

**3R - 427**

**DEC 2009  
QUARTERLY  
GWMR**

**02/23/2011**

3R427

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



TETRA TECH, INC.

RECEIVED OGD

2011 FEB 28 P 1:06

February 23, 2011

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

RE: ConocoPhillips El Paso No. 1A December 2009 Quarterly Groundwater Monitoring Report  
Blanco, New Mexico

Dear Mr. von Gonten:

Enclosed please find a copy of the above-referenced document as compiled by Tetra Tech, Inc., formerly Maxim Technologies, for this Blanco area site.

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

Sincerely,

A handwritten signature in cursive script that reads "Kelly E. Blanchard".

Kelly E. Blanchard  
Project Manager/Geologist

Enclosures (1)

Cc: Brandon Powell, NMOCD  
Terry Lauck, ConocoPhillips (electronic)

**QUARTERLY GROUNDWATER  
MONITORING REPORT  
DECEMBER 2009 SAMPLING EVENT**

**CONOCOPHILLIPS COMPANY  
EL PASO NO.1A  
SAN JUAN COUNTY, NEW MEXICO**

API # 30-045-22778

Prepared for:



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. 96900122.100

May 2010

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3. Groundwater Laboratory Analytical Results Summary

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# QUARTERLY GROUNDWATER MONITORING REPORT CONOCOPHILLIPS COMPANY EL PASO NO. 1A, SAN JUAN COUNTY, NEW MEXICO

## 1.0 INTRODUCTION

This report details the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on December 15, 2009 at the ConocoPhillips Company El Paso No. 1A site in San Juan County, New Mexico (Site). This sampling event represents the sixth quarter of groundwater monitoring conducted by Tetra Tech at the Site.

The Site is located on BLM land east of Blanco, NM near the intersection of New Mexico Highway 64 and County Road 4450 in Section 20, Township 29 North, Range 9 West. The Site can be accessed by turning southeast on County Road 4450 and traveling approximately 300 feet before veering south. Veer south again after traveling 0.1 miles and continue 0.4 miles to the Site. The Site consists of well head El Paso No. 1S and well head El Paso No. 1A; with associated equipment and installations. The location and general features of the Site are presented as **Figures 1** and **2**, respectively. A generalized cross section of the Site is presented as **Figure 3**.

### 1.1 Site History

The history of the Site is outlined in **Table 1**.

## 2.0 METHODOLOGY AND RESULTS

### 2.1 Groundwater Monitoring Methodology

#### Groundwater Elevation Measurements

On December 15, 2009 groundwater elevation measurements were recorded in Monitor Wells MW-1, MW-2, MW-3, and MW-4 using a dual interface probe. Groundwater elevations are detailed in **Table 2**. A groundwater elevation contour map is presented as **Figure 4**. Based on December 2009 monitoring event data, groundwater flow is southwest and consistent with historic records at this site. The San Juan River is approximately 1 mile from the site and flows west.

#### Groundwater sampling

Each monitor well was sampled after approximately 3 well casing volumes had been purged; or until measured groundwater parameters including temperature, pH, conductivity, total dissolved solids (TDS), oxidation-reduction potential (ORP), and dissolved oxygen (DO) had stabilized. Parameters were collected using a YSI 556 multi-parameter sonde and were recorded on Tetra Tech Groundwater Sampling Field Forms (**Appendix A**).

Purged groundwater was disposed of in the Site produced water tank (**Figure 2**). A 1.5-inch polyethylene dedicated bailer was used to purge and collect groundwater samples. The samples were then 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 samples were analyzed for presence of volatile organic compounds (VOC) including benzene, toluene, ethylbenzene,

and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B, ion chromatography by EPA Method E300.0, total dissolved solids (TDS) by EPA Method 2540C, and dissolved metals for manganese by EPA Method 6010B.

Total metals testing was conducted during prior events as requested by the Oil Conservation Division (OCD) in April of 2008; however, since all New Mexico Water Quality Control Commission (NMWQCC) drinking water standards pertain to dissolved metals concentrations, Tetra Tech requested and received approval from the OCD on September 8, 2009 to run dissolved metals analyses for only those metals which had exceeded the NMWQCC drinking water standards. Dissolved metals testing will continue for metals exceeding NMWQCC drinking water standards.

### 2.3 Groundwater Sampling Analytical Results

The December 2009 analysis of the collected groundwater samples indicates that all BTEX constituents are below NMWQCC groundwater quality standards. Groundwater laboratory analytical results are summarized in **Table 3**. A figure showing all NMWQCC standard exceedences is provided as **Figure 5**. The laboratory analysis report for the December 2009 groundwater sampling event is included as **Appendix B**.

- **Fluoride**

The groundwater quality standard for fluoride is 1.6 milligrams per liter (mg/L). Laboratory detection limits of December 2009 groundwater samples were set higher than the NMWQCC standard for fluoride by SPL. Tetra Tech notified SPL and future detection limits will be below the standard. During the previous monitoring event in September 2009; the fluoride standard was only exceeded in MW-4 at 2.26 mg/L.

- **Sulfate**

The groundwater quality standard for sulfate is 600 mg/L. Groundwater collected from Monitor Wells MW-1, MW-2, MW-3 and MW-4 were found to contain sulfate at concentrations of 10,100 mg/L; 22,100 mg/L; 7,490 mg/L; and 5,660 mg/L; respectively.

- **Manganese**

The groundwater quality standard for dissolved manganese is 0.2 mg/L. Groundwater collected from Monitor Wells MW-1, MW-2, MW-3 and MW-4 were found to contain manganese at concentrations of 1.68 mg/L; 1.54 mg/L; 0.583 mg/L; and 0.201 mg/L; respectively.

- **Total Dissolved Solids**

The groundwater quality standard for TDS is 1,000 mg/L. Groundwater collected from monitor wells MW-1, MW-2, MW-3 and MW-4 were found to contain TDS at concentrations of 10,400 mg/L; 25,100 mg/L; 9,230 mg/L; and 6,500 mg/L; respectively.

### 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 indicate that all constituents of concern are consistently below NMWQCC groundwater quality standards or

have reached Site-specific background levels. 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.

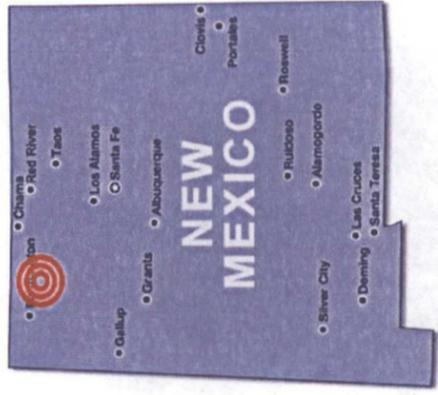
## **FIGURES**

- 1. Site Location Map**
- 2. Site Layout Map**
- 3. Site Cross Section**
- 4. Groundwater Elevation Contour Map**
- 5. Groundwater Quality Standard Exceedences Concentration Map**



**FIGURE 1.**

Site Location Map  
 ConocoPhillips  
 Company  
 El Paso No. 1A  
 San Juan County, NM

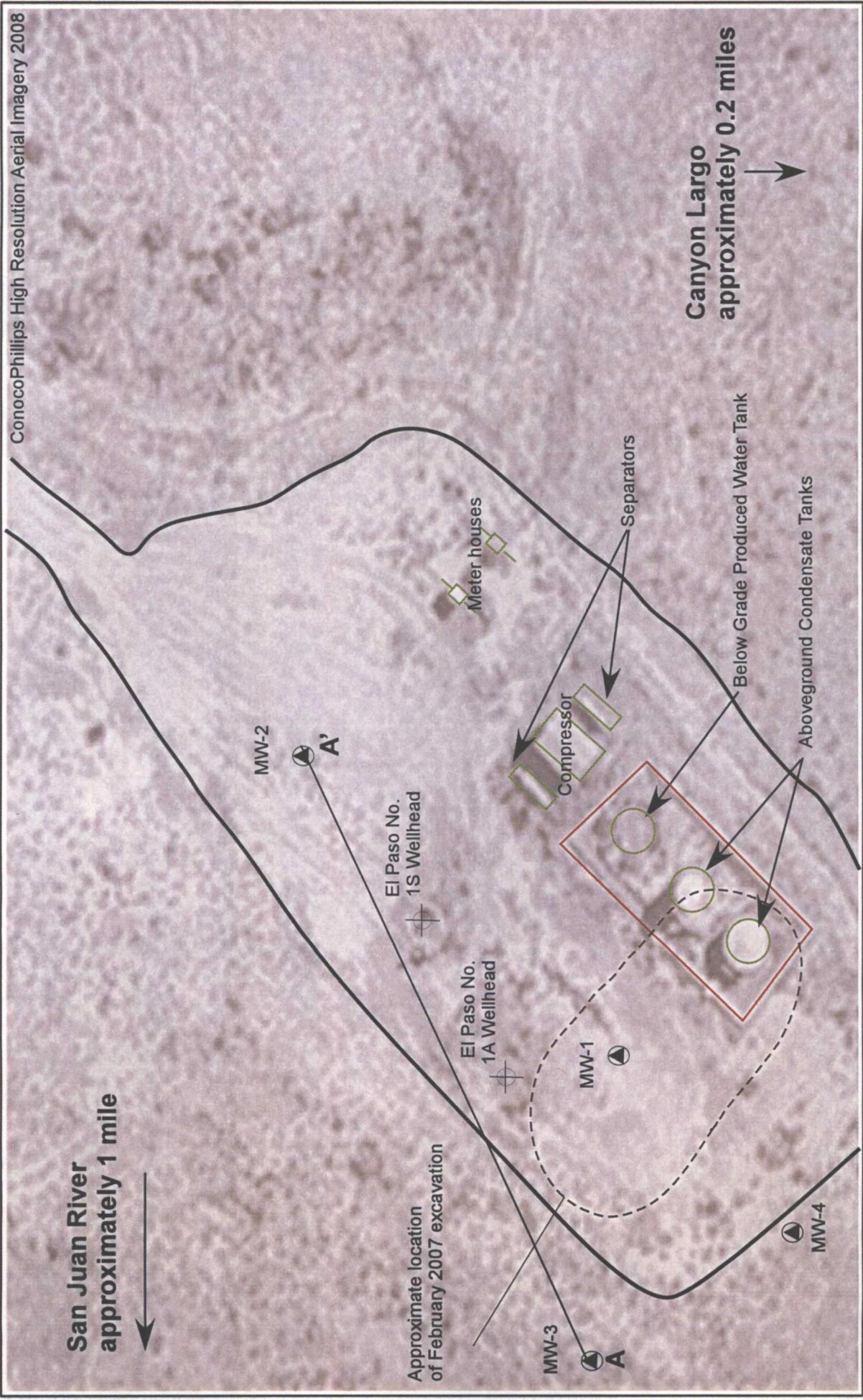


Directions from HW 64 to  
 ConocoPhillips  
 El Paso No. 1A Site Location

Approximate ConocoPhillips  
 El Paso No. 1A  
 Site location



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**LEGEND**

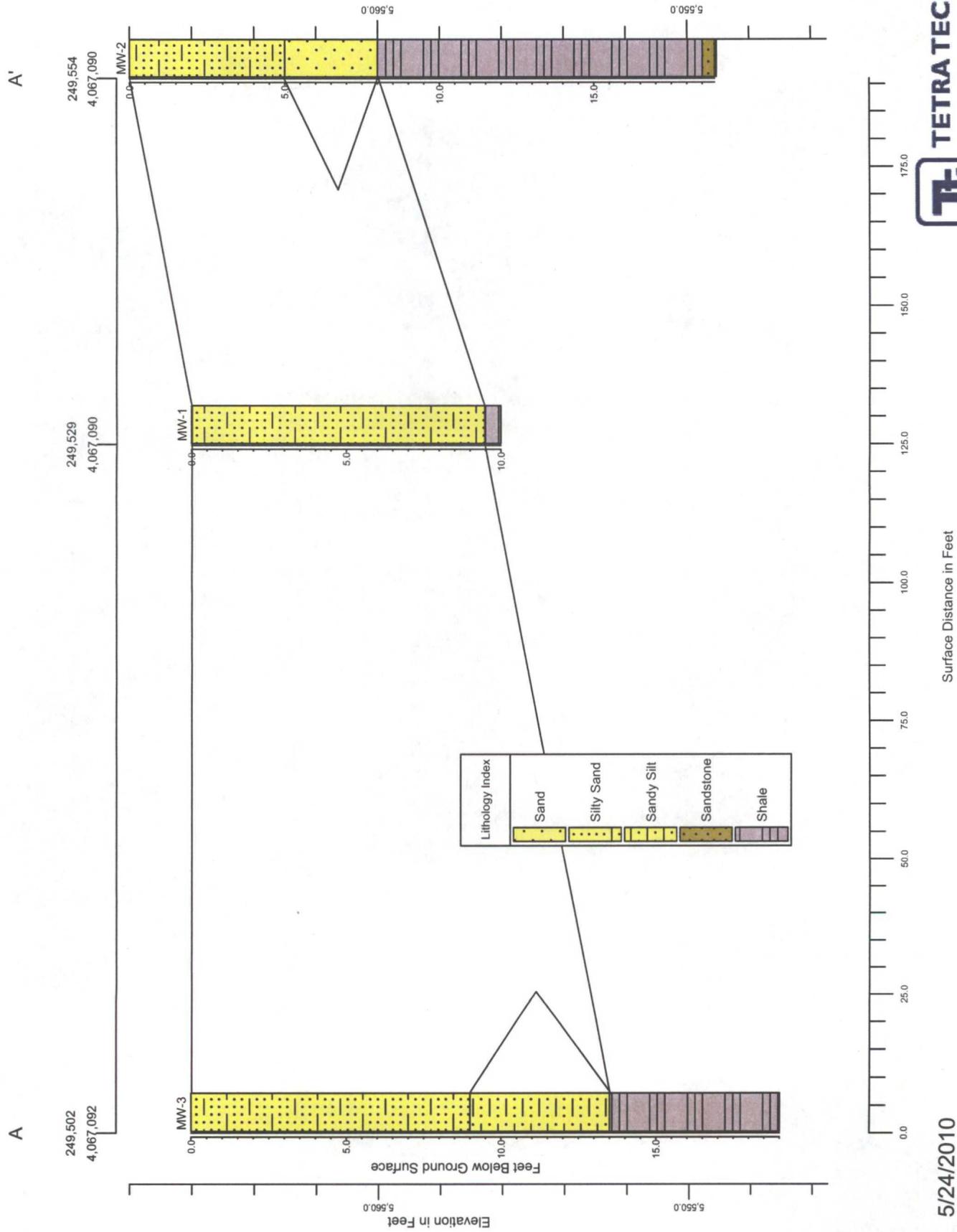
- WELLHEAD
  - MONITOR WELL
  - GENERAL SITE BOUNDARY
  - BERM
  - EQUIPMENT
- 0 20 40  
FEET

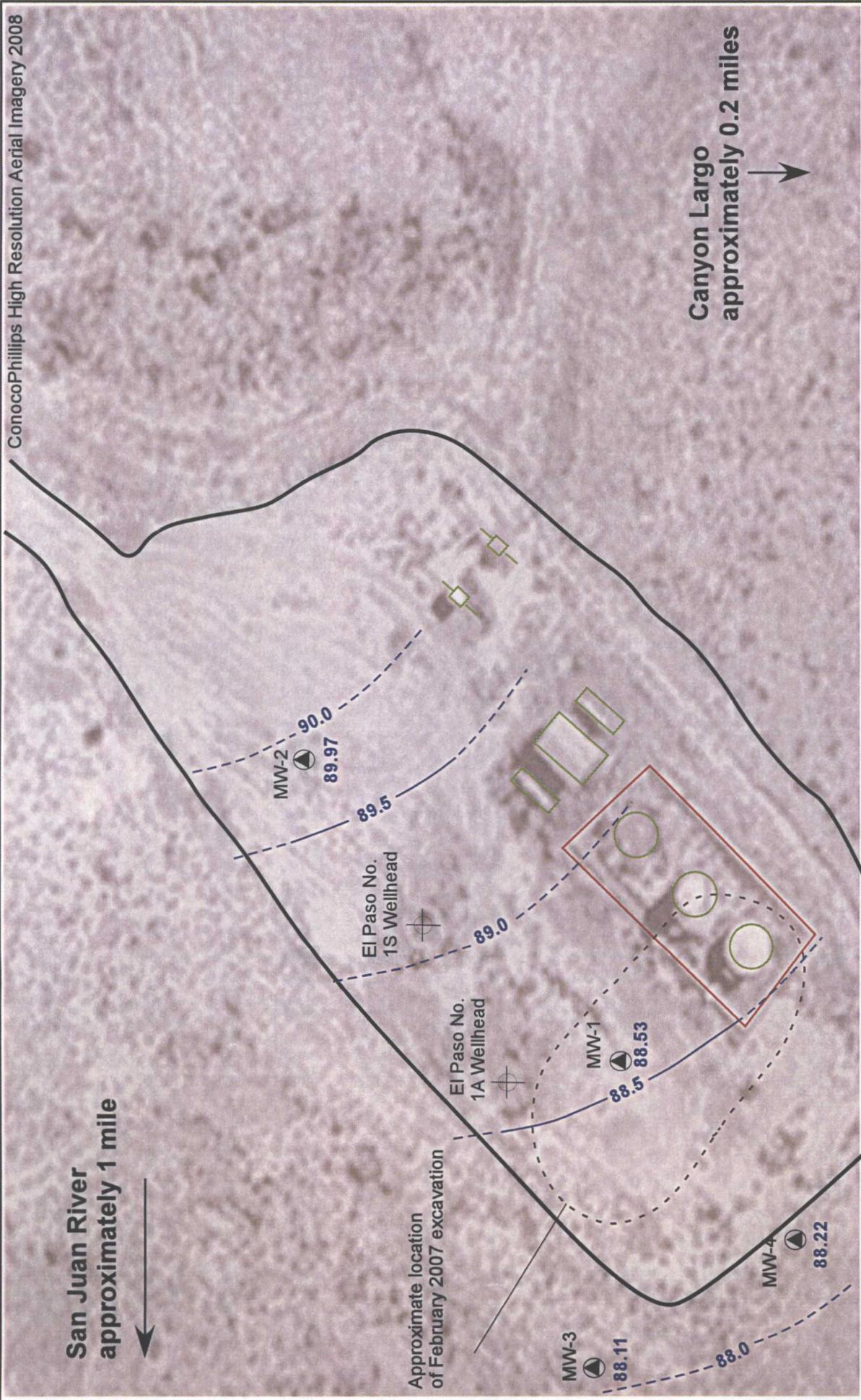
**FIGURE 2:**  
 SITE LAYOUT MAP  
 CONOCOPHILLIPS COMPANY  
 EL PASO NO. 1A  
 Sec 20, Twp 29N, Rng 09W  
 San Juan County, New Mexico



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Figure 3  
 El Paso No. 1A - Cross-Section A-A'





San Juan River  
approximately 1 mile

Canyon Largo  
approximately 0.2 miles

Approximate location  
of February 2007 excavation



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**LEGEND**

- WELLHEAD
- MONITOR WELL
- BERM
- EQUIPMENT
- GROUNDWATER ELEVATION (FEET)  
(DASHED WHERE INFERRED)
- GENERAL SITE BOUNDARY

0 20 40  
FEET

**FIGURE 4:**  
GROUNDWATER ELEVATION MAP  
12/15/2009  
CONOCOPHILLIPS COMPANY  
EL PASO NO. 1A  
Sec 20, Twp 29N, Rng 09W  
San Juan County, New Mexico

San Juan River  
approximately 1 mile

Canyon Largo  
approximately 0.2 miles

Sulfate = 29,800 mg/L  
Manganese = 2.03 mg/L  
TDS = 31,800 mg/L  
MW-2

Sulfate = 8,030 mg/L  
Manganese = 1.42 mg/L  
TDS = 10,600 mg/L  
MW-1

Sulfate = 6,890 mg/L  
Manganese = 0.432 mg/L  
TDS = 8,630 mg/L  
MW-3

Sulfate = 5,340 mg/L  
Fluoride = 2.26 mg/L  
TDS = 6,760 mg/L  
MW-4

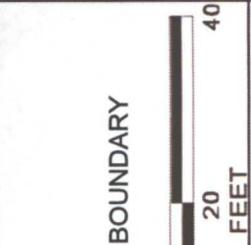
El Paso No. 1S Wellhead

El Paso No. 1A Wellhead

Approximate location  
of February 2007 excavation



TETRA TECH, INC.



LEGEND



WELLHEAD



MONITOR WELL



BERM



EQUIPMENT



GENERAL SITE BOUNDARY

FIGURE 5:  
GROUNDWATER QUALITY STANDARD  
EXCEEDENCES CONCENTRATION MAP  
12/15/2009

CONOCOPHILLIPS COMPANY  
EL PASO NO. 1A  
Sec 20, Twp 29N, Rng 09W  
San Juan County, New Mexico

## **TABLES**

- I. Site History Timeline**
- 2. Groundwater Elevation Data Summary**
- 3. Groundwater Laboratory Analytical Results Summary**

**Table 1. Site History Timeline - ConocoPhillips Company El Paso 1A**

DATE	ACTIVITY
5-Jan-78	Well spudded by El Paso Natural Gas Co.
1-Nov-86	Meridian Oil, Inc. becomes the operator under El Paso Production Company
31-Dec-00	Operator name change from Burlington Resources Oil and Gas Company to Burlington Resources Oil and Gas Company LP.
31-Mar-06	ConocoPhillips Company completed the acquisition of Burlington Resources.
Feb-07	Hydrocarbon-impacted soils discovered during trench work being conducted for a new flowline. Original source of contamination is unknown.
Feb-07	Contaminated soil excavated from the Site. Soil samples collected and analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) were below NMOCD regulations.
21-Sep-07	Ground water monitoring well installed to a depth of ten (10) 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.
21-Sep-07	A ground water sample was collected from the temporary monitoring well and analyzed for BTEX; results were below the State of New Mexico drinking water standard for this constituent.
27-Sep-07	Depth to groundwater measured at seven (7) feet bgs.
Sep-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
25-Oct-08	1st quarter sampling of MW-1 by Tetra Tech
Jan-09	Attempt to install additional monitoring wells; roads inaccessible by drill rig due to winter weather conditions.
28-Jan-09	2nd quarter groundwater sampling of MW-1 by Tetra Tech. Groundwater samples were reported missing by Southern Petroleum Laboratory. No data was received for January 2009 sampling event.
3-4-March-09	Monitoring wells MW-2, MW-3, MW-4 installed and developed by WDC overseen by Tetra Tech. Soil samples were collected from MW-3 and MW-2 boring locations.
2-Apr-09	3rd quarter groundwater sampling conducted by Tetra Tech. First quarter of sampling to include all 4 monitoring wells. A baseline suite was collected for MW-1, MW-2, MW-3 and MW-4.
18-Jun-09	2nd quarter groundwater sampling conducted by Tetra Tech to include wells MW-1, MW-2, MW-3 and MW-4.
29-Sep-09	3rd quarter groundwater sampling conducted by Tetra Tech to include wells MW-1, MW-2, MW-3 and MW-4. Samples collected for dissolved metals exceeding standards that were previously run by the total metals test method; Al, Mn, Fe.
15-Dec-09	4th quarter groundwater sampling conducted by Tetra Tech to include wells MW-1, MW-2, MW-3 and MW-4. Analytical results for fluoride are inconclusive.

Table 2. Groundwater Elevation Data Summary - ConocoPhillips Company El Paso 1A

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	13.35	4'8"-9'8"	99.52	9/21/2007	7.00	92.52
				10/25/2008	10.92	88.60
				1/30/2009	NM	NM
				4/2/2009	10.33	89.19
MW-2	20.74	3-17.9	98.72	6/18/2009	10.65	88.87
				9/29/2009	10.96	88.56
				12/15/2009	10.99	88.53
				4/2/2009	8.49	90.23
MW-3	21.10	3.1-18.1	98.175	6/18/2009	8.71	90.01
				9/29/2009	8.70	90.02
				12/15/2009	8.75	89.97
				4/2/2009	9.71	88.47
MW-4	20.82	2.9-17.9	98.28	6/18/2009	9.75	88.43
				9/29/2009	10.10	88.08
				12/15/2009	10.07	88.11
				4/2/2009	9.74	88.54
				6/18/2009	9.78	88.50
				9/29/2009	10.04	88.24
				12/15/2009	10.06	88.22

ft = Feet

TOC = Top of casing

bgs = below ground surface

\* Elevation relative to wellhead, set at an arbitrary elevation of 100 feet above mean sea level

NM = Not Measured

Table 3. Groundwater Laboratory Analytical Results Summary - ConocoPhillips Company El Paso 1A

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Aluminum (mg/L)	Iron (mg/L)	Manganese (mg/L)	Total Dissolved Solids (mg/L)
MW-1	9/21/2007	1.4	0.5	<0.2	0.3	NS	NS	NS	NS	NS	NA
	10/25/2008	<0.5	<0.5	<0.5	<0.5	<2	6400	NS	26*	5.49*	NA
	1/30/2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/2/2009	<0.5	<0.5	<0.5	<0.5	1.92	7580	2.21*	29.6*	3.14*	10000
	6/18/2009	<5	<5	<5	<5	2.04	7970	2.1*	7.66*	3.06*	NA
	9/29/2009	<1	<1	<1	<1	1.56	8030	<0.1	0.0237	1.42	10600
MW-2	12/15/2009	<1	<1	<1	<1	<50	10100	NA	NA	1.68	10400
	4/2/2009	<0.5	<0.5	<0.5	<0.5	<0.5	15900	0.705*	0.751*	1.16*	22500
	6/18/2009	<5	<5	<5	<5	0.67	17000	1.49*	1.23*	1.92*	NA
	9/29/2009	<1	<1	<1	<1	<0.5	29800	<0.1	<0.02	2.03	31800
	12/15/2009	<1	<1	<1	<1	<100	22100	NA	NA	1.54	25100
	4/2/2009	<0.5	<0.5	52	362	1.68	4090	5.47*	9.31*	0.788*	7530
MW-3	6/18/2009	<5	<5	15	87	1.68	5750	3.75*	5.3*	0.454*	NA
	9/29/2009	<1	<1	2.7	20	1.47	6890	0.224	0.14	0.432	8630
	12/15/2009	<1	<1	3	24	<50	7490	NA	NA	0.583	9230
	4/2/2009	<0.5	<0.5	<0.5	<0.5	2.42	4750	2.1*	2.12*	0.396*	6660
MW-4	6/18/2009	<5	<5	<5	<5	2.25	5300	5.52*	6.91*	0.333*	NA
	9/29/2009	<1	<1	<1	<1	2.26	5340	0.943	0.393	0.134	6760
	12/15/2009	<1	<1	<1	<1	<50	5660	NA	NA	0.201	6500
NMWQCC Standards		10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)	1.6 (mg/L)	600 (mg/L)	5 (mg/L)	1 (mg/L)	0.2 (mg/L)	1000 (mg/L)

**Explanation**

ND = Not Detected  
 NMWQCC = New Mexico Water Quality Control Commission  
 mg/L = milligrams per liter (parts per million)  
 µg/L = micrograms per liter (parts per billion)  
 NA = Not Analyzed due to laboratory error  
 <0.7 = Below laboratory detection limit of 0.7 µg/L  
**Bold** = concentrations that exceed the NMWQCC limits  
 \* = Results reported for total metals analysis, results can not be compared to NMWQCC Standards for dissolved metals

**APPENDIX A**  
**GROUNDWATER SAMPLING FIELD FORMS**



# WATER SAMPLING FIELD FORM

Project Name El Paso 1A

Page 1 of 4

Project No. \_\_\_\_\_

Site Location Blanco, NM

Site/Well No. MW-1

Coded/  
Replicate No. Duplicate

Date 12/15/09

Weather Sunny, cold 31°

Time Sampling  
Began 1618

Time Sampling  
Completed 1625

### 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 13.58

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 10.99

Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 2.59

Gallons Pumped/Bailed  
Prior to Sampling 0

Gallons per Foot 0.16

Gallons in Well 414

Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_

Purging Equipment Purge pump / Bailer X3 = 1.25

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
1621	13.73	7.51	12057	7.438	2.36	-84.9
1623	13.75	7.47	11958	7.48	2.88	-69.1
1624	13.72	7.53	11895	7.53	3.47	-72.5

1/2 liter  
.75 gal  
1 gallon  
0.25 gallons

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
<u>BTEX</u>	<u>3 40mL VOA's</u>	<u>HCl</u>
<u>Total Metals Dissolved Mn</u>	<u>plastic</u>	<u>none</u>
<u>Flouride, Sulfate</u>	<u>plastic</u>	<u>none</u>

Remarks Duplicate collected @ 1630, H<sub>2</sub>O is dark brown with bio odor, no sheen

Sampling Personnel \_\_\_\_\_

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



# WATER SAMPLING FIELD FORM

Project Name El Paso 1A

Page 2 of 4

Project No. \_\_\_\_\_

Site Location Blanco, NM

Site/Well No. MW-2 Coded/ Replicate No. \_\_\_\_\_

Date 12/15/09

Weather Sunny, cold 31° Time Sampling Began 1634

Time Sampling Completed 1650

### 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 20.75

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 8.75

Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 12

Gallons Pumped/Bailed Prior to Sampling \_\_\_\_\_

Gallons per Foot 0.16

Gallons in Well 1.92 x 3 = 5.76

Sampling Pump Intake Setting (feet below land surface) \_\_\_\_\_

Purging Equipment Purge pump / Bailer

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	ORP (mV)
1639	13.46	7.62	17026	11.08	2.87	-57.9
1641	14.71	7.52	17103	12.42	2.40	-58.6
1644	15.03	7.40	20000	13.41	2.00	-57.9
1646	15.69	7.45	21069	14.10	1.44	-57.2

Vol  
3.25g  
4.5g  
5.75g  
6g

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
<u>BTEX</u>	<u>3 40mL VOA's</u>	<u>HCl</u>
<u>Total Metals</u> <u>Dissolved Mn</u>	<u>plastic</u>	<u>none</u>
<u>Flouride, Sulfate</u>	<u>plastic</u>	<u>none</u>

Remarks H<sub>2</sub>O is light gray, bio odor, no sheen

Sampling Personnel \_\_\_\_\_

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



# WATER SAMPLING FIELD FORM

Project Name El Paso 1A

Page 3 of 4

Project No. \_\_\_\_\_

Site Location Blanco, NM

Site/Well No. MW-3

Coded/  
Replicate No. \_\_\_\_\_

Date 12/15/09

Weather Sunny, cold 31°F

Time Sampling  
Began 1600

Time Sampling  
Completed 1620

### 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 21.11

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 10.07

Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 11.04

Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_

Gallons per Foot 0.16

Gallons in Well 1.76 x 3 = 5.28

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)
1611	14.45	7.94	10439	6.782	1.661	-89.0
1614	14.48	7.96	10206	6.635	2.74	-98.1
1616	14.56	8.01	10277	6.679	2.58	-103.6

Vol  
3.5 gal  
4.5 gal

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Total Metals <u>Dissolved Metals Mn</u>	plastic	none
Flouride, Sulfate	plastic	none

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

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



# WATER SAMPLING FIELD FORM

Project Name El Paso 1A

Page 4 of 4

Project No. \_\_\_\_\_

Site Location Blanco, NM

Site/Well No. MW-4

Coded/  
Replicate No. \_\_\_\_\_

Date 12/15/09

Weather Sunny, Cold 31°F

Time Sampling  
Began 1555

Time Sampling  
Completed 1610

### 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 20.86

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 10.06

Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 10.80

Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_

Gallons per Foot 0.16

Gallons in Well 1.728

Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_

Purging Equipment Purge pump / Bailer X3 = 5.184

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>1601</u>	<u>15.00</u>	<u>7.99</u>	<u>7926</u>	<u>6.152</u>	<u>4.01</u>	<u>-64.7</u>
<u>1604</u>	<u>15.38</u>	<u>7.93</u>	<u>7956</u>	<u>5.171</u>	<u>2.88</u>	<u>-67.8</u>
<u>1606</u>	<u>15.66</u>	<u>7.90</u>	<u>8139</u>	<u>5.290</u>	<u>1.85</u>	<u>-67.0</u>

4 gallons  
4.5 gallons

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
<u>BTEX</u>	<u>3 40mL VOA's</u>	<u>HCl</u>
<u>Total Metals Dissolved Mn</u>	<u>plastic</u>	<u>none</u>
<u>Flouride, Sulfate</u>	<u>plastic</u>	<u>none</u>

Remarks H<sub>2</sub>O light brown w/a bio odor, no sheen, purge H<sub>2</sub>O

Sampling Personnel \_\_\_\_\_ graded in bailer

Well Casing Volumes			
Gal./ft.	<u>1 ¼" = 0.077</u>	<u>2" = 0.16</u>	<u>3" = 0.37</u>
	<u>1 ½" = 0.10</u>	<u>2 ½" = 0.24</u>	<u>3 ½" = 0.50</u>
			<u>4" = 0.65</u>
			<u>6" = 1.46</u>

**APPENDIX B**

**GROUNDWATER LABORATORY ANALYTICAL REPORT**



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

**Conoco Phillips**

**Certificate of Analysis Number:**

**09120787**

<b>Report To:</b>  Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440      fax:	<b>Project Name:</b> COP EIPaso1A <b>Site:</b> Blanco, NM <b>Site Address:</b>  <b>PO Number:</b> <b>State:</b> New Mexico <b>State Cert. No.:</b> <b>Date Reported:</b> 1/3/2010
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This Report Contains A Total Of 17 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

1/4/2010

Date



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

Case Narrative for:  
**Conoco Phillips**

Certificate of Analysis Number:  
09120787

<p><b>Report To:</b></p> <p>Tetra Tech, Inc.          Kelly Blanchard          6121 Indian School Road, N.E.          Suite 200          Albuquerque          NM          87110-          ph: (505) 237-8440      fax:</p>	<p><b>Project Name:</b> COP EIPaso1A</p> <p><b>Site:</b> Blanco, NM</p> <p><b>Site Address:</b></p> <p><b>PO Number:</b></p> <p><b>State:</b> New Mexico</p> <p><b>State Cert. No.:</b></p> <p><b>Date Reported:</b> 1/3/2010</p>
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I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II: ANALYSES AND EXCEPTIONS:

Per the Conoco Phillips TSM Revision 0, a copy of the internal chain of custody is to be included in final data package. However, due to LIMS limitations, this cannot be provided at this time.

III. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg/kg-dry " or " ug/kg-dry " ).

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or by his designee, as verified by the following signature.

09120787 Page 1

1/4/2010

Erica Cardenas  
 Project Manager

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

Date



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

**Conoco Phillips**

Certificate of Analysis Number:

**09120787**

**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

**Project Name:** COP EIPaso1A

**Site:** Blanco, NM

**Site Address:**

**PO Number:**

**State:** New Mexico

**State Cert. No.:**

**Date Reported:** 1/3/2010

**Fax To:**

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09120787-01	Water	12/15/2009 4:25:00 PM	12/18/2009 9:30:00 AM	292840	<input type="checkbox"/>
MW-2	09120787-02	Water	12/15/2009 4:50:00 PM	12/18/2009 9:30:00 AM	292850	<input type="checkbox"/>
MW-3	09120787-03	Water	12/15/2009 4:20:00 PM	12/18/2009 9:30:00 AM	292850	<input type="checkbox"/>
MW-4	09120787-04	Water	12/15/2009 4:10:00 PM	12/18/2009 9:30:00 AM	292850	<input type="checkbox"/>
Duplicate	09120787-05	Water	12/15/2009 4:30:00 PM	12/18/2009 9:30:00 AM	292735	<input type="checkbox"/>
Trip Blank	09120787-06	Water	12/17/2009 11:30:00 AM	12/18/2009 9:30:00 AM	292735	<input type="checkbox"/>

*Erica Cardenas*

1/4/2010

Erica Cardenas  
 Project Manager

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: 12/15/2009 16:25 SPL Sample ID: 09120787-01

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>ION CHROMATOGRAPHY</b>				<b>MCL</b>	<b>E300.0</b>	<b>Units: mg/L</b>	
Fluoride	ND		50	100	12/28/09 7:49	BDG	5345588
Sulfate	10100		500	1000	12/28/09 15:56	BDG	5345637

<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	1.68		0.005	1	12/29/09 13:26	AB1	5346750

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

<b>TOTAL DISSOLVED SOLIDS</b>				<b>MCL</b>	<b>SM2540 C</b>	<b>Units: mg/L</b>	
Total Dissolved Solids (Residue, Filterable)	10400		100	10	12/21/09 16:30	CFS	5339531

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 15:38	LU_L	5343877
Ethylbenzene	ND		1	1	12/25/09 15:38	LU_L	5343877
Toluene	ND		1	1	12/25/09 15:38	LU_L	5343877
m,p-Xylene	ND		1	1	12/25/09 15:38	LU_L	5343877
o-Xylene	ND		1	1	12/25/09 15:38	LU_L	5343877
Xylenes, Total	ND		1	1	12/25/09 15:38	LU_L	5343877
Surr: 1,2-Dichloroethane-d4	98.3	/ %	70-130	1	12/25/09 15:38	LU_L	5343877
Surr: 4-Bromofluorobenzene	102	/ %	74-125	1	12/25/09 15:38	LU_L	5343877
Surr: Toluene-d8	102	/ %	82-118	1	12/25/09 15:38	LU_L	5343877

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



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

Client Sample ID: MW-2 Collected: 12/15/2009 16:50 SPL Sample ID: 09120787-02

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>ION CHROMATOGRAPHY</b>				<b>MCL</b>	<b>E300.0</b>	<b>Units: mg/L</b>	
Fluoride	ND		100	200	12/28/09 8:06	BDG	5345589
Sulfate	22100		5000	10000	12/30/09 13:00	BDG	5349007

<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	1.54		0.005	1	12/29/09 13:31	AB1	5346751

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

<b>TOTAL DISSOLVED SOLIDS</b>				<b>MCL</b>	<b>SM2540 C</b>	<b>Units: mg/L</b>	
Total Dissolved Solids (Residue, Filterable)	25100		200	20	12/21/09 16:30	CFS	5339532

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 16:07	LU_L	5343878
Ethylbenzene	ND		1	1	12/25/09 16:07	LU_L	5343878
Toluene	ND		1	1	12/25/09 16:07	LU_L	5343878
m,p-Xylene	ND		1	1	12/25/09 16:07	LU_L	5343878
o-Xylene	ND		1	1	12/25/09 16:07	LU_L	5343878
Xylenes, Total	ND		1	1	12/25/09 16:07	LU_L	5343878
Surr: 1,2-Dichloroethane-d4	104		% 70-130	1	12/25/09 16:07	LU_L	5343878
Surr: 4-Bromofluorobenzene	99.8		% 74-125	1	12/25/09 16:07	LU_L	5343878
Surr: Toluene-d8	100		% 82-118	1	12/25/09 16:07	LU_L	5343878

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



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

Client Sample ID: MW-3 Collected: 12/15/2009 16:20 SPL Sample ID: 09120787-03

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>ION CHROMATOGRAPHY</b>				<b>MCL</b>	<b>E300.0</b>	<b>Units: mg/L</b>	
Fluoride	ND		50	100	12/28/09 8:23	BDG	5345590
Sulfate	7490		500	1000	12/28/09 16:30	BDG	5345639

<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	0.583		0.005	1	12/29/09 13:36	AB1	5346752

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

<b>TOTAL DISSOLVED SOLIDS</b>				<b>MCL</b>	<b>SM2540 C</b>	<b>Units: mg/L</b>	
Total Dissolved Solids (Residue, Filterable)	9230		50	5	12/21/09 16:30	CFS	5339533

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 16:33	LU_L	5343879
Ethylbenzene	3		1	1	12/25/09 16:33	LU_L	5343879
Toluene	ND		1	1	12/25/09 16:33	LU_L	5343879
m,p-Xylene	24		1	1	12/25/09 16:33	LU_L	5343879
o-Xylene	ND		1	1	12/25/09 16:33	LU_L	5343879
Xylenes, Total	24		1	1	12/25/09 16:33	LU_L	5343879
Surr: 1,2-Dichloroethane-d4	99.9	%	70-130	1	12/25/09 16:33	LU_L	5343879
Surr: 4-Bromofluorobenzene	99.5	%	74-125	1	12/25/09 16:33	LU_L	5343879
Surr: Toluene-d8	99.1	%	82-118	1	12/25/09 16:33	LU_L	5343879

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



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

Client Sample ID: MW-4 Collected: 12/15/2009 16:10 SPL Sample ID: 09120787-04

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>ION CHROMATOGRAPHY</b>				<b>MCL</b>	<b>E300.0</b>	<b>Units: mg/L</b>	
Fluoride	ND		50	100	12/28/09 8:40	BDG	5345591
Sulfate	5660		500	1000	12/28/09 16:46	BDG	5345640

<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	0.201		0.005	1	12/29/09 13:40	AB1	5346753

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

<b>TOTAL DISSOLVED SOLIDS</b>				<b>MCL</b>	<b>SM2540 C</b>	<b>Units: mg/L</b>	
Total Dissolved Solids (Residue, Filterable)	6500		40	4	12/21/09 16:30	CFS	5339534

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 16:59	LU_L	5343880
Ethylbenzene	ND		1	1	12/25/09 16:59	LU_L	5343880
Toluene	ND		1	1	12/25/09 16:59	LU_L	5343880
m,p-Xylene	ND		1	1	12/25/09 16:59	LU_L	5343880
o-Xylene	ND		1	1	12/25/09 16:59	LU_L	5343880
Xylenes, Total	ND		1	1	12/25/09 16:59	LU_L	5343880
Surr: 1,2-Dichloroethane-d4	96.6	%	70-130	1	12/25/09 16:59	LU_L	5343880
Surr: 4-Bromofluorobenzene	96.4	%	74-125	1	12/25/09 16:59	LU_L	5343880
Surr: Toluene-d8	101	%	82-118	1	12/25/09 16:59	LU_L	5343880

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



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

Client Sample ID: Duplicate

Collected: 12/15/2009 16:30

SPL Sample ID: 09120787-05

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 17:28	LU_L	5343881
Ethylbenzene	ND		1	1	12/25/09 17:28	LU_L	5343881
Toluene	ND		1	1	12/25/09 17:28	LU_L	5343881
m,p-Xylene	ND		1	1	12/25/09 17:28	LU_L	5343881
o-Xylene	ND		1	1	12/25/09 17:28	LU_L	5343881
Xylenes, Total	ND		1	1	12/25/09 17:28	LU_L	5343881
Surr: 1,2-Dichloroethane-d4	101		% 70-130	1	12/25/09 17:28	LU_L	5343881
Surr: 4-Bromofluorobenzene	99.5		% 74-125	1	12/25/09 17:28	LU_L	5343881
Surr: Toluene-d8	100		% 82-118	1	12/25/09 17:28	LU_L	5343881

**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

09120787 Page 7

1/4/2010 10:58:01 AM



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

Client Sample ID: Trip Blank

Collected: 12/17/2009 11:30

SPL Sample ID: 09120787-06

Site: Blanco, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	12/25/09 15:12	LU_L	5344892
Ethylbenzene	ND		1	1	12/25/09 15:12	LU_L	5344892
Toluene	ND		1	1	12/25/09 15:12	LU_L	5344892
m,p-Xylene	ND		1	1	12/25/09 15:12	LU_L	5344892
o-Xylene	ND		1	1	12/25/09 15:12	LU_L	5344892
Xylenes, Total	ND		1	1	12/25/09 15:12	LU_L	5344892
Surr: 1,2-Dichloroethane-d4	102		% 70-130	1	12/25/09 15:12	LU_L	5344892
Surr: 4-Bromofluorobenzene	100		% 74-125	1	12/25/09 15:12	LU_L	5344892
Surr: Toluene-d8	101		% 82-118	1	12/25/09 15:12	LU_L	5344892

**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*



Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Metals by Method 6010B, Dissolved
Method: SW6010B

WorkOrder: 09120787
Lab Batch ID: 96603

Method Blank

Samples in Analytical Batch:

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

Lab Sample ID Client Sample ID
09120787-01B MW-1
09120787-02B MW-2
09120787-03B MW-3
09120787-04B MW-4

Table with 3 columns: Analyte, Result, Rep Limit. Row: Manganese, ND, 0.005

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

Table with 7 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Row: 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

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Row: 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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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.



Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09120787
Lab Batch ID: R292280

Method Blank

RunID: K\_091224B-5343862 Units: ug/L
Analysis Date: 12/25/2009 8:27 Analyst: LU\_L

Samples in Analytical Batch:

Lab Sample ID Client Sample ID
09120787-01A MW-1
09120787-02A MW-2
09120787-03A MW-3
09120787-04A MW-4
09120787-05A Duplicate
09120787-06A Trip Blank

Table with 3 columns: Analyte, Result, Rep Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surr: entries.

Laboratory Control Sample (LCS)

RunID: K\_091224B-5343861 Units: ug/L
Analysis Date: 12/25/2009 7:55 Analyst: LU\_L

Table with 7 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various Surr: entries.

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

Sample Spiked: 09120826-05
RunID: K\_091224B-5343865 Units: ug/L
Analysis Date: 12/25/2009 10:00 Analyst: LU\_L

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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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.



Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09120787
Lab Batch ID: R292280

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Rows include Benzene, Ethylbenzene, Toluene, m,p-Xylene, o-Xylene, Xylenes, Total, and various surrogates.

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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Total Dissolved Solids
Method: SM2540 C

WorkOrder: 09120787
Lab Batch ID: R292020

Method Blank

Samples in Analytical Batch:

RunID: WET\_091221K-5339511 Units: mg/L
Analysis Date: 12/21/2009 16:30 Analyst: CFS

Lab Sample ID Client Sample ID
09120787-01C MW-1
09120787-02C MW-2
09120787-03C MW-3
09120787-04C MW-4

Table with 3 columns: Analyte, Result, Rep Limit. Row: Total Dissolved Solids (Residue, Filterable) ND 10

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: WET\_091221K-5339513 Units: mg/L
Analysis Date: 12/21/2009 16:30 Analyst: CFS

Table with 11 columns: Analyte, LCS Spike Added, LCS Result, LCS Percent Recovery, LCSD Spike Added, LCSD Result, LCSD Percent Recovery, RPD, RPD Limit, Lower Limit, Upper Limit. Row: Total Dissolved Solids (Residue, Filterabl) 200.0 198.0 99.00 200.0 202.0 101.0 2.0 10 95 107

Sample Duplicate

Original Sample: 09120860-02
RunID: WET\_091221K-5339537 Units: mg/L
Analysis Date: 12/21/2009 16:30 Analyst: CFS

Table with 5 columns: Analyte, Sample Result, DUP Result, RPD, RPD Limit. Row: Total Dissolved Solids (Residue, Filterabl) 531 533 0.376 10

- 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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Ion Chromatography
Method: E300.0

WorkOrder: 09120787
Lab Batch ID: R292366C

Method Blank

Samples in Analytical Batch:

RunID: IC2\_091227A-5345581 Units: mg/L
Analysis Date: 12/28/2009 5:35 Analyst: BDG

Lab Sample ID Client Sample ID
09120787-01C MW-1
09120787-02C MW-2
09120787-03C MW-3
09120787-04C MW-4

Table with 3 columns: Analyte, Result, Rep Limit. Rows: Fluoride (ND, 0.50), Sulfate (ND, 0.50)

Laboratory Control Sample (LCS)

RunID: IC2\_091227A-5345582 Units: mg/L
Analysis Date: 12/28/2009 5:52 Analyst: BDG

Table with 7 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Rows: Fluoride (10.00, 10.63, 106.3, 85, 115), Sulfate (10.00, 10.62, 106.2, 85, 115)

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

Sample Spiked: 09120685-03
RunID: IC2\_091227A-5345597 Units: mg/L
Analysis Date: 12/28/2009 14:16 Analyst: BDG

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Rows: Fluoride, Sulfate

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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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Quality Control Report

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

Conoco Phillips
COP EIPaso1A

Analysis: Ion Chromatography
Method: E300.0

WorkOrder: 09120787
Lab Batch ID: R292548

Method Blank

Samples in Analytical Batch:

RunID: IC1\_091229D-5348982 Units: mg/L
Analysis Date: 12/30/2009 1:38 Analyst: BDG

Lab Sample ID Client Sample ID
09120787-02C MW-2

Table with 3 columns: Analyte, Result, Rep Limit. Row: Sulfate, ND, 0.50

Laboratory Control Sample (LCS)

RunID: IC1\_091229D-5348983 Units: mg/L
Analysis Date: 12/30/2009 1:55 Analyst: BDG

Table with 7 columns: Analyte, Spike Added, Result, Percent Recovery, Lower Limit, Upper Limit. Row: Sulfate, 10.00, 10.67, 106.7, 85, 115

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

Sample Spiked: 09121051-06
RunID: IC1\_091229D-5349008 Units: mg/L
Analysis Date: 12/30/2009 13:17 Analyst: BDG

Table with 12 columns: Analyte, Sample Result, MS Spike Added, MS Result, MS % Recovery, MSD Spike Added, MSD Result, MSD % Recovery, RPD, RPD Limit, Low Limit, High Limit. Row: Sulfate, 11.64, 10, 29.92, 182.9\*, 10, 30.82, 191.8\*, 2.944, 20, 80, 120

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
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
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
\* - Recovery Outside Advisable QC Limits

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:	09120787	Received By:	RE
Date and Time Received:	12/18/2009 9:30:00 AM	Carrier name:	Fedex-Standard Overnight
Temperature:	4.2°C	Chilled by:	Water Ice

1. Shipping container/cooler in good condition? Yes  No  Not Present
2. Custody seals intact on shipping 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? 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:

Client Instructions:



SPL, Inc.

Analysis Request & Chain of Custody Record

60200M

09/20/97

page 1 of 2

Client Name: Tetra Tech / Conaco Phillips  
 Address: 6721 Indian School Rd NE Ste 200  
 City: Albuquerque NM Zip: 87109  
 Phone/Fax: 505-237-8440  
 Client Contact: Kelly Blanchard Email: Kelly.Blanchard@tetra.com  
 Project Name/No.: El Paso LA

Site Name: El Paso LA  
 Site Location: Blanco, NM  
 Invoice To: Conaco Phillips

SAMPLE ID	DATE		TIME	comp	grab
MW-1	12/15/09	1625			X
MW-1	12/15/09	1625			X
MW-1	12/15/09	1625			X
MW-2	12/15/09	1650			X
MW-2	12/15/09	1650			X
MW-2	12/15/09	1650			X
MW-3	12/15/09	1620			X
MW-3	12/15/09	1670			X
MW-3	12/15/09	1620			X
MW-4	12/15/09	1610			X

Requested Analysis	Number of Containers	Size	Pres.	Water	Sludge	Other	Filter	Other
BTEX	3	40	1	W				
Dissolved Mn	1	16		W				
Fluoride, Sulfate, TDS	1	32		W				
	3	40	1	W				
	1	16		W				
	1	32		W				
	3	40	1	W				
	1	16		W				
	1	32		W				
	3	40	1	W				

Intact?  Y  N  
 Ice?  Y  N  
 Temp: 42°F  
 PVI (signature)  
 Special Detection Limits (ppm) (signature)  
 1. Received by: [signature] time: 12/17/09 1200  
 2. Received by: [signature] time: 12/17/09 0930  
 3. Received by: [signature] time: 12/17/09 0930  
 4. Received by: [signature] time: 12/17/09 0930  
 5. Relinquished by: [signature] date: 12/17/09  
 6. Relinquished by: [signature] date: 12/17/09

Client/Consultant Remarks: Laboratory remarks:  
 please filter & preserve metals container before analysis  
 Requested TAT:  
 1 Business Day  
 2 Business Days  
 3 Business Days  
 Other  
 Rush TAT requires prior notice



SPL, Inc.

Analysis Request & Chain of Custody Record

434150

09/20/09

page

2 of 2

Client Name: El Paso LA  
 Address: Blanco Phillips  
 City: Blanco State: NM Zip: 88801  
 Phone/Fax: 505-237-9440 505-237-8656  
 Client Contact: Jolly Blanchard Email: jblanchard@blanco-phillips.com  
 Project Name/No.: El Paso LA  
 Site Name: Blanco NM  
 Site Location: Blanco Phillips  
 Involvement: Blanco Phillips

SAMPLE ID	DATE	TIME	PH	Analysis		Number of Containers	Requested Analysis
				comp	grab		
MW-4	12/15/09	1610		X		1	BTEX
MW-4	12/15/09	1610		X		1	Dissolved Inorganic
Duplicate	12/15/09	1630		X		3	Fluoride, Sulfate, TB
Trip Blank	12/17/09	1130		X		2	

Client/Consultant Remarks: Please allow intensive metals container prior to analysis

Requested TAT:  
 1 Business Day  Contract  
 2 Business Days  Standard  
 3 Business Days

Other:  Rush TAT requires prior notice

Special Reporting Requirements: Results: Fax  Email  Print  LA RECAP   
 Standard  Level 3 QC  Level 4 QC  FX TRRP  LA RECAP   
 1. Relinquished by: [Signature] date: 12/17/09  
 2. Relinquished by: [Signature] date: 12/17/09  
 3. Relinquished by: [Signature] date: 12/17/09  
 5. Relinquished by: [Signature] date: 12/17/09

Special Detection Limits (specify):  
 Intact? Yes  
 Ice? Yes  
 Temp: 90

2. Received by: [Signature] time: 1200  
 4. Received by: [Signature] time: 1530  
 6. Received by Laboratory: [Signature]

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