3R-84

Annual Groundwater Monitoring Report

Date: 2006

2006 ANNUAL MONITORING REPORT FORMER CONOCOPHILLIPS B COM #I E FARMINGTON, NM OCD # 3R0084







District Copy For Scanning Only Has NOT been processed.

January 2007

GROUNDWATER MONITORING REPORT

FORMER CONOCOPHILLIPS B COM #IE FARMINGTON, NEW MEXICO

OCD # 3R0084

Prepared for:



600 North Dairy Ashford Houston, TX 77079

Prepared by:



TETRA TECH, INC.

6121 Indian School Rd. NE, Suite 200 Albuquerque, NM 87110 Tetra Tech Project No. 7690008.100

January 4, 2007

RCVD FEB5'07 OIL CONS. DIV. DIST. 3

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GROUNDWATER MONITORING REPORT FORMER CONOCOPHILLIPS B COM #IE, FARMINGTON, NEW MEXICO

1.0 INTRODUCTION

This report presents the results of groundwater monitoring completed on November 14, 2006, at the Former ConocoPhillips B Com #1E Site in Farmington, New Mexico, by Tetra Tech, Inc. (Tetra Tech).

The site is located on the southeast side of Farmington, New Mexico near the corner of Murray Road and Carlton Road. The site consists of a gas production well and associated equipment and installations. The location and general features of the B Com #IE site are shown on Figures I and 2, respectively.

During March 1997 a site assessment was conducted by On Site Technologies (On Site). Four test pits were advanced and soil samples were collected. Total petroleum hydrocarbon (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX) impacts were confirmed north of the production storage tank and west of the separator/dehydrator pit. The impacts were described by On Site as limited to former unlined pit areas, traveling straight down with little lateral migration, due to the porous and permeable subsurface soils. The soils were noncohesive consisting of well rounded gravel and cobbles with sand. The gravel and cobbles were screened out and placed back into the pits with fertilizer to enhance bioremediation.

Six monitoring wells (MW-1 through MW-6) were subsequently installed at the site. Light non-aqueous phase liquid (LNAPL) was discovered in MW-1 and recovery began. During May 2004, Souder Miller and Associates (Souder Miller) placed active and passive skimmers in MW-1 to determine the best method of recovery. The passive skimmer collected a small amount of free product. The active skimmer did not collect any free product. At that time Souder Miller determined that an active skimmer was not a viable method of free product recovery in MW-1. Souder Miller proposed passive skimming or periodic hand bailing as a viable recovery method. The plan for future work at the site includes annual monitoring of MW-1 and MW-6 for BTEX and biodegradation parameters. When MW-1 reaches compliance, quarterly monitoring of MW-1 will commence and all wells will be monitored in the final quarter to verify site closure requirements have been met.

On February 16, 2006, May 15, 2006, August 2, 2006, and November 14, 2006 Tetra Tech was onsite to supervise the pumping of MW-1 using a vacuum truck. Approximately 144, 152, 457, and 423 gallons of fluid were removed from MW-1, respectively, and disposed of in a ConocoPhillips waste water tank located at the Federal Com #15 site in Farmington, New Mexico. During the February 16, 2006 pumping event, six, one-foot ORC socks were inserted into MW-1.

On November 14, 2006, Tetra Tech personnel were onsite to conduct a groundwater sampling event and supervise the pumping of MW-1 using a vacuum truck. Groundwater elevation measurements were collected from MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6. Groundwater samples from MW-1 and MW-6 were collected and shipped to Lancaster Laboratories in Lancaster, Pennsylvania to be analyzed for the presence of

BTEX, sulfate, nitrate, phosphate, and ferrous iron. The ORC socks put into MW-I during the February 2006 pumping event were removed and disposed of. In their place, an absorbent sock was put into the well.

2.0 METHODOLOGY AND RESULTS

The following describes the groundwater monitoring methodology, analytical, and pumping results:

2.1 Groundwater Monitoring Methodology

On November 14, 2006 groundwater elevation measurements were recorded in monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6. Table 1 presents the well specifications, groundwater levels, and the top of casing survey results used to calculate the groundwater elevations at the site. A groundwater elevation contour map is presented as Figure 3.

Approximately 3 gallons of water, approximately three well volumes, were purged from MW-6 with a 1.5inch dedicated, clear, poly-vinyl, disposable bailer. MW-1 was pumped with a vacuum truck for approximately 3 hours before being sampled. The purged water collected was placed in a 55-gallon steel drum onsite for later disposal at a ConocoPhillips approved facility. Groundwater samples were collected using 1.5-inch dedicated, clear, poly-vinyl, disposable bailers. The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain of custody documentation to Lancaster Laboratories located in Lancaster, Pennsylvania. The samples were analyzed for the presence of BTEX by Environmental Protection Agency (EPA) Method 8260B, sulfate by EPA Method 300.0, nitrate by EPA Method 353.2, phosphate by EPA Method 365.1, and ferrous iron by Standard Method (SM) 18, 3500-Fe B Modified.

During the November 2006 pumping and sampling event an absorbent sock was added to MW-1, due to the observation of hydrocarbon sheen during sampling.

2.2 Groundwater Sampling Analytical Results

During the November 2006 sampling event the samples collected from monitor well MW-6 were below laboratory detection limits for BTEX, except for total xylenes at 1 μ g/L. The samples collected from monitor well MW-1 were above the New Mexico Water Quality Control Commission (NMWQCC) standards for benzene and xylenes. The nitrate and sulfate results for MW-1 and MW-6 were below the NMWQCC standards. Ferrous iron was above the NMWQCC standard in MW-1 and MW-6. The NMWQCC has not established a standard for phosphate in groundwater. Table 2 presents the laboratory analytical results. The laboratory analytical reports are included as Appendix B.

2.3 Groundwater Pumping

On February 16th, May 15th, August 2nd, and November 14th of 2006, Tetra Tech was onsite to supervise the pumping of MW-1 with a vacuum truck. Riley Industrial Services operated the vacuum truck during these

events. Riley Industrial Services is located in Farmington, New Mexico. During each event the vacuum truck was equipped with a 4-inch flex hose that was hooked to the top of the well.

During the February event approximately 144 gallons of fluid were recovered. During the May event, approximately 152 gallons of fluid were recovered. During the August event, approximately 457 of fluid were recovered. During the November event approximately 423 gallons of fluid were recovered. All fluid was disposed of in a ConocoPhillips waste water tank.

Tetra Tech will continue to conduct groundwater pumping events at MW-1 quarterly until the next sampling event that will take place in November 2007. At that time analytical results will be reviewed to determine if additional improvement has occurred.

3.0 CONCLUSIONS

Historically, monitoring well MW-6, located downgradient of MW-1, has not contained BTEX concentrations higher than the NMWQCC standards. Monitoring well MW-1 BTEX results have decreased dramatically since December 1998, and with only an LNAPL sheen that is sometimes detectable. Tetra Tech will continue to sample MW-1 and MW-6 annually until compliance is reached in MW-1. Tetra Tech will continue to conduct quarterly pumping of MW-1 until the next groundwater sampling event. During the pumping events, the absorbent sock in MW-1 will be monitored and changed if necessary. The next pumping event will take place during February 2007. The next annual groundwater sampling event will take place during November 2007. If this is not OCD's understanding of the plan for future work, please contact Kelly Henderson at Tetra Tech within 30 business days at 505-237-8440 or kelly.henderson@tetratech.com.

FIGURES







TABLES

Well ID	Total Depth (ft. bgs)	Screen Interval (ft)	*Elevation (ft.) (TOC)	Date Measured	Groundwater Level (ft TOC)	Relative Groundwater Elevation (ft TOC)	
Section of the		the services		5/9/2005	28.3	73.07	
MW-1	34.09	19.09 - 34.09	101.37	10/19/2005	25.12	76.25	
		1999 (N.S.		11/14/2006	26.48	74.89	
Real		States and and		5/9/2005	27.28	74.29	
MW-2	33.72	33.72 18.72 - 33.72	101.57	10/19/2005	24.3	77.27	
		S. Markey		11/14/2006	26.08	75.49	
MW-3	32.44		Sector Constant		5/9/2005	27.81	74.29
		17.44 - 32.44	102.1	10/19/2005	25.06	77.04	
						11/14/2006	26.75
A Server and	A CONTRACT			5/9/2005	28.73	72.67	
MW-4	32.72	17.72 - 32.72	101.4	10/19/2005	25.62	75.78	
				11/14/2006	27.02	74.38	
	12. 32			5/9/2005	28.5	72.02	
MW-5	34.09	19.09 - 34.09	100.52	10/19/2005	25.3	75.22	
				11/14/2006	27.67	72.85	
in the second		and statements		5/9/2005	29.94	72.2	
MW-6	34.02	19.02 - 34.02	102.14	10/19/2005	26.7	75.44	
	P. Star		4	11/14/2006	27.91	74.23	

Table 1. ConocoPhillps B Com #1E Monitoring Well Specifications and Groundwater Elevation Table

ft. = Feet

TOC = Top of casing bgs = below ground surface * Relative Elevation

Well ID	Date	Benzene (µg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (μg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Phosphate (mg/L)				
	2/19/1998	210	34	370	2,044	NS	NS	NS	NS				
	6/12/1998	N. C. Barres	3" free product in bailer - not sampled										
	9/15/1998	A State Par	free product - not sampled										
	12/29/1998	350	BDL	420	2,800	NS	NS	NS	NS				
IVIVV-1	1/22/2004	1	free product - not sampled										
	5/9/2005	17	<0.7	74	250	<0.40	77.8	14.9	0.42				
	10/19/2005	34	<1.0	170	1400	0.15	39.9	15	0.43				
	11/14/2006	18	<0.7	190	1600	< 0.015	145	8.8	4.4				
1994 - 1997 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 - 1897 -	9/15/1998	BDL	BDL	BDL	BDL	NS	NS	NS	NS				
	12/29/1998	BDL	BDL	BDL	BDL	NS	NS	NS	NS				
	3/3/1999	BDL	BDL	BDL	BDL	NS	NS	NS	NS				
	6/15/1999	BDL	BDL	BDL	BDL	NS	NS	NS	NS				
	9/15/1999	BDL	0.7	1.1	BDL	NS	NS	NS	NS				
INIV-6	12/14/1999	BDL	1.8	0.7	1.9	NS	NS	NS	NS				
	1/22/2004	BDL	BDL	BDL	BDL	NS	NS	NS	NS				
	5/9/2005	<0.5	<0.7	<0.8	<0.8	<0.4	97	15.9	7				
	10/19/2005	<0.5	<0.7	<0.8	<0.8	5.4	52.6	1.4	1.7				
	11/14/2006	<0.5	<0.7	<0.8	1	<0.015	159	5.8	2				
NMWQCO	Standards	10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)	10 (mg/L)	600 (mg/L)	1 (mg/L)	NE				

Table 2. ConocoPhillips B Com #1E Groundwater Analytical Results Summary

NMWQCC = New Mexico Water Quality Control Commission

mg/L = milligrams per liter (parts per million)

µg/L = micrograms per liter (parts per billion)

NE=Not Extablished

NA = Not Analyzed

BDL = Below laboratory detection limits

<0.7 = Below laboratory detection limit of 0.7 ug/L

APPENDIX A FIELD FORMS

Project Name	e B Com #1E	1.1.102			Page_	1 of
Project No.	1155690097			1 4 4		
Site Location	Farmington, NM	N. M.	Stern - C			
Site/Well No.	MW-6	Coded/ Replicate	No.	N/A	Date	11/14/2006
Weather	overcast, cold ~40°	Time San Began	npling 94	5	Time Sampling Completed	1000
		EV	ACUATION D	АТА		
Description o	of Measuring Point (MP) Top	of Casing				
Height of MP	Above/Below Land Surface	Approx	. 3.5"	MP Elevation	2000	102.14*
Total Sounde	ed Depth of Well Below MP	34.0	02	Water-Level Ele	evation	74.23*
Held	Depth to Water Below Mf	27.9	91	Diameter of Cas	sing	2"
Net	Water Column in We	II6.1	1	Gallons Pumper Prior to Samplin	d/Bailed	3 gallons
	Gallons per Foo	ot 0.1	6			
	Gallons per Foo Gallons in We	ot 0.1	6 17	Sampling Pump (feet below land	Intake Setting surface)	N/A
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> S/	ot 0.1 II 0.9 posable Bail	6 17 er DATA/FIELD F	Sampling Pump (feet below land	Intake Setting surface)	N/A
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> S/ Temperature 59.4	ot 0.1 0.9 00sable Bail 00sable Bail 00sable Bail 0.65	6 7 er DATA/FIELD F Conductivity 789	Sampling Pump (feet below land PARAMETERS TDS in ppm 358	Intake Setting surface)	N/A
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> Sa Temperature 59.4 62.7	ot 0.1 0.9 005able Bail 005able Bail 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	6 7 er DATA/FIELD F Conductivity 789 747	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372	Other	N/A
Purging Equi Time 948 952 955	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> Sz Temperature 59.4 62.7 62.3	ot 0.1 005able Bail 005able Bail 005able Bail 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	6 7 er DATA/FIELD F Conductivity 789 747 778	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367	Other	N/A
Purging Equi Time 948 952 955	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> Sa Temperature 59.4 62.7 62.3	ot 0.1 005able Bail 005able Bail 005able Bail 005 0.09 0.1 0.1 0.1 0.1 0.1 0.1 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	6 P7 er DATA/FIELD F Conductivity 789 747 778	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367	Other	N/A
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> Sa Temperature 59.4 62.7 62.3 1 1.5" Polyvinyl Disp	ot 0.1 0.9 005able Bail 0.9 005able Bail 005able Bail	6 P7 er DATA/FIELD F Conductivity 789 747 778 er	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367	Other	N/A
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>Sa</u> <u>Temperature</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> <u>stituents Sampled</u>	ot 0.1 0.9 005able Bail 005able Bail 005able Bail 005able Bail	6 7 er DATA/FIELD F Conductivity 789 747 778 er entainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 9	Other	N/A eservative
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate,	ot 0.1 0.9 005able Bail 005able Bail 005able Bail 005able Bail 005able Bail	6 7 er DATA/FIELD F Conductivity 789 747 778 er entainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 	Other	N/A eservative
Purging Equi	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate,	ot 0.1 II 0.9 Dosable Bail AMPLING I PH 6.65 6.86 7.01 Dosable Bail Cco	6 7 er DATA/FIELD F Conductivity 789 747 778 er entainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367	Other	N/A
Purging Equi Time 948 952 955 Sampling Eq <u>Cons</u> BTEX, Sulfat	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate,	ot 0.1 II 0.9 Dosable Bail AMPLING I PH 6.65 6.86 7.01 Dosable Bail Cco	6 7 er DATA/FIELD F Conductivity 789 747 778 er er ontainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 ption	Intake Setting surface) Other Dens Pre	eservative
Purging Equi Time 948 952 955 Sampling Eq <u>Cons</u> BTEX, Sulfat	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate,	ot 0.1 II 0.9 Dosable Bail AMPLING I PH 6.65 6.86 7.01 Dosable Bail Cco	6 7 er DATA/FIELD F Conductivity 789 747 778 er ontainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 ption	Intake Setting surface) Other Dens Pre	eservative
Purging Equi Time 948 952 955 Sampling Eq <u>Cons</u> BTEX, Sulfat Ferrous Iron	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate,	ot 0.1 I 0.9 Dosable Bail AMPLING I PH 6.65 6.86 7.01 Dosable Bail Co	6 7 er DATA/FIELD F Conductivity 789 747 778 er ontainer Descri	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 ption	Intake Setting surface) Other Dens D	eservative
Purging Equi Time 948 952 955 Sampling Eq <u>Cons</u> BTEX, Sulfat Ferrous Iron	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate, <u>Water is brown in color; a lo</u>	ot 0.1 0.9 005able Bail 005able Bail 005able Bail 005able Bail 005able Bail 005able Bail 005able Bail	6 7 er DATA/FIELD F Conductivity 789 747 778 er ontainer Descrition ent; * means References	Sampling Pump (feet below land PARAMETERS TDS in ppm 358 372 367 ption elative Elevation	Intake Setting surface) Other	eservative
Purging Equi Time 948 952 955 Sampling Eq <u>Cons</u> 3TEX, Sulfat Ferrous Iron Remarks Sampling Pe	Gallons per Foo Gallons in We pment <u>1.5" Polyvinyl Disp</u> <u>59.4</u> <u>62.7</u> <u>62.3</u> uipment <u>1.5" Polyvinyl Disp</u> stituents Sampled te, Nitrate, Phosphate, <u>Water is brown in color; a lo</u> rsonnel <u>Ana Moreno, Jenn</u>	ot 0.1 II 0.9 Dosable Bail AMPLING I PH 6.65 6.86 7.01 Dosable Bail Co ot of sedime aifer Berlin	6 7 er DATA/FIELD F Conductivity 789 747 778 er ontainer Descri	Sampling Pump (feet below land ARAMETERS TDS in ppm 358 372 367 ption elative Elevation	Intake Setting surface) Other	eservative

-	B Com #1E			Page	2 of 2	
Project No.	1155690097		C. C. S.	1. A. C. S.		
Site Location	Farmington, NM	All and a start of the				
		Coded/	Sec. As a			
Site/Well No.	<u>MW-1</u>	Replicate No.	Duplicate	Date	11/14/2006	
Weather	overcast and cold	Began 1	155	Completed	1200	
		EVACUATION	DATA			
Description of	Measuring Point (MP) Top of	of Casing				
Height of MP	Above/Below Land Surface	Approx. 3.5'	MP Elevation	1	01.37*	
Total Sounded	Depth of Well Below MP	34.09	Water-Level Ele	evation	74.89*	
Held	Depth to Water Below MP	26.48	Diameter of Cas	sing	2"	
Wet	Water Column in Well	7.61	Gallons Pumper Prior to Samplin	d/Bailed	4 gallons	
	Gallons per Foot	0.16				
	Gallons in Well	1.22	Sampling Pump (feet below land	Intake Setting surface)	N/A	
Time 1200	SA Temperature 53.3	MPLING DATA/FIELD pH Conductivit 7.66 803	TDS in ppm 420	Other		
Compliant Fouri	inment 4.5" Deheind Dien	anable Bailer				
Sampling Equi	ipment <u>1.5" Polyvinyl Dispo</u>	osable Bailer				
Sampling Equi	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled	osable Bailer Container Dese	cription	Pre	servative	
Sampling Equi <u>Consti</u> BTEX, Sulfate	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled , Nitrate, Phosphate,	osable Bailer <u>Container Dese</u>	cription	Pre	servative	
Sampling Equi <u>Consti</u> BTEX, Sulfate Ferrous Iron	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled , Nitrate, Phosphate,	osable Bailer Container Dese	cription	<u>Pre</u>	servative	
Sampling Equi <u>Consti</u> BTEX, Sulfate Ferrous Iron	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled e, Nitrate, Phosphate,	osable Bailer Container Dese	cription	<u>Pre</u>	servative	
Sampling Equi <u>Consti</u> BTEX, Sulfate Ferrous Iron Remarks	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled , Nitrate, Phosphate, Hydrocarbon sheen on water	container Dese	cription	Pre	servative	
Sampling Equi <u>Consti</u> BTEX, Sulfate Ferrous Iron Remarks Sampling Pers	ipment <u>1.5" Polyvinyl Dispo</u> ituents Sampled , Nitrate, Phosphate, <u>Hydrocarbon sheen on water</u>	container Dese	vation	Pre	servative	

APPENDIX B LABORATORY REPORTS





2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 •717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

ANALYTICAL RESULTS

Prepared for:

ConocoPhillips PO Box 2200 Bartlesville OK 74005

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1014979. Samples arrived at the laboratory on Monday, November 20, 2006. The PO# for this group is 4506560639 and the release number is KINGER.

<u>Client Description</u> SB-12 Grab Water Sample Trip Blank Water Sample Lancaster Labs Number 4920888 4920889

ELECTRONIC Tetra Tech, Inc COPY TO Attn: Kelly Henderson





2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Questions? Contact your Client Services Representative Barbara A Weyandt at (717) 656-2300

Respectfully Submitted,

has And

Marla S. Lord Senior Specialist



Analysis Report

Account Number: 11288

Bartlesville OK 74005

ConocoPhillips

PO Box 2200

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 •717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

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Lancaster Laboratories Sample No. WW 4920888

SB-12 Grab Water Sample Site# 6083 Shephard&Kelsey #1, NM

Collected:11/16/2006 15:00 by JB

Submitted: 11/20/2006 09:20 Reported: 11/27/2006 at 10:17 Discard: 12/28/2006

KEL12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Units	Dilution Factor
02300	GC/MS Volatiles						
05401	Benzene	71-43-2	N.D.	0.5	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	0.7	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.8	5.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.8	5.	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

		Laborator	y Chro	nicle		
CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
02300	GC/MS Volatiles	SW-846 8260B	1	11/23/2006 01:44	Sara E Wolf	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/23/2006 01:44	Sara E Wolf	1

*=This limit was used in the evaluation of the final result



Analysis Report

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Lancaster Laboratories Sample No. WW 4920889

Trip Blank Water Sample Site# 6083 Shephard&Kelsey #1, NM

Collected: n.a.

Submitted: 11/20/2006 09:20 Reported: 11/27/2006 at 10:17 Discard: 12/28/2006 Account Number: 11288

ConocoPhillips PO Box 2200 Bartlesville OK 74005

KELTB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Units	Dilution Factor
02300	GC/MS Volatiles						
05401	Benzene	71-43-2	N.D.	0.5	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	0.7	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.8	5.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.8	5.	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

		Laboratory	Cnro	nicle		
CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
02300	GC/MS Volatiles	SW-846 8260B	1	11/23/2006 02:10	Sara E Wolf	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/23/2006 02:10	Sara E Wolf	1

*=This limit was used in the evaluation of the final result



Analysis Report

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Quality Control Summary

Client Name: ConocoPhillips Reported: 11/27/06 at 10:18 AM Group Number: 1014979

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank MDL**	Blank LOQ	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD Limits	RPD	RPD Max
Batch number: P063261AA	Sample nu	umber(s): 4	920888-49	20889					
Benzene	N.D.	0.5	5.	ug/l	97		85-117		
Toluene	N.D.	0.7	5.	ug/l	92		85-115		
Ethylbenzene	N.D.	0.8	5.	ug/1	90		82-119		
Xylene (Total)	N.D.	0.8	5.	ug/l	92		83-113		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD	MS/MSD		RPD	BKG	DUP	DUP	Dup
Analysis Name	<u>%REC</u>	%REC	Limits	RPD	MAX	Conc	Conc	RPD	Max
Batch number: P063261AA	Sample	e number	(s): 49208	88-4920	889 UNS	PK: P92158	19		
Benzene	102	102	83-128	0	30				
Toluene	97	95	83-127	2	30				
Ethylbenzene	97	96	82-129	2	30				
Xylene (Total)	98	96	82-130	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Batch numb	er: P063261AA			
	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4920888	98	95	87	91
4920889	98	94	88	87
Blank	99	97	88	88
LCS	98	96	87	91
MS	99	95	88	91
MSD	98	95	87	91
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification

**-This limit was used in the evaluation of the final result for the blank

Name, HET Halanded Waters by 82605

(1) The result for one or both determinations was less than five times the LOQ.

(2) The background result was more than four times the spike added.

	aster	05	Cc 020	onc	oci	оP	Phil	liip Acct.	os A	nal 288	ysis R		ues Ng	t/Cl	hain of (use only ample #: <u>49</u>	Custo	dy - 8	
V Laboratories site #: <u>Shephardskeked</u> */wno #: 4506560639 site Address: <u>Bloomfield</u>				7	- Matrix				Inalyse	s Requ	List to ested box un Preservation	tal numbe nder each n Codes	r of conti analysis	ainers in th	e SCR#: 3 Prese H = HCI N = HNO ₃ S = H ₂ SO	SCR#: 34009 Preservative Codes H = HCI T = Thiosulfat N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other		
ConocoPhillips PM: _ Core Work Order#: @ Consultant/Office: 7 Consultant Prj. Mgr: _ Consultant Phone #: Sampler <u>Jennifer</u>	Berlins And Ho	ompany Code:_ Irotal Lab Budg Ira Tech 200 S-2567ax #:_ Xeno	jet <u>¥39(</u> 6		posite	Dotable	r DNPDES	1 Ar D										
Sample Identification	n	Date Collected	Time Collected	Grab	BS	Soil	Wate		5						Remarks			
58-12		11/11/06	1500	4			×											
					1			1						14				
				100				-	4									
Turnaround Time Requested in Business Days (TAT) (please circle): R STD. TAT 5 day 48 hour 24 hour other				Relinquished by: Date 1012 Relinquished by Date Relinquished by Date Relinquished by Date Relinquished by Date					Time 0615 Time 134K	Rece	ved by:	OR.S	A.J. Date Time 10/13/03/03 (Date Time					
Reporting Requirements (please circle)				Relinquished by:				Date	Time	Received by: Date Tim				Time				
NJ Reduced NY ASP Cat. B	NY ASP Cat. A Full Type I	Raw Data	Diskette	ette Reli			Relinquished by:				Date	Time	Received by: Bisc Bate			Time		
	ReUF			Relinquished by Commercial Carrier: UPS FedEx Other Temper					perature	Upon Receipt	1./2	_ C°						

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Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	1	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length pe

< less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

- A TIC is a possible aldol-condensation product
- B Analyte was also detected in the blank
- C Pesticide result confirmed by GC/MS
- D Compound quatitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- J Estimated value
- N Presumptive evidence of a compound (TICs only)
- P Concentration difference between primary and
- confirmation columns >25%
- U Compound was not detected
- X,Y,Z Defined in case narrative

Inorganic Qualifiers

ml

- B Value is <CRDL, but ≥IDL
- E Estimated due to interference
- M Duplicate injection precision not met
- N Spike amount not within control limits
- S Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
 - * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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