3R – 071

2015 AGWMR

01 / 04 / 2016

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ConocoPhillips

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

January 4, 2016

Re: NMOCD Case No. 3R-071, 2015 Annual Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed is the 2015 Annual Groundwater Monitoring Report for the Johnston Federal No. 4 site. This report, prepared by GHD Services, Inc. contains the results of the mobile dual-phase extraction (MDPE) event, post-MDPE groundwater monitoring, and annual groundwater monitoring conducted during April, June, and September, 2015, respectively, at the referenced site.

Please let me know if you have any questions.

Sincerely,

B. K. Coffman

B. Keith Coffman

Enc

2015 Annual Groundwater Monitoring Report

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

ConocoPhillips Risk Management & Remediation

6121 Indian School Road, NE Suite 200 Albuquerque New Mexico 87110
074925 | Report No 006 | January 04 2016

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1. Introduction

This report presents the results of the 2015 annual groundwater monitoring and mobile dual phase extraction (MDPE) events. Activities were conducted by GHD Services, Inc. (GHD) at the ConocoPhillips Company (ConocoPhillips) Johnston Federal No. 4 Metering Station (hereafter referred to as the "Site").

The Johnston Federal No. 4 wellhead, API # 30-045-10130, is located approximately one-half mile to the southwest of the metering station. The Site is located on both Bureau of Land Management (BLM) and private 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). Geographic coordinates for the Site are 36.8626° North and 107.7723° West. A Site Plan is included as Figure 2.

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. Based on laboratory results, approximately 3,055 cubic yards of hydrocarbon-impacted soil was excavated in December 1998. Once complete, the excavation was backfilled with clean fill material, and the NMOCD granted pit closure.

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

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

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

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

2. Mobile Dual Phase Extraction

GHD provided oversight for an MDPE event conducted from April 20 to April 23, 2015 by AcuVac Remediation, LLC (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. Monitoring well MW-1 was used as the extraction well for this event. A submersible pump was used to simultaneously remove dissolved-phase contaminated groundwater and to induce a hydraulic gradient toward the extraction well, creating a groundwater depression and 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 four days of MDPE, approximately 134.32 gallons of hydrocarbons (liquid and vapor) were extracted from monitoring well MW-1. The April 2015 MDPE event follows a November 2014 MDPE event and an August 2013 MDPE event in which approximately 44 gallons and 94 gallons of hydrocarbons, respectively, were extracted from MW-1. Data from the June 2015 groundwater monitoring event indicate that, while the MDPE events were very effective in removing a mass of hydrocarbons, elevated concentrations remain in the groundwater in the vicinity of MW-1 (see Section 3.2). The complete report for MDPE activities performed at the Site was provided by AcuVac and is included as Appendix A.

3. Groundwater Sampling Methodology and Analytical Results

3.1 Groundwater Sampling Methodology

Groundwater Elevation Measurements

On June 18 and September 22, 2015, groundwater elevation measurements were obtained for monitoring wells MW-1, MW-2, MW-3, and MW-4 using an oil/water interface probe. Groundwater elevations are detailed in Table 2. A groundwater potentiometric surface map based on the September 2015 data is presented as Figure 4. Based on this data, groundwater flow is to the east and is consistent with historical data at the Site.

A slight but continuous hydrocarbon sheen was observed in the purge water generated from monitoring well MW-1 during the June and September 2015 sampling events.

Groundwater sampling

Groundwater samples for the 2015 annual monitoring event were collected from monitoring wells MW-1, MW-2, MW-3, and MW-4 on September 22, 2015. Approximately three well volumes were purged from each monitoring well with a dedicated polyethylene 1.5-inch disposable bailer prior to sampling. While bailing each well, groundwater parameter data, including temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential were collected using a multi-parameter sonde. Field parameters are summarized on Table 3.

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

Additionally, groundwater samples were collected from monitoring wells MW-1 and MW-4 on June 18, 2015 in order to assess the effectiveness of the April 2015 MDPE event. The samples were analyzed for BTEX by EPA Method 8260 and for naphthalene by EPA Method 8270. The associated laboratory analytical reports are included as Appendix B.

3.2 Groundwater Analytical Results

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

June 2015

- Benzene
  - The NMWQCC standard for benzene is 0.01 milligrams per liter (mg/L). The groundwater sample collected from MW-1 exceeded the standard for benzene with a concentration of 4.05 mg/L.
- Toluene
  - The NMWQCC standard for toluene is 0.75 mg/L. The groundwater sample collected from MW-1 exceeded the standard for toluene with a concentration of 6.26 mg/L.
- Ethylbenzene
  - The NMWQCC standard for ethylbenzene is 0.75 mg/L. The groundwater sample collected from MW-1 exceeded the standard for ethylbenzene with a concentration of 1.04 mg/L.
- Xylenes
  - The NMWQCC standard for total xylenes is 0.620 mg/L. The groundwater sample collected from MW-1 exceeded the standard for xylenes with a concentration of 10.8 mg/L.
- Naphthalene
  - The NMWQCC standard for naphthalene is 0.03 mg/L. The groundwater sample collected from MW-1 exceeded the standard for naphthalene with a concentration of 0.0625 mg/L.

September 2015

- Benzene
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for benzene with a concentration of 3.36 mg/L.
- Toluene

  - The groundwater collected from MW-1 exceeded the NMWQCC standard for toluene with a concentration of 4.57 mg/L.

- Xylenes
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for xylenes with a concentration of 8.62 mg/L.
- Naphthalene
  - The groundwater collected from MW-1 exceeded the NMWQCC standard for naphthalene with a concentration of 0.0504 mg/L.
- Sulfate
  - The NMWQCC standard for sulfate is 600 mg/L. The groundwater samples collected from MW-2, MW-3, and MW-4 exceeded the standard for sulfate with concentrations of 1,210 mg/L, 943 mg/L, and 911 mg/L, respectively.
- Dissolved Manganese
  - The NMWQCC standard for dissolved manganese is 0.2 mg/L. The groundwater samples collected from MW-1, MW-3, and MW-4 exceeded the standard for dissolved manganese with concentrations of 0.72 mg/L, 0.79 mg/L, and 1.9 mg/L, respectively.

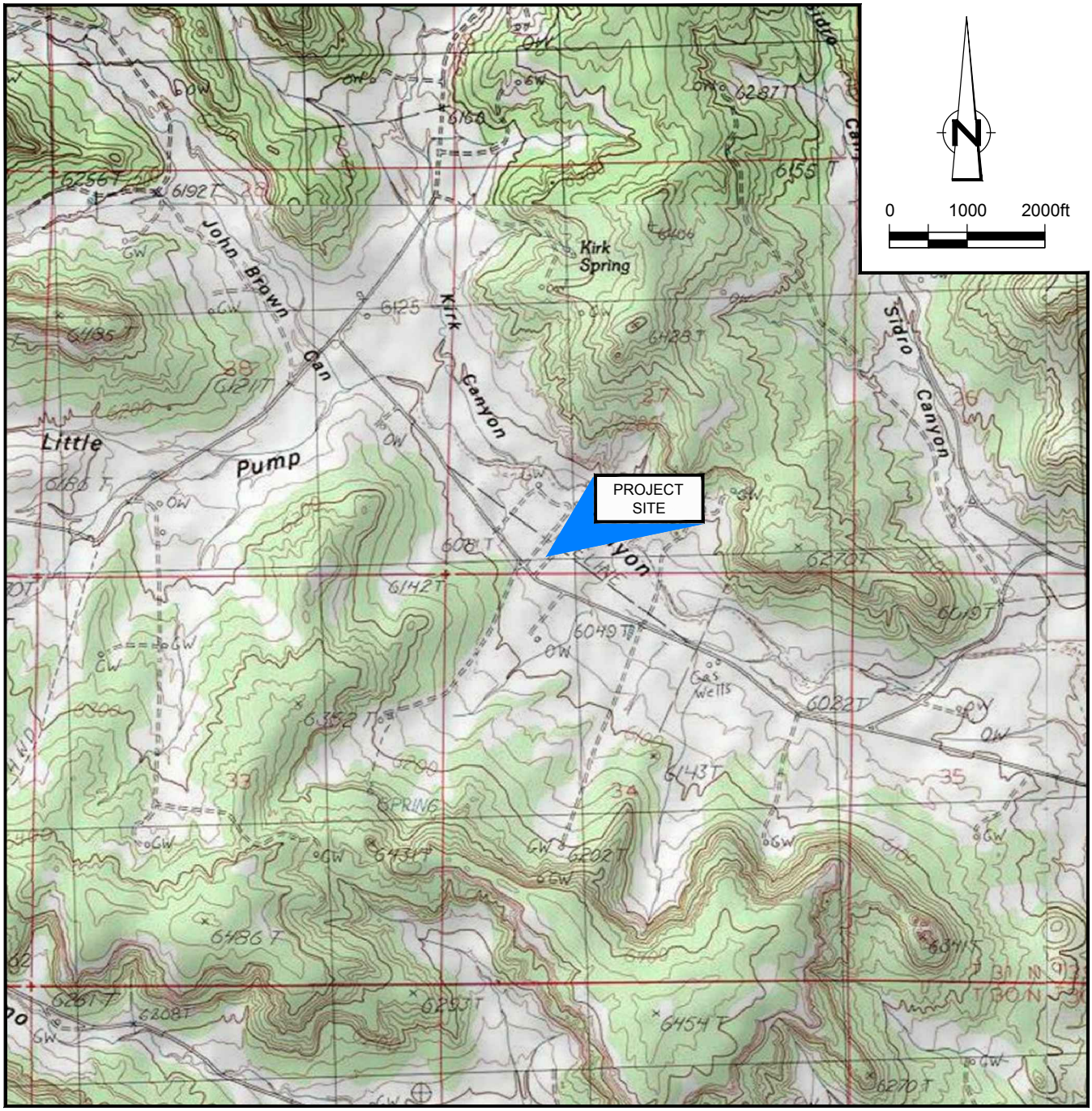
4. Conclusions and Recommendations

Approximately 134.32 gallons of hydrocarbons were successfully removed from the subsurface at monitoring well MW-1 during the April 2015 MDPE event.

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

The next groundwater monitoring event at the Site is scheduled for September 2016 and will include analyses for BTEX, naphthalene, dissolved manganese, dissolved iron, and sulfate.

Figures



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

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

Figure 1

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

GHD

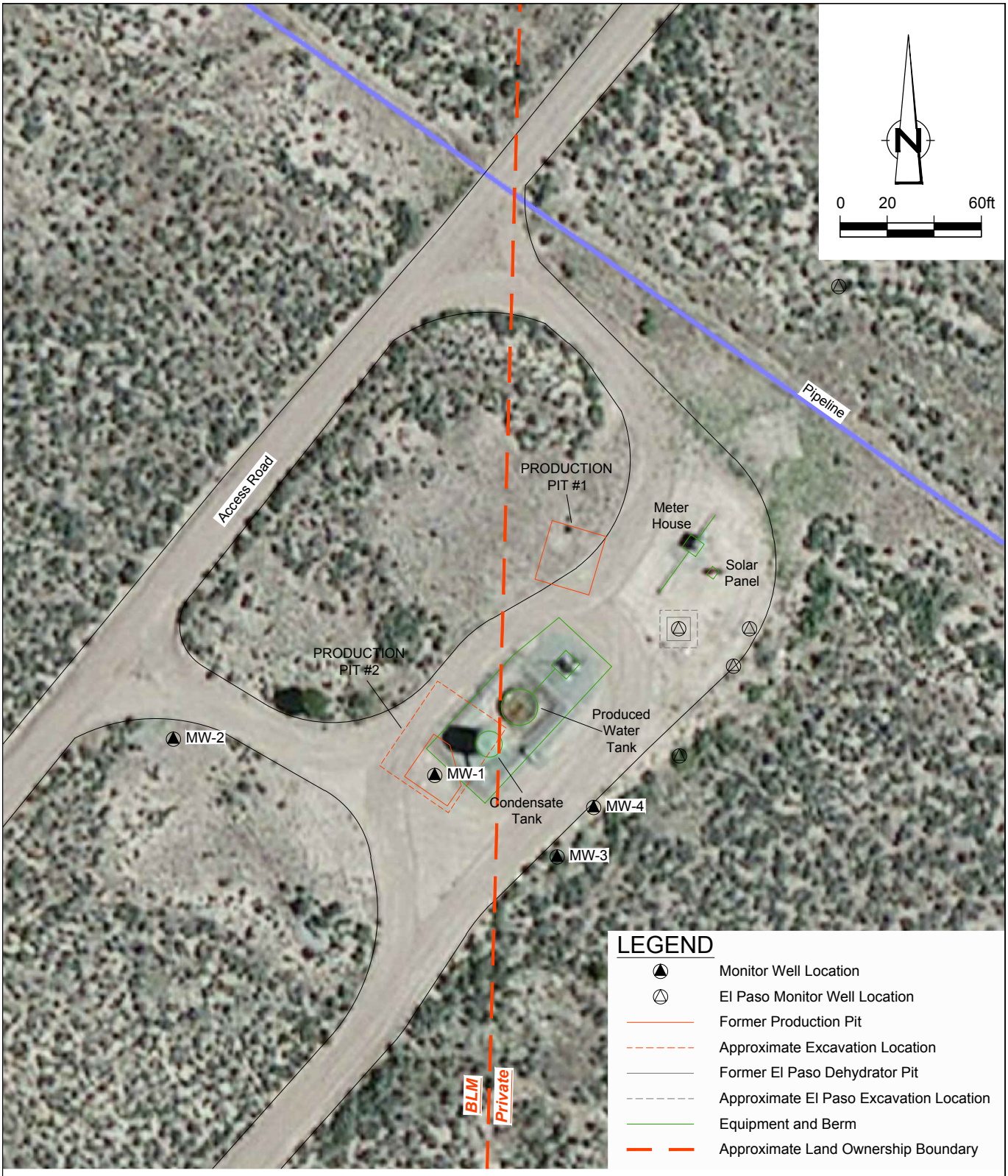


Figure 2

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

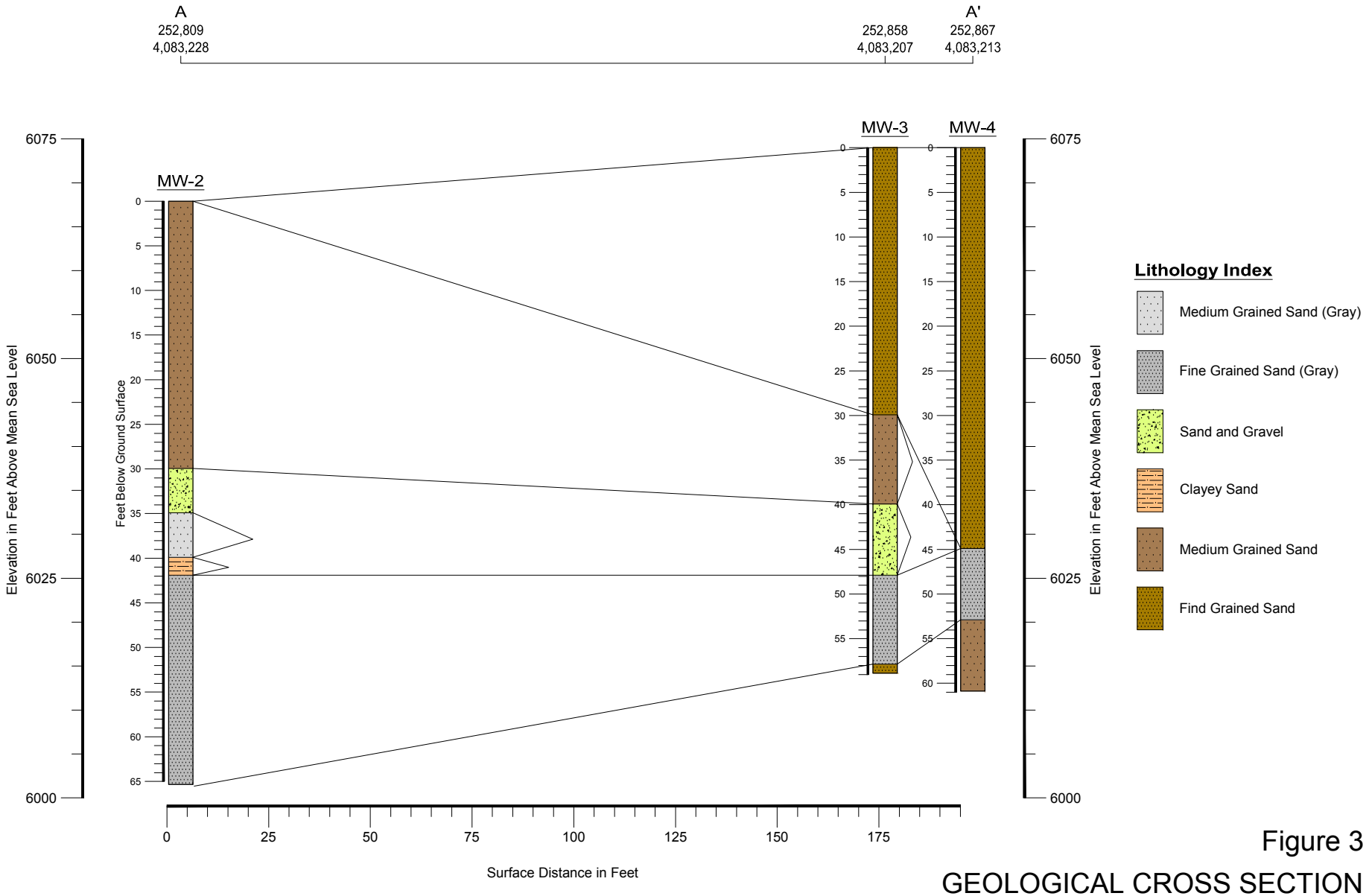


Figure 3

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

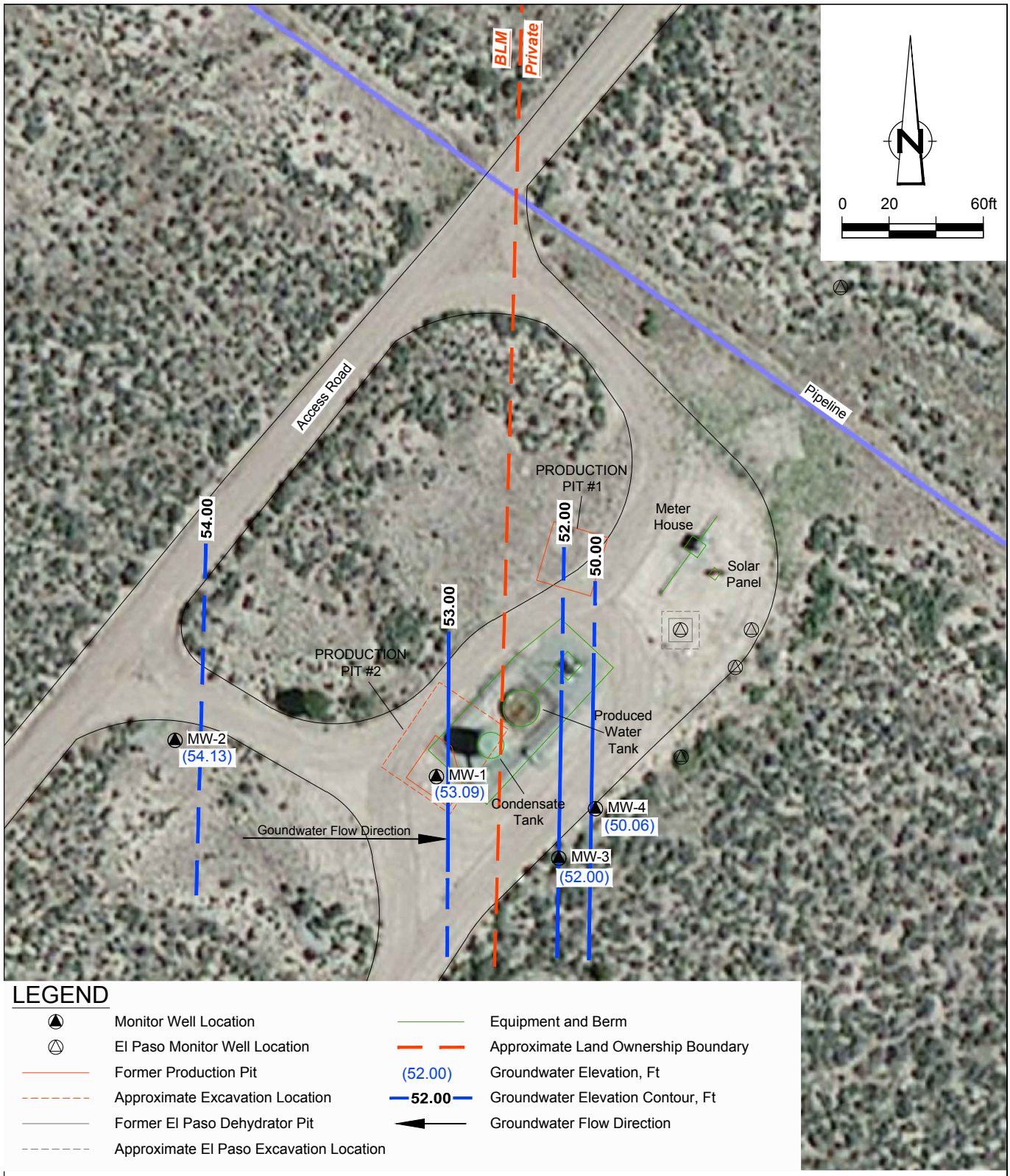


Figure 4

SEPTEMBER 2015 GROUNDWATER POTENTIOMETRIC SURFACE MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

074925-95(006)GN-DL001 DEC 11/2015

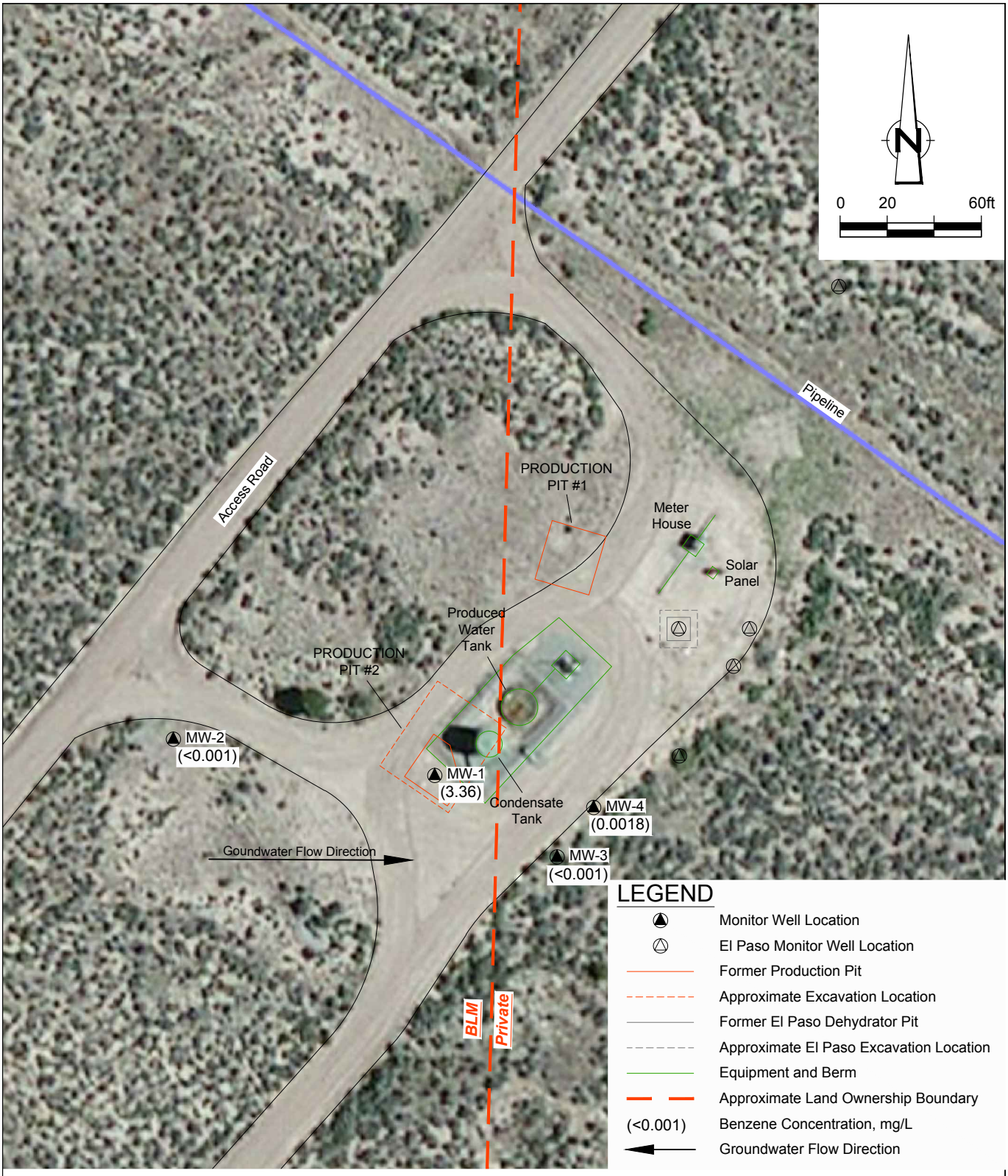


Figure 5

SEPTEMBER 2015 BENZENE CONCENTRATION MAP
JOHNSTON FEDERAL No. 4 METERING STATION
SECTION 27, T31N-R09W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

GHD

074925-95(006)GN-DL001 DEC 21/2015

Tables

Table 1

Site History Timeline
ConocoPhillips Company
Johnston Federal No. 4 Metering Station
San Juan County, New Mexico

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

Table 1

Site History Timeline
ConocoPhillips Company
Johnston Federal No. 4 Metering Station
San Juan County, New Mexico

Date/Time Period	*Event/Action*	*Description/Comments*
April 2003	NMOCD Requests Monitor Well Installation	NMOCD response letter to EPFS sent on April 3, 2003, requires EPFS to install additional monitor wells to determine the real extent of groundwater impacts.
March 2006	Acquisition of Burlington Resources by ConocoPhilips Company	ConocoPhillips Company acquired Burlington Resources on March 31, 2006.
November 2007 and January 2008	3rd and 4th Quarter 2007 Groundwater Monitoring	Johnston Federal No. 4 Monitoring Station groundwater sampled during November 2007 and January 2008 by Tetra Tech.
March 2008	Reporting	2007 Annual Groundwater Monitoring Report submitted to NMOCD.
March 2008	Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX.
April 2008	NMOCD Requests Further Investigation	NMOCD indicates additional investigation and sampling is necessary for closure consideration during a meeting with Glenn Von Gonten.
April 2008	1st Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX in MW-1 on April 30, 2008. Note: Prior to this date the location of MW-1 was not clear and the incorrect well was sampled. This was the first quarter that ConocoPhillips MW-1 was sampled. BTEX constituents were found to be above NMWQCC standards in MW-1.
July 2008	2nd Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly groundwater monitoring at the Site for BTEX in MW-1.
August 2008	Groundwater Monitor Well Installation	Monitor Wells MW-2, MW-3, and MW-4 installed under the supervision of Tetra Tech by WDC Exploration and Wells of Peralta, NM.
October 2008	3rd Quarter 2008 groundwater Monitoring	Tetra Tech conducts quarterly monitoring at the Site for MW-1 through MW-4. MW-2, MW-3 and MW-4 groundwater samples are analyzed for baseline parameters including major ions, total metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) including BTEX, diesel range organics, and gasoline range organics as requested by the NMOCD. In addition, an expanded list (beyond BTEX analysis) of VOCs were included for MW-1.
January 2009	4th Quarter 2008 Groundwater Monitoring	Tetra Tech conducts quarterly monitoring at the Site for MW-1 through MW-4. The groundwater sample obtained for MW-1 is analyzed for baseline parameters including major ions, total metals, SVOCs, VOCs, diesel range organics, and gasoline range organics. As of January 2009, baseline parameters have been collected for all 4 groundwater monitor wells at the Site.
September 25, 2009	2009 Annual Groundwater Monitoring	Tetra Tech conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Fe and Mn and sulfate.
September 22, 2010	2010 Annual Groundwater Monitoring	Tetra Tech conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn and sulfate.
June 15, 2011	Transfer of Site Consulting Responsibilities	Site consulting responsibilities tranferred from Tetra Tech, Inc. to Conestoga-Rovers & Associates, Inc. (CRA) of Albuquerque, NM.
September 28, 2011	2011 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
September 26, 2012	2012 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
August 23, 2013 - August 27, 2013	Dual-Phase Extraction	AcuVac, under CRA oversight, performs three days of dual-phase extraction on MW-1.
September 17, 2013	2013 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
September 23, 2014	2014 Annual Groundwater Monitoring	CRA conducts annual groundwater monitoring at the Site for MW-1 through MW-4 with analyses for BTEX, naphthalene, dissolved Mn, dissolved Fe, and sulfate.
November 12, 2014 - November 13, 2014	Dual-Phase Extraction	AcuVac, under CRA oversight, performs two days of dual-phase extraction on MW-1.
December 17, 2014	2014 Post-MDPE Groundwater Monitoring	CRA conducts post-MDPE groundwater monitoring at the Site for MW-1, MW-3, and MW-4 with analyses for BTEX and naphthalene.
January 8, 2015	2015 Post-MDPE Groundwater Monitoring	CRA conducts post-MDPE groundwater monitoring at the Site for MW-1 with analyses for BTEX and naphthalene.
April 20, 2015 - April 23, 2015	Dual-Phase Extraction	AcuVac, under CRA oversight, performs four days of dual-phase extraction on MW-1.
June 18, 2015	2015 Post-MDPE Groundwater Monitoring	GHD conducts post-MDPE groundwater monitoring at the Site for MW-1 and MW-4 with analyses for BTEX and naphthalene.
September 22, 2015	2015 Annual Groundwater Monitoring	GHD 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

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Johnston Federal No. 4
San Juan County, New Mexico

Well ID	*Total Depth (ft bgs)*	*Screen Interval (ft)*	**Elevation (ft) (TOC)*	*Date Measured*	*Depth to LNAPL (ft below TOC)*	*Depth to Groundwater (ft below TOC)*	*Relative Groundwater Elevation*
MW-1	51.79	35 - 50	100	5/25/1999	--	NM	NM
				9/1/1999	--	47.02	52.98
				12/1/1999	--	46.96	53.04
				1/18/2000	--	44.05	55.95
				5/17/2000	--	46.90	53.10
				9/8/2000	--	46.91	53.09
				12/20/2000	--	46.88	53.12
				3/27/2001	--	NM	NM
				6/27/2001	--	47.05	52.95
				9/17/2001	--	46.93	53.07
				12/19/2001	--	46.97	53.03
				3/25/2002	--	46.99	53.01
				6/25/2002	--	47.01	52.99
				9/24/2002	--	46.98	53.02
				12/30/2002	--	47.40	52.60
				3/27/2003	--	NM	NM
				6/27/2003	--	NM	NM
				10/10/2003	--	NM	NM
				12/10/2003	--	NM	NM
				3/16/2004	--	47.28	52.72
				6/22/2004	--	47.06	52.94
				9/30/2004	--	47.24	52.76
				12/13/2004	--	47.14	52.86
				3/23/2005	--	46.91	53.09
				6/22/2005	--	46.93	53.07
				10/28/2005	--	46.87	53.13
				12/14/2005	--	46.72	53.28
				3/20/2006	--	46.75	53.25
				6/21/2006	--	46.84	53.16
				10/20/2006	--	46.89	53.11
				12/13/2006	--	46.92	53.08
				11/9/2007	--	NM	NM
				1/15/2008	--	NM	NM
				4/30/2008	--	46.45	53.55
				7/23/2008	--	46.63	53.37
				10/24/2008	--	46.60	53.40
				1/29/2009	--	46.57	53.43
				4/23/2009	--	46.40	53.60
				9/25/2009	--	46.52	53.48
				9/22/2010	--	46.60	53.40
				9/28/2011	--	46.65	53.35
				9/26/2012	--	46.80	53.20
				9/17/2013	--	46.88	53.12
				9/23/2014	--	46.94	53.06
				12/17/2014	--	46.94	53.06
				1/8/2015	--	46.92	53.08
				6/18/2015	--	46.94	53.06
				9/22/2015	--	46.91	53.09

Table 2

Monitoring Well Specifications and Groundwater Elevations
ConocoPhillips Company
Johnston Federal No. 4
San Juan County, New Mexico

Well ID	*Total Depth (ft bgs)*	*Screen Interval (ft)*	**Elevation (ft) (TOC)*	*Date Measured*	*Depth to LNAPL (ft below TOC)*	*Depth to Groundwater (ft below TOC)*	*Relative Groundwater Elevation*
MW-2	65.5	41.5 - 61.5	97.71	10/24/2008	--	42.85	54.86
				1/29/2009	--	42.83	54.88
				4/23/2009	--	42.75	54.96
				9/25/2009	--	42.82	54.89
				9/22/2010	--	43.01	54.70
				9/28/2011	--	43.14	54.57
				9/26/2012	--	43.33	54.38
				9/17/2013	--	43.51	54.20
				9/23/2014	--	43.56	54.15
				12/17/2014	--	43.59	54.12
				6/18/2015	--	43.57	54.14
				9/22/2015	--	43.58	54.13
MW-3	59	35 - 55	94.65	10/24/2008	--	43.91	50.74
				1/29/2009	--	41.97	52.68
				4/23/2009	--	41.87	52.78
				9/25/2009	--	42.04	52.61
				9/22/2010	--	42.17	52.48
				9/28/2011	--	42.22	52.43
				9/26/2012	--	42.36	52.29
				9/17/2013	--	42.47	52.18
				9/23/2014	--	42.70	51.95
				12/17/2014	--	42.62	52.03
				6/18/2015	--	43.67	50.98
				9/22/2015	--	42.65	52.00
MW-4	61	37 - 57	94.79	10/24/2008	--	43.11	51.68
				1/29/2009	--	43.11	51.68
				4/23/2009	--	43.06	51.73
				9/25/2009	--	43.20	51.59
				9/22/2010	--	43.39	51.40
				9/28/2011	--	43.45	51.34
				9/26/2012	--	43.57	51.22
				9/17/2013	--	43.65	51.14
				9/23/2014	--	44.81	49.98
				12/17/2014	--	44.80	49.99
				6/18/2015	--	45.85	48.94
				9/22/2015	--	44.73	50.06

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

Table 3

Field Parameters Summary
ConocoPhillips Company
Johnston Federal No. 4
San Juan County, New Mexico

Well ID	*Sample Date*	*Temperature (°C)*	*pH*	*TDS (g/L)*	*Conductivity (µS/cm)*	*DO (mg/L)*	*ORP (mV)*	*Volume (gallons)*
MW-1	9/23/2014	No parameters collected due to LNAPL sheen.						
	6/18/2015	No parameters collected due to LNAPL sheen.						
	9//22/2015	No parameters collected due to LNAPL sheen.						
MW-2	9/23/2014	15.00	7.22	1.50	2310	11.30	57.0	9.50
	9/23/2014	14.80	7.18	1.50	2360	10.89	63.0	10.00
	9/23/2014	14.80	7.17	1.50	2360	10.70	67.0	10.50
	9/22/2015	13.95	7.62	0.80	1235	12.50	59.2	9.00
	9/22/2015	13.69	6.98	1.48	2276	5.62	82.6	9.50
	9/22/2015	13.55	6.64	1.48	2273	5.05	93.0	10.00
MW-3	9/23/2014	15.70	7.01	1.20	1820	10.13	-104.0	6.25
	9/23/2014	15.70	7.01	1.20	1840	9.12	-127.0	6.75
	9/23/2014	15.70	7.01	1.20	1850	8.48	-137.0	7.25
	12/17/2014	14.76	7.48	1.379	2123	2.40	-149.1	5.75
	12/17/2014	14.72	7.48	1.402	2158	2.66	-159.7	6.25
	12/17/2014	14.78	7.49	1.441	2218	2.39	-164.0	6.75
	9/22/2015	15.11	7.71	0.735	1130	9.05	5.7	6.25
	9/22/2015	15.07	7.50	1.321	2032	4.70	-53.7	6.75
	9/22/2015	15.07	7.32	1.314	2021	2.34	-79.2	7.25
MW-4	9/23/2014	16.40	6.65	1.400	2130	10.81	-124.0	3.50
	9/23/2014	16.00	6.72	1.400	2110	9.17	-136.0	4.00
	9/23/2014	15.80	6.77	1.300	2110	8.42	-142.0	4.50
	9/23/2014	15.90	6.81	1.300	2110	8.10	-150.0	5.00
	12/17/2014	14.79	7.22	1.508	2320	4.74	-145.4	6.25
	12/17/2014	14.91	7.35	1.511	2324	3.70	-158.7	6.75
	12/17/2014	14.98	7.37	1.509	2323	2.94	-166.6	7.25
	6/18/2015	15.65	6.67	1.421	2186	2.52	-133.8	6.00
	6/18/2015	15.49	6.68	1.420	2184	2.44	-130.2	6.25
	6/18/2015	15.38	6.71	1.419	2183	2.20	-129.3	6.50
	6/18/2015	15.38	6.72	1.418	2182	2.21	-146.6	6.75
	6/18/2015	15.37	6.73	1.417	2184	2.05	-140.1	7.00
	9/22/2015	15.17	7.15	1.327	2042	2.45	-105.6	6.50
	9/22/2015	15.14	6.89	1.328	2043	2.07	-12.5	7.00
	9/22/2015	15.13	6.82	1.326	2041	2.04	-126.5	7.50

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

Table 4

Groundwater Laboratory Analytical Results Summaty
ConocoPhillips Company
Johnston Federal No. 4
San Juan County, New Mexico

Well ID	Sample ID	Date	Sample Type	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Napthalene (mg/L)	Sulfate (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)
NMWQCC Groundwater Quality Standards				**0.01**	**0.75**	**0.75**	**0.62**	**0.03**	**600**	**1**	**0.2**
MW-1	MW-1	5/25/1999	(orig)	**8.7**	**2.9**	**2.8**	**2.9**	--	--	--	--
	MW-1	12/1/1999	(orig)	**4.7**	**1.3**	**0.9**	**10**	--	--	--	--
	MW-1	1/18/2000	(orig)	**3.6**	**0.82**	**0.84**	**7.5**	--	--	--	--
	MW-1	5/17/2000	(orig)	**6.9**	**1.1**	**1.5**	**17**	--	--	--	--
	MW-1	9/8/2000	(orig)	**4.6**	0.62	**0.93**	**10**	--	--	--	--
	MW-1	12/20/2000	(orig)	< 0.0002	0.0005	0.034	0.061	--	--	--	--
	MW-1	3/27/2001	(orig)	**5.43**	0.641	**0.991**	**9.83**	--	--	--	--
	MW-1	6/27/2001	(orig)	**5.87**	**0.9**	**0.99**	**10.4**	--	--	--	--
	MW-1	9/17/2001	(orig)	**5.91**	0.75	**0.98**	**10.7**	--	--	--	--
	MW-1	12/19/2001	(orig)	**7.2**	0.65	**1.02**	**11.3**	--	--	--	--
	MW-1	3/25/2002	(orig)	**5.52**	**0.83**	**1.19**	**10.5**	--	--	--	--
	MW-1	6/26/2002	(orig)	**0.516**	0.0662	0.0787	**0.863**	--	--	--	--
	MW-1	9/24/2002	(orig)	**5.31**	**8**	**0.88**	**13.96**	--	--	--	--
	MW-1	12/30/2002	(orig)	**7.66**	**10.2**	**0.76**	**14.14**	--	--	--	--
	MW-1	6/22/2004	(orig)	**6.16**	**8.1**	0.47	**15.84**	--	--	--	--
	MW-1	3/20/2006	(orig)	**3.17**	**3.74**	**1.06**	**30.13**	--	--	--	--
	MW-1	6/21/2006	(orig)	**4.9**	**3.28**	0.448	**2.39**	--	--	--	--
	MW-1	12/13/2006	(orig)	**5.3**	**7.2**	**0.87**	**15.45**	--	--	--	--
	MW-1	3/27/2007	(orig)	**6.87**	**5.72**	0.21	**12.16**	--	--	--	--
	MW-1	6/25/2007	(orig)	**5.68**	**1.83**	0.4	**9.48**	--	--	--	--
	MW-1	4/30/2008	(orig)	**6.3**	**1.8**	0.28 J	**8.6**	--	--	--	--
	MW-1	7/23/2008	(orig)	**7.1**	**2.2**	0.45	**10.6**	--	--	--	--
	MW-1	10/24/2008	(orig)	**6**	**2.1**	0.4	**9**	**0.044**	--	--	--
	MW-1	1/29/2009	(orig)	**6.7**	**2.2**	0.63	**14.5**	**0.061**	315	--	--
	MW-1	9/25/2009	(orig)	**3.9**	**1.5**	0.68	**9.8**	**0.04**	429	< 0.02	**1.11**
	MW-1	9/22/2010	(orig)	**3.5**	**0.98**	0.63	**7.5**	**0.049**	190	--	**0.752**
	GW-074925-092811-CM-004	9/28/2011	(orig)	**3.36**	**1.05**	0.667	**6.81**	**0.037**	202	< 0.05	**0.774**
	GW-074925-092811-CM-005	9/28/2011	(Duplicate)	**3.43**	**1.12**	**0.779**	**8.29**	--	--	--	--
	GW-074925-092612-CM-MW-1	9/26/2012	(orig)	**3.07**	0.599	0.577	**5.16**	**0.0398**	113	< 0.05	**0.67**
	August 2013 Mobile Dual Phase Extraction Event										
	GW-074925-091713-CM-MW-1	9/17/2013	(orig)	**4.69**	**7.55**	**1.17**	**11.0**	**0.0365**	371	< 0.05	**0.89**
	GW-074925-091713-CM-DUP	9/17/2013	(Duplicate)	**4.70**	**7.21**	**1.04**	**9.97**	--	--	--	--
	GW-074925-092314-SP-MW-1	9/23/2014	(orig)	**2.970**	**4.250**	**0.778**	**6.89**	**0.0446**	155	<0.050	**0.85**
	GW-074925-092314-SP-DUP	9/23/2014	(Duplicate)	**2.820**	**3.880**	**0.754**	**6.690**	--	--	--	--
	November 2014 Mobile Dual Phase Extraction Event										
	GW-074925-010815-JW-MW-1	1/8/2015	(orig)	**4.35**	**6.15**	**1.07**	**10.0**	**0.0787**	--	--	--
	GW-074925-061815-CB-MW-1	6/18/2015	(orig)	**4.05**	**6.26**	**1.04**	**10.8**	**0.0625**	--	--	--
	GW-074925-061815-CB-DUP	6/18/2015	(Duplicate)	**4.34**	**6.46**	**0.933**	**11.1**	--	--	--	--
	April 2015 Mobile Dual Phase Extraction Event										
	GW-074925-092215-CB-MW-1	9/22/2015	(orig)	**3.360**	**4.570**	0.741	**8.620**	**0.0504**	44.2	< 0.050	**0.72**
	GW-074925-092215-CB-DUP	9/22/2015	(Duplicate)	**3.370**	**4.280**	0.724	**7.980**	--	--	--	--
MW-2	MW-2	10/24/2008	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.005	**974**	--	--
	MW-2	1/29/2009	(orig)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-2	9/25/2009	(orig)	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001	**1260**	< 0.02	0.04
	MW-2	9/22/2010	(orig)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**1350**	--	0.0074
	GW-074925-092811-CM-002	9/28/2011	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0001	**1290**	**2.49**	0.0956
	GW-074925-092612-CM-MW-2	9/26/2012	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0005	**1210**	< 0.05	< 0.005
	GW-074925-091713-CM-MW-2	9/17/2013	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0005	**1230**	< 0.05	< 0.005
	GW-074925-092314-SP-MW-2	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00045	**1190**	< 0.05	< 0.005
	GW-074925-092215-CB-MW-2	9/22/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.0005	**1210**	< 0.050	< 0.005
MW-3	MW-3	10/24/2008	(orig)	**0.02**	< 0.0005	< 0.0005	0.024	< 0.005	**714**	--	--
	MW-3	1/29/2009	(orig)	**0.012**	< 0.0005	< 0.0005	0.005	--	--	--	--
	MW-3	9/25/2009	(orig)	0.0021	< 0.001	< 0.001	< 0.002	< 0.001	**1070**	< 0.02	**1.24**
	MW-3	9/22/2010	(orig)	0.0042	< 0.001	< 0.001	< 0.001	< 0.001	**1060**	--	**1.11**
	GW-074925-092811-CM-003	9/28/2011	(orig)	0.0038	< 0.001	< 0.001	< 0.003	< 0.0001	**809**	**1.58**	**0.704**
	GW-074925-092612-CM-MW-3	9/26/2012	(orig)	0.0016	< 0.001	< 0.001	< 0.003	< 0.0005	**892**	0.063	**0.67**
	GW-074925-091713-CM-MW-3	9/17/2013	(orig)	0.0012	< 0.001	< 0.001	< 0.003	< 0.0005	**808**	0.80	**0.67**
	GW-074925-092314-SP-MW-3	9/23/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00053	598	0.83	**0.65**
	GW-074925-121714-CM-MW-3	12/17/2014	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00045	--	--	--
	GW-074925-092215-CB-MW-3	9/22/2015	(orig)	< 0.001	< 0.001	< 0.001	< 0.003	< 0.00045	**943**	0.079	**0.79**
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	--	**--**	--	**--**
	August 2013 Mobile Dual Phase Extraction Event										
	GW-074925-091713-CM-MW-4	9/17/2013	(orig)	0.0065	< 0.001	< 0.001	< 0.003	< 0.0005	**925**	0.51	**1.6**
	GW-074925-092314-SP-MW-4	9/23/2014	(orig)	0.0068	< 0.001	0.0011	< 0.003	< 0.00053	**905**	0.39	**2.2**
	November 2014 Mobile Dual Phase Extraction Event										
	GW-074925-121714-CM-MW-4	12/17/2014	(orig)	0.003	< 0.001	< 0.001	< 0.003	< 0.00045	--	--	--
	GW-074925-092314-CM-DUP	12/17/2014	(Duplicate)	0.0039	< 0.001	< 0.001	< 0.003	--	--	--	--
	April 2015 Mobile Dual Phase Extraction Event										
	GW074925-061815-CB-MW-4	6/18/2015	(orig)	0.0039	< 0.001	< 0.001	< 0.003	< 0.00045	--	--	--
	GW-074925-092215-CB-MW-4	9/22/2015	(orig)	0.0018	< 0.001	< 0.001	< 0.003	< 0.0005	**911**	0.21	**1.9**

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

Appendices

Appendix A
2015 Annual Groundwater Laboratory Analytical Report

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

June 30, 2015

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

RE: Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Dear Christine Mathews:
Enclosed are the analytical results for sample(s) received by the laboratory on June 19, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

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

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

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

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60196789001	**GW-074925-061815-CB-MW-4**	Water	06/18/15 12:00	06/19/15 08:40
60196789002	**GW-074925-061815-CB-DUP**	Water	06/18/15 08:00	06/19/15 08:40
60196789003	**GW-074925-061815-CB-TB1**	Water	06/18/15 12:30	06/19/15 08:40
60196789004	**GW-074925-061815-CB-MW-1**	Water	06/18/15 11:45	06/19/15 08:40

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

SAMPLE ANALYTE COUNT

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60196789001	**GW-074925-061815-CB-MW-4**	EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8
60196789002	**GW-074925-061815-CB-DUP**	EPA 5030B/8260	PGH	8
60196789003	**GW-074925-061815-CB-TB1**	EPA 5030B/8260	PGH	8
60196789004	**GW-074925-061815-CB-MW-1**	EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8

REPORT OF LABORATORY ANALYSIS

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

PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: CRA Conoco New Mexico
Date: June 30, 2015

General Information:
2 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

Sample Preparation:
The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

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

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

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

QC Batch: OEXT/49910

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

- GW-074925-061815-CB-MW-1 (Lab ID: 60196789004)
  - 2-Fluorobiphenyl (S)
  - Terphenyl-d14 (S)

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

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

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

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

QC Batch: OEXT/49910

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

Additional Comments:

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

PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: CRA Conoco New Mexico
Date: June 30, 2015

Analyte Comments:

QC Batch: OEXT/49910

1e: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- GW-074925-061815-CB-MW-1 (Lab ID: 60196789004)
  - Naphthalene
- GW-074925-061815-CB-MW-4 (Lab ID: 60196789001)
  - Naphthalene

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

PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: CRA Conoco New Mexico
Date: June 30, 2015

General Information:
4 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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/70227

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

QC Batch: MSV/70250

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

Additional Comments:

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

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

ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Sample: GW-074925-061815-CB-MW-4 **Lab ID: 60196789001** Collected: 06/18/15 12:00 Received: 06/19/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.45	1	06/24/15 00:00	06/29/15 20:01	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	82	%	58-115	1	06/24/15 00:00	06/29/15 20:01	321-60-8	
Terphenyl-d14 (S)	96	%	53-127	1	06/24/15 00:00	06/29/15 20:01	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**3.9**	ug/L	1.0	1		06/25/15 02:21	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/24/15 06:46	100-41-4	
Toluene	ND	ug/L	1.0	1		06/24/15 06:46	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/25/15 02:21	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	109	%	80-120	1		06/24/15 06:46	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-120	1		06/24/15 06:46	17060-07-0	
Toluene-d8 (S)	96	%	80-120	1		06/24/15 06:46	2037-26-5	
Preservation pH	**1.0**		0.10	1		06/24/15 06:46		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Sample: GW-074925-061815-CB-DUP **Lab ID: 60196789002** Collected: 06/18/15 08:00 Received: 06/19/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**4340**	ug/L	50.0	50		06/25/15 02:36	71-43-2	
Ethylbenzene	**933**	ug/L	10.0	10		06/24/15 07:01	100-41-4	
Toluene	**6460**	ug/L	50.0	50		06/25/15 02:36	108-88-3	
Xylene (Total)	**11100**	ug/L	150	50		06/25/15 02:36	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	110	%	80-120	10		06/24/15 07:01	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-120	10		06/24/15 07:01	17060-07-0	
Toluene-d8 (S)	99	%	80-120	10		06/24/15 07:01	2037-26-5	
Preservation pH	**1.0**		0.10	10		06/24/15 07:01		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Sample: GW-074925-061815-CB-TB1 **Lab ID: 60196789003** Collected: 06/18/15 12:30 Received: 06/19/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		06/24/15 03:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/24/15 03:33	100-41-4	
Toluene	ND	ug/L	1.0	1		06/24/15 03:33	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/24/15 03:33	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	105	%	80-120	1		06/24/15 03:33	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-120	1		06/24/15 03:33	17060-07-0	
Toluene-d8 (S)	96	%	80-120	1		06/24/15 03:33	2037-26-5	
Preservation pH	**1.0**		0.10	1		06/24/15 03:33		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Sample: GW-074925-061815-CB-MW-1 **Lab ID: 60196789004** Collected: 06/18/15 11:45 Received: 06/19/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	**62.5**	ug/L	22.7	50	06/24/15 00:00	06/29/15 20:42	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	75	%	58-115	50	06/24/15 00:00	06/29/15 20:42	321-60-8	IO
Terphenyl-d14 (S)	86	%	53-127	1	06/24/15 00:00	06/29/15 20:22	1718-51-0	IO
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**4050**	ug/L	50.0	50		06/26/15 02:50	71-43-2	
Ethylbenzene	**1040**	ug/L	10.0	10		06/24/15 07:16	100-41-4	
Toluene	**6260**	ug/L	50.0	50		06/26/15 02:50	108-88-3	
Xylene (Total)	**10800**	ug/L	150	50		06/26/15 02:50	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	118	%	80-120	10		06/24/15 07:16	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-120	10		06/24/15 07:16	17060-07-0	
Toluene-d8 (S)	103	%	80-120	10		06/24/15 07:16	2037-26-5	
Preservation pH	**1.0**		0.10	10		06/24/15 07:16		

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

QC Batch: MSV/70227 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60196789001, 60196789002, 60196789003, 60196789004

METHOD BLANK: 1590282 Matrix: Water
Associated Lab Samples: 60196789001, 60196789002, 60196789003, 60196789004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/24/15 03:04	
Ethylbenzene	ug/L	ND	1.0	06/24/15 03:04	
Toluene	ug/L	ND	1.0	06/24/15 03:04	
Xylene (Total)	ug/L	ND	3.0	06/24/15 03:04	
1,2-Dichloroethane-d4 (S)	%	112	80-120	06/24/15 03:04	
4-Bromofluorobenzene (S)	%	100	80-120	06/24/15 03:04	
Toluene-d8 (S)	%	96	80-120	06/24/15 03:04	

LABORATORY CONTROL SAMPLE: 1590283

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.5	102	80-120	
Ethylbenzene	ug/L	20	18.9	95	80-120	
Toluene	ug/L	20	20.3	101	80-120	
Xylene (Total)	ug/L	60	58.8	98	80-120	
1,2-Dichloroethane-d4 (S)	%			110	80-120	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			99	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

QC Batch: MSV/70250
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60196789001, 60196789002

METHOD BLANK: 1590856 Matrix: Water
Associated Lab Samples: 60196789001, 60196789002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/24/15 21:54	
Toluene	ug/L	ND	1.0	06/24/15 21:54	
Xylene (Total)	ug/L	ND	3.0	06/24/15 21:54	
1,2-Dichloroethane-d4 (S)	%	112	80-120	06/24/15 21:54	
4-Bromofluorobenzene (S)	%	108	80-120	06/24/15 21:54	
Toluene-d8 (S)	%	98	80-120	06/24/15 21:54	

LABORATORY CONTROL SAMPLE: 1590857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.1	106	80-120	
Toluene	ug/L	20	20.3	102	80-120	
Xylene (Total)	ug/L	60	59.9	100	80-120	
1,2-Dichloroethane-d4 (S)	%			110	80-120	
4-Bromofluorobenzene (S)	%			102	80-120	
Toluene-d8 (S)	%			98	80-120	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

QC Batch: MSV/70294
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60196789004

METHOD BLANK: 1591734 Matrix: Water
Associated Lab Samples: 60196789004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/25/15 22:21	
Toluene	ug/L	ND	1.0	06/25/15 22:21	
Xylene (Total)	ug/L	ND	3.0	06/25/15 22:21	
1,2-Dichloroethane-d4 (S)	%	99	80-120	06/25/15 22:21	
4-Bromofluorobenzene (S)	%	101	80-120	06/25/15 22:21	
Toluene-d8 (S)	%	104	80-120	06/25/15 22:21	

LABORATORY CONTROL SAMPLE: 1591735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.3	96	80-120	
Toluene	ug/L	20	19.2	96	80-120	
Xylene (Total)	ug/L	60	56.6	94	80-120	
1,2-Dichloroethane-d4 (S)	%			99	80-120	
4-Bromofluorobenzene (S)	%			102	80-120	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591736 1591737

Parameter	Units	60197076002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	500	500	478	489	96	98	46-155	2	13	
Toluene	ug/L	ND	500	500	468	480	94	96	47-149	3	16	
Xylene (Total)	ug/L	ND	1500	1500	1440	1460	96	98	39-158	1	15	
1,2-Dichloroethane-d4 (S)	%						94	94	80-120			
4-Bromofluorobenzene (S)	%						99	94	80-120			
Toluene-d8 (S)	%						100	98	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591738 1591739

Parameter	Units	60197077007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	20.0	20.3	100	102	46-155	2	13	
Toluene	ug/L	ND	20	20	20.3	20.4	102	102	47-149	0	16	
Xylene (Total)	ug/L	ND	60	60	59.6	58.1	99	97	39-158	2	15	
1,2-Dichloroethane-d4 (S)	%						102	97	80-120			
4-Bromofluorobenzene (S)	%						100	102	80-120			

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1591738 1591739

Parameter	Units	60197077007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Toluene-d8 (S)	%						99	101	80-120			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

QC Batch: OEXT/49910
QC Batch Method: EPA 3510C
Analysis Method: EPA 8270C by SIM
Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60196789001, 60196789004

METHOD BLANK: 1590549 Matrix: Water
Associated Lab Samples: 60196789001, 60196789004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	06/26/15 22:09	
2-Fluorobiphenyl (S)	%	79	58-115	06/26/15 22:09	
Terphenyl-d14 (S)	%	90	53-127	06/26/15 22:09	

LABORATORY CONTROL SAMPLE: 1590550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	8.0	80	47-113	
2-Fluorobiphenyl (S)	%			77	58-115	
Terphenyl-d14 (S)	%			80	53-127	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/70227

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

Batch: OEXT/49910

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

Batch: MSV/70250

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

ANALYTE QUALIFIERS

1e A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60196789

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60196789001	**GW-074925-061815-CB-MW-4**	EPA 3510C	OEXT/49910	EPA 8270C by SIM	MSSV/16166
60196789004	**GW-074925-061815-CB-MW-1**	EPA 3510C	OEXT/49910	EPA 8270C by SIM	MSSV/16166
60196789001	**GW-074925-061815-CB-MW-4**	EPA 5030B/8260	MSV/70227		
60196789001	**GW-074925-061815-CB-MW-4**	EPA 5030B/8260	MSV/70250		
60196789002	**GW-074925-061815-CB-DUP**	EPA 5030B/8260	MSV/70227		
60196789002	**GW-074925-061815-CB-DUP**	EPA 5030B/8260	MSV/70250		
60196789003	**GW-074925-061815-CB-TB1**	EPA 5030B/8260	MSV/70227		
60196789004	**GW-074925-061815-CB-MW-1**	EPA 5030B/8260	MSV/70227		
60196789004	**GW-074925-061815-CB-MW-1**	EPA 5030B/8260	MSV/70294		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60196789

60196789

Client Name: COP COPA NM

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 634602506110 Pace Shipping Label Used? Yes ☒ No ☐

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

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

Thermometer Used: CF -0.1 T-239 / ~~CF -0.5 T-262~~ **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.4

Date and initials of person examining contents: JNS 6/11/15 1035

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, O&G, WI-DRO (water)	☒Yes ☐No	Initial when completed MA / Lot # of added preservative
Trip Blank present:	☒Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 0511S-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: AAF Date: 6/19/15

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

Start: 1030	Start:
End: 1035	End:
Temp:	Temp:

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	CRA COP NM	Report To:	Christine Mathews	Attention:	CRA
Address:	6121 Indian School Rd NE, Ste 200	Copy To:	Jeff Walker, Angela Bown	Company Name:	Angela Bown
	Albequerque, NM 87110			Address:	
Email To:	cmathews@craworld.com	Purchase Order No.:	4071737	Pace Quote Reference:	
Phone:	(505)884-0672 Fax: (505)884-4932	Project Name:	Johnston Federal No. 4	Pace Project Manager:	Alice Flanagan
Requested Due Date/TAT:		Project Number:	74925	Pace Profile #:	7801, 20

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NM

Section D Required Client Information

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

Valid Matrix Codes

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

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 PAH SIM Napthalene	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	~~GW-074925-060815-CB-MW-1~~	~~WT~~	~~G~~			6/8/15	~~Hour~~															60190789
2	GW-074925-060815-CB-MW-2	WT	G			6/8/15	1200		5	2		3						X	X			3(DEW14) 2(AGAM) 01
3	GW-074925-060815-CB-DUP	WT	G			6/8/15	—		5			3						X				3(DEW14) 02
4	TB-074925-060815-CB-TB1	WT	G			6/8/15	1230		3			3						X				03
5	GW-074925-060815-CB-MW-1	WT	G			6/8/15	1145		5	2		3						X	X			3(DEW14) 2(AGAM) 04
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Cassie Brown / CRA	6/8/15	1700		6/9/15	840	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cassie Brown

SIGNATURE of SAMPLER: Cassie Brown DATE Signed (MM/DD/YY): 6/8/15

*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.

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October 05, 2015

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

RE: Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Dear Jeffrey Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Alice Flanagan
alice.flanagan@pacelabs.com
Project Manager

Enclosures

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

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CERTIFICATIONS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

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

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SAMPLE SUMMARY

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60203543001	**GW 074925 092215 CB MW-1**	Water	09/22/15 09:35	09/24/15 08:40
60203543002	**GW 074925 092215 CB MW-2**	Water	09/22/15 10:10	09/24/15 08:40
60203543003	**GW 074925 092215 CB MW-3**	Water	09/22/15 10:50	09/24/15 08:40
60203543004	**GW 074925 092215 CB MW-4**	Water	09/22/15 10:20	09/24/15 08:40
60203543005	**GW 074925 092215 CB DUP**	Water	09/22/15 08:00	09/24/15 08:40
60203543006	**TB 074925 092315 CB TRIP BLANK**	Water	09/23/15 16:00	09/24/15 08:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60203543001	**GW 074925 092215 CB MW-1**	EPA 6010	SMW	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8
		EPA 300.0	AJM	1
60203543002	**GW 074925 092215 CB MW-2**	EPA 6010	SMW	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8
		EPA 300.0	AJM	1
60203543003	**GW 074925 092215 CB MW-3**	EPA 6010	SMW	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8
		EPA 300.0	AJM	1
60203543004	**GW 074925 092215 CB MW-4**	EPA 6010	SMW	2
		EPA 8270C by SIM	NAW	3
		EPA 5030B/8260	PGH	8
		EPA 300.0	AJM	1
60203543005	**GW 074925 092215 CB DUP**	EPA 5030B/8260	PGH	8
60203543006	**TB 074925 092315 CB TRIP BLANK**	EPA 5030B/8260	PGH	8

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: GHD Services_COP NM
Date: October 05, 2015

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

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

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

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

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

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

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

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

Additional Comments:

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: GHD Services_COP NM
Date: October 05, 2015

General Information:
4 samples were analyzed for EPA 8270C by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

Sample Preparation:
The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

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

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

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

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

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

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

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

QC Batch: OEXT/51367

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

Additional Comments:

Analyte Comments:

QC Batch: OEXT/51367

1e: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- GW 074925 092215 CB MW-1 (Lab ID: 60203543001)
  - Naphthalene
- GW 074925 092215 CB MW-2 (Lab ID: 60203543002)
  - Naphthalene

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Method: **EPA 8270C by SIM**
Description: 8270 MSSV PAH by SIM
Client: GHD Services_COP NM
Date: October 05, 2015

Analyte Comments:

QC Batch: OEXT/51367

1e: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- GW 074925 092215 CB MW-3 (Lab ID: 60203543003)
  - Naphthalene
- GW 074925 092215 CB MW-4 (Lab ID: 60203543004)
  - Naphthalene

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PROJECT NARRATIVE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: GHD Services_COP NM
Date: October 05, 2015

General Information:
6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- GW 074925 092215 CB MW-1 (Lab ID: 60203543001)

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/71963

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.: 60203543

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: GHD Services_COP NM
Date: October 05, 2015

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

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

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.: 60203543

Sample: GW 074925 092215 CB MW-1 **Lab ID: 60203543001** Collected: 09/22/15 09:35 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	mg/L	0.050	1	09/25/15 12:30	09/28/15 18:52	7439-89-6	
Manganese, Dissolved	**0.72**	mg/L	0.0050	1	09/25/15 12:30	09/28/15 18:52	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	**50.4**	ug/L	4.5	10	09/28/15 00:00	10/02/15 12:15	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	73	%	58-115	1	09/28/15 00:00	10/01/15 17:18	321-60-8	
Terphenyl-d14 (S)	86	%	53-127	1	09/28/15 00:00	10/01/15 17:18	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**3360**	ug/L	50.0	50		09/30/15 03:44	71-43-2	
Ethylbenzene	**741**	ug/L	50.0	50		09/30/15 03:44	100-41-4	
Toluene	**4570**	ug/L	50.0	50		09/30/15 03:44	108-88-3	
Xylene (Total)	**8620**	ug/L	150	50		09/30/15 03:44	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	98	%	80-120	50		09/30/15 03:44	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-120	50		09/30/15 03:44	17060-07-0	
Toluene-d8 (S)	98	%	80-120	50		09/30/15 03:44	2037-26-5	
Preservation pH	**6.0**		0.10	50		09/30/15 03:44		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**44.2**	mg/L	10.0	10		10/01/15 07:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Sample: GW 074925 092215 CB MW-2 **Lab ID: 60203543002** Collected: 09/22/15 10:10 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	mg/L	0.050	1	09/25/15 12:30	09/28/15 18:54	7439-89-6	
Manganese, Dissolved	ND	mg/L	0.0050	1	09/25/15 12:30	09/28/15 18:54	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.50	1	09/28/15 00:00	10/01/15 17:39	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	78	%	58-115	1	09/28/15 00:00	10/01/15 17:39	321-60-8	
Terphenyl-d14 (S)	120	%	53-127	1	09/28/15 00:00	10/01/15 17:39	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/30/15 03:01	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/15 03:01	100-41-4	
Toluene	ND	ug/L	1.0	1		09/30/15 03:01	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/30/15 03:01	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	99	%	80-120	1		09/30/15 03:01	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-120	1		09/30/15 03:01	17060-07-0	
Toluene-d8 (S)	98	%	80-120	1		09/30/15 03:01	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/30/15 03:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**1210**	mg/L	100	100		10/01/15 07:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Sample: GW 074925 092215 CB MW-3 **Lab ID: 60203543003** Collected: 09/22/15 10:50 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	**0.079**	mg/L	0.050	1	09/25/15 12:30	09/28/15 18:56	7439-89-6	
Manganese, Dissolved	**0.79**	mg/L	0.0050	1	09/25/15 12:30	09/28/15 18:56	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.45	1	09/28/15 00:00	10/01/15 17:59	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	69	%	58-115	1	09/28/15 00:00	10/01/15 17:59	321-60-8	
Terphenyl-d14 (S)	92	%	53-127	1	09/28/15 00:00	10/01/15 17:59	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/30/15 03:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/15 03:15	100-41-4	
Toluene	ND	ug/L	1.0	1		09/30/15 03:15	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/30/15 03:15	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	99	%	80-120	1		09/30/15 03:15	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-120	1		09/30/15 03:15	17060-07-0	
Toluene-d8 (S)	98	%	80-120	1		09/30/15 03:15	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/30/15 03:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**943**	mg/L	100	100		10/01/15 07:52	14808-79-8	

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Sample: GW 074925 092215 CB MW-4 **Lab ID: 60203543004** Collected: 09/22/15 10:20 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	**0.21**	mg/L	0.050	1	09/25/15 12:30	09/28/15 19:03	7439-89-6	
Manganese, Dissolved	**1.9**	mg/L	0.0050	1	09/25/15 12:30	09/28/15 19:03	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270C by SIM Preparation Method: EPA 3510C							
Naphthalene	ND	ug/L	0.50	1	09/28/15 00:00	10/01/15 18:20	91-20-3	1e
Surrogates								
2-Fluorobiphenyl (S)	68	%	58-115	1	09/28/15 00:00	10/01/15 18:20	321-60-8	
Terphenyl-d14 (S)	106	%	53-127	1	09/28/15 00:00	10/01/15 18:20	1718-51-0	
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**1.8**	ug/L	1.0	1		09/30/15 03:30	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/15 03:30	100-41-4	
Toluene	ND	ug/L	1.0	1		09/30/15 03:30	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/30/15 03:30	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	99	%	80-120	1		09/30/15 03:30	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-120	1		09/30/15 03:30	17060-07-0	
Toluene-d8 (S)	100	%	80-120	1		09/30/15 03:30	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/30/15 03:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**911**	mg/L	100	100		10/01/15 08:06	14808-79-8	

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Sample: GW 074925 092215 CB DUP **Lab ID: 60203543005** Collected: 09/22/15 08:00 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	**3370**	ug/L	50.0	50		09/30/15 03:59	71-43-2	
Ethylbenzene	**724**	ug/L	50.0	50		09/30/15 03:59	100-41-4	
Toluene	**4280**	ug/L	50.0	50		09/30/15 03:59	108-88-3	
Xylene (Total)	**7980**	ug/L	150	50		09/30/15 03:59	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	100	%	80-120	50		09/30/15 03:59	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-120	50		09/30/15 03:59	17060-07-0	
Toluene-d8 (S)	100	%	80-120	50		09/30/15 03:59	2037-26-5	
Preservation pH	**1.0**		0.10	50		09/30/15 03:59		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Sample: TB 074925 092315 CB TRIP BLANK **Lab ID: 60203543006** Collected: 09/23/15 16:00 Received: 09/24/15 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		09/30/15 02:47	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/30/15 02:47	100-41-4	
Toluene	ND	ug/L	1.0	1		09/30/15 02:47	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		09/30/15 02:47	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	100	%	80-120	1		09/30/15 02:47	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-120	1		09/30/15 02:47	17060-07-0	
Toluene-d8 (S)	98	%	80-120	1		09/30/15 02:47	2037-26-5	
Preservation pH	**1.0**		0.10	1		09/30/15 02:47		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

QC Batch: MPRP/33286 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

METHOD BLANK: 1639420 Matrix: Water
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	mg/L	ND	0.050	09/28/15 18:02	
Manganese, Dissolved	mg/L	ND	0.0050	09/28/15 18:02	

LABORATORY CONTROL SAMPLE: 1639421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	mg/L	10	10.2	102	80-120	
Manganese, Dissolved	mg/L	1	1.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1639422 1639423

Parameter	Units	60203119001 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	3030 ug/L	10	10	13.1	13.1	101	101	75-125	0	20	
Manganese, Dissolved	mg/L	3750 ug/L	1	1	4.8	4.8	108	107	75-125	0	20	

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

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(913)599-5665

QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

QC Batch: MSV/71963 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004, 60203543005, 60203543006

METHOD BLANK: 1641271 Matrix: Water
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004, 60203543005, 60203543006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/30/15 02:18	
Ethylbenzene	ug/L	ND	1.0	09/30/15 02:18	
Toluene	ug/L	ND	1.0	09/30/15 02:18	
Xylene (Total)	ug/L	ND	3.0	09/30/15 02:18	
1,2-Dichloroethane-d4 (S)	%	105	80-120	09/30/15 02:18	
4-Bromofluorobenzene (S)	%	102	80-120	09/30/15 02:18	
Toluene-d8 (S)	%	96	80-120	09/30/15 02:18	

LABORATORY CONTROL SAMPLE: 1641272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.3	102	80-120	
Ethylbenzene	ug/L	20	18.7	94	80-120	
Toluene	ug/L	20	19.4	97	80-120	
Xylene (Total)	ug/L	60	55.7	93	80-120	
1,2-Dichloroethane-d4 (S)	%			107	80-120	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			99	80-120	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

QC Batch: OEXT/51367 Analysis Method: EPA 8270C by SIM
QC Batch Method: EPA 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

METHOD BLANK: 1640686 Matrix: Water
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Naphthalene	ug/L	ND	0.50	09/29/15 16:52	
2-Fluorobiphenyl (S)	%	68	58-115	09/29/15 16:52	
Terphenyl-d14 (S)	%	89	53-127	09/29/15 16:52	

LABORATORY CONTROL SAMPLE: 1640687

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	10	7.7	77	47-113	
2-Fluorobiphenyl (S)	%			76	58-115	
Terphenyl-d14 (S)	%			93	53-127	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

QC Batch: WETA/36143 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

METHOD BLANK: 1641517 Matrix: Water
Associated Lab Samples: 60203543001, 60203543002, 60203543003, 60203543004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/01/15 04:54	

LABORATORY CONTROL SAMPLE: 1641518

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1641519 1641520

Parameter	Units	60203511001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	15.1	5	5	19.4	19.5	86	87	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: OEXT/51367

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

Batch: MSV/71963

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

ANALYTE QUALIFIERS

1e A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074925 JOHNSTON FEDERAL NO 4
Pace Project No.: 60203543

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60203543001	**GW 074925 092215 CB MW-1**	EPA 3010	MPRP/33286	EPA 6010	ICP/24537
60203543002	**GW 074925 092215 CB MW-2**	EPA 3010	MPRP/33286	EPA 6010	ICP/24537
60203543003	**GW 074925 092215 CB MW-3**	EPA 3010	MPRP/33286	EPA 6010	ICP/24537
60203543004	**GW 074925 092215 CB MW-4**	EPA 3010	MPRP/33286	EPA 6010	ICP/24537
60203543001	**GW 074925 092215 CB MW-1**	EPA 3510C	OEXT/51367	EPA 8270C by SIM	MSSV/16668
60203543002	**GW 074925 092215 CB MW-2**	EPA 3510C	OEXT/51367	EPA 8270C by SIM	MSSV/16668
60203543003	**GW 074925 092215 CB MW-3**	EPA 3510C	OEXT/51367	EPA 8270C by SIM	MSSV/16668
60203543004	**GW 074925 092215 CB MW-4**	EPA 3510C	OEXT/51367	EPA 8270C by SIM	MSSV/16668
60203543001	**GW 074925 092215 CB MW-1**	EPA 5030B/8260	MSV/71963		
60203543002	**GW 074925 092215 CB MW-2**	EPA 5030B/8260	MSV/71963		
60203543003	**GW 074925 092215 CB MW-3**	EPA 5030B/8260	MSV/71963		
60203543004	**GW 074925 092215 CB MW-4**	EPA 5030B/8260	MSV/71963		
60203543005	**GW 074925 092215 CB DUP**	EPA 5030B/8260	MSV/71963		
60203543006	**TB 074925 092315 CB TRIP BLANK**	EPA 5030B/8260	MSV/71963		
60203543001	**GW 074925 092215 CB MW-1**	EPA 300.0	WETA/36143		
60203543002	**GW 074925 092215 CB MW-2**	EPA 300.0	WETA/36143		
60203543003	**GW 074925 092215 CB MW-3**	EPA 300.0	WETA/36143		
60203543004	**GW 074925 092215 CB MW-4**	EPA 300.0	WETA/36143		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60203543

60203543

Client Name: GHD_COP

Optional
Proj Due Date:
Proj Name:

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

Tracking #: 6508 8158 4297 Pace Shipping Label Used? Yes ☐ No ☐

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

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

Thermometer Used: CF +0.6 T-239 / CF +0.8 T-262 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0.9

Temperature should be above freezing to 6°C

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

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AAF Date: 09/24/15

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

Start: 1100	Start:
End: 1109	End:
Temp:	Temp:

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services_COP NM	Report To:	Jeffrey Walker	Attention:	
Address:	6121 Indian School Rd NE	Copy To:		Company Name:	
	Albuquerque, NM 87110			Address:	
Email:	jeff.walker@ghd.com	Purchase Order #:		Pace Quote:	
Phone:	505-377-3920 Fax	Project Name:	074925 Johnston Federal No 4	Pace Project Manager:	alice.flanagan@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	

Regulatory Agency	
State / Location	NM

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260 BTEX	8270 SIM Naphthalene	Dissolved Fe, Mn	Sulfate by 300.0								Residual Chlorine (Y/N)	60203543
1	GW·074925·092215·CB·MW-1	WT	G			9/22/15	0935	7		X		X	X						X	X	X	X	BP	3N	BP3F	(2)	AG4H		(3) DG4H 001
2	GW·074925·092215·CB·MW-2	WT	G			9/22/15	1010	7		X		X	X						X	X	X	X	|	|	|	|	|		002
3	GW·074925·092215·CB·MW-3	WT	G			9/22/15	1050	7		X		X	X						X	X	X	X	|	|	|	|	|		003
4	GW·074925·092215·CB·MW-4	WT	G			9/22/15	1020	7		X		X	X						X	X	X	X	↓		↓		↓			004
5	GW·074925·092215·CB·DUP	WT	G			9/22/15	/	3					X						Y										(3) DG4H 005
6	TB·074925·092315·CB·TripBlank	WT	G			9/23/15	1000	3					X						X										(3) DG4H TO 006
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Cassie Brown GHD	9/23/15	1100		9/24	0840	0.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cassie Brown

SIGNATURE of SAMPLER: Cassie Brown DATE Signed: 9/23/15

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