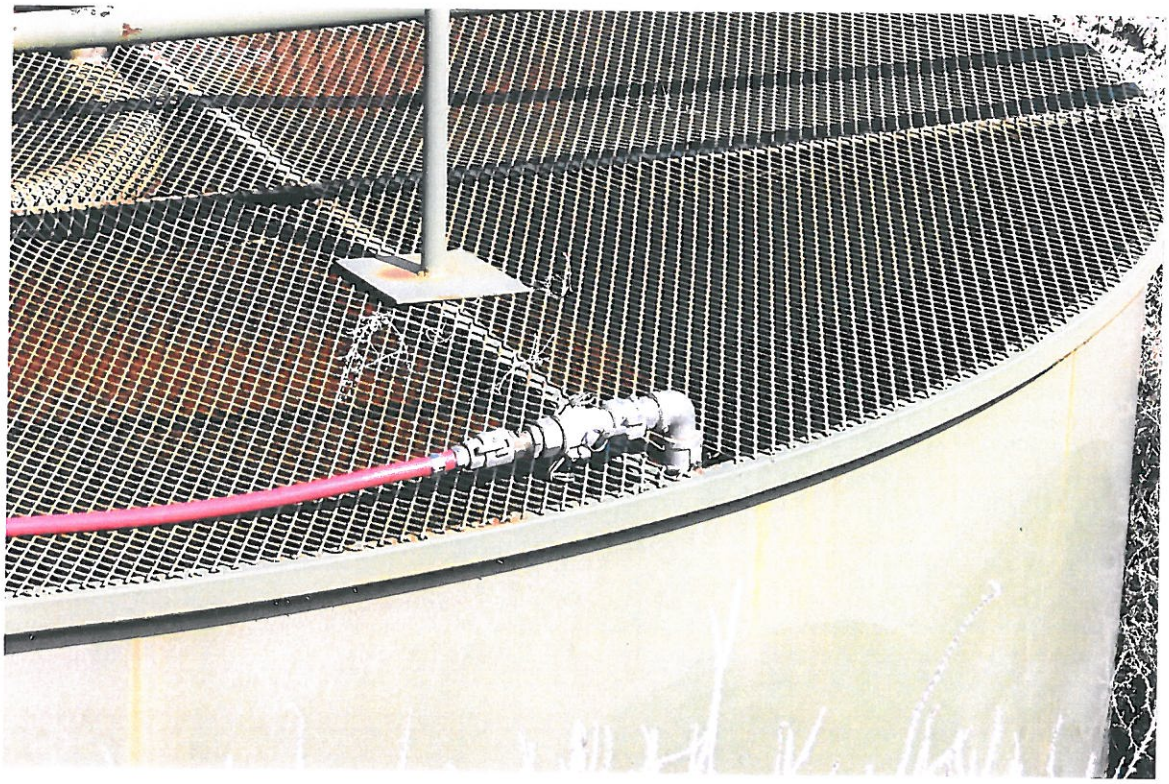
JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM

JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM



JOHNSTON FEDERAL NO. 4 SITE
AZTEC, NM





Appendix B

September 2013 Annual Groundwater Sampling Field Forms

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Johnston Federal No. 4 JOB# 074925

SAMPLE ID: GW-074925-091713-CM-MW WELL# MW-1

WELL PURGING INFORMATION

PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	SAMPLE TIME (24 HOUR)	WATER VOL. IN CASING (GALLONS)	ACTUAL VOL. PURGED (GALLONS)
9/17/13	9/17/13	1720	0.77	~~2.50~~ 2.25

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

PURGING DEVICE	G	A - SUBMERSIBLE PUMP	D - GAS LIFT PUMP	G - BAILER	X= PURGING DEVICE OTHER (SPECIFY)
		B - PERISTALTIC PUMP	E - PURGE PUMP	H - WATERRA®	
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON	D - PVC		X= PURGING MATERIAL OTHER (SPECIFY)
		B - STAINLESS STEEL	E - POLYETHYLENE		
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON	D - POLYPROPYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
		B - TYGON	E - POLYETHYLENE		
SAMPLING TUBING	C	C - ROPE	F - SILICONE	X - OTHER	X= SAMPLING TUBING OTHER (SPECIFY)
FILTERING DEVICES 0.45	A	A - IN-LINE DISPOSABLE	0.45 for metals only	B - PRESSURE	

FIELD MEASUREMENTS

DEPTH TO WATER 46.88 (feet) WELL ELEVATION (feet)

WELL DEPTH 51.69 (feet) GROUNDWATER ELEVATION (feet)

TEMPERATURE	pH	TDS	SC	DO	ORP	VOLUME
15.43 (°C)	6.77 (std)	1,484 (g/L)	2283 (µS/cm)	2.04 (mg/L)	-337.9 (mV)	1.50 (gal)
15.39 (°C)	6.77 (std)	1,482 (g/L)	2280 (µS/cm)	2.28 (mg/L)	-323.8 (mV)	2.0 (gal)
15.42 (°C)	6.79 (std)	1,474 (g/L)	2267 (µS/cm)	2.68 (mg/L)	-317.3 (mV)	~~2.5~~ 2.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: hydrocarbon COLOR: gray SHEEN Y/N slight but continuous

WEATHER CONDITIONS: TEMPERATURE 80's WINDY Y/N no PRECIPITATION Y/N (IF Y TYPE) no

SPECIFIC COMMENTS:

Duplicate @ 1730

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE 9/17/13 PRINT Christine Mathews SIGNATURE Christine Mathews

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Johnston Federal 4 JOB# 074925

SAMPLE ID: GW-074925-091713-CM-MW-2 WELL# MW-2

WELL PURGING INFORMATION

PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	SAMPLE TIME (24 HOUR)	WATER VOL. IN CASING (GALLONS)	ACTUAL VOL. PURGED (GALLONS)
9/17/13	9/17/13	1650	3.36	10.25

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

PURGING DEVICE	G	A - SUBMERSIBLE PUMP	D - GAS LIFT PUMP	G - BAILER	X= PURGING DEVICE OTHER (SPECIFY)
		B - PERISTALTIC PUMP	E - PURGE PUMP	H - WATERRA®	
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON	D - PVC		X= PURGING MATERIAL OTHER (SPECIFY)
		B - STAINLESS STEEL	E - POLYETHYLENE		
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON	D - POLYPROPYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
		B - TYGON	E - POLYETHYLENE		
SAMPLING TUBING	C	C - ROPE	F - SILICONE	X - OTHER	X= SAMPLING TUBING OTHER (SPECIFY)
FILTERING DEVICES 0.45	A	A - IN-LINE DISPOSABLE	B - PRESSURE		0.45 metals only

FIELD MEASUREMENTS

DEPTH TO WATER 43.51 (feet) WELL ELEVATION (feet)

WELL DEPTH 64.49 (feet) GROUNDWATER ELEVATION (feet)

TEMPERATURE	pH	TDS	SC	DO	ORP	VOLUME
14.21 (°C)	7.30 (std)	1.515 (g/L)	2331 (µS/cm)	6.13 (mg/L)	65.4 (mV)	9.25 (gal)
14.07 (°C)	6.71 (std)	1.511 (g/L)	2324 (µS/cm)	5.24 (mg/L)	-86.3 (mV)	9.75 (gal)
14.10 (°C)	6.53 (std)	1.514 (g/L)	2329 (µS/cm)	5.15 (mg/L)	-56.7 (mV)	10.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: none COLOR: light brown SHEEN Y/N no

WEATHER CONDITIONS: TEMPERATURE 85° WINDY Y/N no PRECIPITATION Y/N (IF Y TYPE) no

SPECIFIC COMMENTS:

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE 9/17/13 PRINT Christine Mathews SIGNATURE Christine Mathews

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Johnston Federal 4 JOB# 074925

SAMPLE ID: GW-074925-091713-CM-MW3 WELL# MW 3

WELL PURGING INFORMATION

PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	SAMPLE TIME (24 HOUR)	WATER VOL. IN CASING (GALLONS)	ACTUAL VOL. PURGED (GALLONS)
9/17/13	9/17/13	1705	2.40	7.25

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

PURGING DEVICE	G	A - SUBMERSIBLE PUMP	D - GAS LIFT PUMP	G - BAILER	X= PURGING DEVICE OTHER (SPECIFY)
		B - PERISTALTIC PUMP	E - PURGE PUMP	H - WATERRA®	
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON	D - PVC		X= PURGING MATERIAL OTHER (SPECIFY)
		B - STAINLESS STEEL	E - POLYETHYLENE		
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON	D - POLYPROPYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
		B - TYGON	E - POLYETHYLENE		
SAMPLING TUBING	C	C - ROPE	F - SILICONE	X - OTHER	X= SAMPLING TUBING OTHER (SPECIFY)
FILTERING DEVICES 0.45	A	A - IN-LINE DISPOSABLE	B - PRESSURE	0.45 micron for metals only	

FIELD MEASUREMENTS

DEPTH TO WATER 42.47 (feet) WELL ELEVATION (feet)

WELL DEPTH 57.47 (feet) GROUNDWATER ELEVATION (feet)

TEMPERATURE	pH	TDS	SC	DO	ORP	VOLUME
15.58 (°C)	7.06 (std)	1.264 (g/L)	1944 (µS/cm)	2.81 (mg/L)	-156.1 (mV)	6.25 (gal)
15.44 (°C)	6.82 (std)	1.249 (g/L)	1922 (µS/cm)	1.86 (mg/L)	-154.1 (mV)	6.75 (gal)
15.44 (°C)	6.80 (std)	1.263 (g/L)	1943 (µS/cm)	1.70 (mg/L)	-164.9 (mV)	7.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: Cloudy ODOR: Bio COLOR: Gray SHEEN Y/N N

WEATHER CONDITIONS: TEMPERATURE 80s WINDY Y/N Y PRECIPITATION Y/N (IF Y TYPE) N

SPECIFIC COMMENTS:

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE 9/17/13 PRINT Christine Mathews SIGNATURE Christine Mathews

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Johnston Federal 4 JOB# 074925

SAMPLE ID: GW-074925-091713-CM-MW-4 WELL# MW-4

WELL PURGING INFORMATION

PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	SAMPLE TIME (24 HOUR)	WATER VOL. IN CASING (GALLONS)	ACTUAL VOL. PURGED (GALLONS)
9/17/13	9/17/13	1635	2.61	8.00

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED (Y) N (CIRCLE ONE)

PURGING DEVICE	G	A - SUBMERSIBLE PUMP	D - GAS LIFT PUMP	G - BAILER	X= PURGING DEVICE OTHER (SPECIFY)
		B - PERISTALTIC PUMP	E - PURGE PUMP	H - WATERRA®	
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON	D - PVC		X= PURGING MATERIAL OTHER (SPECIFY)
		~~B - STAINLESS STEEL~~	E - POLYETHYLENE		
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON	D - POLYPROPYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
		B - TYGON	E - POLYETHYLENE		
SAMPLING TUBING	C	C - ROPE	F - SILICONE	X - OTHER	X= SAMPLING TUBING OTHER (SPECIFY)
FILTERING DEVICES 0.45	A	A - IN-LINE DISPOSABLE	B - PRESSURE	0.45 micron for metals only	

FIELD MEASUREMENTS

DEPTH TO WATER 43.65 (feet) WELL ELEVATION (feet)

WELL DEPTH 59.94 (feet) GROUNDWATER ELEVATION (feet)

TEMPERATURE	pH	TDS	SC	DO	ORP	VOLUME
16.07 (°C)	6.20 (std)	1.353 (g/L)	2081 (µS/cm)	5.07 (mg/L)	-113.1 (mV)	7.0 (gal)
15.62 (°C)	5.88 (std)	1.348 (g/L)	2075 (µS/cm)	3.54 (mg/L)	-104.2 (mV)	7.5 (gal)
16.59 (°C)	5.91 (std)	1.348 (g/L)	2073 (µS/cm)	3.12 (mg/L)	-105.4 (mV)	8.0 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mg/L)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: SLIGHTLY CLOUDY ODOR: NONE COLOR: LIGHT BROWN SHEEN Y/N N

WEATHER CONDITIONS: TEMPERATURE 80s WINDY Y/N N PRECIPITATION Y/N (IF Y TYPE) N

SPECIFIC COMMENTS:

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE 9/17/13 PRINT Christine Mathews SIGNATURE Christine Mathews

Appendix C

September 2013 Annual Groundwater Laboratory Analytical Report

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

October 07, 2013

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

RE: Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Dear Christine Matthews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2013. 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
Jeff Walker, COP Conestoga-Rovers & Associa

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

CERTIFICATIONS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

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 #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60153641001	**GW-074925-091713-CM-MW-1**	Water	09/17/13 17:20	09/20/13 08:30
60153641002	**GW-074925-091713-CM-MW-2**	Water	09/17/13 16:50	09/20/13 08:30
60153641003	**GW-074925-091713-CM-MW-3**	Water	09/17/13 17:05	09/20/13 08:30
60153641004	**GW-074925-091713-CM-MW-4**	Water	09/17/13 16:35	09/20/13 08:30
60153641005	**GW-074925-091713-CM-DUP**	Water	09/17/13 17:30	09/20/13 08:30
60153641006	**TB-074925-091813-CM-001**	Water	09/18/13 08:30	09/20/13 08:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60153641001	**GW-074925-091713-CM-MW-1**	EPA 6010	NDJ	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60153641002	**GW-074925-091713-CM-MW-2**	EPA 6010	NDJ	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60153641003	**GW-074925-091713-CM-MW-3**	EPA 6010	NDJ	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60153641004	**GW-074925-091713-CM-MW-4**	EPA 6010	NDJ	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PRG	8
		EPA 300.0	OL	1
60153641005	**GW-074925-091713-CM-DUP**	EPA 5030B/8260	PRG	8
60153641006	**TB-074925-091813-CM-001**	EPA 5030B/8260	PRG	8

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 07, 2013

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:

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PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 07, 2013

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: MSSV/12908

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.: 60153641

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 07, 2013

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/56540

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

QC Batch: MSV/56552

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

Additional Comments:

Pace Analytical Services, Inc.
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PROJECT NARRATIVE

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 07, 2013

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.: 60153641

Sample: GW-074925-091713-CM-MW-1 **Lab ID: 60153641001** Collected: 09/17/13 17:20 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	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	0.012	1	09/26/13 10:25	09/27/13 10:21	7439-89-6	
Manganese, Dissolved	**0.89**	mg/L	0.0050	0.00049	1	09/26/13 10:25	09/27/13 10:21	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C								
Naphthalene	**36.5**	ug/L	2.5	0.16	5	09/24/13 00:00	10/03/13 11:53	91-20-3	
Surrogates									
2-Fluorobiphenyl (S)	61	%	36-120		1	09/24/13 00:00	10/02/13 21:57	321-60-8	
Terphenyl-d14 (S)	73	%	29-134		1	09/24/13 00:00	10/02/13 21:57	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	**4690**	ug/L	50.0	3.0	50		09/25/13 18:58	71-43-2	
Ethylbenzene	**1170**	ug/L	50.0	9.0	50		09/25/13 18:58	100-41-4	
Toluene	**7550**	ug/L	50.0	8.5	50		09/25/13 18:58	108-88-3	
Xylene (Total)	**11000**	ug/L	150	21.0	50		09/25/13 18:58	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-120		50		09/25/13 18:58	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-120		50		09/25/13 18:58	17060-07-0	
Toluene-d8 (S)	95	%	80-120		50		09/25/13 18:58	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	50		09/25/13 18:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**371**	mg/L	20.0	3.2	20		10/04/13 19:17	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Sample: GW-074925-091713-CM-MW-2 **Lab ID: 60153641002** Collected: 09/17/13 16:50 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	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	0.012	1	09/26/13 10:25	09/27/13 10:34	7439-89-6	
Manganese, Dissolved	ND	mg/L	0.0050	0.00049	1	09/26/13 10:25	09/27/13 10:34	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C								
Naphthalene	ND	ug/L	0.50	0.031	1	09/24/13 00:00	10/02/13 22:15	91-20-3	
Surrogates									
2-Fluorobiphenyl (S)	68	%	36-120		1	09/24/13 00:00	10/02/13 22:15	321-60-8	
Terphenyl-d14 (S)	102	%	29-134		1	09/24/13 00:00	10/02/13 22:15	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	ND	ug/L	1.0	0.060	1		09/25/13 19:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.18	1		09/25/13 19:12	100-41-4	
Toluene	ND	ug/L	1.0	0.17	1		09/25/13 19:12	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.42	1		09/25/13 19:12	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-120		1		09/25/13 19:12	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-120		1		09/25/13 19:12	17060-07-0	
Toluene-d8 (S)	95	%	80-120		1		09/25/13 19:12	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		09/25/13 19:12		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1230**	mg/L	100	16.0	100		10/04/13 19:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Sample: GW-074925-091713-CM-MW-3 **Lab ID: 60153641003** Collected: 09/17/13 17:05 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron, Dissolved	**0.80**	mg/L	0.050	0.012	1	09/26/13 10:25	09/27/13 10:37	7439-89-6	
Manganese, Dissolved	**0.67**	mg/L	0.0050	0.00049	1	09/26/13 10:25	09/27/13 10:37	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C								
Naphthalene	ND	ug/L	0.50	0.031	1	09/24/13 00:00	10/02/13 22:34	91-20-3	
Surrogates									
2-Fluorobiphenyl (S)	65	%	36-120		1	09/24/13 00:00	10/02/13 22:34	321-60-8	
Terphenyl-d14 (S)	85	%	29-134		1	09/24/13 00:00	10/02/13 22:34	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	**1.2**	ug/L	1.0	0.060	1		09/25/13 19:26	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.18	1		09/25/13 19:26	100-41-4	
Toluene	ND	ug/L	1.0	0.17	1		09/25/13 19:26	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.42	1		09/25/13 19:26	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-120		1		09/25/13 19:26	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-120		1		09/25/13 19:26	17060-07-0	
Toluene-d8 (S)	93	%	80-120		1		09/25/13 19:26	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		09/25/13 19:26		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**808**	mg/L	50.0	8.0	50		10/04/13 19:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Sample: GW-074925-091713-CM-MW-4 **Lab ID: 60153641004** Collected: 09/17/13 16:35 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron, Dissolved	**0.51**	mg/L	0.050	0.012	1	09/26/13 10:25	09/27/13 10:40	7439-89-6	
Manganese, Dissolved	**1.6**	mg/L	0.0050	0.00049	1	09/26/13 10:25	09/27/13 10:40	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C								
Naphthalene	ND	ug/L	0.50	0.031	1	09/24/13 00:00	10/02/13 22:53	91-20-3	
Surrogates									
2-Fluorobiphenyl (S)	65	%	36-120		1	09/24/13 00:00	10/02/13 22:53	321-60-8	
Terphenyl-d14 (S)	96	%	29-134		1	09/24/13 00:00	10/02/13 22:53	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	**6.5**	ug/L	1.0	0.060	1		09/25/13 19:39	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.18	1		09/25/13 19:39	100-41-4	
Toluene	ND	ug/L	1.0	0.17	1		09/25/13 19:39	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.42	1		09/25/13 19:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-120		1		09/25/13 19:39	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-120		1		09/25/13 19:39	17060-07-0	
Toluene-d8 (S)	93	%	80-120		1		09/25/13 19:39	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		09/25/13 19:39		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**925**	mg/L	100	16.0	100		10/04/13 20:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Sample: GW-074925-091713-CM-DUP **Lab ID: 60153641005** Collected: 09/17/13 17:30 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	**4700**	ug/L	50.0	3.0	50		09/25/13 19:53	71-43-2	
Ethylbenzene	**1040**	ug/L	50.0	9.0	50		09/25/13 19:53	100-41-4	
Toluene	**7210**	ug/L	50.0	8.5	50		09/25/13 19:53	108-88-3	
Xylene (Total)	**9970**	ug/L	150	21.0	50		09/25/13 19:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-120		50		09/25/13 19:53	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-120		50		09/25/13 19:53	17060-07-0	
Toluene-d8 (S)	93	%	80-120		50		09/25/13 19:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	50		09/25/13 19:53		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

Sample: TB-074925-091813-CM-001 **Lab ID: 60153641006** Collected: 09/18/13 08:30 Received: 09/20/13 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Benzene	ND	ug/L	1.0	0.060	1		09/25/13 23:20	71-43-2	
Ethylbenzene	ND	ug/L	1.0	0.18	1		09/25/13 23:20	100-41-4	
Toluene	ND	ug/L	1.0	0.17	1		09/25/13 23:20	108-88-3	
Xylene (Total)	ND	ug/L	3.0	0.42	1		09/25/13 23:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-120		1		09/25/13 23:20	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120		1		09/25/13 23:20	17060-07-0	
Toluene-d8 (S)	101	%	80-120		1		09/25/13 23:20	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		09/25/13 23:20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

QC Batch: MPRP/24442 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

METHOD BLANK: 1260460 Matrix: Water
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	mg/L	ND	0.050	09/27/13 10:15	
Manganese, Dissolved	mg/L	ND	0.0050	09/27/13 10:15	

LABORATORY CONTROL SAMPLE: 1260461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	mg/L	10	10.1	101	80-120	
Manganese, Dissolved	mg/L	1	1.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1260462 1260463

Parameter	Units	60153641001 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	ND	10	10	10	9.9	100	99	75-125	0	20	
Manganese, Dissolved	mg/L	0.89	1	1	1.8	1.8	94	95	75-125	1	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

QC Batch: MSV/56540 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004, 60153641005

METHOD BLANK: 1259864 Matrix: Water
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004, 60153641005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/25/13 16:55	
Ethylbenzene	ug/L	ND	1.0	09/25/13 16:55	
Toluene	ug/L	ND	1.0	09/25/13 16:55	
Xylene (Total)	ug/L	ND	3.0	09/25/13 16:55	
1,2-Dichloroethane-d4 (S)	%	107	80-120	09/25/13 16:55	
4-Bromofluorobenzene (S)	%	99	80-120	09/25/13 16:55	
Toluene-d8 (S)	%	97	80-120	09/25/13 16:55	

LABORATORY CONTROL SAMPLE: 1259865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.9	109	73-122	
Ethylbenzene	ug/L	20	21.1	105	76-123	
Toluene	ug/L	20	20.1	100	76-122	
Xylene (Total)	ug/L	60	62.0	103	76-122	
1,2-Dichloroethane-d4 (S)	%			107	80-120	
4-Bromofluorobenzene (S)	%			102	80-120	
Toluene-d8 (S)	%			95	80-120	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

QC Batch: MSV/56552
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60153641006

METHOD BLANK: 1260052 Matrix: Water
Associated Lab Samples: 60153641006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/25/13 22:39	
Ethylbenzene	ug/L	ND	1.0	09/25/13 22:39	
Toluene	ug/L	ND	1.0	09/25/13 22:39	
Xylene (Total)	ug/L	ND	3.0	09/25/13 22:39	
1,2-Dichloroethane-d4 (S)	%	100	80-120	09/25/13 22:39	
4-Bromofluorobenzene (S)	%	100	80-120	09/25/13 22:39	
Toluene-d8 (S)	%	98	80-120	09/25/13 22:39	

LABORATORY CONTROL SAMPLE: 1260053

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.3	106	73-122	
Ethylbenzene	ug/L	20	21.0	105	76-123	
Toluene	ug/L	20	19.7	98	76-122	
Xylene (Total)	ug/L	60	60.6	101	76-122	
1,2-Dichloroethane-d4 (S)	%			104	80-120	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			96	80-120	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

QC Batch: OEXT/40632 Analysis Method: EPA 8270C by SIM
QC Batch Method: EPA 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

METHOD BLANK: 1258787 Matrix: Water
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	09/30/13 19:37	
2-Fluorobiphenyl (S)	%	44	36-120	09/30/13 19:37	
Terphenyl-d14 (S)	%	58	29-134	09/30/13 19:37	

LABORATORY CONTROL SAMPLE: 1258788

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	5.0	50	44-120	
2-Fluorobiphenyl (S)	%			46	36-120	
Terphenyl-d14 (S)	%			57	29-134	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

QC Batch: WETA/26476 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

METHOD BLANK: 1265087 Matrix: Water
Associated Lab Samples: 60153641001, 60153641002, 60153641003, 60153641004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/04/13 17:37	

LABORATORY CONTROL SAMPLE: 1265088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1265089 1265090

Parameter	Units	60153603001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	1760	1000	1000	2620	2650	86	89	80-120	1	15	

MATRIX SPIKE SAMPLE: 1265091

Parameter	Units	60153603002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1110	1000	2000	89	80-120	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074925 Johnston Federal No. 4
Pace Project No.: 60153641

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.

PRL - Pace Reporting 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/40632

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

Batch: MSV/56540

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

Batch: MSV/56552

[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.: 60153641

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60153641001	**GW-074925-091713-CM-MW-1**	EPA 3010	MPRP/24442	EPA 6010	ICP/19045
60153641002	**GW-074925-091713-CM-MW-2**	EPA 3010	MPRP/24442	EPA 6010	ICP/19045
60153641003	**GW-074925-091713-CM-MW-3**	EPA 3010	MPRP/24442	EPA 6010	ICP/19045
60153641004	**GW-074925-091713-CM-MW-4**	EPA 3010	MPRP/24442	EPA 6010	ICP/19045
60153641001	**GW-074925-091713-CM-MW-1**	EPA 3510C	OEXT/40632	EPA 8270C by SIM	MSSV/12908
60153641002	**GW-074925-091713-CM-MW-2**	EPA 3510C	OEXT/40632	EPA 8270C by SIM	MSSV/12908
60153641003	**GW-074925-091713-CM-MW-3**	EPA 3510C	OEXT/40632	EPA 8270C by SIM	MSSV/12908
60153641004	**GW-074925-091713-CM-MW-4**	EPA 3510C	OEXT/40632	EPA 8270C by SIM	MSSV/12908
60153641001	**GW-074925-091713-CM-MW-1**	EPA 5030B/8260	MSV/56540		
60153641002	**GW-074925-091713-CM-MW-2**	EPA 5030B/8260	MSV/56540		
60153641003	**GW-074925-091713-CM-MW-3**	EPA 5030B/8260	MSV/56540		
60153641004	**GW-074925-091713-CM-MW-4**	EPA 5030B/8260	MSV/56540		
60153641005	**GW-074925-091713-CM-DUP**	EPA 5030B/8260	MSV/56540		
60153641006	**TB-074925-091813-CM-001**	EPA 5030B/8260	MSV/56552		
60153641001	**GW-074925-091713-CM-MW-1**	EPA 300.0	WETA/26476		
60153641002	**GW-074925-091713-CM-MW-2**	EPA 300.0	WETA/26476		
60153641003	**GW-074925-091713-CM-MW-3**	EPA 300.0	WETA/26476		
60153641004	**GW-074925-091713-CM-MW-4**	EPA 300.0	WETA/26476		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO#: 60153641

60153641

Client Name: COP CBA NM

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 8023 6827 9454 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-112 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 4.9

Date and initials of person examining contents: 9/20/13 LSO

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 JM / Lot # of added preservative
Trip Blank present:	☑Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 081213.3		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: MAF Date: 9/20/13

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

Start: 1	Start:
End: 1140	End:
Temp: 115°	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:	COP CRA 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:	COP epayables
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Alice Flanagan
Pace Profile #:	5514, 20

REGULATORY AGENCY

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

Site Location STATE: NM

Requested Analysis Filtered (Y/N)

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

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	6010 Dissolved Fe & Mn	300.0 Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GW-074925-091713-CM-MW-1	WT	G			9/17/13	1720		7	X		X						X	X	X	X		001	
2	GW-074925-091713-CM-MW-2	WT	G			9/17/13	1650		7	X		X						X	X	X	X		002	
3	GW-074925-091713-CM-MW-3	WT	G			9/17/13	1705		7	X		X						X	X	X	X		003	
4	GW-074925-091713-CM-MW-4	WT	G			9/17/13	1635		7	X		X						X	X	X	X		004	
5	GW-074925-091713-CM-DUP	WT	G			9/17/13	1730		3				X					X					005	
6	TB-074925-091813-CM-001	WT				9/18/13	0830		3				X					X					006	
7																								
8																								
9																								
10																								
11																								
12																								

60153641

3(DG9H) 2(AG4H) 1(BP3N) 1(BP3N)

3(DG9H)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Metals were field filtered	[signature] / CRA	9/18/13	0900	[signature] / Pace	9/18/13	830	4.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Christine Mathews

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/18/13

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.

F-ALL-Q-020rev.08, 12-Oct-2007