3R - 434

DEC 2009 GWMR

06/10/2011

3R434

TETRA TECH, INC.

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

June 10, 2011

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

RE: ConocoPhillips Company Faye Burdette No. 1 - December 2009 Groundwater Monitoring Report
San Juan County, New Mexico

Dear Mr. von Gonten:

Enclosed please find one copy of the above-referenced document as compiled by Tetra Tech, Inc. for this Aztec area site.

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

Sincerely,

Kelly E. Blanchard

Kelly E. Blanchard
Project Manager/Geologist

Enclosures (1)

Cc: Brandon Powell, NMOCD (Hardcopy)
Terry Lauck, ConocoPhillips Company (Electronic)

QUARTERLY GROUNDWATER MONITORING REPORT DECEMBER 2009 SAMPLING EVENT

CONOCOPHILLIPS COMPANY FAYE BURDETTE NO. 1 API No. 30-045-09725 AZTEC, NEW MEXICO

Prepared for:

ConocoPhillips

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. 9690127.100

February 2010

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QUARTERLY GROUNDWATER MONITORING REPORT CONOCOPHILLIPS FAYE BURDETTE NO. 1, AZTEC, NEW MEXICO

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on December 16, 2009, at the ConocoPhillips Company Faye Burdette No. 1 natural gas well site located on private land in Unit Letter G, Section 9, Township 30N, Range 11W of San Juan County, New Mexico (Site). This event represents the sixth quarter of groundwater sampling conducted by Tetra Tech at the Site.

The Site is located near the intersection of Highway 550 and Pioneer Avenue in Aztec, NM. The Site consists of a gas production well head and associated equipment and installations. The location and general features of the Site are shown on **Figures 1** and **2**, respectively.

1.1 Site History

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

To complete additional investigation and sampling of the Site, Monitor Wells MW-2, MW-3, and MW-4 were installed under the supervision of Tetra Tech during January 2009 at the request of the New Mexico Oil Conservation Division (OCD). All four monitor wells have been incorporated into a quarterly monitoring program that was initiated on January 29, 2009. Site history is outlined in **Table 1**.

2.0 METHODOLOGY AND RESULTS

2.1 Monitoring Summary

Groundwater samples were collected from monitor wells MW-1, MW-2, MW-3, and MW-4 on December 16, 2009. Prior to sampling, depth to groundwater was measured in all monitor wells. A groundwater contour map, showing a general flow direction to the northwest, is provided in **Figure 3**. Groundwater elevation data is included in **Table 2**. A geologic cross section for the Site is provided in **Figure 4**.

2.2 Groundwater Sampling Methodology

Between 3 to 6 gallons of water (approximately three well volumes) were purged from each monitor well before collecting groundwater samples. The purged water was disposed of in the on-site waste water tank. A 1.5-inch polyvinyl chloride dedicated bailer was used to purge each well and collect groundwater samples. The samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain of custody documentation to Southern Petroleum Laboratory (SPL) located in Houston, Texas. The groundwater samples were analyzed for the presence of benzene, toluene, ethyl-benzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B, and for dissolved manganese by EPA Method 6010B. Groundwater sampling field forms are provided in **Appendix A**. Dissolved iron analysis was discontinued this quarter since all results were below standards when first sampled during the previous quarter in September 2009.

2.3 Groundwater Sampling Analytical Results

Groundwater quality samples collected during the December 16, 2009 monitoring event indicate the following results:

- BTEX concentrations were below laboratory detection limits for all monitor wells
- The New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standard for manganese was exceeded in Monitor Well MW-1 at 0.732 milligrams per liter (mg/L). The NMWQCC standard for manganese is 0.2 mg/L.

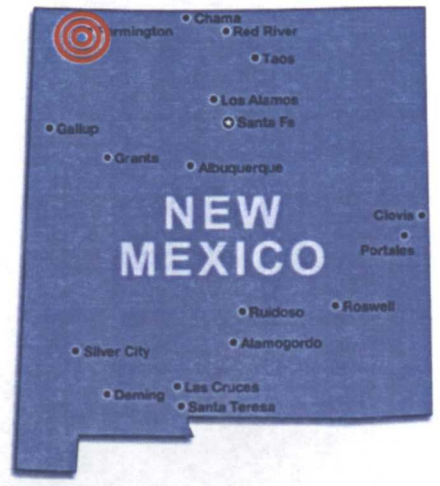
Table 3 summarizes the laboratory analytical results for the December 2009 groundwater sampling event. The corresponding laboratory analytical report, including quality control summaries, is included in **Appendix B**.

3.0 CONCLUSIONS

Tetra Tech recommends continued quarterly groundwater sampling at the Site in order to provide sufficient data for Site closure. Site closure will be requested when groundwater quality results begin to indicate that all constituents of concern are consistently below NMWQCC groundwater quality standards. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

FIGURES

FIGURE 1.
Site Location Map
CONOCOPHILLIPS COMPANY
FAYE BURDETTE NO.1 GAS
PRODUCTION WELL SITE
Sec 9, T30N, R11W
Aztec, New Mexico



Approximate ConocoPhillips Faye Burdette No.1 Site location

N

TETRA TECH, INC.

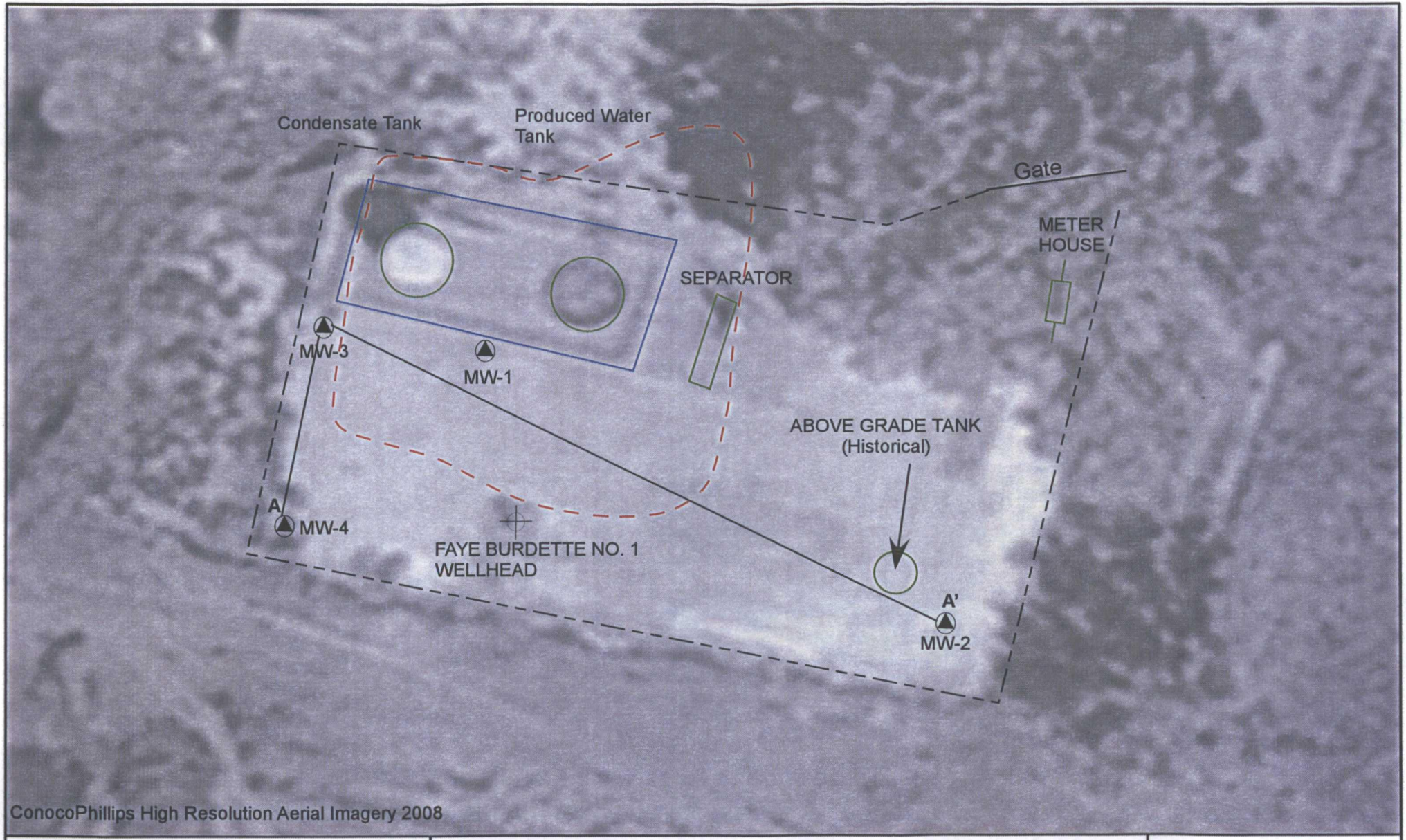


FIGURE 2.
Site Layout Map
CONOCOPHILLIPS COMPANY
FAYE BURDETTE NO.1 GAS PRODUCTION WELL SITE
Sec 9, T30N, R11W
Aztec, New Mexico

LEGEND

- MONITORING WELL
- BERM
- FENCE LINE
- EQUIPMENT
- APPROXIMATE 2007 EXCAVATION AREA

0 25 50
FEET

N

TETRA TECH, INC.

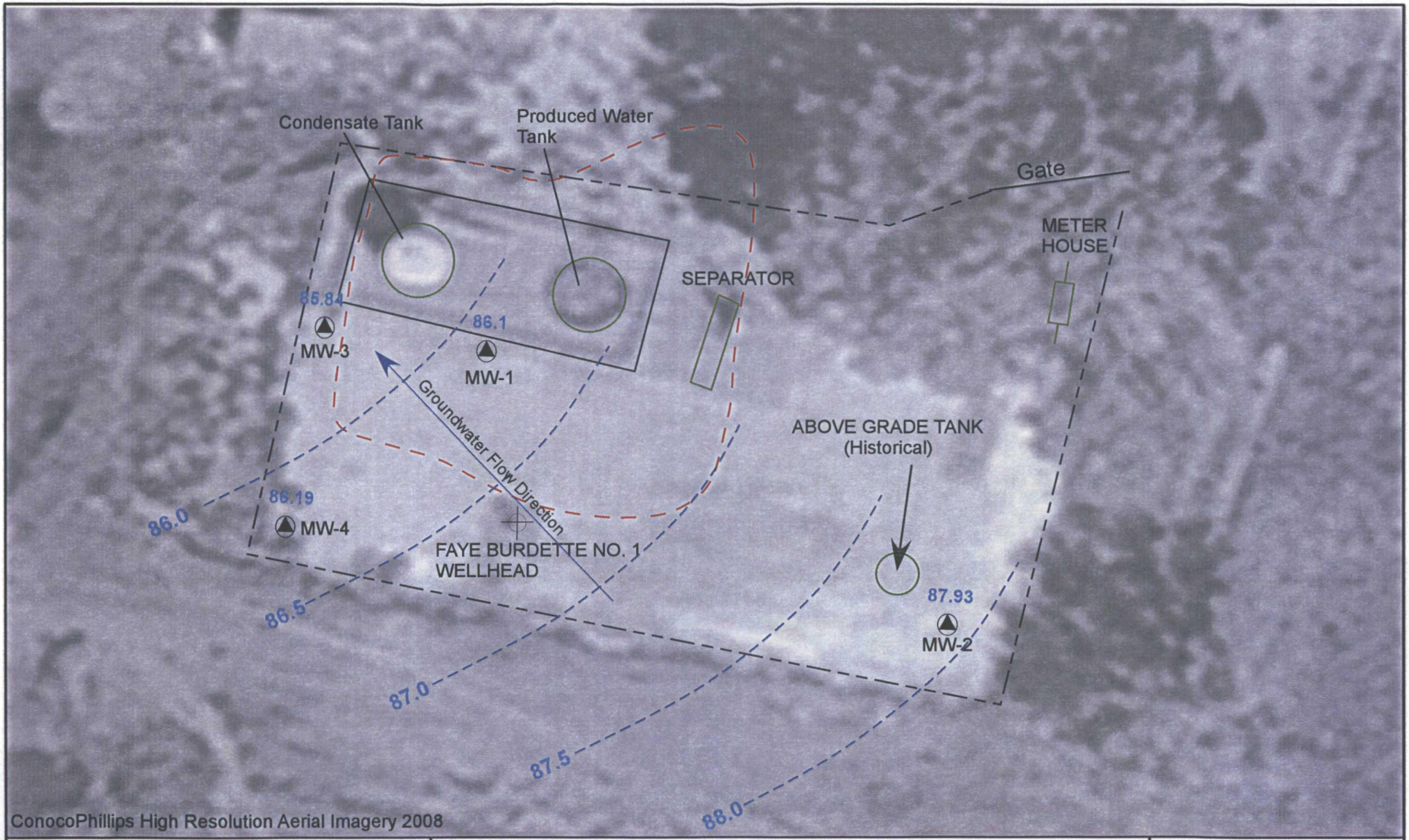


Figure 3
Groundwater Elevation Contour
December 2009
CONOCOPHILLIPS COMPANY
FAYE BURDETTE NO. 1 GAS PRODUCTION WELL SITE
Sec 9, T30N, R11W
Aztec, New Mexico

LEGEND

- MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR
- BERM
- FENCE LINE
- EQUIPMENT
- APPROXIMATE 2007 EXCAVATION AREA

0 25 50
FEET

N

TETRA TECH, INC.

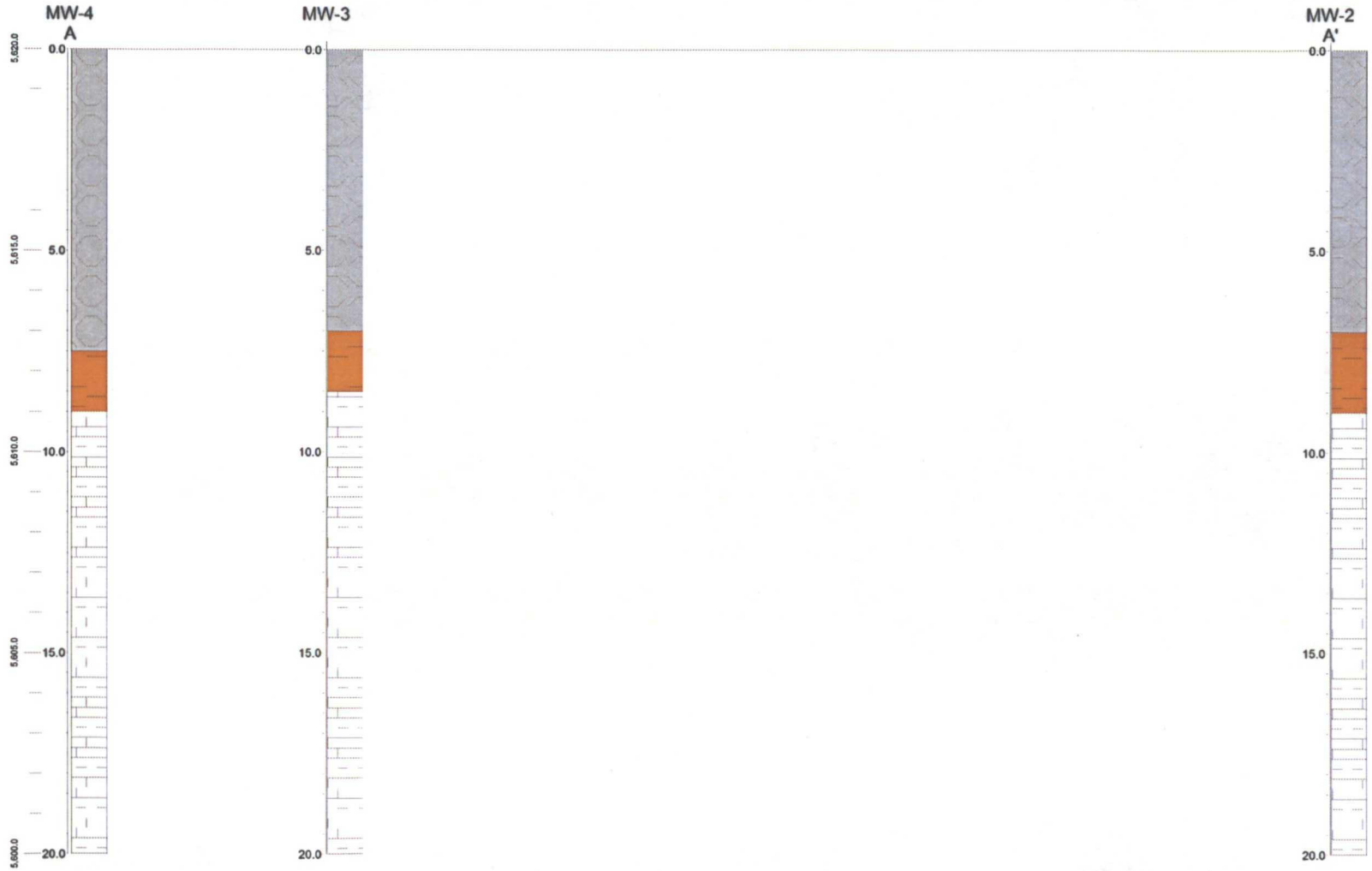


FIGURE 4:
Geologic Cross Section
CONOCOPHILLIPS COMPANY
FAYE BURDETTE NO. 1 GAS
PRODUCTION WELL SITE
Sec 9, T30N, R11W
San Juan County, New Mexico

LEGEND

- Medium grained sand
- Silty Sand
- Undefined

TETRA TECH, INC.

TABLES

Table 1. Site History Timeline - ConocoPhillips Company Faye Burdette No. 1

DATE	ACTIVITY
29-Apr-1962	Well was spudded by Southwest Production Company.
1-Sep-1963	Ownership of well transferred to Beta Development Company.
21-Feb-1983	NMOCD inspection noted a leaky 2-inch valve on a storage tank.
15-Aug-1988	Ownership of well transferred to Mesa Operating Limited Partnership.
1-Jul-1991	Ownership of well transferred to Conoco Inc.
24-May-2007	A small (<25 gallons) release occurred from the produced water tank after a rusty spot was scraped off. Follow-up excavation encountered evidence of pre-existing hydrocarbon-impacted soil, apparently related to a former earthen pit beneath the tank.
Jul-07	Contaminated soil excavated from the Site. Two ground water samples were obtained at the time of this excavation, and one (1) of these samples was found to contain total xylenes above the State of New Mexico drinking water standard.
26-Sep-07	Ground water monitoring well installed to a depth of 15 feet below ground surface (bgs) by Envirotech Inc. of Farmington, NM (Envirotech). A soil sample obtained from the well boring was analyzed for benzene, BTEX and total petroleum hydrocarbons (TPH). Results were below NMOCD regulations of 10 parts per million (ppm), 50 ppm, and 100 ppm, respectively.
	A ground water sample was collected from the temporary monitoring well (MW-1) and analyzed for BTEX; results were below the State of New Mexico drinking water standard for this constituent. Depth to ground water recorded at 9.5 feet bgs.
Nov-07	Envirotech report recommends plugging and abandonment of the temporary ground water monitoring well and a no further action determination for the Site (Envirotech, 2007).
Apr-08	Oil Conservation Division of NM Energy, Minerals, and Resources Dept. indicates additional investigation and sampling is necessary for closure consideration during a meeting with Glenn Von Gonten.
22-Oct-08	1st quarter sampling of MW-1 by Tetra Tech.
Jan-09	WDC installed additional Monitoring Wells MW-2, MW-3 and MW-4 under the supervision of Tetra Tech.
29-Jan-09	Second quarter sampling of MW-1 by Tetra Tech. Initial sampling of Monitoring Wells MW-2, MW-3, and MW-4.
31-Mar-09	Third consecutive quarter of sampling MW-1 by Tetra Tech. Second quarter sampling of Monitoring Wells MW-2, MW-3, and MW-4.
17-Jun-09	Fourth consecutive quarter of sampling MW-1 by Tetra Tech. Third quarter of sampling Monitoring Wells MW-2, MW-3, and MW-4.
22-Sep-09	Fifth consecutive quarter of sampling MW-1 by Tetra Tech. Fourth consecutive quarter of sampling Monitoring Wells MW-2, MW-3, and MW-4. Sampling for total metals discontinued as requesting by NMOCD. Sampling for select dissolved metals based on total metals analyses begins since standards are based on these.
16-Dec-09	Sixth consecutive quarter sampling of MW-1 by Tetra Tech. Fifth consecutive quarter sampling of Monitoring Wells MW-2, MW-3, and MW-4 for BTEX and dissolved manganese only.

Table 2. Groundwater Elevation Data Summary - ConocoPhillips Company Faye Burdette No. 1

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
MW-1	17.52	4.8 - 14.8	97.66	10/22/2008	10.91	86.75
				1/29/2009	11.72	85.94
				3/31/2009	11.88	85.78
				6/17/2009	11.24	86.42
				9/22/2009	10.87	86.79
				12/16/2009	11.56	86.1
MW-2	19.45	5.0 - 20.0	98.54	1/29/2009	10.91	87.63
				3/31/2009	11.12	87.42
				6/17/2009	10.48	88.06
				9/22/2009	10.76	87.78
				12/16/2009	10.61	87.93
MW-3	22.96	5.0 - 20.0	97.16	1/29/2009	11.44	85.72
				3/31/2009	11.62	85.54
				6/17/2009	10.97	86.19
				9/22/2009	10.57	86.59
				12/16/2009	11.32	85.84
MW-4	22.28	5.0 - 20.0	97.06	1/29/2009	11.02	86.04
				3/31/2009	11.18	85.88
				6/17/2009	10.59	86.47
				9/22/2009	10.16	86.90
				12/16/2009	10.87	86.19

ft = Feet

TOC = Top of casing

bgs = below ground surface

* Elevation relative to an arbitrary point set at 100 feet

Table 3. Groundwater Laboratory Analytical Results - ConocoPhillips Company Faye Burdette No. 1

Well ID	Date	Aluminum (mg/L)	Iron (mg/L)	Manganese (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-1	10/22/2008	NA	3.74*	2.09*	< 5	< 5	< 5	< 5
	1/29/2009	2.14*	2.77*	1.41*	< 5	< 5	< 5	< 5
	3/31/2009	3.64*	4.83*	1.24*	< 5	< 5	< 5	< 5
	6/17/2009	2.5*	5.58*	2.47*	< 5	< 5	< 5	< 5
	9/22/2009	0.443	0.445	**1.44**	<1	<1	<1	<1
	12/16/2009	NA	NA	**0.732**	<1	<1	<1	<1
MW-1 Duplicate	1/29/2009	NA	NA	NA	< 5	< 5	< 5	< 5
	3/31/2009	NA	NA	NA	< 5	< 5	< 5	< 5
	6/17/2009	2.83	6.13*	2.52*	< 5	< 5	< 5	< 5
	9/22/2009	NA	NA	NA	<1	<1	<1	<1
	12/16/2009	NA	NA	NA	<1	<1	<1	<1
MW-2	1/29/2009	4.15*	3.15*	1.79*	< 5	< 5	< 5	< 5
	3/31/2009	1.17*	1.02*	0.326*	< 5	< 5	< 5	< 5
	6/17/2009	3.4*	2.8*	1.37*	< 5	< 5	< 5	< 5
	9/22/2009	<0.1	<0.02	0.0264	<1	<1	<1	<1
	12/16/2009	NA	NA	0.0654	<1	<1	<1	<1
MW-3	1/29/2009	1.82*	2.24*	0.374*	< 5	< 5	< 5	< 5
	3/31/2009	1.64*	1.91*	0.271*	< 5	< 5	< 5	< 5
	6/17/2009	1.68*	2.14*	0.628*	< 5	< 5	< 5	< 5
	9/22/2009	<0.1	0.0291	0.0201	<1	<1	<1	<1
	12/16/2009	NA	NA	0.0607	<1	<1	<1	<1
MW-4	1/29/2009	6.92*	3.17*	4.15*	< 5	< 5	< 5	< 5
	3/31/2009	4.21*	3.22*	1.45*	< 5	< 5	< 5	< 5
	6/17/2009	2.43*	2.05*	0.854*	< 5	< 5	< 5	< 5
	9/22/2009	<0.1	0.108	**0.476**	<1	<1	<1	<1
	12/16/2009	NA	NA	0.0149	<1	<1	<1	<1
Method		*SW6010B*	*SW6010B*	*SW6010B*	*8260B*	*8260B*	*8260B*	*8260B*
NMWQCC Groundwater Quality Standard		**5.0**	**1.0**	**0.2**	**10**	**750**	**750**	**620**

Notes:
MW = monitoring well
NMWQCC = New Mexico Water Quality Control Commission
Constituents in **BOLD** exceed NMWQCC groundwater quality standards
mg/L = milligrams per liter
µg/L = micrograms per liter
NA = not analyzed
<5 = result below laboratory detection limit
Total Metals analysis run for all samples through June 2009; September 2009 dissolved metals analysis run in order to compare to standards
* = total metals analysis result (NMWQCC standards do not apply)

APPENDIX A

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name: Faye Burdette No. 1 — Page 1 of 4

Project No.:

Site Location: Aztec, NM

Site/Well No.: MW-1 — Coded/Replicate No.: Duplicate@920 — Date: 12/16/09

Weather: cold, 24°F — Time Sampling Began: 0906 — Time Sampling Completed: 0925

EVACUATION DATA

Description of Measuring Point (MP): Top of Casing

Height of MP Above/Below Land Surface: — MP Elevation:

Total Sounded Depth of Well Below MP: 17.52 — Water-Level Elevation:

Held: — Depth to Water Below MP: 11.56 — Diameter of Casing: 2"

Wet: — Water Column in Well: 5.96 — Gallons Pumped/Bailed Prior to Sampling:

Gallons per Foot: 0.16

Gallons in Well: 0.95 x 3 = 2.86 — Sampling Pump Intake Setting (feet below land surface): <

Purging Equipment: Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	Vol
0915	14.10	6.07	1183	0.769	2.96	-12.2	1.5g
0918	13.52	6.05	1166	0.758	2.06	-15.1	2.5g
0921	14.62	6.07	1167	0.759	2.01	-17.6	3g

Sampling Equipment: Purge Pump / Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Dissolved Mn	(1) 16 oz plastic	none (to be filtered & preserved @ lab)

Remarks: duplicate collected @ 0920

Sampling Personnel:

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

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Faye Burdette No. 1 Page 2 of 4

Project No.

Site Location Aztec, NM

Site/Well No. MW-2 Coded/ Replicate No. Date 12/16/09

Weather Cold, 24°F Time Sampling Began 0930 Time Sampling Completed 0950

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 19.45 Water-Level Elevation

Held Depth to Water Below MP 10.61 Diameter of Casing 2"

Wet Water Column in Well 8.84 Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot 0.16

Gallons in Well 1.414 Sampling Pump Intake (feet below land

Purging Equipment Purge pump/Bailer X3 = 4.24

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	Vol
0942	14.61	5.95	1141	0.743	2.13	-20.3	2.85g
0944	14.76	6.01	1113	0.724	2.44	-19.9	3.5g
0945	14.76	6.05	1121	0.728	3.00	-18.6	4.25g

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
For Dissolved Mn	(1) 16oz plastic	none, (to be filtered & preserved @ lab)

Remarks

Sampling Personnel

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

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name: Faye Burdette No. 1 — Page 3 of 4

Project No.:

Site Location: Aztec, NM

Site/Well No.: MW-3 — Coded/Replicate No.: — Date: 12/16/09

Weather: Cold, 24° — Time Sampling Began: 0848 — Time Sampling Completed: 0915

EVACUATION DATA

Description of Measuring Point (MP): Top of Casing

Height of MP Above/Below Land Surface: — MP Elevation: —

Total Sounded Depth of Well Below MP: 22.96 — Water-Level Elevation: —

Held: — Depth to Water Below MP: 11.32 — Diameter of Casing: 2"

Wet: — Water Column in Well: 11.64 — Gallons Pumped/Bailed Prior to Sampling: 5.75 gallons

Gallons per Foot: 0.16

Gallons in Well: 1.86 X3 = 5.58

Sampling Pump Intake Setting (feet below land surface): —

Purging Equipment: Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm)	TDS (g/L)	DO (mg/L)	ORP (mV)	
0909	15.22	6.15	1191	.774	1.80	-20.3	5 gallons
0911	15.44	6.17	1193	.775	2.11	-17.5	5.8 gallons
0913	15.47	6.14	1191	.774	2.00	-15.4	

Sampling Equipment: Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	(3) 40mL VOA's	HCl
Dissolved Mn	(1) 16 oz plastic	none (filter & preserve @ lab)

Remarks: light brown H_2O after 2 gallons, no odor, no sheen

Sampling Personnel:

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

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name: Faye Burdette No. 1 — Page 4 of 4

Project No.:

Site Location: Aztec, NM

Site/Well No.: MW-4 — Coded/ Replicate No.: — Date: 12/16/09

Weather: cold, 24°F — Time Sampling Began: 0835 — Time Sampling Completed: 0855

EVACUATION DATA

Description of Measuring Point (MP): Top of Casing

Height of MP Above/Below Land Surface: — MP Elevation: —

Total Sounded Depth of Well Below MP: 22.28 — Water-Level Elevation: —

Held: — Depth to Water Below MP: 10.87 — Diameter of Casing: 2"

Wet: — Water Column in Well: 11.41 — Gallons Pumped/Bailed Prior to Sampling: 5.5 gallons

Gallons per Foot: 0.16

Gallons in Well: 1.82 x 3 = 5.47 — Sampling Pump Intake Setting (feet below land surface): —

Purging Equipment: Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	Vol
844	13.80	6.27	1362	0.886	3.20	-72.1	2.5 g
847	14.75	6.23	1335	0.868	2.82	-46.1	3.5 g
851	14.94	6.12	1324	0.861	1.61	-27.4	4.5 g
853	14.82	6.10	1287	0.837	2.40	-20.9	5.5 g

Sampling Equipment: Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Dissolved Mn	1 16oz plastic	None (to be filtered & sent preserved @ lab)

Remarks:

Sampling Personnel:

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

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips

Certificate of Analysis Number:

09120781

Report To:		Project Name:	COP Faye-Burdette
Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440 fax:		Site:	Aztec, NM
		Site Address:	
		PO Number:	4510713617
		State:	New Mexico
		State Cert. No.:	
		Date Reported:	12/29/2009

This Report Contains A Total Of 18 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

12/29/2009

Date

Test results meet all requirements of NELAC, unless specified in the narrative.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Conoco Phillips

Certificate of Analysis Number:

09120781

Report To: Tetra Tech, Inc.
Kelly Blanchard
6121 Indian School Road, N.E.
Suite 200
Albuquerque
NM
87110-
ph: (505) 237-8440 fax: (505) 881-3283

Fax To:

Project Name: COP Faye-Burdette
Site: Aztec, NM
Site Address:

PO Number: 4510713617
State: New Mexico
State Cert. No.:
Date Reported: 12/29/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09120781-01	Water	12/16/2009 9:25:00 AM	12/18/2009 9:30:00 AM	292733	☐
MW-2	09120781-02	Water	12/16/2009 9:50:00 AM	12/18/2009 9:30:00 AM	292733	☐
MW-3	09120781-03	Water	12/16/2009 9:15:00 AM	12/18/2009 9:30:00 AM	292733	☐
MW-4	09120781-04	Water	12/16/2009 8:55:00 AM	12/18/2009 9:30:00 AM	292733	☐
Duplicate	09120781-05	Water	12/16/2009 9:20:00 AM	12/18/2009 9:30:00 AM	292733	☐
Trip Blank	09120781-06	Water	12/16/2009 11:30:00 AM	12/18/2009 9:30:00 AM	292733	☐

Erica Cardenas
Project Manager

12/29/2009
Date

Kesavalu M. Bagawandoss Ph.D., J.D.
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID: MW-1 **Collected:** 12/16/2009 9:25 **SPL Sample ID:** 09120781-01

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	0.732		0.005	1	12/29/09 12:24	AB1	5346737

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	12/21/2009 10:00	R_V	1.00

VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	12/24/09 13:24	D_R	5343346
Ethylbenzene	ND		1	1	12/24/09 13:24	D_R	5343346
Toluene	ND		1	1	12/24/09 13:24	D_R	5343346
m,p-Xylene	ND		2	1	12/24/09 13:24	D_R	5343346
o-Xylene	ND		1	1	12/24/09 13:24	D_R	5343346
Xylenes,Total	ND		1	1	12/24/09 13:24	D_R	5343346
Surr: 1,2-Dichloroethane-d4	94.7		% 71-140	1	12/24/09 13:24	D_R	5343346
Surr: 4-Bromofluorobenzene	104		% 70-130	1	12/24/09 13:24	D_R	5343346
Surr: Toluene-d8	100		% 61-121	1	12/24/09 13:24	D_R	5343346

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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Client Sample ID: MW-2 **Collected:** 12/16/2009 9:50 **SPL Sample ID:** 09120781-02

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	0.0654		0.005	1	12/29/09 12:29	AB1	5346738

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	12/21/2009 10:00	R_V	1.00

VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	12/24/09 13:45	D_R	5343347
Ethylbenzene	ND		1	1	12/24/09 13:45	D_R	5343347
Toluene	ND		1	1	12/24/09 13:45	D_R	5343347
m,p-Xylene	ND		2	1	12/24/09 13:45	D_R	5343347
o-Xylene	ND		1	1	12/24/09 13:45	D_R	5343347
Xylenes,Total	ND		1	1	12/24/09 13:45	D_R	5343347
Surr: 1,2-Dichloroethane-d4	95.6	%	71-140	1	12/24/09 13:45	D_R	5343347
Surr: 4-Bromofluorobenzene	103	%	70-130	1	12/24/09 13:45	D_R	5343347
Surr: Toluene-d8	99.7	%	61-121	1	12/24/09 13:45	D_R	5343347

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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Client Sample ID: MW-3 **Collected:** 12/16/2009 9:15 **SPL Sample ID:** 09120781-03

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	0.0607		0.005	1	12/29/09 12:33	AB1	5346739

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	12/21/2009 10:00	R_V	1.00

VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	12/24/09 14:06	D_R	5343348
Ethylbenzene	ND		1	1	12/24/09 14:06	D_R	5343348
Toluene	ND		1	1	12/24/09 14:06	D_R	5343348
m,p-Xylene	ND		2	1	12/24/09 14:06	D_R	5343348
o-Xylene	ND		1	1	12/24/09 14:06	D_R	5343348
Xylenes,Total	ND		1	1	12/24/09 14:06	D_R	5343348
Surr: 1,2-Dichloroethane-d4	95.2		% 71-140	1	12/24/09 14:06	D_R	5343348
Surr: 4-Bromofluorobenzene	104		% 70-130	1	12/24/09 14:06	D_R	5343348
Surr: Toluene-d8	99.2		% 61-121	1	12/24/09 14:06	D_R	5343348

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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Client Sample ID: MW-4 **Collected:** 12/16/2009 8:55 **SPL Sample ID:** 09120781-04

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	0.0149		0.005	1	12/29/09 12:38	AB1	5346740

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	12/21/2009 10:00	R_V	1.00

VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/L	
Benzene	ND		1	1	12/28/09 12:21	DY	5345105
Ethylbenzene	ND		1	1	12/28/09 12:21	DY	5345105
Toluene	ND		1	1	12/28/09 12:21	DY	5345105
m,p-Xylene	ND		2	1	12/28/09 12:21	DY	5345105
o-Xylene	ND		1	1	12/28/09 12:21	DY	5345105
Xylenes,Total	ND		1	1	12/28/09 12:21	DY	5345105
Surr: 1,2-Dichloroethane-d4	96.7	%	71-140	1	12/28/09 12:21	DY	5345105
Surr: 4-Bromofluorobenzene	104	%	70-130	1	12/28/09 12:21	DY	5345105
Surr: Toluene-d8	101	%	61-121	1	12/28/09 12:21	DY	5345105

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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Client Sample ID: Duplicate **Collected:** 12/16/2009 9:20 **SPL Sample ID:** 09120781-05

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	12/24/09 16:27	D_R	5343288
Ethylbenzene	ND		1	1	12/24/09 16:27	D_R	5343288
Toluene	ND		1	1	12/24/09 16:27	D_R	5343288
m,p-Xylene	ND		2	1	12/24/09 16:27	D_R	5343288
o-Xylene	ND		1	1	12/24/09 16:27	D_R	5343288
Xylenes,Total	ND		1	1	12/24/09 16:27	D_R	5343288
Surr: 1,2-Dichloroethane-d4	105		% 71-140	1	12/24/09 16:27	D_R	5343288
Surr: 4-Bromofluorobenzene	101		% 70-130	1	12/24/09 16:27	D_R	5343288
Surr: Toluene-d8	101		% 61-121	1	12/24/09 16:27	D_R	5343288

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

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Client Sample ID: Trip Blank **Collected:** 12/16/2009 11:30 **SPL Sample ID:** 09120781-06

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	12/24/09 17:11	D_R	5343289
Ethylbenzene	ND		1	1	12/24/09 17:11	D_R	5343289
Toluene	ND		1	1	12/24/09 17:11	D_R	5343289
m,p-Xylene	ND		2	1	12/24/09 17:11	D_R	5343289
o-Xylene	ND		1	1	12/24/09 17:11	D_R	5343289
Xylenes,Total	ND		1	1	12/24/09 17:11	D_R	5343289
Surr: 1,2-Dichloroethane-d4	105		% 71-140	1	12/24/09 17:11	D_R	5343289
Surr: 4-Bromofluorobenzene	102		% 70-130	1	12/24/09 17:11	D_R	5343289
Surr: Toluene-d8	100		% 61-121	1	12/24/09 17:11	D_R	5343289

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B/V - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

Quality Control Documentation

HOUSTON LABORATORY
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Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Volatile Organics by Method 8260B
Method: SW8260B
WorkOrder: 09120781
Lab Batch ID: R292229

Method Blank

RunID: MSDVOA1_091224A-5342950 Units: ug/L
Analysis Date: 12/24/2009 10:56 Analyst: D_R

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09120781-05A	Duplicate
09120781-06A	Trip Blank

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	2.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	108.6	71-140
Surr: 4-Bromofluorobenzene	101.6	70-130
Surr: Toluene-d8	100.6	61-121

Laboratory Control Sample (LCS)

RunID: MSDVOA1_091224A-53429 Units: ug/L
Analysis Date: 12/24/2009 9:51 Analyst: D_R

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	18.4	91.8	70	130
Ethylbenzene	20.0	19.6	98.2	70	130
Toluene	20.0	20.7	103	73	130
m,p-Xylene	40.0	41.5	104	70	130
o-Xylene	20.0	20.8	104	70	130
Xylenes,Total	60.0	62.3	104	70	130
Surr: 1,2-Dichloroethane-d4	50.0	52.3	105	71	140
Surr: 4-Bromofluorobenzene	50.0	49.8	99.6	70	130
Surr: Toluene-d8	50.0	51.4	103	61	121

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 09120781-05
RunID: MSDVOA1_091224A-53432 Units: ug/L
Analysis Date: 12/24/2009 15:22 Analyst: D_R

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

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Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09120781
Method: SW8260B **Lab Batch ID:** R292229

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	19.0	95.2	20	17.6	88.0	7.90	20	67	202
Ethylbenzene	ND	20	20.8	104	20	18.8	94.1	10.1	20	49	165
Toluene	ND	20	21.5	107	20	19.5	97.5	9.61	20	48	162
m,p-Xylene	ND	40	43.2	108	40	39.4	98.5	9.23	20	44	167
o-Xylene	ND	20	21.3	106	20	19.7	98.3	7.85	20	54	158
Xylenes,Total	ND	60	64.5	107	60	59.1	98.4	8.78	20	44	167
Surr: 1,2-Dichloroethane-d4	ND	50	52.2	104	50	52.7	105	0.928	30	71	140
Surr: 4-Bromofluorobenzene	ND	50	50.6	101	50	50.4	101	0.416	30	70	130
Surr: Toluene-d8	ND	50	51.1	102	50	50.8	102	0.664	30	61	121

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

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Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Volatile Organics by Method 8260B
Method: SW8260B
WorkOrder: 09120781
Lab Batch ID: R292253

Method Blank

RunID: MSDVOA2_091224B-5343331 Units: ug/L
Analysis Date: 12/24/2009 6:56 Analyst: D_R

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09120781-01A	MW-1
09120781-02A	MW-2
09120781-03A	MW-3

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	2.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	94.2	71-140
Surr: 4-Bromofluorobenzene	103.4	70-130
Surr: Toluene-d8	100.3	61-121

Laboratory Control Sample (LCS)

RunID: MSDVOA2_091224B-53433 Units: ug/L
Analysis Date: 12/24/2009 5:52 Analyst: D_R

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.1	100	70	130
Ethylbenzene	20.0	20.8	104	70	130
Toluene	20.0	20.1	101	73	130
m,p-Xylene	40.0	40.5	101	70	130
o-Xylene	20.0	21.2	106	70	130
Xylenes,Total	60.0	61.7	103	70	130
Surr: 1,2-Dichloroethane-d4	50.0	46.2	92.5	71	140
Surr: 4-Bromofluorobenzene	50.0	53.3	107	70	130
Surr: Toluene-d8	50.0	50.5	101	61	121

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 09120900-01
RunID: MSDVOA2_091224B-53433 Units: ug/L
Analysis Date: 12/24/2009 14:27 Analyst: D_R

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

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Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09120781
Method: SW8260B **Lab Batch ID:** R292253

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	20.2	101	20	18.8	93.8	7.25	20	67	202
Ethylbenzene	ND	20	20.0	99.9	20	18.7	93.3	6.88	20	49	165
Toluene	ND	20	19.9	99.5	20	18.5	92.3	7.56	20	48	162
m,p-Xylene	ND	40	36.4	91.0	40	33.4	83.4	8.70	20	44	167
o-Xylene	ND	20	21.1	106	20	19.2	95.9	9.74	20	54	158
Xylenes,Total	ND	60	57.5	95.9	60	52.6	87.6	9.08	20	44	167
Surr: 1,2-Dichloroethane-d4	ND	50	45.8	91.5	50	46.1	92.2	0.680	30	71	140
Surr: 4-Bromofluorobenzene	ND	50	52	104	50	52.2	104	0.386	30	70	130
Surr: Toluene-d8	ND	50	50.2	100	50	50.2	100	0.0233	30	61	121

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

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Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09120781
Method: SW8260B **Lab Batch ID:** R292339

Method Blank

RunID: MSDVOA2_091228B-5345103 Units: ug/L
Analysis Date: 12/28/2009 11:18 Analyst: DY

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09120781-04A	MW-4

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	2.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	97.0	71-140
Surr: 4-Bromofluorobenzene	102.3	70-130
Surr: Toluene-d8	100.2	61-121

Laboratory Control Sample (LCS)

RunID: MSDVOA2_091228B-53451 Units: ug/L
Analysis Date: 12/28/2009 12:42 Analyst: DY

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	19.9	99.7	70	130
Ethylbenzene	20.0	20.0	99.8	70	130
Toluene	20.0	19.3	96.6	73	130
m,p-Xylene	40.0	39.7	99.3	70	130
o-Xylene	20.0	20.6	103	70	130
Xylenes,Total	60.0	60.3	100	70	130
Surr: 1,2-Dichloroethane-d4	50.0	47.4	94.9	71	140
Surr: 4-Bromofluorobenzene	50.0	52.8	106	70	130
Surr: Toluene-d8	50.0	50.1	100	61	121

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 09120781-04
RunID: MSDVOA2_091228B-53451 Units: ug/L
Analysis Date: 12/28/2009 13:03 Analyst: DY

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

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Quality Control Report

Conoco Phillips

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Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09120781
Method: SW8260B **Lab Batch ID:** R292339

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	20.3	102	20	18.7	93.5	8.46	20	67	202
Ethylbenzene	ND	20	20.6	103	20	19.0	94.9	8.18	20	49	165
Toluene	ND	20	20.1	100	20	18.3	91.6	9.02	20	48	162
m,p-Xylene	ND	40	41.1	103	40	37.9	94.7	8.17	20	44	167
o-Xylene	ND	20	21.2	106	20	19.5	97.4	8.36	20	54	158
Xylenes,Total	ND	60	62.3	104	60	57.4	95.6	8.23	20	44	167
Surr: 1,2-Dichloroethane-d4	ND	50	47.4	94.9	50	47.2	94.5	0.454	30	71	140
Surr: 4-Bromofluorobenzene	ND	50	51.8	104	50	52.4	105	1.06	30	70	130
Surr: Toluene-d8	ND	50	50.7	101	50	50.4	101	0.629	30	61	121

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Quality Control Report

Conoco Phillips

COP Faye-Burdette

Analysis: Metals by Method 6010B, Dissolved
Method: SW6010B
WorkOrder: 09120781
Lab Batch ID: 96603

Method Blank

RunID: ICP2_091229A-5346723 Units: mg/L
Analysis Date: 12/29/2009 11:17 Analyst: AB1
Preparation Date: 12/21/2009 10:00 Prep By: R_V Method: SW3005A

Analyte	Result	Rep Limit
Manganese	ND	0.005

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09120781-01B	MW-1
09120781-02B	MW-2
09120781-03B	MW-3
09120781-04B	MW-4

Laboratory Control Sample (LCS)

RunID: ICP2_091229A-5346724 Units: mg/L
Analysis Date: 12/29/2009 11:22 Analyst: AB1
Preparation Date: 12/21/2009 10:00 Prep By: R_V Method: SW3005A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Manganese	0.1000	0.1073	107.3	80	120

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 09120780-01
RunID: ICP2_091229A-5346726 Units: mg/L
Analysis Date: 12/29/2009 11:31 Analyst: AB1
Preparation Date: 12/21/2009 10:00 Prep By: R_V Method: SW3005A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Manganese	0.5764	0.1	0.7183	N/C	0.1	0.7158	N/C	N/C	20	75	125

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Sample Receipt Checklist

And

Chain of Custody

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Sample Receipt Checklist

Workorder:	**09120781**	Received By:	**RE**
Date and Time Received:	**12/18/2009 9:30:00 AM**	Carrier name:	**SPL**
Temperature:	**1.9°C**	Chilled by:	**Water Ice**

1. **Shipping container/cooler in good condition?**	Yes ☑	No ☐	Not Present ☐	
2. **Custody seals intact on shippping container/cooler?**	Yes ☑	No ☐	Not Present ☐	
3. **Custody seals intact on sample bottles?**	Yes ☐	No ☐	Not Present ☑	
4. **Chain of custody present?**	Yes ☑	No ☐		
5. **Chain of custody signed when relinquished and received?**	Yes ☑	No ☐		
6. **Chain of custody agrees with sample labels?**	Yes ☑	No ☐		
7. **Samples in proper container/bottle?**	Yes ☑	No ☐		
8. **Sample containers intact?** 1.) Two MW-3 vials and one Duplicate vial were broken when received.	Yes ☐	No ☑		
9. **Sufficient sample volume for indicated test?**	Yes ☑	No ☐		
10. **All samples received within holding time?**	Yes ☑	No ☐		
11. **Container/Temp Blank temperature in compliance?**	Yes ☑	No ☐		
12. **Water - VOA vials have zero headspace?**	Yes ☑	No ☐	VOA Vials Not Present ☐	
13. **Water - Preservation checked upon receipt (except VOA*)?**	Yes ☐	No ☐	Not Applicable ☑	

***VOA Preservation Checked After Sample Analysis**

SPL Representative: _____ **Contact Date & Time:** _____

Client Name Contacted: _____

Non Conformance Issues: 1.) Logged in 1 MW-3 and 2 Duplicate vials.

Client Instructions: _____

SPL, Inc.
Analysis Request & Chain of Custody Record

SPL Workorder No. 292733
09120781
page 1 of 1

Client Name: Tetra Tech / ConocoPhillips
Address: 6121 Indian School Rd Ste 200
City Albuquerque State NM Zip 87110
Phone/Fax: 505.237.8840 505.237.8656
Client Contact: Kelly Blanchard Email: kelly.blanchard@tetratech.com
Project Name/No.: Faye Burdette
Site Name:
Site Location: Aztec, NM
Invoice To: ConocoPhillips Ph:

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil O=oil A=air SL=sludge E=encore X=other)	bottle (P=plastic A=amber glass G=glass V=vial X=other)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other)	pres. (1=HCl 2=HNO3 3=H2SO4 X=other)	Number of Containers	Requested Analysis: BTEX	Requested Analysis: Dissolved Manganese
MW-1	12/16/09	925		X	W	V	40	1	3	X	
MW-1	12/16/09	925		X	W	P	16		1		X
MW-2	12/16/09	950		X	W	V	40	1	3	X	
MW-2	12/16/09	950		X	W	P	16		1		X
MW-3	12/16/09	915		X	W	V	40	1	3	X	
MW-3	12/16/09	915		X	W	P	16		1		X
MW-4	12/16/09	855		X	W	V	40	1	3	X	
MW-4	12/16/09	855		X	W	P	16		1		X
Duplicate	12/16/09	920		X	W	V	40	1	3	X	
Trip Blank	12/17/09	1130			W	V	40	1	2	X	

RUSH

Client/Consultant Remarks:
Please filter & preserve metals container for analysis

Laboratory remarks:

Intact? Y N
Ice? Y N
Temp: 1.9°C

Requested TAT
- ☐ 1 Business Day
- ☐ 2 Business Days
- ☐ 3 Business Days
- ☐ Other
- ☐ Contract
- ☒ Standard

Rush TAT requires prior notice

Special Reporting Requirements Results: Fax ☐ Email ☐ PDF ☐
Standard QC ☒ Level 3 QC ☐ Level 4 QC ☐ TX TRRP ☐ LA RECAP ☐

Special Detection Limits (specify):

PM review (initial):

	date	time		
1. Relinquished by Sampler:	12/17/09	1200	2. Received by:	
3. Relinquished by:	date	time	4. Received by:	
5. Relinquished by:	12/18/09	0930	6. Received by Laboratory:	

☐ 8880 Interchange Drive
Houston, TX 77054 (713) 660-0901

☐ 500 Ambassador Caffery Parkway
Scott, LA 70583 (337) 237-4775

☐ 459 Hughes Drive
Traverse City, MI 49686 (231) 947-5777