# 3R - 434

# DEC 2010 GWMR

# 06/10/2011

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

JUN 15

υ

<sup>2</sup>

52

CEIVED OCL



June 10, 2011

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

> RE: ConocoPhillips Company Faye Burdette No. 1 – December 2010 Groundwater Monitoring Report San Juan County, New Mexico

Dear Mr. von Gonten:

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

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

Sincerely,

Kelly E. Blanchard

Kelly E. Blanchard Project Manager/Geologist

Enclosures (1)

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

# DECEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT

# **CONOCOPHILLIPS COMPANY**

# FAYE BURDETTE NO. I NATURAL GAS PRODUCTION SITE SAN JUAN COUNTY, NEW MEXICO

API No. 30-045-09725

OCD No. TBD .

Prepared for:

# ConocoPhillips

Risk Management and Remediation 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. 114-690157

March 2010

# TABLE OF CONTENTS

1.0		I
	I.I Site History	I
2.0	MONITORING SUMMARY, SAMPLING METHODOLOGY, AND	
	RESULTS	.1
	2.1 Monitoring Summary	.1
	2.2 Groundwater Sampling Methodology	.2
	2.2 Groundwater Sampling Analytical Results	.2
3.0	CONCLUSIONS	.2

# FIGURES

- 1. Site Location Map
- 2. Site Layout Map
- 3. Generalized Geologic Cross Section
- 4. Groundwater Elevation Contour Map December 2010

## TABLES

- I. Site History Timeline
- 2. Groundwater Elevation Data Summary (October 2008 through December 2010)
- 3. Groundwater Laboratory Analytical Results Summary (October 2008 through December 2010)

i

# **APPENDICES**

Appendix A. December 2010 Quarterly Groundwater Sampling Field FormsAppendix B. December 2010 Quarterly Groundwater Laboratory Analytical Report

# DECEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT FAYE BURDETTE NO. I, SAN JUAN COUNTY, NEW MEXICO

# **I.0 INTRODUCTION**

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on December 17, 2010, at the ConocoPhillips Company Faye Burdette No. I natural gas well site located on private land in Unit Letter G, Section 9, Township 30N, Range 11W of San Juan County, New Mexico (Site). This event represents the tenth quarter of groundwater sampling conducted by Tetra Tech at the Site.

The Site is located near the intersection of Highway 550 and Pioneer Avenue in Aztec, NM. The Site consists of a gas production well head and associated equipment and installations. The location and general features of the Site are presented as **Figures 1** and **2**, respectively. A generalized geologic cross section of the site is included as **Figure 3**.

# I.I Site History

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

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

# 2.0 MONITORING SUMMARY, SAMPLING METHODOLOGY, AND RESULTS

# 2.1 Monitoring Summary

On December 17, 2010, 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 the December 2010

L

monitoring event data, groundwater flow is to the northwest and is consistent with historic records at this site. The Animas River is approximately 1/3 mile from the site and flows west.

# 2.2 Groundwater Sampling Methodology

Monitor Wells MW-1, MW-2, MW-3, and MW-4 were sampled, representing the tenth round of consecutive quarterly groundwater monitoring at the Site. Approximately three well volumes were purged from each monitor well with a dedicated polyethylene 1.5-inch disposable bailer. Purge water was placed in the on-site produced water tank. Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Southern Petroleum Laboratories in Houston, Texas. The samples were analyzed for the presence of BTEX in accordance with Environmental Protection Agency (EPA) Method 8260B and dissolved manganese according to EPA Method 6010B. Groundwater sampling field forms are included as **Appendix A**.

# 2.3 Groundwater Sampling Analytical Results

Groundwater quality samples collected during the December 17, 2010 monitoring event indicate that Monitor Well MW-1 exceeds the NMWQCC standard for dissolved manganese at 0.773 milligrams per liter (mg/L). The NMWQCC standard for dissolved manganese is 0.2 mg/L. BTEX concentrations were below laboratory detection limits for all site monitor wells. **Table 3** summarizes the laboratory analytical results for the December 2010 groundwater sampling event. The corresponding laboratory analytical report is included in **Appendix B**.

# 3.0 CONCLUSIONS

Groundwater samples collected from MW-I have continually exceeded NMWQCC groundwater quality standards for manganese constituents from October 2008 to December 2010. Based on the historical groundwater quality data, groundwater samples collected from MW-I, MW-2, MW-3, and MW-4 have never exceeded NMWQCC groundwater quality standards for BTEX constituents during sampling conducted from October 2008 to December 2010.

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 representative of background conditions at the Site. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

# REFERENCES

Envirotech, Inc. (2007). Drilling and Groundwater Sampling Report at Faye Burdette No. 1 Aztec, NM. Prepared for ConocoPhillips, dated December 12, 2007.

# FIGURES

Site Location Map
 Site Layout Map
 Generalized Geologic Cross Section
 Groundwater Elevation Contour Map – December 2010

4.









# TABLES

Site History Timeline
 Groundwater Elevation Data Summary (October 2008 through December 2010)
 Groundwater Laboratory Analytical Results Summary (October 2008 through December 2010)

3.

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

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

Tab	le 2.	Conoco	Phillips	Company	∕, Fay	ye Burdette No.	1 - Groundwater	Elevation	Data Su	ummary

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
				10/22/2008	10.91	86.75
				1/29/2009	11.72	85.94
				3/31/2009	11.88	85.78
				6/17/2009	11.24	86.42
M\A/_1	17 52	18-118	97.66	9/22/2009	10.87	86.79
14144-1	17.52	4.0 - 14.0	57.00	12/16/2009	11.56	86.10
				<sup>′</sup> 4/1/2010	11.91	85.75
				6/9/2010	11.31	86.35
				9/20/2010	11.39	86.27
				12/17/2010	11.06	86.60
				1/29/2009	10.91	87.63
				3/31/2009	11.12	87.42
				6/17/2009	10.48	88.06
				9/22/2009	10.76	87.78
MW-2	19.45	5.0 - 20.0	98.54	12/16/2009	10.61	87.93
				4/1/2010	11.20	87.34
				6/9/2010	10.35	88.19
				9/20/2010	10.35	88.19
		-		12/17/2010	10.10	88.44
				1/29/2009	11.44	85.72
	· .			3/31/2009	11.62	85.54
	5 - C		•	6/17/2009	10.97	86.19
				9/22/2009	10.57	86.59
MW-3	22.96	5.0 - 20.0	97.16	12/16/2009	11.32	85.84
				4/1/2010	11.66	. 85.50
				6/9/2010	11.10	86.06
				9/20/2010	11.17	85.99
				12/17/2010	10.84	86.32
				1/29/2009	11.02	86.04
	·			3/31/2009	11.18	85.88
				6/17/2009	10.59	86.47
				9/22/2009	10.16	86.90
MW-4	22.28	5.0 - 20.0	97.06	12/16/2009	10.87	86.19
				4/1/2010	11.04	86.02
				6/9/2010	10.65	86.41
				9/20/2010	10.72	86.34
				12/17/2010	10.46	86.60

ft = Feet

TOC = Top of casing

bgs = below ground surface

\* Elevation relative to an arbitrary point set at 100 feet

3/25/2011

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

 1
 ........

 1
 Aluminum
 Iron

Well ID	Date	(mg/L)	(mg/L)	(mg/L)	(hg/L)	(hg/L)	(hg/L)	Total Xylenes (μg/L)
	10/22/2008	NA	3.74*	2.09*	< 5	< 5 <	< 5	< 5
	1/29/2009	2.14*	2.77*	1.41*	< 5	< 5	< 5	< 5
	3/31/2009	3.64*	4.83*	1:24*	< 5	< 5 <	< 5	< 5
	6/17/2009	2.5*	5.58*	2.47*	< 5	< 5	< 5	< 5
	9/22/2009	0.443	0.445	1.44	<u>م</u> ا	۲	t.	<1
1-AAIAI	12/16/2009	NA	NA	0.732	<u>۲</u>	Ł	۲	<1
	4/1/2010	NA	AN	1.71	۰ ۲	۲	4	4
	6/9/2010	AN	AN	1.61	4	ţ	<1	<b>v</b>
-	9/20/2010	NA	AN	0.895	4	<b>د</b> ا	4	4
	12/17/2010	NA	AN	0.773	۲	۲.	4	4
	1/29/2009	NA	AN	AN	< 5	< 5	< 5	< 5 <
	3/31/2009	NA	VN	AN	< 5	د <del>5</del> م	< 5 .	< 5
	6/17/2009	2.83	6.13*	2.52*	< 5	< 5	< 5	< 5
	9/22/2009	NA	AN	, AN	4	₹ V	₽ V	<1
MW-1 Duplicate	12/16/2009	NA	AN	AN .	۲.	¥	1	<1
	4/1/2010	NA	AN	ΡN	<u>۲</u>	₽ V	<1	5
	6/9/2010	AN	AN	ΑN	<u>۲</u>	٢	4	4
	9/20/2010	AN	AN	NA	۰ ۲	2	- 4	<1
	12/17/2010	NA	AN	AN	4	£	ŗ	. <1
	1/29/2009	4.15*	3.15*	1.79*	< 5 <	< 5	< 5 <	< 5
	3/31/2009	1.17*	1.02*	0.326*	< 5	< 5 <	< 5	< 5
	6/17/2009	3.4*	2.8*	1.37* .	· 2 ·	< 5	< 5	< 5
	9/22/2009	<0.1	<0.02	0.0264 ·	5	ŕ	۲.	4
MW-2	12/16/2009	NA	AN	0.0654	1	ŕ	4	<1
	4/1/2010	NA	AN	0.16	٢	۲	4	<1 <
	6/9/2010	NA	AN	0.0323	<u>۲</u>	£	۲	v
	9/20/2010	AN	AN	0.0455	<b>₽</b>	۲	4	<1
	12/17/2010	NA	AN	0.0332	£	<۲	4	<۱
	1/29/2009	1.82*	2.24*	0.374*	د 5	< 5	. <5	< 5
	3/31/2009	1.64*	1.91*	0.271*	< 5	< 5	< 5	< 5
	6/17/2009	1.68*	2.14*	0.628*	< 5	< 5	. <5	< 5
	9/22/2009	<0.1	0.0291	0.0201	<1	<1	<1	<ا
MW-3	12/16/2009	NA	NA	0.0607	<1	- 1 -	<1 ·	<1
	4/1/2010	NA	NA	0.0232	<1	4	<1	<1
	6/9/2010	NA	AN	< 0.005	<1	4	4	<1
	9/20/2010	, NA	NA.	< 0.005	<1	<u>۲</u>	<1	<1
	12/17/2010	NA	NA	0.178	<1	<1	<1	<1
	1/29/2009	6.92*	3.17*	4.15*	< 5	< 5	< 5	< 5
	3/31/2009	4.21*	3.22*	1.45*	< 5	< 5	< 5	< 5
	6/17/2009	2.43*	2.05*	0.854*	< 5	< 5	< 5	<5
	9/22/2009	<0.1	0.108	0.476	<1	4	4	₽
MW-4	12/16/2009	NA	AN	0.0149	<1	4	4	4
	4/1/2010	NA	AN	< 0.005	<1	4	4	4
	6/9/2010	NA	NA	< 0.005	<1	<1 ·	<1	<1
	9/20/2010	NA	NA	0.0152	<1	4	Ł	<
	12/17/2010	NA	NA	0.0502	<1	Ļ	4	4
Met	hod	SW6010B	SW6010B	SW6010B	8260B	8260B	8260B	8260B
NMWQCC Groundwa	ter Quality Standard	5.0	1.0	. 0.2	10	750	750	. 620

Notes:

MW = monitoring well NMWQCC = New Mexico Water Quality Control Commission Constituents in **BOLD** exceed NMWQCC groundwater quality standards mg/L = milligrams per liter

ţ

µg/L = micrograms per liter
NA = not analyzed
5 = result below laboratory detection limit
5 = result below laboratory detection limit
7 total Metals analysis run for all samples through June 2009; September 2009 dissolved metals analysis run in order to compare to standards
\* = total metals analysis result (NMWQCC standards do not apply)

3/25/2011

. . .

.

.

APPENDIX A

. .

	TECH, INC.		WATER	SAMPLING F	IELD FOR	M		
Project Name	Faye Burdette No. 1	·			Page	2	of	4
ct No.	<b>u</b>			. <u></u>				
Site Location	Aztec, NM					!		
Site/Well No.	MW-2	Coded/ Replicate	No.		Date	2-17-1	P	
Weather	overcast,	Time Sam Began	pling 0825		Time Sampling Completed	9 08	45	
<b>.</b> .	cold 25°		EVACUAT	ION DATA			•	
Description of	Measuring Point (MP)	Top of Casing						
Height of MP	Above/Below Land Surfa	ace		MP Elevation				
Total Sounded	d Depth of Well Below N	IP <u>19.45</u>	·	Water-Level Ele	evation			
Held	_ Depth to Water Belo	W MP 10.1	<u>D</u>	Diameter of Ca	sing <u>2"</u>	· · · · · · · · · · · · · · · · · · ·		
Wet	Water Column in	n Well	<u>s</u>	Prior to Samplir	ng Pump	ed/Bailed		
	Gallons pe	r Foot	0.16	Sampling Pumr	Intoko	4 7 C	) )	 
	Gallons in	1 Well . 49	<u> x3=</u>	(feet below land	]	· · ·		
Purging Equip	ment Purge pump	/ Bailer	4.48	-		,		
· · ·	· · · · · · · · · · · · · · · · · · ·	S/	MPLING DATA/FI	ELD PARAMETER	S			
	Temperature (°C)	рН 7. ЦД	Conductivity (µS/c	$\frac{m^{*}}{2} \frac{1DS(g/L)}{2}$	DO (mg/L)	207		Volume (gal.)
0941	14 7 8	7.39	1129	0.917	4/10	10.7	21.8	4.6
0842	14,76	7.39	1131	0.914	493	19,2	~15,3	4,75
· · · · · · · · · · · · · · · · · · ·								
Sampling Edu	inment	Purce Pumo/Ba	iler					
	ituanta Sampled	<u> </u>	Container Deserie	tion		Proso	nativo	
BTEX	idents Sampled	- 3.40m IV			HCI	11636	ivalive	
Dissolved Mn		16 oz Plas	stic		None			
	A.1 .	11.7 ( ]			1			
Remarks	- 120 13	light t	an. NO C	XOY = OY	Shoon_			,,,
Sampling Pers	sonnel Christine Mat	hews, Cassie Br	own					, <b>*</b>
		• • • • • • • • • • • • • • • • • • •	Well Casin	ng Volumes				
	Gal./ft. 1 ¼" =	0.077	2" = 0.16	3" =	0.37	4" = 0.65		
	1 1⁄2" =	0.10	2 ½" = 0.24	3" 1/2 =	U.50	6" = 1.46		
ł								

TETRA	TECH, INC.		WATER S	SAMPLING						
Project Name	Faye Burdette No. 1				Page	1	of	4		
1 ct No.	·									
Site Location	Aztec, NM	_								
Site/Well No.	MW-1	Coded/ Replicate	No. 083	7	Date	<u>2-17-</u>	0			
Weather (	sterrast, cold	Time Sar Began	mpling 2825		Time Samplin Completed	ي ک	0837			
<b>.</b> .	250		EVACUATI	ON DATA						
Description of	Measuring Point (MP)	Top of Casing								
Height of MP	Above/Below Land Surfa	ce		MP Elevation			· · · · · · · · · · · · · · · · · · ·			
Total Sounded	I Depth of Well Below M	P <u>17.52</u>	· · ·	Water-Level El	evation			. ·		
Held	Depth to Water Below	MP MA	0	Diameter of Ca	ising <u>2"</u>					
Wet	Water Column in	Well (1,4	Ϊ¢	Gallons Pumpe Prior to Sampli	ed/Bailed ng <u>Pum</u>	ped/Bailed		·····		
	Gallons per	Foot	0.16	• ·· -	· · · · · ·	•	•			
	Gallons in	Well LiO	3 <u>×3=</u>	Sampling Pump (feet below land	o Intake Setting d surface)			<b>_</b>		
Purging Equip	ment Purge pump /	Bailer (	31)							
. ·			SAMPLING DATA/FIE	LD PARAMETE	RS	· .	•	• . •		
Time	Temperature (°C)	pH	Conductivity (µS/cm	3) TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)		
Der (	11.05	7.31	1246	1.028	3.04	27.8	- + 9.9	2		
1024	14.93	7.26	1270	1.013	241	13.0	-67.5	2.9		
0836	19.12	1.24	1260	1.011	137	/ 5./	66.0	5.0		
	· · · · · · · · · · · · · · · · · · ·			1.000	1.72					
Sampling Equi	ipment	Purge Pump/B	ailer	· · ·		······				
<u>Consti</u>	tuents Sampled		Container Description	<u>n</u>		Prese	ervative			
втех		<u>3 40mL \</u>	/OA's		HCI					
Dissolved Mn	·	16 oz Pla	istic		None					
		20.0						· · ·		
Remarks	H2U LIGHT	BROWN								
Sampling Pers	onnel <u>Christine Math</u>	iews_Cassie B	Brown 3 Myg	Boun_						
			Well Casing	y Volumes	<u> </u>					
ł	Gal./ft. 1 ¼" = 0	.077	2" = 0.16	3" =	0.37	4" = 0.65				
	1½" = 0	0.10	2 ½" = 0.24	3" ½ =	0.50	b" ≈ 1.46	j			
_										

TH TETRA	TECH, INC.		WATER S	AMPLING FI		Л		
Project Name	Faye Burdette No. 1				Page	3	of	4
. ⇒ct No.								
Site Location	Aztec, NM							
Site/Well No.	<u>MW-3</u>	Coded/ Replicat	e No.		Date	2-17-1	0	
Weather	Overrast.	Time Sa Began	ampling 		Time Samplin Completed	g 08	32/	-
	cold 25°	•	EVACUATIO	N DATA				
Description of i	Measuring Point (MP)	Top of Casing	на страна 1					
Height of MP A	bove/Below Land Surfa			MP Elevation				
Total Sounded	Depth of Well Below M	P 22.9	 6	Water-Level Ele	evation	·		
Held	Depth to Water Below	WMP 1/2.	94	Diameter of Cas	sing 2"			
Wet	Water Column in	Well 12	.12	Gallons Pumper	(Bailed) -	ned/Bailed	<u> </u>	<u> </u>
wei					<u>, ran</u>	pedibalied		
	Galions per	Foot 4	0.16	Sampling Pump	Intake Setting		•	
	Gallons in		5123-	(feet below land	surface)		·	
Purging Equipr	ment Purge pump /	Bailer	60	······	<u> </u>			
Time	Temperature (°C)	BHa	SAMPLING DATA/FIEL Conductivity (uS/cm <sup>3</sup>	D PARAMETERS	DO (ma/L)	DO %	ORP (mV	) Volume (gal.
0817	15.28	7.4	1191	.918	2.12	20.9	44.6	5.5
0818	15.24	7.39	1150	.918	1.77	17.7	40.5	6.0
							· .	
					<u> </u>			
				<u> </u>	· ·	,		<u> </u>
Sampling Equi	pment	Purge Pump/					<u> </u>	
<u>Constil</u>	tuents Sampled		Container Descriptio	<u>n</u>		<u>Prese</u>	rvative	
BTEX		<u>3 40mL</u>	VOA's	·	HCI			<u>·</u>
Dissolved Mn		.16 oz P	lastic		None			
Remarks								
Sampling Pers	onnel Christine Met	aewe Cassie	Brown \$ Cria	Boy M				
								7
		0.077	Well Casing	Volumes	0.07		-	
	Gal./ft. 1 ¼" = ( 1 ½" = (	0.077 0.10	2'' = 0.16 $2\frac{1}{2}'' = 0.24$	3" = 3"½ =	0.37	4" = 0.68 6" = 1.46	) }	
	1		· · · · · · · · · ·					-

Project Name       Faye Burdette No. 1       Page       of         ict No.	TŁ TETRA	TECH, INC.		WATER \$	SAMPLING F		А		,	
xtl No.	Project Name	Faye Burdette No. 1				Page	4	of	4	
Site Location Actes, NM         SteWall No. MW-4       Coded/ Replicatio No.       Date 12-17-00         Time Sampling Boar       Time Sampling Boar         Object MP       Date 12-17-00         Time Sampling Boar       Time Sampling Boar         Coded/ Location of Measuring Point (MP)       Tog of Casing         Height of MP Abova/Below MP       2.28       Water-Lovel Elevation         Total Sounded Depth of Water Below MP       Date 12       Coded/ Galons purple/Balled         Met Water Column in Wett 11.92       Prior to Sampling Pump Intake Setting Galons per Fool 2       0.18         SAMPLING DATAFIELD PARAMETERS         Galons in Wott [197 X3 = (reet below tand surface)       Consult with US/Settin TDS (pt)       DO (mol.) DO % ORP (mV) Volume (gal)         Met Temperature (*C)       PH Conductive/US/Settin TDS (pt)       Do (mol.) DO % ORP (mV) Volume (gal)         Galons in Wott [197 X3 = (T25)       Constituents Sampling       Dompet/DataField PARAMETERS         Constituents Sampled       Constituents Sampled         Constituents Sampled	. sct No.							·		
Site/Weil No.       MW-4       Replicate No.       Date $12-17+0$ Weather       Marcash       Began       Began       Time Sampling       Completed       Compl	Site Location	Aztec, NM								
Weather       Ime Sampling       Bagan       Bagan       Completed       Off 11         Began       EvacUATION DATA       EvacUATION DATA       EvacUATION DATA         Description of Measuring Point (MP)       Top of Casing       MP Elevation	Site/Well No.	<u>MW-4</u>	Coded/ Replicate	No		Date	12-1-	1-10		
CPA 250       EVACUATION DATA         Description of Measuring Point (MP)       Top of Casing         Height of MP Above/Below Land Surface       MP Elevation         Total Sounded Depth of Well Below MP       22.28         Water-Level Elevation	Weather	overrast	Time Sar Began	apling BOD		Time Samplin Completed	°0	7[[		
Description of Measuring Point (MP)       Top of Casing         Height of MP Above/Below Land Surface       MP Elevation         Total Sounded Depth of Water Below MP       22.28         Water-Level Elevation       Diameter of Casing         Heid       Depth to Water Below MP       22.28         Water Column in Water       Diameter of Casing       2"         Gallons per Fool       0.16       Sampling Pumped/Bailed       7, 255         Gallons in Water       Sampling Pump Intake Setting       7, 255         Gallons in Water (C)       pH       Conductivity (µ5/cm <sup>2</sup> )       D0 %       ORP (mV) Volume (gal.)         Purging Equipment       Purge pump / Bailer       SAMPLING DATA/FIELD PARAMETERS       D0 %       ORP (mV) Volume (gal.)         Mdd 136 8       7, 12       1109       0.78 9       4, 29       3, 55       59, 7       7, 202         ØB 10       63, 33       7, 41       117, 73       0, 78 9       4, 29       3, 55       59, 7       7, 202         ØB 11       13, 44       7, 40       1107       0, 78 9       4, 29       3, 57       59, 7       7, 202         ØB 11       13, 44       7, 40       117, 73       0, 78 9       4, 29       3, 59, 7       2, 255         Sam		cold 250		EVACUATI	ON DATA					
Height of MP Above/Below Land Surface       MP Elevation         Total Sounded Depth of Well Below MP       22.28       Water-Level Elevation         Held       Depth to Water Below MP       22.28       Water-Level Elevation         Wel       Water Column in Well       1.92       Prior to Sampling       2"         Gallons per Fool       0.10       Sampling Pumper(Balled)       7, 255         Gallons in Well       1.92       Sampling Pumper(Balled)       7, 255         Purging Equipment       Purge pump / Bailer       5.40       7, 255         SAMPLING DATA/FIELD PARAMETERS       Sampling Pump / Bailer       5.40         Sampling Equipment       Purge pump / Bailer       5.40         Sampling Texture (*C)       pH       Conductivity (µS/cm*)       TOS (a)L       D0 %       ORP (mV) Volume (gal)         ØB/O       7.33       7.41       II/78       0.789       4.29       39.5       59.9       7.40         Sampling Equipment       Purge Purge/Baile2       Constituents Sampled       Container Description       Preservative         BTEX       340mL VOA's       HCl       HCl       HCl       HCl       HCl         Dissolved Mn       16 oz Plastic       None       None       Mel Casing Volumes       Gal/ft. </td <td>Description of</td> <td>Measuring Point (MP)</td> <td>Top of Casing</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Description of	Measuring Point (MP)	Top of Casing							
Total Sounded Depth of Well Below MP       22.28       Water-Level Elevation         Held       Depth to Water Below MP       0.440       Diameter of Casing Gallons Pumped/Galled       2"         Wet       Water Column in Well       1.92       Pumped/Galled       7,725         Gallons in Well       Gallons in Well       91       7,725         Gallons in Well       Gallons in Well       91       7,725         Gallons in Well       Gallons in Well       91       7,725         Sampling Equipment       Purge pump / Bailer       540       7,725         Stampling Equipment       Purge pump / Bailer       540       7,12       100 (mgl.)       00 (mgl.)       00%       0RP (mV) Volume (gal.)         MDA       13.08       7,12       1109       0.19       59.7       7,20         0611       13.44       7,40       11.92       0.99       3.57       59.7       7,20         0611       13.44       7,40       11.92       0.99       3.57       59.7       7,20         0611       13.44       7,40       11.92       0.99       3.57       59.7       7,25         Sampling Equipment       Purge Pump/Bailed       Container.Description       Preservative       8	Height of MP A	Above/Below Land Surfa	ce		MP Elevation				<del></del>	
Held Depth to Water Below MP D440	Total Sounded	1 Depth of Well Below M	22.28		Water-Level El	evation		• • •		
Wet	Held	_ Depth to Water Below	VMP 04	<u>ų                                    </u>	Diameter of Ca	ising 2"				
7, 25           7, 25           Gallons in Well 1.97, X3 -=         7, 25           Gallons in Well 1.97, X3 -=         7, 25           Purging Equipment         Purge pump / Bailer         7, 25           SAMPLING DATA/FIELD PARAMETERS           Imme Temperature (*C)         pH is item to pump / Bailer         OC if item to pump / Bailer           SAMPLING DATA/FIELD PARAMETERS           OC inductivity (µS/cm <sup>2</sup> )         DD (mg/L)         D0 % ORP (mV) Volume (gal.)           ØD is 30         7, 41         II/78         0.789         4.29         39.5         59.9         7.200           ØB io         6,33         7, 41         II/78         0.789         4.29         39.5         59.9         7.400           ØB io         6,33         7, 41         II/78         0.789         4.29         39.5         59.9         7.400           ØB io         6,33         7, 41         II/78         0.789         4.29         39.5         59.9         7.400           Sampling Equipment         Purge Purgo/Balle	Wet	Water Column in	Well 1.8	2	Prior to Sampli	ng <u>Pum</u>	pe (/Baileo		· · · · · · · · · · · · · · · · · · ·	
Gallons in Well 1.97 X 3 = (feet below land surface)         Gallons in Well 1.97 X 3 = (feet below land surface)         SAMPLING DATA/FIELD PARAMETERS         SAMPLING DATA/FIELD PARAMETERS         Time       Temperature (*C)       pH       Conductivity ( $\mu$ S/cm <sup>3</sup> )       DO ( $mgL$ )       DO %       ORP ( $mV$ ) Volume (gal.)         JOR       JS48       7, 12       II/09       0.975       82.6       ( $gal./a)$ ( $gal./a)$ DO %       ORP ( $mV$ ) Volume (gal.)         JOR       JS48       7, 12       II/09       0.975       82.6       ( $gal./a)$ ( $gal./a)$ DO %       ORP ( $mV$ ) Volume (gal.)         OBIO       7, 33       7, 41       II/18       0.789       4.29       37.5       59.9       7.9         OBIO       7, 40       II/12       0.909       3.39       52.5       60.7       7.45         Sampling Equipment       Purge Purge/Bailed         Constituents Sampled       Container Description         Preservative         BTEX       3 40mL VOA's         Mell Casing Volumes         Gal./ft       1 % = 0.077       2" = 0.16 <th co<="" td=""><td></td><td>Gallons per</td><td>Foot</td><td>0.16</td><td>Sampling Pum</td><td>n Intake Setting</td><td>7,</td><td>25</td><td></td></th>	<td></td> <td>Gallons per</td> <td>Foot</td> <td>0.16</td> <td>Sampling Pum</td> <td>n Intake Setting</td> <td>7,</td> <td>25</td> <td></td>		Gallons per	Foot	0.16	Sampling Pum	n Intake Setting	7,	25	
Purging Equipment         Purge pump / Bailer         5.40           SAMPLING DATA/FIELD PARAMETERS           Time         Temperature (*C)         pH         Conductivity ( $\mu$ /cm <sup>3</sup> )         TDS ( $g/L$ )         DO (mg/L)         DO %         ORP (mV) Volume ( $ga/L$ ) $MOA$ 13.60         7.12         11.09         0.75         82.0         ( $g/L$ /d)         ( $g/L$ /		Gallons in	Well <b>1.89</b>	X3=	(feet below lan	d surface)				
SAMPLING DATA/FIELD PARAMETERS           Time         Temperature (°C)         pH         Conductivity ( $\mu$ S/cm <sup>9</sup> )         DD ( $m$ g/L)         DO %         ORP ( $m$ V) Volume ( $g$ al.) $MDA$ 13.68         1,12         11.69         0.75         82.6         ( $\mu$ Al.6         ( $\mu$ 2.1         ( $\mu$ 7.5 $08.10$ 13.48         1,12         11.69         0.75         82.6         ( $\mu$ Al.6         ( $\mu$ 2.7         ( $\mu$ 7.5 $08.10$ 13.48         7.41         11.78         0.789         4.29         37.5         59.7         7.209 $00.11$ 13.44         7.40         11.42         0.789         3.39         52.5 $p_{1.7}$ 7.45           Sampling Equipment         Purge Purgo/Balle	Purging Equip	ment Purge pump /	Bailer	5.6)		· · · · · · · · · · · · · · · · · · ·	·			
Time       Temperature (°C)       pH       Conductivity (µS/cm*)       TDS (g/L)       DO (mg/L)       DO %       ORP (mV) Volume (gal.)         MPA       ISto B       I.12       II/0       0.975       B2.6       (gal.)       DO %       ORP (mV) Volume (gal.)         OB10       ISto B       I.12       II/0       0.975       B2.6       (gal.)       (gal.)       (gal.)         OB10       ISto B       I.12       II/0       0.975       B2.6       (gal.)       (gal.)       (gal.)         OB11       ISto B       I.12       II/0       0.975       B2.5       59.7       I/0       I/0       I/0         OB11       I.3.44       I.12       II/12       0.907       II/2       0.907       I/0       I/0 <thi 0<="" th="">       I</thi>			`S.	AMPLING DATA/FIE	LD PARAMETER	S		• •	·	
Image: Constituents Sampled       Container Description       Preservative         BTEX       340mL VOA's       HCl         Dissolved Mn       16 oz Plastic       None         Well Casing Volumes         Gal /ft.       1 ½" = 0.077       2" = 0.16       3" = 0.37       4" = 0.65         Well Casing Volumes         Gal /ft.       1 ½" = 0.10       2 ½" = 0.24       3" ½ = 0.50       6" = 1.46	Time Aga	Temperature (°C)	рН 7,7	Conductivity (µS/cn	1°) TDS (g/L)	DO(mg/L)	D0%	ORP (mV)	Volume (gal.)	
OGIO       IIII       IIIII       OIIO       IIIII       OIIO       IIIII       OIIO       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	0810	13.33	7.41	1178	6.989	4.2.9	39.5	59.9	ZP	
Sampling Equipment       Purge Purgp/Baile         Constituents Sampled       Container Description       Preservative         BTEX       3 40mL VOA's       HCl         Dissolved Mn       16 oz Plastic       None         Remarks       Sampling Personnel       Christine Mathews, Cassle Brown       Christine Mathews, Cassle Brown         Well Casing Volumes       Gal./ft.       1 $\frac{1}{2}$ = 0.10       3" = 0.37       4" = 0.65         Sampling Personnel       Light = 0.10       2 $\frac{1}{2}$ = 0.24       3" $\frac{1}{2}$ = 0.50       6" = 1.46	0811	13,44	7.40	1192	0.989	339	52.5	59.9	4.25	
Sampling Equipment       Purge Purgo/Baller         Constituents Sampled       Container Description       Preservative         BTEX       3 40mL VOA's       HCl         Dissolved Mn       16 oz Plastic       None         Remarks       Sampling Personnel       Christine Mathews, Cassle Brown       Constituents         Well Casing Volumes       Gal./ft.       1 $\frac{1}{2}$ " = 0.10       3" = 0.37       4" = 0.65         1 $\frac{1}{2}$ " = 0.10       2 $\frac{1}{2}$ " = 0.24       3" $\frac{1}{2}$ = 0.50       6" = 1.46				· · · · · · · · · · · · · · · · · · ·						
Sampling Equipment       Purge Purp/Baller         Constituents Sampled       Container Description       Preservative         BTEX       3 40mL VOA's       HCl         Dissolved Mn       16 oz Plastic       None         Remarks       Sampling Personnel       Shristine Mathews, Cassle Brown       VOA's         Well Casing Volumes       Gal./ft.       1 ½" = 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       1.46		<u> </u>								
Constituents Sampled         Container Description         Preservative           BTEX         3 40mL VOA's         HCl           Dissolved Mn         16 oz Plastic         None             Remarks           Sampling Personnel         Cassie Brown         Cassie Brown           Well Casing Volumes           Gal./ft.         1 ½" = 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	Sampling Equi	ipment -	Purge Purgp/Ba	ailer						
BTEX       3 40mL VOA's       HCl         Dissolved Mn       16 oz Plastic       None         Remarks	<u>Consti</u>	ituents Sampled		Container Descript	lion		Prese	ervative		
Dissolved Mn         16 oz Plastic         None           Remarks	BTEX		<u>3 40mL V</u>	'OA's		HCI				
Remarks         Sampling Personnel       Well Casing Volumes         Well Casing Volumes         Gal./ft. $1 \frac{1}{2}$ " = 0.077 $2$ " = 0.16 $3$ " = 0.37 $4$ " = 0.65 $1 \frac{1}{2}$ " = 0.10 $2 \frac{1}{2}$ " = 0.24 $3$ " $\frac{1}{2}$ = 0.50 $6$ " = 1.46	Dissolved Mn		<u>16</u> oz Pla	stic		None				
Remarks         Sampling Personnel       Well Casing Volumes         Gal./ft. 1 $\frac{1}{4}$ " = 0.077 2" = 0.16 3" = 0.37 4" = 0.65         1 $\frac{1}{2}$ " = 0.10 2 $\frac{1}{2}$ " = 0.24 3" $\frac{1}{2}$ = 0.50 6" = 1.46										
Sampling Personnel         Series Brown & UDUG BOUM           Well Casing Volumes           Gal./ft. $1 \frac{1}{4}$ " = 0.077 $2$ " = 0.16 $3$ " = 0.37 $4$ " = 0.65 $1 \frac{1}{2}$ " = 0.10 $2 \frac{1}{2}$ " = 0.24 $3$ " $\frac{1}{2}$ = 0.50 $6$ " = 1.46	Remarks									
Well Casing Volumes           Gal./ft. $1 \frac{1}{2}$ " = 0.077 $2$ " = 0.16 $3$ " = 0.37 $4$ " = 0.65 $1 \frac{1}{2}$ " = 0.10 $2 \frac{1}{2}$ " = 0.24 $3$ " $\frac{1}{2}$ = 0.50 $6$ " = 1.46	Sampling Pers	connel <u>Christine Matr</u>	news, Cassie B	rown & Craic	BOUM_					
Gal./ft. $1 \frac{1}{4}$ " = 0.077 $2$ " = 0.16 $3$ " = 0.37 $4$ " = 0.65 $1 \frac{1}{2}$ " = 0.10 $2 \frac{1}{2}$ " = 0.24 $3$ " $\frac{1}{2}$ = 0.50 $6$ " = 1.46	l			Well Casing	g Volumes		<u> </u>			
$1 \frac{1}{2} = 0.10$ $2 \frac{1}{2} = 0.24$ $3^{"} \frac{1}{2} = 0.50$ $6^{"} = 1.46$		Gal./ft. 11/4" = 0	).077	2" = 0.16	3" =	• 0.37	4" = 0.6	5		
	I	1 ½" = 0	).10	2 1⁄2" = 0.24	3° ½ =	• 0.50	6" = 1.46	3		
		· · ·				· · · · · · · · · · · · · · · · · · ·				

.

.

APPENDIX B



# **Conoco Phillips**

Certificate of A <u>101</u>	nalysis Number: 20638	
Report To:	Project Name: COP Faye-Burdette	_
Tetra Tech, Inc.	Site: Aztec, NM	
Kelly Blanchard	Site Address:	
6121 Indian School Road, N.E.		
Suite 200 Albuquerque	PO Number:	
NM	State: New Mexico	
87110-	State Cert. No.:	
ph: (505) 237-8440 fax:	Date Reported: 12/28/2010	

# This Report Contains A Total Of 18 Pages

# Excluding This Page, Chain Of Custody

And

# Any Attachments

12/28/2010

Date

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

# Case Narrative for: Conoco Phillips

# Certificate of Analysis Number:

# <u>10120638</u>

Report To:			Project Name:	COP Faye-Burdette		
Tetra Tech, Inc.	· ·		Site:	Aztec, NM		
Kelly Blanchard		•	Site Address:	. •		• •
6121 Indian School Road, N.E.			•			·
Suite 200	•		PO Number			·
Albuquerque			<u>FO Number.</u>			
NM			State:	New Mexico		
87110-			State Cert. No .:			
ph: (505) 237-8440 fax:	•		Date Reported:	12/28/2010	÷ .	

#### 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.

#### SW6010B - Dissolved Metals analysis:

Sample ID "MW-3" (SPL ID:10120638-03) was randomly selected for use in SPL's quality control program for (Batch ID:104030). The MSD recovery was outside of the advisable quality control limits for the target analyte manganese due to matrix interference. A Post Digestion Spike (PDS) and Post Digestion Spike Duplicate (PDSD) were performed and recoveries were outside quality control limits. A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits.

#### 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

10120638 Page 1

12/28/2010

Date

Erica Cardenas Project Manager

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



# Case Narrative for: Conoco Phillips

Certificate of Analysis Number: 10120638

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.

h Carder

10120638 Page 2 12/28/2010

Erica Cardenas Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative. Version 2.0 - Modified December 23, 2010 Date



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

# **Conoco Phillips**

	Certificate of <i>I</i> <u>101</u>	Analysis Num 120638	nber:	
<u>Report To:</u>	Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200	· · · ·	Project Name: Site: Site Address:	COP Faye-Burdette Aztec, NM
	Albuquerque NM 87110- ph: (505) 237-8440 fax: (505) 881-3283		<u>PO Number:</u> <u>State:</u> State Cert. No.:	New Mexico
<u>Fax To:</u>			Date Reported:	12/28/2010

	Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1		10120638-01	Water	12/17/2010 8:37	12/18/2010 10:30:00 AM	303426	
MW-2	•	10120638-02	Water	12/17/2010 8:45	12/18/2010 10:30:00 AM	303426	
MW-3	·	10120638-03	Water	12/17/2010 8:21	12/18/2010 10:30:00 AM	303426	
MW-4		10120638-04	Water	12/17/2010 8:11	12/18/2010 10:30:00 AM	303426	
Duplicate		10120638-05	Water	12/17/2010 8:37	12/18/2010 10:30:00 AM	303426	
Trip Blank	•	10120638-06	Water	12/17/2010 8:00	12/18/2010 10:30:00 AM	303426	

E. a. Cardinas

12/28/2010

Date

Erica Cardenas Project Manager

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

> > Ted Yen Quality Assurance Officer

Version 2.0 - Modified December 23, 2010

10120638 Page 3 12/28/2010 5:02:44 PM



8880 INTERCHANGE DRIVE

HOUSTON, TX 77054 (713) 660-0901

_			_
	C	ID-M/M/ 4	

Client Sample ID:MW-1 Collected: 12/17/2010 8:37 SPL Sample ID: 10120638-01 Site: Aztec, NM Seq. # Dil. Factor Date Analyzed Analyst

Analyses/Method Result QUAL Rep.Limit

Units: mg/L

METALS BY METHOD 6010B, DISSOLVED MCL SW6010B 12/23/10 13:24 EG 5683180 Manganese 0.773 0.005 1

SW3005A 12/20/2010 17:00 M W 1.00	Prep Initials Prep Factor	Prep Date	Prep Method
	0 17:00 M_W 1.00	12/20/2010 17:00	SW3005A

<b>VOLATILE ORGANICS BY METHOD 8</b>	260B		. (	MCL	•	SW8260B	Units: ug/L	
Benzene	ND -		1		. 1	12/20/10 20:	35 DY	5679802
Ethylbenzene	ND	··· · · ·	1.		1	12/20/10 20:	35 DY	5679802
Toluene	ND		· 1		1	12/20/10 20:	35 DY	5679802
m,p-Xylene	ND		2		1	12/20/10 20:	35 DY .	5679802
o-Xylene	ND	•	1		1	12/20/10 20:	35 DY	5679802
Xylenes,Total	ND		1		1	12/20/10 20:	35 DY	5679802
Surr: 1,2-Dichloroethane-d4	110	· · · %	71-140		1	12/20/10 20:	35 DY	. 5679802
Surr: 4-Bromofluorobenzene	91.8	· %	70-130		1	12/20/10 20:	35 DY	5679802
Surr: Toluene-d8	100	%	61-121		1	12/20/10 20:	35 DY ·	5679802

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

> 10120638 Page 4 12/28/2010 5:02:53 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW-2

Collected: 12/17/2010 8:45

45 SPL Sample ID:

SW6010B

Aztec, NM

Analyses/Method Result QUAL Rep.Limit Dil. Factor Date Analyzed Analyst Seq. #

Site:

# METALS BY METHOD 6010B, DISSOLVED

MCL

Units: mg/L 48 EG 5683184

10120638-02

Manganese	· 0	.0332	0.005	· · 1	12/23/10 13:48 EG
Prep Method	Prep Date	Prep Initials P	rep Factor	•	

 SW3005A
 12/20/2010 17:00
 M\_W
 1.00

VOLATILE ORGANICS BY	METHOD 8260B			MCL		SW8260B	Units: ug/L	
Benzene	. ND		1		1	12/20/10 2	0:58 DY	5679803
Ethylbenzene	ND		1		1	12/20/10 2	0:58 DY	5679803
Toluene	ND		1	•	1	12/20/10 20	0:58 DY	5679803
m,p-Xylene	ND		2		1	12/20/10 20	0:58 DY	5679803
o-Xylene	ND		1		1	12/20/10 20	0:58 DY	5679803
Xylenes, Total	ND		. 1		1	12/20/10 20	0:58 DY	5679803
Surr: 1,2-Dichloroethane-d4	110	%	71-140		1	12/20/10 20	0:58 DY	5679803
Surr: 4-Bromofluorobenzene	· 90.9	%	70-130		1	12/20/10 20	0:58 DY	5679803
Surr: Toluene-d8	. 99.3	%	61-121		1	12/20/10 2	0:58 DY	5679803

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

> 10120638 Page 5 12/28/2010 5:02:53 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

# (713) 660-0901

Client Sample ID:MW-3				Calle	ata d. 12	17/2010	0.21	SPI Semple ID: 10120628.0			0620.02	
Clien	it Sample ID: WWW	-3			Colle		17/2010	1 8:21	SPL Sam		<b>1012</b>	0638-03
			· .		Site	: Aztec	, NM					
Analy	ses/Method	•	Result	QUAL	Re	p.Limit	C	il. Factor	Date Analy	zed ·	Analyst	Seq. #
МЕТ	ALS BY METHOD	6010B, DI	SSOLVED				MCL	SV	V6010B	Uni	ts: mg/L	
Man	iganese		0.178			0.005		1	12/23/10 1	2:47	EG	5683174
	Prep Method	Prep_Date		Prep Initials	Prep I	actor						
· · ·	SW3005A	12/20/2010 1	17:00	M_W	1.00				. •		•	•
VOL	ATILE ORGANICS	BY METH	OD 8260B	} + <sup>−</sup>		-	MCL	SV	V8260B	Uni	ts: ug/L	•
Ben	zene		ND			1		· 1	12/20/10 2	1:22	DY	5679804
Ethy	/lbenzene		ND		• •	<b>1</b> , •		1	12/20/10 2	1:22	DY .	5679804
Tolu	iene	• •	ND	·. ·		1		1	12/20/10 2	1:22	DY	5679804
m,p	-Xylene		ND			2		1	12/20/10 2	1:22	DY	5679804
0-X)	lene		ND			1		1	12/20/10 2	1:22	DY	5679804
. Xyle	nes,Total		· ND	•		1		1	12/20/10 2	1:22	DY	5679804
S	urr: 1,2-Dichloroethar	ne-d4	111		%	71-140		1	12/20/10 2	1:22	DY .	5679804
S	urr: 4-Bromofluorobe	nzene	91.5		%	70-130		1	12/20/10 2	1:22	DY	5679804
. S	urr Toluene-d8		99.5		0/	61-121		1	12/20/10 2	1.22	עס	5679804

**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

> 10120638 Page 6 12/28/2010 5:02:54 PM



8880 INTERCHANGE DRIVE

HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-4			Collec	Collected: 12/17/2010 8:11			SPL Samp	le ID: 101	20638-04
			Site:	Azte	c, NM				
Analyses/Method	R	esuit QUA	L Rep.	Limit	Dil.	Factor	Date Analyz	ed Analys	Seq. #
METALS BY METHO	DD 6010B, DISSOL	VED			MCL	SV	V6010B	Units: mg/	
Manganese	. 0.0	0502		0.005	· ·····	1	12/23/10 13	:54 EG	5683185
Prep Method	Prep Date	Prep Ini	tials Prep Fa	actor		• .	•		
SW3005A	12/20/2010 17:00	<u>M_W</u>	1.00	·]	•			•	
<b>VOLATILE ORGANI</b>	CS BY METHOD 8	260B			MCL	SV	V8260B	Units: ug/L	····.
Benzene		ND		1	-	1	12/20/10 21	:46 DY	5679805
Ethylbenzene		ND		1	•	1	12/20/10 21	:46 DY	5679805
Toluene	· · ·	ND		1		1	12/20/10 21	:46 DY	5679805
m,p-Xylene		ND		2		1	12/20/10 21	:46 DY	5679805
o-Xylene		ND		1		1	12/20/10 21	:46 DY	5679805
Xylenes,Total		ND	4	1	•	1	12/20/10 21	:46 DY	5679805
Surr: 1,2-Dichloroet	hane-d4	112	% 7	1-140		1	12/20/10 21	:46 DY	5679805
Surr: 4-Bromofluoro	benzene	90.8	% 7	0-130		1	12/20/10 21	:46 DY	5679805
Surr: Toluene-d8		99.8	% 6	1-121		1	12/20/10 21	:46 DY	5679805

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

> 10120638 Page 7 12/28/2010 5:02:54 PM



8880 INTERCHANGE DRIVE

HOUSTON, TX 77054

(713) 660-0901

Client Sample ID: Duplicate Collected: 12/17/2010 8:37 10120638-05 SPL Sample ID: Site: Aztec, NM Analyses/Method Result **QUAL Rep.Limit** Dil. Factor Date Analyzed Analyst Seq. # **VOLATILE ORGANICS BY METHOD 8260B** MCL SW8260B Units: ug/L 5679806 1 DY Benzene ND 1 12/20/10 22:09 Ethylbenzene ND 1 1 12/20/10 22:09 DY 5679806 Toluene ND 1 12/20/10 22:09 5679806 1 DY m,p-Xylene ND 2 1 12/20/10 22:09 DY 5679806 o-Xylene ND 1 1 12/20/10 22:09 DY 5679806 Xylenes,Total ND 1 12/20/10 22:09 DY 5679806 1 Surr: 1,2-Dichloroethane-d4 71-140 5679806 112 % 1 12/20/10 22:09 DY Surr: 4-Bromofluorobenzene 70-130 5679806 90.7 % 1 12/20/10 22:09 DY 61-121 Surr: Toluene-d8 100 % 12/20/10 22:09 DY 5679806 1

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

> 10120638 Page 8 12/28/2010 5:02:55 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

SPL Sample ID:

Client Sample ID: Trip Blank

Collected: 12/17/2010 8:00

10120638-06

			Sit	e: Azte	C, NM					
Analyses/Method	Result	QUAL	R	ep.Limit		Dil. Factor	Date Ana	lyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	THOD 8260B				MCL	SI	V8260B	Ur	nits: ug/L	
Benzene	• ND		•	1		1	12/23/10	17:06	D_R	5683679
Ethylbenzene	ND			1		1	12/23/10	17:06	D_R	5683679
Toluene	ND			· 1		1	12/23/10	17:06	D_R	5683679
m,p-Xylene	ND			2		1	12/23/10	17:06	D_R	5683679
o-Xylene	. ND			1		1	12/23/10	17:06	D_R	5683679
Xylenes,Total	ND	•		1		1	12/23/10	17:06	D_R	5683679
Surr: 1,2-Dichloroethane-d4	113		%	71-140		1	12/23/10	17:06	D_R	5683679
Surr: 4-Bromofluorobenzene	88.9		. %	70-130		1 .	12/23/10	17:06	D_R	5683679
Surr: Toluene-d8	99.6		%	61-121		1	12/23/10	17:06	DR	5683679

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

> 10120638 Page 9 12/28/2010 5:02:55 PM

# Quality Control Documentation

10120638 Page 10 12/28/2010 5:02:55 PM



### **Quality Control Report**

# HOUSTON LABORATORY

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

# **Conoco Phillips COP Faye-Burdette**

Analysis: Method:	Volatile Organics by SW8260B	Method 8260B	<b>.</b> .	•			WorkOrder: Lab Batch ID	1012 ): R31	20638 3122	
·`	Meth	od Blank				Samples in Anal	ytical Batch:			
RuniD: M	SDVOA4_101220A-5679799	Units:	ug/L			Lab Sample ID	Client	Sample ID		
Analysis Dat	te: 12/20/2010 18:14	Analyst:	DY			. 10120638-01A	MW-1			
•					. '	10120638-02A	- MW-2		· .	٠
						10120638-03A	MW-3			
						10120638-04A	MW-4			
	Analyte	<u>٦</u>	Result	Rep Limit	·.	10120638-054	Dunlic	ate		
'	Benzene	·	ND	1.0		10120000 00/1	Dapito			· · · ·
	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	•	109.3	71-140	-					÷
	Surr: 4-Bromofluorobenzene		91.9	70-130				· .	t in the	:
	Surr: Toluene-d8		99.5	61-121				•		•
• • •	·			•.	•••••••••••••••••••••••••••••••••••••••			•		• •
<u>.</u>	<u> </u>		La	boratory C	ontrol	Sample (LCS)				

RunID:	
Analysis	Date:

12/20/2010 17:02

MSDVOA4\_101220A-56797 Units: ug/L DY Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	24.6	123	70	130
Ethylbenzene	20.0	24.3	122	70	130
Foluene	20.0	23.2	116	73	130
n,p-Xylene	40.0	47.7	119	70	130
-Xylene	20.0	24.7	123	70	130
Kylenes, Total	60.0	72.4	. 121	70	130
Surr: 1,2-Dichloroethane-d4	50.0	52.3	105	71	140
Surr: 4-Bromofluorobenzene	50.0	51.1	102	70	130
Surr: Toluene-d8	50.0	49.5	99.0	61	121

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD) Sample Spiked: H1012037600 RunID: MSDVOA4\_101220A-56798 Units: ug/L 12/20/2010 23:46 DY Analysis Date: Analyst: Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference D - Recovery Unreportable due to Dilution B - Analyte Detected In The Associated Method Blank J - Estimated Value Between MDL And PQL \* - Recovery Outside Advisable QC Limits 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 10120638 Page 11 QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values 12/28/2010 5:02:57 PM calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### 8880

# 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

HOUSTON LABORATORY

(713) 660-0901

## Conoco Phillips COP Faye-Burdette

Analysis: Method:	Volatile Organi SW8260B	cs by Method 826	i0B ·					WorkOrder Lab Batch	: 101 ID: R3	20638 13122		
<u>р</u>	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	25.1	. 126	20	24.1	. 121	4.17	20	67	202
Ethylbenzene	· · · ·	ND	20	. 24.0	120	20	22.4	. 112	6.92	20	49	165
Toluene		· ND	20	23.7	118	20	22.2	111	6.45	20	48	162
m,p-Xylene		ND	40	47.6	119	40	44.8	112	· 6.00	20	44	167
o-Xylene		ND	20	24.2	121	20	22.8	114	6.06	20	54	158
Xylenes,Total		ND	60	71.8	120	60	67.6	113	6.02	20	44	167
Surr: 1,2-Dichlo	proethane-d4	ND	. 50	52.9	106	50	52.7	. 105	0.306	· 30	71	140
Surr: 4-Bromofi	uorobenzene	ND	- 50	· 51	102	50	50.6	• 101	0.749	30	70	130
Surr: Toluene-d	18	ND	50	49.3	98.5	50	49.5	99.0	0.448	30	61	121

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

B - Analyte Detected In The Associated Method Blank

J - Estimated Value Between MDL And PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

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

10120638 Page 12 12/28/2010 5:02:57 PM



# Quality Control Report

#### HOUSTON LABORATORY 8880 INTERCHANGE DRIVE

HOUSTON, TX 77054 (713) 660-0901

# Conoco Phillips COP Faye-Burdette

Analysis: Method:	Volatile Organics by SW8260B	Method 826	50B			·		Wo Lab	rkOrder: Batch ID:	10120638 R313344	
	Meth	od Blank				Sample	es in Anal	ytical Bate	ch:		
RunID: M	SDVOA4_101223D-5683678	Units:	ug/L			Lab Sa	mple ID		Client Sar	nple ID	
Analysis Dat	e: 12/23/2010 14:40	Analyst:	D_R	·		.101206	38-06A		Trip Blank	-	
. ·	· · ·				• •				. •		
											<i>.</i>
	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							
	Xytenes,Total		ND	1.0		· ·		· ·		· ·	
	Surr: 1,2-Dichloroethane-d4		109.0	71-140		• • •					
	Surr: 4-Bromofluorobenzene		90.4	70-130	•						•
•.	Surr: Toluene-d8		98.6	61-121		•	•			• •	•
				•	•	••	·		•		•

#### Laboratory Control Sample (LCS)

RuniD:	MSDVOA4_101223D-56836 Units:	ug/L
Analysis Date:	12/23/2010 13:29 Analysi	: D_R <sup>`</sup>

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	24.9	124	70	130
Ethylbenzene	20.0	20.6	103	70	130
Toluene	20.0	21.7	109	73	130
m,p-Xylene	40.0	44.2	111	70	130
o-Xylene	20.0	22.8	114	70	130
Xylenes,Totai	60	67	110	70	130
Surr: 1,2-Dichloroethane-d4	50.0	52.2	104	71	140
Surr: 4-Bromofluorobenzene	50.0	52.5	105	70	130
Surr: Toluene-d8	50.0	47.8	95.7	61	121

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

	Sample Spiked: RunID: Analvsis Date:	10120619-04 MSDVOA4_101223D-56848 12/27/2010 13:57	Units: Analvst:	ug/L D R	
Qualifiata	ND/LL Not Detected at the Reporting L	imit .	MMatr		
Quaimers:	ND/0 - Not Detected at the Reporting L	итис	IVII - IVIdu	X menerence	
	B - Analyte Detected In The Associated	Method Blank	D - Reco	very Unreportable due to Dilution	
	J - Estimated Value Between MDL And	PQL	* - Recov	ery Outside Advisable QC Limits	
	E - Estimated Value exceeds calibration	curve .			
	N/C - Not Calculated - Sample concent	ation is greater than 4 times	the amoun	t of spike added. Control limits do not apply.	
	TNTC - Too numerous to count				10120638 Page 13
QC results p calculated by	resented on the QC Summary Report hav / the SPL LIMS system are derived from C	e been rounded. RPD and pe C data prior to the application	ercent reco n of roundi	very values ng rules.	12/28/2010 5:02:58 PM



High

Limit

202

165

162

167

158

167

140

130

121

67

49

48

44

54

44

70

61

30

0.590

## **Conoco Phillips**

**COP Faye-Burdette** 

Analysis: Volatile Or Method: SW8260B	rganics by Method 82	60B					WorkOrder Lab Batch I	: 10 <sup>.</sup> D: R3	120638 13344	
Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit
Benzene	. NI	20	17.0	85.1	20	15.6	78.0	8.64	20	67
Ethylbenzene	N	). 20	15.9	79.7	20	14.8	73.8	7.67	20	49
Toluene	N	20	16.3	· 81.4	20	14.8	74.2	9.27	20	48
m,p-Xylene	N	D 40	33.9	84.9	40	31.5	78.6	7.62	20	44
o-Xylene	N	20	17.3	86.5	20	16.1	. 80.5	7.18	20	54
Xylenes, Total	N	60	51.2	85.4	60	47.6	79.3	7.47	20	44
Surr: 1,2-Dichloroethane-d4.	N	50	. 51.2	102	50	50.5	101	1.31	30	71
Surr: 4-Bromofluorobenzene	· NI	0 - 50	49.3	98.7	50	48.5	96.9	· 1.78	30	70

47.6

95.2

50

47.9

95.8

ND

50

Surr: Toluene-d8

**Qualifiers:** 

B - Analyte Detected In The Associated Method Blank

ND/U - Not Detected at the Reporting Limit

J - Estimated Value Between MDL And PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

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

10120638 Page 14 12/28/2010 5:02:58 PM



Quality Control Report

HOUSTON LABORATORY

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

# **Conoco Phillips**

COP Faye-Burdette

Analysis: Method:	Metals by Method SW6010B	Work Lab B	Order: latch ID:	101 104	20638 1030							
	Me	thod Blank			Sample	s in Analytic	al Batch	:				
RunID: ICP2_1	01223A-5683172	Units: m	g/L		<u>Lab Sar</u>	mple ID		<u>Client S</u>	ample IC	<u>)</u>		
Analysis Date: Preparation Date	12/23/2010 12:35	Analyst: E	G Method: S\	N3005A	1012063	38-01B	•	MW-1 MW-2	. •			·
r reparation Date	. 12/20/2010 17:00	пер бу. м		10000	1012063	38-03B	•	MW-3				
·	Analyte	Re	sult Rep Limi	el ·	1012063	38-04B		MW-4				
Ma	nganese		ND 0.005	5	• •							
				•								
	<u></u>		Laboratory	Control Sam	ple (LCS	<u>5)</u>						
	Runi[ Analy Prepa	D: ICP2 sis Date: 12/2 aration Date: 12/2	2_101223A-5683 23/2010 12:41 20/2010 17:00	173 Units: Analys Prep E	mg/ it: EG sy: M_	L Method: Si	W3005A				•	
		Analyte		Spike R Added	esult F	Percent I Recovery	Lower Limit	Upper Limit				
,	Mangan	ese		0.1000 0.	09750	97.50	80	120		•••	•	
	Analyte	Sample PD Result Spik Add	S PDS le Result ed	PDS % Recovery	PDSD Spike Added	PDSD Result	PDSD Recov	% ery	RPD	RPD Limit	Low High Limit Lim	ı it
Manganese		0.178	0.1 0.29	119.5	0.1	0.2996	6 12	2.1 *	0.8716	20	80 12	20
		Matrix Spi	ke (MS) / Matr	ix Spike Dup	licate (M	SD)						
	San Rur Ana Prej	nple Spiked: 10 nID: IC nlysis Date: 12 paration Date: 12	0120638-03 P2_101223A-568 2/23/2010 12:53 2/20/2010 17:00	33175 Units 3 Anal ) Prep	s: m yst: E0 By: M	g/L G _ Method:	SW 3005/	<b>4</b> ·				
Qualifiers: N B J E N	ID/U - Not Detected at th 3 - Analyte Detected in Th - Estimated Value Betwe - Estimated Value excee I/C - Not Calculated - Sa	e Reporting Limit ne Associated Meth een MDL And PQL eds calibration curve mple concentration	od Blank e is greater than	MI - D - F * - R 4 times the an	Matrix Int Recovery ecovery ( nount of s	terference Unreportable Outside Advis	e due to D sable QC Control lir	ilution Limits nits do no	ot apply.	<u> </u>		
T QC results press calculated by the	NTC - Too numerous to ented on the QC Summa e SPL LIMS system are o	count ry Report have been lerived from QC dat	n rounded. RPE	) and percent	recovery unding r	values ules.			- F (F 17 -	101 12/2	20638 Pag 28/2010 5:02:5	э 15 в РМ
		Ver	sion 2.0 - Modi	fied Decembe	r 23, 201	0						



**Quality Control Report** 

## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

# Conoco Phillips COP Faye-Burdette

Analysis: Method:	Metals by Method SW6010B	6010B, Dissolv	ved					WorkOrder: Lab Batch II	101 D: 104	20638 1030		
	Analyte	Sample · Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Manganese		0.1775	0.1	0.3006	123.1	0.1	0.3040	126.5 *	1.125	<sup>-</sup> 20	75	125
			·	- •	 	L	·				-	· · ·
			•	•					•		• • •	
		• .			•					•		
∎·					•			·.	•	· · ·	• .	•.
	· ··	• • •		·. · ·				· ·				• .
		•		· · ·	• •			• .		۰.		· · ·
		· · · · ·			• • • •	. •		 	· · · · ·			•
		•	· ·	•		•	· · ·			·	• • •	
	• • • •			·			· · · ·		• -			
	• .						• .					·
<b>.</b>	· .		•									•
			·									
Qualifiers:	ND/U - Not Detected at th B - Analyte Detected In Th	e Reporting Lin	nit Method Bl	ank	MI - M D - Re	latrix Inter	ference preportable di	ue to Dilution				
 •	J - Estimated Value Betwee E - Estimated Value excee	een MDL And F eds calibration of	PQL curve		* - Re	covery Ou	tside Advisat	ole QC Limits				
QC results pro	N/C - Not Calculated - Sau TNTC - Too numerous to esented on the QC Summa	mple concentra count ry Report have	tion is gre	eater than 4 til	mes the amo	ount of spi	ke added. Co lues	ntrol limits do	not apply.	10 12	120638 /28/2010	3 Page 16 5:02:58 PM
calculated by	ule of L Livio System are c		Version	2.0 - Modified	December	13, 2010	э.					
l												

# Sample Receipt Checklist And Chain of Custody

Version 2.0 - Modified December 23, 2010

10120638 Page 17 12/28/2010 5:02:59 PM



# Sample Receipt Checklist

Workorder:	10120638		Received By:	Т_В	
Date and Time Received:	12/18/2010 10:30:00 AM		Carrier name:	Fedex-Priority	,
Temperature:	4.5°C		Chilled by:	Water Ice	
1. Shipping container/co	poler in good condition?	Yes 🔽	No	Not Present	
2. Custody seals intact	on shippping container/cooler?	Yes 🗹	No 🗌	Not Present	□.
3. Custody seals intact	on sample bottles?	Yes	No 🗌	Not Present	<b>⊻</b>
4. Chain of custody pres	sent?	Yes 🗹	No 🗔		·
5. Chain of custody sigr	ned when relinquished and received?	Yes 🗹	No 🗌	 	· · · · · ·
6. Chain of custody agree	ees with sample labels?	Ýes 🗹	No 🗔	· ·	
7. Samples in proper co	ntainer/bottle?	Yes 🔽	No 🗔		•
8. Sample containers inf	act?	Yes 🔽	No 🗆		• • •
9. Sufficient sample volu	ume for indicated test?	Yes 🔽	Νο		
10. All samples received	within holding time?	Yes 🔽	No		
<b>11.</b> Container/Temp Blanl	<pre>&lt; temperature in compliance?</pre>	Yes 🗹	No		
<b>12.</b> Water - VOA vials hav	e zero headspace?	Yes 🗹	Νο 🗌 🛛 🗸 νοα	Vials Not Present	
13. Water - Preservation of	checked upon receipt (except VOA*)?	Yes	No 🗌	Not Applicable	
*VOA Preservation Ch	ecked After Sample Analysis				

SPL Representative:

Client Name Contacted:

Non Conformance

Issues:

Client Instructions:

303426	Sδ page [ of [	equested Analysis																	Intact? NY N Ice? VY N Temp:	PM review (initial):				alory: On	<b>]</b> 459 Hughes Drive ity MI 49686 (231) 947-5777
	101200	rix bottle size pres. R	x=othet x=othet x=othet	4 7 7 samber other anners z X=0 thor z X=0 thor z X=0 thor z X=0 thor z X=0	$\frac{A=V}{V=V}$	204 204 207 207 207 207 207 207 207 207 207 207		2 N I I I S	11/401 3 X	/ P 16 NG 1 X	V V 46 1 3 X	1 P 16 NG 1 X	1/14013X	17 10 NG 1 X	// 1 2 X 1	/P 10 NA 1 X	1 V 40 1 3 X 1	114012X		)F / Special Detection Limits (specify):		70 Marcelved by:	time 4. Received by:	1 line 6. Received by Labor	v Parkway 7-4775 Traverse C
	istody Record		NE t200 M <sup>zip</sup> 10 mm A=a	aii: Colly, Bar kard Challer	os=s	3161	Ph:	VTE   TIME   comp   grab   ≊ c	17/10/0837 X W	1710 0837 X.W	17-10 0845 XW	1710 0845 X W	17.10 09.21 X W	17.10 CB21 X W	(71, 10) OB II   X   W	$N = \frac{1}{X} = \frac{1}{X}$	7.10 0957 XW	N/N CEED / N/W	J. Laboratory remarks:	tequirements Results: Fax Email PD	vel 3 QC Level 4 QC L TXTRRP L EA RECA	1. Zalen - Malling	date	date (3.1.4	<b>500</b> Ambassador Caffery Scott, LA 70583 (337) 23
SPL, Inc.	Analysis Request & Chain of Cu	Client Name: RHA TOCC, NAC	City MSQ 24 MAIQA BANCOL RCI	Client Contact: UN BUNCH OIG Em	Project Name No.: Tay & MUCH	Site Location: H& HC, NM	Invoice To:	SAMPLE ID DA	MW-1	MW-1	M.W. 2	Mw-2	MW-3	HW-3 12	NW-4	NW-4	121	this blank 12,	Client Consultant Remarks: March Mr BUK Me Hall	Requested TAT Special Reporting R	. I Business Day Contract Standary C Lev	2 Business Days Standard 1. Refinduished by S	3. Relined by:	<b>A</b> Other <b>5.</b> Relinquished by: Rush TAT requires prior notice	<b>Basso Interchange Drive</b> Houston, TX 77054 (713) 660-0901