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DECEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS COMPANY

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

OCD#<u>TBD</u>. API # 30-039-23739

Prepared for:

ConocoPhillips

Risk Management and Remediation 420 South Keeler Avenue Bartlesville, OK 74004

Prepared by:



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March 2011

December 2010 Quarterly Groundwater Monitoring Report ConocoPhillips Company, San Juan 27-5 No. 34A, Rio Arriba County, New Mexico

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December 2010 Quarterly Groundwater Monitoring Report ConocoPhillips Company, San Juan 27-5 #34A, Rio Arriba County, New Mexico

DECEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT

SAN JUAN 27-5 NO. 34A, RIO ARRIBA COUNTY, NEW MEXICO

I.0 INTRODUCTION

This report details the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on December 15, 2010 at the ConocoPhillips Company San Juan 27-5 No. 34A 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 seventh quarter of groundwater monitoring conducted by Tetra Tech at the Site.

The Site is located on BLM land outside of Blanco, NM in Section 30, Township 27N, Range 5W, of Rio Arriba County. 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**.

I.I 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 $49' \times 49' \times 20'$ 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 compound (VOC) using EPA method 8260 (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 location of the waste water tank and the AST 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 groundwater quality monitoring of the Site on July 28, 2009. The most recent groundwater quality monitoring event took place on December 15, 2010. This event marks the seventh 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 December 15, 2010, 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, possibly 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 December 15, 2010 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 Southern Petroleum Laboratory 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).

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 0.933 mg/L; 2.17 mg/L; and 2.69 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 December 2010 groundwater sampling event is included as **Appendix B**.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on seven 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 continued quarterly groundwater sampling at the Site in order to provide sufficient data for Site closure. Site closure will be requested when groundwater quality results begin to indicate that all constituents of concern are consistently below NMWQCC groundwater quality standards, or are stable and likely representative of site background conditions. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.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

 I. Site Location Map

 Site Detail Map

 3. Generalized Geologic Cross Section

 4. Groundwater Elevation Contour Map – December 2010

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TABLES

Site History Timeline
 Groundwater Elevation Data Summary (July 2009 – December 2010)
 Groundwater Laboratory Analytical Results Summary (July 2009 – December 2010)

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Table 1.	Site History	Timeline –	ConocoPhillin	os Company	. San Ju	an 27-5 No. 34A
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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.

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

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Tota 3, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	l Depth bgs) 3.22 3.15	Screen (ft) 18.73 - 33.73 15.00 - 30.00	* TOC Elevation (ft) 97.44 96.78	Date Measured 7/28/2009 9/29/2009 12/15/2009 12/15/2010 6/8/2010 9/21/2010 12/15/2009 12/15/2009 12/15/2009 12/15/2009 12/15/2009 9/29/2009 12/15/2009 12/15/2009 12/15/2009 12/15/2009 12/15/2009 12/15/2009 12/15/2010 6/8/2010 12/15/2009 12/15/2009 12/15/2009 12/15/2010 12/15/2009 12/15/2010 12/15/2009 12/15/2010 12/15/2010 12/15/2009 12/15/2010 12/15/2010 12/15/2010 12/15/2010	Depth to Groundwater (ft below TOC) 23.21 23.21 23.21 23.415 24.15 21.76 23.24 23.24 23.24 23.24 23.26 23.24 23.26 23.24 23.26 23.24 23.27 23.60 23.40 23.60 23.40 23.60 23.40 23.60 23.40 23.60 23.40 23.60 23.54 23.60 21.81 21.81 23.13 23.54 23.54 23.13 23.13 23.54 23.57 23.54 23.57 23.59 21.90 21.90 22.90 23.27	Relative Groundwater Flevation 74.23 73.56 73.56 73.56 73.56 73.29 74.20 74.20 73.84 74.06 73.12 73.38 73.12 73.12 73.12 73.12 73.12 73.12 73.12 73.13 73.14 73.15 73.16 73.170 74.90 73.44 73.43 73.43 73.534 73.43 75.34 75.34 73.97 73.97
ň	2.65	17.60 - 32.60	97.23	7/28/2009 9/29/2009 12/15/2009 4/8/2010 6/8/2010 9/21/2010 12/15/2010	22.62 23.31 23.57 21.25 21.75 21.75 22.67 23.03	74.61 73.92 73.66 75.98 75.48 74.56 74.20

ft = Feet TOC = Top of casing bgs = below ground surface *Groundwater elevation is relative to an arbitrary 100 feet 3/25/2011

Tetra Tech, Inc.

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Weil ID	Date	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (μg/L)	Xylenes (μg/L)	Dissolved Manganese (mg/L)	Total Dissolved Solids (mg/L)
	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	0.694	NA
	12/15/2009	<1	<1	<1	<1	0.576	NA
MW-1	4/8/2010	<1	· <1	<1	<1	0.896	640
	6/8/2010	<1	<1	<1	<1	0.612	NA
	9/21/2010	<1	<1	<1	<1	0.784	· NA
	12/15/2010	. <1	<1	<1	<1	0.933	NA-
	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	1.38	NA
	12/15/2009	<1	<1	<1	<1	1.92	NA
MW-2	4/8/2010	<1	<1	<1	<1	2.43	700
	6/8/2010	<1	<1	<1	<1	2.12	NA
	9/21/2010	<1	· <1	<1	<1	2.25	NA
-	12/15/2010	<1	<1	<1	<1	2.17	NA
	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	.< 1	< 1	< 1	<1	1.7	NA.
	12/15/2009	<1	<1	<1	<1	2.04	NA
MW-3	4/8/2010	<1	<1	<1	<1	2.51	525
	6/8/2010	<1	<1	<1	<1	2.51	NA
	9/21/2010	<1	<1	<1	<1	2.87	NA
	12/15/2010	<1	<1	<1	<1	2.69	NA
	7/28/2009	< 5	< 5	< 5	< 5	NA	NA
	9/29/2009	< 1	< 1	< 1	< 1	0.269	NA
	12/15/2009	<1	<1	<1	<1	0.0579	NA
MW-4	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
NMWQCC	Standards	10 (µg/L)	750 (µg/L)	750 (μg/L)	620 (µg/L)	0.2 (mg/L)	1000 (mg/L)

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 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</td>

 Bold = concentrations that exceed the NMWQCC limits

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APPENDIX A

December 2010 Quarterly Groundwater Sampling Field Forms

Project Name S	an Juan 27-5 34A				Page	1	of	1
u uct No.			· · · · · · · · · · · · · · · · · · ·		9-			<u></u>
Site Location S	an Juan County, Ne	ew Mexico	.=	-				
Site/Well No. N	1W-1	Coded/ Replicate	э No	355	Date /	2/15/10	5	
Weather 🖉	vercast,	Time Sa Began	mpling AU		Time Samplin Completed		852	
	00		EVACUAT	TION DATA				
Description of Me	easuring Point (MP)	Top of Casing						
Height of MP Ab	ove/Below Land Sur	face		MP Elevation				
Total Sounded D	epth of Well Below	MP <u>33.22</u>		Water-Level E	levation			
Held	Depth to Water Beio	W MP 23.1	20	Diameter of C	asing 2"			
Wet	Water Column in	Well 9.12		Gallons Pump Prior to Samp	ed/Bailed	4.7	5	
<u> </u>	Callene ne	- Coot	0.46	Ther to oump		<u>_</u> ┡ <i>ᡬ</i> _┻ _┫	<u></u>	
	Gallons pe	1 FUOL	<u>u.10</u>	Sampling Pur	p Intake Setting	·		
	Gallons ir			(teet below lar	io surrace)			
Purging Equipme	ent Purge purm	p / Bailer)	(1161)		· · · · ·			
Time	Tomporaturo (°C)	A 4	SAMPLING DATA/F		RS	00%		Volume
0949		7:45	= 420	0,345	1, 109	16.0	-34.9	5.7
0350	13,12	7,44	492	0.360	1,47	13,9	-51.5	4,2=
0852	13,14	7.45	429	0,300	1,47	140	-633	A. Z
								<u> </u>
	<u></u>							
Sampling Equips	nent	Purge Pump	ailer					
<u>Constitue</u>	nts Sampled		Container Descrip	tion		Prese	ervative	
BTEX		<u>3 40mL \</u>	VOA's		HCI	· · · · · · · · · · · · · · · · · · ·	•	
For Miniat-		plastic		<u>.</u>	none			
·			· · · · · · · · · · · · · · · · · · ·	· · ·	,			
		<u>3 40mL V</u> <u>plastic</u>	VOA's		HCI none	· · · · · · · · · · · · · · · · · · ·		
Remarks	ET C 2	GHL.	Na A .	D MI	Anna 4			
Sampling Persor	inel <u>Cassio-Bre</u>	wn , Christino M	athews BUrging	BOWN \$	JUGIU E	Dan	¥	
Г			Wall Cash	na Volumes	-			7
	N		viai odsi		а. С			
1	Gol/#1 11/" -	0 077	2" = 0.46	2"	= 0.37	4" = 0 65		1

-	San Juan 27-5 34A		· 		Page	2	2 <u>of</u>	4
Jot No.	• · · · • ·							
Site Location	San Juan County, N	ew Mexico				_ L .		
Site/Well No.	MW-2	Coded/ Replicate N	o		Date 12	. 15/12)	
Weather C	sperrast,	Time Samp Began	ling Ber		Time Samplin Completed	^{ig} ć	0924	
	30		EVACUATI	ON DATA				
Description of M	leasuring Point (MP)	Top of Casing						
Height of MP At	ove/Below Land Su	rface		MP Elevation				
Total Sounded [Depth of Well Below	MP <u>34.35</u>		Water-Level Ele	vation			
Held	Depth to Water Belo	WMP 23.13	3	Diameter of Cas	ing 2"			4+_
Wet	Water Column i	Well 11.2	2	Gallons Pumped Prior to Sampling	VBailed			
	Collone	r Eoot	0.16		J			
	Gallons pe	<u>176.</u>	<u>v.10</u>	Sampling Pump	Intake Setting		X	
	Gallons i	n Well <u>(/ /)</u>		(feet below land	surface)	<u></u>		
Purging Equipm	ent Purge pum	p /(Bailer	())					
		SAI	MPLING DATA/FI		<u>s</u>		TODR	<u>.</u>
:	Temperature (°C)	CompH Co	500	427	DU (mg/L)	284	-57.6	volume (ga
0910	12= 19	L & F & Z 5					1 12.01	
0920	12:49	723	499	427	2.24	21.0	-55.4	2.75
0920 0922 0923	12.42	7.23	499 497	.427 426	2.24	21.0 22.1	-55.4 -55.1	2.75
0920 0922 0923	12:49 12:42 12:36	7.23	499 497	.427 426	2.24 2.36	21.0 22.1	-55.4 -55.1	2.75
0920 0922 0923	12:49 12:42 12:36	7.23	499 497	.427 .426	2.24 2.36	21.0 22.1	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip	12:49 12:42 12:36 ment	7.23 7.23 7.23 Purge Pump/Baile	499 497 	.427 .426	2.24 2.36	21.0 22.1	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip	12:49 12:42 12:34 ment	7.23 7.23 7.23 Purge Pump/Baile	499 497 Gontainer Descripti	.427 426	2.24 2.36	21.0 22.1	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip <u>Constitue</u>	12:49 12:42 12:34 ment ents Sampled	7. 23 7. 23 7. 23 Purge Pump/Baile	499 497 ar Container Descripti	.427 .426	2. 24 2. 36	21.0 22.1	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip Constitue BTEX	12:49 12.42 12.36 ment ents Sampled	7. 23 7. 23 7. 23 Purge Pump/Baile	499 497 Ar Container Descripti	.427 	2. 2 4 2. 36 HCI	21.0 22.1 Prese	-55.4 -55.1	2.75
oqlo oql2 Dq23 Sampling Equip <u>Constitue</u> BTEX	12:49 12:42 12:34 ment ents Sampled	7.23 7.23 7.23 9.23 <td>499 497 ar Container Descripti A's</td> <td>.427 .427 .426</td> <td>2. 2 4 2. 36 HCI none</td> <td>21.0 22.1 Press</td> <td>-55.4 -55.1</td> <td>2.75</td>	499 497 ar Container Descripti A's	.427 .427 .426	2. 2 4 2. 36 HCI none	21.0 22.1 Press	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip <u>Constitue</u> BTEX	12:49 12:42 12:34 ment ents Sampled	7. 23 7. 23 7. 23 Purge Pump/Baile	499 497 Container Descripti	.427 .427 .426	2. 2 4 2. 36 HCI none	21.0 22.1 Prese	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip Constitue BTEX	12:49 12.42 12.34 ment ents Sampled	Purge Pump/Baile	499 497 Container Descripti	.427 .427	2. 2 4 2. 36 HCI none	21.0 22.1 Prese	-55.4 -55.1	2.75
0920 0922 D923 Sampling Equip Constitue BTEX BTEX Remarks	$\frac{12.49}{12.34}$ ment $\frac{12.34}{12.34}$ $\frac{12.34}{12.34}$ $\frac{12.34}{12.34}$ $\frac{12.34}{12.34}$	Purge Pump/Baile	499 497 Gontainer Descripti A's	.427 .427 .426	2. 2 4 2. 36 HCI none	21.0 22.1 Prese	-55.4 -55.1	2. 75
0920 0922 D923 Sampling Equip <u>Constitue</u> BTEX Remarks Sampling Person	12:49 12:36 12:36 ment ents Sampled 24:5 JAC nnel Cassie Bro	Purge Pump/Baile	499 497 Sontainer Descripti A's	9 Bour	2. 2 4 2. 36 HCI none	21.0 22.1 Press	-55.4 -55.1	2. 75
0920 0922 D923 Sampling Equip <u>Constitue</u> BTEX Remarks Sampling Person	12:49 12:34 12:34 ment ents Sampled 2:5 Any C nnel <u>Cassie Bro</u>	Purge Pump/Baile	499 497 Container Descripti A's Erws 5 (10/	9 Bown	2. 2 4 2. 36 HCI none	21.0 22.1 Prese	-55.4 -55.1 ervative	2. 75

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Project Name	San Juan 27-5 34A				Page	3	of	4
. Jct No.								
Site Location	San Juan County, New	/ Mexico						
Site/Well No.	MW-3	Coded/ Replicate	No.		Date	2/15/10		
Weather	overcast.	Time San Began	npling CPAO		Time Samplin Completed	g <u>(</u>	901	
	300		EVACUA	TION DATA				
Description of	f Measuring Point (MP) T	op of Casing		· · · · · · · · · · · · · · · · · · ·				
Height of MP	Above/Below Land Surfa	ce		MP Elevation		<u></u>		
Total Sounde	d Depth of Well Below M	P <u>33.15</u>		Water-Level El	evation		· · · · · · · · · · · · · · · · · · ·	
Held Handhard	Depth to Water Below	MP 23.	27	Diameter of Ca	sing <u>2"</u>			- 1- X'
Wet	Water Column in \	Nell 9.9	8	Gallons Pumpe Prior to Sampli	og Bailed			
	Gallons per f	=oot	0.16					
	Gallons in V		313=	Sampling Pump (feet below land	o Intake Setting I surface)			
Purging Equir	oment Purge oumo	Raile	(4.19)					
	<u>3-p</u>	<u> </u>						
Time	Temperature (°C)	- pH - sec	Conductivity (µS/cr	n ³) TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
08:57	12.95	= 7.3 5	418	393	2.26	20.9	- 78.8	5.25 .2
0859	12.98	7.24	419	. 354	4.95	40.0	-87.0	5.5
6900	13.13	7.25	423	356	2.11	20.0	-88.3	5.75
			!	4			· ·	
<u> </u>			\sim			J		
Sampling Equ	uipment <u>P</u>	urge Pump/Ba	ailer		<u></u>	· · · · · · · · · · · · · · · · · · ·		
Sampling Equ	uipment <u>F</u> ituents Sampled	'urge Pump/Ba	ailer Container Descrip	<u>btion</u>		Prese	ervative	
Sampling Equ Consti	uipment <u>P</u>	<u>'urge Pump/8</u>	ailer <u>Container Descrip</u> /OA's	<u>otion</u>		Prese	ervative	de la composición de
Sampling Equ Consti BTEX	uipment <u>P</u>	<u>'urge Pump/Ba</u> <u>3 40mL V</u> plastic	ailer <u>Container Descrip</u> /OA's	<u>btion</u>	HCI none	Prese	ervative	
Sampling Equ Consti BTEX	uipment <u>P</u> ituents Sampled	² urge Pump/8: <u>3 40mL V</u> plastic	ailer <u>Container Descrip</u> OA's	<u>otion</u>	HCI none	Prese	ervative	
Sampling Equ Consti BTEX	Jipment <u>F</u> ituents Sampled	2 40mL V plastic	Container Descrip	<u>otion</u>	HCI none	Prese	ervative	
Sampling Equ Consti BTEX	uipment <u>P</u> ituents Sampled <u>H</u> 20 Sute	<u>Purge Pump/8</u> <u>3 40mL V</u> <u>plastic</u>	Container Descrip	ption	HCI none	Press	ervative	
Sampling Equ <u>Consti</u> BTEX Sampling Per	uipment <u>P</u> ituents Sampled <u>Hzo Sula</u> sonnel <u>Cassie Browr</u>	2urge Pump//8 3 40mL V plastic	ailer <u>Container Descrip</u> /OA's Ageky athews B	otion 9 Bown	HCI none	Prese	ervative	
Sampling Equ Consti BTEX Sampling Per	uipment <u>P</u> ituents Sampled <u>Hao Suid</u> sonnel <u>Cassie Browr</u>	Purge Pump/Bi 3 40mL V plastic	ailer <u>Container Descrip</u> (OA's 152 K ithews Well Cast	otion <u>otion</u> <u>ig</u> Bown ing Volumes	HCI none	Prese	ervative	1
Sampling Equ Consti BTEX Remarks Sampling Per	uipment <u>P</u> ituents Sampled <u>H20 Suld</u> sonnel <u>Cassie Brown</u> Gal./ft. 1 ¼" = 0.	2urge Pump/8: 3 40mL V plastic	Ailer Container Descrip OA's	ng Volumes 3" =	<u>HCI</u> <u>none</u> 	<u>Prese</u> 4" = 0.65	ervative 5	

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Project Name	San Juan 27-5 34A	· · · · · ·			Page	• <u> </u>	<u>4</u> of	4	_
jet No.		·				*			
Site Location	San Juan County, No	ew Mexico		<u> </u>		,			
Site/Well No.	MŴ-4	Coded/ Replicate N	lo.		Date	12/15	ilo		
Weather	overna st.	Time Samp Began	oling H30)	Time Samplin Completed	ng C	920		-
	300		EVACUA	TION DATA					-
Description of	Measuring Point (MP)	Top of Casing							_
Height of MP A	Above/Below Land Su	face		MP Elevation					_
Total Sounded	Depth of Well Below	MP 32.65		Water-Level E	levation				
Held	Depth to Water Belo	WMP 237)ろ	Diameter of Ca	asing 2"			• •	- ·
Wet	- Water Column in	Well 1.35		Gallons Pump Prior to Sampl	ed/Bailed		· ····	· · · ·	
	Gallons no	r Foot	0.16			<u> </u>			-
			112-0	Sampling Pum	p Intake Setting				
			TAR	(reer nelow 191	iu sunace)				-
Purging Equip	ment Purge pum	b / Bailer	- niv						-
Time	Temperature (°C)	S/ ्रीच अpH के ही C	AMPLING DATA/	FIELD PARAMETE	DO (mg/L)	D0 %	ORP (mV)	Volume (gal:)	
0914	12.39	7.59	526	. 450	2.95	27.9	-70.3	2.5	-
					•	· .		·	- `···
		· · · · ·				<u> </u>			
				;				T ·	-
	<u> </u>		7	·				L	1
Sampling Equi	ipment	Purge Pump/Bail	er						 ;
<u>Constitu</u>	uents Sampled		Container Descrip	ption		<u>Pres</u>	ervative		
BTEX	1	3 40mL VC	A's		HCI				-
Cox Man Met-		plastic			none				-
EST WILL, You.	·	·							
		0141	allma						
Bomartes 7	Brilden.	(A) . 10 . 1	11/1 (U			- <u></u> ,,,	. <u></u>	<u> </u>	-
Remarks	Baileddy	0 1 15 9	Arai	Rinal					_
Remarks T Sampling Pers	Sonnel <u>Cassie Bro</u>	Wn,-Ghristine Mati	renne Graja	Bown					
Remarks T Sampling Pers	Saibeddy sonnel <u>Cassie Bro</u>	Wn. Christine Matt	Well Cas	ing Volumes		- <u> </u>]	

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APPENDIX B

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<u>Ince</u>

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December 2010 Quarterly Groundwater Sampling Field Forms

The Clarges - Conservation

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Phone: (713) 660-0901 Fax: (713) 660-8975

Certificate of Analysis

January 4, 2011

Workorder: H10120367

Kelly Blanchard Tetra Tech 6121 Indian School Road NE Suite 200 Albuquerque, NM 87110

Project: COP - San Juan Project Number: COP - San Juan Site: COP - San Juan PO Number: ENFOS NELAC Cert. No.: T104704205-09-3

This Report Contains A Total Of 19 Pages

Excluding Any Attachments

SPL Inc. 8880 Interchange Drive Houston, TX 77054 Phone: (713) 660-0901 Fax: (713) 660-8975

Certificate of Analysis

January 4, 2011

Workorder: H10120367

Kelly Blanchard Tetra Tech 6121 Indian School Road NE Suite 200 Albuquerque, NM 87110 Project: COP - San Juan Project Number: COP - San Juan Site: COP - San Juan PO Number: ENFOS NELAC Cert. No.: T104704205-09-3

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.

There were no exceptions noted.

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.

Phone: (713) 660-0901 Fax: (713) 660-8975

	Certificate of Analysis
January 4, 2011	Workorder: H10120367
Kelly Blanchard	Project: COP - San Juan
letra lech 6121 Indian School Road NE	Project Number: COP - San Juan
Suite 200 Albuquerque, NM 87110	Site: COP - San Juan
	PO Number: ENFOS
	NELAC Cert. No.: T104704205-09-3
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·

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.

Jack

Erica Cardenas, Senior Project Manager

Enclosures

SPL Inc. 8880 Interchange Drive Houston, TX 77054 Phone: (713) 660-0901 Fax: (713) 660-8975

SAMPLE SUMMARY

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

			Date/Time	Date/Time
Sample ID	Matrix	COC ID	Collected	Received
MW-1	Water		12/15/2010 08:52	12/17/2010 09:05
MW-2	Water		12/15/2010 09:26	12/17/2010 09:05
MW-3	Water		12/15/2010 09:01	12/17/2010 09:05
MW-4	Water		12/15/2010 09:20	12/17/2010 09:05
Duplicate	Water		12/15/2010 08:55	12/17/2010 09:05
Trip Blank	Water		12/15/2010 20:50	12/17/2010 09:05
	Sample ID MW-1 MW-2 MW-3 MW-4 Duplicate Trip Blank	Sample IDMatrixMW-1WaterMW-2WaterMW-3WaterMW-4WaterDuplicateWaterTrip BlankWater	Sample IDMatrixCOC IDMW-1WaterMW-2WaterMW-3WaterMW-4WaterDuplicateWaterTrip BlankWater	Sample ID Matrix COC ID Collected MW-1 Water 12/15/2010 08:52 MW-2 Water 12/15/2010 09:26 MW-3 Water 12/15/2010 09:01 MW-4 Water 12/15/2010 09:20 Duplicate Water 12/15/2010 09:25 Trip Blank Water 12/15/2010 08:55

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab	ID:	H10120367001
-		

Date/Time Received: 12/17/2010 09:05 Matrix:

Water

Sample ID: MW-1

Date/Time Collected: 12/15/2010 08:52

VOLATILES

Applycic Desc: SW-846 8260B

Analysis Desc. SW-646 62006	SW-846 5030Analytical Ba	SW-040 SUSUAIIalylical datches.						
	Batch: 3093 SW-846 8260	0B on 12/27/2010	19:01 by JM	С				
	and the second							
	Results					Batch Information		
Parameters	ug/l Qual	Report/Limit	MDL	DF	RegLmt	Prep Analysis		
Benzene	ND	1.0	0.13	1		3093		
Ethylbenzene	ND	1.0	0.48	1		3093		
Toluene	ND	1.0 ·	0.13	1		3093 [.]		
m,p-Xylene	ND	1.0	0.58	1		3093		
o-Xylene	ND	1.0	0.35	1		3093		
Xylenes, Total	ND	1.0	0.35	1		3093		
4-Bromofluorobenzene (S)	90.3 %	74-125		· 1		3093		
1,2-Dichloroethane-d4 (S)	95.8 %	70-130		1	•	3093		
Toluene-d8 (S)	118 %	82-118		1		3093		

Manganese	0.933	0.00500	0.000300	1		2313	1780
Parameters	mg/l Qual	Report Limit	MDL	DF	RegLmt	Prep	Analysis
	Results					Batch In	formation
	Batch: 1780 SW-846 601	UB on 12/30/201	10 13:59 by EB	G		* #### 1	
	Analytical Batches:			2			
	Batch: 2313 SW-846 301	UA on 12/20/201	10 10:00 by R_	V			
Analysis Desc: SW-846 60108	Preparation Batches:						

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab ID:	H10120367002	Date/Time Received:	12/17/2010 09:05	Matrix:	Water
Sample ID:	MW-2	Date/Time Collected:	12/15/2010 09:26		

VOLATILES

Analysis Desc: SW-846 8260B	SW-846 5030Analytical Ba	SW-846 5030Analytical Batches:						
en e	Batch: 3091 SW-846 826							
Parameters	Results ug/i Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep Analysis		
Benzene	ND	1.0	0.13	1	,	3091		
Ethylbenzene	ND ·	. 1.0	0.48	1		3091		
Toluene	ND	1.0	0.13	1		3091		
m,p-Xylene	ND	1.0	0.58	1		3091		
o-Xylene	ND	1.0	0.35	1		3091		
Xylenes, Total	ND	1.0	0.35	1		3091		
4-Bromofluorobenzene (S)	91.3 %	74-125		1		3091		
1,2-Dichloroethane-d4 (S)	93.1 %	70-130	,	1		3091		
Toluene-d8 (S)	109 %	82-118		1		3091		

Manganese	2.17	0.00500	0.000300	1		2313	1780
Parameters	mg/l Qual	Report Limit	MDL	DF	RegLmt	Prep	Analysis
	Results					Batch In	formation
	Batch: 1780 SW-846 6010	B on 12/30/201	10 14:41 by EB	G		and the second second	
	Analytical Batches:						
	Batch: 2313 SW-846 3010	A on 12/20/201	0 10:00 by R_\	/			
Analysis Desc: SW-846 6010B	Preparation Batches:						

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab ID: H10120367003 Sample ID: MW-3

Date/Time Received: 12/17/2010 09:05 Matrix: Date/Time Collected: 12/15/2010 09:01

Water

VOLATILES

Analysis Desc: SW-846 8260B	SW-846 5030Analytical Batches: Batch: 3093 SW-846 8260B on 12/27/2010 20:28 by JMC							
Premeter	Results	Paped Limit	MDI	DE	Pogl mt	Batch Information		
raianeters	ug/i duai	Report Linit	INIDE	DI.	Regenic	Fiep Analysis		
Benzene	ND	1.0	0.13	1		3093		
Ethylbenzene	ND	1.0	0.48	1		3093		
Toluene	ND	• 1.0	0.13	1		3093		
m,p-Xylene	ND	1.0	0.58	1		3093		
o-Xylene	ND	1.0	0.35	1		3093		
Xylenes, Total	ND	1.0	0.35	1		3093		
4-Bromofluorobenzene (S)	89.7 %	74-125		1		3093		
1,2-Dichloroethane-d4 (S)	95.6 %	70-130		1		3093		
Toluene-d8 (S)	106 %	82-118		1		3093		

Manganese	2.69	0.00500	0.000300	1		2313	1780
Parameters	mg/I Qual	Report Limit	MDL	DF	RegLmt	Prep	Analysis
	Results					Batch Inf	ormation
	Batch: 1780 SW-846 601	0B on 12/30/201	10 14:47 by EB	G			
	Analytical Batches.						
	Anch tical Batabasi						
	Batch: 2313 SW-846 301	0A on 12/20/201	10 10:00 by R	v			
Analysis Desc: SW-846 6010B	Preparation Batches:	1.526		1.5			

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab ID:	H10120367004	Date/Time Received:	12/17/2010 09:05	Matrix:	Water
Sample ID:	MW-4	Date/Time Collected:	12/15/2010 09:20		

VOLATILES

Analysis Desc: SW-846 8260B	SW-846 5030Analytical B	SW-846 5030Analytical Batches:							
	Batch: 3091 SW-846 8260B on 12/27/2010 06:55 by JMC								
Parameters	Results ug/i Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep Analysis			
Benzene	ND	1.0	0.13	. 1		3091			
Ethylbenzene	ND	1.0	0.48	1		3091			
Toluene	· ND	1.0	0.13	1		3091			
m,p-Xylene	, ND	1.0	0.58	1		3091			
o-Xylene	ND	1.0	0.35	1		3091			
Xylenes, Total	. ND	1.0	0.35	1		3091			
4-Bromofluorobenzene (S)	88.1 %	74-125		1		3091			
1,2-Dichloroethane-d4 (S)	95.6 %	70-130		1		3091			
Toluene-d8 (S)	109 %	82-118		1		3091			

Analysis Desc: SW-846 6010B	Preparation Batches:				-		
	Batch: 2313 SW-846 3010	A on 12/20/201	0 10:00 by R_\	1			
tanan ara-sarah sarah sarah Sarah sarah sara	Analytical Batches:						
	Batch: 1780 SW-846 6010	B on 12/30/201	0 14:55 by EB0	G			
	Results					Batch Inf	ormation
Parameters	mg/l Qual	Report Limit	MDL	DF	RegLmt	Prep	Analysis
Manganese	0.00880	0.00500	0.000300	1		2313	1780

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab ID: H10120367005 Date/Time Received: 12/17/2010 09:05 Matrix: Date/Time Collected: 12/15/2010 08:55

Water

Sample ID: Duplicate

VOLATILES

Analysis Desc: SW-846 8260B	SW-846 5030Analytical Batches: Batch: 3091 SW-846 8260B on 12/27/2010 07:25 by JMC							
Parameters	Results ug/l Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep Analysis		
Benzene	ND	1.0	0.13	1		. 3091		
Ethylbenzene	ND	1.0	0.48	1		3091		
Toluene	ND	1.0	0.13	1		3091		
m,p-Xylene	ND	1.0	0.58	1		3091		
o-Xylene	ND	1.0	0.35	1		3091		
Xylenes, Total	ND	1.0	0.35	1		3091		
4-Bromofluorobenzene (S)	90 %	74-125		1		3091		
1,2-Dichloroethane-d4 (S)	97.2 %	70-130		1		3091		
Toluene-d8 (S)	109 %	82-118		1		3091		

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ANALYTICAL RESULTS

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

H10120367006 Lab ID:

Date/Time Received: 12/17/2010 09:05 Matrix: Date/Time Collected: 12/15/2010 20:50

Water

Sample ID: Trip Blank

VOLATILES

Analysis Desc: SW-846 8260B	SW-846 5030Analytical Bat							
	Batch: 3091 SW-846 8260	B on 12/27/2010 0	7:53 by JM	C				
Parameters	Results ug/l Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep Analysis		
Benzene	· ND	1.0	0.13	1		3091		
Ethylbenzene	ND	1.0	0.48	1		3091		
Toluene	ND	1.0	0.13	1		3091		
m,p-Xylene	ND	1.0	0.58	1		3091		
o-Xylene	ND	1.0	0.35	1		3091		
Xylenes, Total	ND	1.0	0.35	1		3091		
4-Bromofluorobenzene (S)	85.4 %	74-125		1		3091		
1,2-Dichloroethane-d4 (S)	97.5 %	70-130		1		3091		
Toluene-d8 (S)	106 %	82-118		1		3091		

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QUALITY CONTROL DATA

QC Batch: QC Batch Method:	MSV/3 SW-84	3090 46 5030		Analysis Method: Preparation:	SV 12/	V-846 8260B 27/2010 00:00 by	JMC		ŗ
Associated Lab Samp	les:	H10120367002 H10120377005	H10120367004	H101203670	05	H10120367006	H10120377003	H10120377004	
METHOD BLANK: 87	792	······		· · · · · · · · · · · · · · · · · · ·		·		• •	_
Analysis Date/Time A	nalyst:	12/27/2010 05	5:01 JMC					• .	
Parameter	•	Units		Blank Result Qualifiers	;	Reporting Limit			1.1
Benzene		ug/l		ND		1.0			-
Ethylbenzene		ug/l		ND		¹ .0	•		•
Toluene	÷	ug/l		ND		1.0			
m,p-Xylene		ug/l		NÐ		1.0	•		
o-Xylene	1	ug/l		ND		1.0			
Xylenes, Total		ug/l		ND		1.0		,	
4-Bromofluorobenzen	e (S)	%		90.5		74-125			
1,2-Dichloroethane-d4	1.(S)	%		93.8		70-130			
Toluene-d8 (S)		%		115		82-118			
·									
LABORATORY CONT	ROL S	SAMPLE: 87793							
Analysis Date/Time A	nalyst:	12/27/2010 (04:31 JMC						
				Spike	LCS	LCS	% Rec	,	
Parameter		Units		Conc. F	esult	% Rec	Limits		
Benzene		ug/l		20	17.8	88.8	74-123		
Ethylbenzene		ug/l .		20	17.7	88.4	72-127		
Toluene		ug/l	;	20	19.9	99.3	74-126		
m,p-Xylene		ug/l		40	34.5	86.1	71-129		
o-Xylene		ug/l		20	18.6	93.0	74-130		
Xylenes, Total		ua/l		60.	53.05	88.4	71-130		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 87794

%

%

%

Original: H10120377004

95.1

96.7

109

74-125

70-130

82-118

MS Analysis Date/Time Analyst: 12/27/2010 11:45 JMC MSD Analysis Date/Time Analyst: 12/27/2010 12:13 JMC MSD MSD Original Spike MS MS % Rec Max Parameter Units Result RPD Conc. Result Result % Rec % Rec Limit RPD Benzene ug/l ND 20 19.1 19.5 95.4 97.7 70-124 2.4 20 Ethylbenzene ug/l ND 20 20.3 20.4 101 102 35-175 0.4 20 Toluene ug/l ND 20 20.3 21.1 102 106 70-131 3.9 20

87795

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

Report ID: H10120367_6089

4-Bromofluorobenzene (S)

1,2-Dichloroethane-d4 (S)

Toluene-d8 (S)

Printed: 01/04/2011 06:36

Phone: (713) 660-0901 Fax: (713) 660-8975

QUALITY CONTROL DATA

Workorder: H10120367 : COP	- San Juar	ı .					Pro	ject Numt	ber: COP	- San Juan
MATRIX SPIKE & MATRIX SP	IKE DUPLI	CATE: 87794		87795		Original:	H10120377004			
MS Analysis Date/Time Analys	st:	12/27/2010 11:4	5 JMC				•			
MSD Analysis Date/Time Anal	yst:	12/27/2010 12:1	3 JMC							
Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
m,p-Xylene	ug/l	ND	40	39.7	40.8	99.3	102	35-175	2.6	20
o-Xylene Xylenes, Total	ug/l ug/l	ND ND	20 60	20.5 60.25	20.5 61.29	103 100	103 102	35-175 35-175	0.0 1.7	20 20
4-Bromofluorobenzene (S)	%	86 07 3				94.3	93.6 104	74-125		
Toluene-d8 (S)	%	, 97.3 112				101	104	82-118		

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H101203	367 : CC)P - San Juan			*					Project Num	ber: COF	P - San Juan
QC Batch:	MSV/	3092		A	nalysis Me	thod:	SW	-846 8260B				
QC Batch Method:	SW-8	46 5030		F	Preparation	:	12/2	7/2010 00:00 by	JMC			
Associated Lab Sam	nples:	H101203670 H101203770	001 H1012036 006	7003	H10120	368001		H10120368002	H101	20377001	H10120	377002
METHOD BLANK: 8	7809							·				· · · · · · · · · · · · · · · · · · ·
Analysis Date/Time	Analyst	12/27/20	10 18:32 JMC									
Parameter		Unit	S	· [Blank Result Qua	alifiers		Reporting Limit				
Benzene		ug/i			ND	·.		1.0				•
Ethylbenzene	;	ug/l			ND			1.0				
Toluene		ug/l			ND			1.0				
m,p-Xylene		ug/l			ND			1.0				•
o-Xylene	,	ug/l			ND			1.0				
Xylenes, Total		ug/l			ND			1.0				
4-Bromofluorobenze	ne (S)	%			89.2			74-125			·	
1,2-Dichloroethane-c	14 (S)	%			100			70-130				
Toluene-d8 (S)	. ,	%			105			82-118				
LABORATORY CON Analysis Date/Time	ITROL S Analyst:	AMPLE: 87 12/27/2	810 2010 18:03 JMC	c	Snike	ı	CS			% Rec	•	
Parameter		Units		Ċ	Conc.	Re	sult	% Rec		Limits		
Benzene		ug/l	:		20	1	8.2	91.2		74-123		
Ethylbenzene		ug/l	4		20	1	9.4	96.9		72-127		•
Toluene		ug/ì			20	1	9.7	98.4		74-126		
m,p-Xylene		ug/l			40	4	0.3	101		71-129		V
o-Xylene		ug/l)		20	2	0.1	101		74-130		
Xylenes, Total		ug/l	3		60	60	.42	101		71-130		
4-Bromofluorobenze	ne (S)	%						96.2		74-125		
1,2-Dichloroethane-c	14 (S)	%						95.4		70-130		
Toluene-d8 (S)		%						105		82-118		
		א ופועב סוופו ומ	ATE: 97911		07010				1202670	01		
					0/012				1203070			
MS Analysis Date/Til	me Ana	iyst.	12/27/2010 19:29	JMC								
MSD Analysis Date/	Time An	alyst:	12/27/2010 19:59	JMC								
Parameter		Units	Original Result	Spike Conc.	MS Result	Re	/ISD esult	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Benzene		ug/l	ND	20	18.7		17.9	93.7	89.4	70-124	4.8	20
Etnylbenzene Toluene		ug/i . ug/i	ND ND	20 20	. 19.6 19.4		20.0 19.8	98.1 96.9	100 98.9	35-175 70-131	1.8 2.1	20 20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10120367 : COP	- San Juar	ı					. Pro	oject Numł	ber: COP	- San Juan
MATRIX SPIKE & MATRIX SPI	KE DUPLI	CATE: 87811		87812		Original:	H10120367001			
MS Analysis Date/Time Analys	:t:	12/27/2010 19:29	JMC							
MSD Analysis Date/Time Analy	yst:	12/27/2010 19:59	JMC							
Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
m,p-Xylene	ug/l	ND	40	38.7	39.3	96.6	98.4	35-175	1.8	20
o-Xylene	ug/l	ND	20	19.8	19.7	99.1	98.7	35-175	0.5	20
Xylenes, Total	ug/l	ND	60	58.48	59.08	97.5	98.5	35-175	1.0	20
4-Bromofluorobenzene (S)	%	90.3				90.6	93.6	74-125		
1,2-Dichloroethane-d4 (S)	%	95.8				96.3	97.5	70-130		
Toluene-d8 (S)	%	118				98.8	102	82-118		

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10120367 : COP -	San Juan							Project Num	ber: COP	- San Juai
QC Batch: DIGM/231 QC Batch Method: SW-846 3	13 010A		/ F	Analysis Meth Preparation:	nod: S 12	W-846 6010B 2/20/2010 10:00 b	y R_V			
Associated Lab Samples: H1	01203670	01 H1012036	7002	H101203	57003	H10120367004	• • • • • • • • • • • • • • • • • • •			
METHOD BLANK: 86914										
Analysis Date/Time Analyst:	12/30/20	10 13:47 EBG								
Parameter	Units	5		Blank Result Quali	fiers	Reporting Limit				
Manganese	mg/l			ND		0.00500		:		•
· · ·										·
LABORATORY CONTROL SAM	PLE: 86	915								
Analysis Date/Time Analyst:	12/30/2	2010 13:53 EBG								
Parameter	Units	· . :	:	Spike Conc.	LCS Resul	5 LCS t % Rec		% Rec Limits		
Manganese	mg/l			0.10	0.1026	5 103		80-120		
MATRIX SPIKE & MATRIX SPIK		CATE: 86918	<u> </u>	86919		Original: H	101203670		<u></u> ,	
MS Analysis Date/Time Analyst:		12/30/2010 14:05	EBG							
MSD Analysis Date/Time Analys	st:	12/30/2010 14:11	EBG							
Parameter	Units	Original Result	Spike Conc.	MS Result	MS Resu	D MS lt % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Manganese	ˈmg/l	0.933	0.10	1.023	1.02	4 NC	1	NC 75-125	NC	20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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Legend

Qualifier Description

(S) - Indicates analyte is a surrogate

Qualifier * Recovery/RPD value outside QC limits + DCS Concentration B Analyte detected in the Method Blank

- C MTBE results were not confirmed by GCMS
- D Recovery out of range due to dilution
- E Results exceed calibration range
- H Exceeds holding time
- I Estimated value, between MDL and PQL (Florida)
- J Estimated value
- JN The analysis indicates the presence of an analyte
- MI Matrix Interference
- N Recovery outside of control limits
- NC Not Calculable (Sample Duplicate)
- NC Not Calculated Sample concentration > 4 times the spike
- ND Not Detected at reporting Limits
- P Pesticide dual column results, greater then 25%
- Q Received past holding time

TNTC Too numerous to count

U Not Detected at reporting Limits

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: H10120367 : COP - San Juan

Project Number: COP - San Juan

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
H10120367001	MW-1	SW-846 3010A	DIGM/2313	SW-846 6010B	ICP/1780
H10120367002	MW-2	SW-846 3010A	DIGM/2313	SW-846 6010B	ICP/1780
H10120367003	MW-3	SW-846 3010A	DIGM/2313	SW-846 6010B	ICP/1780
H10120367004	MW-4	SW-846 3010A	DIGM/2313	SW-846 6010B	ICP/1780
H10120367002	MW-2	SW-846 5030	MSV/3090	SW-846 8260B	MSV/3091
H10120367004	MW-4	SW-846 5030	MSV/3090	SW-846 8260B	MSV/3091
H10120367005	Duplicate	SW-846 5030	MSV/3090	SW-846 8260B	MSV/3091
H10120367006	Trip Blank	SW-846 5030	MSV/3090	SW-846 8260B	MSV/3091
H10120367001	MW-1	SW-846 5030	MSV/3092	SW-846 8260B	MSV/3093
H10120367003	MW-3	SW-846 5030	MSV/3092	SW-846 8260B	MSV/3093

SPL Inc. 8880 Interchange Drive Houston, TX 77054 Phone: (713) 660-0901 Fax: (713) 660-8975

Sample Receipt Checklist

Wo	rkOrder:	H10120367	Received By	LOG
Dat	e and Time	12/17/2010 09:05	Carrier Name:	FEDEXS
Ten	nperature:	3.5/3.5/3.5/3.0/4.0/4.0/4.0°C	Chilled By:	Water Ice
1.	Shipping container/cooler	in good condition?		YES
2.	Custody seals intact on sh	hipping container/cooler?		YES
3.	Custody seals intact on sa	ample bottles?		Not Present
4.	Chain of custody present?	· · · · · · · · · · · · · · · · · · ·		YES
5.	Chain of custody signed w	when relinquished and received?		YES
6.	Chain of custody agrees v	vith sample labels?		YES
7.	Samples in proper contair	ner/bottle?		YES
8.	Samples containers intact	? •		YES
9.	Sufficient sample volume	for indicated test?		YES
10.	, All samples received withi	n holding time?		YES
11.	Container/Temp Blank ten	nperature in compliance?		YES
12.	, Water - VOA vials have ze	ero headspace?		YES
13.	Water - Preservation chec	ked upon receipt(except VOA*)?		Not Applicable

*VOA Preservation Checked After Sample Analysis

SPL Representative: Client Name Contacted: Client Instructions:

Contact Date & Time:

Phone: (713) 660-0901 Fax: (713) 660-8975

Hughes Drive 1 49686 (231) 947-5777	rerse City M	Traj			kway 15	√ Par 37-477	Calter 337) 2	ssador 70583 (500 Amba Scott, LA			Drive) 660-090	1 8880 Interchang on, TX 77054 (713	Houst
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