

**3R - 079**

**MONITORING  
REPORT**

**04/11/2007**

3R0090

**2007 QUARTERLY MONITORING REPORT**  
**CONOCOPHILLIPS**  
**NELL HALL #1**  
**FLORA VISTA, NM**  
**OCD # 3R0090**



  
**ConocoPhillips**



**TETRA TECH, INC.**

**April 2007**

# **GROUNDWATER MONITORING REPORT**

## **CONOCOPHILLIPS NELL HALL #1 FLORA VISTA, NEW MEXICO**

OCD # 3R0090

**Prepared for:**



600 North Dairy Ashford  
Houston, TX 77079

**Prepared by:**



**TETRA TECH, INC.**

6121 Indian School Rd. NE  
Albuquerque, NM 87110  
Tetra Tech Project No. 7690022.100

April 11, 2007

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## **GROUNDWATER MONITORING REPORT NELL HALL #1, FLORA VISTA, NEW MEXICO**

### **1.0 INTRODUCTION**

This report presents the results of the annual groundwater monitoring event conducted on February 21, 2007 at the ConocoPhillips Nell Hall #1 Site in Flora Vista, New Mexico, by Tetra Tech, Inc. (Tetra Tech).

The site is located northeast of Farmington, New Mexico on Flora Vista Road in Flora Vista, New Mexico approximately 2 miles west of Aztec, New Mexico. The site consists of a gas production well and associated equipment and installations. The location and general features of the Nell Hall #1 site are shown on Figures 1 and 2, respectively.

The environmental investigation at this site began with the attempted closure of an unlined dehydrator discharge pit in the early 1990's. Soil and groundwater impacts were discovered and three monitoring wells were installed. Due to an ongoing drought, the wells became dry. Souder Miller and Associates installed three additional monitoring wells to greater depths on February 17 and 18, 2004. MW-4 and MW-6 were installed to 35 feet below ground surface (bgs) with 30 feet of slotted screen and MW-5 was installed to 39 feet bgs with 35 feet of slotted screen.

On February 19, 2007 Tetra Tech was onsite to measure the depths to water and bail the wells. On February 21, 2007, Tetra Tech returned to the site to conduct a groundwater sampling event. Groundwater samples from MW-4, MW-5, and MW-6 were collected and shipped to Lancaster Laboratories in Lancaster, Pennsylvania to be analyzed for the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX), sulfate, nitrate, phosphate, and ferrous iron.

### **2.0 METHODOLOGY AND RESULTS**

The following describes the groundwater monitoring methodology and results:

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

On February 19, monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 were checked for the presence of water. Monitoring wells MW-4, MW-5, and MW-6 were purged of three volumes of water and sampled. A 1.5-inch dedicated, clear, poly-vinyl, disposable bailer was used to purge each well and to collect the groundwater sample on February 21<sup>st</sup>. The purge water generated during the event was disposed of in the waste water tank located on site (Figure 2). 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 and nitrate by EPA Method 300.0, phosphate by EPA Method 365.1, and ferrous iron by Standard Method (SM) 20, 3500-Fe B Modified.

A groundwater elevation contour map was created using the February 19, 2007 groundwater elevation data (Figure 3). Table 1 presents the well specifications, historical groundwater levels, and the top of casing survey results used to calculate the groundwater elevations at the site.

## **2.2 Groundwater Sampling Analytical Results**

During the February 21, 2007 sampling event, the sample collected from MW-4 was below laboratory detection limits for BTEX and nitrate. The sample collected from MW-4 contained a ferrous iron concentration of 1.6 mg/L; all other constituents of concern (COCs) were below the New Mexico Water Quality Control Commission (NMWQCC) standards. MW-5 yielded results below the NMWQCC standards. The sample collected from MW-6 was below laboratory detection limits for toluene and nitrate and contained concentrations of 540 µg/L for benzene, 810 µg/L for xylenes, and 6.4 mg/L for ferrous iron. All other COCs in the sample collected from MW-6 were below NMWQCC standards. Previous analytical results of BTEX in groundwater were non-detect or below NMWQCC standards; therefore Tetra Tech proposed quarterly groundwater monitoring following the November 2006 sampling event. Table 2 summarizes historical laboratory analytical results for groundwater sampling events. The February 2007 laboratory analytical results report is included as Appendix A.

## **3.0 CONCLUSIONS**

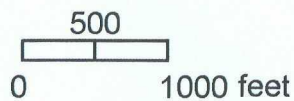
Based on the February 2007 sampling results, Tetra Tech recommends returning to annual groundwater monitoring and conducting a focused soil investigation around MW-6 followed by evaluation of remediation alternatives. Previous groundwater contour maps shown in Appendix B indicate fluctuations in groundwater flow directions and gradient. Further investigation will be necessary to completely delineate the groundwater impacts at the site. Tetra Tech will attempt to conduct the next sampling event in November 2007. The soil investigation along with the groundwater impact delineation will begin prior to the next sampling event. Please contact Kelly Henderson at 505-237-8440 or [kelly.henderson@tetrattech.com](mailto:kelly.henderson@tetrattech.com) if you have any questions or require additional information.

## FIGURES





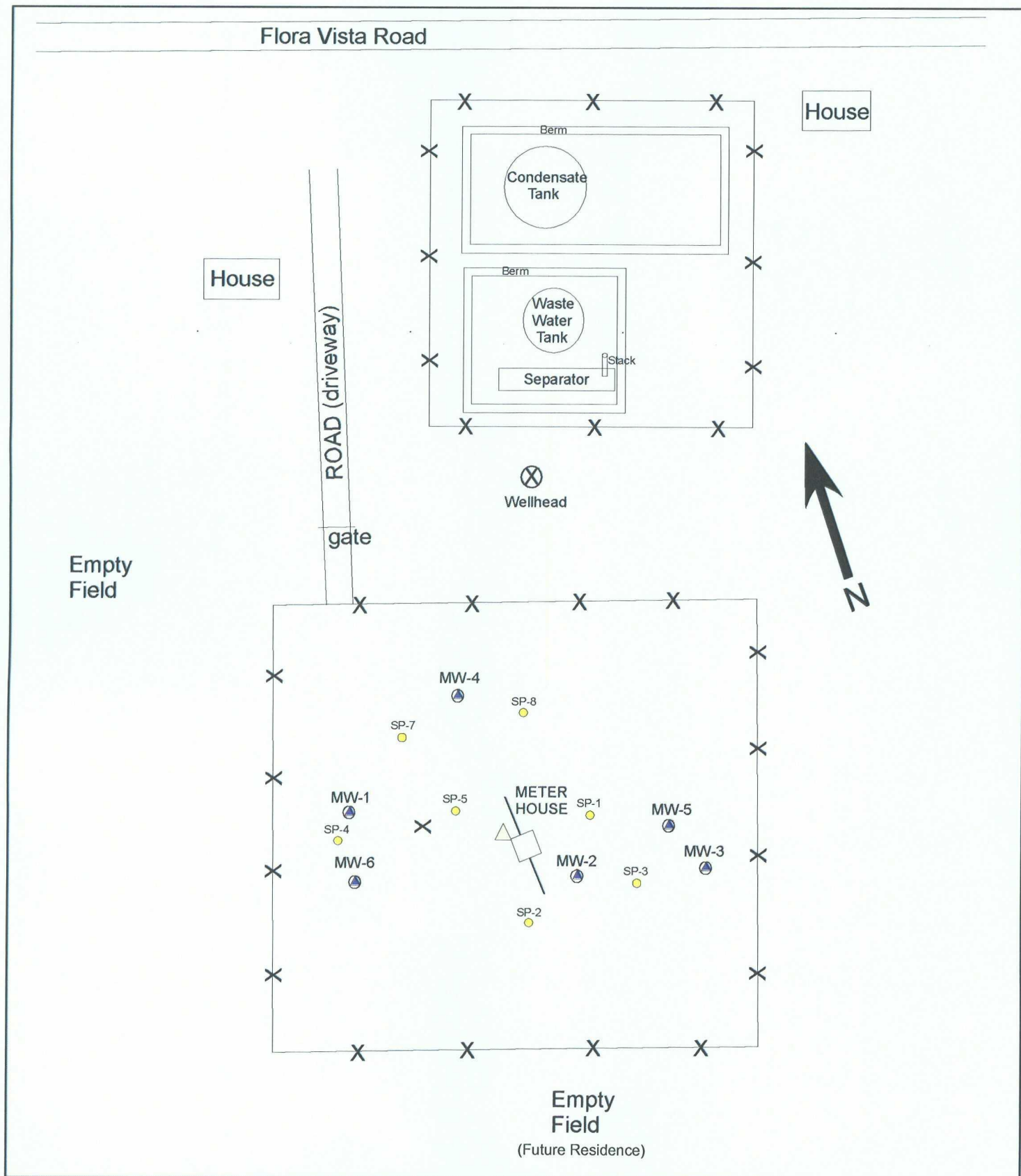
TETRA TECH, INC.



★ = Site Location

Figure 1. Site Location Map  
ConocoPhillips Nell Hall #1 Site  
Flora Vista, New Mexico





SCALE  
0 20' 40' 80'



#### LEGEND

- MW-2 - Monitoring Well Locations
  - SP-3 - Sparge Point Locations
  - △ - Survey Control Point
  - X - Fence
- NOTE: SP-1 Removed.

FIGURE 2.  
CONOCOPHILLIPS  
NELL HALL #1 SITE MAP

Flora Vista Road

House

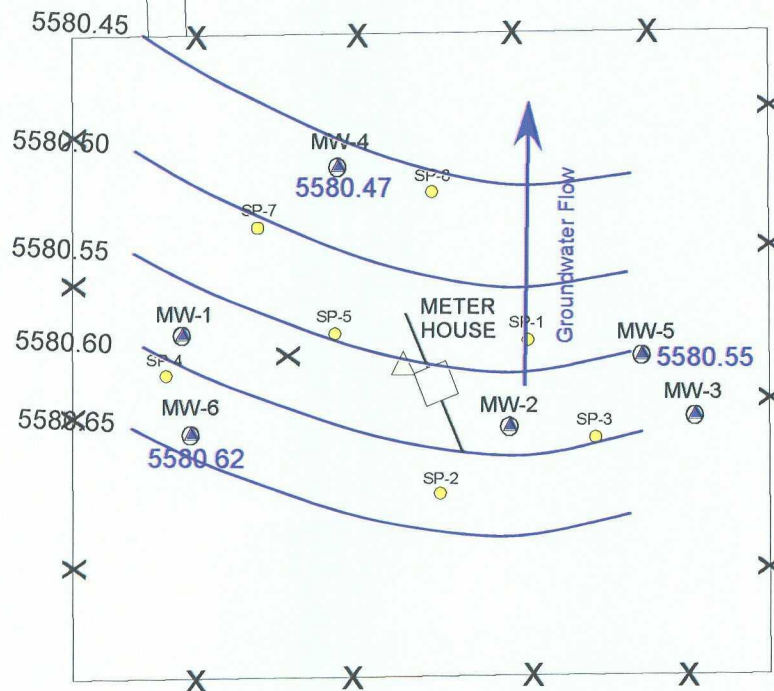
House

ROAD (driveway)

gate

Wellhead

Empty Field



Empty Field  
(Future Residence)

SCALE



TETRA TECH, INC.

### LEGEND

- MW-2 - Monitoring Well Locations
- SP-3 - Sparge Point Locations
- △ - Survey Control Point
- X- - Fence
- - Groundwater Contour

NOTE: SP-1 Removed.

FIGURE 3.  
CONOCOPHILLIPS  
NELL HALL #1  
GROUNDWATER ELEVATION  
CONTOUR MAP (02/19/2007)

## TABLES



Table 1. ConocoPhillips Nell Hall #1 Monitoring Well Specifications and Groundwater Elevation Table

Well ID	Date Installed	Total Depth (ft. bgs)	Screen Interval (ft)	Elevation (ft. msl) (TOC)	Date Measured	Groundwater Level (ft TOC)	Groundwater Elevation (ft msl)
MW-4	2/18/2004	35	5-35	5614.87	3/8/2004	36.04	5578.83
					7/19/2004	8.44	5606.43
					10/27/2004	19.69	5595.18
					12/27/2004	27.58	5587.29
					5/10/2005	dry	
					11/22/2005	23.93	5590.94
MW-5	2/17/2004	39	4-39	5615.86	11/15/2006	21.02	5593.85
					2/19/2007	34.40	5580.47
					3/8/2004	37.19	5578.67
					7/19/2004	9.38	5606.48
					10/27/2004	21.07	5594.79
					12/27/2004	28.99	5586.87
MW-6	2/18/2004	35	5-35	5615.44	5/10/2005	39.79	5576.07
					11/22/2005	25.23	5590.63
					11/15/2006	22.51	5593.35
					2/19/2007	35.31	5580.55
					3/8/2004	36.27	5579.17
					7/19/2004	9.43	5606.01
MW-6	2/18/2004	35	5-35	5615.44	10/27/2004	19.33	5596.11
					12/27/2004	28.62	5586.82
					5/10/2005	dry	
					11/22/2005	25.02	5590.42
MW-6	2/18/2004	35	5-35	5615.44	11/15/2006	21.12	5594.32
					2/19/2007	34.82	5580.62

msl = Mean sea level  
 TOC = Top of casing  
 bgs = below ground surface

Table 2. ConocoPhillips Nell Hall #1 Groundwater Analytical Results Summary

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)
MW-4	3/8/2004	13	12	64	1,400	NA	NA	NA	NA
	7/19/2004	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
	10/27/2004	11	8	21	130	NA	NA	NA	NA
	12/27/2004	<2.5	<2.5	<2.5	<0.5	NA	NA	NA	NA
	5/11/2005	dry							
MW-5	11/22/2005	<0.5	<0.7	<0.8	<0.8	<0.40	105	2.7	<0.25
	11/15/2006	<0.5	<0.7	<0.8	<0.8	<0.25	110	0.083	<0.25
	2/21/2007	<0.5	<0.7	<0.8	<0.8	<0.25	59.6	1.6	0.28
	3/8/2004	1.1	<0.5	1	17	NA	NA	NA	NA
	7/19/2004	<0.5	0.55	<0.5	0.72	NA	NA	NA	NA
	10/27/2004	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA
	12/27/2004	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA
	5/11/2005	<0.5	<0.7	<0.8	<0.8	2.3	139	<0.0080	1.2
	11/22/2005	<0.5	<0.7	<0.8	<0.8	<0.40	38	<0.0080	0.43
	11/15/2006	<0.5	<0.7	<0.8	<0.8	2.3	77.9	<0.0080	<0.25
MW-6	2/21/2007	<0.5	<0.7	<0.8	<0.8	1.3	83.3	<0.0080	0.28
	3/8/2004	2,500	14	1,600	21,031	NA	NA	NA	NA
	7/19/2004	<0.5	<0.5	0.98	2.6	NA	NA	NA	NA
	10/27/2004	0.4	0.3	0.5	2.1	NA	NA	NA	NA
	12/27/2004	45	6.8	14	71.7	NA	NA	NA	NA
	5/11/2005	dry							
NMWQCC Standards	11/22/2005	10	0.7	16	150	<0.40	3.4	7.7	2.8
	11/15/2006	<0.5	<0.7	<0.8	<0.8	<0.25	41.3	0.19	<0.25
	2/21/2007	540	<1	76	810	<0.25	1.8	6.4	9.0
		10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)	10 (mg/L)	600 (mg/L)	1 (mg/L)	NE

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 Established  
NA = Not Analyzed

**APPENDIX A**

**LABORATORY REPORT**





## Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • [www.lancasterlabs.com](http://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 1026481. Samples arrived at the laboratory on Thursday, February 22, 2007. The PO# for this group is 4506560640 and the release number is TAYLOR.

#### Client Description

MW-6 Grab Water Sample  
MW-4 Grab Water Sample  
MW-5 Grab Water Sample  
Trip Blank Water Sample

#### Lancaster Labs Number

4988016  
4988017  
4988018  
4988019

ELECTRONIC      Tetra Tech, Inc  
COPY TO

Attn: Kelly Henderson



## ***Analysis Report***

2425 New Holland Pkce, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • [www.lancasterlabs.com](http://www.lancasterlabs.com)

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

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Erik J. Frederiksen".

**Erik J. Frederiksen**  
**Manager**



# 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 4988016

MW-6 Grab Water Sample

Site# 6084

Nell Hall #1, NM

Collected: 02/21/2007 09:30

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

NHMMW6

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Units	Dilution Factor
00228	Sulfate	14808-79-8	1.8	1.5	5.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	9.0	0.50	0.62	mg/l	2
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.25	0.50	mg/l	5
08344	Ferrous Iron	n.a.	6.4	0.20	2.5	mg/l	25
02300	GC/MS Volatiles						
05401	Benzene	71-43-2	540.	1.	10.	ug/l	2
05407	Toluene	108-88-3	N.D.	1.	10.	ug/l	2
05415	Ethylbenzene	100-41-4	76.	2.	10.	ug/l	2
06310	Xylene (Total)	1330-20-7	810.	2.	10.	ug/l	2

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
00228	Sulfate	EPA 300.0	1	02/22/2007 22:54	Ashley M Heckman	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/26/2007 21:26	Venia B McFadden	2
00368	Nitrate Nitrogen	EPA 300.0	1	02/22/2007 22:54	Ashley M Heckman	5
08344	Ferrous Iron	SM20 3500-Fe B modified	1	02/22/2007 22:30	Daniel S Smith	25
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 00:46	Ryan V Nolt	2
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 00:46	Ryan V Nolt	2
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/26/2007 12:50	Nancy J Shoop	1

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





# Analysis Report

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Page 1 of 1

Lancaster Laboratories Sample No. WW 4988017

MW-4 Grab Water Sample  
Site# 6084  
Nell Hall #1, NM

Collected: 02/21/2007 10:20

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

NHWM4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Units	Dilution Factor
00228	Sulfate	14808-79-8	59.6	1.5	5.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.25	0.31	mg/l	1
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.25	0.50	mg/l	5
08344	Ferrous Iron	n.a.	1.6	0.040	0.50	mg/l	5
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
00228	Sulfate	EPA 300.0	1	02/22/2007 23:25	Ashley M Heckman	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/26/2007 21:08	Venia B McFadden	1
00368	Nitrate Nitrogen	EPA 300.0	1	02/22/2007 23:25	Ashley M Heckman	5
08344	Ferrous Iron	SM20 3500-Fe B modified	1	02/22/2007 22:30	Daniel S Smith	5
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 01:34	Ryan V Nolt	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 01:34	Ryan V Nolt	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/26/2007 12:50	Nancy J Shoop	1

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



# Analysis Report

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Page 1 of 1

Lancaster Laboratories Sample No. WW 4988018

MW-5 Grab Water Sample

Site# 6084

Nell Hall #1, NM

Collected: 02/21/2007 10:30 by AM

Account Number: 11288

Submitted: 02/22/2007 09:55

ConocoPhillips

Reported: 02/28/2007 at 16:04

PO Box 2200

Discard: 03/31/2007

Bartlesville OK 74005

NHMW5

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Units	Dilution Factor
00228	Sulfate	14808-79-8	83.3	15.0	50.0	mg/l	50
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.25	0.31	mg/l	1
00368	Nitrate Nitrogen	14797-55-8	1.3	0.25	0.50	mg/l	5
08344	Ferrous Iron	n.a.	N.D.	0.0080	0.10	mg/l	1
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
00228	Sulfate	EPA 300.0	1	02/23/2007 00:11	Ashley M Heckman	50
00345	Total Phosphorus as PO4 water	EPA 365.1	1	02/26/2007 21:12	Venia B McFadden	1
00368	Nitrate Nitrogen	EPA 300.0	1	02/22/2007 23:56	Ashley M Heckman	5
08344	Ferrous Iron	SM20 3500-Fe B modified	1	02/22/2007 22:30	Daniel S Smith	1
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 01:58	Ryan V Nolt	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 01:58	Ryan V Nolt	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	02/26/2007 12:50	Nancy J Shoop	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 4988019

Trip Blank Water Sample  
Site# 6084  
Nell Hall #1, NM

Collected: 02/21/2007 11:00

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

NHMTB

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	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
02300	GC/MS Volatiles	SW-846 8260B	1	02/27/2007 02:21	Ryan V Nolt	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/27/2007 02:21	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: 1026481

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: 07053196602A	Sample number(s): 4988016-4988018								
Sulfate	N.D.	0.30	1.0	mg/l	106		89-110		
Nitrate Nitrogen	N.D.	0.050	0.10	mg/l	103		90-110		
Batch number: 07053834401A	Sample number(s): 4988016-4988018								
Ferrous Iron	N.D.	0.0080	0.10	mg/l	100		95-105		
Batch number: 07057110101A	Sample number(s): 4988016-4988018								
Total Phosphorus as PO4 water	N.D.	0.25	0.31	mg/l	93		90-110		
Batch number: T070572AA	Sample number(s): 4988016-4988019								
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	MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 07053196602A	Sample number(s): 4988016-4988018 UNSPK: P984621 BKG: P984621								
Sulfate	100		90-110			145.	151.	4*	3
Nitrate Nitrogen	99		90-110			0.74	0.72	4* (1)	2
Batch number: 07053834401A	Sample number(s): 4988016-4988018 UNSPK: 4988016 BKG: 4988016								
Ferrous Iron	95	96	86-110	1	4	6.4	6.4	0 (1)	8
Batch number: 07057110101A	Sample number(s): 4988016-4988018 UNSPK: P987881 BKG: P987881								
Total Phosphorus as PO4 water	107		90-110			0.43	0.30	35* (1)	3
Batch number: T070572AA	Sample number(s): 4988016-4988019 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

\*- 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.



# Analysis Report

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## Quality Control Summary

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

Group Number: 1026481

### 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
4988016	100	93	90	90
4988017	100	96	91	89
4988018	102	96	92	87
4988019	102	96	92	88
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.

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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**APPENDIX B**

**HISTORICAL GROUNDWATER**

**CONTOUR MAPS**

Flora Vista Road

House

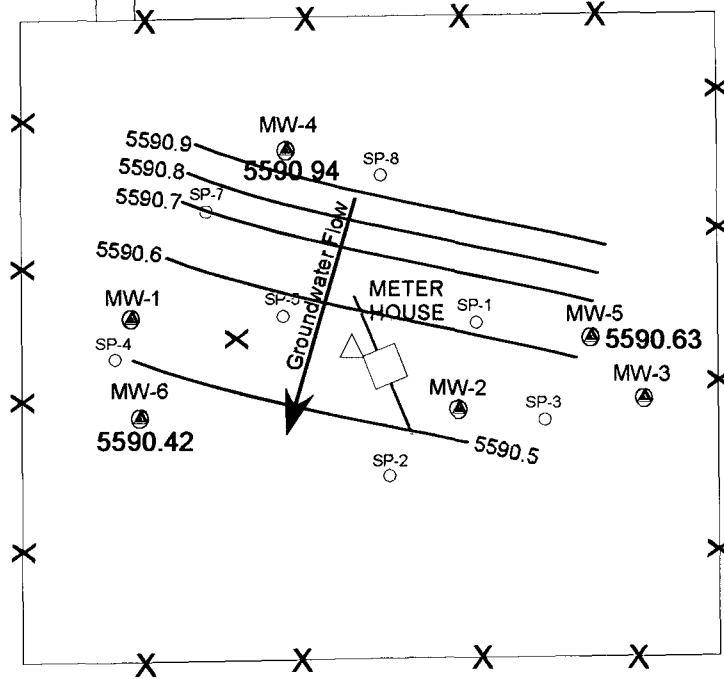
House

ROAD (driveway)

gate

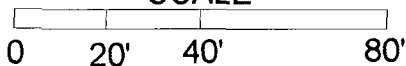
Wellhead

Empty Field



Empty Field

SCALE



**MAXIM**  
TECHNOLOGIES

A DIVISION OF TETRA TECH, INC.

### LEGEND

- MW-2 - Monitoring Well Locations
- SP-3 - Sparge Point Locations
- Survey Control Point
- Fence
- Groundwater Contour

NOTE: SP-1 Removed.

**FIGURE 3.**  
**CONOCOPHILLIPS**  
**NELL HALL #1**  
**GROUNDWATER ELEVATION**  
**CONTOUR MAP (11/22/05)**

Flora Vista Road

House

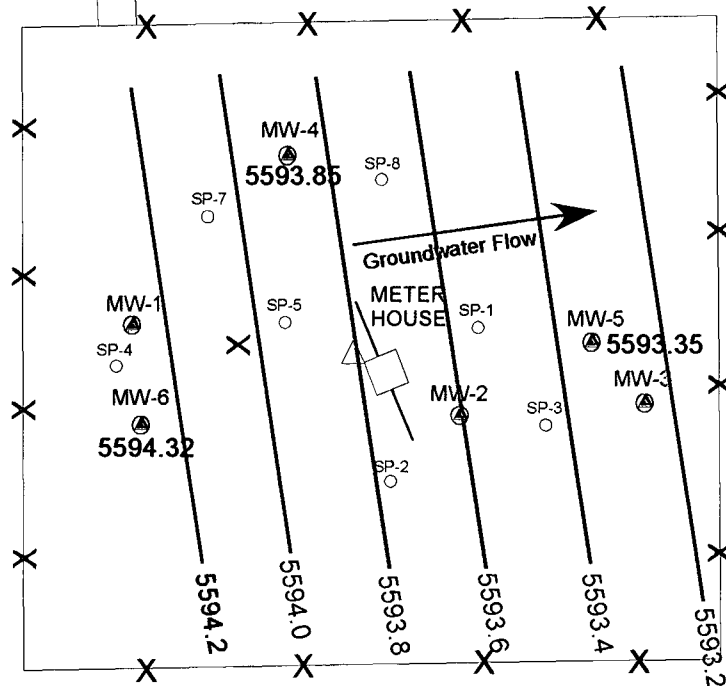
House

ROAD (driveway)

gate

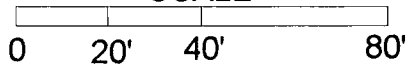
Empty Field

Wellhead



Empty Field  
(Future Residence)

SCALE



TETRA TECH, INC.

### LEGEND

- MW-2 - Monitoring Well Locations
- SP-3 - Sparge Point Locations
- Survey Control Point
- Fence
- Groundwater Contour

NOTE: SP-1 Removed.

FIGURE 3.  
CONOCOPHILLIPS  
NELL HALL #1  
GROUNDWATER ELEVATION  
CONTOUR MAP (11/27/06)