3R-087

QTR GW monitoring results

DATE:
October 2009

TETRA TECH, INC.

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

January 25, 2010

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

RE: (1) ConocoPhillips Company Federal 15 Site, Farmington, New Mexico. 2009 Quarterly Groundwater Monitoring Report - Second Quarter 2009
(2) ConocoPhillips Company Federal 15 Site, Farmington, New Mexico. 2009 Quarterly Groundwater Monitoring Report - Third Quarter 2009

Dear Mr. von Gonten:

Enclosed please find one (1) copy of each of the above-referenced documents as compiled by Tetra Tech, Inc., formerly Maxim Technologies, for this Farmington area site.

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

Sincerely,

Kelly E. Blanchard

Kelly E. Blanchard
Project Manager/Geologist

Enclosures (2)

QUARTERLY GROUNDWATER MONITORING REPORT SEPTEMBER 2009

CONOCOPHILLIPS COMPANY FEDERAL #15 FARMINGTON, NEW MEXICO

OCD # 3R087

API # 30-045-20078

Prepared for:

ConocoPhillips

420 South Keeler Avenue
Bartlesville, OK 74004

Prepared by:

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Tetra Tech Project No. 114-690110.100

October 2009

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QUARTERLY GROUNDWATER MONITORING REPORT CONOCOPHILLIPS COMPANY FEDERAL #15 FARMINGTON, NEW MEXICO

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on September 28, 2009, at the ConocoPhillips Company Federal #15 site in Farmington, New Mexico (Site). This event represents the sixth consecutive quarter of groundwater monitoring at the Site, and represents the fifth consecutive quarter of groundwater monitoring with laboratory results below New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards (GWQS) contained in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Quarterly monitoring was initiated in March 2008, following a more variable monitoring frequency in place since 2005.

The Site is located between Washington Avenue and English Road on the north side of Gila Street; New Mexico 516 (Main Street) is located approximately 0.5 miles to the west. The Site consists of a gas production well and associated equipment and installations. The location and general features of the Site are shown on **Figures 1** and **2**, respectively.

1.1 Site History

The history of the Site is outlined on **Table 1** and discussed in more detail in the following paragraphs.

On October 23, 2004, a release was discovered at the Site. It was estimated that up to 15 barrels of condensate were unaccounted for. Approximately 1,500 cubic yards of affected soil were excavated and replaced with clean fill during the week of October 25, 2004.

Following soil remediation activities, four, 2-inch polyvinyl chloride (PVC) groundwater monitor wells (MW-1 through MW-4) were installed on November 16 and November 17, 2004 by Biosphere Environmental Sciences and Technologies, LLC to depths of approximately 20 feet below ground surface (bgs). An additional, downgradient monitor well (MW-5) was installed to a depth of approximately 17.5 feet bgs on the property south of the Site on October 19, 2005 by Spectrum Drilling under the supervision of Tetra Tech.

Monitor wells MW-1 through MW-4 were initially sampled on January 18, 2005 and again on October 18 and 19, 2005. Monitor well MW-5 was initially sampled on October 19, 2005.

Beginning in July 2005, Tetra Tech conducted quarterly groundwater removal events at monitor well MW-2 using a vacuum truck. A total of 4,343 gallons were pumped from this well between July 2005 and January 2008, at which time pumping activities were discontinued. The pumped water was

disposed of in the on-site waste water tank (**Figure 2**). Each quarterly groundwater removal event is listed on **Table 1**.

Tetra Tech conducted annual groundwater sampling of monitor wells MW-1 through MW-5 in November of 2006 and 2007. The details of each sampling event are summarized in the 2006 and 2007 Annual Groundwater Monitoring and Site Activities Reports, dated January 2, 2007 and January 30, 2008, respectively.

The 2008 quarterly groundwater monitoring events were conducted in March, July, and October of 2008 and in January 2009. The sampling event conducted on March 30, 2009 is the first quarter of sampling for 2009. Second quarter 2009 sampling was conducted on June 16, 2009. The most recent quarterly sampling event on September 28, 2009 marks the fifth consecutive quarterly groundwater monitoring event at the Site in which groundwater quality results for benzene, toluene, ethylbenzene and total xylenes (BTEX) were all below GWQS.

2.0 METHODOLOGY AND RESULTS

The following subsections describe the groundwater monitoring methodology and sampling analytical results.

2.1 Groundwater Monitoring Methodology

Groundwater Elevation Measurements

On September 28, 2009, groundwater elevation measurements were recorded in monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **Table 2** presents the monitor well specifications and groundwater level data. A groundwater elevation contour map is presented on **Figure 3,** which illustrates that groundwater at the Site flows to the south, southwest at an approximate gradient of 0.02 feet/feet (ft/ft) toward the Animas River, located approximately 3,200 feet south of the Site.

Groundwater sampling

Groundwater quality samples were collected from monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5 during the September 28, 2009 groundwater sampling event. Approximately 5 gallons of water, or three well volumes, were purged from each monitor well before sampling was performed. A 1.5-inch poly-vinyl disposable bailer was used in each well to purge and collect groundwater samples. The purged water was disposed of in the on-site waste water tank (**Figure 2**). The samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain of custody documentation to Southern Petroleum Laboratory located in Houston, Texas. The samples were analyzed for presence of BTEX by Environmental Protection Agency (EPA) Method 8260B.

2.2 Groundwater Sampling Analytical Results

The September 28, 2009 analysis of the collected groundwater samples indicates that all analyzed constituents are present in concentrations either below GWQS or were not detected above their

respective laboratory reporting limits. Groundwater samples collected from MW-1, MW-2, MW-3, MW-4 and MW-5 did not reveal BTEX in concentrations above the laboratory reporting limit of 1 microgram per liter (ug/l). A duplicate sample collected from MW-2 contained concentrations of benzene, ethylbenzene and total xylenes below GWQS. Historical laboratory analytical data, including the September 2009 data, are summarized on **Table 3**. The field groundwater sampling forms are presented in **Appendix A** and the laboratory analytical report is presented in **Appendix B**. A generalized geologic cross section of the Site was included in the January 2009 (fourth quarter 2008) report.

3.0 CONCLUSIONS

Tetra Tech conducted quarterly pumping events in monitor well MW-2 from July 2005 to January of 2008. The concentrations of BTEX measured in this well have decreased steadily from January 2005 to September 2009 and are summarized below.

- MW-2 benzene concentrations have decreased from 1,200 ug/L to less than the laboratory reporting limit of 1 ug/L.
- MW-2 toluene concentrations decreased from 3,300 ug/L (above the GWQS of 750 ug/L) to less than the laboratory reporting limit of 1 ug/L.
- MW-2 ethylbenzene concentrations decreased from 380 ug/L (below the GWQS of 750 ug/L) to less than the laboratory reporting limit of 1 ug/L.
- MW-2 total xylenes concentrations decreased from 3,500 ug/L (above the GWQS of 620 ug/L) to less than the laboratory reporting limit of 1 ug/L.

The decrease in BTEX concentrations indicates that the pumping events were effective. Tetra Tech has discontinued the pumping of monitor well MW-2 and will continue monitoring all wells quarterly in order to move toward closure of the Site.

Benzene in MW-3 has decreased from 190 µg/L in January 2005 to less than the laboratory reporting limit of 1 ug/L in September 2009, while benzene in MW-4 has decreased from 36 ug/L in November 2007 to less than the laboratory reporting limit of 1 ug/L in September 2009. Additionally, chlorides have never been detected above GWQS in any Site monitor well. Therefore, analysis of this constituent has been discontinued as of the January 2009 sampling event.

If you have any questions regarding the content of this report, please contact Kelly Blanchard at (505) 237-8440 or at kelly.blanchard@tetratech.com.

FIGURES

1. Site Location Map
2. Site Layout Map
3. Groundwater Elevation Contour Map

FIGURE 1.

Site Location Map
ConocoPhillips Company
Federal #15
Farmington, NM

Approximate ConocoPhillips Federal #15 Site location

Latitude = 36.759339 deg N
Longitude = -108.149891 deg W

N

TETRA TECH, INC.

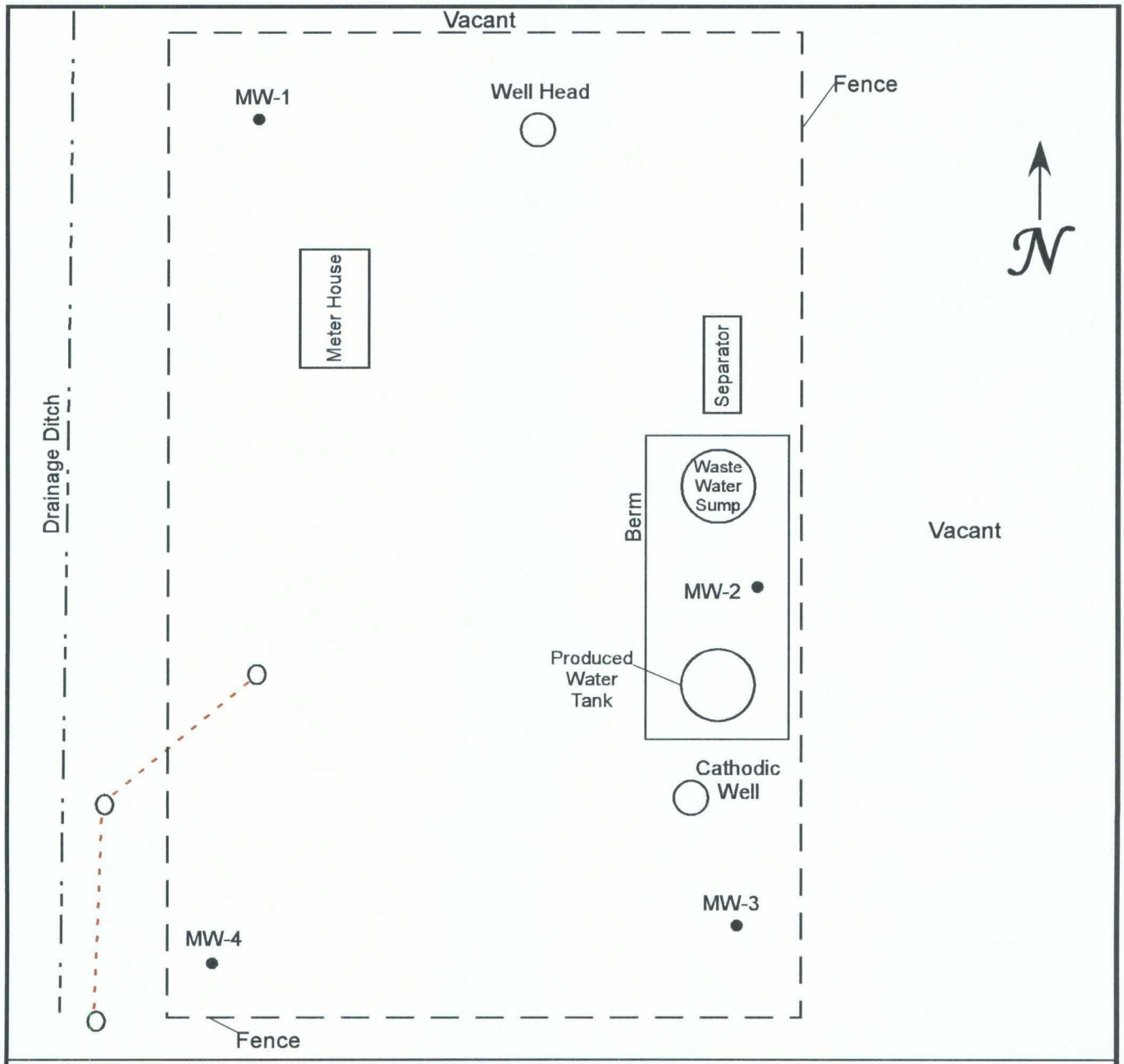

Figure 2. Site Layout Map
ConocoPhillips Company
Federal #15
Farmington, New Mexico

TETRA TECH, INC.

● Monitoring Well
- - - Overhead Electric Line

Not to scale

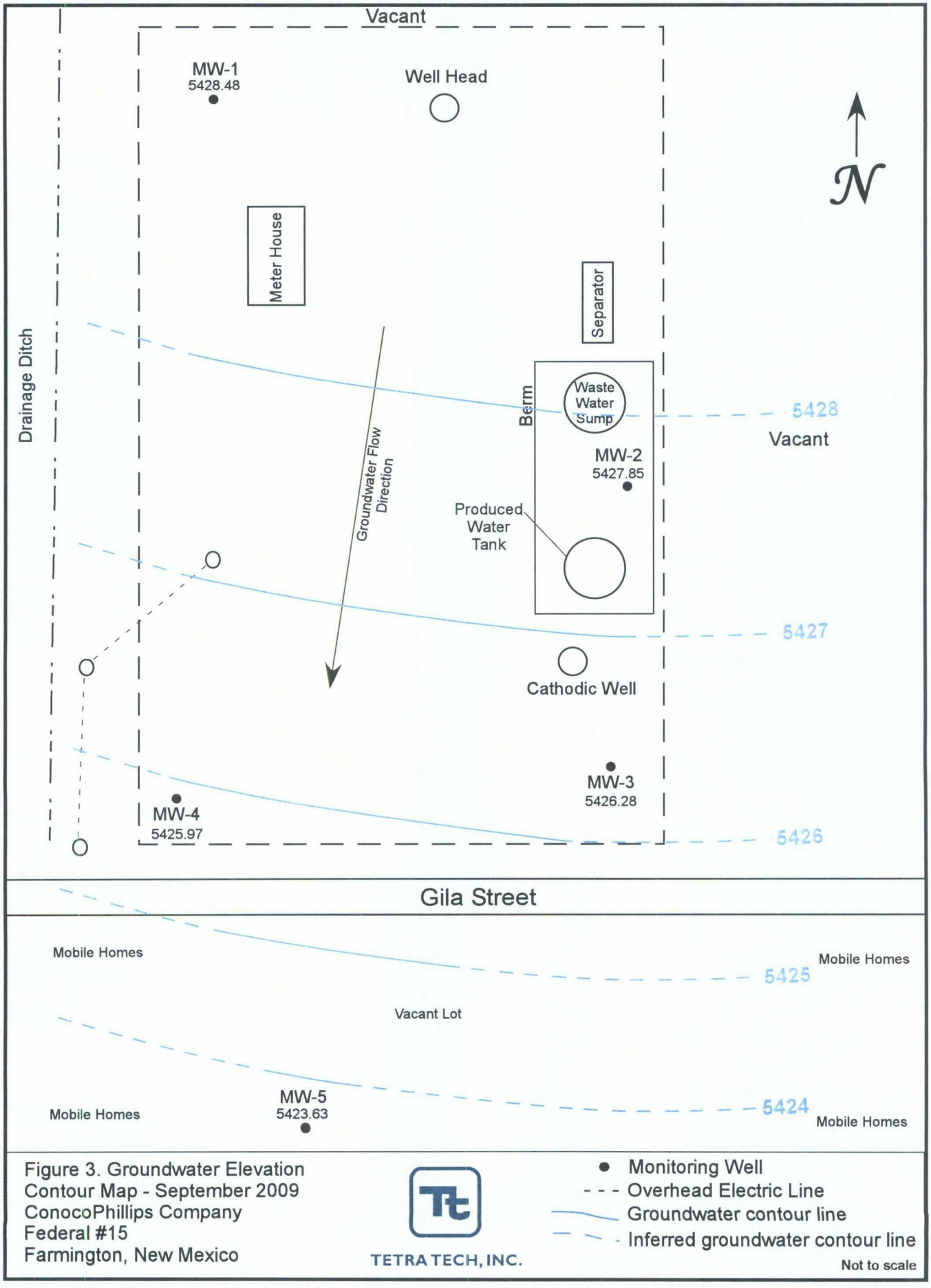

Figure 3. Groundwater Elevation Contour Map - September 2009
ConocoPhillips Company
Federal #15
Farmington, New Mexico

TETRA TECH, INC.

TABLES

Table 1. Site History Timeline - ConocoPhillips Company Federal #15

Date/Time Period	Event/Action	Description
October 23, 2004	Release Discovered	Estimated that 15 barrels of condensate was released to the subsurface soil and groundwater
October 25-29, 2004	Soil Excavation	Approximately 1500 cubic yards of affected soil excavated and replaced with clean fill
November 16-17, 2004	Monitor Well Installation	Monitor wells MW-1, MW-2, MW-3, and MW-4 installed to depths of approximately 20 ft BGS
January 18, 2005	Monitor Well Sampling	Initial sampling of monitor wells MW-1, MW-2, MW-3, and MW-4
July 7, 2005	Groundwater Removal from Monitor Well MW-2	First removal of groundwater - 145 gallons removed
October 18-19, 2005	Monitor Well Sampling	Second sampling of monitor wells MW-1, MW-2, MW-3, and MW-4
October 19, 2005	Monitor Well Installation	Monitor well MW-5 installed to a depth of 17.5 ft BGS
October 19, 2005	Groundwater Removal from Monitor Well MW-2	558 gallons removed
October 20, 2005	Monitor Well Sampling	Initial sampling of monitor well MW-5
February 16, 2006	Groundwater Removal from Monitor Well MW-2	236 gallons removed
May 15, 2006		296 gallons removed
August 2, 2006		380 gallons removed
November 14, 2006		440 gallons removed
November 14-15, 2006	Monitor Well Sampling	Third sampling of monitor wells MW-1, MW-2, MW-3, and MW-4; second sampling of monitor well MW-5
February 20, 2007	Groundwater Removal from Monitor Well MW-2	346 gallons removed
May 15, 2007		474 gallons removed
August 21, 2007		528 gallons removed
November 7, 2007		575 gallons removed
November 7, 2007	Monitor Well Sampling	Fourth sampling of monitor wells MW-1, MW-2, MW-3, and MW-4; third sampling of monitor well MW-5
January 16, 2008	Groundwater Removal from Monitor Well MW-2	365 gallons removed
March 18, 2008	Groundwater Removal from Monitor Well MW-2	278 gallons removed
March 18, 2008	Groundwater Removal from Monitor Well MW-4	288 gallons removed
March 18, 2008	Monitor Well Sampling	Initiation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5
July 21, 2008	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5
October 21, 2008	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **First quarter of compliance** with all COCs bellow NMWQCC standards.
January 22, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **Second quarter of compliance** with all COCs bellow NMWQCC standards.
March 30, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **Third quarter of compliance** with all COCs bellow NMWQCC standards.
June 16, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **Fourth quarter of compliance** with all COCs bellow NMWQCC standards.
September 28, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1, MW-2, MW-3, MW-4, and MW-5. **Fifth quarter of compliance** with all COCs bellow NMWQCC standards.

Table 2. Groundwater Elevation Summary (January 2005 - September 2009) - ConocoPhillips Company Federal #15

Well ID	Date Installed	Total Depth (ft bgs)	Screen Interval (ft)	Date Measured	Groundwater Level (ft TOC)	Elevation (ft msl) (TOC)	Groundwater Elevation (ft msl)
MW-1	11/17/2004	20	5 - 20	1/18/2005	8.92	5437.99	5429.07
				7/7/2005	9.33		5428.66
				10/19/2005	8.03		5429.96
				2/16/2006	8.84		5429.15
				5/15/2006	8.96		5429.03
				8/2/2006	8.35		5429.64
				11/14/2006	8.10		5429.89
				2/20/2007	8.76		5429.23
				5/15/2007	9.67[1]		5428.32
				8/21/2007	NM		NM
				11/7/2007	AM		AM
				1/16/2008	7.10		5430.89
				3/18/2008	7.61		5430.38
				7/21/2008	4.82		5433.17
				10/21/2008	4.72		5433.27
				1/22/2009	7.12		5430.87
				3/30/2009	7.98		5430.01
				6/16/2009	8.78		5429.21
				9/28/2009	9.51		5428.48
MW-2	11/17/2004	20	5 - 20	1/18/2005	9.49	5437.33	5427.84
				7/7/2005	9.55		5427.78
				10/19/2005	8.66		5428.67
				2/16/2006	9.01		5428.32
				5/15/2006	9.00		5428.33
				8/2/2006	8.52		5428.81
				11/14/2006	8.28		5429.05
				2/20/2007	8.87		5428.46
				5/15/2007	8.59		5428.74
				8/21/2007	6.67		5430.66
				11/7/2007	AM		AM
				1/16/2008	7.41		5429.92
				3/18/2008	8.00		5429.33
				7/21/2008	4.63		5432.70
				10/21/2008	4.37		5432.96
				1/22/2009	7.39		5429.94
				3/30/2009	8.23		5429.10
				6/16/2009	8.73		5428.60
				9/28/2009	9.48		5427.85
MW-3	11/22/2004	20	5 - 20	1/18/2005	8.54	5435.13	5426.59
				7/7/2005	8.51		5426.62
				10/19/2005	7.75		5427.38
				2/16/2006	NM		NM
				5/15/2006	8.42		5426.71
				8/2/2006	7.99		5427.14
				11/14/2006	7.72		5427.41
				2/20/2007	8.23		5426.90
				5/15/2007	7.90		5427.23
				8/21/2007	NM		NM
				11/7/2007	AM		AM
				1/16/2008	7.20		5427.93
				3/18/2008	7.73		5427.40
				7/21/2008	5.00		5430.13
				10/21/2008	4.12		5431.01
				1/22/2009	7.17		5427.96
				3/30/2009	7.91		5427.22
				6/16/2009	8.23		5426.90
				9/28/2009	8.85		5426.28

Table 2. Groundwater Elevation Summary (January 2005 - September 2009) - ConocoPhillips Company Federal #15

Well ID	Date Installed	Total Depth (ft bgs)	Screen Interval (ft)	Date Measured	Groundwater Level (ft TOC)	Elevation (ft msl) (TOC)	Groundwater Elevation (ft msl)
MW-4	11/22/2004	20	5 - 20	1/18/2005	8.65	5434.68	5426.03
				7/7/2005	8.50		5426.18
				10/19/2005	7.72		5426.96
				2/16/2006	8.35		5426.33
				5/15/2006	8.40		5426.28
				8/2/2006	7.96		5426.72
				11/14/2006	7.74		5426.94
				2/20/2007	8.18		5426.50
				5/15/2007	7.91		5426.77
				8/21/2007	NM		NM
				11/7/2007	AM		AM
				1/16/2008	7.37		5427.31
				3/18/2008	7.73		5426.95
				7/21/2008	5.90		5428.78
				10/21/2008	5.53		5429.15
				1/22/2009	7.36		5427.32
				3/30/2009	7.88		5426.80
				6/16/2009	8.18		5426.50
				9/28/2009	8.71		5425.97
MW-5	10/19/2005	17.5	3.5-17.5	10/20/2005	9.11	5434.16	5425.05
				2/16/2006	10.62		5423.54
				5/15/2006	10.47		5423.69
				8/2/2006	9.42		5424.74
				11/14/2006	9.05		5425.11
				2/20/2007	9.84		5424.32
				5/15/2007	8.93		5425.23
				8/21/2007	NM		NM
				11/7/2007	AM		AM
				1/16/2008	NM		NM
				3/18/2008	10.21		5423.95
				7/21/2008	7.55		5426.61
				10/21/2008	6.18		5427.98
				1/22/2009	9.20		5424.96
				3/30/2009	10.30		5423.86
				6/16/2009	9.89		5424.27
				9/28/2009	10.53		5423.63

Explanation

(1) = Water level near bottom of monitor well
AM = Anomolous measurement due to meter malfunction - reading not recorded
bgs = Below ground surface
ft = Feet
msl = Mean sea level
NM = Not measured
TOC = Top of casing

Table 3. Groundwater Laboratory Analytical Results Summary (January 2005 - September 2009) - ConocoPhillips Company Federal #15

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	2-Methylnaphthalene (µg/L)	1-Methylnaphthalene (µg/L)	Naphthalene (µg/L)	Total Naphthalene (µg/L)	Chloride (mg/L)
MW-1	1/18/2005	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	85
	10/18/2005	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	39
	11/15/2006	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	36
	11/7/2007	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	44
	3/18/2008	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	7/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	54
	10/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	57.8
	1/22/2009	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	74.8
	3/30/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	6/16/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	9/28/2009	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA
MW-2	1/18/2005	1200	3300	380	3500	72	34	51	157	41
	Duplicate	1300	3700	410	3800	NA	NA	NA	NA	NA
	10/19/2005	1100	410	160	470	18	11	15	44	60
	Duplicate	1100	500	150	610	NA	NA	NA	NA	NA
	11/14/2006	23	29	6.6	120	<10	<10	<10	<10	50
	Duplicate	45	57	12	220	NA	NA	NA	NA	NA
	11/7/2007	4.2	8.8	24	74	<10	<10	<10	<10	35
	Duplicate	3.9	7.9	22	69	NA	NA	NA	NA	NA
	3/18/2008	5	<5.0	<5.0	9	NA	NA	NA	NA	NA
	7/21/2008	<5.0	<5.0	13	27	<5.0	<5.0	<5.0	NA	42.7
	Duplicate	<5.0	<5.0	13	27	NA	NA	NA	NA	NA
	10/21/2008	<5.0	<5.0	<5.0	5	<5.0	<5.0	<5.0	NA	71.3
	Duplicate	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	1/22/2009	<5.0	<5.0	7	17	<5.0	<5.0	<5.0	<5.0	36.1
	Duplicate	<5.0	<5.0	5	12	NA	NA	NA	NA	NA
	3/30/2009	5.7	<5.0	11	22	NA	NA	NA	NA	NA
	6/16/2009	<5.0	<5.0	<5.0	5.1	NA	NA	NA	NA	NA
	Duplicate	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	9/28/2009	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA
	Duplicate	3.4	<1.0	1.8	3.4	NA	NA	NA	NA	NA
MW-3	1/18/2005	190	<5.0	<5.0	<10	<10	<10	<10	<10	34
	10/19/2005	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	42
	11/14/2006	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	39
	11/7/2007	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	34
	3/18/2008	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	7/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	22
	10/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	20.6
	1/22/2009	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	22
	3/30/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	6/16/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	9/28/2009	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA
MW-4	1/18/2005	2.8	<1.0	<1.0	<2.0	<10	<10	<10	<10	37
	10/19/2005	23	2.2	<1.0	4.3	<10	<10	<10	<10	51
	11/14/2006	1.1	<1.0	<1.0	<2.0	<10	<10	<10	<10	44
	11/7/2007	36	<1.0	22	<2.0	<10	<10	<10	<10	24
	3/18/2008	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	7/21/2008	35	<5.0	18	<5.0	<5.0	<5.0	<5.0	NA	22
	10/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	25.1
	1/22/2009	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	42.1
	3/30/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	Duplicate	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	6/16/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	9/28/2009	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA

Table 3. Groundwater Laboratory Analytical Results Summary (January 2005 - September 2009) - ConocoPhillips Company Federal #15

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	2-Methylnaphthalene (µg/L)	1-Methylnaphthalene (µg/L)	Naphthalene (µg/L)	Total Naphthalene (µg/L)	Chloride (mg/L)
MW-5	10/20/2005	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	73
	11/14/2006	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	79
	11/7/2007	<1.0	<1.0	<1.0	<2.0	<10	<10	<10	<10	58
	3/18/2008	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	7/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	27.6
	10/21/2008	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	34.5
	1/22/2009	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	35.8
	3/30/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	6/16/2009	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA
	9/28/2009	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA
NMWQCC Groundwater Quality Standards		**10 (µg/L)**	**750 (µg/L)**	**750 (µg/L)**	**620 (µg/L)**	**NE**	**NE**	**NE**	**30 (µg/L)**	**250 mg/L**

Explanation

mg/L = milligrams per liter (parts per million)
µg/L = micrograms per liter (parts per billion)
NE=Not established
NMWQCC = New Mexico Water Quality Control Commission
NA = Not analyzed
<1.0 = Not detected at the reporting limit
Constituents in excess of NMWQCC groundwater quality standards are in **BOLD**

APPENDIX A

GROUNDWATER SAMPLING FIELD FORMS

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Federal #15 Page 1 of 5

Project No.

Site Location Farmington, NM

Site/Well No. MW-1 Coded/ Replicate No. Date 9/28/09

Weather Sunny, 85° Time Sampling Began 1538 Time Sampling Completed ~~1555~~ 1600

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 20 Water-Level Elevation

Held ____ Depth to Water Below MP 9.51 Diameter of Casing 2"

Wet ____ Water Column in Well 10.49 Gallons Pumped (Bailed) Prior to Sampling 5.5 gallons

Gallons per Foot 1.6784 0.16

Gallons in Well 5.0352 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump/ Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	Turbidity
1548	16.15	6.24	1942	1.264	4.50	124.7	156.7
1552	15.43	6.40	1951	1.268	3.08	127.2	963.8
1555	15.26	6.48	1941	1.262	3.09	127.0	~~688.0~~
							688.0

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl

Remarks H_2O was clear and then became red/orange in color

Sampling Personnel C.M, C.B

Well Casing Volumes

Gal./ft.	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Federal #15 Page 2 of 5

Project No.

Site Location Farmington, NM

Site/Well No. MW-2 Coded/ Replicate No. 1630 Date 9-28-09

Weather Sunny, 85° Time Sampling Began 1600 Time Sampling Completed 1625

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 20 Water-Level Elevation

Held Depth to Water Below MP 9.48 Diameter of Casing 2"

Wet Water Column in Well 10.52 Gallons Pumped/Bailed Prior to Sampling 5.5 gallons

Gallons per Foot 1.6832 0.16

Gallons in Well 5.0496

Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm)	TDS (g/L)	DO (mg/L)	ORP (mV)	Turbidity
1617	17.22	6.90	1686	1.096	8.16	-120.8	49.46
1619	17.09	6.92	1677	1.090	5.10	-125.8	46.98
1622	17.20	6.94	1688	1.097	4.54	-126.2	46.82

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl

Remarks Purge H_2O is clear but has ~~bio~~ odor

Sampling Personnel CM, CB

Well Casing Volumes

Gal./ft.							
	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Federal #15 Page 3 of 5

Project No.

Site Location Farmington, NM

Site/Well No. MW-3 Coded/ Replicate No. Date 9-28-09

Weather Sunny, 95° Time Sampling Began Time Sampling Completed 1655

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 20 Water-Level Elevation

Held ____ Depth to Water Below MP 8.85 Diameter of Casing 2"

Wet ____ Water Column in Well 11.15 Gallons Pumped/Bailed Prior to Sampling 5.5 gallons

Gallons per Foot 1.784 0.16

Gallons in Well 5.352 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump/ Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	turb
1045	17.24	7.00	1099 1090	1.099	7.80	-29.9	71100
1048	17.22	6.91	1087	1.097	4.51	-16.7	71100
1052	17.41	6.89	1083	1.094	3.60	-18.3	71100

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl

Remarks Used surge block to try and break roots in well. still bailer only fills half way

Sampling Personnel CM, CB

Well Casing Volumes

Gal./ft.							
	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Federal #15 Page 4 of 5

Project No.

Site Location Farmington, NM

Site/Well No. MW-4 Coded/ Replicate No. Date 9-28-09

Weather Sunny, 85° Time Sampling Began 1650 Time Sampling Completed 1705

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 20 Water-Level Elevation

Held Depth to Water Below MP 8.71 Diameter of Casing 2"

Wet Water Column in Well 11.29 Gallons Pumped/Bailed Prior to Sampling 6 gallons

Gallons per Foot 1.80(4) 0.16

Gallons in Well 5.4192 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
1657	17.02	6.92	1704	1.108	3.76	293.4
1701	17.09	6.88	1707	1.110	3.34	353.4
1703	17.13	6.86	1700	1.105	3.16	541.9

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl

Remarks H_2O orangish brown, no odor, no sheen

Sampling Personnel CM, KB

Well Casing Volumes

Gal./ft.	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Federal #15 Page 5 of 5

Project No.

Site Location Farmington, NM

Site/Well No. MW-5 Coded/ Replicate No. Date 9-28-09

Weather Sunny, 85° Time Sampling Began 1730 Time Sampling Completed 1745

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 17.5 Water-Level Elevation

Held Depth to Water Below MP 10.53 Diameter of Casing 2"

Wet Water Column in Well ~~9.476.97~~ Gallons Pumped/Bailed Prior to Sampling 4 gallons

Gallons per Foot ~~1.5152~~ 0.16 1.1152

Gallons in Well X3 = 3.3456 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump/Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
1739	19.50	6.53	1943	1.263	2.77	68.7
1741	19.45	6.55	1946	1.265	2.60	68.5
1742	19.46	6.55	1946	1.265	2.60	68.1

Turbidity 1100 max 1100 max 960.7

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl

Remarks H_2O orangish/brown very turbid, no odor

Sampling Personnel CB, CM

Well Casing Volumes

Gal./ft.	1 ¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1 ½" = 0.10	2 ½" = 0.24	3" ½ = 0.50	6" = 1.46

APPENDIX B

LABORATORY ANALYTICAL REPORT

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

Conoco Phillips

Certificate of Analysis Number:

09100116

Report To:		Project Name:	COP Federal #15
Tetra Tech, Inc.		Site:	Farmington, NM
Kelly Blanchard		Site Address:	
6121 Indian School Road, N.E.			
Suite 200		PO Number:	
Albuquerque		State:	New Mexico
NM		State Cert. No.:	
87110-		Date Reported:	10/8/2009
ph: (505) 237-8440	fax:		

This Report Contains A Total Of 15 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

10/9/2009

Date

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:

09100116

Report To:		Project Name:	COP Federal #15
Tetra Tech, Inc.		Site:	Farmington, NM
Kelly Blanchard		Site Address:	
6121 Indian School Road, N.E.			
Suite 200		PO Number:	
Albuquerque		State:	New Mexico
NM		State Cert. No.:	
87110-		Date Reported:	10/8/2009
ph: (505) 237-8440	fax:		

I. SAMPLE RECEIPT:

All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II: ANALYSES AND EXCEPTIONS:

Per the Conoco Phillips TSM Revision 0, a copy of the internal chain of custody is to be included in final data package. However, due to LIMS limitations, this cannot be provided at this time.

III. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

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.

E Cardenas

10/9/2009

Erica Cardenas
Project Manager

Date

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

Certificate of Analysis Number:

09100116

Report To: Tetra Tech, Inc.
Kelly Blanchard
6121 Indian School Road, N.E.
Suite 200
Albuquerque
NM
87110-
ph: (505) 237-8440 fax: (505) 881-3283

Fax To:

Project Name: COP Federal #15
Site: Farmington, NM
Site Address:
PO Number:
State: New Mexico
State Cert. No.:
Date Reported: 10/8/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09100116-01	Water	9/28/2009 4:00:00 PM	10/2/2009 9:15:00 AM	331736	☐
MW-2	09100116-02	Water	9/28/2009 4:25:00 PM	10/2/2009 9:15:00 AM	331736	☐
MW-3	09100116-03	Water	9/28/2009 4:55:00 PM	10/2/2009 9:15:00 AM	331736	☐
MW-4	09100116-04	Water	9/28/2009 5:05:00 PM	10/2/2009 9:15:00 AM	331736	☐
MW-5	09100116-05	Water	9/28/2009 5:45:00 PM	10/2/2009 9:15:00 AM	331736	☐
Duplicate	09100116-06	Water	9/28/2009 4:30:00 PM	10/2/2009 9:15:00 AM	331736	☐
Trip Blank	09100116-07	Water	9/28/2009 3:51:00 PM	10/2/2009 9:15:00 AM	331736	☑

E Cardenas

10/9/2009

Erica Cardenas
Project Manager

Date

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

Ted Yen
Quality Assurance Officer

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

Client Sample ID: MW-1 **Collected:** 09/28/2009 16:00 **SPL Sample ID:** 09100116-01

Site: Farmington, NM

Analyses/Method	Result	QUAL		Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND			1	1	10/06/09 12:49	E_G	5235096
Ethylbenzene	ND			1	1	10/06/09 12:49	E_G	5235096
Toluene	ND			1	1	10/06/09 12:49	E_G	5235096
m,p-Xylene	ND			1	1	10/06/09 12:49	E_G	5235096
o-Xylene	ND			1	1	10/06/09 12:49	E_G	5235096
Xylenes,Total	ND			1	1	10/06/09 12:49	E_G	5235096
Surr: 1,2-Dichloroethane-d4	102		%	78-116	1	10/06/09 12:49	E_G	5235096
Surr: 4-Bromofluorobenzene	114		%	74-125	1	10/06/09 12:49	E_G	5235096
Surr: Toluene-d8	108		%	82-118	1	10/06/09 12:49	E_G	5235096

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 **Collected:** 09/28/2009 16:25 **SPL Sample ID:** 09100116-02

Site: Farmington, NM

Analyses/Method	Result	QUAL		Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND			1	1	10/05/09 19:40	E_G	5232949
Ethylbenzene	ND			1	1	10/05/09 19:40	E_G	5232949
Toluene	ND			1	1	10/05/09 19:40	E_G	5232949
m,p-Xylene	ND			1	1	10/05/09 19:40	E_G	5232949
o-Xylene	ND			1	1	10/05/09 19:40	E_G	5232949
Xylenes,Total	ND			1	1	10/05/09 19:40	E_G	5232949
Surr: 1,2-Dichloroethane-d4	99.8		%	78-116	1	10/05/09 19:40	E_G	5232949
Surr: 4-Bromofluorobenzene	114		%	74-125	1	10/05/09 19:40	E_G	5232949
Surr: Toluene-d8	106		%	82-118	1	10/05/09 19:40	E_G	5232949

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-3 **Collected:** 09/28/2009 16:55 **SPL Sample ID:** 09100116-03

Site: Farmington, NM

Analyses/Method	Result	QUAL		Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND			1	1	10/05/09 20:28	E_G	5232951
Ethylbenzene	ND			1	1	10/05/09 20:28	E_G	5232951
Toluene	ND			1	1	10/05/09 20:28	E_G	5232951
m,p-Xylene	ND			1	1	10/05/09 20:28	E_G	5232951
o-Xylene	ND			1	1	10/05/09 20:28	E_G	5232951
Xylenes,Total	ND			1	1	10/05/09 20:28	E_G	5232951
Surr: 1,2-Dichloroethane-d4	101		%	78-116	1	10/05/09 20:28	E_G	5232951
Surr: 4-Bromofluorobenzene	113		%	74-125	1	10/05/09 20:28	E_G	5232951
Surr: Toluene-d8	107		%	82-118	1	10/05/09 20:28	E_G	5232951

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-4 **Collected:** 09/28/2009 17:05 **SPL Sample ID:** 09100116-04

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	10/05/09 20:52	E_G	5232952
Ethylbenzene	ND		1	1	10/05/09 20:52	E_G	5232952
Toluene	ND		1	1	10/05/09 20:52	E_G	5232952
m,p-Xylene	ND		1	1	10/05/09 20:52	E_G	5232952
o-Xylene	ND		1	1	10/05/09 20:52	E_G	5232952
Xylenes,Total	ND		1	1	10/05/09 20:52	E_G	5232952
Surr: 1,2-Dichloroethane-d4	101		% 78-116	1	10/05/09 20:52	E_G	5232952
Surr: 4-Bromofluorobenzene	113		% 74-125	1	10/05/09 20:52	E_G	5232952
Surr: Toluene-d8	106		% 82-118	1	10/05/09 20:52	E_G	5232952

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-5 **Collected:** 09/28/2009 17:45 **SPL Sample ID:** 09100116-05

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	10/06/09 14:01	E_G	5235099
Ethylbenzene	ND		1	1	10/06/09 14:01	E_G	5235099
Toluene	ND		1	1	10/06/09 14:01	E_G	5235099
m,p-Xylene	ND		1	1	10/06/09 14:01	E_G	5235099
o-Xylene	ND		1	1	10/06/09 14:01	E_G	5235099
Xylenes,Total	ND		1	1	10/06/09 14:01	E_G	5235099
Surr: 1,2-Dichloroethane-d4	101		% 78-116	1	10/06/09 14:01	E_G	5235099
Surr: 4-Bromofluorobenzene	112		% 74-125	1	10/06/09 14:01	E_G	5235099
Surr: Toluene-d8	106		% 82-118	1	10/06/09 14:01	E_G	5235099

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: Duplicate **Collected:** 09/28/2009 16:30 **SPL Sample ID:** 09100116-06

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	3.4		1	1	10/05/09 20:04	E_G	5232950
Ethylbenzene	1.8		1	1	10/05/09 20:04	E_G	5232950
Toluene	ND		1	1	10/05/09 20:04	E_G	5232950
m,p-Xylene	3.4		1	1	10/05/09 20:04	E_G	5232950
o-Xylene	ND		1	1	10/05/09 20:04	E_G	5232950
Xylenes,Total	3.4		1	1	10/05/09 20:04	E_G	5232950
Surr: 1,2-Dichloroethane-d4	100		% 78-116	1	10/05/09 20:04	E_G	5232950
Surr: 4-Bromofluorobenzene	114		% 74-125	1	10/05/09 20:04	E_G	5232950
Surr: Toluene-d8	106		% 82-118	1	10/05/09 20:04	E_G	5232950

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

Quality Control Documentation

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

Quality Control Report

Conoco Phillips
COP Federal #15

Analysis: Volatile Organics by Method 8260B
Method: SW8260B
WorkOrder: 09100116
Lab Batch ID: R285579

Method Blank

RunID: L_091005C-5232939 Units: ug/L
Analysis Date: 10/05/2009 12:55 Analyst: E_G

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	100.6	78-116
Surr: 4-Bromofluorobenzene	112.4	74-125
Surr: Toluene-d8	108.5	82-118

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09100116-02A	MW-2
09100116-03A	MW-3
09100116-04A	MW-4
09100116-06A	Duplicate

Laboratory Control Sample (LCS)

RunID: L_091005C-5232938 Units: ug/L
Analysis Date: 10/05/2009 11:59 Analyst: E_G

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.8	104	74	123
Ethylbenzene	20.0	22.1	111	72	127
Toluene	20.0	21.4	107	74	126
m,p-Xylene	40.0	44.9	112	71	129
o-Xylene	20.0	22.0	110	74	130
Xylenes,Total	60.0	66.9	111	71	130
Surr: 1,2-Dichloroethane-d4	50.0	51.2	102	78	116
Surr: 4-Bromofluorobenzene	50.0	53.5	107	74	125
Surr: Toluene-d8	50.0	52.8	106	82	118

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

Sample Spiked: 09091284-04
RunID: L_091005C-5232941 Units: ug/L
Analysis Date: 10/05/2009 15:43 Analyst: E_G

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.

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

Quality Control Report

Conoco Phillips

COP Federal #15

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09100116
Method: SW8260B **Lab Batch ID:** R285579

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	18.1	90.7	20	16.6	83.2	8.63	22	70	124
Ethylbenzene	ND	20	18.9	94.3	20	17.5	87.7	7.24	20	76	122
Toluene	ND	20	19.0	94.8	20	17.8	88.8	6.55	24	80	117
m,p-Xylene	ND	40	38.7	96.8	40	36.4	91.0	6.17	20	69	127
o-Xylene	ND	20	19.2	96.1	20	18.0	89.9	6.65	20	84	114
Xylenes,Total	ND	60	57.9	96.5	60	54.4	90.6	6.33	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	50.5	101	50	51.4	103	1.68	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	53.6	107	50	53.6	107	0.0242	30	74	125
Surr: Toluene-d8	ND	50	53.9	108	50	53.8	108	0.202	30	82	118

Qualifiers:

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

Quality Control Report

Conoco Phillips

COP Federal #15

Analysis: Volatile Organics by Method 8260B
Method: SW8260B
WorkOrder: 09100116
Lab Batch ID: R285692

Method Blank

RunID: L_091006A-5235095 Units: ug/L
Analysis Date: 10/06/2009 12:26 Analyst: E_G

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09100116-01A	MW-1
09100116-05A	MW-5

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	100.1	78-116
Surr: 4-Bromofluorobenzene	111.1	74-125
Surr: Toluene-d8	107.4	82-118

Laboratory Control Sample (LCS)

RunID: L_091006A-5235094 Units: ug/L
Analysis Date: 10/06/2009 11:38 Analyst: E_G

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.4	102	74	123
Ethylbenzene	20.0	21.7	109	72	127
Toluene	20.0	21.3	107	74	126
m,p-Xylene	40.0	45.2	113	71	129
o-Xylene	20.0	22.3	111	74	130
Xylenes,Total	60.0	67.5	112	71	130
Surr: 1,2-Dichloroethane-d4	50.0	50.7	101	78	116
Surr: 4-Bromofluorobenzene	50.0	54.1	108	74	125
Surr: Toluene-d8	50.0	53.1	106	82	118

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

Sample Spiked: 09100116-01
RunID: L_091006A-5235097 Units: ug/L
Analysis Date: 10/06/2009 13:13 Analyst: E_G

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.

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

Quality Control Report

Conoco Phillips

COP Federal #15

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 09100116
Method: SW8260B **Lab Batch ID:** R285692

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	18.3	91.4	20	17.9	89.6	1.98	22	70	124
Ethylbenzene	ND	20	19.1	95.3	20	18.6	93.0	2.40	20	76	122
Toluene	ND	20	19.2	95.9	20	18.9	94.7	1.33	24	80	117
m,p-Xylene	ND	40	39.1	97.8	40	39.1	97.7	0.182	20	69	127
o-Xylene	ND	20	19.5	97.4	20	19.5	97.6	0.226	20	84	114
Xylenes,Total	ND	60	58.6	97.7	60	58.6	97.6	0.0461	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	50.8	102	50	50.3	101	0.946	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	54.8	110	50	54.5	109	0.631	30	74	125
Surr: Toluene-d8	ND	50	53.2	106	50	53.4	107	0.265	30	82	118

Qualifiers:

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B/V - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

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

Sample Receipt Checklist

And

Chain of Custody

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

Sample Receipt Checklist

Workorder:	09100116	Received By:	BF
Date and Time Received:	10/2/2009 9:15:00 AM	Carrier name:	FedEx
Temperature:	1.5°C	Chilled by:	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 received?	Yes	☑	No ☐		
6.	Chain of custody agrees with sample labels?	Yes	☑	No ☐		
7.	Samples in proper container/bottle?	Yes	☑	No ☐		
8.	Sample containers intact?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test?	Yes	☑	No ☐		
10.	All samples received within holding time?	Yes	☑	No ☐		
11.	Container/Temp Blank temperature in compliance?	Yes	☑	No ☐		
12.	Water - VOA vials have zero headspace?	Yes	☐	No ☐	VOA Vials Not Present	☑
13.	Water - Preservation checked upon receipt (except VOA*)?	Yes	☐	No ☐	Not Applicable	☑

*VOA Preservation Checked After Sample Analysis

SPL Representative: _____ Contact Date & Time: _____

Client Name Contacted: _____

Non Conformance Issues: 1. Lab did not receive the Trip Blank. Logged Trip Blank in on hold. AMV

Client Instructions: _____

SPL, Inc.
Analysis Request & Chain of Custody Record

SPL Workorder No. 331736
09100116
page ____ of ____

Client Name: Tetra Tech / ConocoPhillips
Address: 6121 Indian School Rd. Ste 200
City Albuquerque State NM Zip 87110
Phone/Fax: 505.237.8440 505.237.8656
Client Contact: Kelly Blanchard Email: kelly.blanchard@tetratech.com
Project Name/No.: Federal 15
Site Name:
Site Location: Farmington, NM
Invoice To: ConocoPhillips Ph:

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil O=oil A=air SL=sludge E=encore X=other)	bottle (P=plastic A=amber glass G=glass V=vial X=other)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other)	pres. (1=HCl 2=HNO3 3=H2SO4 X=other)	Number of Containers	Requested Analysis: BTEX ONLY
MW-1	9.28.09	1600		X	W	V	40	1	3	X
MW-2	9.28.09	1625		X	W	V	40	1	3	X
MW-3	9.28.09	1655		X	W	V	40	1	3	X
MW-4	9.28.09	1705		X	W	V	40	1	3	X
MW-5	9.28.09	1745		X	W	V	40	1	3	X
Duplicate	9.28.09	1630		X	W	V	40	1	3	X
Trip Blank	10.1.09	1551			W	V	40	1	2	X

Client/Consultant Remarks:

Laboratory remarks:

Intact? ☒ Y ☐ N
Ice? ☒ Y ☐ N
Temp: 1.5

Requested TAT
☐ 1 Business Day ☐ Contract
☐ 2 Business Days ☐ Standard
☐ 3 Business Days
☐ Other _____
Rush TAT requires prior notice

Special Reporting Requirements Results: Fax ☐ Email ☐ PDF ☐
Standard QC ☐ Level 3 QC ☐ Level 4 QC ☐ TX TRRP ☐ LA RECAP ☐

Special Detection Limits (specify):

PM review (initial):

	date	time	
1. Relinquished by Sampler:	10.1.09	1555	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date 10-2-09	time 915	6. Received by Laboratory:

☐ 8880 Interchange Drive
Houston, TX 77054 (713) 660-0901

☐ 500 Ambassador Caffery Parkway
Scott, LA 70583 (337) 237-4775

☐ 459 Hughes Drive
Traverse City, MI 49686 (231) 947-5777