

**3R - 097**

**QUARTERLY  
REPORTS**

**4/24/2007**



TETRA TECH, INC.

2007 APR 26 PM 1:38

6121 Indian School Rd. NE Suite 200  
Albuquerque, NM 87110  
(505) 237-8440

April 24, 2007

Mr. Glen von Gonten  
State of New Mexico Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

**RE: (1) ConocoPhillips Nell Hall #1 2007 Quarterly Report 32090**  
**Flora Vista, New Mexico**  
**(2) ConocoPhillips Shephard & Kelsey #1 2007 Quarterly Report**  
**Bloomfield, New Mexico 320097-**

Dear Mr. von Gonten:

Enclosed please find a copy of the above-referenced documents as compiled by Tetra Tech, Inc., formerly Maxim Technologies, for these Farmington area sites.

Please do not hesitate to contact me at (505) 237-8440 if you have any questions or require additional information.

Sincerely,

Kelly E. Henderson  
Project Manager/Geologist

Enclosures (2)

**2007 QUARTERLY MONITORING REPORT  
CONOCOPHILLIPS  
SHEPHARD & KELSEY #1  
BLOOMFIELD, NM  
OCD # 3R0097**



  
**ConocoPhillips**



**TETRA TECH, INC.**

**MARCH 2007**

**QUARTERLY GROUNDWATER  
MONITORING REPORT**

**CONOCOPHILLIPS  
SHEPHARD & KELSEY #1  
BLOOMFIELD, NEW MEXICO**

OCD # 3R0097

**Prepared for:**



600 North Dairy Ashford  
Houston, TX 77079

**Prepared by:**



**TETRATECH, INC.**

6121 Indian School Rd NE, Suite 200  
Albuquerque, NM 87110  
Tetra Tech Project No. 7690028.100

March 29, 2007

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## **QUARTERLY GROUNDWATER MONITORING REPORT CONOCOPHILLIPS SHEPHARD & KELSEY #1, BLOOMFIELD, NEW MEXICO**

### **1.0 INTRODUCTION**

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on February 21, 2007, at the ConocoPhillips Shephard & Kelsey #1 Site in Bloomfield, New Mexico, by Tetra Tech, Inc (Tetra Tech).

The site is located on the southwest side of Bloomfield, New Mexico south of Highway 64 and the San Juan River. The site consists of a gas production well and associated equipment and installations. The location and general features of the Shephard & Kelsey #1 site are shown on Figures 1 and 2, respectively.

In response to landowner concerns following a hydrocarbon release, On Site Technologies (Onsite) conducted a site investigation in the area of a former unlined earthen pit and existing production tank used to store separator waste water. On September 30, 1996 Onsite advanced two test holes with a hand auger to the shallow groundwater table located approximately 3.5 to 4 feet below ground surface (bgs). One test hole was advanced adjacent to the production tank and one at a presumed downgradient location. Samples located from both test holes were below laboratory detection limits for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) laboratory analyses. Onsite returned to the site on November 11, 1996, advanced two additional test holes immediately adjacent to the tank, and discovered impacts in soil and groundwater on the northeast side of the tank. On February 13, 1996, soils were excavated from the former pit area until delineation of contamination was achieved (to a practical extent due to site equipment placement), and confirmatory samples were obtained.

Monitoring wells (MW-NE, DG 1, SB-12, UG 1, UG 2, and DG-MW) were subsequently installed at the site. All monitoring wells have reached compliance, with the exception of monitor well SB-12, with concentrations below the New Mexico Water Quality Control Commission (NMWQCC) standard. During the May 2006 sampling event, benzene was detected in monitor well SB-12 at a concentration of 12 mg/L, which is slightly above the standard at 10 mg/L. The last two sampling events (August 2006 and November 2006) yielded concentrations lower than laboratory detection limits in monitor well SB-12.

### **2.0 METHODOLOGY AND RESULTS**

The following describes the groundwater monitoring methodology and results:

#### **2.1 Groundwater Monitoring Methodology**

On February 21, 2007 groundwater elevation measurements were recorded in monitor wells MW-NE, DG-1, SB-12, UG-1, and UG-2. Monitor well DG-MW could not be located. Table 1 presents the well

specifications and groundwater levels. A groundwater elevation contour map could not be created for this sampling event because the monitoring well casings have been modified at the landowner's request.

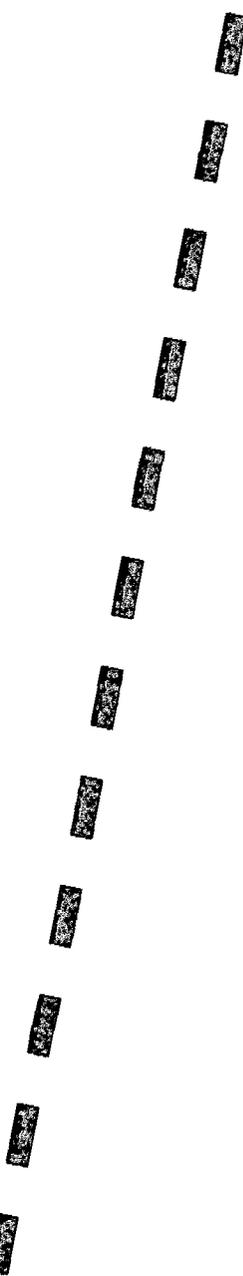
Approximately 2 gallons of water was purged from monitor well SB-12 before sampling. The purge water was placed in the on site waste water tank. A 1.5-inch dedicated, clear, poly-vinyl, disposable bailer was used to collect the groundwater sample. The groundwater sample was contained in laboratory prepared bottles, packed on ice, and shipped with chain of custody documentation to Lancaster Laboratories located in Lancaster, Pennsylvania. The sample was analyzed for the presence of BTEX using Environmental Protection Agency (EPA) Method 8260B.

## **2.2 Groundwater Sampling Analytical Results**

Analysis of groundwater collected from monitor well SB-12 shows concentrations of BTEX are below laboratory detection limits. Table 2 presents the historical laboratory analytical results for the well. The field groundwater sampling form is presented in Appendix A. The laboratory analytical report is included as Appendix B.

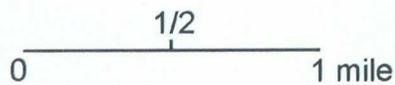
## **3.0 CONCLUSIONS**

The February 21, 2007 sample event represents the third consecutive quarter of results indicating concentrations of benzene in monitor well SB-12 below NMWQCC standards. Tetra Tech will continue to sample SB-12 quarterly with the next event scheduled to take place during May 2007. If you have any questions or require additional information please contact Kelly Henderson at Tetra Tech at 505-237-8440 or [kelly.henderson@tetrattech.com](mailto:kelly.henderson@tetrattech.com).



## **FIGURES**

1. Site Location Map
2. Site Layout Map



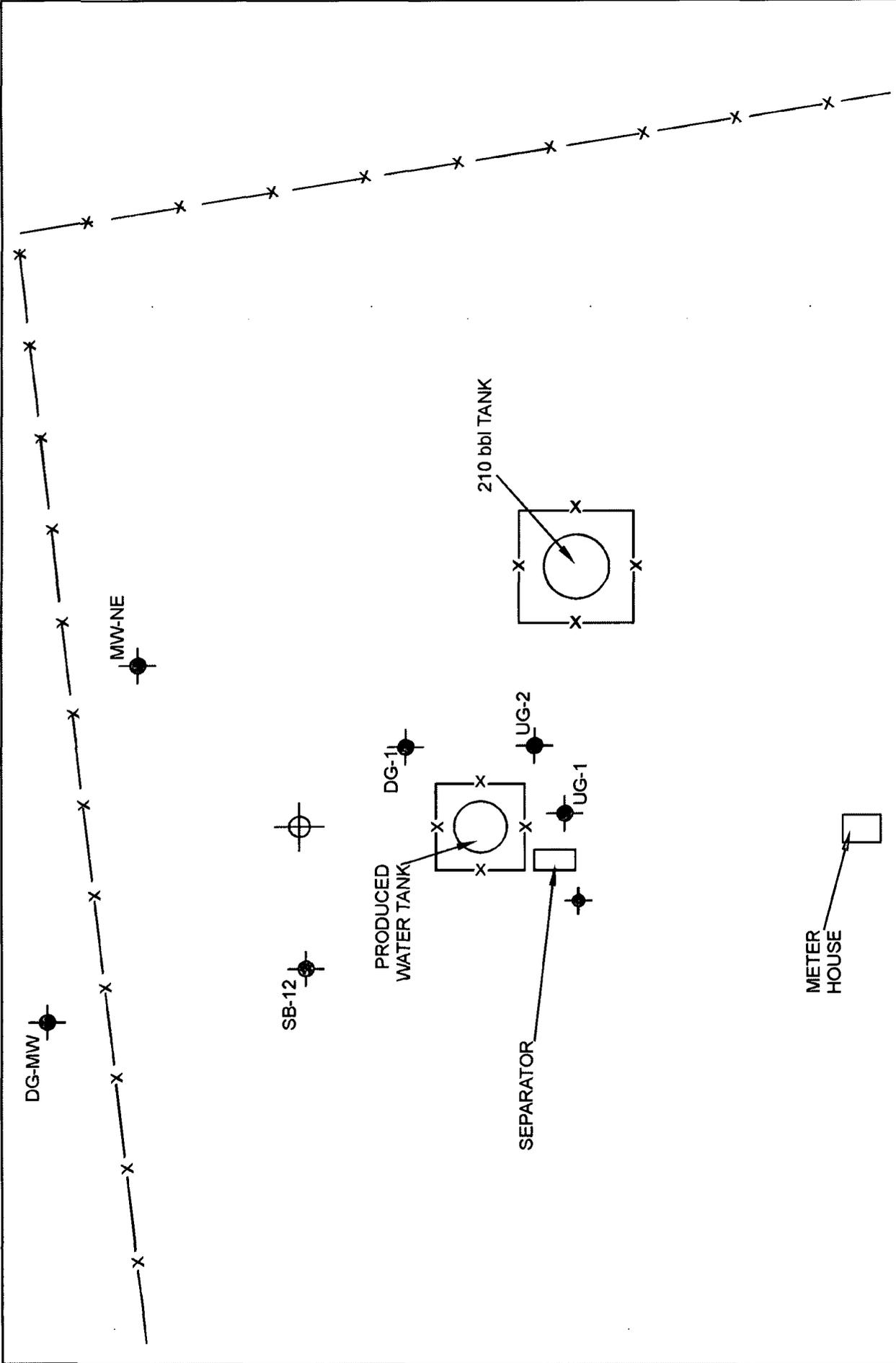
★ = Approximate Site Location



TETRA TECH, INC.

**FIGURE 1.**  
**SITE LOCATION MAP**  
**CONOCOPHILLIPS**  
**SHEPARD & KELSEY #1**  
**Bloomfield, New Mexico**





- LEGEND**
-  SHEPHARD KELSEY #1 WELLHEAD
  -  MONITORING WELL



**FIGURE 2:**  
 CONOCOPHILLIPS  
 SHEPHARD KELSEY #1  
 SITE LAYOUT MAP



## **TABLES**

1. Well Specifications and Groundwater Elevations
2. Groundwater Laboratory Analytical Data Summary

Table 1. ConocoPhillips Shephard & Kelsey #1 Monitoring Well Specifications and Groundwater Elevation Table

Well ID	Total Depth (ft. bgs)	Screen Interval (ft)	Elevation* (ft.) (TOC)	Date Measured	Groundwater Level (ft TOC)	Relative Groundwater Elevation (ft TOC)
MW-NE	5.42	4	100	5/10/2005	5.250	94.75
				11/21/2005	5.920	94.08
				2/17/2006	6.100	93.9
				5/16/2006	6.400	93.6
				8/1/2006	7.24***	92.76
				11/16/2006	6.51****	unknown
				2/21/2007	6.04****	unknown
DG-1	9.05	4	100.89	5/10/2005	5.550	95.34
				11/21/2005	5.950	94.94
				2/17/2006	5.840	95.05
				5/16/2006	5.900	94.99
				8/1/2006	6.730	94.16
				11/16/2006	5.45****	unknown
				2/21/2007	5****	unknown
SB-12	11.31	4	99.01	5/10/2005	5.030	93.98
				11/21/2005	6.010	93
				2/17/2006	5.760	93.25
				5/16/2006	5.730	93.28
				8/1/2006	7.080	91.93
				11/16/2006	5.78****	unknown
				2/21/2007	6.4****	unknown
UG-1	9.83	4	101.71	5/10/2005	4.02**	unknown
				11/21/2005	5**	unknown
				2/17/2006	4.82**	unknown
				5/16/2006	5.15**	unknown
				8/1/2006	6.32***	unknown
				11/16/2006	5.35****	unknown
				2/21/2007	4.81****	unknown
UG-2	9.84	4	101.23	5/10/2005	5.790	95.44
				11/21/2005	5.420	95.81
				2/17/2006	5.330	95.9
				5/16/2006	5.130	96.1
				8/1/2006	6.410	94.82
				11/16/2006	5.18****	unknown
				2/21/2007	4.71****	unknown
DG-MW	5.42	4	unknown	could not locate		unknown

ft. = Feet

TOC = Top of casing

bgs = below ground surface

\* Elevation relative to MW-NE TOC

\*\* Groundwater depth anomalous due to broken casing

\*\*\*Casing has been repaired and extended - Measurement was made to approximate old casing

\*\*\*\*Casing has been repaired and cut down

**Table 2. ConocoPhillips Shephard & Kelsey #1 Groundwater Analytical Results Summary**

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
SB-12	6/14/2001	42	5.5	72	370
	9/19/2001	111	BDL	120	810
	12/13/2001	28	BDL	63	322.9
	3/12/2002	64	BDL	56	211.4
	6/19/2002	130	BDL	76	380
	9/17/2002	40	BDL	51	245.1
	3/20/2003	53	10	41	213
	6/11/2003	370	BDL	19	53.8
	10/6/2003	6.1	BDL	30	182
	1/30/2004	12	BDL	16	74.2
	4/26/2004	45	BDL	21	100
	5/10/2005	24	<0.7	18	140
	11/21/2005	<0.5	<0.7	14	68
	2/17/2006	7	<0.7	4	12
	5/16/2006	12	<0.7	1	3
	8/1/2006	<0.5	<0.7	<0.8	<0.8
	11/16/2006	<0.5	<0.7	<0.8	<0.8
2/21/2007	<0.5	<0.7	3	1	
<b>NMWQCC Standards</b>		<b>10 (µg/L)</b>	<b>750 (µg/L)</b>	<b>750 (µg/L)</b>	<b>620 (µg/L)</b>

NMWQCC = New Mexico Water Quality Control Commission

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

BDL = Below laboratory detection limits

<x = Below laboratory detection limits



## **APPENDIX A**

Field Groundwater Sampling Form



# WATER SAMPLING FIELD FORM

Project Name Shephard & Kelsey #1

Page 1 of 1

Project No. 1156690009

Site Location Bloomfield, NM

Site/Well No. SB-12 Coded/ Replicate No. \_\_\_\_\_

Date 2/21/2007

Weather Warm and sunny Time Sampling Began 1:15 PM

Time Sampling Completed 1:35 PM

### EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface 0.59 MP Elevation \_\_\_\_\_

Total Sounded Depth of Well Below MP 11.31 bgs Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 5.82 bgs Diameter of Casing 2 inches

Wet \_\_\_\_\_ Water Column in Well 5.49 Gallons Pumped/Bailed Prior to Sampling 2

Gallons per Foot 0.16

Gallons in Well 0.8787 Sampling Pump Intake Setting (feet below land surface) \_\_\_\_\_

Purging Equipment \_\_\_\_\_

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature	pH	Conductivity	Turbidity	Other
1:20	51.8	7	1280	658	
1:27	48.7	6.76	1292	669	
1:29	48.8	6.97	1304	679	
1:31	49	6.92	1323	690	

Sampling Equipment Bailer

Constituents Sampled

Container Description

Preservative

BTEX

Remarks \_\_\_\_\_

Sampling Personnel Jennifer Berlin and Ana Moreno

#### Well Casing Volumes

Gal./ft.	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

# **APPENDIX B**

Laboratory Report

## ANALYTICAL RESULTS

Prepared for:

ConocoPhillips  
PO Box 2200  
Bartlesville OK 74005

Prepared by:

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

The sample group for this submittal is 1026499. Samples arrived at the laboratory on Thursday, February 22, 2007. The PO# for this group is 4506560639 and the release number is TAYLOR.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
SB-12 Grab Water Sample	4988135
Trip Blank Water Sample	4988136

ELECTRONIC     Tetra Tech, Inc  
COPY TO

Attn: Kelly   Henderson



## Analysis Report

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,

A handwritten signature in black ink that reads "Marla S. Lord".

Marla S. Lord  
Senior Specialist

Lancaster Laboratories Sample No. WW 4988135

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

Collected: 02/21/2007 13:35 by AM Account Number: 11288

 Submitted: 02/22/2007 09:55  
 Reported: 02/28/2007 at 16:04  
 Discard: 03/31/2007

 ConocoPhillips  
 PO Box 2200  
 Bartlesville OK 74005

SHK12

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	3.	0.8	5.	ug/l	1
06310	Xylene (Total)	1330-20-7	1.	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 Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 02:45	Ryan V Nolt	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 02:45	Ryan V Nolt	1

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



# Analysis Report

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

Page 1 of 1

Lancaster Laboratories Sample No. WW 4988136

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

Collected: 02/21/2007 15:15

Account Number: 11288

Submitted: 02/22/2007 09:55  
Reported: 02/28/2007 at 16:04  
Discard: 03/31/2007

ConocoPhillips  
PO Box 2200  
Bartlesville OK 74005

SHKTB

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 Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 03:09	Ryan V Nolt	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 03:09	Ryan V Nolt	1

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

## Quality Control Summary

 Client Name: ConocoPhillips  
 Reported: 02/28/07 at 04:04 PM

Group Number: 1026499

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 Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T070572AA	Sample number(s): 4988135-4988136								
Benzene	N.D.	0.5	5.	ug/l	114		78-119		
Toluene	N.D.	0.7	5.	ug/l	98		85-115		
Ethylbenzene	N.D.	0.8	5.	ug/l	99		82-119		
Xylene (Total)	N.D.	0.8	5.	ug/l	99		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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	BKG MAX	DUP Conc	DUP RPD	Dup RPD Max	
Batch number: T070572AA	Sample number(s): 4988135-4988136 UNSPK: P988280								
Benzene	120	121	83-128	1	30				
Toluene	109	111	83-127	2	30				
Ethylbenzene	109	113	82-129	4	30				
Xylene (Total)	109	111	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.

 Analysis Name: UST-Unleaded Waters by 8260B  
 Batch number: T070572AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4988135	103	96	90	90
4988136	102	97	91	86
Blank	100	94	90	89
LCS	98	97	89	89
MS	98	98	93	90
MSD	96	92	93	90
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

- (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.



## Lancaster Laboratories Explanation of Symbols and Abbreviations

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

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>Cal</b>	(diet) calories	<b>lb.</b>	pound(s)
<b>meq</b>	milliequivalents	<b>kg</b>	kilogram(s)
<b>g</b>	gram(s)	<b>mg</b>	milligram(s)
<b>ug</b>	microgram(s)	<b>l</b>	liter(s)
<b>ml</b>	milliliter(s)	<b>ul</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>fib &gt;5 um/ml</b>	fibers greater than 5 microns in length per ml
<b>&lt;</b>	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.		
<b>&gt;</b>	greater than		
<b>ppm</b>	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.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	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	Inorganic Qualifiers
<b>A</b> TIC is a possible aldol-condensation product	<b>B</b> Value is <CRDL, but ≥IDL
<b>B</b> Analyte was also detected in the blank	<b>E</b> Estimated due to interference
<b>C</b> Pesticide result confirmed by GC/MS	<b>M</b> Duplicate injection precision not met
<b>D</b> Compound quantitated on a diluted sample	<b>N</b> Spike amount not within control limits
<b>E</b> Concentration exceeds the calibration range of the instrument	<b>S</b> Method of standard additions (MSA) used for calculation
<b>J</b> Estimated value	<b>U</b> Compound was not detected
<b>N</b> Presumptive evidence of a compound (TICs only)	<b>W</b> Post digestion spike out of control limits
<b>P</b> Concentration difference between primary and confirmation columns >25%	<b>*</b> Duplicate analysis not within control limits
<b>U</b> Compound was not detected	<b>+</b> Correlation coefficient for MSA <0.995
<b>X,Y,Z</b> Defined in case narrative	

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

Test 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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