# 3R - 428

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## 2009 QUARTERLY GROUNDWATER MONITORING REPORT DECEMBER 2009

## CONOCOPHILLIPS COMPANY SATEGNA No. 2E PRODUCTION FACILITY SAN JUAN COUNTY, NEW MEXICO

OCD No. - TBD API # 30-045-24060

**Prepared for:** 

# ConocoPhillips

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June 2010

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## QUARTERLY GROUNDWATER MONITORING REPORT SATEGNA NO. 2E, SAN JUAN COUNTY, NEW MEXICO DECEMBER 2009

## **I.0 INTRODUCTION**

This report presents the results of the December 2009 quarterly groundwater monitoring event conducted by Tetra Tech, Inc. (Tetra Tech) at the ConocoPhillips Company (ConocoPhillips) Sategna No. 2E gas well production facility (Site) located on private land within Section 21, Township 29N, Range 11W of Bloomfield, New Mexico (**Figure 1**). A Site detail map is included as **Figure 2**.

## I.I Site Background

The historical timeline for the privately-owned Site is summarized below, and is presented in more detail in **Table 1**.

On November 24, 2008, approximately 8 barrels of condensate were found to have been released from an on-Site, aboveground storage tank (AST) as a result of corrosion in the tank. New Mexico Oil Conservation Division (OCD) Form C-141 was filled out by ConocoPhillips staff and notice was given to OCD via electronic mail. Form C-141 stated that the well was shut down and the production tank was emptied. The spilled fluids remained in the berm and none of the condensate was recovered. On November 25, 2008, Envirotech Inc. of Farmington, New Mexico (Envirotech) obtained grab soil samples from just outside the affected area for analysis of organic vapors. Results of this analysis were below OCD recommended action levels. Envirotech also hand-augered 2 soil borings to groundwater at a depth of approximately 8 feet below ground surface (bgs) and submitted groundwater samples to an analytical laboratory for benzene, toluene, ethylbenzene and xylenes (BTEX) analysis. Results of these analyses revealed BTEX in concentrations below OCD action levels for these constituents.

On December 4, 2008, Envirotech returned to the Site and obtained grab and composite soil samples from an excavation measuring approximately 30 feet by 18 feet by 5 feet deep (**Figure 2**). Heated headspace organic vapor results ranged from 6.5 parts per million (ppm) in a grab soil sample obtained from the bottom of the excavation to 1,400 ppm from a composite soil sample taken from the former location of the AST; the OCD action level for organic vapors is 100 ppm. Total petroleum hydrocarbons (TPH), BTEX, and chloride samples were obtained for soils analysis, and results were all below OCD action levels for BTEX. Results for TPH analysis obtained through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of the AST revealed results of 205 mg/kg; the OCD action level is 100 mg/kg. Results for TPH analysis obtained through EPA method 418.1 for the composite soil sample obtained at the location of the below ground tank revealed results of 521 mg/kg. The below ground tank was located within the berm and adjacent to the AST (**Figure 2**). Envirotech noted seepage of groundwater into the excavation on December 4, 2008, and returned to the Site on December 5, 2008 to collect groundwater samples from the excavation for BTEX analysis. The OCD groundwater action levels for benzene, toluene, and total xylenes are 10 ug/l, 750 ug/l, and 620 ug/l, respectively. Benzene was found at a concentration of 327 ug/l, toluene was detected at 4,300 ug/l, and total xylenes were found at a concentration of 8,480 ug/L. During the week of December 8, 2008, a vacuum truck was utilized to pump the groundwater seepage from the surface of the excavated area. Once removed, further excavation took place and groundwater slowly seeped into the excavation; this process was repeated a total of 4 times. The first time water was pumped from the surface of the excavation, a hydrocarbon odor and free-phase, light non-aqueous phase liquid (LNAPL) were present. By the fourth and last event, neither the hydrocarbon odor nor free-phase LNAPL was present in the groundwater seepage. Each pumping event removed approximately 30-60 barrels of liquid from the Site.

In January 2009, Tetra Tech conducted a site visit to determine proposed groundwater monitor well locations. Groundwater monitor wells were installed at the Site on March 4, 2009 and March 5, 2009. Tetra Tech conducted a baseline and the first quarterly groundwater monitoring event at the Site in April 2009.

# 2.0 MONITORING SUMMARY AND SAMPLING METHODOLOGY AND RESULTS

## 2.1 Monitoring Summary

Prior to collection of groundwater samples from monitor wells MW-1, MW-2 and MW-3, depth to groundwater in each well was determined. Results are displayed in **Table 2**.

The casings for monitor wells MW-1, MW-2, and MW-3 were surveyed in March 2009 using an arbitrary reference-elevation of 100 feet. The data obtained from the Site survey and from the December 2009 sampling event was used to create a groundwater elevation map for the Site (**Figure 3**). Using these data, it was determined that the groundwater flow direction at the Site is to the southwest. A generalized geologic cross section for the Site is presented in **Figure 4**.

## 2.2 Groundwater Sampling Methodology

During the groundwater monitoring event, Site monitor wells were purged of at least 3 casing volumes of groundwater using a 1.5-inch diameter, polyvinyl chloride disposable bailer. While bailing each well, groundwater parameter data such as temperature, pH, conductivity, total dissolved solids (TDS), oxidation-reduction potential (ORP) and dissolved oxygen (DO) were collected using a YSI 556 multi-parameter sonde and results were recorded on a Tetra Tech Water Sampling Field Form (**Appendix A**). Collected groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation. Laboratory analysis of all groundwater samples collected during the December 2009 groundwater monitoring event was performed by Southern Petroleum Laboratory (SPL) of Houston, Texas.

Each groundwater sample collected was analyzed for dissolved manganese by Environmental Protection Agency (EPA) Method 6010B; BTEX by EPA Method 8260B; and TDS by EPA Method 2540C. Results of all analyses are displayed in **Table 3**.

## 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). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedences of NMWQCC groundwater quality standards in Site monitor wells are discussed below.

### • Total Dissolved Solids

The NMWQCC domestic water supply groundwater quality standard for TDS is 1,000 mg/L; groundwater collected from monitor wells MW-1, MW-2 and MW-3 was found to contain TDS concentrations of 2,470 mg/L, 2,470 mg/L, and 3,060 mg/L, respectively.

### Manganese

The NMWQCC domestic water supply groundwater quality standard for manganese is 0.2 mg/L; groundwater collected from monitor well MW-3 was found to contain a manganese concentration of 2.4 mg/L.

The corresponding laboratory analysis report for the December 2009 groundwater sampling event, including quality control summaries, is included in **Appendix B**. A map showing manganese and TDS concentrations in Site wells during the December 2009 groundwater sampling event is included as **Figure 4**.

## 3.0 CONCLUSIONS AND RECOMMENDATIONS

The next quarterly groundwater monitoring event at the Site is scheduled for March 2010. Concentrations of dissolved manganese and TDS have been detected above NMWQCC groundwater quality standards in groundwater monitor wells at the Site. As a result, Tetra Tech recommends that these constituents continue to be monitored as part of the quarterly monitoring program at the Site. BTEX was not found above laboratory detection limits in any Site monitor well, and Tetra Tech will continue to monitor for BTEX parameters in order to move toward Site closure.

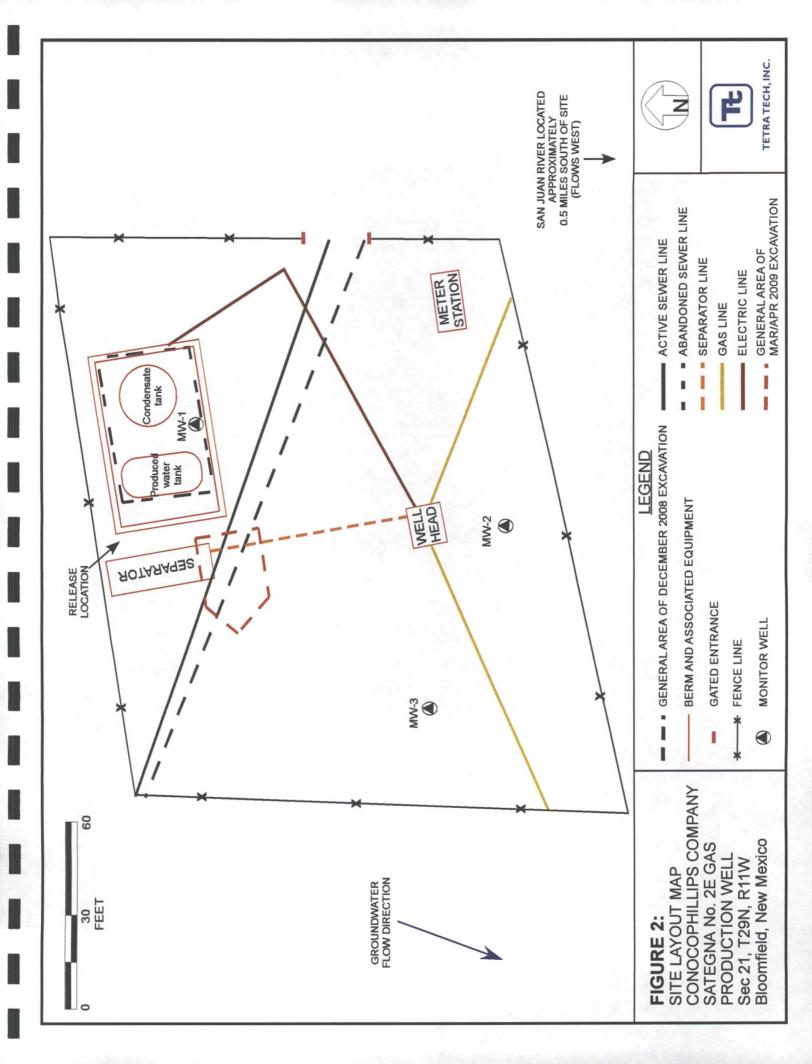
Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

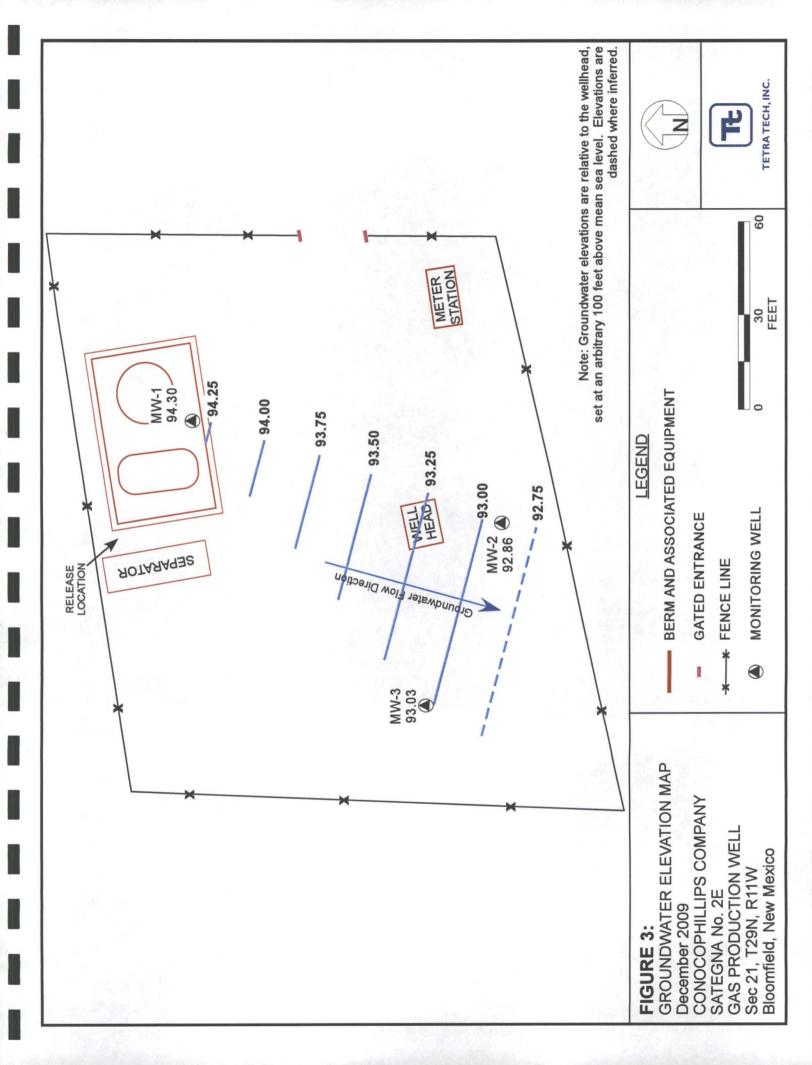
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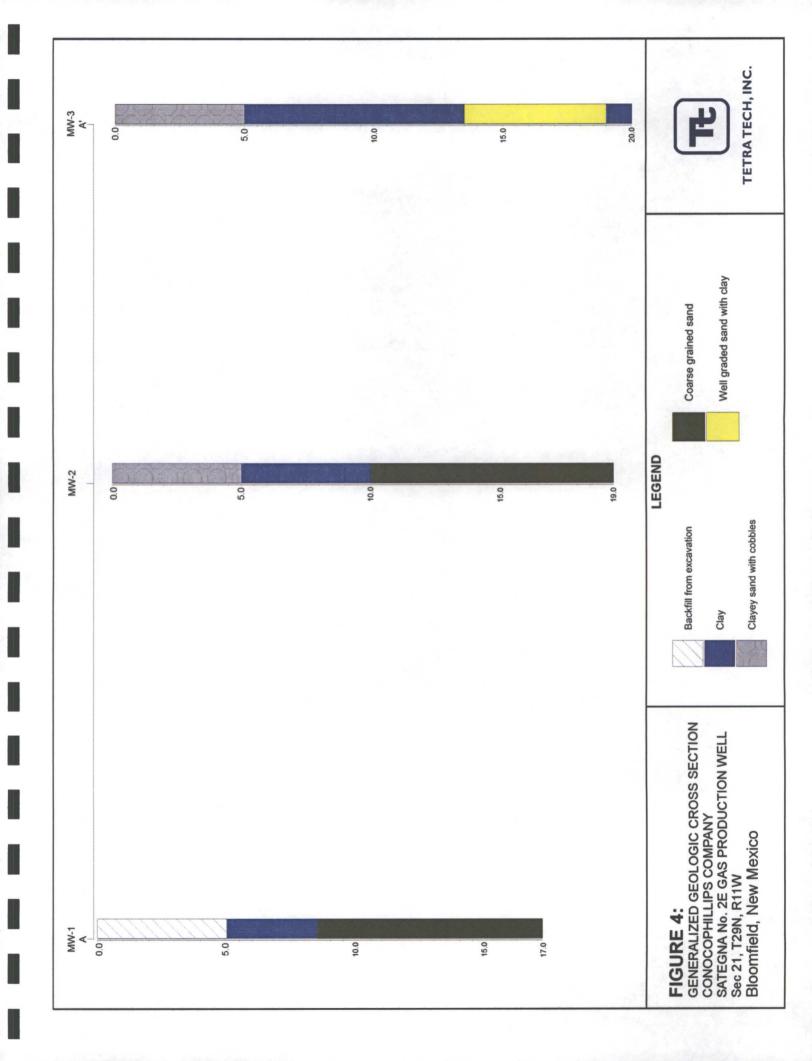
## **FIGURES**

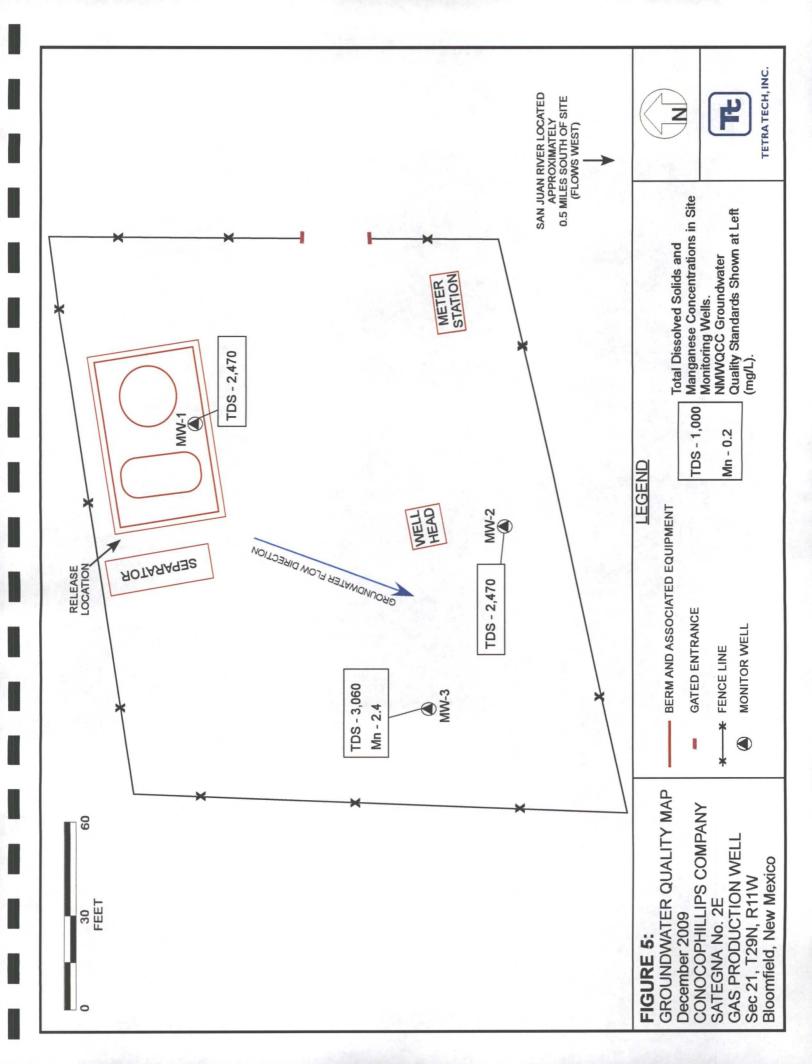


ConocoPhillips High Resolution Aerial Imagery - 2008









## TABLES

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Table 1. Site History Timeline

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Date	Activity
November 24, 2008	Approximately eight (8) barrels of condensate were found to have spilled from an on-Site, aboveground storage tank (AST); corrosion was thought to be the cause of the release. Form C-141 was filled out by ConocoPhillips staff and notice was given to Brandon Powell via electronic mail. Form C-141 stated that the well was shut down and the production tank was emptied. The spilled fluids remained in the berm and none of the condensate was recovered.
November 25, 2008	Envirotech Inc. of Farmington, NM (Envirotech) obtained heated headspace soil results from just outside of the affected area; results were 0.2 and 1.1 parts per million (ppm). Depth of soil samples was not noted. Envirotech hand augered two soil borings to groundwater at a depth of approximately 8 feet below ground surface (bgs) and submitted groundwater samples for analysis. Results were below OCD action levels for benzene, toluene, ethylbenzene, and total xylenes (BTEX) in groundwater. Envirotech notes that groundwater levels in the soil borings increased to approximately 5 feet bgs, and groundwater beneath the Site was thought to be under confined aquifer conditions (Kerr, 2009).
December 4, 2008	Envirotech returned to the Site and obtained grab and composite soil samples from an excavation measuring approximately* 30 feet by 18 feet by 5 feet deep (Figure 2). Heated headspace results show values ranging from 6.5 ppm in a grab soil sample obtained from the bottom of the excavation to 1,400 ppm from a composite soil sample taken from the former location of the AST. Total petroleum hydrocarbons (TPH), BTEX, and chloride samples were obtained for soils analysis, and results were all below OCD action levels for BTEX; one soil sample obtained for chlorides showed results of 370 milligrams per kilogram (mg/kg). Results for TPH analysis obtained through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of through EPA method 418.1 for the composite soil sample taken at the site of through EPA method 418.1 for the composite soil sample obtained at the location of the below ground tank was located within the berm and adjacent to the AST (Figure 2). Results of all other soil analyses at all other sampling locations were below OCD action levels (Appendix A).
December 5, 2008	Envirotech notes seepage of groundwater into the excavation on December 4, 2008, and returns to the Site on December 5, 2008 to collect groundwater samples from the excavation for BTEX analysis. (Kerr, 2009). The OCD groundwater action levels for benzene, toluene, and total xylenes are 10 ug/l, 750 ug/l, and 620 ug/l, respectively. Benzene was found at a concentration of 327 ug/l, toluene was detected at 4,300 ug/l, and total xylenes were found at a concentration of 8,480 ug/L (Appendix A).
Week of December 8, 2008	
600	& Tetra Tech conducted a Site visit to determine proposed groundwater monitoring well locations.
March 4-5, 2009 March 2009	letra Lech installed three groundwater monitor wells at the Site: MW-1, MW-2, and MW-3. Construction and trenching for relocation of well operational equipment and tanks uncovered additional hydrocarbon impacted soils between the well head and separator tank. Work was stopped.
April 2, 2009	Tetra Tech conducted the first quarterly groundwater monitoring event at the Site.

Tetra Tech, Inc.

Conoco Phillips Company - Sategna No. 2E

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Table 1. Site History Timeline

Date	Activity
	Envirotech created an exploratory trench between the proposed location of the separator tank and the well head and
	found an abandoned sewer line associated with hydrocarbon-impacted soils. The trenching was stopped and the
April 2, 2009	excavated soils were stockpiled on site.
	Tetra Tech provided oversight for removal of approximately 96 cubic yards of hydrocarbon-impacted soils located
April 23 - 24, 2009	west of the tank berm and in the vicinity of the abandoned sewer line.
June 17, 2009	Tetra Tech conducted the second quarterly groundwater monitoring event at the Site.
September 28, 2009	Tetra Tech conducted the third quarterly groundwater monitoring event at the Site.
December 14, 2009	Tetra Tech conducted the fourth quarterly groundwater monitoring event at the Site.

Table 2 - Groundwater Elevation Data Summary

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
				4/2/2009	5.15	94.21
MW-1	20.30	22-172	92 00	6/17/2009	5.43	93.93
	00.04	-		9/28/2009	5.45	93.91
				12/14/2009	5.06	94.30
				4/2/2009	5.96	92.82
	20 an	3 33 _ 18 33	08.78	6/17/2009	6.21	92.57
7-111	00.07		0.00	9/28/2009	6.23	92.55
				12/14/2009	5.92	92.86
				4/2/2009	5.70	92.96
MW/-3	20.28	30-180	OR FE	6/17/2009	5.97	92.69
	07:07		0.00	9/28/2009	5.96	92.70
				12/14/2009	5.63	93.03

ft = Feet

TOC = Top of casing

bgs = below ground surface

\* Elevation relative to wellhead, set at 100 feet.

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Well ID	Date	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (μg/L)	Xylenes (μg/L)	Sulfate (mg/L)	Aluminum (mg/L)	lron (mg/L)	Manganese (mg/L)	Total Dissolved Solids (mg/L)
	4/2/2009	< 5	< 5	< 5	< 5	1790	7.25*	7.2*	2.7*	NA
641A/_1	6/17/2009	< 5	< 5	< 5	< 5	1420	6.87*	5.63*	2.37*	NA
	9/28/2009	< 1 >	1 >	< 1	<1 د	1770	<0.1	<0.02	0.243	2590
	12/14/2009	<1	1>	<1	4	NA	NA	AN	0.152	2470
	4/2/2009	< 5	<u> </u>	< 5	< 5	1850	10.1*	10.4*	6.76*	AN
C_WIM	6/17/2009	< 5	< 5	< 5	< 5	1610	5.24*	5.52*	2.6*	AN
7	9/28/2009	1 >	< 1	< 1	۰ ۲	1840	<0.1	0.0217	0.168	2260
	12/14/2009	4	<1	<1	<1	NA	NA	ΝA	0.158	2470
	4/2/2009	< 5 <	<u> </u>	< 5	< 5	2110	0.848*	1.02*	1.9*	AN
MW-3	6/17/2009	< 5	< 5	< 5	< 5	1650	0.702*	1.49*	2.22*	NA
~	9/28/2009	< 1	< 1	< 1	< 1	2230	<0.1	<0.02	2.68	3340
	12/14/2009	-1	<1	<1	<1	AN	NA	AN	2.4	3060
NMWQCC	NMWQCC Standards	10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)	600 (mg/L)	5 (mg/L)	1 (mg/L)	0.2 (mg/L)	1000 (mg/L)

Table 3. Groundwater Laboratory Analytical Results Summary

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Explanation ND = Not Detected NMWQCC = New Mexico Water Quality Control Commission mg/L = miligrams per liter (parts per million) mg/L = micograms per liter (parts per billion) NA = Not Analyzed - 0.7 = Below laboratory detection limit of 0.7 ug/L Bold = concentrations that exceed the NMWQCC limits \* = Results reported for total metals analysis, results cannot be compared to NMWQCC Standards for dissolved metals

Tetra Tech, Inc. -

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## **APPENDICES**

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APPENDIX A

Groundwater Sampling Field Forms

Project Name	Sategna 2E				Pa	geî	l_of:
Project No.							
Site Location	Bloomfield, NM						
Site/Well No.	<u>MW-1</u>	Coded/ Replicate No.			Date	2/14/09	
Weather	cdd, sunny	Time Sampling Began	125D		Time Samp Completed		5
		EVAC	UATION DATA				
Description of	Measuring Point (MP) To	p of Casing					
Height of MP	Above/Below Land Surface		N	IP Elevation			
Total Sounded	Depth of Well Below MP	20.3	v	Vater-Level Ele	vation		
Held	Depth to Water Below M	1P 5.04		ameter of Cas			
Wet	Water Column in W	ell 15.24		Ballons Pumped Prior to Samplin		1.5	
	– Gallons per Fo		6				
		ell 243 ×3=	7.29	Sampling Pump feet below land			
Purging Equip			_				
		SAMPLING DAT	A/FIELD PAR/	METERS			
	Temperature (°C)		tivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L	) ORP (mV)	
1305	13.36	7.03 26	(注)	1.714	3.54	774	165
1306	13,24	<u>7.101 20</u>	29	1.701	2.80	77 0	16.49
1304		7.01 0-		<i></i>			1.77
Sampling Equ	ipment <u>Pu</u>	rge Pump/Baller					
<u>Const</u>	ituents Sampled	<u>Contair</u>	ner Description			<u>Preservative</u>	2
BTEX		3 40mL VOA's			HCI		
Ne, Mn, Al	· · · · · · · · · · · · · · · · · · ·	plastic			none		
$\frac{SO_4^2}{1}$	5	plastic			none	<u> </u>	
Remarks	duplicate	for BTEX	collecta	dQE	5 1315		
Sampling Pers		orpho, anris		•			
		•					i
			II Casing Volur 0.16				.
	Gai./ft. $1\frac{1}{4}$ " = 0.0		A 4 A	3" =	0.37	4" = 0.65	4 D

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Proiect Name	Sategna 2E					Pag	e2	of 3
Project No.			· · · · ·				- <u> </u>	
-	Bloomfield, NM							
Site/Well No.			Coded/ Replicate No.			Date	2/14/09	
Weather	cold, sur	m	Time Sampling Began	1228		Time Sampli Completed	<sup>ng</sup> 120	15
			EV	ACUATION DAT	A			
Description o	f Measuring Point	(MP) <u>Top</u>	of Casing					
Height of MP	Above/Below Land	d Surface	·		MP Elevation			
-	d Depth of Well B		20.9		Water-Level E			
	Depth to Wate		6.00		Diameter of Ca			
Wet		lumn in Wel	1.1 0/	6	Gallons Pump Prior to Sampl	ed/Bailed	<i>ң с</i>	
			· · · · · · · · · · · · · · · · · · ·	0.16			/ · J	
		ons per Fool		0.16				
	0				Sampling Pum			
			2.39x3:		Sampling Pum (feet below lan		·	
Purging Equi		llons in Wel pump / Baik	1 <u>2.39x3:</u> ər	<u>7.</u> 17	(feet below lar			
Purging Equip	pment <u>Purge</u>	pump / Baile	I 2.39 X 3 : er SAMPLING E	27.17 DATA/FIELD PAF	(feet below lar	nd	ORP (mV)	Vol
	Temperature	pump / Baile (°C)	2.39 <u>X</u> 3: er <u>SAMPLING E</u> pH Con	DATA/FIELD PAF	(feet below lar AMETERS ) TDS (g/L)	DO (mg/L)	2010.9	Vol Sgal
	pment <u>Purge</u>	pump / Baile (°C)	2.39 <u>X</u> 3: er <u>SAMPLING E</u> pH Con	DATA/FIELD PAF	(feet below lan RAMETERS	DO (mg/L)	/··	Vol Sgal Logal Fisqu
Time 1:230 12403	Temperature	pump / Baile (°C)	2.39 <u>X</u> 3: er <u>SAMPLING E</u> pH Con	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 2772 2752	(feet below lar AMETERS ) TDS (g/L)	DO (mg/L)	704.7	Vol Sgal Gjal Fisgr
Time 1:230 1:2403 1:244	Print Purge	pump / Baik	2.39 <u>X</u> 3: er <u>SAMPLING E</u> pH Con	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 2772 2752	(feet below lar AMETERS ) TDS (g/L)	DO (mg/L)	704.7	Vol Sgal Ggal FiSga
Time 1230 1240 1244 Sampling Equ	pment <u>Purge</u> Temperature	pump / Baik	SAMPLING E PH Con	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 27/12 27/12 27/05	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	DO (mg/L)	704.7	Vol Sgal FiSga
Time 1:230 1:2403 1:2404 1:2404 Sampling Equ	Print Purge	pump / Baik	PH Con	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 2712 2709 2709	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	DO (mg/L) 3.23 2.84 1.92	7010.7 204.2 204.2 203.1	<u>Vol</u> Sgal Gal FiSga
Time 1:230 1:243 1:244 Sampling Equ <u>Cons</u> BTEX	pment <u>Purge</u> Temperature	pump / Baik	BAMPLING C PH Con CO PH Con Co PH Con Co Co Co 3 40mL VOA's	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 2772 2705 2705	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	HCI	7010.7 204.2 204.2 203.1	<u>Vol</u> Sgal Ggal FiSga
Time 1,2,3,0 1,2,1(3) 1,2,1(3) 1,2,1(3) 1,2,1(3) Sampling Equ <u>Cons</u> BTEX Se, Mn, A	pment <u>Purge</u> Temperature	pump / Baik	BAMPLING C PH Con CO PH Con Co PH Con Co Co Co 3 40mL VOA's	27.17 DATA/FIELD PAF ductivity ( $\mu$ S/cm <sup>3</sup> 27.12 27.12 27.05 27.05 htainer Descriptions 3.62	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	DO (mg/L) 3.23 2.84 1.92	7010.7 204.2 204.2 203.1	<u>Vol</u> Sgal Ggal FiSga
Time 1:230 1:2403 1:2404 1:2404 Sampling Equ	pment <u>Purge</u> Temperature	pump / Baik	SAMPLING E pH Con PH Con PH Con PH Con PH Con SAMPLING E Cor SAMPLING E SAMPLING	DATA/FIELD PAF ductivity (µS/cm <sup>3</sup> 2772 2705 2705	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	HCI none	7010.7 204.2 204.2 203.1	<u>Vol</u> Sgal Ggal FiSga
Time 1:2-30 1:2-103 1:2-104 1:2-104 Sampling Equ Sampling Equ <u>Cons</u> BTEX	pment <u>Purge</u> Temperature 12.(25 13.(2) 13.(2) uipment tituents Sampled	pump / Baik	PH Con PH Con PH Con PH Con PH Con PH Con SAMPLING I PH CON	$\frac{1}{2}$	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	HCI none	7010.7 204.2 204.2 203.1	<u>Vbl</u> Sgal Gjal FiSga
Time 1230 1240 1244 Sampling Equ Cons BTEX So <sub>4</sub> <sup>2</sup> , T(	pment <u>Purge</u> Temperature 12.(25 13.(2) 13.(2) uipment tituents Sampled	pump / Baik	SAMPLING E pH Con PH Con PH Con PH Con PH Con SAMPLING E Cor SAMPLING E SAMPLING	$\frac{1}{2}$	(feet below lar AMETERS ) TDS (g/L) 1. 7(oc 1. 758	HCI none none	7010.7 204.2 204.2 203.1	Vol Sgro Gra Fi Sgra
Time 1,2,3,0 1,2,103 1,2,103 1,2,103 Sampling Equ <u>Cons</u> Sampling Equ <u>Sampling Equ</u> Sampling Equ <u>Sampling Equ</u> South the second	pment <u>Purge</u> Temperature 12.(25 13.(2) 13.(2) uipment tituents Sampled	pump / Baik	SAMPLING E pH Con PH Con PH Con PH Con AB PH Con AB PH Con AB PH Con AB PH Con AB PH Con AB PH Con AB AB AB AB AB AB AB AB AB AB	$\frac{1}{2}$	(feet below lan AMETERS ) TDS (g/L) 1.7(ct) 1.758 n n	HCI none none	7010.7 204.2 204.2 203.1	Vol Sgal Ggal Fi Sga

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TETRATECH, INC.

## WATER SAMPLING FIELD FORM

Project Name Sategna 2E			Page <u>3</u> of <u>3</u>
Project No.			
Site Location Bloomfield, NM			
Site/Well No. <u>MW-3</u>	Coded/ Replicate No.		Date 12/14/69
Weather <u>CDId</u> , SWMY	Time Sampling Began	1320	Time Sampling Completed 1330
, )	EVACU	ATION DATA	
Description of Measuring Point (MP) Top	of Casing		
Height of MP Above/Below Land Surface		MP E	ilevation
Total Sounded Depth of Well Below MP	20.28	– Wate	r-Level Elevation
Held Depth to Water Below MF		_	eter of Casing 2"
Wet Water Column in Wel		Gallo	ns Pumped/Bailed to Sampling 7.25
Gallons per Foo	t0.1	<u>6</u>	alian Duman lataka Catting
Gallons in Wei	2.34 × 3=	T.D. (feet	bling Pump Intake Setting below land surface)
Purging Equipment Purge pump / Baile	er		
	SAMPLING DAT		
Time         Temperature (°C)           13.21         14.03           13.25         14.03           13.25         14.24	7. 17: 3 7.13 3	785 7	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
		l	
	e Pump/Bailer		
Constituents Sampled		er Description	<u>Preservative</u>
BTEX	3 40mL VOA's		
	plastic		none
<u>so,2</u> TD5	plastic		none
Remarks			
Sampling Personnel	Mathews	, Ana n	loreno
	Well	Casing Volumes	
Gal./ft. 1 ¼" = 0.077 1 ½" = 0.10	2" = 2½" =	0.16 0.24	3'' = 0.37 $4'' = 0.653'' \frac{1}{2} = 0.50 6'' = 1.46$

...

R:\Share\Maxim Forms\Field Forms\Sategna 2E Water Sampling Field Forms.xls

## **APPENDIX B**

Groundwater Laboratory Analysis Reports



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

## **Conoco Phillips**

	Analysis Number: 20605	
Report To:	Project Name:	COP Sategna 2E
Tetra Tech, Inc.	Site:	Bloomfield, 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:	12/28/2009

## This Report Contains A Total Of 14 Pages

## Excluding This Page, Chain Of Custody

And

Any Attachments

12/28/2009

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



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

## **Case Narrative for:**

## **Conoco Phillips Certificate of Analysis Number:**

<u>091</u>	20605	
Report To:	Project Name:	COP Sategna 2E
Tetra Tech, Inc.	<u>Site:</u>	Bloomfield, 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:	12/28/2009

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:

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 guestions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

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

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

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

· Da Cardenas

09120605 Page 1 12/28/2009

Erica Cardenas Project Manager

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



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

### **Conoco Phillips**

		Certifi	cate of Analysis Nun	nber:	
			<u>09120605</u>		
<u>Report To:</u>	Tetra Tech, Inc.			Project Name:	COP Sategna 2E
	Kelly Blanchard			Site:	Bloomfield, NM
	6121 Indian School Ro	ad, N.E.		Site Address:	
	Suite 200			one Address.	
	Albuquerque				
	NM			PO Number:	
	87110-			State:	New Mexico
	ph: (505) 237-8440	fax: (505) 881-3283		State Cert. No.:	
Fax Ta:					
<u>Fax To:</u>				Date Reported:	12/28/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-2	09120605-01	Water	12/14/2009 12:45:00 PM	12/15/2009 9:00:00 AM	292713	
MW-1	09120605-02	Water	12/14/2009 1:05:00 PM	12/15/2009 9:00:00 AM	292713	
MW-3	09120605-03	Water	12/14/2009 1:30:00 PM	12/15/2009 9:00:00 AM	292713	
Duplicate	09120605-04	Water	12/14/2009 1:15:00 PM	12/15/2009 9:00:00 AM	292713	
Trip Blank	09120605-05	Water	12/14/2009 4:30:00 PM	12/15/2009 9:00:00 AM	292713	

- On Oardinas ۶

Erica Cardenas Project Manager

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

> > . Ted Yen Quality Assurance Officer

12/28/2009

Date

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#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TX 77054

(713) 660-0901

/-2		Colle	cted: 12	2/14/2009	12:45	SPL San	ple ID:	0912	0605-01
		Site:	Bloc	omfield, N	м				
Resu	lt QUAL	Rep	Limit.	Dil	. Factor	Date Anal	yzed A	nalyst	Seq. #
D 6010B, DISSOLVE	D			MCL	SV	V6010B	Units	: mg/L	
0.15	8		0.005		1	12/23/09	18:20 E	G	5342395
Prep Date	Prep Initia	Is Prep F	actor						·
12/15/2009 19:30	M_W	1.00							
SOLIDS				MCL	SN	12540 C	Units	: mg/L	
247	0		20		2	12/15/09	18:00 CF	S	5330449
S BY METHOD 826	)B			MCL	SV	V8260B	Units	: ug/L	
N	)		1		1	12/19/09	20:58 J	0	5335442
N	)	-	1		1	12/19/09	20:58 J	C	5335442
NI	)		1		1	12/19/09	20:58 J	C	5335442
NI	)		1		1	12/19/09	20:58 J	0	5335442
N	)		1		1	12/19/09	20:58 J	0	5335442
NI	)		1		1	12/19/09	20:58 J	C	5335442
ane-d4 10	1	% 7	0-130		1	12/19/09	20:58 J	0	5335442
enzene 90.	6	% 7	4-125		1	12/19/09	20:58 J	0	5335442
96.	2	% 8	2-118		1	12/19/09	20:58 J	C	5335442
	Resu D 6010B, DISSOLVE 0.153 Prep Date 12/15/2009 19:30 SOLIDS 2470 SBY METHOD 8260 NE NE NE NE NE NE NE NE NE NE	Result         QUAL           D 6010B, DISSOLVED         0.158           0.158         0.158           Prep Date         Prep Initia           12/15/2009 19:30         M_W           SOLIDS         2470           SS BY METHOD 8260B         ND           ND         101	Result         QUAL         Rep           D 6010B, DISSOLVED         0.158           0.158         0.158           Prep Date         Prep Initials         Prep F           12/15/2009 19:30         M_W         1.00           SOLIDS           2470           S BY METHOD 8260B           ND         ND           ND         ND           ND         ND           ND         ND           ND         ND           ND         90.6	Result         QUAL         Rep.Limit           D 6010B, DISSOLVED         0.158         0.005           0.158         0.005           Prep Date         Prep Initials         Prep Factor           12/15/2009 19:30         M_W         1.00           SOLIDS           2470         20           S BY METHOD 8260B           ND         1           ND         1	Site:         Bloomfield, N           Result         QUAL         Rep.Limit         Diff           D 6010B, DISSOLVED         MCL         0.005         MCL           0.158         0.005         MCL         0.005           Prep Date         Prep Initials         Prep Factor         MCL           12/15/2009         19:30         M_W         1.00         MCL           SOLIDS         MCL         2470         20         MCL           SS BY METHOD 8260B         MCL         MCL         MCL           ND         1         1         1           ND         1         1	Site:         Bloomfield, NM           Result         QUAL         Rep.Limit         Dil. Factor           D 6010B, DISSOLVED         MCL         SV           0.158         0.005         1           Prep Date         Prep Initials         Prep Factor           12/15/2009 19:30         M_W         1.00           SOLIDS         MCL         SN           2470         20         2           SS BY METHOD 8260B         MCL         SN           ND         1         1           ND         1	Site:         Bloomfield, NM           Result         QUAL         Rep.Limit         Dil. Factor         Date Anal           D 6010B, DISSOLVED         MCL         SW6010B           0.158         0.005         1         12/23/09           Prep Date         Prep Initials         Prep Factor         MCL         SM2540 C           12/15/2009 19:30         M_W         1.00         2         12/15/09           SOLIDS         MCL         SM2540 C         2         12/15/09           2470         20         2         12/15/09           SS BY METHOD 8260B         MCL         SW8260B           ND         1         1         12/19/09           ND         1	Site:         Bloomfield, NM           Result         QUAL         Rep.Limit         Dil. Factor         Date Analyzed         A           D 6010B, DISSOLVED         MCL         SW6010B         Units           0.158         0.005         1         12/23/09 18:20         E           Prep Date         Prep Initials         Prep Factor           12/15/2009 19:30         M_W         1.00         1         12/15/09 18:00         C           SOLIDS         MCL         SM2540 C         Units         2470         20         2         12/15/09 18:00         CF           SBY METHOD 8260B         MCL         SW8260B         Units         3/1           ND         1         1         12/19/09 20:58         3/4           ND         1         1         12/19/09 20:58         3/4	Site:         Bloomfield, NM           Result         QUAL         Rep.Limit         Dil. Factor         Date Analyzed         Analyst           D 6010B, DISSOLVED         MCL         SW6010B         Units: mg/L           0.158         0.005         1         12/23/09 18:20         EG           Prep Date         Prep Initials         Prep Factor         1         12/15/2009 19:30         M_W         1.00           SOLIDS         MCL         SM2540 C         Units: mg/L         Voltable         Voltable

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL) D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW	/-1		Colle	cted: 1	2/14/200	9 13:0	5 SPL San	n <mark>ple I</mark>	<b>D:</b> 0912	0605-02
			Site:	Bloc	omfield,	NM				
Analyses/Method	Resul	t QUAL	Rep	.Limit	Ĩ	Dil. Fac	tor Date Ana	yzed	Analyst	Seq. #
METALS BY METHO	D 6010B, DISSOLVE	)			MCL		SW6010B	Un	its: mg/L	
Manganese	0.152			0.005		1	12/23/09	18:25	EG	5342396
Prep Method	Prep Date	Prep Initials	Prep F	actor						
SW3005A	12/15/2009 19:30	M_W	1.00							
TOTAL DISSOLVED	SOLIDS				MCL		SM2540 C	Un	its: mg/L	
Total Dissolved Solids (Residue,Filterable)	2470			20		2	12/15/09	18:00	CFS	5330450
VOLATILE ORGANIC	S BY METHOD 8260	B			MCL		SW8260B	Un	its: ug/L	
Benzene	ND			1		1	12/19/09	21:25	JC	5335443
Ethylbenzene	ND			1		1	12/19/09	21:25	JC	5335443
Toluene	ND			1		1	12/19/09	21:25	JC	5335443
m,p-Xylene	ND			1		1	12/19/09	21:25	JC	5335443
o-Xylene	ND			1		1	12/19/09	21:25	JC	5335443
Xylenes,Total	ND			1		1	12/19/09	21:25	JC	5335443
Surr: 1,2-Dichloroetha	ane-d4 108		% 7	0-130		1	12/19/09	21:25	JC	5335443
Surr: 4-Bromofluorobe	enzene 93.3		% 7	4-125		1	12/19/09	21:25	JC	5335443
Surr: Toluene-d8	97.1		% 8	2-118		1	12/19/09	21:25	JC	5335443

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

- >MCL Result Over Maximum Contamination Limit(MCL)
- D Surrogate Recovery Unreportable due to Dilution
- MI Matrix Interference

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#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW	/-3		Colle	ected: 12	2/14/200	9 13:30	) SPL Sam	ple ID:	09120	0605-03
			Site	: Bloc	omfield,	NM				
Analyses/Method	Resu	It QUAL	Rep	o.Limit		Dil. Fact	or Date Anal	yzed A	nalyst	Seq. #
METALS BY METHO	D 6010B, DISSOLVE	D			MCL		SW6010B	Units	: mg/L	
Manganese	2.4	ļ		0.005		1	12/23/09	17:18 EC	3	5342382
Prep Method	Prep Date	Prep Initials	Prep F	actor						
SW3005A	12/15/2009 19:30	M_W	1.00							
TOTAL DISSOLVED	SOLIDS				MCL	5	SM2540 C	Units	: mg/L	
Total Dissolved Solids (Residue,Filterable)	3060	)		20		2	12/15/09	18:00 CF	S	5330451
VOLATILE ORGANIC	S BY METHOD 8260	В			MCL		SW8260B	Units	: ug/L	
Benzene	NC	)		1		1	12/19/09 2	21:53 JC	;	5335444
Ethylbenzene	NC	).		1		1	12/19/09 2	21:53 JC	;	5335444
Toluene	NC	)		1		1	12/19/09 2	21:53 JC	;	5335444
m,p-Xylene	NC	)		1		1	12/19/09	21:53 JC	)	5335444
o-Xylene	NC	)		1		1	12/19/09 2	21:53 JC	>	5335444
Xylenes,Total	NC	)		1		1	12/19/09 2	21:53 JC	>	5335444
Surr: 1,2-Dichloroetha	ane-d4 106	6	%	70-130		1	12/19/09 2	21:53 JC	>	5335444
Surr: 4-Bromofluorobe	enzene 93.8	3	%	74-125		1	12/19/09 2	21:53 JC	>	5335444
Surr: Toluene-d8	97.5	5	%	82-118		1	12/19/09 2	21:53 JC	>	5335444

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- $\ensuremath{\mathsf{B/V}}\xspace$  Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve
- TNTC Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL) D - Surrogate Recovery Unreportable due to Dilution MI - Matrix Interference

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HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client	Sample	ID:Duplicate	
--------	--------	--------------	--

Collected: 12/14/2009 13:15

SPL Sample ID:

09120605-04

			Sit	e: Bloc	omfield, NM					
Analyses/Method	Result	QUAL	R	ep.Limit	Dil. Fa	ctor	Date Analy	/zed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B				MCL	sv	V8260B	Un	its: ug/L	
Benzene	ND			1	1		12/19/09 2	2:21	JC	5335445
Ethylbenzene	ND			1	1		12/19/09 2	2:21	JC	5335445
Toluene	ND			1	1		12/19/09 2	2:21	JC	5335445
m,p-Xylene	ND			1	1		12/19/09 2	2:21	JC	5335445
o-Xylene	ND			1	1		12/19/09 2	22:21	JC	5335445
Xylenes,Total	ND			1	1		12/19/09 2	2:21	JC	5335445
Surr: 1,2-Dichloroethane-d4	110		%	70-130	1		12/19/09 2	2:21	JC	5335445
Surr: 4-Bromofluorobenzene	94.3		%	74-125	1		12/19/09 2	2:21	JC	5335445
Surr: Toluene-d8	97.4		%	82-118	1		12/19/09 2	2:21	JC	5335445

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank \* - Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)
 D - Surrogate Recovery Unreportable due to Dilution
 MI - Matrix Interference

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HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID: Trip Blank

Collected: 12/14/2009 16:30

SPL Sample ID: 09120605-05

			Sit	e: Bloc	omfield, NM					
Analyses/Method	Result	QUAL	R	ep.Limit	Dil. F	actor	Date Anal	yzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B				MCL	SI	N8260B	Un	its: ug/L	
Benzene	ND			1		1	12/19/09 2	22:50	JC	5335446
Ethylbenzene	ND			1		1	12/19/09 2	22:50	JC	5335446
Toluene	ND			1		1	12/19/09 2	22:50	JC	5335446
m,p-Xylene	ND			1		1	12/19/09 2	22:50	JC	5335446
o-Xylene	ND			1		1	12/19/09 2	22:50	JC	5335446
Xylenes,Total	ND			1		1	12/19/09	22:50	JC	5335446
Surr: 1,2-Dichloroethane-d4	113		%	70-130		1	12/19/09 2	22:50	JC	5335446
Surr: 4-Bromofluorobenzene	96.6		%	74-125		1	12/19/09 2	22:50	JC	5335446
Surr: Toluene-d8	97.8		%	82-118		1	12/19/09 2	22:50	JC	5335446

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)
 D - Surrogate Recovery Unreportable due to Dilution
 MI - Matrix Interference

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## **Quality Control Documentation**

J

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

### Conoco Phillips COP Sategna 2E

Analysis: Method:	Metals by Method 6 SW6010B	010B, Dissolv	/ed						(Order: Batch ID		9120605 6450		
	Met	hod Blank				Sample	s in Analy	tical Batcl	ו:				
RunID: ICP2_097	1223B-5342380	Units:	mg/L		ļ	Lab Sa	mple ID		Client	Sample	<u>ID</u>		
Analysis Date:	12/23/2009 17:09	Analyst:	EG		ĺ	091206	05-01C		MW-2				
Preparation Date:	12/15/2009 19:30	Prep By:	Μ_	Method SW30	05A (	091206	05-02C		MW-1				
			-		(	091206	05-03C		MW-3				
Mang	Analyte		Resul	t Rep Limit									
			<u> </u>	Laboratory Cor	ntrol Samp	ole (LC	<u>5)</u>						
	RunID	:	ICP2_0	91223B-5342381	Units:	mg,	/L						
	Analys	is Date:	12/23/2	2009 17:13	Analyst	: EG							
	Prepar	ation Date:	12/15/2	2009 19:30	Prep By	y: M_	Method	SW3005A					
	[	Analyt	e			sult	Percent	Lower	Upper				
				Ad	ded		Recovery	Limit	Limit				
	Mangane	se			1.000 *	1.033	103.3	80	12	0			
		<u>Matrix</u>	Spike	(MS) / Matrix S	pike Dupli	cate (N	ISD)						
	Sam	<u>Matrix</u> ble Spiked:		<u>(MS) / Matrix S</u> 0605-03	pike Dupli	cate (N	ISD)						
	Sam Runi	ole Spiked:	0912				I <u>SD)</u> g/L						
	Runi	ole Spiked:	0912 ICP2_	0605-03		: m	g/L						
	Runi Analy	ble Spiked: D:	0912 ICP2_ 12/23	0605-03 _091223B-534238	3 Units	:m st:E	g/L G	1 SW3005	Ä				
A	Runi Analy	ble Spiked: D: /sis Date:	0912 ICP2_ 12/23	0605-03 _091223B-534238 3/2009 17:23	3 Units Analy	:m st:E	g/L G			RPD	RPD	Low	High

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

Manganese

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

3.397

100.2

1.483

20

125

75

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

3.347

95.20

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.

2.395

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#### **Quality Control Report**

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

#### Conoco Phillips COP Sategna 2E

Analysis: Method:	Volatile Organics by SW8260B	Method 826	0B		WorkOrder: Lab Batch ID:	09120605 R291807
	Meth	nod Blank		Samples in Analytica	I Batch:	
RunID: Q_09	1219A-5335426	Units:	ug/L	Lab Sample ID	Client Sar	nple ID
Analysis Date:	12/19/2009 13:46	Analyst:	JC	09120605-01A	MW-2	
				09120605-02A	MW-1	
				00400005 004	LANA CO	

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	1.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	95.7	70-130
Surr: 4-Bromofluorobenzene	93.7	74-125
Surr: Toluene-d8	96.9	82-118

Lab Sample ID	Client Sample ID
09120605-01A	MW-2
09120605-02A	MW-1
09120605-03A	MW-3
09120605-04A	Duplicate
09120605-05A	Trip Blank

Laboratory Con	trol Sampl	<u>e (LCS)</u>
0.0040404.5005405		

RunID:	Q_091219A-5335425	Units:	ug/L
Analysis Date:	12/19/2009 13:20	Analyst:	JC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	18.3	91.6	74	123
Ethylbenzene	20.0	18.0	89.8	72	127
Toluene	20.0	18.1	90.4	74	126
m,p-Xylene	40.0	36.8	92.0	71	129
o-Xylene	20.0	18.7	93.4	74	130
Xylenes,Total	60.0	55.5	92.5	71	130
Surr: 1,2-Dichloroethane-d4	50.0	48.4	96.8	70	130
Surr: 4-Bromofluorobenzene	50.0	50.7	101	74	125
Surr: Toluene-d8	50.0	47.5	94.9	82	118

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

Sample Spiked: RunID: Analysis Date: 09120620-06 Q\_091219A-5335431 12/19/2009 15:59

Units: ug/L Analyst: JC

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.

09120605 Page 10 12/28/2009 2:22:47 PM



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#### Quality Control Report

## Conoco Phillips

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

COP Sategna 2E

Analysis: Volatile Organics by Method 8260B WorkOrder: 09120605 Method: SW8260B Lab Batch ID: R291807 MSD MSD MSD % RPD RPD Analyte Sample MS MS MS % Low High Spike Limit Result Spike Result Recovery Result Recovery Limit Limit Added Added Benzene ND 20 17.3 86.4 20 17.8 88.9 2.77 22 70 124 4.32 20 76 122 Ethylbenzene ND 20 17.1 85.4 20 16.4 81.8 86.0 4.03 24 80 117 ND 20 17.2 20 17.9 89.5 Toluene ND 40 87.2 40 35.1 87.7 0.595 20 69 127 m,p-Xylene 34.9 20 20 84 114 ND 20 94.9 1.89 o-Xylene 18.6 93.1 19.0 Xylenes, Total ND 60 53.5 89.2 60 54.1 90.1 1.05 20 69 127 70 Surr: 1,2-Dichloroethane-d4 ND 50 49.2 98.4 50 49.6 99.3 0.842 30 130 50 50 0.0606 30 74 125 Surr: 4-Bromofluorobenzene ND 51.1 102 51.1 102 50 96.7 50 48.0 96.1 0.699 30 82 118 Surr: Toluene-d8 ND 48.4

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.

09120605 Page 11 12/28/2009 2:22:47 PM



#### HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

**Quality Control Report** 

## Conoco Phillips COP Sategna 2E

Analysis: Method:	Total Dissolved So SM2540 C	ouas						VorkOrder: .ab Batch ID		091206 R29151	
	<u>Me</u>	ethod Blan	<u>k</u>			Samples in	Analytical B	atch:			
RunID: WET Analysis Date:	_091215N-5330436 12/15/2009 18:00 Analyte	Units: mg/L 0 Analyst: CFS		1	Lab Sample ID 09120605-01B 09120605-02B 09120605-03B		<u>Client Sam</u> MW-2 MW-1 MW-3		<u>e ID</u>		
Т	otal Dissolved Solids (Reside	ue,Filterable)	)	ND 10							
	Labora	tory Contr	ol Sample	/Laboratory	Control Sa	nple Duplica	te (LCS/LCS	<u>D)</u>			<u>, -</u>
	RunID: Analysis Da		/ET_091215 2/15/2009	5N-5330438 18:00		ng/L CFS					
	Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Fotal Dissolved	Solids (Residue, Filterabl	200.0	199.0	99.50	200.0 mple Duplic	202.0	101.0	1.5	10	95	5 107
	A 	nalysis Date		/15/2009 18:		alyst: CFS					
	Analyte			Sampl Resul		RPD	RPD Limit				
	Т	otal Dissolv	ed Solids (	Residue,Filte	rabl 6	36 688	0.291	10			
Qualifiers:	ND/U - Not Detected at the Reporting Limit B - Analyte Detected In The Associated Method Blank J - Estimated Value Between MDL And PQL E - Estimated Value exceeds calibration curve					Matrix Interfe Recovery Unre					

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.

09120605 Page 12 12/28/2009 2:22:47 PM Sample Receipt Checklist And Chain of Custody

09120605 Page 13 12/28/2009 2:22:48 PM

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HOUSTON LABORATORY

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

## Sample Receipt Checklist

Workorder:         09120605           Date and Time Received:         12/15/2009 9:00:00 AM           Temperature:         1.8°C		Received By: Carrier name: Chilled by:	RE Fedex-Standard Overnight Water Ice
1. Shipping container/cooler in good condition?	Yes 🗹	No 🗌	Not Present
2. Custody seals intact on shippping container/cooler?	Yes 🗹	No 🗌	Not Present
3. Custody seals intact on sample bottles?	Yes	No 🗌	Not Present
4. Chain of custody present?	Yes 🗹	No 🗌	
5. Chain of custody signed when relinquished and receive	ed? Yes 🗹	No 🗌	
6. Chain of custody agrees with sample labels?	Yes 🗹	Νο	
7. Samples in proper container/bottle?	Yes 🗹	No	
8. Sample containers intact?	Yes 🗹	No 🗌	
<b>9.</b> Sufficient sample volume for indicated test?	Yes 🗹	No 🗌	
10. All samples received within holding time?	Yes 🗹	No 🗔	
11. Container/Temp Blank temperature in compliance?	Yes 🗹	No 🗌	
12. Water - VOA vials have zero headspace?	Yes 🗹		Vials Not Present
13. Water - Preservation checked upon receipt (except VO/	<b>4*)?</b> Yes □	No 🗌	Not Applicable
*VOA Preservation Checked After Sample Analysis			
SPL Representative:	Contact Date & T	ime:	
Client Name Contacted:			
Non Conformance Issues:			
Client Instructions:			
			and the second

				1bu	DC1/20/605 BPL Workorder No.	076	PL Wor	korder	No.	$\vdash$	20	292713	
	SPL, Inc.				) ) )	} 2⊞	R	4					
Analysis Requ	Analysis Request & Chain of Custody Record	rd				<u> </u>	-	1	) ) <b>7</b>	ă I	age	of	
Client Name: Tchra. Tech /	11 iv				ottle size	ce pres.			and the second s	anba	ed Ar	Analysis	
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City HIDUCIECTIC Stall		1278-LZ 0		-X 3	і віа =0th iv=(	radio	S	-	W W	$\overline{\alpha}$			
Client Contact: Kollin, blochore	Email:	huchand	atatata		)† :	<u>EON</u> =X				Pt			
Project Name No.: 50 CONO. 2E			009.	uə=2 †105	Z0†=	10=3 [H= zog	eino		2	-+>			
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Concophillid	-0	Ph:		S=7 M=7	zo8= il l= s[g= bla	7H 2H 208:		12	7 7	<b>M</b> 7			
SAMPLE ID	DATE	TIME	comp grab	IS M		=[		1	Z	5			
2- MM	12.14.09	1245	×	3	V 40	0	ц	X					
MW-2	12-14-09	1245	X	3	-A	M	2		× ×				
1-cnu	12.14.09	1305	×	3	< ا ن	10	3	×					
1- (MW	12,14,09	1305	×	3	4	8	え		メメ	. 1			
MW-3	12.14.09	1330	×	3	4 7	101	3	X					
MM-2	12. H.OA	0561	×	3	P 18/32	32	え		XXX				
Dualicate	P0. H1.21	1315	×	M	V 40	0	60	×					
Trip Blank	12.14.09	1630		3	V 40	- 0	2	×					
											[		
Client/Consultant Remarks: Please A. Her's Dresene netals ambiner		bebre and us	Laboratory remarks:								Intact? Ice? Temp:		zz
Requested TAT Spe	12	ts Results: Fax	<b>J</b> Email	PDF	Specia	Special Detection Limits (specify):	on Limi	ts (spec	ify):			PM review (initial):	:(la
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Standard	PUT ROOM	a NULLED	Clerch	645	22	172.14.09	2. Rec	ived by	••				
3.R	3.Reinquished by:		date		time			4. Received by:					
Other     5. H       Rush TAT requires prior notice	5. Relinquished by:		date [2]	15-109	time 0000	00		A MAN	Laboratory:	tory:			
<b>Base Interchange Drive</b> Houston, TX 77054 (713) 660-0901	rive 60-0901	Scott, LA	500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775	(ffery Pa 7) 237-41	rkway 75			Trav		459 H ty MI 4	459 Hughes Drive 3, MI 49686 (231)	☐ 459 Hughes Drive Traverse City MI 49686 (231) 947-5777	-

# 2009 QUARTERLY GROUNDWATER MONITORING REPORT

# CONOCOPHILLIPS COMPANY SATEGNA No. 2E PRODUCTION FACILITY SAN JUAN COUNTY, NEW MEXICO

OCD No. - TBD API # 30-045-24060

**Prepared for:** 

**ConocoPhillips** 

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

**Prepared by:** 



TETRATECH, INC.

6121 Indian School Rd. NE, Suite 200 Albuquerque, NM 87110 Tetra Tech Project No. 11586900'90

May 2010

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- 3. Groundwater Laboratory Analytical Results Summary

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Appendix B. Groundwater Laboratory Analysis Regionts

# QUARTERLY GROUNDWATER MONITORING REPORT SATEGNA No. 2E, SAN JUAN COUNTY, NEW MEXICO SEPTEMBER 2009

# **I.0 INTRODUCTION**

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This report presents the results of the September 2009 quarterly groundwater monitoring event conducted by Tetra Tech, Inc. (Tetra Tech) at the ConocoPhillips Company (ConocoPhillips) Sategna No. 2E gas well production facility (Site) located on private land within Section 21, Township 29N, Range 11W of Bloomfield, New Mexico (**Figure 1**). A Site detail map is included as **Figure 2**.

## I.I Site Background

The historical timeline for the privately-owned Site is summarized below, and is presented in more detail in **Table 1**.

On November 24, 2008, approximately 8 barrels of condensate were found to have been released from an on-Site, aboveground storage tank (AST) as a result of corrosion in the tank. New Mexico Oil Conservation Division (OCD) Form C-141 was filled out by ConocoPhillips staff and notice was given to OCD via electronic mail. Form C-141 stated that the well was shut down and the production tank was emptied. The spilled fluids remained in the berm and none of the condensate was recovered. On November 25, 2008, Envirotech Inc. of Farmington, New Mexico (Envirotech) obtained grab soil samples from just outside the affected area for analysis of organic vapors. Results of this analysis were below OCD recommended action levels. Envirotech also hand-augered 2 soil borings to groundwater at a depth of approximately 8 feet below ground surface (bgs) and submitted groundwater samples to an analytical laboratory for benzene, toluene, ethylbenzene and xylenes (BTEX) analysis. Results of these analyses revealed BTEX in concentrations below OCD action levels for these constituents.

On December 4, 2008, Envirotech returned to the Site and obtained grab and composite soil samples from an excavation measuring approximately 30 feet by 18 feet by 5 feet deep (**Figure 2**). Heated headspace organic vapor results ranged from 6.5 parts per million (ppm) in a grab soil sample obtained from the bottom of the excavation to 1,400 ppm from a composite soil sample taken from the former location of the AST; the OCD action level for organic vapors is 100 ppm. Total petroleum hydrocarbons (TPH), BTEX, and chloride samples were obtained for soils analysis, and results were all below OCD action levels for BTEX. Results for TPH analysis obtained through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of the AST revealed results of 205 mg/kg; the OCD action level is 100 mg/kg. Results for TPH analysis obtained through EPA method 418.1 for the composite soil sample obtained at the location of the below ground tank revealed results of 521 mg/kg. The below ground tank was located within the berm and adjacent to the AST (**Figure 2**).

Envirotech noted seepage of groundwater into the excavation on December 4, 2008, and returned to the Site on December 5, 2008 to collect groundwater samples from the excavation for BTEX analysis. The OCD groundwater action levels for benzene, toluene, and total xylenes are 10 ug/l, 750 ug/l, and 620 ug/l, respectively. Benzene was found at a concentration of 327 ug/l, toluene was detected at 4,300 ug/l, and total xylenes were found at a concentration of 8,480 ug/L. During the week of December 8, 2008, a vacuum truck was utilized to pump the groundwater seepage from the surface of the excavated area. Once removed, further excavation took place and groundwater slowly seeped into the excavation; this process was repeated a total of 4 times. The first time water was pumped from the surface of the excavation, a hydrocarbon odor and free-phase, light non-aqueous phase liquid (LNAPL) were present. By the fourth and last event, neither the hydrocarbon odor nor free-phase LNAPL was present in the groundwater seepage. Each pumping event removed approximately 30-60 barrels of liquid from the Site.

In January 2009, Tetra Tech conducted a site visit to determine proposed groundwater monitor well locations. Groundwater monitor wells were installed at the Site on March 4, 2009 and March 5, 2009. Tetra Tech conducted a baseline and quarterly groundwater monitoring event at the Site in April 2009. The second quarterly monitoring event for 2009 was conducted by Tetra Tech on June 17, 2009.

# 2.0 MONITORING SUMMARY AND SAMPLING METHODOLOGY AND RESULTS

## 2.1 Monitoring Summary

Prior to collection of groundwater samples from monitor wells MW-1, MW-2 and MW-3 for the first quarterly monitoring event at the Site, depth to groundwater in each well was determined. Results are displayed in **Table 2**.

The casings for monitor wells MW-1, MW-2, and MW-3 were surveyed in March 2009 using the wellhead as an arbitrary reference-elevation of 100 feet above mean sea level (amsl). The data obtained from the Site survey and from the September 2009 sampling event was used to create a groundwater elevation map for the Site (**Figure 3**). Using these data, it was determined that the groundwater flow direction at the Site is to the southwest. A generalized geologic cross section for the Site is presented in **Figure 4**.

## 2.2 Groundwater Sampling Methodology

During the groundwater monitoring event, Site monitor wells were purged of at least 3 casing volumes of groundwater using a 1.5-inch diameter, poly-vinyl chloride disposable bailer. While bailing each well, groundwater parameter data such as temperature, pH, conductivity, total dissolved solids (TDS), oxidation-reduction potential (ORP) and dissolved oxygen (DO) were collected using a YSI 556 multi-parameter sonde and results were recorded on a Tetra Tech Water Sampling Field Form (**Appendix A**). Collected groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation. Laboratory analysis of all groundwater samples collected during the September

Tetra Tech, Inc.

May 2010

2009 groundwater monitoring event was performed by Southern Petroleum Laboratory (SPL) of Houston, Texas.

During the September 2009 groundwater monitoring event, each groundwater sample collected was analyzed for dissolved metals (aluminum, iron, and manganese) by EPA Method 6010B; BTEX by EPA Method 8260B; total dissolved solids (TDS) by EPA Method 2540C; and for sulfate by EPA Method 375.4. Results of all analyses are displayed in **Table 3**.

This was the first quarter dissolved metals analysis was conducted. Total metals testing was conducted during prior events as requested by the Oil Conservation Division (OCD) in April of 2008; however, since all New Mexico Water Quality Control Commission (NMWQCC) drinking water standards pertain to dissolved metals concentrations, Tetra Tech requested and received approval from the OCD on September 8, 2009 to run dissolved metals analyses for only those metals which had exceeded the NMWQCC drinking water standards for metals previously run by total metals analysis. The dissolved metals samples were collected in unpreserved containers supplied by the laboratory, which were filtered and preserved by laboratory personnel prior to analysis for dissolved metals. Dissolved metals testing will continue for metals exceeding NMWQCC drinking water standards.

## 2.3 Groundwater Sampling Analytical Results

The 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). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedences of NMWQCC groundwater quality standards in Site monitor wells are discussed below.

• Sulfate

The NMWQCC domestic water supply groundwater quality standard for sulfate is 600 milligrams per liter (mg/L); groundwater samples collected from monitor well MW-1, MW-2 and MW-3 were found to contain sulfate at concentrations of 1,770 mg/L, 1,840 mg/L, and 2,230 mg/L, respectively.

### • Total Dissolved Solids

The NMWQCC domestic water supply groundwater quality standard for TDS is 1,000 mg/L; groundwater collected from monitor well MW-1, MW-2 and MW-3 was found to contain TDS concentrations of 2,590 mg/L, 2,260 mg/L, and 3,340 mg/L, respectively.

### Manganese

The NMWQCC domestic water supply groundwater quality standard for manganese is 0.2 mg/L; groundwater collected from monitor well MW-1 and MW-3 was found to contain manganese concentrations of 0.243 mg/L and 2.68 mg/L, respectively.

The corresponding laboratory analysis reports for the September 2009 groundwater sampling event, including quality control summaries, are included in **Appendix B**. A map showing sulfate, manganese and

TDS concentrations in Site wells during the September 2009 groundwater sampling event is included as **Figure 4**.

# 3.0 CONCLUSIONS AND RECOMMENDATIONS

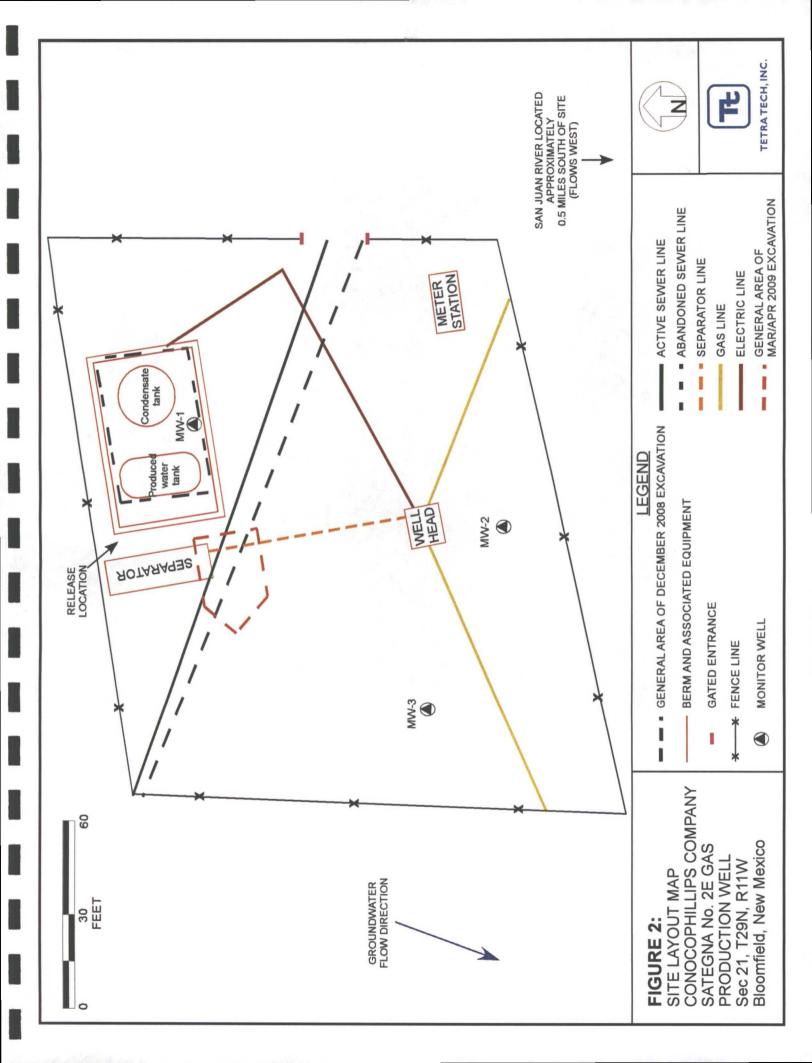
The next quarterly groundwater monitoring event at the Site is scheduled for December 2009. Concentrations of sulfate, dissolved manganese and TDS have been detected above NMWQCC groundwater quality standards in groundwater monitor wells at the Site. As a result, Tetra Tech recommends that these constituents continue to be monitored as part of the quarterly monitoring program at the Site. Dissolved aluminum and iron will be discontinued from the Site monitoring program since they were not found above NMWQCC groundwater quality standards. BTEX was not found above laboratory detection limits in any Site monitor well, and Tetra Tech will continue to monitor for BTEX parameters in order to move toward Site closure.

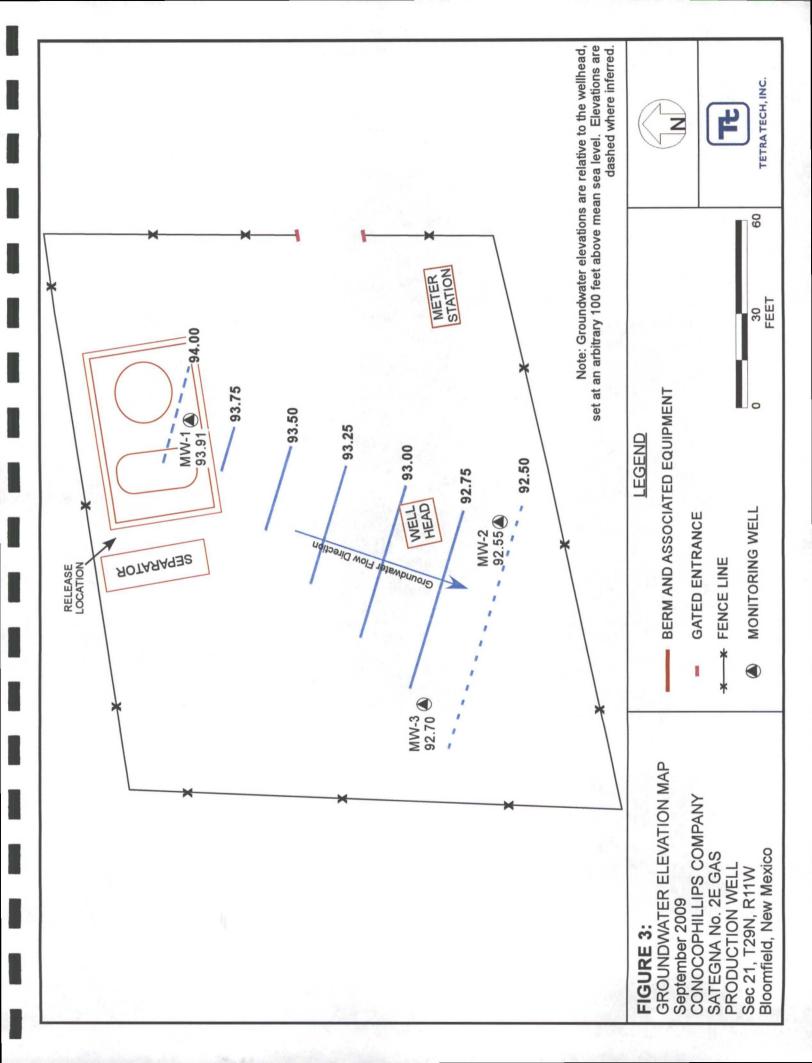
Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

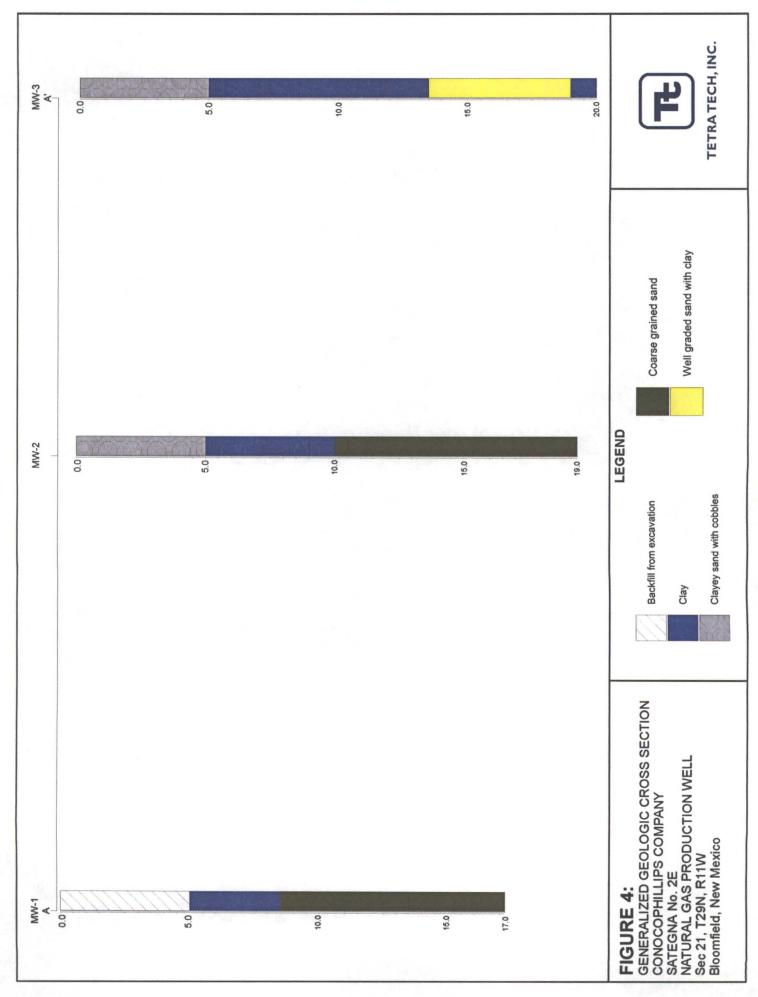
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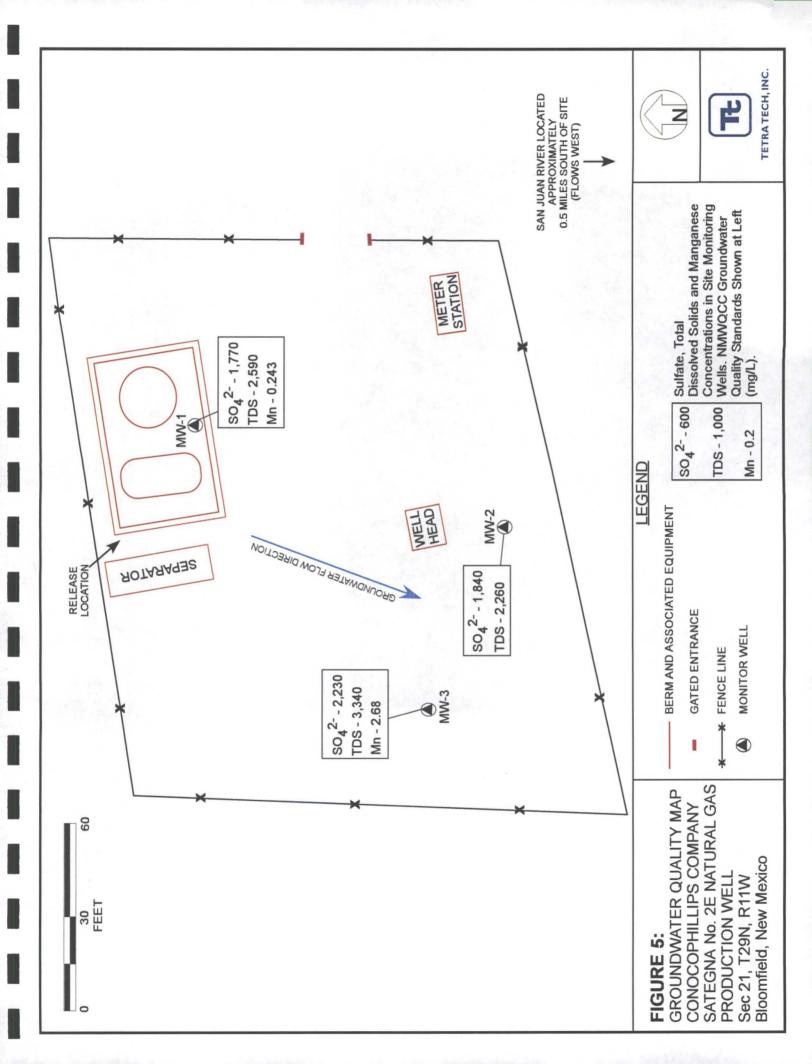
# **FIGURES**











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# TABLES

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Table 1. Site History Timeline

Date	Activity
November 24, 2008	Approximately eight (8) barrels of condensate were found to have spilled from an on-Site, aboveground storage tank (AST); corrosion was thought to be the cause of the release. Form C-141 was filled out by ConocoPhillips staff and notice was given to Brandon Powell via electronic mail. Form C-141 stated that the well was shut down and the production tank was emptied. The spilled fluids remained in the berm and none of the condensate was recovered.
November 25, 2008	Envirotech Inc. of Farmington, NM (Envirotech) obtained heated headspace soil results from just outside of the affected area; results were 0.2 and 1.1 parts per million (ppm). Depth of soil samples was not noted. Envirotech hand augered two soil borings to groundwater at a depth of approximately 8 feet below ground surface (bgs) and submitted groundwater samples for analysis. Results were below OCD action levels for benzene, toluene, ethylbenzene, and total xylenes (BTEX) in groundwater. Envirotech notes that groundwater levels in the soil borings increased to approximately to be under levels in the soil borings increased to approximately to be under confined aquifer conditions (Kerr, 2009).
December 4, 2008	Envirotech returned to the Site and obtained grab and composite soil samples from an excavation measuring approximately* 30 feet by 18 feet by 5 feet deep (Figure 2). Heated headspace results show values ranging from 6.5 ppm in a grab soil sample obtained from the bottom of the excavation to 1,400 ppm from a composite soil sample taken from the former location of the AST. Total petroleum hydrocarbons (TPH), BTEX, and chloride samples were obtained for soils analysis, and results were all below OCD action levels for BTEX; one soil sample obtained for chlorides showed results of 370 milligrams per kilogram (mg/kg). Results for TPH analysis obtained through Environmental Protection Agency (EPA) method 8015B for the composite soil sample taken at the site of the AST revealed results of 205 mg/kg; the OCD action level is 100 mg/kg. Results for TPH analysis obtained through EPA method 418.1 for the composite soil sample obtained at the location of the below ground tank was located within the berm and adjacent to the AST (Figure 2).
December 4, 2008 December 5, 2008	Results of all other soil analyses at all other sampling locations were below OCD action levels (Appendix A). Envirotech notes seepage of groundwater into the excavation on December 4, 2008, and returns to the Site on December 5, 2008 to collect groundwater samples from the excavation for BTEX analysis. (Kerr, 2009). The OCD groundwater action levels for benzene, toluene, and total xylenes are 10 ug/l, 750 ug/l, and 620 ug/l, respectively. Benzene was found at a concentration of 327 ug/l, toluene was detected at 4,300 ug/l, and total xylenes were found at a concentration of 8,480 ug/L (Appendix A).
Week of December 8, 2008	A vacuum truck was utilized to pump groundwater seepage from the surface of the excavated area. Once removed, further excavation took place and groundwater slowly seeped into the excavation; this process was repeated a total of four (4) times. The first time water was pumped from the surface of the excavation, a hydrocarbon odor and free-phase, light non-aqueous phase liquid (LNAPL) were present. By the fourth and last event, neither the hydrocarbon odor not on nor free-phase LNAPL was present in the groundwater seepage. Each pumping event removed approximately 30-60 barrels of liquid from the Site (Frost, 2009).
January 20, 2009 & January 30, 2009 March 4-5, 2009	Tetra Tech conducted a Site visit to determine proposed groundwater monitoring well locations. Tetra Tech installed three groundwater monitor wells at the Site: MW-1, MW-2, and MW-3.

Tetra Tech, Inc.

Conoco Phillips Company - Sategna No. 2E

1 of 2

Table 1. Site History Timeline

Construction and trenching for relocation of well operational equipment and tanks uncovered additMarch 2009impacted soils between the well head and separator tank. Work was stopped.April 2, 2009Tetra Tech conducted the first quarterly groundwater monitoring event at the Site.April 2, 2009Envirotech created an exploratory trench between the proposed location of the separator tank and found an abandoned sewer line associated with hydrocarbon-impacted soils. The trenching waApril 2, 2009excavated soils were stockpiled on site.April 2, 2009retra Tech provided oversight for removal of approximately 96 cubic yards of hydrocarbon-impacted soils. The trenching watApril 2, 2009west of the tank berm and in the vicinity of the abandoned sewer line.June 17, 2009Tetra Tech conducted the second quarterly groundwater monitoring event at the Site.June 28, 2009Tetra Tech conducted the third quarterly groundwater monitoring event at the Site.September 28, 2009Tetra Tech conducted the third quarterly groundwater monitoring event at the Site.	Date	Activity
impactTetraTetraEnviroFoundfoundexcaveexcave2009west o97 Tetra8, 2009Tetra		Construction and trenching for relocation of well operational equipment and tanks uncovered additional hydrocarbon
Tetra           Enviro           Enviro           found           found           excavs           excavs           2009           west o           9           2009           Tetra	March 2009	impacted soils between the well head and separator tank. Work was stopped.
Enviro found excava 2009 west o 9 Tetra 8, 2009 Tetra	April 2, 2009	
found excave excave Tetra 2009 west o 8, 2009 Tetra	•	Envirotech created an exploratory trench between the proposed location of the separator tank and the well head and
excava Tetra 2009 west o 90 Tetra 8, 2009 Tetra		found an abandoned sewer line associated with hydrocarbon-impacted soils. The trenching was stopped and the
Tetra west o Tetra Tetra	April 2, 2009	excavated soils were stockpiled on site.
west o Tetra Tetra		Tetra Tech provided oversight for removal of approximately 96 cubic yards of hydrocarbon-impacted soils located
Tetra Tetra	April 23 - 24, 2009	west of the tank berm and in the vicinity of the abandoned sewer line.
Tetra	June 17, 2009	•
	September 28, 2009	

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2 of 2

Table 2 - Groundwater Elevation Data Summary

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
				4/2/2009	5.15	94.21
MW-1	20.30	2.2 - 17.2	96.36	6/17/2009	5.43	93.93
				9/28/2009	5.45	93.91
				4/2/2009	2.96	92.82
MW-2	20.90	3.33 - 18.33	98.78	6/17/2009	6.21	92.57
	. ,			9/28/2009	6.23	92.55
				4/2/2009	5.70	92.96
MW-3	20.28	3.0 - 18.0	98.66	6/17/2009	5.97	92.69
				9/28/2009	5.96	92.70

ft = Feet

TOC = Top of casing

bgs = below ground surface

\* Elevation relative to wellhead, set at 100 feet.

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Tetra Tech, Inc.

ConocoPhillips Company - Sategna No. 2E

Well ID	Date	Benzene (μg/L)	Toluene (μg/L)	Ethylbenzene (μg/L)	Xylenes (µg/L)	Sulfate (mg/L)	Aluminum (mg/L)	lron (mg/L)	Manganese (mg/L)	Total Dissolved Solids (mg/L)
	4/2/2009	< 5	< 5	< 5	< 5	1790	7.25*	7.2*	2.7*	NA
MW-1	6/17/2009	< 5	< 5	< 5	< 5	1420	6.87*	5.63*	2.37*	NA
	9/28/2009	< 1	<1	<1	< 1	1770	<0.1	<0.02	0.243	2590
	4/2/2009	< 5	< 5	< 5	< 5	1850	10.1*	10.4*	6.76*	NA
MW-2	6/17/2009	< 5	< 5	< 5	< 5	1610	5.24*	5.52*	2.6*	NA
	9/28/2009	< 1	< 1	< 1	< 1	1840	<0.1	0.0217	0.168	2260
	4/2/2009	< 5	< 5	< 5	< 5	2110	0.848*	1.02*	1.9*	NA
MW-3	6/17/2009	< 5	< 5	< 5	< 5	1650	0.702*	1.49*	2.22*	NA
	9/28/2009	< 1	< 1	< 1	< 1	2230	<0.1	<0.02	2.68	3340
NMWQCC	NMWQCC Standards	10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)	600 (mg/L)	5 (mg/L)	1 (mg/L)	0.2 (mg/L)	1000 (mg/L)

Table 3. Groundwater Laboratory Analytical Results Summary

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

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# **APPENDICES**

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# **APPENDIX A**

Groundwater Sampling Field Forms

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TETRA TECH, INC.

# WATER SAMPLING FIELD FORM

Project Name Sategna 2E		Pa	ge of
Project No.			'/ \
Site Location Bloomfield, NM			
Site/Well No. MW-1 Weather SUMM/ Wind	Coded/ Replicate No. 130 Time Sampling 1240	5 Date 1 Time Same Completed	
	EVACUATION DATA		
Description of Measuring Point (MP)	Top of Casing	· · · · · · · · · · · · · · · · · · ·	
Height of MP Above/Below Land Surfa		MP Elevation	
Total Sounded Depth of Well Below M	P 20.9 V 20.3	Water-Level Elevation	
Held Depth to Water Belo Wet Water Column in	211 11 25	Diameter of Casing 2" Gallons Pumped/Bailed Prior to Sampling	7.5 gallons
Gallons per			J
Gallons in	Well	Sampling Pump Intake (feet below land	
Purging Equipment Purge pump	Bailer) 2:376+3=7.12	8	
Time Temperature (°C)	SAMPLING DATA/FIELD PARA		Tubiclity
Time         Temperature (°C) $12.39$ $14.31$ $301$ $14.31$ $301$ $14.37$ $301$ $14.37$ $301$ $14.37$ $301$ $14.37$ $15.659$	pH Conductivity (µS/cm <sup>3</sup> ) 7,09 /6(05 6,99 2557 7,09 2568	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	) ORP (mV) 904,7 143,1 904,7 144,1 834.5 142,6 1100 mgK
Sampling Equipment	Purge Pump/Bailer	M-10	
Constituents Sampled	Container Description		Preservative
BTEX	3 40mL VOA's	HCI	
Fe, Mn, Al	32 oz. plastic	-++NO3- NC	NE
SO4 <sup>2-</sup>	32 oz. plastic	none	
Remarks	,		
	1		
	Well Casing Volun	nes	
Gal./ft. 1 ¼" = 6	_	3" = 0.37	4" = 0.65
1 ½" =		3" ½ = 0.50	6" = 1.46

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TETRA TECH, INC.

# WATER SAMPLING FIELD FORM

Project Name Sategna 2E	Page of
Project No.	
Site Location Bloomfield, NM	
Site/Well No. MW- MW-3 Coded/ Replicate No. Time Sampling 1000	Date <u>9/28/09</u> Time Sampling
Weather 200 With Began 20	Completed 1215
EVACUATION DA	ТА
Description of Measuring Point (MP) Top of Casing	
Height of MP Above/Below Land Surface	MP Elevation
Total Sounded Depth of Well Below MP 20.9	Water-Level Elevation
Held Depth to Water Below MP 545 6.23	Diameter of Casing 2"
Wet Water Column in Well 14-05-14-67	Gallons Pumped/Bailed Prior to Sampling
Gallons per Foot 0.16	J
Gallons in Well	Sampling Pump Intake Setting (feet below land surface)
Purging Equipment Purge pump / Bailer 2.3472 X 3 = 47	<del>/11</del> - 7.02
SAMPLING DATA/FIELD PA	ARAMETERS
TimeTemperature (°C)pHConductivity (µS/cm)12111(µoQ)6.982629	
1213 16.17 6,96 2625	1.707 4094 181.8 1100 Max
12.15 16.06 7.00 2623	1.205 4.19 190.3
Sampling Equipment Purge Pumb/Bailer	
Constituents Sampled Container Description	
BTEX 3 40mL VOA's	
Fe, Mn, Al     32 oz. plastic	-HINOJ- NONE
SO4 <sup>2-</sup> 32 oz. plastic	none
Remarks <u>H20 is Clear</u>	
Sampling Personnel	
Well Casing Vo	lumes
Gal./ft. 1 ¼" = 0.077 2" = 0.16	3" = 0.37 4" = 0.65
$1 \frac{1}{2} = 0.10$ $2 \frac{1}{2} = 0.24$	$3^{"}\frac{1}{2} = 0.50$ $6^{"} = 1.46$

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TETR									
Project Name	Sategna 2E						Page	ə <u>3</u>	of <u>3</u>
Project No.									
Site Location	Bloomfield,	NM							
Site/Well No.	<u>MW-3</u>		Coded/ Replicat				Date 9/	280	9
Weather	Gunny.	Winch	Time Sa √ Began	ampling	122	5	Time Samplir Completed	<sup>19</sup> 3	20
	()	, C	1	EVACUA	ATION DATA	N			
Description o	f Measuring Po	oint (MP)	Top of Casing	)					
Height of MP	Above/Below	Land Surfac	се			MP Elevation		<u>.                                    </u>	
Total Sounde	d Depth of We	II Below MP	20.2	8 🗸		Water-Level E	evation		
Held	Depth to \	Water Below	v MP_ <u>5</u>	16		Diameter of Ca		· •	
Wet	Water	r Column in	Wall 14.2	27		Gallons Pumpe Prior to Sampli		10 3.5	Sample
				<u>)</u>	•	i noi to bampi	يبيد ٢		
				0.16			<u>. 191</u>	1000	yafter
		Gallons per	Foot			·		100	4 aifter recharg
Puraina Fauir		Gallons per Gallons in	Foot Well			·	p Intake Setting d surface)		Yafler recharg
Purging Equi		Gallons per	Foot Well <u>2 r 2</u> Bailer	2912x:	3=487	Sampling Pum (feet below lan			Yafler recharg
Time	oment <u>Pu</u>	Gallons per Gallons in Irge pump (I	Foot Well 2 (2) Bailer SAMP	2912x LING DATA	3- (4,87 /FIELD PAR ity (μS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L)		ORP (mV)	Yafler recharg Turbidil
	Temperat	Gallons per Gallons in Irge pump (I ture (°C)	Foot Well <u>2</u> , 2 Bailer SAMP	$29/2\chi$	3- (487 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS	p Intake Setting d surface)		70:75
Time 1317	oment <u>Pu</u>	Gallons per Gallons in Irge pump (I ture (°C)	Foot Well 2 (2) Bailer SAMP pH 7.0(2)	LING DATA	3- (487 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L)	p Intake Setting d surface)   	ORP (mV)	4 after recharg Turbidit 70:75 37.38
Time 1317	Temperat	Gallons per Gallons in Irge pump (I ture (°C)	Foot Well 2 (2) Bailer SAMP pH 7.0(2)	LING DATA	3- (487 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L)	p Intake Setting d surface)   	ORP (mV)	70:75
Time 1317	Temperat	Gallons per Gallons in Irge pump (I ture (°C)	Foot Well 2 (2) Bailer SAMP pH 7.0(2)	LING DATA Conductiv 3200 3241	3- (487 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L)	p Intake Setting d surface)   	ORP (mV)	70:75
Time 1317 1314 Sampling Equ	Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well <u>2</u> , <u>2</u> Bailer Bailer SAMP pH <u>7.0(2</u> 7.0 <u>2</u>	LING DATA Conductiv 3202 3241 Bailer	3- (487 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L) 2 • 110	p Intake Setting d surface)	ORP (mV)	70:75 37.38
Time 1317 1314 Sampling Equ	oment <u>Pu</u> Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.07 7.07 7.03 Purge Pump/E	LING DATA Conductiv 3200 324 Bailer	3 (4,87 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L) 2 • 110	p Intake Setting d surface)	ORP (mV) 124,4 19.2	70:75 37.38
Time 1317 1319 Sampling Equ	oment <u>Pu</u> Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well <u>2</u> , <u>2</u> Bailer Bailer SAMP pH <u>7.0(2</u> 7.0 <u>2</u>	2912x LING DATA Conductiv 320 3211 Bailer Containe	3 (4,87 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L) 2 • 110	p Intake Setting d surface) DO (mg/L)     	ORP (mV) 124,4 19.2	70:75 37.38
Time 1317 1314 Sampling Equ <u>Cons</u> BTEX	oment <u>Pu</u> Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.0(2 7.02 7.02 7.02 Purge Pump/f	2912x LING DATA Conductiv 320 321 321 Bailer Containe VOA's blastic	3 (4,87 /FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L) 2 • 110	p Intake Setting d surface) DO (mg/L) .3, 15 2, 13	ORP (mV)	70:75 37.38
Time 1317 1317 Sampling Equ Cons BTEX Fe, Mn, Al	oment <u>Pu</u> Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.0(2 7.02 7.02 7.02 7.02 7.02 7.02 7.02 7.0	2912x LING DATA Conductiv 320 321 321 Bailer Containe VOA's blastic	3 (g B7 /FIELD PAR ity (µS/cm³)	Sampling Pum (feet below lan AMETERS TDS (g/L) 2. 110	P Intake Setting d surface) DO (mg/L) 3, 15 2, 73 4 HCI	ORP (mV) 124,4 99,2 Preservative	70:75
Time 1317 1317 Sampling Equ Cons BTEX Fe, Mn, Al	oment <u>Pu</u> Temperat	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.0(2 7.02 7.02 7.02 7.02 7.02 7.02 7.02 7.0	2912x LING DATA Conductiv 320 321 321 Bailer Containe VOA's blastic	3 (g B7 /FIELD PAR ity (µS/cm³)	Sampling Pum (feet below lan AMETERS TDS (g/L) 2 • 110	P Intake Setting d surface) DO (mg/L) 3, 15 2, 73 4 HCI	ORP (mV) 124,4 99,2 Preservative	70:75 37.38
Time 1317 1314 Sampling Equ <u>Cons</u> BTEX Fe, Mn, Al SO4 <sup>2-</sup>	Diment Pu	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.0(2 7.02 7.02 7.02 7.02 7.02 7.02 7.02 7.0	2912x LING DATA Conductiv 320 321 321 Bailer Containe VOA's blastic	3 (g B7 /FIELD PAR ity (µS/cm³)	Sampling Pum (feet below lan AMETERS TDS (g/L) 2. 110	P Intake Setting d surface) DO (mg/L) 3, 15 2, 73 4 HCI	ORP (mV) 124,4 1922 Preservative	70:75
Time 1317 1317 Sampling Equ Cons BTEX Fe, Mn, Al SO4 <sup>2-</sup> Remarks	Diment Pu	Gallons per Gallons in Irge pump (1 iure (°C)	Foot Well 2.72 Bailer SAMP pH 7.0(2 7.02 7.02 7.02 7.02 7.02 7.02 7.02 7.0	LING DATA Conductiv 3204 3241 Bailer Container VOA's blastic blastic	3 (g B7 /FIELD PAR ity (µS/cm³)	Sampling Pum (feet below lan AMETERS TDS (g/L) 2.084 2.110	p Intake Setting d surface) DO (mg/L) 3,15 2,73 HCI -HNØ3NO none	ORP (mV) 124,4 1922 Preservative	70:75
Time 1317 1317 Sampling Equ Cons BTEX Fe, Mn, Al SO4 <sup>2-</sup> Remarks	Diment Pu	Gallons per Gallons in Irge pump (1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Foot Well 2, 2 Bailer Bailer SAMP PH 7.0(2 7.0'3 Purge Pump/f 3 40mL 32 oz. p 32 oz. p 32 oz. p 0.077	LING DATA Conductiv 3204 3241 Bailer Container VOA's blastic blastic	3- (g) 37 (FIELD PAR ity (µS/cm <sup>3</sup> )	Sampling Pum (feet below lan AMETERS TDS (g/L) 2.084 2.110	p Intake Setting d surface)     	ORP (mV) 124,4 1922 Preservative	70:75

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# **APPENDIX B**

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Groundwater Laboratory Analysis Reports



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

## **Conoco Phillips**

Certificate of Analysis Number: <u>09100121</u>						
Report To:	Project Name:	Sategna 2E				
Tetra Tech, Inc.	Site:	Bloomfield, 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:	10/11/2009				

# This Report Contains A Total Of 15 Pages

# Excluding This Page, Chain Of Custody

And

Any Attachments

10/12/2009

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



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

# **Case Narrative for:**

Conoco	Phillips
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<u>09100121</u>						
Report To:	Project Name: Sategna 2E					
Tetra Tech, Inc.	Site: Bloomfield, 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: 10/11/2009					

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:

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.

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.

a Cardinas

09100121 Page 1 10/12/2009

Erica Cardenas Project Manager



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

## **Conoco Phillips**

	Certificate of Analysis Number: <u>09100121</u>							
<u>Report To:</u>	Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Roa Suite 200 Albuquerque	d, N.E.	Project Name: <u>Site:</u> Site Address:	Sategna 2E Bloomfield, NM				
<u>Fax To:</u>	NM 87110- ph: (505) 237-8440	fax: (505) 881-3283	<u>PO Number:</u> <u>State:</u> <u>State Cert. No.:</u> <u>Date Reported:</u>	New Mexico 10/11/2009				

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09100121-01	Water	9/28/2009 1:10:00 PM	10/2/2009 9:15:00 AM	331816	
MW-2	09100121-02	Water	9/28/2009 12:15:00 PM	10/2/2009 9:15:00 AM	331816	
MW-3	09100121-03	Water	9/28/2009 1:20:00 PM	10/2/2009 9:15:00 AM	331816	
Duplicate	09100121-04	Water	9/28/2009 1:05:00 PM	10/2/2009 9:15:00 AM	331816	
Trip Blank	09100121-05	Water	10/1/2009 3:55:00 PM	10/2/2009 9:15:00 AM	331816	

E. C. Cardinas

Erica Cardenas Project Manager

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10/12/2009

Date

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

> Ted Yen Quality Assurance Officer

> > 09100121 Page 2 10/12/2009 1:47:26 PM



### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW	/-1		Collecte	d: (	9/28/2009	13:10	SPL Sar	nple l	<b>D:</b> 0910	0121-01
			Site:	Blo	omfield, N	м				
Analyses/Method	Result	QUAL	Rep.Lir	nit	Di	I. Factor	Date Ana	lyzed	Analyst	Seq. #
ION CHROMATOGRA	APHY				MCL		E300.0	Un	its: mg/L	
Sulfate	1770			50		100	10/06/09	14:29	BDG	5234650
METALS BY METHON	D 6010B, DISSOLVED	)			MCL	SV	V6010B	Un	its: mg/L	
Aluminum	ND		(	0.1		1	10/10/09		EG	5240031
Iron	ND		0.	.02		1	10/10/09	17:56	EG	5240031
Manganese	0.243		0.0	05		1	10/10/09	17:56	EG	5240031
Prep Method	Prep Date	Prep Initials	Prep Facto	or						
SW3005A	10/02/2009 15:00	R_V	1.00							
TOTAL DISSOLVED	SOLIDS				MCL	SN	12540 C	Un	its: mg/L	
Total Dissolved Solids (Residue,Filterable)	2590			20		. 2	10/02/09	17:00	CFS	5229592
VOLATILE ORGANIC	S BY METHOD 8260E	3			MCL	SI	V8260B	Un	its: ug/L	
Benzene	ND			1		1	10/05/09	17:24	LT	5232757
Ethylbenzene	ND			1		1	10/05/09	17:24	LT	5232757
Toluene	ND			1		1	10/05/09	17:24	LT	5232757
m,p-Xylene	ND			1		1	10/05/09	17:24	LT	5232757
o-Xylene	ND			1		1	10/05/09	17:24	LT	5232757
Xylenes,Total	ND			1		1	10/05/09	17:24	LT	5232757
Surr: 1,2-Dichloroetha	ane-d4 93.1		% 78-1	16		1	10/05/09	17:24	LT	5232757
Surr: 4-Bromofluorobe	enzene 97.9		% 74-1	25		1	10/05/09	17:24	LT	5232757
Surr: Toluene-d8	91.0		% 82-1	18		1	10/05/09	17:24	LT	5232757

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL) D - Surrogate Recovery Unreportable due to Dilution MI - Matrix Interference



### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW	-2		Colle	ected: 0	9/28/200	9 12:15	SPL Sar	nple I	<b>D</b> : 0910	0121-02
			Site	: Bloc	omfield,	NM				
Analyses/Method	Result	QUAL	Re	p.Limit	C	Dil. Factor	Date Ana	lyzed	Analyst	Seq. #
ION CHROMATOGRA	PHY				MCL	·	E300.0	Un	its: mg/L	
Sulfate	1840			50		100	10/06/09	15:21	BDG	5234653
METALS BY METHOD	0 6010B, DISSOLVED				MCL	SV	N6010B	Un	its: mg/L	
Aluminum	ND			0.1		1	10/10/09	18:00	EG	5240032
Iron	0.0217			0.02		1	10/10/09	18:00	EG	5240032
Manganese	0.168			0.005		1	10/10/09	18:00	EG	5240032
Prep Method SW 3005A	Prep Date 10/02/2009 15:00	Prep Initials R V	Prep   1.00	-actor						
TOTAL DISSOLVED S	SOLIDS		- 1		MCL	SN	12540 C	Ur	nits: mg/L	
Total Dissolved Solids (Residue,Filterable)	2260			20		2	10/02/09			5229593
VOLATILE ORGANICS	S BY METHOD 8260B	<b>.</b>			MCL	SV	N8260B	Un	nits: ug/L	
Benzene	ND			1		1	10/05/09		LT	5232771
Ethylbenzene	ND			1		1	10/05/09	20:36	LT	5232771
Toluene	ND			1		1	10/05/09	20:36	LT	5232771
m,p-Xylene	ND			1		1	10/05/09	20:36	LT	5232771
o-Xylene	ND			1		1	10/05/09	20:36	LT	5232771
Xylenes,Total	ND			1		1	10/05/09	20:36	LT	5232771
Surr: 1,2-Dichloroetha	ne-d4 96.9		%	78-116		1	10/05/09	20:36	LT	5232771
Surr: 4-Bromofluorobe	nzene 97.6		%	74-125		1	10/05/09	20:36	LT	5232771
Surr: Toluene-d8	91.0		%	82-118		1	10/05/09	20:36	LT	5232771

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

- >MCL Result Over Maximum Contamination Limit(MCL)
- D Surrogate Recovery Unreportable due to Dilution
- MI Matrix Interference

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### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID:MW	/-3		Collec	t <b>ed:</b> 09	9/28/2009 13	:20	SPL Sar	nple I	<b>D:</b> 0910	00121-03
			Site:	Bloc	omfield, NM					
Analyses/Method	Result	QUAL	Rep.L	.imit	Dil. Fa	actor	Date Ana	yzed	Analyst	Seq. #
ION CHROMATOGRA	PHY				MCL		E300.0	Un	its: mg/L	
Sulfate	2230			100	20	0	10/06/09	15:39	BDG	5234654
METALS BY METHOD	0 6010B, DISSOLVED	)			MCL	SV	V6010B	Un	its: mg/L	
Aluminum	ND			0.1		1	10/10/09	18:05	EG	5240033
Iron	ND			0.02		1	10/10/09	18:05	EG	5240033
Manganese	2.68		0	.005		1	10/10/09	18:05	EG	5240033
Prep Method	Prep Date	Prep Initials	Prep Fa	ctor						
SW 3005A	10/02/2009 15:00	R_V	1.00							
TOTAL DISSOLVED	SOLIDS				MCL	SN	12540 C	Un	its: mg/L	
Total Dissolved Solids (Residue,Filterable)	3340			20		2	10/02/09	17:00	CFS	5229594
VOLATILE ORGANIC	S BY METHOD 8260	3			MCL	SV	V8260B	Un	its: ug/L	
Benzene	ND			1		1	10/05/09	19:41	LT	5232761
Ethylbenzene	ND			1		1	10/05/09	19:41	LT	5232761
Toluene	ND			1		1	10/05/09	19:41	LT	5232761
m,p-Xylene	ND		÷	1		1	10/05/09	19:41	LT	5232761
o-Xylene	ND			1		1	10/05/09	19:41	LT	5232761
Xylenes,Total	ND			1		1	10/05/09	19:41	LT	5232761
Surr: 1,2-Dichloroetha	ne-d4 95.0		% 78	-116		1	10/05/09	19:41	LT	5232761
Surr: 4-Bromofluorobe	enzene 97.2		% 74	-125		1	10/05/09	19:41	LT	5232761
Surr: Toluene-d8	90.0		% 82	-118		1	10/05/09	19:41	LT	5232761

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL) D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID: Duplicate

Collected: 09/28/2009 13:05

SPL Sample ID: 09100121-04

			Sit	e: Bloc	omfield, NM			
Analyses/Method	Result	QUAL	R	ep.Limit	Dil. Facto	or Date Analy:	zed Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B				MCL S	SW8260B	Units: ug/L	
Benzene	ND			1	1	10/05/09 20	):08 LT	5232762
Ethylbenzene	ND			1	1	10/05/09 20	):08 LT	5232762
Toluene	ND			1	1	10/05/09 20	):08 LT	5232762
m,p-Xylene	ND			· 1	1	10/05/09 20	):08 LT	5232762
o-Xylene	ND			1	1	10/05/09 20	):08 LT	5232762
Xylenes,Total	ND			1	1	10/05/09 20	):08 LT	5232762
Surr: 1,2-Dichloroethane-d4	96.0		%	78-116	1	10/05/09 20	):08 LT	5232762
Surr: 4-Bromofluorobenzene	97.3		%	74-125	1	10/05/09 20	):08 LT	5232762
Surr: Toluene-d8	89.4		%	82-118	1	10/05/09 20	):08 LT	5232762

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)
 D - Surrogate Recovery Unreportable due to Dilution
 MI - Matrix Interference

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### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID: Trip Blank

Site: Bloomfield NM

Collected: 10/01/2009 15:55

SPL Sample ID: 09100121-05

			211	e: Bloc	omtiela, Nivi				
Analyses/Method	Result	QUAL	R	ep.Limit	Dil. Fact	or Date Analy	yzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B				MCL	SW8260B	Un	its: ug/L	
Benzene	ND			1	1	10/05/09 1	18:46	LT	5232760
Ethylbenzene	ND			1	1	10/05/09	18:46	LT	5232760
Toluene	ND			1	1	10/05/09 1	18:46	LT	5232760
m,p-Xylene	ND			1	1	10/05/09	18:46	LT	5232760
o-Xylene	ND			1	1	10/05/09	18:46	LT	5232760
Xylenes,Total	ND			1	1	10/05/09	18:46	LT	5232760
Surr: 1,2-Dichloroethane-d4	95.5		%	78-116	1	10/05/09	18:46	LT	5232760
Surr: 4-Bromofluorobenzene	96.7		%	74-125	1	10/05/09	18:46	LT	5232760
Surr: Toluene-d8	. 90.3		%	82-118	1	10/05/09	18:46	LT	5232760

Qualifiers:

- ND/U Not Detected at the Reporting Limit
- B/V Analyte detected in the associated Method Blank
- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL) D - Surrogate Recovery Unreportable due to Dilution MI - Matrix Interference

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**Quality Control Documentation** 

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

### **Conoco Phillips**

Sategna 2E

Analysis: Method:	Metals by Method 60 SW6010B	010B, Dissolv	ved		WorkOrder: Lab Batch ID:	09100121 94319
Method Blank				Samples in Analytical Batch:		
RunID: ICP2_09	91010A-5240009	Units:	mg/L	Lab Sample ID	Client Sar	nple ID
Analysis Date:	10/10/2009 16:14	Analyst:	EG	09100121-01B	MW-1	
Preparation Date: 10/02/2009 15:00		Prep By:	R_V Method: SW3005A	09100121-02B	MW-2	
			•	09100121-03B	MW-3	
[	Analyte		Result Rep Limit			
Alun	ninum		ND 0.1			
Iron			ND 0.02			
Man	ganese		ND 0.005			

### Laboratory Control Sample (LCS)

RunID:	ICP2_091010A-5240010	Units:	mg/L
Analysis Date:	10/10/2009 16:18	Analyst:	EG
Preparation Date:	10/02/2009 15:00	Prep By:	R_V Method: SW3005A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Aluminum	1.000	1.026	102.6	80	120
Iron	1.000	1.055	105.5	80	120
Manganese	1.000	1.040	104.0	80	120

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

Sample Spiked: RunID: Analysis Date: Preparation Date:

09100020-01 ICP2\_091010A-5240012 10/10/2009 16:27 e: 10/02/2009 15:00

Units: mg/L Analyst: EG Prep By: R V Method: SW3005A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Aluminum	ND	1	1.084	108.4	1	1.034	103.4	4.721	20	75	125
Iron	ND	1	1.079	107.1	1	1.037	102.9	3.970	20	75	125
Manganese	ND	1	1.037	103.2	1	1.028	102.3	0.8717	20	75	125

**Qualifiers:** 

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

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

TNTC - Too numerous to count

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

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### **Quality Control Report**

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

Duplicate

Trip Blank

# **Conoco Phillips**

Sategna 2E

Analysis: Method:	Volatile Organics by SW8260B	Method 8260	)B		WorkOrder: Lab Batch ID:	09100121 R285542
	Meth	nod Blank		Samples in Analytica	l Batch:	
RunID: N_0910	05C-5232353	Units:	ug/L	Lab Sample ID	Client Sar	nple ID
Analysis Date:	10/05/2009 11:53	Analyst:	LT	09100121-01A	MW-1	
				09100121-02A	MW-2	
				09100121-03A	MW-3	

09100121-04A

09100121-05A

Result	Rep Limit
ND	1.0
89.9	78-116
96.9	74-125
90.7	82-118
	ND ND ND ND 89.9 96.9

	La	boratory (	Control Sample (LC	; <u>S)</u>
-d8	90.7	82-118		

RunID:	N_091005C-5232352	Units:	ug/L
Analysis Date:	10/05/2009 10:58	Analyst:	LT

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	18.5	92.4	74	123
Ethylbenzene	20.0	18.3	91.4	72	127
Toluene	20.0	18.1	90.6	74	126
m,p-Xylene	40.0	38.2	95.5	71	129
o-Xylene	20.0	19.3	96.7	74	130
Xylenes,Total	60.0	57.5	95.9	71	130
Surr: 1,2-Dichloroethane-d4	50.0	45.1	90.2	78	116
Surr: 4-Bromofluorobenzene	50.0	48.2	96.4	. 74	125
Surr: Toluene-d8	50.0	44.8	89.7	82	118

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

Sample Spiked:
RunID:
Analysis Date:

09100121-01 N\_091005C-5232758 10/05/2009 17:51

Units: ug/L Analyst: LT

Qualifiers:	ND/U - Not Detected at the Reporting Limit	MI - Matrix Interference	
	B/V - Analyte detected in the associated Method Blank	D - Recovery Unreportable due to Dilution	
	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 th	an 4 times the amount of spike added. Control limits do not apply.	
	TNTC - Too numerous to count	0910012	1 Page 10
QC results pres	ented on the QC Summary Report have been rounded. RPD a	nd percent recovery values 10/12/200	9 1:47:35 PM

calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



### HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

# Conoco Phillips

Sategna 2E

Analysis: Method:	Volatile Organics SW8260B	by Method 826	0B					WorkOrder Lab Batch		00121 35542		
	Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1-Dichloroether	ne	ND	20	20.8	104	20	19.6	97.9	6.16	22	61	139
Benzene		ND	20	19.8	99.0	20	19.3	96.4	2.69	22	70	124
Chlorobenzene		ND	20	19.0	94.8	20	18.6	93.2	1.68	21	68	123
Toluene		ND	20	18.3	91.7	20	18.1	90.7	1.08	24	80	117
Trichloroethene		ND	20	21.6	108	20	21.3	107	1.23	21	82	121
Surr: 1,2-Dichl	oroethane-d4	ND	50	47.9	95.8	50	47.1	94.1	1.83	30	78	116
Surr: 4-Bromot	fluorobenzene	ND	50	47.4	94.8	50	47.4	94.9	0.114	30	74	125
Surr: Toluene-	d8	ND	50	43.7	87.4	· 50	44.0	88.1	0.733	30	82	118

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

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

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

TNTC - Too numerous to count

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

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

### **Conoco Phillips** Sategna 2E

Method:	Total Dissolved So SM2540 C	lids						VorkOrder: .ab Batch II		0910012 R28537	
	Me	thod Blan	<u>د</u>			Samples in	Analytical B	atch:			
RunID: WET_( Analysis Date:	091003F-5229574 10/02/2009 17:00	Units Analy				Lab Sample 09100121-0 09100121-0	1C 2C	MW-1 MW-2	2	<u>e ID</u>	
						09100121-0	3C	MW-3	3 <sub>.</sub>		
Tot	Analyte al Dissolved Solids (Residu	e,Filterable)	Resu	It Rep Limit							
	Labora	tory Contr	ol Sample	e/Laboratory Co	ontrol San	nple Duplica	te (LCS/LCS	<u>D)</u>			
	RunID: Analysis Da		'ET_091003 D/02/2009			ng/L :FS					
	Analyte	LCS Spike Added	LCS Result	Percent	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Total Dissolved S	Solids (Residue, Filterabl	200.0	202.0	101.0	200.0	201.0	100.5	0.5	5 10	95	107
			Analyte	e	Sample Result		RPD	RPD Limit			
			Analyte	e			RPD				
	Тс	tal Dissolv	ed Solids (	Residue, Filterab	1 334	0 3338	0.0599	10			
Qualifiers:	ND/U - Not Detected B/V - Analyte detect J - Estimated value E - Estimated Value	ed in the as between Mi exceeds c	ssociated M DL and PC alibration c	Method Blank QL :urve	D - Rec * - Rec	overy Outside	ortable due to Advisable Q	C Limits			
Qualifiers:	ND/U - Not Detected B/V - Analyte detect J - Estimated value	ed in the as between Mi exceeds c I - Sample	SSOCIATED N DL and PC alibration of concentral	Method Blank QL :urve	D - Rec * - Rec	covery Unrepo overy Outside	ortable due to Advisable Q	C Limits	nits do no		09100121 Pag



## HOUSTON LABORATORY

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

# Conoco Phillips

Sategna 2E

Analysis:	Ion Chromatogra	phy						WorkOrder	:: 091	00121		
Method:	E300.0							Lab Batch	ID: R2	85669		
	<u>N</u>	lethod Blank			S	Samples	in Analytica	l Batch:				
RunID: IC1_09	1006A-5234637	Units:	mg/L		L	.ab Sam	ple ID	<u>Clier</u>	nt Sample ID	2		
Analysis Date:	10/06/2009 10:39	Analyst:	BDG		C	910012	1-01C	MW-	·1			
					C	910012	1-02C	MW-	-2			
					C	910012	1-03C	MW-	.3			
	Analyte		Result	Rep Limit								
Sul	fate		ND	0.50								
			19	borston/ Cr	ontrol Samp							
							-					
	Ru		-	06A-5234638	Units:	mg/L						
	Ana	llysis Date:	10/06/20	09 10:57	Analyst:	BDG						
		Analy	te		pike Res			ower Uppe				
			te		dded	R	ecovery L	imit Limi	t			
	Sulfat		te		dded			imit Limi				
	Sulfat		te		dded	R	ecovery L	imit Limi	t			
	Sulfat	;		A	dded 10.00 1	0.84	ecovery L 108.4	imit Limi	t			
	Sulfat	;		A	dded	0.84	ecovery L 108.4	imit Limi	t			
	s	<u>Matrix</u> ample Spiked:		A	dded 10.00 1	0.84	ecovery L 108.4	imit Limi	t			
	S	<u>Matrix</u> ample Spiked: unID:	CSpike (M 091002 IC1_091	A IS) / Matrix 45-01 006A-523465	dded 10.00 1 Spike Duplid	R 0.84 cate (MS	ecovery L 108.4 5D) /L	imit Limi	t			
	S	<u>Matrix</u> ample Spiked:	CSpike (M 091002 IC1_091	A IS) / Matrix 245-01	dded 10.00 1 Spike Duplid	R 0.84 cate (MS	ecovery L 108.4 5D) /L	imit Limi	t			
	S	<u>Matrix</u> ample Spiked: unID:	CSpike (M 091002 IC1_091	A IS) / Matrix 45-01 006A-523465	dded 10.00 1 Spike Duplid 6 Units:	R 0.84 cate (MS	ecovery L 108.4 5D) /L	imit Limi	t			
	S	<u>Matrix</u> ample Spiked: unID: nalysis Date:	091002 IC1_091 10/06/2	A A A A A A A A A A A A A A	dded 10.00 1 Spike Duplic 6 Units: Analys	R 0.84 Cate (MS mg. st: BD	2000 200 200 200 200 200 200 200 200 20	imit Limi	t 115			
	S	Matrix ample Spiked: unID: nalysis Date: Sample	091002 IC1_091 10/06/2 MS	A IS) / Matrix 45-01 006A-523465 009 17:25 MS	dded 10.00 1 Spike Duplid 6 Units: Analys MS %	R 0.84 Cate (MS st: BD MSD	ECOVERY L 108.4 ED) /L G MSD	imit Limi	t	RPD		
	S	<u>Matrix</u> ample Spiked: unID: nalysis Date:	091002 IC1_091 10/06/2	A A A A A A A A A A A A A A	dded 10.00 1 Spike Duplic 6 Units: Analys	R 0.84 Cate (MS mg. st: BD	2000 200 200 200 200 200 200 200 200 20	imit Limi	t 115	RPD Limit	Low Limit	
Sulfate	S	<u>Matrix</u> ample Spiked: unID: nalysis Date: Sample	091002 IC1_091 10/06/2 MS Spike Added	A IS) / Matrix 45-01 006A-523465 009 17:25 MS	dded 10.00 1 Spike Duplid 6 Units: Analys MS % Recovery	R 0.84 cate (MS mg, st: BD MSD Spike	ecovery L 108.4 5D) /L G MSD Result	MSD % Recovery	r 115	Limit		High Limit

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

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

### MI - Matrix Interference

k D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

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

TNTC - Too numerous to count

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

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

### Sample Receipt Checklist

Workorder: Date and Time Received: Temperature:	09100121 10/2/2009 9:15:00 AM 1.5°C		Received By: Carrier name: Chilled by:	T_B Fedex-Priority Water Ice
1. Shipping container/co		Yes 🗹		Not Present
	n shippping container/cooler?	Yes 🔽	No 🗌	Not Present
3. Custody seals intact o	n sample bottles?	Yes	No 🗀	Not Present 🗹
4. Chain of custody pres	ent?	Yes 🗹	No 🗌	
5. Chain of custody sign	ed when relinquished and received?	Yes 🗹	No 🗌	
6. Chain of custody agre	es with sample labels?	Yes 🗹	No 🗌	
7. Samples in proper cor	tainer/bottle?	Yes 🗹	No 🗌	
8. Sample containers inta	act?	Yes 🗹	No 🗌	
<b>9.</b> Sufficient sample volu	me for indicated test?	Yes 🗹	No 🗌	
<b>10.</b> All samples received v	vithin holding time?	Yes 🗹	Νο	•
1. Container/Temp Blank	temperature in compliance?	Yes 🗹	No 🗌	
2. Water - VOA vials have	e zero headspace?	Yes 🗹	Νο 🗌 🛛 🗸 νο	A Vials Not Present
<b>3.</b> Water - Preservation c	hecked upon receipt (except VOA*)?	Yes 🗌	No 🗌	Not Applicable
*VOA Preservation Ch	ecked After Sample Analysis			
SPL Representativ Client Name Contacte		Contact Date &	& Time:	
Non Conformance Issues:				
Client Instructions:				

		SPI W	SPI. Warkarder Na.		
SPI Inc				3318	16
Analysis Request & Chain of Custody Record		50	ranol	page	
Client Name: TRATECH / CONCORNILLIOS	matrix bottle size	c pres.	nurge	Requested Analysis	
Wiell Indian' School Rel St	, I		wm		
City T111M/10/10/10/10 State A1/11 Zip 20/14/03/201	8iv= 10= ខ្លាំង		θ		
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	ne= Vial SO	qio NH	100 100 71		
Project Name/No.: OATKULK	ŧ=t =Λ :∀	X= (=7	2 10 10		
Site Name:	1 7 8 	101 7¢	Deft Deft Deft Deft Deft Deft Deft Deft		
Property and the	lasio esig esig	IS2 ICI	110051		
ID DATE TIME Comp	]=] G= b=t	1=£ [=]	い 上 で 月		
Mul-1 9-29-05 1310		6 1 0	X		
mul-1 9-28-09 1310	KIN P 32	2 min 2	XX		
MU1-7_ 4-29-11 1215			×		
MW-2 9-28-79 1215	( N) D 32	HIL IN	XX		
MW-3 1320 9-28-01	X W V U	6	×		
MW - 3 9-26-09 1320	< W P 32	2 101 2	XX		
Nunkcole 9-28-09 130.5	at A MU 2	E 1 0	$\times$		
Thin Rlank * 9-26-01 1555		2 1 2	X		
-1-00			~		
ClientConsultant Remarks: Prove AIRC & preserve metals container prior to and 1455				Intact? Ice? Temp: ] S	
Requested TAT Special Reporting Requirements Results: Fax D Email	ii 📙 PDF 🔲 Special Dege	Indeciden Lin	uts (specify?	PM review	(indial):
Iract Standard OC Level 3 QC Level 4 QC TX TRP	LA RECAP			) 	
J CON	date 1-09 time	$\mathcal{3}$ 2. Re	2. Received by:		
3 Business Days	date time	4. Re	4. Received by:		
Other     5. Relinquished by:       Rush TAT requires prior notice	DDDOG time	6.46	6. Received by Laborate	Wir Dre	
3880 Interchange Drive         500 Ambassador           Houston, TX 77054 (713) 660-0901         Scott, LA 70583	500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775	P	Traverse Cit	☐ 459 Hughes Drive Traverse City MI 49686 (231) 947-5777	7-5777