SEPTEMBER 2011 QUARTERLY GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS FAYE BURDETTE No. 1
SAN JUAN COUNTY, NEW MEXICO

API# 30-045-09725

NMOCD# 3R-434

3R-434

Prepared For:

CONOCOPHILLIPS COMPANY

Risk Management and Remediation

420 South Keeler Avenue

Bartlesville, OK, 74004

Prepared by:
Conestoga-Rovers & Associates

6121 Indian School Rd Ste. 200
Albuquerque, New Mexico 87110

Office: (505) 884-0672
Fax: (505) 884-4932

web: http://www.CRAworld.com

MARCH 2012
REF. NO. 074929-95(3)
This report is printed on recycled paper.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring completed by Conestoga-Rovers & Associates (CRA) on September 27, 2011, at the ConocoPhillips Company (ConocoPhillips) Faye Burdette No. 1 site, located on private land in Unit Letter G, Section 9, Township 30N, Range 11W of San Juan County, New Mexico (Site). Geographical coordinates for the Site are 36°49'47.71" North, 107°59'31.50" West. This event represents the 13th quarter of groundwater sampling conducted at the Site.

The Site is located near the intersection of Highway 550 and Pioneer Avenue in Aztec, NM. The Site consists of a gas wellhead and associated equipment and installations. The location and general features of the Site are presented as **Figures 1** and **2**, respectively. A generalized geologic cross section of the Site is included as **Figure 3**.

1.1 BACKGROUND

The Faye Burdette No. 1 wellhead was spudded by Southwest Production Company in April 1962. Ownership was transferred to Beta Development Company in September 1963 and again to Mesa Operating Limited Partnership in August 1988. Conoco Inc., predecessor to ConocoPhillips Company, acquired the well in July 1991. A release occurred in May 2007 from a rusted portion of the on-Site produced water tank. Evidence of pre-existing hydrocarbon impacted soil was encountered during excavation, possibly related to a former earthen pit. Temporary Monitor Well MW-1 was drilled by Envirotech in September 2007. Groundwater samples from MW-1 indicated that benzene, toluene, ethylbenzene, and xylenes (BTEX) were below the New Mexico Water Quality Control Commission (NMWQCC) standards.

To complete additional investigation of the Site, as requested by the New Mexico Oil Conservation Division (OCD), Monitor Wells MW-2, MW-3, and MW-4 were installed under the supervision of Tetra Tech, Inc. (Tetra Tech) during January 2009. All four monitor wells were incorporated into a quarterly monitoring program that was initiated on January 29, 2009. On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to CRA of Albuquerque, NM. Site history is outlined in **Table 1**.

2.0 GROUNDWATER MONITORING SUMMARY, METHODOLOGY, AND ANALYTICAL RESULTS

2.1 GROUNDWATER MONITORING SUMMARY

Prior to sampling on September 27, 2011, 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 the September 2011 monitoring event data, groundwater flow is to the northwest and is consistent with historical monitoring event records for this Site. The Animas River is approximately 1/3 mile from the site and flows west.

2.2 GROUNDWATER MONITORING METHODOLOGY

Monitor Wells MW-1, MW-2, MW-3, and MW-4 were sampled during the September 2011 quarterly sampling event. Approximately three well volumes were purged from each monitor well with a dedicated, polyethylene, 1.5-inch disposable bailer prior to sampling. Purge water was placed in the on-Site produced water tank. Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain-of-custody documentation to Pace Analytical Services, Inc. in Lenexa, Kansas. The samples were analyzed for the presence of dissolved manganese according to EPA Method 6010. Groundwater sampling field forms are included as **Appendix A.**

2.3 GROUNDWATER MONITORING ANALYTICAL RESULTS

The NMWQCC standard for dissolved manganese is 0.2 milligrams per liter (mg/L). Laboratory analysis of groundwater samples collected during the September 27, 2011 monitoring event revealed that the sample from Monitor Well MW-1 exceeds the NMWQCC standard for dissolved manganese at 0.624 mg/L. **Table 3** summarizes the laboratory analytical results for the September 2011 groundwater sampling event. The corresponding laboratory analytical report is included in **Appendix B.**

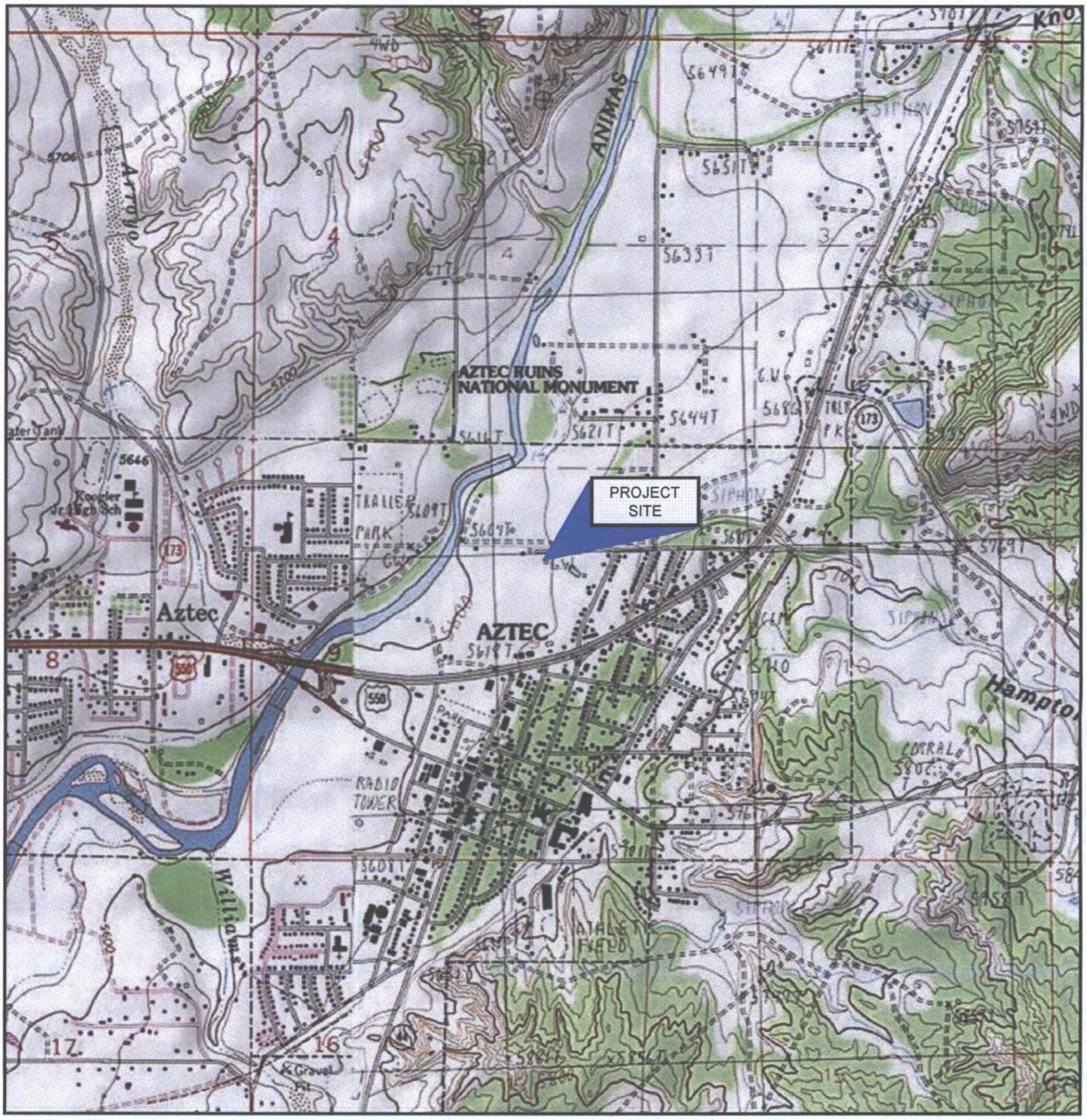
3.0 CONCLUSIONS AND RECOMMENDATIONS

Groundwater samples collected from MW-1, MW-2, MW-3, and MW-4 on September 27, 2011 were not analyzed for BTEX constituents, which have been below laboratory detection limits since groundwater sampling began.

Groundwater samples collected from MW-1 have continually exceeded NMWQCC groundwater quality standards for dissolved manganese from October 2008 to September 2011.

Annual analysis for dissolved manganese will continue for all Site wells. Remediation Site closure will be requested when groundwater quality results begin to indicate that all monitored groundwater quality parameters are consistently below NMWQCC groundwater quality standards, are stable, or are representative of background conditions at the Site.

FIGURES



SOURCE: USGS 7.5 MINUTE QUADS
"AZTEC AND FLORA VISTA, NEW MEXICO"

0 1000 2000ft

Figure 1

SITE VICINITY MAP
FAYE BURDETTE No. 1 GAS WELL SITE
SECTION 22, T30N-R12W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

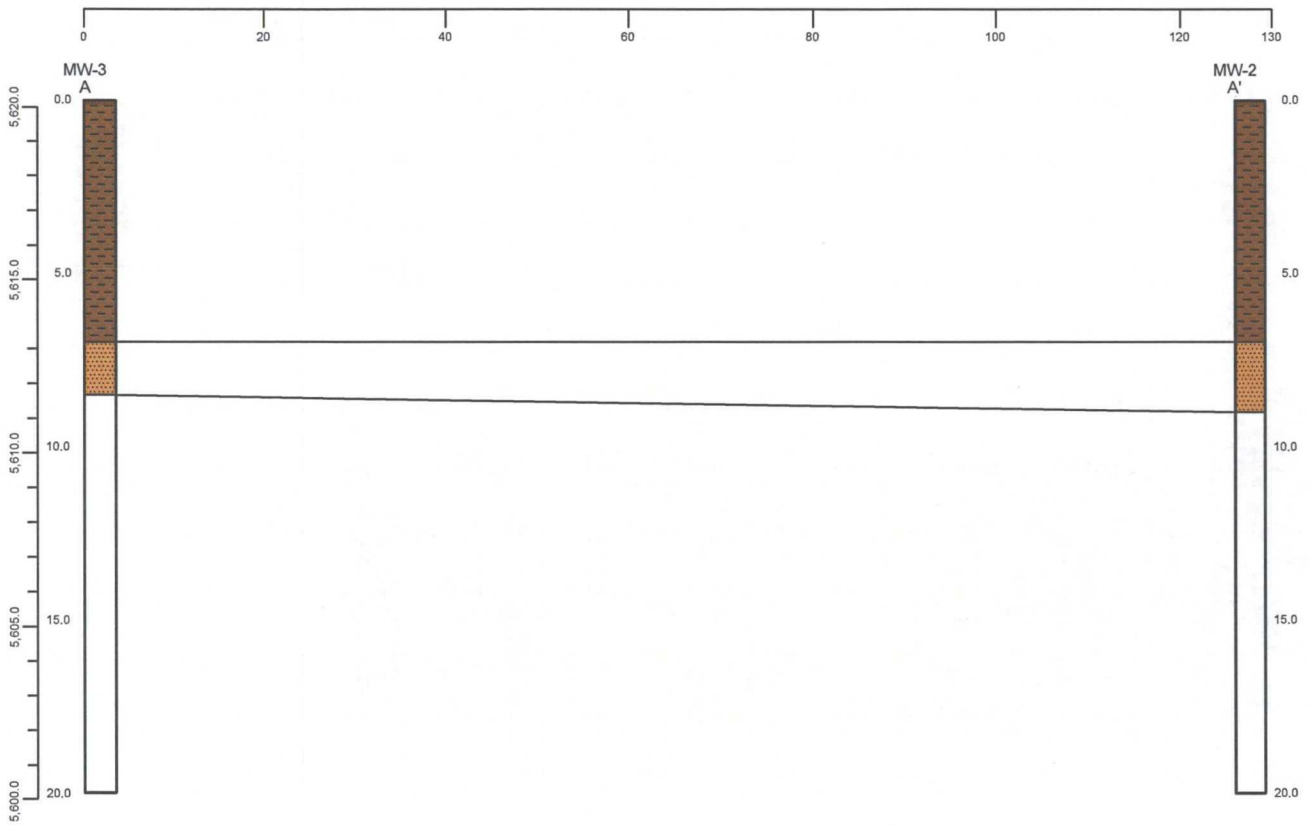
074929-95(003)GN-DL005 DEC 6/2011

ConocoPhillips high resolution aerial imagery 2008.

Figure 2

SITE DETAIL MAP
FAYE BURDETTE No. 1 GAS WELL SITE
SECTION 09, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074929-95(003)GN-DL001 JAN 12/2012



H: 1"= 20'
V: 1"= 10'

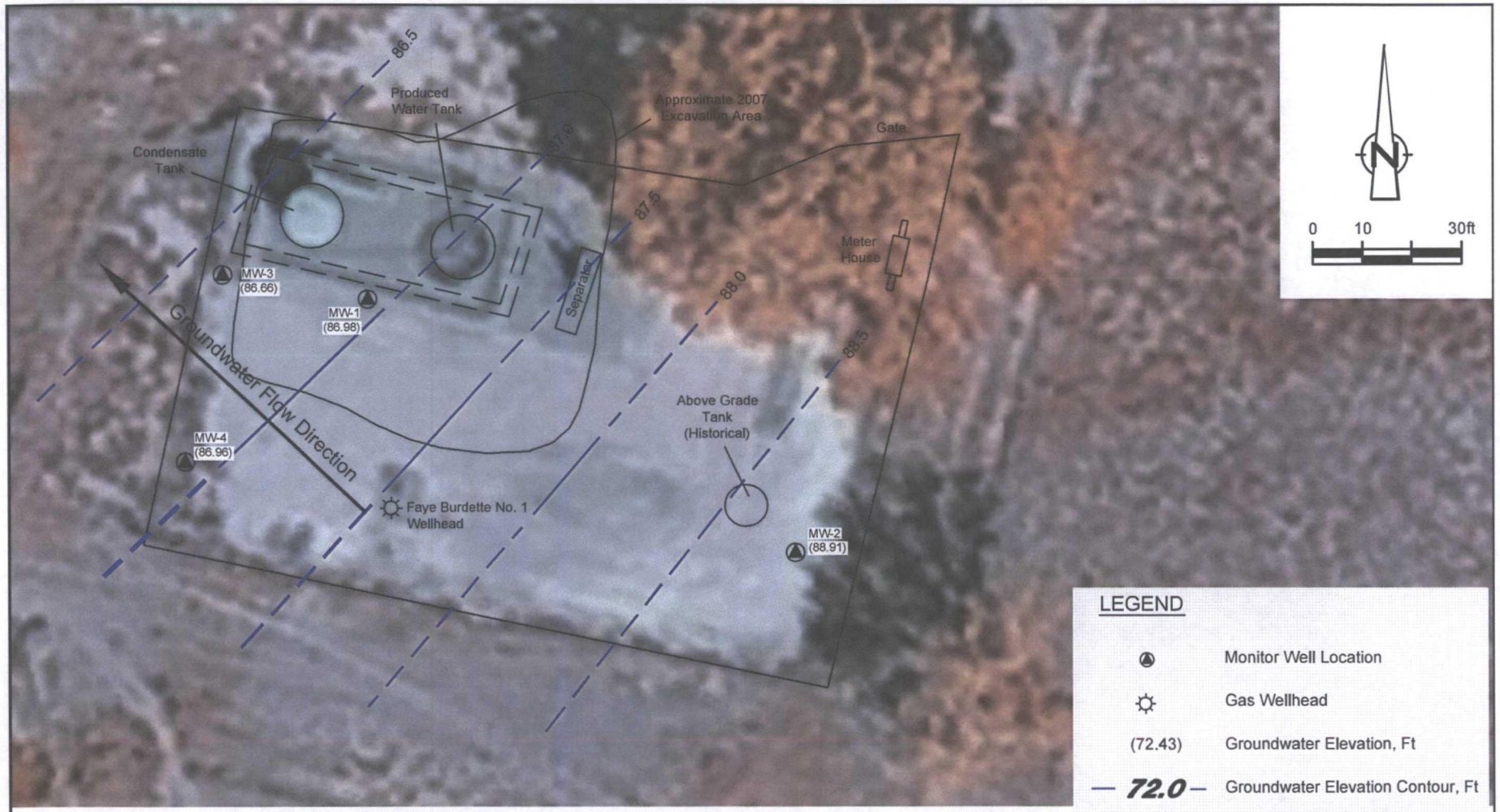
Silty Sand

Medium Grained Sand

Figure 3

GEOLOGICAL CROSS SECTION
FAYE BURDETTE No. 1 GAS WELL SITE
SECTION 09, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074929-95(003)GN-DL002 JAN 16/2012



ConocoPhillips high resolution aerial imagery 2008.

Figure 4

SEPTEMBER 2011 GROUNDWATER POTENTIOMETRIC SURFACE MAP
FAYE BURDETTE No. 1 GAS WELL SITE
SECTION 09, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074929-95(003)GN-DL003 JAN 12/2012

TABLES

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
FAYE BURDETTE No. 1
SAN JUAN COUNTY, NEW MEXICO

DATE	*Event/Action*	*ACTIVITY*
April 29, 1962	Well spudded	Well was spudded by Southwest Production Company.
September 1, 1963	Ownership transfer	Ownership of well transferred to Beta Development Company.
February 21, 1983	NMOCD inspection	NMOCD inspection noted a leaky 2-inch valve on a storage tank.
August 15, 1988	Ownership transfer	Ownership of well transferred to Mesa Operating Limited Partnership.
July 1, 1991	Ownership transfer	Ownership of well transferred to Conoco Inc.
May 24, 2007	Release from produced water tank	A small (<25 gallons) release occurred from the produced water tank after a rusty spot was scraped off. Follow-up excavation encountered evidence of pre-existing hydrocarbon-impacted soil, apparently related to a former earthen pit beneath the tank.
July 1, 2007	Initial site assessment	Contaminated soil excavated from the Site. Two ground water samples were obtained at the time of this excavation, and one (1) of these samples was found to contain total xylenes above the State of New Mexico drinking water standard.
September 26, 2007	Monitor well installation/Site assessment	Ground water monitor well installed to a depth of 15 feet below ground surface (bgs) by Envirotech Inc. of Farmington, NM (Envirotech). A soil sample obtained from the well boring was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH). Results were below NMOCD regulations of 10 parts per million (ppm), 50 ppm, and 100 ppm, respectively.
	Site assessment	A ground water sample was collected from the temporary Monitor Well (MW-1) and analyzed for BTEX; results were below the State of New Mexico drinking water standard for this constituent. Depth to ground water recorded at 9.5 feet bgs.
November 1, 2007	Envirotech recommendation	Envirotech report recommends plugging and abandonment of the temporary ground water monitor well and a no further action determination for the Site (Envirotech, 2007).
April 8, 2008	Additional monitoring requested by OCD	Oil Conservation Division of NM Energy, Minerals, and Resources Dept. indicates additional investigation and sampling is necessary for closure consideration during a meeting between Tetra Tech and Glenn Von Gonten.
October 22, 2008	Groundwater monitoring	1st quarter sampling of MW-1 conducted by Tetra Tech.
January 9, 2009	Installation of additional monitor wells	WDC Exploration and Wells of Peralta, NM installed additional Monitor Wells MW-2, MW-3 and MW-4 under the supervision of Tetra Tech.
January 29, 2009	Groundwater monitoring	Second quarter sampling of MW-1 conducted by Tetra Tech. Initial sampling of Monitor Wells MW-2, MW-3, and MW-4.
March 31, 2009	Groundwater monitoring	Third consecutive quarter of sampling MW-1 conducted by Tetra Tech. Second quarter sampling of Monitor Wells MW-2, MW-3, and MW-4.
June 17, 2009	Groundwater monitoring	Fourth consecutive quarter of sampling MW-1 conducted by Tetra Tech. Third quarter of sampling Monitor Wells MW-2, MW-3, and MW-4.
September 22, 2009	Groundwater monitoring	Fifth consecutive quarter of sampling MW-1 by Tetra Tech. Fourth consecutive quarter of sampling Monitor Wells MW-2, MW-3, and MW-4. Sampling for total metals discontinued as approved by NMOCD. Sampling for select dissolved metals based on total metals analyses begins.
December 16, 2009	Groundwater monitoring	Sixth consecutive quarter sampling of MW-1 conducted by Tetra Tech. Fifth consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.
April 1, 2010	Groundwater monitoring	Seventh consecutive quarter sampling of MW-1 conducted by Tetra Tech. Sixth consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.
June 9, 2010	Groundwater monitoring	Eighth consecutive quarter sampling of MW-1 conducted by Tetra Tech. Seventh consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.
September 20, 2010	Groundwater monitoring	Ninth consecutive quarter sampling of MW-1 conducted by Tetra Tech. Eighth consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
FAYE BURDETTE No. 1
SAN JUAN COUNTY, NEW MEXICO

DATE	*Event/Action*	*ACTIVITY*
December 17, 2010	Groundwater monitoring	Tenth consecutive quarter sampling of MW-1 conducted by Tetra Tech. Ninth consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.
March 16, 2011	Groundwater monitoring	11th consecutive quarter sampling of MW-1 conducted by Tetra Tech. Tenth consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only. Tetra Tech recommended that sampling for BTEX be discontinued.
June 15, 2011	Transfer of site consulting responsibilities	On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to Conestoga-Rovers & Associates (CRA) of Albuquerque, NM.
June 22, 2011	Groundwater monitoring	12th consecutive quarter sampling of MW-1. 11th consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4. Samples analyzed for dissolved manganese only.
September 27, 2011	Groundwater monitoring	13th consecutive quarter sampling of MW-1. 12th consecutive quarter sampling of Monitor Wells MW-2, MW-3, and MW-4. Samples analyzed for dissolved manganese only.

TABLE 2

MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
OCT 2008 - SEPT 2011
CONOCOPHILLIPS COMPANY
FAYE BURDETTE No. 1
SAN JUAN COUNTY, NM

Well ID	Total Depth (ft below TOC)	Elevation*	Screen Interval (ft bgs)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level
MW-1	17.52	97.66	4.8 - 14.8	10/22/2008	10.91	86.75
				1/29/2009	11.72	85.94
				3/31/2009	11.88	85.78
				6/17/2009	11.24	86.42
				9/22/2009	10.87	86.79
				12/16/2009	11.56	86.10
				4/1/2010	11.91	85.75
				6/9/2010	11.31	86.35
				9/20/2010	11.39	86.27
				12/17/2010	11.06	86.60
				3/16/2011	11.39	86.27
				6/22/2011	10.73	86.93
				9/27/2011	10.68	86.98
MW-2	19.45	98.54	5 - 20	1/29/2009	10.91	87.63
				3/31/2009	11.12	87.42
				6/17/2009	10.48	88.06
				9/22/2009	10.76	87.78
				12/16/2009	10.61	87.93
				4/1/2010	11.20	87.34
				6/9/2010	10.35	88.19
				9/20/2010	10.35	88.19
				12/17/2010	10.10	88.44
				3/16/2011	10.70	87.84
				6/22/2011	9.69	88.85
				9/27/2011	9.63	88.91
MW-3	22.96	97.16	5 - 20	1/29/2009	11.44	85.72
				3/31/2009	11.62	85.54
				6/17/2009	10.97	86.19
				9/22/2009	10.57	86.59
				12/16/2009	11.32	85.84
				4/1/2010	11.66	85.50
				6/9/2010	11.10	86.06
				9/20/2010	11.17	85.99
				12/17/2010	10.84	86.32
				3/16/2011	11.16	86.00
				6/22/2011	10.54	86.62
				9/27/2011	10.50	86.66
MW-4	22.28	97.06	5 - 20	1/29/2009	11.02	86.04
				3/31/2009	11.18	85.88
				6/17/2009	10.59	86.47
				9/22/2009	10.16	86.90
				12/16/2009	10.87	86.19
				4/1/2010	11.04	86.02
				6/9/2010	10.65	86.41
				9/20/2010	10.72	86.34
				12/17/2010	10.46	86.60
				3/16/2011	10.84	86.22
				6/22/2011	10.15	86.91
				9/27/2011	10.10	86.96

Notes:

1. ft = Feet
2. TOC = Top of casing
3. bgs = below ground surface
4. * Elevation relative to an arbitrary point set at 100 feet

TABLE 3

GROUNDWATER ANALYTICAL RESULTS SUMMARY
OCTOBER 2008 - SEPTEMBER 2011
CONOCOPHILLIPS COMPANY
FAYE BURDETTE No. 1
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)
MW-1	MW-1	10/22/2008	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1	1/29/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1 Duplicate	1/29/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1	3/31/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1 Duplicate	3/31/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1	6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1 Duplicate	6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-1	9/22/2009	< 0.001	< 0.001	< 0.001	< 0.001	0.445	**1.44**
	MW-1 Duplicate	9/22/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	12/16/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	**0.732**
	MW-1 Duplicate	12/16/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	4/1/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	**1.71**
	MW-1 Duplicate	4/1/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	**1.61**
	MW-1 Duplicate	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	9/20/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	**0.895**
	MW-1 Duplicate	9/20/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	12/17/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	**0.773**
	MW-1 Duplicate	12/17/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	MW-1	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	--	**2.23**
	MW-1 Duplicate	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	--	--
	GW-74929-062211-PG-04	6/22/2011	--	--	--	--	--	**0.368**
	GW-074929-092711-CM-009	9/27/2011	--	--	--	--	--	**0.624**
MW-2	MW-2	1/29/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-2	3/31/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-2	6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-2	9/22/2009	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02	0.0264
	MW-2	12/16/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0654
	MW-2	4/1/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.16
	MW-2	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0323
	MW-2	9/20/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0455
	MW-2	12/17/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0332
	MW-2	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0265
	GW-74929-062211-PG-01	6/22/2011	--	--	--	--	--	0.0232
	GW-074929-092711-CM-006	9/27/2011	--	--	--	--	--	0.0142

TABLE 3

GROUNDWATER ANALYTICAL RESULTS SUMMARY
OCTOBER 2008 - SEPTEMBER 2011
CONOCOPHILLIPS COMPANY
FAYE BURDETTE No. 1
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)
MW-3	MW-3	1/29/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-3	3/31/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-3	6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-3	9/22/2009	< 0.001	< 0.001	< 0.001	< 0.001	0.0291	0.0201
	MW-3	12/16/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0607
	MW-3	4/1/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0232
	MW-3	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	< 0.005
	MW-3	9/20/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	< 0.005
	MW-3	12/17/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.178
	MW-3	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0424
	GW-74929-062211-PG-03	6/22/2011	--	--	--	--	--	0.0311
	GW-074929-092711-CM-008	9/27/2011	--	--	--	--	--	0.0244
MW-4	MW-4	1/29/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-4	3/31/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-4	6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005	--	--
	MW-4	9/22/2009	< 0.001	< 0.001	< 0.001	< 0.001	0.108	**0.476**
	MW-4	12/16/2009	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0149
	MW-4	4/1/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	< 0.005
	MW-4	6/9/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	< 0.005
	MW-4	9/20/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0152
	MW-4	12/17/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	0.0502
	MW-4	3/16/2011	< 0.001	< 0.001	< 0.001	< 0.001	--	< 0.005
	GW-74929-062211-PG-02	6/22/2011	--	--	--	--	--	< 0.015
	GW-074929-092711-CM-007	9/27/2011	--	--	--	--	--	0.182
NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**1**	**0.2**

Notes:

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

APPENDIX A

SEPTEMBER 2011 QUARTERLY GROUNDWATER SAMPLING FIELD FORMS

WELL SAMPLING FIELD INFORMATION FORM

ITE/PROJECT NAME: Fay-Bucklette No 1 JOB# 074929

SAMPLE ID: GW-074929-092711-CM-009 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)
9-27-11	9-27-11	1220	1.08	3.25

PURGING AND SAMPLING EQUIPMENT

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

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

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

FIELD MEASUREMENTS

DEPTH TO WATER 10.68 (feet) WELL ELEVATION 97.66 (feet)

WELL DEPTH 17.40 (feet) GROUNDWATER ELEVATION 86.98 (feet)

TEMPERATURE	PH	TDS	CONDUCTIVITY	ORP	VOLUME
18.76 (°C)	6.94 (std)	0.692 (g/L)	1073 (µS/cm)	57.0 (mV)	2.25 (gal)
18.75 (°C)	6.93 (std)	0.808 (g/L)	1089 (µS/cm)	42.5 (mV)	2.75 (gal)
18.67 (°C)	6.95 (std)	0.800 (g/L)	1082 (µS/cm)	31.0 (mV)	3.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: none COLOR: lt. brown SHEEN Y (N)

WEATHER CONDITIONS: TEMPERATURE 85° WINDY Y (N) PRECIPITATION Y (N) (IF Y TYPE)

SPECIFIC COMMENTS:

Volume = 6.72 x .16 = 1.075 x 3 = 3.23

Duplicate GW-074929-092711-CM-010 @ 1225

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

9.27.11 Jason Ross

DATE PRINT SIGNATURE

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Fay Burdette No. 1 JOB# 074929

SAMPLE ID: GW-074929-092711-CM-006 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)
9.27.11	9-27-11	930	1.57	4.75

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

FIELD MEASUREMENTS

DEPTH TO WATER: 9.63 (feet) WELL ELEVATION: 98.54 (feet)

WELL DEPTH: 19.43 (feet) GROUNDWATER ELEVATION: 88.91 (feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
15.68 (°C)	6.87 (std)	0.819 (g/L)	1036 (µS/cm)	153.7 (mV)	3.75 (gal)
15.98 (°C)	6.92 (std)	0.777 (g/L)	989 (µS/cm)	152.5 (mV)	4.25 (gal)
16.00 (°C)	6.99 (std)	0.778 (g/L)	992 (µS/cm)	151.4 (mV)	4.75 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: none COLOR: lt. brown SHEEN Y (N)

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

SPECIFIC COMMENTS:

Volume: 9.8 x 0.16 = 1.57 x 3 = 4.7

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

DATE	PRINT	SIGNATURE
9.27.11	Jason Voss	

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Fa. Bridge No. 1 JOB# 074929

SAMPLE ID: GW-074929-092711-CM-008 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)
9.27.11	9.27.11	950	1.98	6.0

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	C - VACUUM	0.45 micron for metals only

FIELD MEASUREMENTS

DEPTH TO WATER	10.50	(feet)	WELL ELEVATION	97.16	(feet)
WELL DEPTH	22.88	(feet)	GROUNDWATER ELEVATION	86.66	(feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
16.53 (°C)	7.18 (std)	0.790 (g/L)	1019 (µS/cm)	151.4 (mV)	5.0 (gal)
16.18 (°C)	7.19 (std)	0.791 (g/L)	1011 (µS/cm)	150.7 (mV)	5.5 (gal)
16.10 (°C)	7.18 (std)	0.792 (g/L)	1011 (µS/cm)	150.7 (mV)	6.0 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: none COLOR: H. brown SHEEN Y (N)

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

SPECIFIC COMMENTS:

Volume = 12.38 x 0.16 = 1.98 x 3 = 5.94

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

DATE	PRINT	SIGNATURE
9.27.11	Jason Hass	Jason Hass

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Fay Burdette No.1 JOB# 074929

SAMPLE ID: GW-074929-092711-CM-007 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)
9.27.11	9.27.11	0940	1.75	5.05

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	C - VACUUM	0.45 micron for metals only

FIELD MEASUREMENTS

DEPTH TO WATER 10.10 (feet) WELL ELEVATION 97.06 (feet)

WELL DEPTH 21.02 (feet) GROUNDWATER ELEVATION 86.96 (feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
17.54 (°C)	7.04 (std)	0.754 (g/L)	994 (µS/cm)	152.0 (mV)	4.5 (gal)
17.84 (°C)	7.04 (std)	0.749 (g/L)	995 (µS/cm)	151.8 (mV)	5.0 (gal)
17.70 (°C)	7.04 (std)	0.750 (g/L)	993 (µS/cm)	151.7 (mV)	5.5 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: cloudy ODOR: None COLOR: tan SHEEN Y (N)

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

SPECIFIC COMMENTS:

Volume = 10.92 x 0.16 = 1.75 L3 = 5.24

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

9.27.11 Jason Ross

DATE PRINT SIGNATURE

APPENDIX B

SEPTEMBER 2011 QUARTERLY GROUNDWATER LABORATORY ANALYTICAL REPORT

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

October 11, 2011

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

RE: Project: Faye Burdette No. 1
Pace Project No.: 60107172

Dear Christine Matthews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 29, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Colleen Koporc for
Dianna Meier
dianna.meier@pacelabs.com
Project Manager

Enclosures

cc: Kelly Blanchard, COP Conestoga-Rovers & Associa
Angela Bown, COP Conestoga-Rovers & Associa
Cassie Brown, COP Conestoga-Rovers & Associa

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

CERTIFICATIONS

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 05-008-0
Illinois Certification #: 001191
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-08-TX
Utah Certification #: 9135995665

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

SAMPLE SUMMARY

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60107172001	**GW-074929-092711-CM-006**	Water	09/27/11 09:30	09/29/11 09:00
60107172002	**GW-074929-092711-CM-007**	Water	09/27/11 09:40	09/29/11 09:00
60107172003	**GW-074929-092711-CM-008**	Water	09/27/11 09:50	09/29/11 09:00
60107172004	**GW-074929-092711-CM-009**	Water	09/27/11 12:20	09/29/11 09:00

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

SAMPLE ANALYTE COUNT

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60107172001	GW-074929-092711-CM-006	EPA 6010	JGP	1
60107172002	GW-074929-092711-CM-007	EPA 6010	JGP	1
60107172003	GW-074929-092711-CM-008	EPA 6010	JGP	1
60107172004	GW-074929-092711-CM-009	EPA 6010	JGP	1

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

PROJECT NARRATIVE

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 11, 2011

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 with any exceptions noted below.

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

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

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

Additional Comments:

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: Faye Burdette No. 1
Pace Project No.: 60107172

Sample: GW-074929-092711-CM-006 **Lab ID: 60107172001** Collected: 09/27/11 09:30 Received: 09/29/11 09:00 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								
Manganese, Dissolved	**14.2**	ug/L	5.0	0.90	1	10/03/11 13:37	10/04/11 17:09	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Sample: GW-074929-092711-CM-007 **Lab ID: 60107172002** Collected: 09/27/11 09:40 Received: 09/29/11 09:00 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								
Manganese, Dissolved	**182**	ug/L	5.0	0.90	1	10/03/11 13:37	10/04/11 17:19	7439-96-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Sample: GW-074929-092711-CM-008 **Lab ID: 60107172003** Collected: 09/27/11 09:50 Received: 09/29/11 09:00 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								
Manganese, Dissolved	**24.4**	ug/L	5.0	0.90	1	10/03/11 13:37	10/04/11 17:22	7439-96-5	

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

ANALYTICAL RESULTS

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Sample: GW-074929-092711-CM-009 **Lab ID: 60107172004** Collected: 09/27/11 12:20 Received: 09/29/11 09:00 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								
Manganese, Dissolved	**624**	ug/L	5.0	0.90	1	10/03/11 13:37	10/04/11 17:25	7439-96-5	

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

QUALITY CONTROL DATA

Project: Faye Burdette No. 1
Pace Project No.: 60107172

QC Batch: MPRP/15521 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60107172001, 60107172002, 60107172003, 60107172004

METHOD BLANK: 885373 Matrix: Water
Associated Lab Samples: 60107172001, 60107172002, 60107172003, 60107172004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Manganese, Dissolved	ug/L	ND	5.0	10/04/11 16:40	

LABORATORY CONTROL SAMPLE: 885374

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Manganese, Dissolved	ug/L	1000	954	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 885375 885376

Parameter	Units	60107161001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Manganese, Dissolved	ug/L	842	1000	1000	1730	1790	89	95	75-125	3	20	

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Faye Burdette No. 1
Pace Project No.: 60107172

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.

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.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Faye Burdette No. 1
Pace Project No.: 60107172

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60107172001	**GW-074929-092711-CM-006**	EPA 3010	MPRP/15521	EPA 6010	ICP/13476
60107172002	**GW-074929-092711-CM-007**	EPA 3010	MPRP/15521	EPA 6010	ICP/13476
60107172003	**GW-074929-092711-CM-008**	EPA 3010	MPRP/15521	EPA 6010	ICP/13476
60107172004	**GW-074929-092711-CM-009**	EPA 3010	MPRP/15521	EPA 6010	ICP/13476

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company:	CRA
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:	standard

Section B Required Project Information:

Report To:	Christine Mathews
Copy To:	Kelly Blanchard, Angela Bown
Purchase Order No.:	
Project Name:	Faye Burdette No. 1
Project Number:	074929

Section C Invoice Information:

Attention:	ENFOS
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Colleen Koporc
Pace Profile #:	5341, 4

REGULATORY AGENCY

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

Site Location STATE: NM

Section D Required Client Information

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

Valid Matrix Codes

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	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	6010 Dissolved Mn	8260 BTEX							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GW-074929-092711-CM-006	WT	G			9.27.11	0930		4			X	X		X				X	X	30694	1BP3F						001
2	GW-074929-092711-CM-007	WT	G			9.27.11	0940		4			X	X						X	X	↓	↓						002
3	GW-074929-092711-CM-008	WT	G			9.27.11	0950		4			X	X						X	X								003
4	GW-074929-092711-CM-009	WT	G			9.27.11			4			X	X						X	X								004
5	GW-074929-092711-CM-010	WT	G			9.27.11			3				X							X								005
6	TB-092711-001	WT				9.27.11			2				X							X	2069H (CTB)							006
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Include MDLs on report, - J-flag	Christine Mathews	9/28/11	0730	E Brockett	9/29	0900	0-4	Y	Y	Y
* Metals were filtered in the field										

SAMPLER NAME AND SIGNATURE				
PRINT Name of SAMPLER:	Christine Mathews			
SIGNATURE of SAMPLER:	Christine Mathews	DATE Signed (MM/DD/YY):	9/27/11	

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

Sample Condition Upon Receipt

Pace Analytical® www.pacelabs.com

Client Name: CLA Project # 60107172

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

Tracking #: 878603375931 Pace Shipping Label Used? ☑ Yes ☐ No

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

Optional
Proj. Due Date: 10/11
Proj. Name: Faye Burdette MW-1

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

Thermometer Used: T-191 / T-194 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 0.4

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: 9/29/11 SB

Comments:

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	9.
-Pace containers used:	☑Yes	☐No	☐N/A	
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	13. Sample CM-009 collected @ 1220
-Includes date/time/ID/analyses Matrix: WT				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☑Yes	☐No		Initial when completed ____ Lot # of added preservative ____
Trip Blank present:	☑Yes	☐No	☐N/A	15.
Pace Trip Blank lot # (if purchased): Covered				
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: CXL BTEX per Christine 10/6/11

Project Manager Review: DKM Date: 9/30/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-KS-C-003-Rev.05, 19February2010

APPENDIX B

OCTOBER 2011 QUARTERLY GROUNDWATER LABORATORY ANALYTICAL REPORT

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

October 25, 2011

Cassie Brown
COP Conestoga-Rovers & Associa

RE: Project: HOWELL K NO. 1
Pace Project No.: 60108016

Dear Cassie Brown:
Enclosed are the analytical results for sample(s) received by the laboratory on October 13, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Anna Custer

Anna Custer

anna.custer@pacelabs.com
Project Manager

Enclosures

cc: Kelly Blanchard, COP Conestoga-Rovers & Associa
Angela Bown, COP Conestoga-Rovers & Associa
Christine Matthews, CRA

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

CERTIFICATIONS

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 05-008-0
Illinois Certification #: 001191
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-08-TX
Utah Certification #: 9135995665

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

SAMPLE SUMMARY

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60108016001	**GW-074928-101211-CM-005**	Water	10/12/11 08:10	10/13/11 09:10
60108016002	**GW-074928-101211-CM-006**	Water	10/12/11 08:15	10/13/11 09:10
60108016003	**GW-074928-101211-CM-007**	Water	10/12/11 08:20	10/13/11 09:10
60108016004	**GW-074928-101211-CM-008**	Water	10/12/11 08:25	10/13/11 09:10

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

SAMPLE ANALYTE COUNT

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60108016001	GW-074928-101211-CM-005	EPA 6010	JGP	2
		EPA 300.0	JPF	2
60108016002	GW-074928-101211-CM-006	EPA 6010	JGP	2
		EPA 300.0	JPF	2
60108016003	GW-074928-101211-CM-007	EPA 6010	JGP	2
		EPA 300.0	JPF	2
60108016004	GW-074928-101211-CM-008	EPA 6010	JGP	2
		EPA 300.0	JPF	2

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

PROJECT NARRATIVE

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 25, 2011

General Information:
3 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 with any exceptions noted below.

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

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

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

Additional Comments:

Analyte Comments:

QC Batch: MPRP/15731

1e: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. Sample result is greater than four tiems the spike value.

- MSD (Lab ID: 894055)
  - Manganese, Dissolved

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

PROJECT NARRATIVE

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved (LF)
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 25, 2011

General Information:
1 sample was 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 with any exceptions noted below.

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

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

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

Additional Comments:

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

PROJECT NARRATIVE

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 25, 2011

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 with any exceptions noted below.

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

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

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

Additional Comments:

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: HOWELL K NO. 1
Pace Project No.: 60108016

Sample: GW-074928-101211-CM-005 **Lab ID: 60108016001** Collected: 10/12/11 08:10 Received: 10/13/11 09:10 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	**2750**	ug/L	50.0	1	10/19/11 13:00	10/21/11 08:19	7439-89-6	
Manganese, Dissolved	**15600**	ug/L	5.0	1	10/19/11 13:00	10/21/11 08:19	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**1.9**	mg/L	0.20	1		10/22/11 01:40	16984-48-8	
Sulfate	**4120**	mg/L	500	500		10/24/11 17:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Sample: GW-074928-101211-CM-006 **Lab ID: 60108016002** Collected: 10/12/11 08:15 Received: 10/13/11 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved (LF)	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	ug/L	50.0	1	10/20/11 08:45	10/21/11 09:09	7439-89-6	
Manganese, Dissolved	**9600**	ug/L	5.0	1	10/20/11 08:45	10/21/11 09:09	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**0.28**	mg/L	0.20	1		10/22/11 02:40	16984-48-8	
Sulfate	**2940**	mg/L	500	500		10/24/11 17:55	14808-79-8	

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

ANALYTICAL RESULTS

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Sample: GW-074928-101211-CM-007 **Lab ID: 60108016003** Collected: 10/12/11 08:20 Received: 10/13/11 09:10 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	**873**	ug/L	50.0	1	10/19/11 13:00	10/21/11 08:33	7439-89-6	
Manganese, Dissolved	**29.7**	ug/L	5.0	1	10/19/11 13:00	10/21/11 08:33	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**0.93**	mg/L	0.20	1		10/22/11 03:11	16984-48-8	
Sulfate	**1680**	mg/L	200	200		10/24/11 18:11	14808-79-8	

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

ANALYTICAL RESULTS

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Sample: GW-074928-101211-CM-008 **Lab ID: 60108016004** Collected: 10/12/11 08:25 Received: 10/13/11 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Iron, Dissolved	ND	ug/L	50.0	1	10/19/11 13:00	10/21/11 08:37	7439-89-6	
Manganese, Dissolved	**254**	ug/L	5.0	1	10/19/11 13:00	10/21/11 08:37	7439-96-5	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Fluoride	**0.81**	mg/L	0.20	1		10/22/11 03:41	16984-48-8	
Sulfate	**1980**	mg/L	200	200		10/24/11 18:26	14808-79-8	

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

QUALITY CONTROL DATA

Project: HOWELL K NO. 1
Pace Project No.: 60108016

QC Batch: MPRP/15731 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60108016001, 60108016003, 60108016004

METHOD BLANK: 894052 Matrix: Water
Associated Lab Samples: 60108016001, 60108016003, 60108016004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	ND	50.0	10/21/11 08:13	
Manganese, Dissolved	ug/L	ND	5.0	10/21/11 08:13	

LABORATORY CONTROL SAMPLE: 894053

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	10000	9820	98	80-120	
Manganese, Dissolved	ug/L	1000	973	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 894054 894055

Parameter	Units	60108016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	2750	10000	10000	12400	12300	96	96	75-125	0	20	
Manganese, Dissolved	ug/L	15600	1000	1000	16500	16300	90	65	75-125	2	20	1e

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

QUALITY CONTROL DATA

Project: HOWELL K NO. 1
Pace Project No.: 60108016

QC Batch: MPRP/15739
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60108016002

METHOD BLANK: 894519
Matrix: Water
Associated Lab Samples: 60108016002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	ND	50.0	10/21/11 09:03	
Manganese, Dissolved	ug/L	ND	5.0	10/21/11 09:03	

LABORATORY CONTROL SAMPLE: 894520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	10000	9400	94	80-120	
Manganese, Dissolved	ug/L	1000	990	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 894521 894522

Parameter	Units	60108016002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	ND	10000	10000	9310	9110	93	91	75-125	2	20	
Manganese, Dissolved	ug/L	9600	1000	1000	10800	10800	120	118	75-125	0	20	

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

QUALITY CONTROL DATA

Project: HOWELL K NO. 1
Pace Project No.: 60108016

QC Batch: WETA/18013 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60108016001, 60108016002, 60108016003, 60108016004

METHOD BLANK: 895476 Matrix: Water
Associated Lab Samples: 60108016001, 60108016002, 60108016003, 60108016004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.20	10/21/11 23:53	

METHOD BLANK: 897800 Matrix: Water
Associated Lab Samples: 60108016001, 60108016002, 60108016003, 60108016004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/24/11 13:21	

LABORATORY CONTROL SAMPLE: 895477

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	101	90-110	

LABORATORY CONTROL SAMPLE: 897801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 895478 895479

Parameter	Units	60107911001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	250	250	270	250	106	98	75-110	7	10	
Sulfate	mg/L	ND	500	500	575	565	98	96	61-119	2	10	

MATRIX SPIKE SAMPLE: 895480

Parameter	Units	60108293002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.26	2.5	2.9	108	75-110	
Sulfate	mg/L	125	50	180	111	61-119	

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: HOWELL K NO. 1
Pace Project No.: 60108016

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.

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.

ANALYTE QUALIFIERS

1e Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. Sample result is greater than four tiems the spike value.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HOWELL K NO. 1
Pace Project No.: 60108016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60108016001	**GW-074928-101211-CM-005**	EPA 3010	MPRP/15731	EPA 6010	ICP/13632
60108016003	**GW-074928-101211-CM-007**	EPA 3010	MPRP/15731	EPA 6010	ICP/13632
60108016004	**GW-074928-101211-CM-008**	EPA 3010	MPRP/15731	EPA 6010	ICP/13632
60108016002	**GW-074928-101211-CM-006**	EPA 3010	MPRP/15739	EPA 6010	ICP/13638
60108016001	**GW-074928-101211-CM-005**	EPA 300.0	WETA/18013		
60108016002	**GW-074928-101211-CM-006**	EPA 300.0	WETA/18013		
60108016003	**GW-074928-101211-CM-007**	EPA 300.0	WETA/18013		
60108016004	**GW-074928-101211-CM-008**	EPA 300.0	WETA/18013		

Pace Analytical
www.pacelabs.com

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:	CRA	Report To:	Christine Mathews	Attention:	ENFOS
Address:	6121 Indian School Rd NE, Ste 200	Copy To:	Kelly Blanchard, Angela Bown	Company Name:	
	Albequerque, NM 87110			Address:	
Email To:	cmathews@craworld.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(505)884-0672 Fax: (505)884-4932	Project Name:	Howell K No. 1	Pace Project Manager:	Colleen Koporc
Requested Due Date/TAT:	Standard	Project Number:	074928	Pace Profile #:	5341, 5

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NM

Requested Analysis Filtered (Y/N)

Section D Required Client Information

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

Valid Matrix Codes: 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 Grab START DATE	COLLECTED Grab 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	6010 Dissolved Fe & Mn	300.0 SO4, F	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GW-074928-10121-CM-005	WT	G	10.12.11	810				2	X		X							X	X		60108016 CM1
2	GW-074928-10121-CM-006	WT	G	10.12.11	815				2	X		X							X	X		CM2
3	GW-074928-10121-CM-007	WT	G	10.12.11	820				2	X		X							X	X		CM3
4	GW-074928-10121-CM-008	WT	G	10.12.11	825				2	X		X							X	X		CM4
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Include MDLs on report - J-flag		10.12.11	1800	Brackett	10/13	0910	1.9 4 4 4
– unable to filter container for metals for GW-074928-10121-CM-006 Please filter and preserve @ Lab.							

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Christine Mathews				
SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY): 10-12-11				

*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

Pace Pkg. Page 17 of 18

Sample Condition Upon Receipt

Pace Analytical® www.pacelabs.com

Client Name: COP CRA Project # 60108016

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

Tracking #: 876800246716 Pace Shipping Label Used? ☑ Yes ☐ No

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

Optional
Proj. Due Date: 10/25
Proj. Name:

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

Thermometer Used: T-191 / T-194 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 1.9
Temperature should be above freezing to 6°C

Date and Initials of person examining contents: 10/13/11 [illegible]

		Comments:
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	9.
-Pace containers used:	☑Yes ☐No ☐N/A	
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	13.
-Includes date/time/ID/analyses Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed _____ Lot # of added preservative _____
Trip Blank present:	☐Yes ☐No ☑N/A	15.
Pace Trip Blank lot # (if purchased): _____		
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: mw for AEM Date: 10/14/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-KS-C-003-Rev.05, 19February2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

This report details the results of the quarterly groundwater monitoring event conducted by Conestoga-Rovers & Associates, Inc. (CRA) on October 11 and 12, 2011, at the ConocoPhillips Company (ConocoPhillips) Howell K No. 1 site, located on BLM land, approximately ½ mile southeast of Navajo Lake State Park and 10 miles east of Aztec in Unit Letter K, Section 21, Township 30N, Range 8W of San Juan County, New Mexico (Site). Geographical coordinates for the Site are 36° 47′ 40.34″ North, 107° 41′ 4.70″ West. The Site consists of a natural gas well and associated equipment and installations. The location and general features of the Site are shown on **Figures 1** and **2**, respectively.

1.1 BACKGROUND

The environmental investigation at the Site began in August 2005 with the excavation of approximately 4,000 cubic yards of hydrocarbon impacted soil from an area southwest of the Howell K No. 1 wellhead. The hydrocarbon impacted soils were discovered in the area during below grade tank removal activities. The final dimensions of the excavation were 70 feet by 50 feet by 36 feet deep. Groundwater was encountered at a depth of approximately 34 feet below ground surface (bgs). Once this extent had been reached, the excavation was stopped due to the inability of the equipment to operate safely; however, the limits of the hydrocarbon impact had not been delineated. The excavation was backfilled with clean soil. In March 2006, one groundwater monitor well (MW-1) was installed by Envirotech in the general area of the backfilled excavation. The location of this well is shown on **Figure 2**.

Due to the transition of Site consulting responsibilities from Lode Star LLC of Farmington, NM, to Tetra Tech, Inc. (Tetra Tech) following the acquisition of Burlington Resources by ConocoPhillips in March 2006, groundwater monitoring was not performed at the Site in March or June 2007. Tetra Tech began sampling groundwater at the Howell K No. 1 site in November 2007 using MW-1 and continued to do so until August of 2008, when 3 additional monitor wells were installed at the Site by WDC Exploration and Wells of Peralta, NM under Tetra Tech supervision. The additional wells were installed in response to a request by the New Mexico Oil Conservation Division (NMOCD) for Site characterization and enhanced laboratory analyses. This request was communicated to Tetra Tech during an April 2008 meeting conducted in Santa Fe, New Mexico with Glenn Von Gonten, NMOCD Environmental Bureau Hydrologist. Groundwater Monitor Well MW-2 was installed upgradient of MW-1 and Monitor Wells MW-3

and MW-4 were installed downgradient of MW-1 (**Figure 2**). A generalized geologic cross section was compiled using subsurface data collected from each boring location during installation of Monitor Wells MW-2, MW-3 and MW-4. Monitor Wells MW-2 and MW-4 are represented on the cross section which is presented in **Figure 3**.

October 2008 marked the first quarterly groundwater monitoring event to include all 4 monitor wells for analysis at the Site. On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to CRA of Albuquerque, NM. A summary of the Howell K No. 1 site history can be seen in **Table 1**.

2.0 GROUNDWATER MONITORING SUMMARY, METHODOLOGY, AND ANALYTICAL RESULTS

2.1 GROUNDWATER MONITORING SUMMARY

Quarterly groundwater sampling was conducted by CRA on October 11 and 12, 2011. This represents the third quarter of monitoring since BTEX constituent monitoring was discontinued. The groundwater sampling event included samples from Monitor Wells MW-1, MW-2, MW-3, and MW-4. Groundwater levels were measured using an oil/water interface probe prior to sampling and can be found in **Table 2**; however, groundwater elevations for MW-1 cannot be calculated due to the gradual, continuous, upward shifting of the PVC well casing. The shifting of the PVC casing of MW-1 is likely due to the proximity of MW-1 to the 2005, below-grade tank removal excavation and the settling of the fill material in this area. Groundwater elevations for the other monitor wells are calculated from top of casing elevations, which were derived from survey data collected by Tetra Tech on August 14, 2008. Based on October 2011 groundwater elevation data, groundwater flow direction continues to be to the west. A groundwater potentiometric surface map is presented in **Figure 4**.

2.2 GROUNDWATER MONITORING METHODOLOGY

Prior to sampling, Monitor Wells MW-2, MW-3, and MW-4 were purged of at least three casing volumes of water. Monitor Well MW-1 was bailed down on October 11, 2011, and sampled the following morning. Groundwater quality parameters, including temperature, pH, conductivity, total dissolved solids (TDS), and oxidation-reduction potential (ORP) were collected using a YSI 556 multi-parameter sonde. A 0.5-inch clear, polyethylene, dedicated bailer was used to purge and to collect the groundwater samples from MW-1. A 1.5-inch clear, polyethylene, dedicated bailer was used to purge and to collect the groundwater samples from MW-2, MW-3 and MW-4. The purge water generated during the event was disposed of in the on-Site produced water tank (**Figure 2**). The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation to Pace Analytical Services, Inc. of Lenexa, KS. All groundwater samples collected were analyzed for dissolved iron and dissolved manganese by EPA Method 6010, and fluoride and sulfate by EPA method 300.0.

2.3 GROUNDWATER MONITORING 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.

Samples collected from MW-1, MW-2, MW-3, and MW-4 on October 12, 2011 were not analyzed for BTEX constituents, which have either been below laboratory detection limits or NMWQCC standards since groundwater sampling began. **Table 3** summarizes the analytical results from groundwater sampling completed during October 2011. Groundwater sampling field forms detailing collected field parameters can be found in **Appendix A** and the corresponding laboratory analytical report, including quality control summaries, can be found in **Appendix B**.

- **Fluoride**
  - The NMWQCC domestic water supply groundwater quality standard for fluoride is 1.6 mg/L. Groundwater sample collected in October 2011 from Monitor Well MW-4 exceeded this standard with a concentration of 1.9 mg/L.

- **Sulfate**
  - The NMWQCC groundwater quality standard for sulfate is 600 mg/L. Groundwater samples collected in October 2011 from Monitor Wells MW-1, MW-2, MW-3 and MW-4 were found to contain sulfate at concentrations of 2,940 mg/L, 1,680 mg/L, 1,980 mg/L, and 4,120 mg/L, respectively.

- **Dissolved Manganese**
  - The NMWQCC groundwater quality standard for dissolved manganese is 0.2 mg/L. Groundwater samples collected in October 2011 from Monitor Wells MW-1, MW-3 and MW-4 were found to contain dissolved manganese at concentrations of 9.6 mg/L, 0.254 mg/L, and 15.6 mg/L, respectively.

- **Dissolved Iron**
  - The NMWQCC groundwater quality standard for dissolved iron is 1.0 mg/L. The groundwater sample collected in October 2011 from Monitor Well MW-4 was found to contain dissolved iron at a concentration of 2.75 mg/L.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The October 2011 monitoring event represents the third quarter of groundwater monitoring with BTEX analysis discontinued; however, CRA recommends continued monitoring of fluoride, sulfate, dissolved manganese, and dissolved iron on an annual basis until concentrations of these groundwater quality parameters are below NMWQCC standards, appear stable, or reach regional background levels, at which time quarterly monitoring will resume. Once eight consecutive quarters of compliance are achieved, remediation Site closure will be requested. The next sampling event is scheduled for September 2012.

FIGURES

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

N

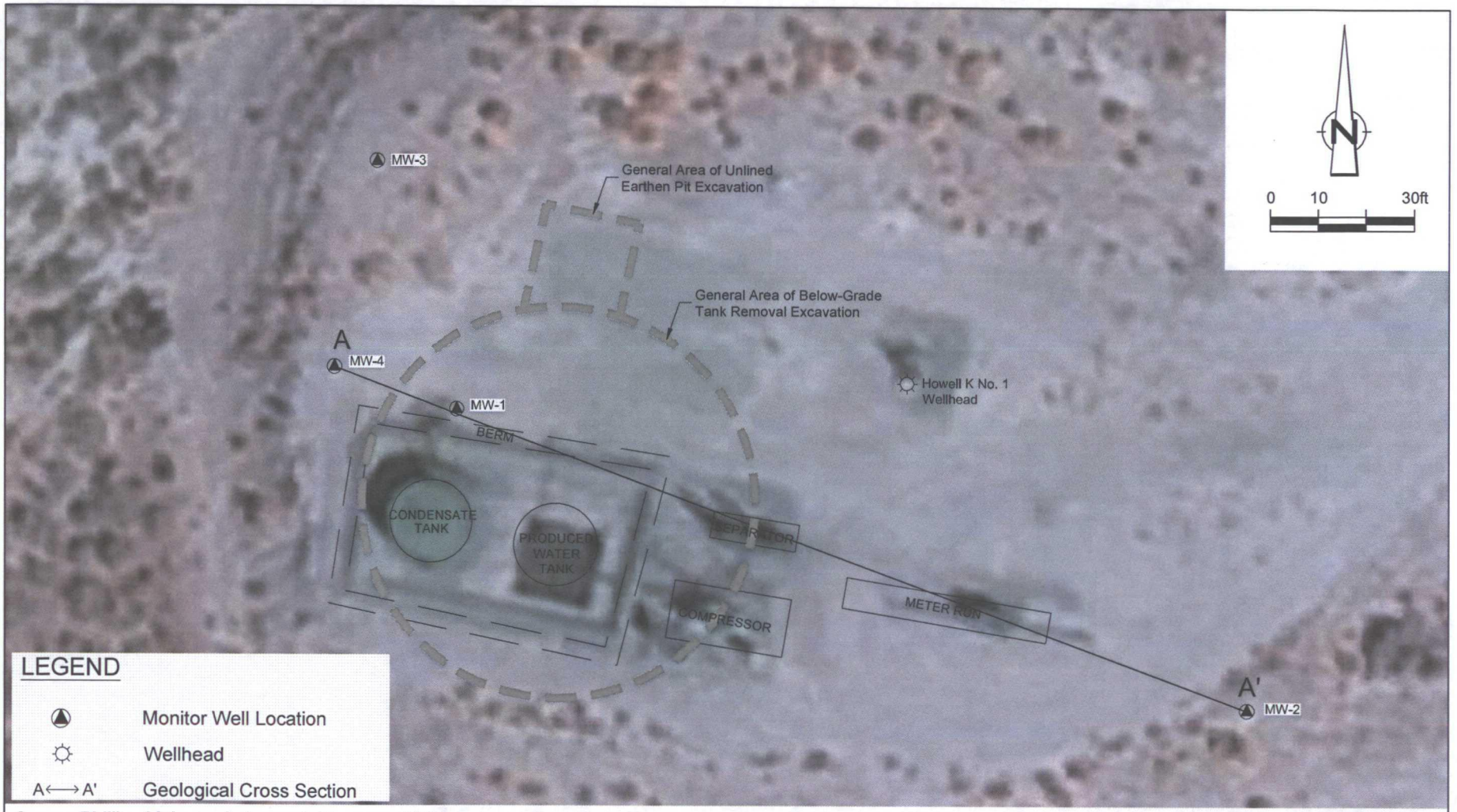
0 1000 2000ft

Figure 1

SITE VICINITY MAP
HOWELL K NO. 1, NATURAL GAS WELL SITE
UNIT K. SECTION 21, T30N-R8W, SAN JUAN COUNTY, N.M.
ConocoPhillips Company

CRA

074928-95(003)GN-DL001 DEC 6/2011



ConocoPhillips high resolution aerial imagery 2008.

Figure 2

SITE PLAN
HOWELL K NO. 1 NATURAL GAS WELL SITE
UNIT LETTER K, SECTION 21, T30N-R8W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

CRA

074928-95(003)GN-DL001 DEC 6/2011

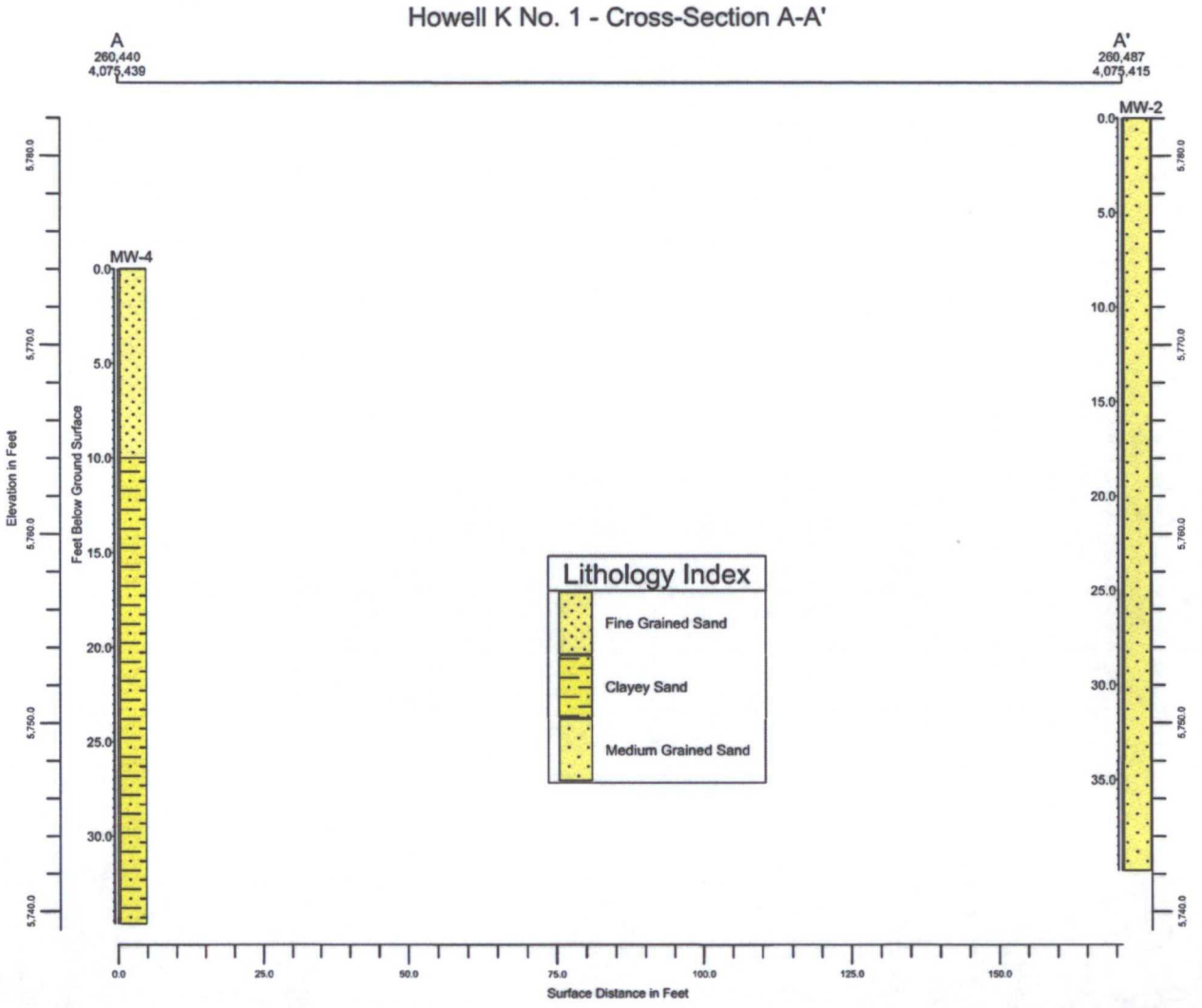


Figure 3

GEOLOGICAL CROSS SECTION
HOWELL K NO. 1 NATURAL GAS WELL SITE
UNIT LETTER K, SECTION 21, T30N-R8W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074928-95(003)GN-DL002 DEC 6/2011

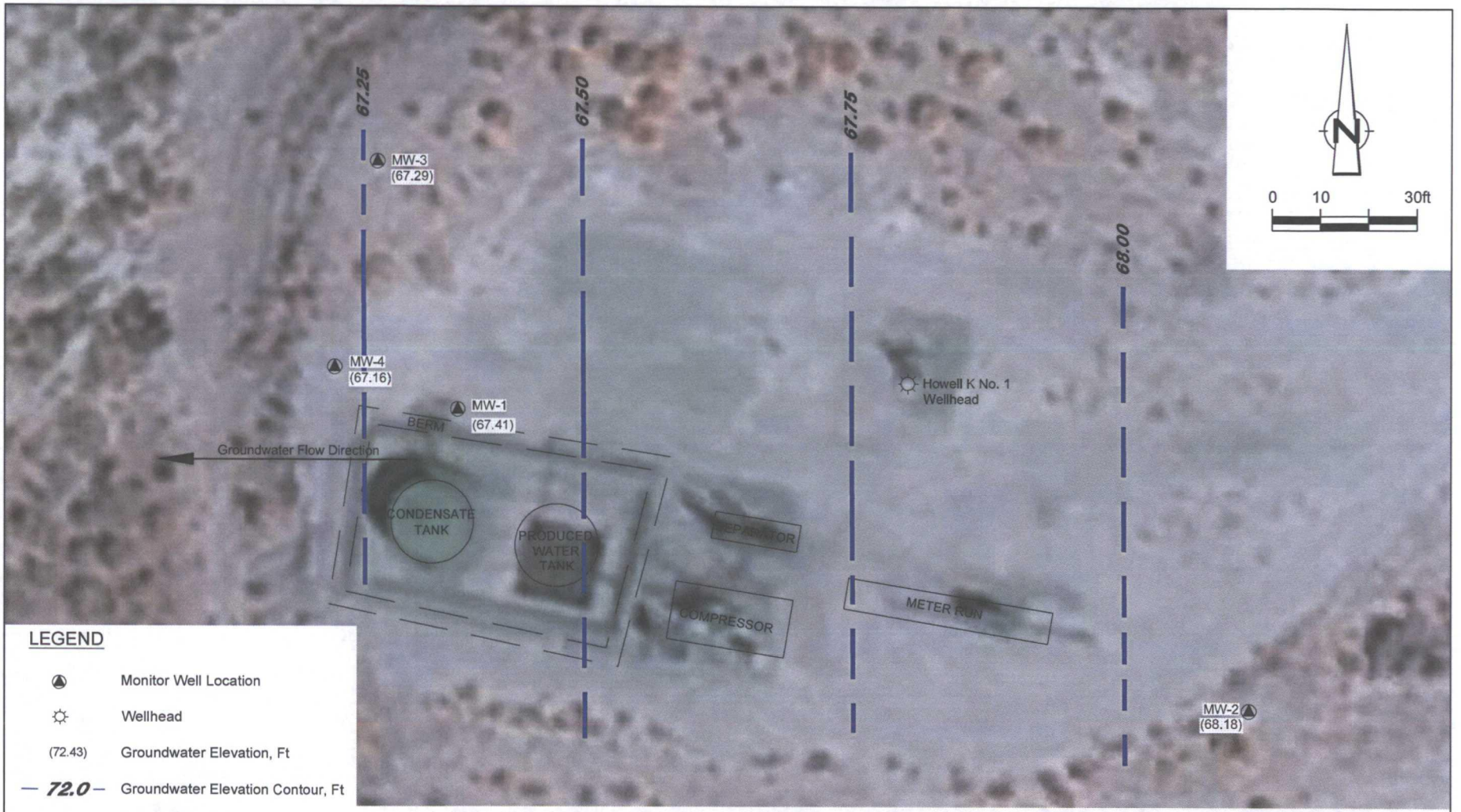


Figure 4

OCTOBER 2011 GROUNDWATER POTENTIOMETRIC SURFACE MAP
HOWELL K NO. 1 NATURAL GAS WELL SITE
UNIT LETTER K, SECTION 21, T30N-R8W, SAN JUAN COUNTY, NEW MEXICO
ConocoPhillips Company

074928-95(003)GN-DL003 DEC 6/2011

TABLES

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
SAN JUAN COUNTY, NEW MEXICO
HOWELL K NO. 1

Date/Time Period	*Event/Action*	*Description/Comments*
July 26, through August 18, 2005	Initial Site assessment	Environmental investigation began with the excavation of approximately 4000 cubic yards of impacted soil from an area southwest of the Howell K No.1 well head. Impacted soils were discovered during the removal activities of a below grade tank. Dimensions of the excavation were approximately 70 feet long by 50 feet wide by 36 feet deep. Groundwater was encountered at approximately 34 feet and soils were still impacted at 36 feet deep, the point at which excavation machinery was stopped at the practical limit for safe operation. The total vertical extent of hydrocarbon impacts were not completely delineated. Soil was treated with 600 total gallons of potassium permanganate solution. The excavation area was backfilled with clean soil.
March 10, 2006	Groundwater monitor well installation	One ground water monitor well, MW-1, was installed in the center of the backfilled excavation by Envirotech.
March 31, 2006	Site transfer	ConocoPhillips Company completed acquisition of Burlington Resources.
March and June 2007	Groundwater monitoring not performed	After the acquisition of Burlington Resources by ConocoPhillips, consulting responsibilities were transferred from Lode Star LLC of Farmington New Mexico to Tetra Tech of Albuquerque. Due to the transition, first and second quarter sampling of 2007 was not performed.
November 9, 2007 through March 19, 2008	Groundwater monitoring	Tetra Tech began sampling the Howell K No. 1 site quarterly in November 2007. Groundwater was sampled from MW-1 and was analyzed for BTEX constituents. No constituents were detected at levels that exceeded the NMWQCC standards.
April 1, 2008	Additional monitoring requested by OCD	Oil Conservation Division of NM Energy, Minerals, and Resources Dept. indicates additional investigation and sampling is necessary for closure consideration during a meeting with Glenn Von Gonten.
July 23, 2008	Groundwater monitoring postponed	Groundwater monitoring of MW-1 was postponed after it was found that there was an obstruction caused by settling and shifting of the MW-1 casing. It was determined that the obstruction could be avoided by using a smaller bailer to collect samples. Sampling was postponed and was set to follow upcoming monitor well installation so that proper sampling materials could be used.
August 13 and 14, 2008	Groundwater monitor well installation and groundwater monitoring	Three additional groundwater monitor wells (MW-2, MW-3 and MW-4) were installed by WDC and overseen by Tetra Tech. MW-2 was installed upgradient of MW-1. Both MW-3 and MW-4 were installed downgradient of MW-1. All wells were developed by purging approximately 80 gallons of water using a surge block and a purge pump. A sample was collected from MW-1 on August 14th. A 1/2-inch disposable bailer was used to avoid an obstruction in MW-1. The sample was analyzed for BTEX constituents. All constituents were below NMWQCC standards.
October 24, 2008	Groundwater monitoring	Third quarter 2008 groundwater monitoring was completed and was the first quarter of sampling to include all four monitor wells on site. A baseline suite was completed including major ions, total metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) including BTEX, diesel range organics, and gasoline range organics. All BTEX constituents were below NMWQCC standards. All four wells were above the standard for sulfate.

TABLE 1

SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
SAN JUAN COUNTY, NEW MEXICO
HOWELL K NO. 1

Date/Time Period	*Event/Action*	*Description/Comments*
January 30, 2009	4th quarter 2008 groundwater monitoring	Tetra Tech conducted fourth quarter 2008 groundwater monitoring at the site for BTEX constituents in all four monitor wells. All wells were below NMWQCC standards for BTEX .
September 25,2009	2009 annual groundwater monitoring	Tetra Tech conducted 2009 annual groundwater monitoring of MW-2, MW-3 and MW-4 for BTEX, dissoved iron, dissolved manganese, sulfate, and fluoride. All three wells were below NMWQCC standards for BTEX. All three wells were above standard for sulfate. Dissolved manganese was above standard in MW-3 and MW-4 and flouride was above standard in MW-4. Dissolved metals analyses conducted for the first time since standards are based on dissolved metals testing. OCD concurred, allowing total metals testing to be discontinued.
October 18, 2009	Groundwater monitoring	Tetra Tech conducted 2009 annual groundwater monitoring of MW-1 for BTEX, dissoved iron, dissolved manganese, sulfate, and fluoride. MW-1 was below NMWQCC standards for BTEX. Sulfate, dissolved manganese and dissolved iron were above standard in MW-1.
December 15, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, sulfate and flouride. All four monitor wells are below NMWQCC standards for BTEX . All four monitor wells were above the standard for sulfate. MW-1, MW-3 and MW-4 were above standard for dissolved manganese and MW-1 and MW-3 were also above the standard for dissolved iron.
March 30, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, and sulfate. All four monitor wells were below NMWQCC standards for BTEX. All four monitor wells were above the standard for sulfate. MW-1, MW-3 and MW-4 were also above the standard for dissolved manganese.
June 8, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, and sulfate. All four monitor wells were below NMWQCC standards for BTEX. All four monitor wells were above the standard for sulfate. MW-1, MW-3 and MW-4 were above the standard for dissolved manganese. MW-1 was also above the standard for dissolved iron.
September 23,2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, fluoride and sulfate. All four monitor wells were below NMWQCC standards for BTEX. All four monitor wells were above the standard for sulfate. MW-1, MW-3 and MW-4 were above the standard for dissolved manganese . MW-1 was also above standard for dissolved iron.
December 15,2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, fluoride and sulfate. MW-3 was observed to be dry during this monitoring event, which was likely due to an interface probe malfunction. MW-1, MW-2 and MW-4 were sampled. All three sampled monitor wells are below NMWQCC standards for BTEX . MW-1 and MW-4 were above the the standards for sulfate, dissolved manganese, and dissolved iron. Monitor well MW-4 was also found to be above the the standard for fluoride.
March 15, 2011	Groundwater monitoring	First quarter of groundwater monitoring with BTEX analysis discontinued; MW-1, MW-2, MW-3, and MW-4 were sampled and analyzed for dissolved iron, dissolved manganese, fluoride and sulfate.
June 15, 2011	Transfer of site consulting responsibilities	On June 15, 2011, site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to Conestoga-Rovers & Associates (CRA) of Albuquerque, NM.
June 23, 2011	Groundwater monitoring	Second quarter of groundwater monitoring with BTEX analysis discontinued; MW-1, MW-2, MW-3, and MW-4 were sampled and analyzed for dissolved iron, dissolved manganese, fluoride and sulfate.
October 11 and 12, 2011	Groundwater monitoring	Third quarter of groundwater monitoring with BTEX analysis discontinued; MW-1, MW-2, MW-3, and MW-4 were sampled and analyzed for dissolved iron, dissolved manganese, fluoride and sulfate.

TABLE 2
MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
MARCH 2006 - SEPTEMBER 2011
CONOCOPHILLIPS COMPANY
HOWELL K No. 1
SAN JUAN COUNTY, NM

Well ID	Total Depth (ft bgs)	Elevation* (ft) (TOC)	Screen Interval (ft below TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level
MW-1	37.47	97.84	21 - 36	3/22/2006	28.54	69.30
				6/21/2006	29.15	68.69
				10/19/2006	27.83	70.01
				12/12/2006	28.22	69.62
				3/1/2007	NM	NM
				6/1/2007	NM	NM
				11/9/2007	29.03	68.81
				1/15/2008	28.34	69.50
				3/19/2008	NM	NM
				7/23/2008	28.46	69.38
				10/24/2008	29.91	67.93
				1/30/2009	28.37	69.47
				9/25/2009	29.95	67.89
				10/18/2009	29.97	67.87
				12/15/2009	29.51	--(1)
				3/30/2010	28.18	--(1)
				6/8/2010	28.38	--(1)
				9/23/2010	29.51	--(1)
				12/15/2010	28.82	--(1)
				3/15/2011	28.51	--(1)
				6/24/2011	28.92	--(1)
				10/11/2011	30.43	--(1)
MW-2	39.81	95.28	21 - 36	10/24/2008	25.74	69.54
				1/30/2009	24.74	70.54
				9/25/2009	26.48	68.80
				12/15/2009	25.97	69.31
				3/30/2010	24.67	70.61
				6/8/2010	24.84	70.44
				9/23/2010	26.38	68.90
				12/15/2010	25.68	69.60
				3/15/2011	25.05	70.23
				6/24/2011	26.70	68.58
				10/11/2011	27.10	68.18

TABLE 2
MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
MARCH 2006 - SEPTEMBER 2011
CONOCOPHILLIPS COMPANY
HOWELL K No. 1
SAN JUAN COUNTY, NM

Well ID	Total Depth (ft bgs)	Elevation* (ft) (TOC)	Screen Interval (ft below TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level
MW-3	37.47	95.44	19 - 34	10/24/2008	26.95	68.49
				1/30/2009	25.92	69.52
				9/25/2009	27.57	67.87
				12/15/2009	27.05	68.39
				3/30/2010	25.79	69.65
				6/8/2010	26.02	69.42
				9/23/2010	27.35	68.09
				12/15/2010	DRY	--
				3/15/2011	26.19	69.25
				6/24/2011	26.70	68.74
				10/11/2011	28.15	67.29
MW-4	34.66	95.36	17 - 32	10/24/2008	NM	NM
				1/30/2009	26.00	69.36
				9/25/2009	27.64	67.72
				12/15/2009	27.14	68.22
				3/30/2010	25.87	69.49
				6/8/2010	26.09	69.27
				9/23/2010	27.31	68.05
				12/15/2010	26.75	68.61
				3/15/2011	26.26	69.10
				6/24/2011	26.76	68.60
				10/11/2011	28.20	67.16

Notes:
*Casing elevations are based on an arbitrary 100 ft relative surface elevation set at the gas well head
ft = Feet
bgs = below ground surface
TOC = Top of casing
NM = Not measured
(1) Groundwater elevations can not be calculated accurately due to continual upward shifting of the PVC casing (see text of section 2.1, Monitoring Summary, of this report for more

TABLE 3

GROUNDWATER LABORATORY ANALYTICAL RESULTS SUMMARY
CONOCOPHILLIPS COMPANY
HOWELL K No. 1
SAN JUAN COUNTY, NM

Well ID	Sample ID	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (total) (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Iron (dissolved) (mg/L)	Manganese (dissolved) (mg/L)
MW-1	MW-1	3/22/2006	ND	ND	0.001	0.002	--	--	--	--
	MW-1	6/21/2006	0.0014	0.0014	ND	0.0106	--	--	--	--
	MW-1	10/19/2006	ND	ND	ND	0.0011	--	--	--	--
	MW-1	12/12/2006	ND	0.0005	0.0004	0.0021	--	--	--	--
	MW-1	11/9/2007	< 0.0005	< 0.0007	< 0.0008	< 0.0009 }	--	--	--	--
	MW-1	1/15/2008	< 0.0005	< 0.0007	< 0.0008	< 0.0008	--	--	--	--
	MW-1	3/19/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-1	8/14/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-1	10/24/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 2.0	2390	--	--
	MW-1	1/30/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-1	10/18/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.88	3840	2.24	17.40
	MW-1	12/15/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 50	3290	1.70	16.50
	MW-1	3/30/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	2950	0.87	14.90
	MW-1	6/8/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	2570	11.20	14.70
	MW-1	9/23/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.5	2740	4.43	13.4
	MW-1	12/15/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.5	2230	9.72	11.1
	MW-1	3/15/2011	--	--	--	--	0.654	2360	20	11.4
	GW-74928-062311-PG-04	6/23/2011	--	--	--	--	< 0.50	2970	< 0.1	10.7
	GW-074928-101211-CM-006	10/12/2011	--	--	--	--	0.28	2940	< 0.05	9.6
MW-2	MW-2	10/24/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 2	1480	--	--
	MW-2	1/30/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-2	9/25/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	1.09	1700	< 0.02	< 0.005
	MW-2	12/15/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 100	1570	< 0.02	< 0.005
	MW-2	3/30/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	1410	< 0.02	0.14
	MW-2	6/8/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	1460	0.0544	0.00930
	MW-2	9/23/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.5	1760	< 0.02	< 0.005
	MW-2	12/15/2010	< 0.001	< 0.001	< 0.001	< 0.001	1.01	1890	< 0.02	< 0.005
	MW-2	3/15/2011	--	--	--	--	1.21	1680	< 0.02	0.0096
	GW-74928-062311-PG-01	6/23/2011	--	--	--	--	1.3	1990	< 0.1	< 0.015
	GW-074928-101211-CM-007	10/12/2011	--	--	--	--	0.93	1680	0.873	0.0297
MW-3	MW-3	10/24/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 2	1480	--	--
	MW-3	1/30/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-3	9/25/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	1.00	1840	< 0.02	0.38
	MW-3	12/15/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 50	2500	1.35	0.32
	MW-3	3/30/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	1890	< 0.02	0.43
	MW-3	6/8/2010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	1630	0.0573	0.383
	MW-3	9/23/2010	< 0.001	< 0.001	< 0.001	< 0.001	0.751	1960	< 0.02	0.35
	MW-3	3/15/2011	--	--	--	--	1.11	1890	< 0.02	0.572
	GW-74928-062311-PG-02	6/23/2011	--	--	--	--	1.2	2190	< 0.1	0.846
	GW-074928-101211-CM-008	10/12/2011	--	--	--	--	0.81	1980	< 0.05	0.254
MW-4	MW-4	10/24/2008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2.43	3400	--	--
	MW-4	1/30/2009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	--	--	--	--
	MW-4	9/25/2009	< 0.001	< 0.001	< 0.001	< 0.001	2.47	3860	< 0.02	7.80
	MW-4	12/15/2009	< 0.001	< 0.001	< 0.001	< 0.001	< 50	4540	0.03	7.40
	MW-4	3/30/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	3970	< 0.02	7.83
	MW-4	6/8/2010	< 0.001	< 0.001	< 0.001	< 0.001	--	3490	0.0607	7.97
	MW-4	9/23/2010	< 0.001	< 0.001	< 0.001	< 0.001	1.81	3750	< 0.02	9.73
	MW-4	12/15/2010	0.0011	< 0.001	< 0.001	< 0.001	2.47	4310	0.223	8.64
	MW-4	3/15/2011	--	--	--	--	2.76	3990	0.522	11
	GW-74928-062311-PG-03	6/23/2011	--	--	--	--	2.4	4400	0.492	11.1
	GW-074928-101211-CM-005	10/12/2011	--	--	--	--	1.9	4120	2.75	15.6
NMWQCC Groundwater Quality Standards			**0.01**	**0.75**	**0.75**	**0.62**	**1.6**	**600**	**1**	**0.2**

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

APPENDIX A

OCTOBER 2011 QUARTERLY GROUNDWATER SAMPLING FIELD FORMS

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Howell K. No1 JOB# 074928

SAMPLE ID: GW-074928-101211-CM-006 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)
10-11-11	10-12-11	8:15	1.123	3.37 2.25 JP 10.12.11

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	NA	A - IN-LINE DISPOSABLE	B - PRESSURE	C - VACUUM	

FIELD MEASUREMENTS

DEPTH TO WATER 30.43 (feet) WELL ELEVATION 97.84 (feet)

WELL DEPTH 37.45 (feet) GROUNDWATER ELEVATION (feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N

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

SPECIFIC COMMENTS: bailed 2.25 gallons from 1600 to 1750

7.02 X 0.16 = 1.123 X 3 = 3.37 bailers only 1/2 full from 1700 to 1750

Full bailers for sampling on 10.12.11, well likely bailed down on 10.11.11

No parameters taken due to slow bailing progress

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

10.12.11 Jason Phas

DATE PRINT SIGNATURE

WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Howell K. No.1 JOB# 074928

SAMPLE ID: GW-074928-101211-CM-007 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)
10-4-11	10-12-11	0820	2.013	6.5

PURGING AND SAMPLING EQUIPMENT

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

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

PURGING DEVICE	G	A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP	D - GAS LIFT PUMP E - PURGE PUMP	G - BAILER H - WATERRA®	X= PURGING DEVICE OTHER (SPECIFY)
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON B - STAINLESS STEEL	D - PVC E - POLYETHYLENE		X= PURGING MATERIAL OTHER (SPECIFY)
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON B - TYGON	D - POLYPROPYLENE E - POLYETHYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
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	C - VACUUM	

FIELD MEASUREMENTS

DEPTH TO WATER: 27.10 (feet) WELL ELEVATION: 95.28 (feet)

WELL DEPTH: 39.68 (feet) GROUNDWATER ELEVATION: 68.18 (feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
14.09 (°C)	7.26 (std)	1.542 (g/L)	1878 (µS/cm)	96.0 (mV)	5.5 (gal)
14.00 (°C)	7.18 (std)	1.538 (g/L)	1869 (µS/cm)	98.3 (mV)	6.0 (gal)
13.98 (°C)	7.17 (std)	1.539 (g/L)	1869 (µS/cm)	99.4 (mV)	6.5 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N

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

SPECIFIC COMMENTS:

12.58' X 0.16 = 2.0128 X 3 = 6.04

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

10.12.11 Jason Hess

DATE PRINT SIGNATURE

WELL SAMPLING FIELD INFORMATION FORM

ITE/PROJECT NAME: Howell K. No. 1 JOB# 074928

SAMPLE ID: GW-074928-101211-CM-008 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)
10.11.11	10-12-11	0825	1.414	4.25

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	N/A	A - IN-LINE DISPOSABLE	B - PRESSURE	C - VACUUM	

FIELD MEASUREMENTS

DEPTH TO WATER	28.15	(feet)	WELL ELEVATION	95.44	(feet)
WELL DEPTH	36.99	(feet)	GROUNDWATER ELEVATION	67.29	(feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
14.65 (°C)	7.23 (std)	1.712 (g/L)	2113 (µS/cm)	32.9 (mV)	3.25 (gal)
14.69 (°C)	7.17 (std)	1.708 (g/L)	2112 (µS/cm)	45.0 (mV)	3.36 (gal)
14.67 (°C)	7.15 (std)	1.718 (g/L)	2122 (µS/cm)	52.6 (mV)	4.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N

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

SPECIFIC COMMENTS:

8.84 x 0.16 = 1.414 x 3 = 4.243

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

10.12.11 Jason Hess

DATE PRINT SIGNATURE

WELL SAMPLING FIELD INFORMATION FORM

ITE/PROJECT NAME: Howell K No.1 JOB# 274928

SAMPLE ID: GW-074928-101211-CM-005 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)
10-11-11	10-12-11	810	1.014	3.25

PURGING AND SAMPLING EQUIPMENT

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

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

PURGING DEVICE	G	A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP	D - GAS LIFT PUMP E - PURGE PUMP	G - BAILER H - WATERRA®	X= PURGING DEVICE OTHER (SPECIFY)
SAMPLING DEVICE	G	C - BLADDER PUMP	F - DIPPER BOTTLE	X - OTHER	X= SAMPLING DEVICE OTHER (SPECIFY)
PURGING MATERIAL	E	A - TEFLON B - STAINLESS STEEL	D - PVC E - POLYETHYLENE		X= PURGING MATERIAL OTHER (SPECIFY)
SAMPLING MATERIAL	E	C - POLYPROPYLENE	X - OTHER		X= SAMPLING MATERIAL OTHER (SPECIFY)
PURGE TUBING	C	A - TEFLON B - TYGON	D - POLYPROPYLENE E - POLYETHYLENE	G - COMBINATION TEFLON/POLYPROPYLENE	X= PURGE TUBING OTHER (SPECIFY)
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	C - VACUUM	

FIELD MEASUREMENTS

DEPTH TO WATER	28.20 (feet)	WELL ELEVATION	95.36 (feet)
WELL DEPTH	34.54 (feet)	GROUNDWATER ELEVATION	67.16 (feet)

TEMPERATURE	pH	TDS	CONDUCTIVITY	ORP	VOLUME
14.96 (°C)	6.67 (std)	4.071 (g/L)	5059 (µS/cm)	2.7 (mV)	2.25 (gal)
14.94 (°C)	6.65 (std)	4.062 (g/L)	5049 (µS/cm)	-2.3 (mV)	2.75 (gal)
14.94 (°C)	6.68 (std)	4.099 (g/L)	5096 (µS/cm)	-6.6 (mV)	3.25 (gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)
(°C)	(std)	(g/L)	(µS/cm)	(mV)	(gal)

FIELD COMMENTS

SAMPLE APPEARANCE: _____ ODOR: _____ COLOR: _____ SHEEN Y/N _____

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

SPECIFIC COMMENTS:

6.34 x 0.16 = 1.014 x 3 = 3.043

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

10-12-11 DATE | Jason Ross PRINT | SIGNATURE