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JUNE 2011 QUARTERLY GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS SATEGNA No. 2E GAS WELL SAN JUAN COUNTY, NEW MEXICO API# 30-045-24060 NMOCD# TBD

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DECEMBER 2011

REF. NO. 074932 (2) This report is printed on recycled paper.

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1.0 INTRODUCTION

This report presents the results of the June 24, 2011 quarterly groundwater monitoring event conducted by Conestoga-Rovers & Associates (CRA) at the ConocoPhillips Company (ConocoPhillips) Sategna No. 2E gas well site (Site) located on private land within Section 21, Township 29N, Range 11W of Bloomfield, San Juan County, New Mexico (Figure 1). A Site detail map is included as Figure 2.

1.1 <u>BACKGROUND</u>

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

On November 24, 2008, approximately 8 barrels of condensate were released from the, condensate aboveground storage tank (AST). Notification of the release was given to the New Mexico Oil Conservation Division (NMOCD) by ConocoPhillips personnel using Form C-141. 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 NMOCD recommended action levels. Envirotech also used a hand auger to complete 2 soil borings to approximately 8 feet below ground surface (bgs), where groundwater was encountered. Two groundwater samples were submitted by Envirotech to an analytical laboratory for analysis of benzene, toluene, ethylbenzene and xylenes (BTEX). Analytical results revealed BTEX in concentrations below NMOCD action levels for these constituents.

On December 4, 2008, Envirotech returned to the Site and excavated an area measuring approximately 30 feet by 18 feet by 8 feet deep (Figure 2). Grab and composite soil samples were obtained from the bottom and sides of the excavation. The samples were analyzed for BTEX, total petroleum hydrocarbons (TPH), and chloride. Analytical results were below NMOCD action levels for BTEX. Two grab soil samples collected from below the above-grade and below-grade tanks exceeded the NMOCD action level for total TPH.

Groundwater seepage into the excavation was discovered on December 4, 2008. Subsequently, groundwater samples were collected from the excavation on December 5, 2008. The groundwater sample exceeded the New Mexico Water Quality Control Commission (NMWQCC) standards for benzene, toluene, and

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xylenes. Groundwater was recovered from the bottom of the excavated area using a vacuum truck during the week of December 8, 2008. 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 recovered 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 were present in the groundwater seepage. Each pumping event recovered 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 initiated quarterly groundwater monitoring events with a baseline in April 2009.

Additional hydrocarbon soil impacts were discovered during relocation and reinstallation of production equipment in April 2009. Envirotech found an abandoned sewer line in the same location as hydrocarbon impacted soils while digging an exploratory trench between the wellhead and the proposed separator tank location (**Figure 2**). Trench work was halted and the excavated soils were stockpiled on site. Tetra Tech returned to the site on April 23 and 24, 2009 to oversee excavation of the hydrocarbon impacted soils from the vicinity of the trench (**Figure 2**). Photoionization detector readings in the field indicated levels below the NMOCD action level; however, lab results were above the NMOCD action level for TPH in samples collected from all four walls of the excavation. The bottom sample results were below NMOCD action levels. The excavation was backfilled and equipment was reinstalled before analytical results were available. A report detailing this activity, titled Soil Excavation and Sampling Report, was submitted to the NMOCD in July 2009.

Tetra Tech continued quarterly groundwater monitoring from April 2, 2009 to March 2011. The March 2011 Tetra Tech quarterly groundwater monitoring report recommended the discontinuation of sampling and analysis of BTEX for all Site monitor wells. On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to CRA of Albuquerque, NM. Quarterly groundwater monitoring was continued by CRA on June 24, 2011. This report details the tenth consecutive quarterly monitoring event.

2.0 GROUNDWATER MONITORING METHODOLOGY AND ANALYTICAL RESULTS

2.1 <u>GROUNDWATER MONITORING SUMMARY</u>

Prior to collection of groundwater samples from Monitor Wells MW-1, MW-2 and MW-3, depth to groundwater was measured in each well using an oil/water interface probe. 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 June 24, 2011 sampling event were used to create a groundwater potentiometric surface map for the Site (Figure 3). Using these data, it was determined that the groundwater flow direction at the Site continues to be to the southwest. A generalized geologic cross section for the Site is presented as Figure 4.

2.2 <u>GROUNDWATER SAMPLING METHODOLOGY</u>

During the groundwater monitoring event Site monitor wells were purged of at least 3 casing volumes of groundwater using a 1.5-inch diameter, polyethylene disposable bailer. While bailing each well, groundwater parameters were collected using a YSI 556 multi-parameter sonde and results were recorded on a Well Sampling Field Information Form (**Appendix A**). Collected groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain-of-custody documentation to Accutest Laboratories of Houston, Texas.

Groundwater samples were analyzed for dissolved manganese by Environmental Protection Agency (EPA) Method 6010B, sulfate by EPA method 300/SW846 9056, and Total Dissolved Solids (TDS) by Standard Method (SM) 2540C. Analytical results are displayed in **Table 3**.

The June 24, 2011 sampling event represents the first quarter in which BTEX analysis was discontinued.

2.3 GROUNDWATER MONITORING 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 samples collected from Monitor Wells MW-1, MW-2 and MW-3 were found to contain TDS concentrations of 2,450mg/L, 2,550 mg/L, and 2,860 mg/L, respectively.

• Dissolved Manganese

 The NMWQCC domestic water supply groundwater quality standard for manganese is 0.2 mg/L; groundwater samples collected from Monitor Wells MW-1 and MW-3 were found to contain manganese concentrations of 0.574 and 1.7 mg/L, respectively.

• Sulfate

The NMWQCC domestic water supply groundwater quality standard for sulfate is 600 mg/L; groundwater samples collected from Monitor Wells MW-1, MW-2, and MW-3 were found to contain sulfate in concentrations of 1,790 mg/L, 1,860 mg/L, and
 2,080 mg/L, respectively.

The corresponding laboratory analysis report for the June 24, 2011 groundwater sampling event is included in **Appendix B**.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The June 24, 2011 quarterly groundwater monitoring event represents the first quarter in which BTEX analysis has been discontinued. Monitor Wells MW-1, MW-2, and MW-3 were found to have concentrations exceeding the NMWQCC standard for sulfate and TDS. Groundwater samples collected from Monitoring Wells MW-1 and MW-3 were found to exceed the NMWQCC standard for dissolved manganese. TDS and sulfate concentrations appear to be stable with eight and nine quarters of data, respectively. Quarterly monitoring will continue for dissolved manganese only.

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FIGURES

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TABLES

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TABLE 1

SITE HISTORY TIMELINE CONOCOPHILLIPS COMPANY SATEGNA NO. 2E SAN JUAN COUNTY, NM

Date/Time Pe ri od	Event/Action	Description/Comments
November 24, 2008	Release Discovered	Approximately eight 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. A C-141 form was filled out by ConocoPhillips staff and notice was given to Brandon Powell of the New Mexico Oil Conservation Division (NMOCD) via electronic mail. The C-141 form stated that the well was shut down and the production tank was emptied.
November 25, 2008	Initial Site Assessment	Envirotech Inc. of Farmington, NM (Envirotech) collected soil samples and analyzed them using the heated headspace soil method; results were 0.2 and 1.1 parts per million (ppm) from outside the excavated area. 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 noted 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.
December 4, 2008	Site Assessment	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. Results were 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 through EPA method 418.1 for the ground tank revealed results of 521 mg/kg. 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).
December 5, 2008	Site Assessment.	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.
Week of December 8, 2008	Removal of Groundwater Seepage	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 nor free-phase LNAPL were present in the groundwater seepage. Each pumping event removed approximately 30-60 barrels of liquid from the Site.
January 20, 2009 &	Site Assessment	Tetra Tech conducted a Site visit to determine proposed groundwater monitoring well locations.
March 4-5, 2009	Monitor Well Installation	Tetra Tech installed three groundwater monitor wells at the Site: MW-1, MW-2, and MW-3.
March 2009	Additional Contamination Discovered	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	Quarterly Groundwater	Tetra Tech conducted the first quarterly groundwater monitoring event at the Site.
April 2, 2009	Site Assessment	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 excavated soils were stockpiled on site.
April 23 - 24, 2009	Removal of Contaminated Soil	Tetra Tech provided oversight for removal of approximately 96 cubic yards of hydrocarbon-impacted soils located west of the tank berm and in the vicinity of the abandoned sewer line. Excavation was backfilled.
June 17, 2009	Quarterly Groundwater Monitoring	Tetra Tech conducted the second quarterly groundwater monitoring event at the Site.
September 28, 2009	Quarterly Groundwater Monitoring	Tetra Tech conducted the third quarterly ground water monitoring event at the Site.
December 14, 2009	Quarterly Groundwater Monitoring	Tetra Tech conducted the fourth quarterly groundwater monitoring event at the Site.
March 31, 2010	Quarterly Groundwater Monitoring	Tetra Tech conducted the fifth quarterly groundwater monitoring event at the Site.
June 7, 2010	Quarterly Groundwater Monitoring	Tetra Tech conducted the sixth quarterly groundwater monitoring event at the Site.
September 23, 2010	Quarterly Groundwater Monitoring	Tetra Tech conducted the seventh quarterly groundwater monitoring event at the Site.
December 14, 2010	Quarterly Groundwater Monitoring	Tetra Tech conducted the eighth quarterly groundwater monitoring event at the Site.
March 14, 2011	Quarterly Groundwater Monitoring	Tetra Tech conducted the ninth quarterly groundwater monitoring event at the Site:
June 15, 2011	Transfer of Site Consulting Responsibilities	On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to Conestoga- Rovers & Associates (CRA) of Albuquerque, NM.
June 24, 2011	Quarterly Groundwater Monitoring	CRA conducted the tenth quarterly groundwater monitoring event at the Site.

TABLE 2

MONITORING WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS APRIL 2009 - JUNE 2011 CONOCOPHILLIPS COMPANY SATEGNA 2E SAN JUAN COUNTY, NM

Well ID	Total Depth (ft below TOC)	Elevation*	Screen Interval (bgs)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Water Level
		,		04/02/2009	5.15	94.21
				06/17/2009	5.43	93.93
				09/28/2009	5.45	93.91
				12/14/2009	5.06	94.3
MW_1	20.3	99.36	22172	03/31/2010	5.03	94.33
1414 4-1	20.5	99.50	2.2-17.2	06/07/2010	5.41	93.95
				09/23/2010	5.25	94.11
				12/14/2010	• 5.07	94.29
				03/14/2011	5.09	94.27
				06/24/2011	5.56	93.8
				04/02/2009	* 5.96	92.82
-		98.78	3.33-18.33	06/17/2009	6.21	92.57
				09/28/2009	6.23	92.55
				12/14/2009	5.92	92.86
MW-2	20.0			03/31/2010	5.9	92.88
10100-2	20.7			06/07/2010	6.21	92.57
				09/23/2010	6.06	92.72
				12/14/2010	5.91	92.87
				03/14/2011	5.94	92.84
				06/24/2011	6.32	92.46
				04/02/2009	5.7	92.96
				06/17/2009	5.97	92.69
				09/28/2009	5.96	92.7
				12/14/2009	5.63	93.03
MW-3	20.83	98.66	3-18	03/31/2010	5.61	93.05
	20.00	20.00	0 10	06/07/2010	5.95	92.71
				09/23/2010	5.77	92.89
				12/14/2010	5.61	93.05
				03/14/2011	5.63	93.03
				06/24/2011	6.06	92.6

Notes:

1. ft = feet

2. TOC = top of casing

3. bgs = below ground surface

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

TABLE 3

GROUNDWATER ANALYTICAL RESULTS SUMMARY APRIL 2009 - JUNE 2011 CONOCOPHILLIPS COMPANY . SATEGNA 2E SAN JUAN COUNTY, NM

			Benzene	Toluene	Ethylbenzene	Xylenes	Iron (dissolved)	Manganese (dissolved)	Sulfate	Total dissolved solids (TDS)
Well ID	Sample ID Number	Date	(mg/L)	(mg/L)	(mg/L)	(total) (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
		4/2/2009	< 0.005	< 0.005	< 0.005	<0.005			1790	
		6/17/2009	< 0.005	< 0.005	< 0.005	< 0.005			1420	
	• .	9/28/2009	< 0.001	< 0.001	< 0.001	< 0.001	<0.02	0.243	1770	2590
•		12/14/2009	< 0.001	< 0.001	< 0.001	< 0.001		0.152		2470
MW-1		3/31/2010	<0.001	< 0.001	< 0.001	< 0.001		0.176	1320	2470
10100-1		6/7/2010	< 0.001	< 0.001	< 0.001	< 0.001		0.206	1330	2580
		9/23/2010	<0.001	< 0.001	<0.001	< 0.001		0.238	1560	3210
		12/14/2010	<0.001	< 0.001	< 0.001	< 0.001		0.232	1600	2520
		3/14/2011	<0.001	< 0.001	< 0.001	< 0.001		0.323	1820	2770
	GW-74932-062411-CB-02	6/24/2011						0.574	1790	2450
		4/2/2009	<0.005	< 0.005	< 0.005	< 0.005			1850	
		6/17/2009	<0.005	< 0.005	< 0.005	< 0.005			1610	
		9/28/2009	<0.001	< 0.001	<0.001	< 0.001	0.0217	0.168	1840	2260
		12/14/2009	< 0.001	< 0.001	< 0.001	< 0.001		0.158		2470
MW-7		3/31/2010	< 0.001	<0.001	< 0.001	< 0.001		0.136	1530	2620
NIV-2		6/7/2010	<0.001	< 0.001	<0.001	< 0.001		0.157	1290	2590
		9/23/2010	<0.001	< 0.001	< 0.001	< 0.001		0.0981	1510	2800
		12/14/2010	<0.001	< 0.001	< 0.001	<0.001		0.128	1610	3000
		3/14/2011	<0.001	<0.001	< 0.001	< 0.001		0.158	1850	2680
	GW-74932-062411-CB-01	6/24/2011						0.174	1860	2550
		4/2/2009	<0.005	< 0.005	< 0.005	< 0.005	·		2110	
		6/17/2009	<0.005	< 0.005	< 0.005	< 0.005			1650	-
		9/28/2009	<0.001	< 0.001	< 0.001	< 0.001	<0.02	2.68	2230	3340
		12/14/2009	<0.001	< 0.001	< 0.001	< 0.001		2.4		3060
MW-3		3/31/2010	< 0.001	< 0.001	< 0.001	< 0.001		1.71	1660	3090
14114-0		6/7/2010	<0.001	< 0.001	< 0.001	< 0.001		0.968	1760	2650
		9/23/2010	< 0.001	< 0.001	< 0.001	< 0.001		1.68	1910	3570
		12/14/2010	<0.001	< 0.001	< 0.001	< 0.001		1.13	1900	3000
		3/14/2011	< 0.001	< 0.001	< 0.001	< 0.001		2.08	2090	3200
	GW-74932-062411-CB-03	6/24/2011						1.7	2080	2860
NMWQC	C Groundwater Quality Sta	andards	0.01	0.75	0.75	0.62	1.0	0.2	600	1000

Notes:

MW = monitoring well

NMWQCC = New Mexico Water Quality Control Commission Constituents in BOLD are in excess of NMWQCC groundwater quality standards

mg/L = milligrams per liter (parts per million)

< 1.0 = Below laboratory detection limit of 1.0 mg/L

074932-RPT2-Tables

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APPENDICES

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APPENDIX A

JUNE 2011 QUARTERLY GROUNDWATER SAMPLING FIELD FORMS

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WELL SAMPLING FIELD INFORMATION FORM SITE/PROJECT NAME: SAMPLE ID: GW-074932-0624///- CB-02 WELL# WELL# MUSC PARAGE SAMPLE ID: GW-074932-0624///- CB-02 WELL# WELL# MUSC PARAGE SAMPLE TDE: CHICKE TOWE DESCRUTE OF TOWE SAMPLING COLSPANE": CHICKE TUBE: CHICKE TUBE: CHICKE TUBE: CHICKE TUBE:	STEPPROJECT NAME: Subject 25 JOH: OT4932 SAMPLE DI: Subject 26 Subject 26 JOH: OT4932 Subject 26 Subject 26 Subject 26 JOH: OT40400, FERDER Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 Subject 26 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th></t<>						
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Under Lipping $A - IELLON = D - POLYETHYLENE G - COMBINATION TELLON/POLYERE G - COMBINATION TELLON/POLYERE TELLON/POLYERE TELLON/POLYERE TELLON/POLYERE TELLON/POLYERE TELLON/POLYERE TELLON/POLYERE G - VACUUM TELLON TO WATER A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM TELLOR TO WATER SECURITY (feet) GROUNDWATER ELEVATION A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM TELLOR TO WATER SECURITY (feet) GROUNDWATER ELEVATION A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM (feet) (f$	UNDER LOPING			D. BOLVEDONG SUF	·	SAMPLING MATERIAL C	OTHER (SPECIFY)
AMPLING TUBING C - ROPE F - SILCONE X - OTHER X= SAMPLING TUBING OTHER (SPECIFY) ILTERING DEVICES 0.45 A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM FIELD MEASUREMENTS DEPTH TO WATER S 56 (feet) WELL ELEVATION 919 36 (feet) WELL DEPTH Z0 Z0 Z (feet) GROUNDWATER ELEVATION 93 80 (feet) TEMPERATURE pH TDS CONDUCTIVITY ORP VOLUME [2.87] (°C) 7.22 (std) (g/L) 6738 (µS/cm) 80.2 (mV) 6.5 (gal) [13.19] (°C) 7.0 (std) (g/L) 6744 (µS/cm) 07.2 (mV) (.5.5 (gal) [13.19] (°C) [.6td] (g/L) (µS/cm) 07.2 (mV) (.5.5 (gal) [13.19] (°C) [.6td] (g/L) (µS/cm) 07.2 (mV) (.6ei) [°C] [eth] [g] [g] [u] [u] [u] [g] [13.19] (°C) [.6td] <td>AMPLING TUBING C C - ROPE P. SHJCONE X. OTHER X. OTHER X. OTHER X. OTHER SAMPLING TUBING OTHER (SPECTRY) ILTERING DEVICES 0.45 A. IN-LINE DERCARABLE P. PRESSURE C- VACIUM FIELD MEASUREMENTS DEFTH TO WATER S. S.G. (ree) WELL BELTY ATION 99 36. (ree) TEMPERATURE PH TOS CONDUCTIVITY ORP VOLUME TEMPERATURE PH TOS CONDUCTIVITY ORP VOLUME [12.87] PCO [7.72] (set) (set) (set) (set) [13.19] PCO [7.07] (set) [gr/L] (sf74) (sf74)<!--</td--><td>OVGE I ODING</td><td>B - TYGON</td><td>E - POLYETHYLENE G - CC</td><td>MBINATION FLON/POLYPROPYLENE</td><td>PURGE TUBING OTHER</td><td>(SPECIFY)</td></td>	AMPLING TUBING C C - ROPE P. SHJCONE X. OTHER X. OTHER X. OTHER X. OTHER SAMPLING TUBING OTHER (SPECTRY) ILTERING DEVICES 0.45 A. IN-LINE DERCARABLE P. PRESSURE C- VACIUM FIELD MEASUREMENTS DEFTH TO WATER S. S.G. (ree) WELL BELTY ATION 99 36. (ree) TEMPERATURE PH TOS CONDUCTIVITY ORP VOLUME TEMPERATURE PH TOS CONDUCTIVITY ORP VOLUME [12.87] PCO [7.72] (set) (set) (set) (set) [13.19] PCO [7.07] (set) [gr/L] (sf74) (sf74) </td <td>OVGE I ODING</td> <td>B - TYGON</td> <td>E - POLYETHYLENE G - CC</td> <td>MBINATION FLON/POLYPROPYLENE</td> <td>PURGE TUBING OTHER</td> <td>(SPECIFY)</td>	OVGE I ODING	B - TYGON	E - POLYETHYLENE G - CC	MBINATION FLON/POLYPROPYLENE	PURGE TUBING OTHER	(SPECIFY)
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SITE/PROJECT NAME: 5.4 4 2 m JOB# 074322 SAMPLE ID: GU-074932.0624/1/-C8-01 WELL# MW.2 Bandwitten Callor Vell# MW.2 Bandwitten Guevee 7.0 Actual vol. Puscing (GALONS) Actual vol. Puscing (GALONS) Actual vol. Puscing (GALONS) PURGING BOUPMENT	W	ELL SAMPLIN	G FIELD INFO	RMATION F	ORM
SAMPLE ID: GU-0749 32-0624/1/-C8-01 WELL# MU-2 6-24-11 6-24-11 1430 2.29 7.0 PURCE DATE (MM DD YY) SAMPLE DATE (MM DD YY) SAMPLE DATE (MM DD YY) SAMPLING EDUIPMENT (CALLONS) ATUAL VOL PURCED (CALLONS) ATUAL VOL PURCED PURCING DEVICE 6-24-11 1430 7.0 ATUAL VOL PURCED PURCING DEVICE 6-24-11 1430 ATUAL VOL PURCED ATUAL VOL PURCED PURCING DEVICE 6-24-11 1430 ATUAL VOL PURCED ATUAL VOL PURCED PURCING DEVICE 6-30 N CIRCLE ONE) (CIRCLE ONE) (CIRCLE ONE) PURCING DEVICE 4 C-BLADDER PURP P-URCE PURP H-WATERAAD Y SAMPLING DEVICE 4 C-BLADDER PURP P-URCE PURP Y PURCING MATERIAL Y Y SAMPLING TUBING E A-TEFLON D=POLYPER BOTTLE X-OTHER Y Y Y PURCE TUBING C C-ROPE P-SILCONE X-OTHER Y Y Y Y	SITE/PROJECT NAME:	Sategna	2E-	JOB# 0	74932
6:2.4.1/ WELL PURCING INFORMATION 2.2.2 7.0 PURCE DATE (MM DD YY) SAMPLE PARE (MM DD YY) SAMPLE PARE (MM DD YY) SAMPLE PARE (MM DD YY) SAMPLE PARE (MM DD YY) SAMPLE PARE (CALLONS) ACTUAL VOL, PURCED (CALLONS) PURCING EQUIPMENT DEDICATED () N (CRCLE ONE) SAMPLING EQUIPMENT SAMPLING EQUIPMENT PURCING DEVICE G A-SUBMERNE PMMP D-CAS LIPT PURCE B - RESISTANCE DUAP C-RAILER x- PURCING DEVICE G A-SUBMERNE PMMP D-CAS LIPT PURCE B - RESISTANCE DUAP C-RAILER x- SAMPLING DEVICE G C-BADDER PUMP F- DIFFER BOTTLE X-OTHER TURCING MATERIAL SAMPLING DEVICE G A-TEFLON D-POCY X- TURCENCHATERIAL SAMPLING MATERIAL E A-TEFLON D-POCYPROPYLENE C-COMBINATION X- SAMPLING MATERIAL E C - A-TEFLON D-POCYPROPYLENE C-OTHER YE SAMPLING MATERIAL E C - ROLYPROPYLENE C-OTHER YE YE YERCE TURING OTHER (SPECIFY) PURCE TURING G	SAMPLE ID:	GW-074932.	062411-CB-01	WELL#	NW.2
PURCING EQUIPMENTDEDICATED () N (CIRCLE ONE) SAMPLING EQUIPMENTDEDICATED () N (CIRCLE ONE) SAMPLING EQUIPMENTDEDICATED () N (CIRCLE ONE) PURCING DEVICE () A - SUBMERENE PUMP B-PRESTATUR CHAMP B-PRESTATUR CHAMP B-PRESTATUR CHAMP B-PRESTATUR CHAMP B-FIGUR BATERIAL D - CAS LIFT PUMP B- PURCING DEVICE C - BLADER PUMP B- DURPENT BATTERIAL X- E PURCING MATERIAL () A - TEFLON B-STAINLESS STEEL B-STAINLESS STEEL B-STAINLESS STEEL B-STAINLESS STEEL B-STAINLESS STEEL B-STAINLESS STEEL B-STAINLESS STEEL B-POLYETHYLENE X- C - COLYPROPYLENE A- TEFLON D-POCY B-STAINLESS STEEL B-POLYETHYLENE X- FURCING MATERIAL OTHER (SPECIFY) X- FURCING MATERIAL OTHER (SPECIFY) PURCE TUBING C C A - TEFLON B-STAINLESS STEEL B-STAINLESS STEEL B-POLYETHYLENE X- OTHER X- FURCING MATERIAL OTHER (SPECIFY) X- FURCING MATERIAL OTHER (SPECIFY) PURCE TUBING C C - ROPE P-STLICONE X- FUELD MEASUREMENTS X- FUELD MEASUREMENTS DEPTH TO WATER WELL DEPTH VWELL DEPTH VWELL DEPTH VWELL DEPTH VWELL DEPTH VWELL DEPTH VWELL DEPTH VWELL DEPTH VELL ORTH VWELL DEPTH VELL ORTH VWELL DEPTH VWELL DEP	6.24.11 PURGE DATE (MM DD YY)	6 · 24 · 11 SAMPLE DATE (MM DD YY)	WELL PURGING INFORM 1430 SAMPLE TIME (24 HOUR)	MATION WATER VOL. IN GALLONS	CASING ACTUAL VOL, PURGED (GALLONS)
PURGING DEVICE G A - SUBMERSIBLE PUMP D - CAS LIFT PUMP G - BALLER X= SAMPLING DEVICE G C - BLADDER PUMP F- DIPER BOTTLE X - OTHER Y= SAMPLING DEVICE G C - BLADDER PUMP F- DIPER BOTTLE X - OTHER Y= PURGING MATERIAL E A - TEFLON D - PVC Y= Y= SAMPLING MATERIAL E C - POLYPROPYLENE X - OTHER Y= FURGING MATERIAL OTHER (SPECIPY) SAMPLING MATERIAL E C - A - TEFLON D - POLYPROPYLENE X - OTHER Y= SAMPLING TUBING C A - TEFLON D - POLYPROPYLENE X - OTHER Y= SAMPLING TUBING C A - TEFLON D - POLYPROPYLENE X - OTHER Y= SAMPLING TUBING C A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM Y= FILTERING DEVICES 0.45 A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM Y= SAMPLING TUBING OTHER (SPECIPY) FILTERING DEVICES 0.45 A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM Y= SAMPLING TUBING OTHER (SPECIPY) FILTERI	PURGING EQUIPMENTDEDICAT	ED (N (CIRCLE ONE)	GING AND SAMPLING	EQUIPMENT SAMPLI	NG EQUIPMENTDEDICATED 🏈 N (CIRCLE ONE)
PURGING MATERIAL E A - TEFLON D - PVC SAMPLING DEVICE OTHER (SPECIFY) SAMPLING MATERIAL E C - FOLYPROPYLENE X - OTHER FURCING MATERIAL OTHER (SPECIFY) SAMPLING MATERIAL E C - FOLYPROPYLENE X - OTHER X= FURGE TUBING C A - TEFLON D - FOLYPROPYLENE G - COMBINATION X= SAMPLING TUBING C A - TEFLON D - FOLYPROPYLENE G - COMBINATION X= SAMPLING TUBING C C - ROPE F - SELECONE X - OTHER X= TEFLON/FOL/PROPYLENE X= SAMPLING TUBING C C - ROPE F - SELECONE X - OTHER X= TEFLON/FOL/PROPYLENE X= SAMPLING TUBING C - C ROPE F - SELECONE X - OTHER X= TEFLON/FOL/PROPYLENE X= SAMPLING TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY) SAMPLING TUBING C - ROPE F - SELECONE X - OTHER X= SAMPLING TUBING OTHER (SPECIFY) SAMPLING TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY) </td <td>PURGING DEVICE</td> <td>A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP C - BLADDER PUMP</td> <td>D - GAS LIFT PUMP G - H E - PURGE PUMP H - V F - DIPPER BOTTLE X - C</td> <td>SAILER VATERRAØ YTHER</td> <td>X= PURGING DEVICE OTHER (SPECIFY) X=</td>	PURGING DEVICE	A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP C - BLADDER PUMP	D - GAS LIFT PUMP G - H E - PURGE PUMP H - V F - DIPPER BOTTLE X - C	SAILER VATERRAØ YTHER	X= PURGING DEVICE OTHER (SPECIFY) X=
PURGE TUBING $\begin{bmatrix} C \\ A \\ TEFLON \\ B \\ TYGON \\ B \\ TYGON \\ B \\ TYGON \\ C \\ $	PURGING MATERIAL	A - TEFLON B - STAINLESS STEEL C - POLYPROPYLENE	D - PVC E - POLYETHYLENE X - OTHER		SAMPLING DEVICE OTHER (SPECIFY) X= PURGING MATERIAL OTHER (SPECIFY) X= SAMPLING MATERIAL OTHER (SPECIFY)
FILTERING DEVICES 0.45 A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM FIELD MEASUREMENTS DEPTH TO WATER 6 32 (feet) WELL ELEVATION 98 78 (feet) WELL DEPTH ZO 67 (feet) GROUNDWATER ELEVATION 97 46 (feet) TEMPERATURE pH TDS CONDUCTIVITY ORF VOLUME [13.80] (°C) 6.95 (std) (g/L) 7/39 (uS/cm) 79.6 (mV) 5.75 (gal) [13.85] (°C) 6.95 (std) (g/L) 7/139 (uS/cm) 79.9 (mV) 6.25 (gal) [13.85] (°C) 6.93 (std) (g/L) 7/61 (uS/cm) 79.9 (mV) 7.0 (gal) [°C) (std) (g/L) 7161 (uS/cm) 10.0 (gal) (gal) [°C) (std) (g/L) COLOR: 44.9 SHEEN Y/N (gal) SAMPLE APPEARANCE: Cloudy ODOR: COLOR: 44.9 SHEEN Y/N SHEEN Y/N SHEEN Y/N SHEEN Y/N <td< td=""><td>PURGE TUBING C SAMPLING TUBING C</td><td>A - TEFLON B - TYGON C - ROPE</td><td>D - POLYPROPYLENE G - C E - POLYETHYLENE I F - SILICONE X - C</td><td>COMBINATION EFLON/FOLYPROPYLENE THER</td><td>X= PURGE TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY)</td></td<>	PURGE TUBING C SAMPLING TUBING C	A - TEFLON B - TYGON C - ROPE	D - POLYPROPYLENE G - C E - POLYETHYLENE I F - SILICONE X - C	COMBINATION EFLON/FOLYPROPYLENE THER	X= PURGE TUBING OTHER (SPECIFY) X= SAMPLING TUBING OTHER (SPECIFY)
FIELD MEASUREMENTS DEPTH TO WATER 6_32_ (feet) WELL ELEVATION 98_78_ (feet) WELL DEPTH ZO_67 (feet) GROUNDWATER ELEVATION 92_46 (feet) TEMPERATURE pH TDS CONDUCTIVITY ORP VOLUME [4].28 (°C) 7.02 (std) [g/L] 7/39 (us/cm) 92.3 (mV) 6.25 (gal) [13.80 (°C) 6.95 (std) [g/L] 7/6/ (us/cm) 79.9 (mV) 6.25 (gal) [13.85] (°C) 6.93 (std) [g/L] 716/ (us/cm) 79.9 (mV) 7.0 (gal) [°C) (std) [g/L] 716/ (us/cm) 79.9 (mV) (gal) [°C) (std) [g/L] (us/cm) 79.9 (mV) (gal) [°C] (std) [g/L] (us/cm) 79.9 (mV) (gal) [°C] (std) [g/L] [us/cm] Second Second Second Second Second	FILTERING DEVICES 0.45	A - IN-LINE DISPOSAR	BLE B - PRESSURE	C-VACUUM	
FIELD COMMENTS SAMPLE APPEARANCE: C loudy ODOR: Color: fmg SHEEN Y/N WEATHER CONDITIONS: TEMPERATURE // WINDY Y/N PRECIPITATION Y/N (IF Y TYPE) SPECIFIC COMMENTS:	DEPTH TO WATER WELL DEPTH TEMPERATURE [4.28](°C) [3.80](°C) [3.85](°C) [3.85](°C) [6] [7] [7] [8] [9] [6] [7] [7] [6] [7]	6 32 20 67 pH 02 (std) .95 (std) .95 (std) .95 (std) .100 (std)	FIELD MEASUREME (feet) WELL (feet) GROUNDWATE TDS CONE (g/L) ' 72 (g/L) 71 (g/L) 71 (g/L) [g/L)	NTS ELEVATION ER ELEVATION DUCTIVITY (μS/cm) (μS/cm) (μS/cm) (μS/cm)	98 78 (feet) 92 96 (feet) ORP VOLUME 74.6 (mV) 5.75 82.3 (mV) 6.25 74.9 (mV) 7.0 (mV) (gal) (mV) (gal)
I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRAPHOTOCOTS	SAMPLE APPEARANCE:	DOUR ODOR	FIELD COMMENTCOUWINDY Y/N	s DR: <u>fun</u> PRECIPI	_SHEEN Y/N

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SITE/PROJECT NA	ME:	Sategna ZE	-		JOB#	0744	32			
SAMPLE	<i>ID:</i> <u><i>GW</i></u> -	074932-062	111-CB-0	3	WELL# .	MW-	3			
6.24 . [] PURGE DATE (MM DD YY)	G · 24 SAMPL (MM 1	W (/, //] E DATE DD YY) PURG	ELL PURGING 15/0 SAMPLE (24 HOL SING AND SAM	INFORMATIO	DN 2. WATER VC (GA CMENT	2.7 DL IN CASIN LLONS)		7 ACTUAL VC (GALL	DL. PURGED .ONS)	
PURGING EQUIPMENT	DEDICATED (Y) N	i IRCLE ONE)			SA	MPLING EQ	QUIPMENT.	DEDIC	ATED (CIRCLE ON	N NE)
PURGING DEVICE	A-SUBM B-PERES C-BLAI	HERSIBLE PUMP TALTIC PUMP DDER PUMP	D - GAS LIFT PUMP E - PURGE PUMP F - DIPPER BOTTLE	G - BAILER H - WATERI X - OTHER	RA®	X-	PURGING I	DEVICE OTH	IER (SPECIFY) HER (SPECIFY	
PURGING MATERIAL	E A - TEFL B - STAR C - POLY	ON NLESS STEEL PROPYLENE	D - PVC E - POLYETHYLENE X - OTHER			X= 	PURGING I	MATERIAL C	OTHER (SPECI	FY) IFY)
URGE TUBING	A - TEFL B - TYGC C - ROPE		D - POLYPROPYLEN E - POLYETHYLENE F - SILICONE	E G - COMBIN TEFLON X - OTHER	ATION /POLYPROPYI	X= .ENE X=	PURGE TU	BING OTHER TUBING OT	R (SPECIFY) HER (SPECIFY	0
	A		FIELD MEAS							
DEPTH TO WAT WELL DEPT TEMPERATURE [14.95](°C) [13.24](°C) [13.06](°C) [16.00](°C)	PH PH 7.35 7.16 7.16 7.16	6 06 2.0 2.5 (std)	(fcet) (feet) GROU DS (g/L) (g/L) (g/L) (g/L)	WELL ELEV NDWATER ELEV CONDUCTIV ' 8421 7913 7853	ATION [VATION] VITY (μS/c (μS/c (μS/c (μS/c	m) m) m) m)	98 92 0RF 60.3 19.5 20.3	6 6 (mV) (mV) (mV) (mV) (mV)	(feet) (feet) VOLUM 4.25 6.0 7.0	
			FIELD CON	MMENTS						
AMPLE APPEARANCE: EATHER CONDITIONS: PECIFIC COMMENTS:	<u>Clear</u> TEMPERATURE	ODOR:	WINDY Y/	COLOR: /N	<u>_clear</u> F	SHE	EN Y/N N Y/N (IF Y	TYPE)		

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APPENDIX B

JUNE 2011 QUARTERLY GROUNDWATER LABORATORY ANALYTICAL REPORT

e-Hardcopy 2.0 Automated Report

Gulf Coast



Technical Report for

Conoco Phillips

CRA: Sategna

Sategna 2E / 74932

Accutest Job Number: T79850

Sampling Date: 06/24/11

Report to:

Conestoga Rovers & Associates

keblanchard@craworld.com christine.mathews@tetratech.com; cassandre.brown@tetratech.com ATTN: Kelly Blanchard

Total number of pages in report: 24



Paul K Carrevaro

Paul Canevaro Laboratory Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Erica Cardenas 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) FL (E87628) .KS (E-10366) LA (85695/04004) OK (9103)

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Sample Summary

Conoco Phillips

Job No: T79850

CRA: Sategna Project No: Sategna 2E / 74932

Sample Number	Collected Date	Time By	Received	Matri Code	х Туре	Client Sample ID
T79850-1	06/24/11	14:30	06/28/11	AQ	Ground Water	GW-74932=062411-1B-01
T79850-1F	06/24/11	14:30	06/28/11	AQ	Groundwater Filtered	GW-74932-0624141-1B-01 (DISSOLVED)
T79850-2	06/24/11	14:50	06/28/11	AQ	Ground Water	GW-74932-062411-CB-02
T79850-2F	06/24/11	14:50	06/28/11	AQ	Groundwater Filtered	GW-74932-0624111-CB-02 (DISSOLVED)
T79850-3	06/24/11	15:10	06/28/11	AQ	Ground Water	GW=74932=0624111=CB=03
T779850-3F	06/24/11	15:10	06/28/11	AQ	Groundwater Filtered	GW=74932-0624111+CB=03 (DISSOFVED)

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Report of	Analysis	
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	1 Standard Barris	
A.L.		

Report of Analysis

Client Sample ID: GW-74932-062411-1B-01 Lab Sample ID: T79850-1 Date Sampled: 06/24/11 Matrix: Date Received: 06/28/11 AQ - Ground Water Percent Solids: n/a Project: CRA: Sategna **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	2550	。20	mg/l	1	06/30/11	BG	SM 2540C
Sulfate	1860	100	mg/l	200	07/08/11 22:1	2 ES	EPA 300/SW846 9056

Page 1 of 1



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RL = Reporting Limit

				кер	ort of A	Analysis		Page 1 of	f
Client Sampl Lab Sample Matrix:	e ID: GW-74 ID: T79850 AQ - G	932-06)-1F roundv	2411-1B-0 vater Filter	1 (DIS ed	SSOLVED)	Date Sam Date Rece Percent S	pled: 06/24/11 ived: 06/28/11 olids: n/a		
Project:	CRA: S	Sategna							
Dissolved Me	etals Analysis				i Balkinan Sa				_
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Manganese	174	15	ug/l	1	06/29/11	07/01/11 EG	SW846 6010B ¹	SW846 3010A ²	

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(1) Instrument QC Batch: MA5877
 (2) Prep QC Batch: MP15113



2.2

Report of Analysis

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Client Sample ID: GW-74932-062411-CB-02 Lab Sample ID: T79850-2 Matrix: AQ - Ground Water Date Received: 06/28/11 Project: CRA: Sategna	Anglyta	Result	DI Unite	DF Analy	red Ry	Method	
Client Sample ID: GW-74932-062411-CB-02 Lab Sample ID: T79850-2 Date Sampled: 06/24/11 Matrix: AQ - Ground Water Date Received: 06/28/11 Project: CRA: Sategna Project: CRA: Sategna	General Chemistry	7					
Client Sample ID:GW-74932-062411-CB-02Lab Sample ID:T79850-2Date Sampled:06/24/11Matrix:AQ - Ground WaterDate Received:06/28/11Percent Solids:n/a	Project:	CRA: Sategna			12 u		
Client Sample ID: GW-74932-062411-CB-02 Lab Sample ID: T79850-2 Date Sampled: 06/24/11	Matrix:	AQ - Ground Water		Date Received: Percent Solids:	06/28/11 n/a		
	Client Sample ID: Lab Sample ID:	GW-74932-062411-CE T79850-2	-02	Date Sampled:	06/24/11		

Solids, Total E	bissolved	2450 20	mg/l	1	06/30/11	BG	SM 2540C	•	
Sulfate		1790 100	mg/l	200	07/08/11 22:29	ES	EPA 300/SW8	846 9056	

RL = Reporting Limit



Page 1 of 1



				Rep	ort of A	nalysis		Page 1 o
Client Sample I Lab Sample ID Matrix:	ID: GW-7 : T7985 AO - 0	4932-06 0-2F Groundy	2411-CB-(02 (DI	SSOLVED)) Date Sam Date Rece	pled: 06/24/11 ived: 06/28/11	
Project:	CRA:	Sategna			<u>.</u>	Percent Se	olids: n/a	
Dissolved Meta	ls Analysis							
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Manganese	574	15	ug/l	1	06/29/11	07/01/11 EG	SW846 6010B ¹	SW846 3010A ²

(1) Instrument QC Batch: MA5877
 (2) Prep QC Batch: MP15113

2.4



Report of Analysis

Lab Sample ID: T79850-3 Date Sampled: 06/24/11 Matrix: AQ - Ground Water Date Received: 06/28/11 Project: CRA: Sategna n/a	General Chemistry	Desult	זמ	Unite	DE	Anolyzod	D ₁	Mathad	
Lab Sample ID:T79850-3Date Sampled:06/24/11Matrix:AQ - Ground WaterDate Received:06/28/11Percent Solids:n/a	Project:	CRA: Sategna							
Client Sample ID: GW-74932-062411-CB-03	Client Sample ID: Lab Sample ID: Matrix:	GW-74932-062411-CB-0 T79850-3 AQ - Ground Water	3		Date S Date I Percer	Sampled: 0 Received: 0 at Solids: 1)6/24/11)6/28/11 /a		

Analyte	Result	NL	Units	Dr	Analyzeu	Бу	Methou
Solids, Total Dissolved	2860	20	mg/l	1	06/30/11	BG	SM 2540C
Sulfate	2080	100	mg/l	200	07/08/11 22:46	ES	EPA 300/SW846 9056

RL = Reporting Limit



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9 of 24 ACCUTEST. 179850

		Report of Analysis													
Client Sample	e ID: GW-74	GW-74932-062411-CB-03 (DISSOLVED) T79850-3F Date Sampled: 06/24/11													
Matrix:	AQ - (Groundv	vater Filter	red		Date Rece Percent S	ved: 06/28/11 olids: n/a								
Project:	CRA:	Sategna													
Dissolved Me	tals Analysis		21												
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method							
Manganese	1700	15	ug/l	1	06/29/11	07/01/11 EG	SW846 6010B 1	SW846 3010A ²							

(1) Instrument QC Batch: MA5877
 (2) Prep QC Batch: MP15113

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Section 3



Mise. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody



1111	7	1. N.	SP	L, In	c.			194	100	SPL	Vorkorder	No.	ş.,	3	202	34
	® 1	Analysis R	equest &	Chain o	of Cust	ody Re	cord			1	P18t	20		page_	of	
Client Name: (144			100	matrix	bottle	size	pres.				Reg	uestee	I Analy	vsis	1	1
Address: 6721 10/10	in School	RANE	#200	lio=	ass	rial				No No						Γ
Phone/Fax: 55-884-0	de72			Ö	r gl	0=1	-	LS		an						1
Client Contact: Kelly Bar	Whay Email:	4 blancho	Alcan	alt an	mbe I X	X=	NO	aine	X	an						
Project Name/No .: Salegna	2E(7	14932)		X=0	A=au	=40; 60Z	H=	onta	F	2						
Site Name: Su fagna,	11 1.7			9	N N	5=1(4 10	ofC	Ľ.	2						
site Location: Blomfie	eld, NM			ludg	ass	z 10	SO ²	Der o	4 P	N. The						
nvoice To:		Ph:		M=	=pla=	=1 li =802	HIC	umt	1	-27			100			
SAMPLE ID	DATE	TIME	comp gra	N N N	A O	~ ~	1	Z	2	R			12	1.0		
GW-74932-262411-	18-01 (1.24:11	1430	X	W	Y	1	None	1	X						1	
W-74932-do 2411-18-01	1 4.2411	1430	X	W	P	16	Non	1		Х						
TUL-74932-~ 24118	00 10.24.11	1450	X	11/	P	1	Non	1	X							
-174602-61 AU 102	2 11. 7A 11	1150		11	P		w lat	1		V			-			
-1493-2-062411-082		1900		100	0	14	NOR	1	N	~			-	1		
TW-74932-66241-CB-	03 U. 2411	1510	X	W	P		None	_	Å			-			-	
SW-749321602411-CB	3036.24.1	1510	X	W	P	16	Nong	1		X			_			
				1	25.1	1.	100	-				1				
						1								1		
						1.2.3										
		4				19										
Hent/Consultant Remarks:	reserve met	also, le	ib	Laborate	ory rema	rks:							Intact Ice? Temp:	?		N N
Requested TAT	Special Repo	rting Require	nents Resu	ilts: Fax	Б	mail	PDA	Special	Detectio	on Limits	(specify):		1.1	PM rev	iew (in	itial
Contract 🔲 72hr	Standard QC	Level 3 QC	Level 4 (C TX	TRRP	LA RE	CAP				r					
24hr D Standard D	1. Relinquish	ed by Sample		1.16		date	1.00	time	AX	2. Receiv	red by:	HON	6	1		
standard L	3. Relinguish	ed by:	m			date,	-1.	tinge	10	4. Receiv	ed by:	que	1			
48hr L		-17	alx			62	311	0	D	In	VIA	DUS	tha	-		
Other	5. Relinquish	ed by:	/			date		time		6. Receiv	ed by Lat	poratory:				
1 8880 Interchor	and Drive			500 Am	hassada	r Caffe	ry Park	way				1 450	Hughes	Drive		_
Houston, TX 77054 (7	13) 660-0901		_	Scott, LA	70583	(337) 2	37-4775	, ay			Traverse	City M	II 49686	(231)	947-57	77

T79850: Chain of Custody Page 1 of 3 3.1 3



Accutest Laboratories Sample Receipt Summary

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Accutest Job Number: T798	50	Client:	CRA			Project:					
Date / Time Received: 6/28/2	2011	-	Delivery I	Method		Airbill #'s: 48689	9904872				
No. Coolers: 1	Therm ID	: 110;				Temp Adjustment	Factor: -0.5;				
Cooler Temps (Initial/Adjuste	d): <u>#1: (5/</u>	(4.5);				· · ·	*******				
Cooler Security Y	or N			Yo	r N	Sample Integrity - Documentation	,	Y	or N		
1. Custody Seals Present:		3. COC Pr	resent:			1. Sample labels present on bottles:		V			
2. Custody Seals Intact:	L ·	4. Smpl Date	s/Time OK	⊻		2. Container labeling complete:	I	V			
Cooler Temperature	Y or	<u>N</u>				3. Sample container label / COC agree	r:	V			
1. Temp criteria achieved:						Sample Integrity - Condition	-	Y	or N		
2. Cooler temp verification:	Glass Therr	nometer				1. Sample recvd within HT:	1		· 🗆		
3. Cooler media:	Ice (Ba	ag) .				2. All containers accounted for:	1				
Quality Control Preservation	<u>Y or</u>	<u>N N/A</u>		<u> WTB</u>	STB	3. Condition of sample:			Intact		
1. Trip Blank present / cooler:		0 2				Sample Integrity - Instructions		Y	or N	N/	A
2. Trip Blank listed on COC:						1. Analysis requested is clear:	Ē	V			
3. Samples preserved properly:						2. Bottles received for unspecified tes	ts (
4. VOCs headspace free:						3. Sufficient volume recvd for analysis	: (V			
						4. Compositing instructions clear:	[6	2
					•	5. Filtering instructions clear:	(6	2
Comments										1	
						\wedge					
						()	~ 1				
							r. / M/		1 1		
							Ibil	1	0/28/1	1	

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Houston, TX 77036

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ACCUTEST.

LABOP

T79850

T79850: Chain of Custody Page 2 of 3

Sample Receipt Log

Page 2 of 2

Job #: T79850

Date / Time Received: 6/28/2011 10:10:00 AM

Initials: VG

Client: CRA

	_		

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	T79850-1	32oz	1	3B	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5
1	T79850-1	500 ml	2	1DD	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5
1	T79850-2	32oz	1	3B	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5
1	T79850-2	500 ml	2	1DD	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5
1	T79850-3	32oz	1	3B	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5
1	T79850-3	500 ml	2	1DD	N/P	Note #2 - Preservative check not applicable.	110	5	-0.5	4.5

T79850: Chain of Custody Page 3 of 3

Section 4



Gulf Coast

LABORATORIES

ACCUTEST.

QC Data Summaries

Includes the following where applicable:

• Method Blank Summaries

• Matrix Spike and Duplicate Summaries

• Blank Spike and Lab Control Sample Summaries

• Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

QC Batch ID: MP15113 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:					06/29/11	
Metal	RL	IDL	MDL	MB raw	final	
Aluminum	200	8.3	12			
Antimony	5.0	1	1			
Arsenic	5.0	1.7	1			
Barium	200	.97	3.4			
Beryllium	5.0	.056	.16			
Boron	100	1.4	7.8			
Cadmium	4.0	.11	.09			
Calcium	5000	7.4	25			
Chromium	10	.23	.27			
Cobalt	50	.15	.22			
Copper	25	1.1	5.9			
Iron	100	1.1	23			
Lead	3.0	1	1.8			
Lithium	300	2	2			
Magnesium	5000	7.7	7.9			
Manganese	15	.054	1.9	0.86	<15	
Molybdenum	10	.39	.2			
Nickel	40	.69	1.4			
Potassium	5000	39	45			
Selenium	5.0	1.5	.98			
Silver	10	1.2	.24			
Sodium	5000	9.2	100			
Strontium	10	.061	.4			
Thallium	10	.67	1.2			
Tin	20	.69	2.8			
Titanium	20	.29	.3			
Vanadium	50	.3	.3			
Zinc	20	.51	3.5			

Associated samples MP15113: T79850-1F, T79850-2F, T79850-3F

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

4.1.1

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

QC Batch ID: MP15113 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:	06/29/11		06/29/11				
Metal	T79839-5F Original DUP	RPD	QC Limits	T79839-5F Original MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum							
Antimony							
Arsenic	anr						
Barium	anr						
Beryllium							
Boron							
Cadmium	anr						
Calcium							
Chromium	anr						
Cobalt							
Copper							
Iron	anr						
Lead	anr						
Lithium							
Magnesium							
Manganese	5270 5500	4.3	0-20	5270 5500	400	57.5 (a)	80-120
Molybdenum							
Nickel							
Potassium							
Selenium	anr						
Silver	anr						
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc							
Associated sam	ples MP15113: T798	50-1F, T7	9850-2F,	T79850-3F			
Results < IDL	are shown as zero	for calcu	lation pu	rposes			

(*) Outside of QC limits(N) Matrix Spike Rec. outside of QC limits(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

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ACCUTEST. LABORATORIES

T79850

4.1.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

QC Batch ID: MP15113 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:			06/29/3	11	
Metal	T79839-5F Original MSD	Spikelot MPTW4 % Rec	MSD RPD	QC Limit	
Aluminum		2.5			· · · · · · · · · · · · · · · · · · ·
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
alcium					
hromium	anr				
obalt					
Copper					
ron	anr				
lead	anr				
ithium					
agnesium					
langanese	5270 5650	400 95.0	2.7	20	
lolybdenum					
ickel					
otassium					
elenium	anr				
ilver	anr				
odium					
trontium					
hallium					
in					
itanium					
anadium					
inc					
ssociated sa	mples MP15113: T79	9850-1F, T79850-2F,	T79850-3	F	
esults < IDL *) Outside o N) Matrix Sp anr) Analyte	are shown as zero f QC limits ike Rec. outside o not requested	o for calculation p of QC limits	ourposes		



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

QC Batch ID: MP15113 Matrix Type: AQUEOUS

1

Methods: SW846 6010B Units: ug/l

Prep Date:			06/29/11	11	11 × 11
Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits	
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper					
Iron	anr				
Lead	anr				
Lithium					
Magnesium					
Manganese	426	400	106.5	80-120	
Molybdenum					
Nickel					
Potassium					
Selenium	anr				
Silver	anr				
Sodium					
Strontium					
Challium					
Tin					
litanium					
Vanadium					
linc					
Associated sam	mples MP15	5113: T798	50-1F, T7	79850-2F, T79850-3F	
	1		c		

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

4.1.3 4

SERIAL DILUTION RESULTS SUMMARY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

QC Batch ID: MP15113 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:		06/29/11		
Metal	T79839-5F Original SDL 1:5	%DIF	QC . Limits	
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	anr			
Lead	anr			
Lithium				
Magnesium				
langanese	5270 5230	0.8	0-10	
Molybdenum				
Nickel				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
hallium				
lin				
itanium				
anadium				
linc				
appainted an	mplos Mp15113, T700	50-1F T7	2850_2F T78850_3F	

-1F, T79850 2F,

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

Section 5

General Chemistry

Gulf Coast

A B O R A T O R I E S

Reutes.

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits	
Solids, Total Dissolved Sulfate	GN32568 GP13815/GN32828	10 0.50	3.0 0.0	mg/l mg/l	500 10	496 9.28	99.2 92.8	80-120% 90-110%	5.1
Associated Samples: Batch GN32568: T79850-1, T Batch GP13815: T79850-1, T	179850-2, T79850-3 179850-2, T79850-3								(J

(*) Outside of QC limits

22 of 24 ACCUTEST. 179850

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits	
Solids, Total Dissolved Sulfate	GN32568 GP13815/GN32828	T79850-3 T79848-5	mg/l mg/l	2860 176	2890 172	1.0 2.3	0-5% 0-20%	5.2
Associated Samples: Batch GN32568: T79850-1, T798 Batch GP13815: T79850-1, T798 (*) Outside of QC limits	50-2, T79850-3 50-2, T79850-3							С

23 of 24 ACCUTEST. LABORATORIES T79850

MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: T79850 Account: CONOCO - Conoco Phillips Project: CRA: Sategna

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits	
Sulfate	GP13815/GN32828	T79848-5	mg/l	176	200	371	97.5	80-120%	5.3
Associated Samples: Batch GP13815: T79850-1, T798 (*) Outside of QC limits (N) Matrix Spike Rec. outside	50-2, T79850-3 of QC limits								G

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ACCUTEST.

T79850