

**3R - 426**

**MARCH 2011  
QUARTERLY  
GWMR**

**JUNE 2011**

3R426

**MARCH 2011 QUARTERLY GROUNDWATER  
MONITORING REPORT**

**CONOCOPHILLIPS COMPANY**

**SAN JUAN 27-5 No. 34A  
NATURAL GAS PRODUCTION SITE  
RIO ARRIBA COUNTY, NEW MEXICO**

OCD#     TBD    

API # 30-039-23739

Prepared for:



Risk Management and Remediation  
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Prepared by:



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June 2011

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# MARCH 2011 QUARTERLY GROUNDWATER MONITORING REPORT SAN JUAN 27-5 NO. 34A, RIO ARRIBA COUNTY, NEW MEXICO

## 1.0 INTRODUCTION

This report details the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on March 15, 2011 at the ConocoPhillips Company, San Juan 27-5 No. 34A natural gas well site in Unit Letter E, Section 30, Township 27N, Range 05W, of Rio Arriba County, New Mexico (Site). This sampling event represents the eighth quarter of groundwater monitoring conducted by Tetra Tech at the Site.

The location and general features of the Site are presented as **Figures 1** and **2**, respectively. A generalized geologic cross section is presented as **Figure 3**.

### 1.1 Site Background

Hydrocarbon impacts were discovered beneath an aboveground storage tank (AST) during tank removal at the Site on January 30, 2009. Envirotech Inc. of Farmington, NM (Envirotech) was contacted for spill assessment services following the discovery. Envirotech collected a 5-point composite soil sample from beneath the AST; 4 grab soil samples from test holes advanced around the AST; and an additional 5-point composite soil sample collected from "a small area...excavated to approximately 17 [feet] bgs..." (Envirotech, 2009). All soil samples collected were field analyzed for total petroleum hydrocarbons (TPH) using Environmental Protection Agency (EPA) method 418.1, and for organic vapors using a photoionization detector (PID). The 5-point composite soil samples were also sent for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021, and for TPH analysis by EPA Method 8015. Soil sample results from both 5-point composite samples and from one of the test holes were above recommended action levels; all other samples were below.

On March 3, 2009, Envirotech returned to the Site to continue sampling activities. A 49' x 49' x 20' deep area had been excavated prior to Envirotech's arrival on site. Groundwater was encountered at 20 ft below ground surface (bgs); Envirotech sampled the groundwater for analysis of volatile organic compounds (VOC) using EPA method 8260B (Envirotech, 2009). Laboratory results for benzene were found at a concentration above the NMWQCC standard at 96 micrograms per liter (ug/L) in the groundwater sample. Composite soil samples were collected from the bottom of the excavation and from each of the 4 walls; then field analyzed for organic vapors and TPH. All results were below recommended action levels for organic vapors. TPH concentrations were below recommended action levels in all samples excluding one taken from the south wall of the excavation. Subsequently the excavation was continued along the south wall 4 feet further; field TPH analysis on an additional sample was below recommended action levels and excavation activities stopped. Final excavation dimensions were reported at 53 feet by 49 feet by 20 feet deep. Personal communication on July 13, 2009 between

Tetra Tech and Wade Hack, ConocoPhillips field manager, revealed that the area of the excavation was within the current berm location of the produced water and condensate tanks at the Site (**Figure 2**). A total of 1,900 cubic yards of impacted soil were removed from the Site and transported to an OCD permitted facility located in Farmington, New Mexico. Envirotech recommended the installation of groundwater monitoring wells to determine “groundwater gradient and the extent of groundwater contamination” (Envirotech, 2009).

Between July 15, 2009 and July 16, 2009, EnviroDrill of Albuquerque, New Mexico installed 4 groundwater monitor wells at the Site under the supervision of Tetra Tech: MW-1, MW-2, MW-3, and MW-4. All wells were drilled using a CME-75 drill rig, hollow stem augers, and split-spoon sampling techniques; 15 feet of 0.010 polyvinylchloride (PVC) slotted screen was placed in each well.

Tetra Tech began quarterly groundwater quality monitoring of the Site on July 28, 2009. The most recent groundwater quality monitoring event took place on March 15, 2011. This event marks the eighth consecutive round of quarterly monitoring conducted by Tetra Tech at the Site. Site history is outlined in **Table 1**.

## **2.0 GROUNDWATER MONITORING SUMMARY, SAMPLING METHODOLOGY AND ANALYTICAL RESULTS**

### **2.1 Groundwater Monitoring Summary**

On March 15, 2011, groundwater elevation measurements were recorded in Monitor Wells MW-1, MW-2, MW-3 and MW-4. **Table 2** presents the monitor well specifications and groundwater level data. A groundwater elevation contour map is presented as **Figure 4**, and illustrates that groundwater at the Site flows north-northeast. Groundwater flow direction changed slightly from previous monitoring events, likely due to the construction of a stock pond northeast of the site during early 2010.

### **2.2 Groundwater Sampling Methodology**

Groundwater quality samples were collected from Monitor Wells MW-1, MW-2, MW-3 and MW-4 during the March 15, 2011 groundwater sampling event. Approximately three well volumes were purged from each monitor well prior to sampling. A 1.5-inch polyethylene, dedicated bailer was used in each well to purge and collect groundwater samples. The purged water was disposed of in the on-site produced water tank (**Figure 2**). Samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Accutest Laboratories located in Houston, Texas. Groundwater samples were analyzed for the presence of BTEX by Environmental Protection Agency (EPA) Method 8260B and dissolved manganese by EPA Method 6010B. Field sampling forms are included as **Appendix A**.

## 2.3 Groundwater Sampling Analytical Results

The New Mexico Water Quality Control Commission (NMWQCC) mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). The following constituent was reported in concentrations that exceed the NMWQCC standard.

- **Manganese**

The groundwater quality standard for manganese is 0.2 milligrams per liter (mg/L). Groundwater collected from monitor wells MW-1, MW-2 and MW-3 were found to contain manganese at concentrations of 0.732 mg/L; 2.01 mg/L; and 2.01 mg/L, respectively.

No other analyzed constituents were found above NMWQCC groundwater quality standards in Site monitor wells. A historical summary of groundwater analytical results is provided in **Table 3**.

The corresponding laboratory analytical report for the March 2011 groundwater sampling event is included as **Appendix B**.

## 3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on eight consecutive quarters of groundwater monitoring, groundwater samples collected from Monitor Wells MW-1, MW-2, MW-3, and MW-4 have never exceeded NMWQCC groundwater quality standards for BTEX constituents. Groundwater samples collected from MW-1, MW-2, and MW-3 consistently exceed NMWQCC groundwater quality standards for dissolved manganese.

Tetra Tech recommends discontinuation of BTEX analysis. The March 2011 monitoring event will mark the final quarter of analysis for BTEX constituents. Tetra Tech will, however, continue annual groundwater monitoring of dissolved manganese until concentrations of these constituents are below NMWQCC standards, appear stable or reach regional background levels. Please contact Kelly Blanchard at 505-237-8440 or [kelly.blanchard@tetrattech.com](mailto:kelly.blanchard@tetrattech.com) if you have any questions or require additional information.

## 4.0 REFERENCES

Envirotech Incorporated (2009). Burlington Resources Spill Closure Report Located at San Juan 27-5 #34A, Section 30, Township 27N, Range 5W, Rio Arriba County, New Mexico. Prepared for ConocoPhillips Company. Report Dated March 20, 2009. 3 pp (not including Figures, Tables, and Appendices).

## **FIGURES**

1. Site Location Map
2. Site Detail Map
3. Generalized Geologic Cross Section
4. Groundwater Elevation Contour Map – March 2011



High Resolution Aerial Imagery © 2011

**FIGURE 1.**

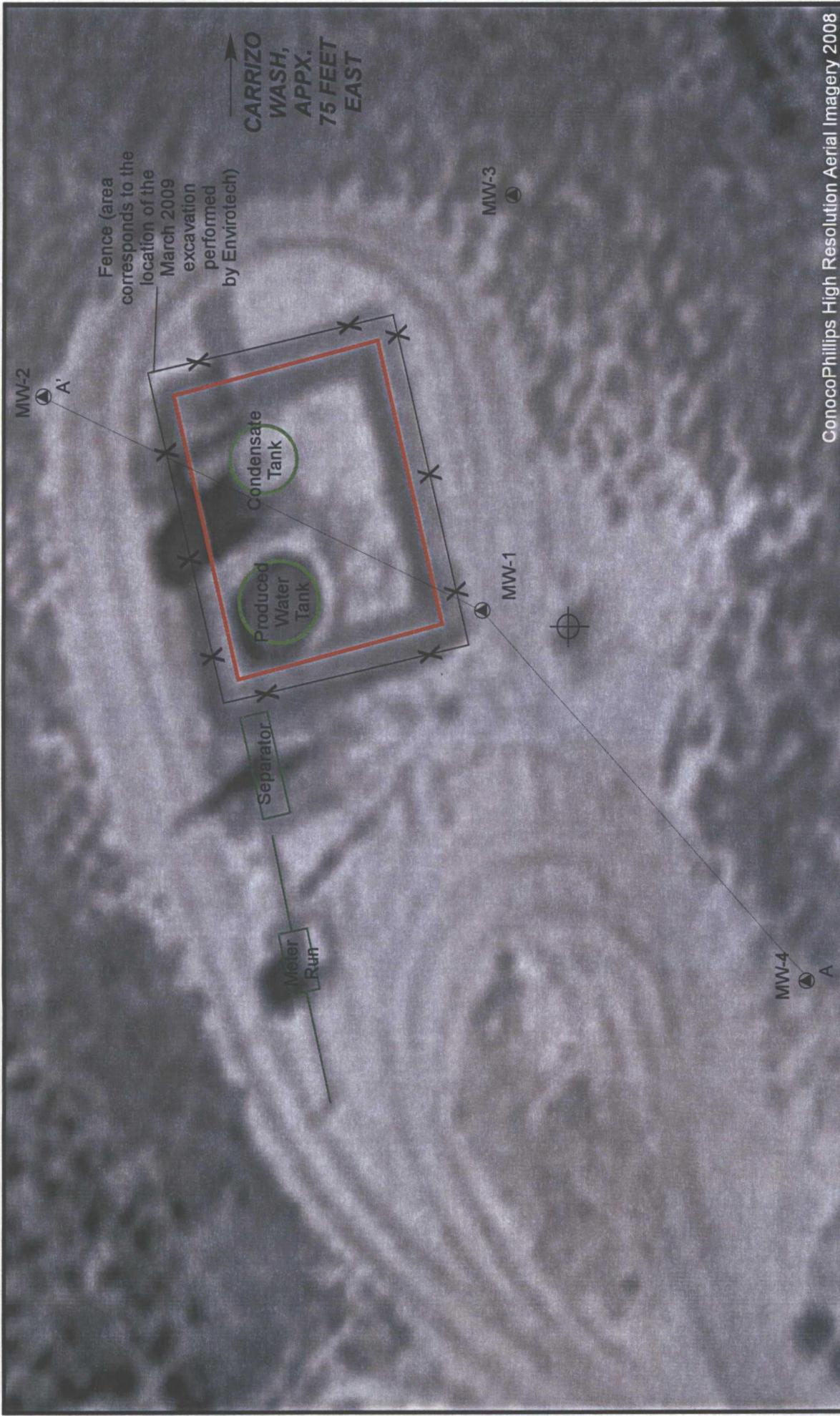
Site Location Map  
 ConocoPhillips  
 Company  
 San Juan 27-5 No. 34A  
 Rio Arriba County, NM



ConocoPhillips Company  
 San Juan 27-5 #34A Site  
 Location  
 Latitude: 36.54721° N  
 Longitude: -107.40710° W



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ConocoPhillips High Resolution Aerial Imagery 2008

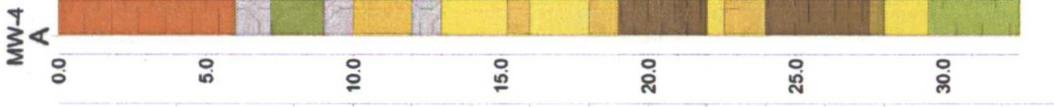
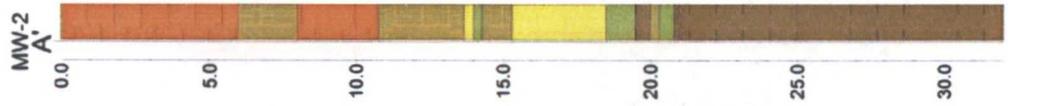
**LEGEND**

-  WELLHEAD
-  MONITOR WELL
-  BERM
-  EQUIPMENT



**TETRA TECH, INC.**

**FIGURE 2:**  
 SITE LAYOUT MAP  
 CONOCOPHILLIPS COMPANY  
 SAN JUAN 27-5 No. 34A  
 GAS PRODUCTION WELL  
 Sec 30, T27N, R5W  
 Rio Arriba County, New Mexico



**LEGEND**

- |  |                                   |  |                        |
|--|-----------------------------------|--|------------------------|
|  | Clayey sand                       |  | Poor Recovery          |
|  | Clayey Silt                       |  | Sandy silt             |
|  | Clays                             |  | Silty Clay             |
|  | Fine grained sand                 |  | Silty Sand             |
|  | Fine to medium grained silty sand |  | Very fine grained sand |
|  | Medium grained sand               |  |                        |

**FIGURE 3:**  
**GENERALIZED GEOLOGIC CROSS SECTION**  
**CONOCOPHILLIPS COMPANY**  
 San Juan 27-5 #34A  
 Sec 30, T27N, R5W  
 Rio Arriba County, New Mexico



TETRA TECH, INC.



## **TABLES**

- I. Site History Timeline
2. Groundwater Elevation Data Summary (July 2009 – March 2011)
3. Groundwater Laboratory Analytical Results Summary (July 2009 – March 2011)

**Table 1. Site History Timeline - ConocoPhillips, San Juan 27-5 No. 34A**

DATE	ACTIVITY
January 30, 2009	Hydrocarbon impacts are visually confirmed during tank removal at the Site. Envirotech Inc. of Farmington, New Mexico (Envirotech) conduct spill assessment and initial soil sampling.
March 3, 2009	Envirotech oversees soil excavation at the Site. Final dimensions of excavated area are 53'x49'x20' deep. Groundwater is encountered at 20' bgs and sampled. Laboratory results for benzene were found at a concentration of 95.6 micrograms per liter (ug/L), above the NMWQCC standard.
March 20, 2009	Envirotech excavation report states that a total of 1,900 cubic yards of soil was removed from the Site and transported to an OCD-permitted facility in Farmington, NM. Envirotech recommended the installation of groundwater monitoring wells at the Site (Envirotech, 2009).
April 2, 2009	Tetra Tech visits the Site visit to determine placement of proposed groundwater monitoring wells.
July 15, 2009 & July 16, 2009	Four groundwater monitor wells are installed by EnviroDrill under the supervision of Tetra Tech (MW-1, MW-2, MW-3, MW-4).
July 28, 2009	Baseline quarterly groundwater monitoring event was conducted at the Site by Tetra Tech.
September 29, 2009	Quarterly groundwater monitoring event conducted at the Site by Tetra Tech.
December 15, 2009	Quarterly groundwater monitoring event conducted at the Site by Tetra Tech.
April 8, 2010	Quarterly groundwater monitoring event conducted at the Site by Tetra Tech.
June 8, 2010	Quarterly groundwater monitoring event conducted at the Site by Tetra Tech.
September 21, 2010	Quarterly groundwater monitoring event conducted at the Site by Tetra Tech.
December 15, 2010	Seventh quarterly groundwater monitoring event conducted at the Site by Tetra Tech. Manganese concentrations exceed NMWQCC standards in monitor wells MW-1, MW-2, and MW-3.
March 15, 2011	Eighth quarterly groundwater monitoring event conducted at the Site by Tetra Tech. Manganese concentrations exceed NMWQCC standards in monitor wells MW-1, MW-2, and MW-3.

Table 2. Groundwater Elevation Data Summary - ConocoPhillips Company San Juan 27-5 No. 34A

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	* TOC Elevation (ft)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
MW-1	33.22	18.73 - 33.73	97.44	7/28/2009	23.21	74.23
				9/29/2009	23.88	73.56
				12/15/2009	24.15	73.29
				4/8/2010	21.76	75.68
				6/8/2010	22.26	75.18
				9/21/2010	23.24	74.20
				12/15/2010	23.60	73.84
MW-2	34.35	15.00 - 30.00	96.78	3/15/2011	22.92	74.52
				7/28/2009	22.72	74.06
				9/29/2009	23.40	73.38
				12/15/2009	23.66	73.12
				4/8/2010	21.21	75.57
				6/8/2010	21.81	74.97
				9/21/2010	22.78	74.00
MW-3	33.15	17.55 - 32.55	97.24	12/15/2010	23.13	73.65
				3/15/2011	22.44	74.34
				7/28/2009	22.84	74.40
				9/29/2009	23.54	73.70
				12/15/2009	23.80	73.44
				4/8/2010	21.22	76.02
				6/8/2010	21.90	75.34
MW-4	32.65	17.60 - 32.60	97.23	9/21/2010	22.90	74.34
				12/15/2010	23.27	73.97
				3/15/2011	22.55	74.69
				7/28/2009	22.62	74.61
				9/29/2009	23.31	73.92
				12/15/2009	23.57	73.66
				4/8/2010	21.25	75.98
6/8/2010	21.75	75.48				
9/21/2010	22.67	74.56				
12/15/2010	23.03	74.20				
3/15/2011	22.35	74.88				

ft = Feet  
 TOC = Top of casing  
 bgs = below ground surface  
 \*Groundwater elevation is relative to an arbitrary 100 feet

Table 3. Groundwater Laboratory Analytical Results Summary - ConocoPhillips Company San Juan 27-5 No. 34A

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Dissolved Manganese (mg/L)	Total Dissolved Solids (mg/L)
MW-1	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	<b>0.694</b>	NA
	12/15/2009	< 1	< 1	< 1	< 1	<b>0.576</b>	NA
	4/8/2010	< 1	< 1	< 1	< 1	<b>0.896</b>	640
	6/8/2010	< 1	< 1	< 1	< 1	<b>0.612</b>	NA
	9/21/2010	< 1	< 1	< 1	< 1	<b>0.784</b>	NA
	12/15/2010	< 1	< 1	< 1	< 1	<b>0.933</b>	NA
	3/15/2011	< 1	< 1	< 1	< 1	<b>0.732</b>	NA
MW-2	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	<b>1.38</b>	NA
	12/15/2009	< 1	< 1	< 1	< 1	<b>1.92</b>	NA
	4/8/2010	< 1	< 1	< 1	< 1	<b>2.43</b>	700
	6/8/2010	< 1	< 1	< 1	< 1	<b>2.12</b>	NA
	9/21/2010	< 1	< 1	< 1	< 1	<b>2.25</b>	NA
	12/15/2010	< 1	< 1	< 1	< 1	<b>2.17</b>	NA
	3/15/2011	< 1	< 1	< 1	< 1	<b>2.01</b>	NA
MW-3	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	<b>1.7</b>	NA
	12/15/2009	< 1	< 1	< 1	< 1	<b>2.04</b>	NA
	4/8/2010	< 1	< 1	< 1	< 1	<b>2.51</b>	525
	6/8/2010	< 1	< 1	< 1	< 1	<b>2.51</b>	NA
	9/21/2010	< 1	< 1	< 1	< 1	<b>2.87</b>	NA
	12/15/2010	< 1	< 1	< 1	< 1	<b>2.69</b>	NA
	3/15/2011	< 1	< 1	< 1	< 1	<b>2.01</b>	NA
MW-4	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	<b>0.269</b>	NA
	12/15/2009	< 1	< 1	< 1	< 1	0.0579	NA
	4/8/2010	< 1	< 1	< 1	< 1	0.121	684
	6/8/2010	< 1	< 1	< 1	< 1	0.0384	NA
	9/21/2010	< 1	< 1	< 1	< 1	0.0301	NA
	12/15/2010	< 1	< 1	< 1	< 1	0.0088	NA
	3/15/2011	< 1	< 1	< 1	< 1	0.008	NA
NMWQCC Standards		10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/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  
 < 1.0 = Below laboratory detection limit of 1.0 ug/L  
**Bold** = concentrations that exceed the NMWQCC limits

**APPENDIX A**

March 2011 Quarterly Groundwater Sampling Field Forms



# WATER SAMPLING FIELD FORM

Project Name San Juan 27-5 34A

Page 1 of 4

Act No. \_\_\_\_\_

Site Location San Juan County, New Mexico

Site/Well No. MW-1

Coded/  
Replicate No. 1345

Date 3.15.11

Weather Sunny, breezy,  
65°

Time Sampling  
Began 1320

Time Sampling  
Completed 1340

### EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface \_\_\_\_\_ MP Elevation 97.44

Total Sounded Depth of Well Below MP 33.22 33.14 Water-Level Elevation 74.52

Held \_\_\_\_\_ Depth to Water Below MP 22.92 Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 10.22 Gallons Pumped/Bailed Prior to Sampling 5.0 gallons

Gallons per Foot 0.16

Gallons in Well 1.635 x 3 =

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

Purging Equipment Purge pump/Bailer (A.90)

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
<u>1334</u>	<u>13.01</u>	<u>7.61</u>	<u>667</u>	<u>.562</u>	<u>1.68</u>	<u>15.7</u>	<u>41.8</u>	<u>4.0</u>
<u>1336</u>	<u>13.02</u>	<u>7.49</u>	<u>674</u>	<u>.568</u>	<u>1.43</u>	<u>13.5</u>	<u>41.1</u>	<u>4.5</u>
<u>1337</u>	<u>13.03</u>	<u>7.44</u>	<u>673</u>	<u>.567</u>	<u>1.47</u>	<u>14.0</u>	<u>40.2</u>	<u>5.0</u>

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
<u>BTEX</u>	<u>3 40mL VOA's</u>	<u>HCl</u>
<u>Fe, Mn, <del>As</del> Dissolved</u>	<u>plastic 16 oz</u>	<u>none</u>

Remarks H<sub>2</sub>O is light brown w/ silt. no odor or seen observed

Sampling Personnel Cassie Brown, Christine Mathews

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



# WATER SAMPLING FIELD FORM

Project Name San Juan 27-5 34A

Page 2 of 4

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

Site Location San Juan County, New Mexico

Site/Well No. MW-2

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

Date 3-15-11

Weather Sunny, breezy  
65°

Time Sampling  
Began 1250

Time Sampling  
Completed 1350

## EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

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

MP Elevation 96.78

Total Sounded Depth of Well Below MP 34.35-34.33

Water-Level Elevation 74.34

Held \_\_\_\_\_ Depth to Water Below MP 22.44

Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 11.89

Gallons Pumped/Bailed  
Prior to Sampling 4.5

Gallons per Foot 0.16

Gallons in Well 1.902 x 3 =

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

Purging Equipment Purge pump / Bailer 5.70

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
<u>1346</u>	<u>13.08</u>	<u>7.35</u>	<u>791</u>	<u>0.1616</u>	<u>3.41</u>	<u>32.4</u>	<u>41.8</u>	<u>4.0</u>
<u>1347</u>	<u>13.07</u>	<u>7.35</u>	<u>787</u>	<u>0.1663</u>	<u>3.63</u>	<u>34.7</u>	<u>36.9</u>	<u>4.25</u>

Sampling Equipment Purge Pump/Bailer

Constituents Sampled

Container Description

Preservative

BTEX 3 40mL VOA's HCl

Fe, Mn, Al Dissolved Mn plastic 16 oz none

Remarks bailed dry @ 2.5 gallons H<sub>2</sub>O is slightly tan; No odor or taste

Sampling Personnel Cassie Brown, Christine Mathews

### Well Casing Volumes

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



# WATER SAMPLING FIELD FORM

Project Name San Juan 27-5 34A

Page 3 of 4

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

Site Location San Juan County, New Mexico

Site/Well No. MW-3 Coded/Replicate No. \_\_\_\_\_

Date 3-15-11

Weather Sunny, breezy  
6:50 Time Sampling Began 1300

Time Sampling Completed 1330

### EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface \_\_\_\_\_ MP Elevation 97.24

Total Sounded Depth of Well Below MP 33.15 Water-Level Elevation 74.69

Held \_\_\_\_\_ Depth to Water Below MP 22.55 Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 10.6 Gallons Pumped/Bailed Prior to Sampling 5.25

Gallons per Foot 0.16

Gallons in Well 1.69 x 3 = 5.08 Sampling Pump Intake Setting (feet below land surface) \_\_\_\_\_

Purging Equipment Purge pump/Bailer 5.08

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
<u>1327</u>	<u>13.24</u>	<u>7.37</u>	<u>655</u>	<u>0.549</u>	<u>2.14</u>	<u>20.3</u>	<u>73.6</u>	<u>4.25</u>
<u>1328</u>	<u>13.29</u>	<u>7.27</u>	<u>659</u>	<u>0.551</u>	<u>1.94</u>	<u>18.5</u>	<u>53.9</u>	<u>4.75</u>
<u>1330</u>	<u>13.32</u>	<u>7.25</u>	<u>661</u>	<u>0.553</u>	<u>1.64</u>	<u>15.7</u>	<u>40.9</u>	<u>5.0</u>

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
<u>BTEX</u>	<u>3 40mL VOA's</u>	<u>HCl</u>
<u>Fe, Mn, Al</u>	<u>Dissolved mn plastic - 16oz</u>	<u>none</u>

Remarks H<sub>2</sub>O is light tan. No odor or green detected

Sampling Personnel Cassie Brown, Christine Mathews

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



# WATER SAMPLING FIELD FORM

Project Name San Juan 27-5 34A

Page 4 of 4

act No. \_\_\_\_\_

Site Location San Juan County, New Mexico

Site/Well No. MW-4

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

Date 3-15-11

Weather Sunny, breezy  
46°

Time Sampling  
Began 1250

Time Sampling  
Completed 1400

### EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface \_\_\_\_\_ MP Elevation 97.23

Total Sounded Depth of Well Below MP 32.65 33.49 Water-Level Elevation 74.88

Held \_\_\_\_\_ Depth to Water Below MP 22.35 Diameter of Casing 2"

Wet \_\_\_\_\_ Water Column in Well 11.14 Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_

Gallons per Foot 0.16

Gallons in Well 1.78 x 3 =

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

Purging Equipment Purge pump/Bailer 0.34

### SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
<u>1356</u>	<u>12.74</u>	<u>8.03</u>	<u>775</u>	<u>.658</u>	<u>4.23</u>	<u>40.0</u>	<u>46.9</u>	<u>2.5</u>

Sampling Equipment Purge Pump/Bailer

Constituents Sampled \_\_\_\_\_ Container Description \_\_\_\_\_ Preservative \_\_\_\_\_

BTEX \_\_\_\_\_ 3 40mL VOA's \_\_\_\_\_ HCl \_\_\_\_\_

Fa, Mn, Al Dissolved Mn plastic 16 oz plastic \_\_\_\_\_ none \_\_\_\_\_

Remarks Bailed dry @ 2 gallons. H<sub>2</sub>O is light brown w/ silt. no odor or

Sampling Personnel Cassie Brown, Christine Mathews Shreen

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

observed.  
Will sample  
after  
re-charge.

**APPENDIX B**

March 2011 Quarterly Groundwater Sampling Field Forms



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

**Conoco Phillips**

Certificate of Analysis Number:

**11030428**

<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: (505) 881-3283	<b>Project Name:</b> San Juan 27-5 #34A <b>Site:</b> Rio Arriba County, NM <b>Site Address:</b>  <b>PO Number:</b> <b>State:</b> New Mexico <b>State Cert. No.:</b> <b>Date Reported:</b> 3/28/2011
---	--

This Report Contains A Total Of 15 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

3/28/2011

Date

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

Version 2.1 - Modified February 11, 2011



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

Case Narrative for:  
**Conoco Phillips**

Certificate of Analysis Number:  
**11030428**

<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: (505) 881-3283</p>	<p><b>Project Name:</b> San Juan 27-5 #34A</p> <p><b>Site:</b> Rio Arriba County, 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> 3/28/2011</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

11030428 Page 1  
 3/28/2011

Erica Cardenas  
 Project Manager

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

Date



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

Case Narrative for:  
**Conoco Phillips**

---

Certificate of Analysis Number:  
**11030428**

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his designee, as verified by the following signature.

A handwritten signature in black ink, appearing to read "Erica Cardenas".

11030428 Page 2

3/28/2011

---

Erica Cardenas  
Project Manager

Date

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

Version 2.1 - Modified February 11, 2011



SPL ENVIRONMENTAL  
8880 INTERCHANGE DRIVE  
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(713) 660-0901

Conoco Phillips

Certificate of Analysis Number:

**11030428**

**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:** San Juan 27-5 #34A  
**Site:** Rio Arriba County, NM  
**Site Address:**  
**PO Number:**  
**State:** New Mexico  
**State Cert. No.:**  
**Date Reported:** 3/28/2011

**Fax To:**

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	11030428-01	Water	03/15/2011 13:40	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>
MW-2	11030428-02	Water	03/15/2011 13:50	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>
MW-3	11030428-03	Water	03/15/2011 13:30	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>
MW-4	11030428-04	Water	03/15/2011 14:00	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>
Duplicate	11030428-05	Water	03/15/2011 13:45	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>
Trip Blank	11030428-06	Water	03/15/2011 20:30	3/17/2011 9:00:00 AM	302905	<input type="checkbox"/>

3/28/2011

Erica Cardenas  
Project Manager

Date

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

Ted Yen  
Quality Assurance Officer



SPL ENVIRONMENTAL  
 8880 INTERCHANGE DRIVE  
 HOUSTON, TX 77054  
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Client Sample ID MW-1 Collected: 03/15/2011 13:40 SPL Sample ID: 11030428-01

Site: Rio Arriba County, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	0.732		0.005	1	03/24/11 22:25	EG	5751561

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/17/2011 10:15	M_W	1.00

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	03/17/11 15:25	LU_L	5746399
Ethylbenzene	ND		1	1	03/17/11 15:25	LU_L	5746399
Toluene	ND		1	1	03/17/11 15:25	LU_L	5746399
m,p-Xylene	ND		2	1	03/17/11 15:25	LU_L	5746399
o-Xylene	ND		1	1	03/17/11 15:25	LU_L	5746399
Xylenes, Total	ND		1	1	03/17/11 15:25	LU_L	5746399
Surr: 1,2-Dichloroethane-d4	88.6	%	70-130	1	03/17/11 15:25	LU_L	5746399
Surr: 4-Bromofluorobenzene	106	%	74-125	1	03/17/11 15:25	LU_L	5746399
Surr: Toluene-d8	96.0	%	82-118	1	03/17/11 15:25	LU_L	5746399

**Qualifiers:** ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)  
 B - 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



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Client Sample ID MW-2. Collected: 03/15/2011 13:50 SPL Sample ID: 11030428-02

Site: Rio Arriba County, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	2.01		0.005	1	03/24/11 22:31	EG	5751562

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/17/2011 10:15	M_W	1.00

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	03/17/11 15:51	LU_L	5746400
Ethylbenzene	ND		1	1	03/17/11 15:51	LU_L	5746400
Toluene	ND		1	1	03/17/11 15:51	LU_L	5746400
m,p-Xylene	ND		2	1	03/17/11 15:51	LU_L	5746400
o-Xylene	ND		1	1	03/17/11 15:51	LU_L	5746400
Xylenes, Total	ND		1	1	03/17/11 15:51	LU_L	5746400
Surr: 1,2-Dichloroethane-d4	96.3	%	70-130	1	03/17/11 15:51	LU_L	5746400
Surr: 4-Bromofluorobenzene	106	%	74-125	1	03/17/11 15:51	LU_L	5746400
Surr: Toluene-d8	95.4	%	82-118	1	03/17/11 15:51	LU_L	5746400

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
 B - 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



SPL ENVIRONMENTAL  
 8880 INTERCHANGE DRIVE  
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Client Sample ID MW-3 Collected: 03/15/2011 13:30 SPL Sample ID: 11030428-03

Site: Rio Arriba County, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	2.01		0.005	1	03/24/11 22:37	EG	5751563

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/17/2011 10:15	M_W	1.00

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	03/17/11 16:16	LU_L	5746401
Ethylbenzene	ND		1	1	03/17/11 16:16	LU_L	5746401
Toluene	ND		1	1	03/17/11 16:16	LU_L	5746401
m,p-Xylene	ND		2	1	03/17/11 16:16	LU_L	5746401
o-Xylene	ND		1	1	03/17/11 16:16	LU_L	5746401
Xylenes, Total	ND		1	1	03/17/11 16:16	LU_L	5746401
Surr: 1,2-Dichloroethane-d4	92.6	%	70-130	1	03/17/11 16:16	LU_L	5746401
Surr: 4-Bromofluorobenzene	103	%	74-125	1	03/17/11 16:16	LU_L	5746401
Surr: Toluene-d8	92.5	%	82-118	1	03/17/11 16:16	LU_L	5746401

**Qualifiers:** ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)  
 B - 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



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 8880 INTERCHANGE DRIVE  
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Client Sample ID MW-4 Collected: 03/15/2011 14:00 SPL Sample ID: 11030428-04

Site: Rio Arriba County, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>METALS BY METHOD 6010B, DISSOLVED</b>				<b>MCL</b>	<b>SW6010B</b>	<b>Units: mg/L</b>	
Manganese	0.008		0.005	1	03/24/11 22:43	EG	5751564

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/17/2011 10:15	M_W	1.00

<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	03/17/11 16:42	LU_L	5746402
Ethylbenzene	ND		1	1	03/17/11 16:42	LU_L	5746402
Toluene	ND		1	1	03/17/11 16:42	LU_L	5746402
m,p-Xylene	ND		2	1	03/17/11 16:42	LU_L	5746402
o-Xylene	ND		1	1	03/17/11 16:42	LU_L	5746402
Xylenes, Total	ND		1	1	03/17/11 16:42	LU_L	5746402
Surr: 1,2-Dichloroethane-d4	94.3	%	70-130	1	03/17/11 16:42	LU_L	5746402
Surr: 4-Bromofluorobenzene	100	%	74-125	1	03/17/11 16:42	LU_L	5746402
Surr: Toluene-d8	96.0	%	82-118	1	03/17/11 16:42	LU_L	5746402

**Qualifiers:** ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)  
 B - 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





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Client Sample ID Trip Blank      Collected: 03/15/2011 20:30      SPL Sample ID: 11030428-06

Site: Rio Arriba County, 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	03/17/11 14:32	LU_L	5746397
Ethylbenzene	ND		1	1	03/17/11 14:32	LU_L	5746397
Toluene	ND		1	1	03/17/11 14:32	LU_L	5746397
m,p-Xylene	ND		2	1	03/17/11 14:32	LU_L	5746397
o-Xylene	ND		1	1	03/17/11 14:32	LU_L	5746397
Xylenes, Total	ND		1	1	03/17/11 14:32	LU_L	5746397
Surr: 1,2-Dichloroethane-d4	97.0		% 70-130	1	03/17/11 14:32	LU_L	5746397
Surr: 4-Bromofluorobenzene	103		% 74-125	1	03/17/11 14:32	LU_L	5746397
Surr: Toluene-d8	95.2		% 82-118	1	03/17/11 14:32	LU_L	5746397

**Qualifiers:**    ND/U - Not Detected at the Reporting Limit      >MCL - Result Over Maximum Contamination Limit(MCL)  
                       B - 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

*Quality Control Documentation*



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

**Quality Control Report**

**Conoco Phillips**

San Juan 27-5 #34A

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

WorkOrder: 11030428  
 Lab Batch ID: 105517

Method Blank

Samples in Analytical Batch:

RunID: ICP2\_110324A-5751546 Units: mg/L  
 Analysis Date: 03/24/2011 20:52 Analyst: EG  
 Preparation Date: 03/17/2011 10:15 Prep By: M\_ Method SW3005A

Lab Sample ID	Client Sample ID
11030428-01B	MW-1
11030428-02B	MW-2
11030428-03B	MW-3
11030428-04B	MW-4

Analyte	Result	Rep Limit
Manganese	ND	0.005

Laboratory Control Sample (LCS)

RunID: ICP2\_110324A-5751547 Units: mg/L  
 Analysis Date: 03/24/2011 20:58 Analyst: EG  
 Preparation Date: 03/17/2011 10:15 Prep By: M\_ Method SW3005A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Manganese	0.1000	0.1001	100.1	80	120

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

Sample Spiked: 11030408-02  
 RunID: ICP2\_110324A-5751549 Units: mg/L  
 Analysis Date: 03/24/2011 21:10 Analyst: EG  
 Preparation Date: 03/17/2011 10:15 Prep By: M\_ 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	2.267	0.1	2.396	N/C	0.1	2.584	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**

**Conoco Phillips**  
San Juan 27-5 #34A

**Analysis:** Volatile Organics by Method 8260B  
**Method:** SW8260B

**WorkOrder:** 11030428  
**Lab Batch ID:** R317230

Method Blank

RunID: K\_110317A-5746391 Units: ug/L  
Analysis Date: 03/17/2011 11:29 Analyst: LU\_L

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030428-01A	MW-1
11030428-02A	MW-2
11030428-03A	MW-3
11030428-04A	MW-4
11030428-05A	Duplicate
11030428-06A	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	91.0	70-130
Surr: 4-Bromofluorobenzene	102.8	74-125
Surr: Toluene-d8	95.1	82-118

Laboratory Control Sample (LCS)

RunID: K\_110317A-5746390 Units: ug/L  
Analysis Date: 03/17/2011 11:03 Analyst: LU\_L

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.9	104	74	123
Ethylbenzene	20.0	19.6	98.0	72	127
Toluene	20.0	19.7	98.3	74	126
m,p-Xylene	40.0	40.8	102	71	129
o-Xylene	20.0	20.4	102	74	130
Xylenes, Total	60.0	61.2	102	71	130
Surr: 1,2-Dichloroethane-d4	50.0	47.2	94.4	70	130
Surr: 4-Bromofluorobenzene	50.0	52.8	106	74	125
Surr: Toluene-d8	50.0	48.1	96.2	82	118

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

**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**

**Conoco Phillips**  
San Juan 27-5 #34A

**Analysis:** Volatile Organics by Method 8260B  
**Method:** SW8260B

**WorkOrder:** 11030428  
**Lab Batch ID:** R317230

Sample Spiked: 11030377-01  
RunID: K\_110317A-5746393 Units: ug/L  
Analysis Date: 03/17/2011 12:48 Analyst: LU\_L

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	21.6	108	20	21.8	109	0.973	22	70	124
Ethylbenzene	ND	20	19.2	95.8	20	19.6	98.2	2.43	20	76	122
Toluene	ND	20	19.8	98.8	20	20.2	101	2.39	24	80	117
m,p-Xylene	ND	40	37.3	93.3	40	39.8	99.5	6.45	20	69	127
o-Xylene	ND	20	19.3	96.6	20	20.3	102	5.06	20	84	114
Xylenes, Total	ND	60	56.6	94.4	60	60.1	100	5.98	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	45.8	91.5	50	45.6	91.2	0.387	30	70	130
Surr: 4-Bromofluorobenzene	ND	50	52.3	105	50	53.2	106	1.72	30	74	125
Surr: Toluene-d8	ND	50	47.3	94.6	50	48.2	96.4	1.90	30	82	118

**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*



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

**Sample Receipt Checklist**

Workorder:	11030428	Received By:	NB
Date and Time Received:	3/17/2011 9:00:00 AM	Carrier name:	Fedex-Standard Overnight
Temperature:	4.0/4.0°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:

