

**3R - 0071**

**ANNUAL  
MONITORING  
REPORT**

**03/27/2008**

32071

# ANNUAL GROUNDWATER MONITORING REPORT

BURLINGAME → **CONOCOPHILLIPS**

## **JOHNSTON FEDERAL #4 METERING FACILITY SAN JUAN COUNTY, NEW MEXICO**

OCD # \_\_\_\_\_

RECEIVED

Prepared for:

APR 02 2008



Oil Conservation Division  
Environmental Bureau

420 South Keeler Avenue  
Bartlesville, OK 74004

Prepared by:



TETRA TECH, INC.

6121 Indian School Rd. NE, Suite 200  
Albuquerque, NM 87110  
Tetra Tech Project No. 1158690061

March 27, 2008

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# ANNUAL GROUNDWATER MONITORING REPORT JOHNSTON FEDERAL #4, SAN JUAN COUNTY, NEW MEXICO

## 1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring events conducted by Lode Star LLC in March and June 2007, and by Tetra Tech, Inc. (Tetra Tech) in November 2007 and January 2008, at the ConocoPhillips Johnston Federal #4 site near Flora Vista, New Mexico (Figure 1). The site is located in Unit Letter M, Section 27, Township 31N, Range 9W, of San Juan County, New Mexico.

### 1.1 Site Background

Burlington Resources conducted initial site assessments of two Burlington pits in August 1998. The separator pit tested clean and was closed. The tank drain pit had levels above standards, and excavation of approximately 3055 cubic yards of impacted soil to a depth of 30 feet occurred in December 1998. Prior to backfilling, the excavation was sprayed with 20 barrels of Oxy-I. Clean overburden and soils from a nearby wash were used to backfill the excavation. The existing monitor well network consists of a single monitor well, MW-1 which is sampled on a quarterly basis by ConocoPhillips (Heritage Burlington Resources) and three monitoring wells owned by El Paso Natural Gas. The monitoring schedule of these wells is unknown.

## 2.0 MONITORING SUMMARY AND SAMPLING METHODOLOGY / RESULTS

### 2.1 Monitoring Summary

Quarterly groundwater sampling was conducted in March, June, and November 2007 and in January 2008. Groundwater samples were collected from monitoring well MW-1 during the March and June 2007 events. Samples were mistakenly collected from one of the El Paso Natural Gas-owned monitoring wells during the November 2007 and the January 2008 events. Prior to sampling, depth to groundwater measurements were made. Groundwater depth in MW-1 is approximately 47 feet below ground surface (bgs) according to previous data.

### 2.2 Groundwater Sampling Methodology

The monitoring well was purged of three volumes of water and sampled. A 1.5-inch clear, poly-vinyl, disposable bailer was used to purge each well and to collect the groundwater sample. The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation. All samples collected were analyzed for the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B. Analysis of the March and June 2007 samples was performed by ACZ Laboratories, Inc. in Steamboat Springs, Colorado. Analysis of the November 2007 and January 2008 samples was performed by Lancaster Laboratories in Lancaster, Pennsylvania.

### 2.3 Groundwater Sampling Analytical Results

Samples collected during the 2007 monitoring period indicate the following results:

- Groundwater concentrations for BTEX were below laboratory method detection limits (MDL) / practical quantitation limits (PQL) for the November 2007 and January 2008 sampling events.
- Groundwater concentrations exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard for benzene (10 micrograms per liter [ $\mu\text{g/L}$ ]) at 6,870  $\mu\text{g/L}$  and 5,680  $\mu\text{g/L}$ , toluene (750  $\mu\text{g/L}$ ) at 5,720  $\mu\text{g/L}$  and 1,830  $\mu\text{g/L}$ , and total xylenes (620  $\mu\text{g/L}$ ) at 12,160  $\mu\text{g/L}$  and 9,480  $\mu\text{g/L}$  during the March 2007 and July 2007 sampling events, respectively;

Given the substantial drop in measured concentrations of benzene, toluene and xylenes in MW-1 since Tetra Tech began sampling the well, it appears likely that the wrong well was sampled. A site map was not available, which may have contributed to a misunderstanding the location of MW-1. During the transition of the site, Tetra Tech field staff also obtained a key from Lodestar LLC, which only fit the El Paso wells. Field staff confirmed this by describing the location and appearance of the well they sampling during November 2007 and January 2008. Table 2 summarizes the laboratory analytical results for each quarterly groundwater sampling event. The corresponding laboratory analysis reports including quality control summaries are included in Appendix A.

### 3.0 CONCLUSIONS

Tetra Tech will confirm the monitoring well location with the client to ensure that the correct well is being sampled. Tetra Tech will compile a detailed site map during the next site visit. Groundwater sampling events will be performed during March, June, September, and December 2008. Please contact Kelly Blanchard at 505-237-8440 or [kelly.blanchard@tetratech.com](mailto:kelly.blanchard@tetratech.com) if you have any questions or require additional information.

**FIGURE**

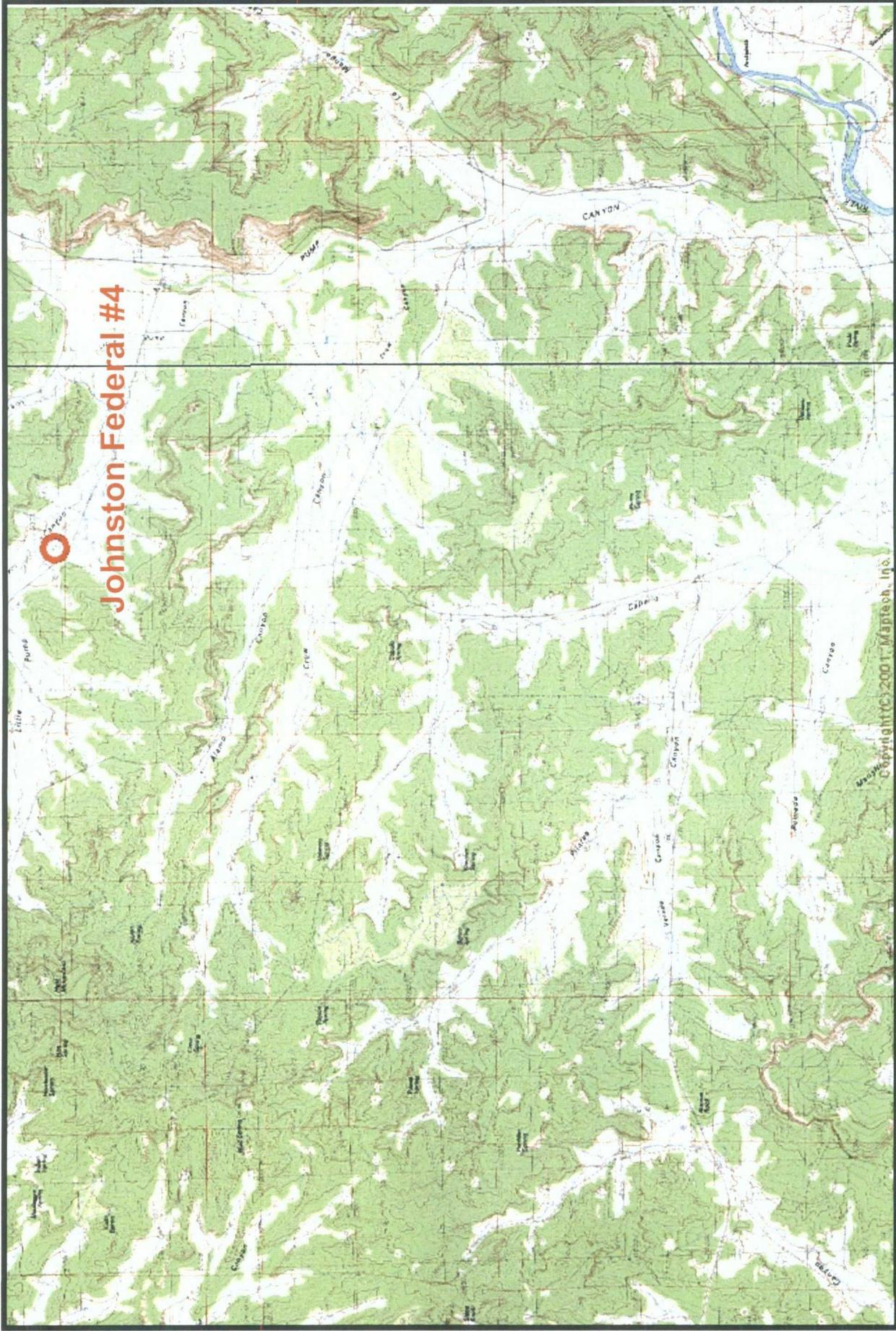
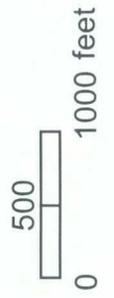


Figure 1. Site Location Map  
 ConocoPhillips Johnston Federal #4 Site  
 San Juan County, New Mexico



**TABLES**

Table 1. ConocoPhillips Johnston Federal #4 Groundwater Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
MW-1	3/27/2007	6870	5720	210	12160
	6/25/2007	5680	1830	400	9480
	11/9/2007	<0.5	<0.7	<0.8	<0.8
	1/15/2008	<0.5	<0.7	<0.8	<0.8
<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

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

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

NE=Not Established

NA = Not Analyzed

BDL = Below laboratory detection limits

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

**APPENDIX A**  
**LABORATORY ANALYSIS REPORT**

July 12, 2007

## Report to:

Gregg Wurtz  
ConocoPhillips Company  
3401 E. 30th St. P.O. Box 4289  
Farmington, NM 87499

## Bill to:

B. Curley  
Burlington Resources, Inc.  
P.O. Box 2200  
Bartleville, OK 74005

cc: Martin Nee

Project ID: JOHNSTON FEDERAL #4

ACZ Project ID: L63460

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 27, 2007. This project has been assigned to ACZ's project number, L63460. Please reference this number in all future inquiries.

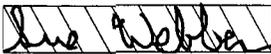
All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L63460. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after August 12, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.



12/Jul/07

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.



**ConocoPhillips Company**Project ID: JOHNSTON FEDERAL #4  
Sample ID: JOHNSTON FEDERAL #4ACZ Sample ID: **L63460-01**  
Date Sampled: 06/25/07 13:45  
Date Received: 06/27/07  
Sample Matrix: Ground Water**Benzene, Toluene, Ethylbenzene & Xylene**Analysis Method: **M8021B GC/PID**  
Extract Method:**Workgroup:** WG227741

Analyst: ccp/jj

Extract Date:

Analysis Date: 07/05/07 13:35

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2	5680		50	*	ug/L	20	50
Ethylbenzene	100-41-4	400		50	*	ug/L	10	50
m p Xylene	1330-20-7	7490		50	*	ug/L	20	100
o Xylene	95-47-6	1990		50	*	ug/L	10	50
Toluene	108-88-3	1830		50	*	ug/L	10	50

Surrogate Recoveries	CAS	% Recovery	Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	96	50		%	70	130

**Report Header Explanations**

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>LCL</i>	Lower Control Limit
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>UCL</i>	Upper Control Limit
<i>Sample</i>	Value of the Sample of interest

**QC Sample Types**

<i>SURR</i>	Surrogate	<i>LFM</i>	Laboratory Fortified Matrix
<i>INTS</i>	Internal Standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBS</i>	Prep Blank - Soil
<i>LFB</i>	Laboratory Fortified Blank	<i>PBW</i>	Prep Blank - Water

**QC Sample Type Explanations**

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.

**ACZ Qualifiers (Qual)**

B	Analyte detected in daily blank
H	Analysis exceeded method hold time.
J	Analyte concentration detected at a value between MDL and PQL
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.
P	Analyte concentration differs from second detector by more than 40%.
E	Analyte concentration is estimated due to result exceeding calibration range.
M	Analyte concentration is estimated due to matrix interferences.

**Method References**

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.
- (3) EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.
- (5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December, 1996.
- (6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

**Comments**

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Organic analyses are reported on an "as received" basis.

ConocoPhillips Company

ACZ Project ID: **L63460**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L63460-01	WG227741	Benzene	M8021B GC/PID	D2	Sample required dilution. Target analyte exceeded calibration range.
		Ethylbenzene	M8021B GC/PID	D2	Sample required dilution. Target analyte exceeded calibration range.
		m p Xylene	M8021B GC/PID	D2	Sample required dilution. Target analyte exceeded calibration range.
		o Xylene	M8021B GC/PID	D2	Sample required dilution. Target analyte exceeded calibration range.
		Toluene	M8021B GC/PID	D2	Sample required dilution. Target analyte exceeded calibration range.

**ConocoPhillips Company**

ACZ Project ID: **L63460**

No certification qualifiers associated with this analysis

**Sample Receipt**

**ConocoPhillips Company**  
 JOHNSTON FEDERAL #4

ACZ Project ID: L63460  
 Date Received: 6/27/2007  
 Received By:  
 Date Printed: 6/27/2007

**Receipt Verification**

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

YES	NO	NA
		X
X		
		X
X		
X		
X		
X		
X		
		X
		X
X		
		X

**Exceptions: If you answered no to any of the above questions, please describe**

N/A

**Contact (For any discrepancies, the client must be contacted)**

N/A

**Shipping Containers**

Cooler Id	Temp (°C)	Rad (µR/hr)
1092	4.4	13

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

**Notes**

**ConocoPhillips Company**  
JOHNSTON FEDERAL #4

ACZ Project ID: L63460  
Date Received: 6/27/2007  
Received By:

### Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L63460-01	JOHNSTON FEDERAL #4											<input type="checkbox"/>

### Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

\* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: \_\_\_\_\_

163460

# ACZ Laboratories, Inc.

## CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

### Report to:

Name: Gregg Wurtz  
 Company: Burlington Conoco Phillips  
 E-mail: Gregg.B.Wurtz@conocoPhillips.com

Address: PO Box 4289  
Farmington NM  
 Telephone: 505 326 9537

### Copy of Report to:

Name: M Nee  
 Company: Lodestar Services Inc

E-mail: mjn@lodestarServices.com  
 Telephone: 505 320 9675

### Invoice to:

Name: Gregg Wurtz  
 Company: As above  
 E-mail: Gregg.G.Wurtz@conocoPhillips.com

Address:  
 Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES   
 NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

### PROJECT INFORMATION

### ANALYSES REQUESTED (attach list or use quote number)

Quote #:  
 Project/PO #: Johnson Federal #4  
 Reporting state for compliance testing:  
 Sampler's Name: Martin Nee  
 Are any samples NRC licensable material? No

Matrix	# of Containers	ANALYSES REQUESTED													
WB	2	8021 B 182EX													

### SAMPLE IDENTIFICATION

### DATE TIME

### Matrix

Johnson Federal #4 met 62507 1345 WB

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

### REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

### RELINQUISHED BY:

### DATE TIME

### RECEIVED BY:

### DATE TIME

AS 62607 1630 KU 6:27 07 10 150

March 30, 2007

## Report to:

Gregg Wurtz  
ConocoPhillips Company  
3401 E. 30th St. P.O. Box 4289  
Farmington, NM 87499

## Bill to:

B. Curley  
ConocoPhillips Company  
Burlington Resources P.O. Box 2200  
Bartlesville, OK 74005

cc: Martin Nee

Project ID: JOHNSTON FEDERAL 4

ACZ Project ID: L61727

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 28, 2007. This project has been assigned to ACZ's project number, L61727. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L61727. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 30, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.



30/Mar/07

Tony Antalek, Project Manager, has reviewed and approved this report in its entirety.



**ConocoPhillips Company**Project ID: JOHNSTON FEDERAL 4  
Sample ID: JOHNSTON FEDERAL 4MACZ Sample ID: **L61727-01**  
Date Sampled: 03/27/07 8:34  
Date Received: 03/28/07  
Sample Matrix: Ground Water**Benzene, Toluene, Ethylbenzene & Xylene**Analysis Method: **M8021B GC/PID**  
Extract Method:Workgroup: **WG222372**  
Analyst: *ccp*  
Extract Date:  
Analysis Date: **03/29/07 23:45**

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2	6870		50	*	ug/L	20	50
Ethylbenzene	100-41-4	210		50	*	ug/L	10	50
m p Xylene	1330-20-7	9270		50	*	ug/L	20	100
o Xylene	95-47-6	2890		50	*	ug/L	10	50
Toluene	108-88-3	5720		50	*	ug/L	10	50

Surrogate Recoveries	CAS	% Recovery	Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	113.1	50	*	%	70	130



Report Header Explanations

Table with 2 columns: Term and Definition. Terms include Batch, Found, Limit, Lower, LCL, MDL, PCN/SCN, PQL, QC, Rec, RPD, Upper, UCL, and Sample.

QC Sample Types

Table with 4 columns: Code, Name, Code, Name. Codes include SURR, INTS, DUP, LCSS, LCSW, LFB, LFM, LFMD, LRB, MS/MSD, PBS, and PBW.

QC Sample Type Explanations

Table with 2 columns: Term and Definition. Terms include Blanks, Control Samples, Duplicates, and Spikes/Fortified Matrix.

ACZ Qualifiers (Qual)

Table with 2 columns: Qualifier and Definition. Qualifiers include B, H, J, R, T, U, V, W, X, Z, P, E, and M.

Method References

- List of 6 references including EPA 600/4-83-020, EPA 600/4-90/020, EPA 600/R-92/129, EPA SW-846, and Standard Methods for the Examination of Water and Wastewater.

Comments

- Two comments: (1) QC results calculated from raw data. (2) Organic analyses are reported on an "as received" basis.

**ConocoPhillips Company**

ACZ Project ID: **L61727**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L61727-01	WG222372	*All Compounds*	M8021B GC/PID	Q3	Sample received with improper chemical preservation.

ConocoPhillips Company

ACZ Project ID: **L61727**



No certification qualifiers associated with this analysis

**ConocoPhillips Company**  
 JOHNSTON FEDERAL 4

ACZ Project ID: L61727  
 Date Received: 3/28/2007  
 Received By:  
 Date Printed: 3/28/2007

**Receipt Verification**

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?	X		
13) Do the samples that require a Foreign Soils Permit have one?			X

**Exceptions: If you answered no to any of the above questions, please describe**

N/A

**Contact (For any discrepancies, the client must be contacted)**

N/A

**Shipping Containers**

Cooler Id	Temp (°C)	Rad (µR/hr)
1106	3.9	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

**Notes**

**ConocoPhillips Company**  
 JOHNSTON FEDERAL 4

ACZ Project ID: L61727  
 Date Received: 3/28/2007  
 Received By:

**Sample Container Preservation**

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L61727-01	JOHNSTON FEDERAL 4MW									X		

**Sample Container Preservation Legend**

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

\* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: \_\_\_\_\_

# ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

L61727

## CHAIN of CUSTODY

**Report to:**

Name: Gregg Wurtz  
 Company: Burlington - Conoco Phillips  
 E-mail: gwurtz@BR-inc.com

Address: BOX 4289  
Farmington NM  
 Telephone: 505 326 9537

**Copy of Report to:**

Name: M Nee  
 Company: Lodestar Services

E-mail: mjn@lodestarservices.com  
 Telephone: 505 334 2791

**Invoice to:**

Name: Gregg Wurtz  
 Company: as above  
 E-mail:

Address:  
 Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES   
 NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

**PROJECT INFORMATION**

**ANALYSES REQUESTED (attach list or use quote number)**

Quote #:  
 Project/PO #: Flora Vista 1 + Johnston 4  
 Reporting state for compliance testing:  
 Sampler's Name: ALA  
 Are any samples NRC licensable material?

Quote #	Project/PO #	Reporting state	Sampler's Name	Are any samples NRC licensable material?	Matrix	# of Containers	Analysis Requested							
						2	✓							
						2	✓							

SAMPLE IDENTIFICATION	DATE TIME	Matrix
<u>Johnston Federal 4 MW-1</u>	<u>03-27-07: 0834</u>	<u>GW</u>
<u>Flora Vista 1 MW-1</u>	<u>03-27-07: 1220</u>	<u>GW</u>

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

**REMARKS**

Please make 2 reports: 1 for Johnston Federal 4 results & 1 for Flora Vista 1 results

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE TIME	RECEIVED BY:	DATE TIME
<u>Wesley Leger</u>	<u>03-27-07: 1400</u>	<u>[Signature]</u>	<u>03-28-07: 10:00</u>



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2881 • 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 1065262. Samples arrived at the laboratory on Tuesday, November 13, 2007. The PO# for this group is 4506560639 and the release number is MULDOON.

## Client Description

MW-1 Grab Water Sample

## Lancaster Labs Number

5211139

ELECTRONIC    Tetra Tech  
COPY TO

Attn: Kelly Blanchard

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

Respectfully Submitted,

  
Christine Dulaney  
Senior Specialist

Lancaster Laboratories Sample No. WW 5211139

 MW-1 Grab Water Sample  
 Site#  
 Johnston Federal #4

Collected: 11/09/2007 12:55 by AM

Account Number: 11288

 Submitted: 11/13/2007 09:10  
 Reported: 11/15/2007 at 19:17  
 Discard: 12/16/2007

 ConocoPhillips  
 PO Box 2200  
 Bartlesville OK 74005

JFMW1

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

Trip blank vials were not received by the laboratory for this sample group.

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	11/14/2007 13:29	Matthew F Regan	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/14/2007 13:29	Matthew F Regan	1

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

## Quality Control Summary

 Client Name: ConocoPhillips  
 Reported: 11/15/07 at 07:17 PM

Group Number: 1065262

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

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: T073181AB	Sample number(s): 5211139								
Benzene	N.D.	0.5	5.	ug/l	104	101	78-119	3	30
Toluene	N.D.	0.7	5.	ug/l	102	97	85-115	5	30
Ethylbenzene	N.D.	0.8	5.	ug/l	90	88	82-119	3	30
Xylene (Total)	N.D.	0.8	5.	ug/l	93	89	83-113	5	30

### 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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: T073181AB	Sample number(s): 5211139 UNSPK: 5211139							
Benzene	110		83-128					
Toluene	109		83-127					
Ethylbenzene	101		82-129					
Xylene (Total)	103		82-130					

### 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: GC/MS Volatiles  
 Batch number: T073181AB

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5211139	102	96	100	103
Blank	102	94	100	104
LCS	101	99	104	105
LCSD	101	92	104	106
MS	101	96	103	105
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 unspiked result was more than four times the spike added.

# Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11288 Group # D65262 Sample # 5a11139

COC # 0169640

Please print. Instructions on reverse side correspond with circled numbers.

<b>1</b> Client: <u>Tetra Tech</u> Acct. #: _____ Project Name #: <u>Johnston Federal #14</u> PWSID #: _____ Project Manager: <u>Kelly Henderson</u> P.O. #: _____ Sampler: <u>Ana Moreno/Mitch Crooks</u> Quote #: _____ Name of state where samples were collected: <u>New Mexico</u>		<b>5</b> Preservation Codes H=HCl T=Thiosulfate N=HNO <sub>3</sub> B=NaOH S=H <sub>2</sub> SO <sub>4</sub> O=Other	
<b>2</b> MW-1 11-9-07 1255 X		<b>6</b> Remarks + BTEX	
<b>3</b>		<b>4</b>	
<b>7</b> Turnaround Time Requested (TAT) (please circle): Normal <input checked="" type="radio"/> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone Fax E-mail Phone #: <u>505-237-8490</u> Fax #: <u>505-237-8004</u> E-mail address: <u>Kelly.henderson@tetratech.com 8656</u>		<b>9</b> Date Time Received by: _____ Date Time Date Time Received by: _____ Date Time	
<b>8</b> Data Package Options (please circle if required) SDG Complete? Type I (validation/NJ Reg) TX TRRP-13 Yes No Type II (Tier II) MA MCP CT RCP Type III (Reduced NJ) Site-specific QC (MS/MSD/Dup)? Yes No Type IV (CLP SOW) (if yes, indicate QC sample and submit duplicate vials) Type VI (Raw Data Only) Internal COC Required? Yes / No		Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____	

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766  
 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

## 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

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

#### Inorganic Qualifiers

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

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-658-2300 Fax: 717-658-2881 • 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 1074020. Samples arrived at the laboratory on Saturday, January 19, 2008. The PO# for this group is 4509350128 and the release number is LAUCKE.

### Client Description

Trip Blank Water Sample  
MW-1 Grab Water Sample

### Lancaster Labs Number

5260850  
5260851

ELECTRONIC      Tetra Tech  
COPY TO

Attn: Kelly Blanchard



## 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 cursive script that reads "Maria S. Lord".

**Maria S. Lord**  
**Senior Specialist**



# 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. 5260850 WW      Group No. 1074020

Trip Blank Water Sample  
Site# 4927  
Johnston Federal #4 - Aztec, NM

Collected: 01/15/2008 16:05      by MC      Account Number: 11288

Submitted: 01/19/2008 10:40      ConocoPhillips  
Reported: 02/12/2008 at 20:07      PO Box 2200  
Discard: 03/14/2008      Bartlesville OK 74005

JF4TB

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	01/22/2008 19:11	Matthew F Regan	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	01/22/2008 19:11	Matthew F Regan	1

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

Lancaster Laboratories Sample No. 5260851 WW      Group No. 1074020

 MW-1 Grab Water Sample  
 Site# 4927  
 Johnston Federal #4 - Aztec, NM

Collected: 01/17/2008 09:30      by MC

Account Number: 11288

 Submitted: 01/19/2008 10:40  
 Reported: 02/12/2008 at 20:07  
 Discard: 03/14/2008

 ConocoPhillips  
 PO Box 2200  
 Bartlesville OK 74005

JF4-1

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	01/22/2008 20:43	Matthew F Regan	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	01/22/2008 20:43	Matthew F Regan	1

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

## Quality Control Summary

 Client Name: ConocoPhillips  
 Reported: 02/12/08 at 08:07 PM

Group Number: 1074020

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: T080221AA	Sample number(s): 5260850-5260851								
Benzene	N.D.	0.5	5.	ug/l	101	96	78-119	5	30
Toluene	N.D.	0.7	5.	ug/l	106	103	85-115	3	30
Ethylbenzene	N.D.	0.8	5.	ug/l	100	101	82-119	1	30
Xylene (Total)	N.D.	0.8	5.	ug/l	103	101	83-113	1	30

### 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	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: T080221AA	Sample number(s): 5260850-5260851 UNSPK: P260403								
Benzene	101		83-128						
Toluene	108		83-127						
Ethylbenzene	102		82-129						
Xylene (Total)	103		82-130						

### 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: GC/MS Volatiles  
 Batch number: T080221AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5260850	100	99	105	108
5260851	99	96	103	106
Blank	99	97	107	108
LCS	96	96	107	110
LCSD	95	99	108	108
MS	96	97	107	110
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 unspiked 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

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

### Inorganic Qualifiers

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