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Q1 2009 GWMR

06/01/2010



TETRATECH, INC.

3R084

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(505) 237-8440

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June 1, 2010

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

RE: Farmington B-COM No. 1E, Farmington, New Mexico. 2009 Quarterly Groundwater
Monitoring Report - First 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. This report supersedes any previously submitted reports for this quarter at this 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
Project Manager/Geologist

Enclosures (1)

**QUARTERLY GROUNDWATER
MONITORING REPORT
APRIL 2009 SAMPLING EVENT**

**FARMINGTON B COM NO. 1E GAS PRODUCTION
WELL SITE
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO**

OCD # 3R0084

API # 30-045-24774

Prepared for:



420 South Keeler Avenue
Bartlesville, OK 74004

Prepared by:



TETRA TECH, INC.

6121 Indian School Rd. NE Suite 200
Albuquerque, NM 87110
Tetra Tech Project No. 8690096.100

June 2010

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QUARTERLY GROUNDWATER MONITORING REPORT APRIL 2009 SAMPLING EVENT FARMINGTON B COM NO.1E GAS PRODUCTION WELL SITE FARMINGTON, SAN JUAN COUNTY, NEW MEXICO

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on April 1, 2009, at the ConocoPhillips Company Farmington B Com No. 1E remediation site in Farmington, New Mexico (Site). This sampling event represents the first quarter of groundwater monitoring for 2009.

The Site is located on private property in southeast Farmington, New Mexico, near the corner of East Murray Drive and South Carlton Avenue. The Site consists of a gas production well and associated equipment and installations. The location and general features of the Site are presented as **Figures 1 and 2**, respectively. A generalized cross section is included as **Figure 3**.

1.1 Site History

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

Conoco Inc., predecessor to ConocoPhillips Company, owned the property and operated the gas well between July 1991 and January 1997. Merrion Oil & Gas Company is the current property owner and well operator. A Phase II Environmental Site Assessment associated with the property transfer was conducted by On Site Technologies, Limited (On Site) in March 1997. Soil hydrocarbon impacts were confirmed north of a production storage tank and west of a separator/dehydrator pit (**Figure 2**). Impacts were described by On Site as limited to a former unlined pit area with hydrocarbon migration primarily occurring vertically through the soil profile due to the porous and permeable subsurface soils; lateral migration was considered minimal (On Site, 1997). Soil excavation of the two impacted areas occurred in September 1997. A total of 906 cubic yards of impacted soil were removed from two excavation areas. Of the 906 cubic yards, 328 were transported offsite and 578 were screened and placed back into the excavated areas along with clean fill. During backfill activities, approximately 10 gallons of liquid fertilizer was sprayed into both excavations to enhance insitu degradation of residual hydrocarbons (On Site, 1997).

Groundwater Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 were installed at the Site in February and August 1998 under the supervision of On Site. During 1998 and 1999, results from groundwater samples collected from MW-2 through MW-6 did not have BTEX concentrations in excess of New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards. On Site then requested that groundwater quality monitoring in monitor wells MW-2 through MW-6 be discontinued. The request was approved by the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) in a letter to Ms. Shirley Ebert of Conoco Inc. (NMEMNRD, 2000).

Although Monitor Wells MW-2 through MW-6 showed no hydrocarbon impacts during 1998 and 1999, light non-aqueous phase liquid (LNAPL) has been present in MW-1 since its installation and recovery has been ongoing. Souder Miller and Associates (Souder Miller) placed active and passive skimmers in MW-1 in May 2004. The passive skimmer collected a small amount of LNAPL; the active skimmer did not collect any LNAPL. Souder Miller determined that an active skimmer was not a viable method of LNAPL recovery in MW-1 and proposed passive skimming or periodic hand bailing for recovery.

Tetra Tech began groundwater quality monitoring at the site in May 2005. Tetra Tech monitors MW-6 in addition to MW-1 since it is down-gradient to MW-1. Most recently, groundwater quality monitoring took place on April 1, 2009. Groundwater elevation measurements were collected from MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6. Groundwater samples collected from Monitor Wells MW-1 and MW-6 were shipped to Southern Petroleum Laboratories in Houston, Texas to be analyzed for the presence of BTEX and ferrous iron.

2.0 METHODOLOGY AND RESULTS

2.1 Groundwater Monitoring Methodology

Groundwater Elevation Measurements

On April 1, 2009, groundwater elevation measurements were recorded in Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 using a dual interface probe. Groundwater elevations are detailed in **Table 2**. A groundwater elevation contour map is presented as **Figure 4**. Based on April 2009 monitoring event data, groundwater flow is to the west and is consistent with historic records at this site. The Animas River is approximately $\frac{3}{4}$ miles west of the Site and flows west.

Groundwater sampling

Monitor Wells MW-1 and MW-6 were sampled, representing the fifth round of consecutive quarterly groundwater monitoring conducted at the Site by Tetra Tech. Approximately three well volumes were purged from each monitor well with dedicated polyethylene 1.5-inch disposable bailers. The purge water was placed in a 55-gallon steel drum for storage until disposal at a ConocoPhillips approved facility. The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Southern Petroleum Laboratories located in Houston, Texas. The samples were analyzed for the presence of BTEX by Environmental Protection Agency (EPA) Method 8260B and ferrous iron by Standard Method (SM) 18, 3500-D. Groundwater sampling field forms are presented in **Appendix A**.

2.2 Groundwater Sampling Analytical Results

During the April 2009 quarterly sampling event, benzene, toluene and total xylenes were not found above their respective laboratory detection limits in the groundwater quality sample collected from Monitor Well MW-1; ethylbenzene was detected at a concentration of 11 micrograms per liter (ug/L). The New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standard for ethylbenzene is 750 ug/L. Ferrous iron was detected at a concentration of 5.26 mg/L in MW-1. BTEX constituents in MW-6 were not detected above the laboratory detection limit of 5.0 ug/L, while ferrous iron was detected in MW-6 at a concentration of 16.2 mg/L. **Table 2** presents the laboratory analytical

results. The laboratory analytical reports are included as **Appendix B**, and a BTEX concentration map is included as **Figure 5**. The Souder Miller historical analytical data is attached as **Appendix C**.

3.0 CONCLUSIONS

Although LNAPL was found in Monitor Well MW-1 during the monitoring event conducted in January 2009, BTEX constituents in April 2009 samples were either below laboratory detection limits or were below NMWQCC groundwater quality standards. LNAPL sheen was intermittently detectable during quarterly groundwater pumping events from 2005 into 2008. The absence of LNAPL in MW-1 during the April sampling event could be the result of Tetra Tech's placement of an oil-absorbent sock in the well during the January 2009 sampling event.

Groundwater analytical results for monitor well MW-6 continue to show BTEX concentrations below NMWQCC groundwater quality standards in both site monitor wells. Tetra Tech will continue quarterly monitoring of groundwater in MW-1 and MW-6. The second quarter monitoring event for 2009 is scheduled for June 2009.

4.0 REFERENCES

- New Mexico Energy, Minerals, and Natural Resources Department. (2000). Re: *Farmington B Com #1E Well Site*. Letter to Ms. Shirley Ebert, Conoco, Inc. December 13, 2000.
- On-Site Technologies, Ltd. (1997). *Annual Summary, Pit Closures and Groundwater Impact Updates, State of New Mexico, 1996*. Prepared for Conoco Inc., Midland Division. Report dated April 22, 1997. 21 pp.
- On-Site Technologies, Ltd. (1997). Re: *Remediation Summary Farmington B Com #1E*. Letter Attn: Mr. Neal Goates, Senior Environmental Specialist, Conoco, Inc. November 26, 1997.

FIGURES

1. Site Location Map
2. Site Layout Map
3. Generalized Site Cross Section
4. Groundwater Elevation Contour Map
5. BTEX Concentration Map



ConocoPhillips High Resolution Aerial imagery

FIGURE 1.

Site Location Map
Farmington
B Com No.1E
Farmington, NM



ConocoPhillips
Company B Com #1E
Site Location



Section 15, T29N, R13W
San Juan County, NM



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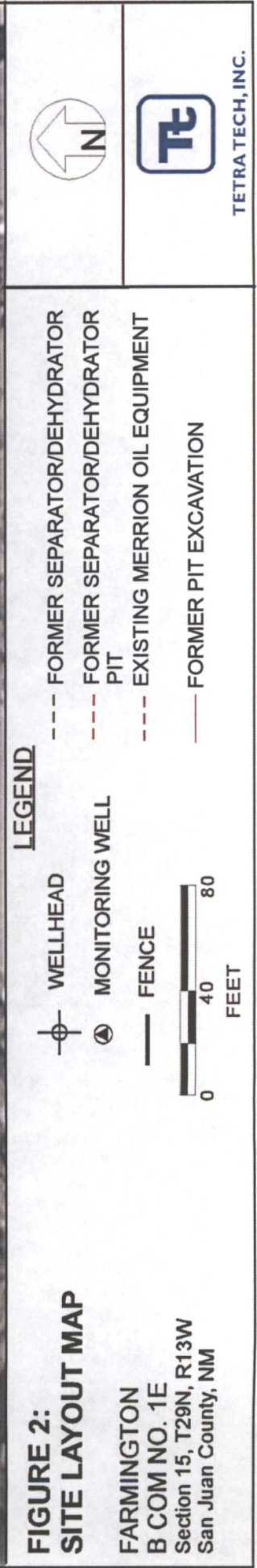
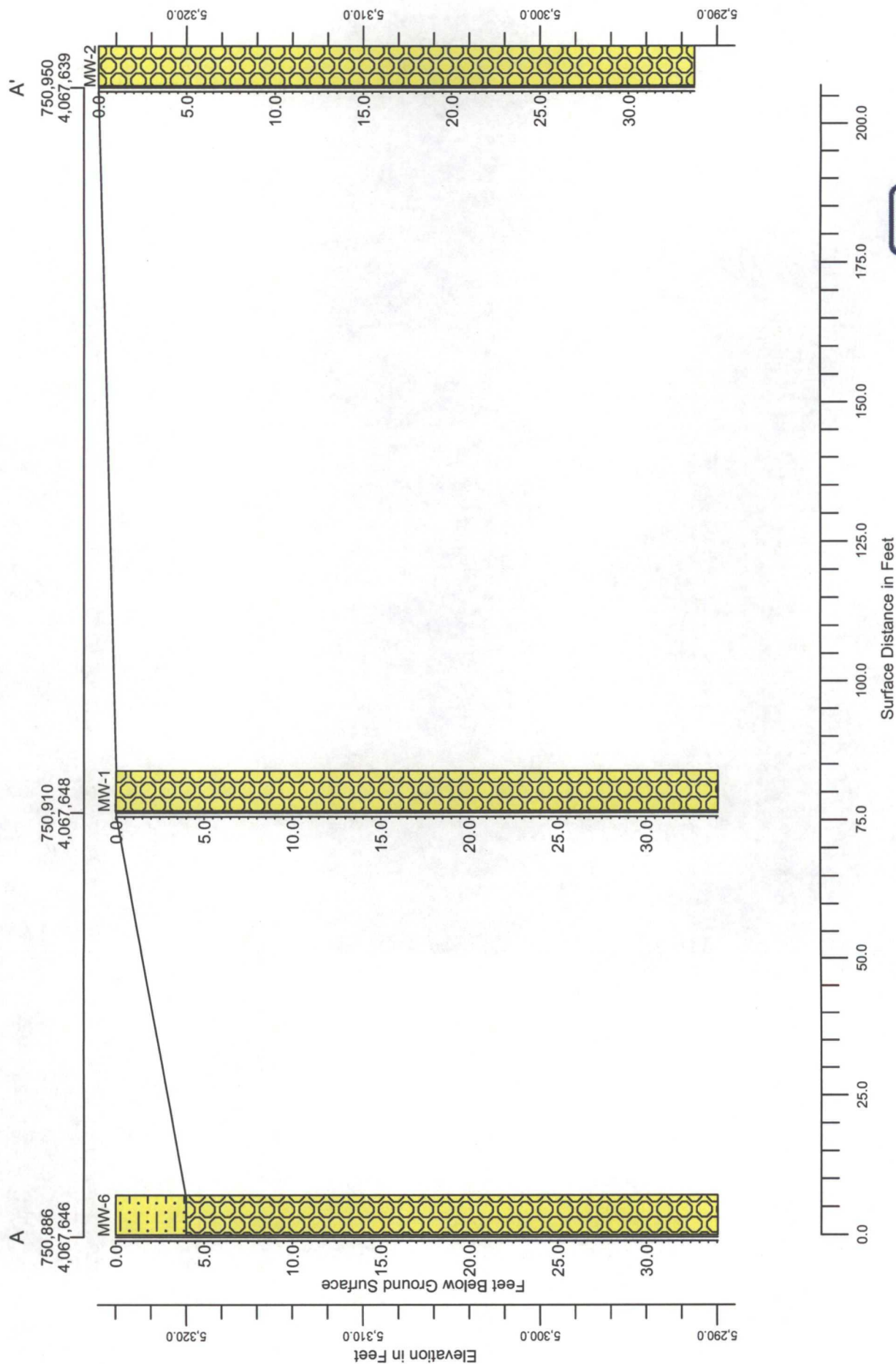


Figure 3.

B Com No. 1E - Cross-Section A-A'





ConocoPhillips High Resolution Aerial Imagery

FIGURE 4: GROUNDWATER ELEVATION CONTOUR MAP

04/01/2009
FARMINGTON B COM NO. 1E
 Section 15, T29N, R13W
 San Juan County, NM

LEGEND

- | | | | |
|--|--------------------------|-------|---|
| | WELLHEAD | --- | FORMER SEPARATOR/DEHYDRATOR |
| | MONITORING WELL | - - - | FORMER SEPARATOR/DEHYDRATOR
PIT |
| | FENCE | --- | EXISTING MERRION OIL PRODUCED
WATER AND CONDENSATE TANKS |
| | GW CONTOUR LINE | --- | FORMER PIT EXCAVATION |
| | INFERRED GW CONTOUR LINE | | |



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FIGURE 5:
BTEX CONCENTRATION
MAP

04/01/2009
FARMINGTON
B COM NO. 1E
Section 15, T29N, R13W
San Juan County, NM

LEGEND

WELLHEAD
 MONITORING WELL
 FENCE

FORMER SEPARATOR/DEHYDRATOR
 FORMER SEPARATOR/DEHYDRATOR
 PIT
 EXISTING MERRION OIL PRODUCED WATER AND CONDENSATE TANKS
 FORMER PIT EXCAVATION

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 Tt
TETRA TECH, INC.

TABLES

- I. Site History Timeline
2. Groundwater Elevation Summary (May 2005 – April 2009)
3. Groundwater Laboratory Analytical Results Summary (February 1998 – April 2009)

Table 1. Site History Timeline - Farmington B Com No. 1E

Date/Time Period	Event/Action	Description
February 18, 1982	Well Completed	Pioneer Production Corp. completed the Farmington B-COM No. 1E gas production well
July 1, 1991	Conoco Inc. well purchase	Conoco Inc. purchases wellsite from Mesa Operating Limited Partnership of Amarillo, Texas
January 1, 1997	Change of ownership	Conoco Inc. sold the property and mineral lease to Merrion Oil & Gas Co.
March, 1997	Site Assessment	Phase II Environmental Site Assessment is conducted by On Site Technologies. Three test holes advanced with Auger refusal encountered at 7 feet below ground surface (bgs) due to gravel and cobbles. No samples collected. On Site Technologies later excavates four additional test holes ranging in depth from 14 to 19 feet bgs. Soil samples are collected from each excavation. TPH and BTEX contamination is found in the vicinity of a former unlined pit.
September, 1997	Soil Excavation	On Site Technologies oversees soil excavation of two pits. 906 cubic yards of impacted soil were removed; of which 328 were disposed of offsite and 578 cubic yards were placed back in the pits along with clean fill. Approximately 10 gallons of liquid fertilizer was sprayed into each pit during backfill.
February and August 1998	Monitor Well Installation	Six monitor wells (MW-1 through MW-6) installed at the site under the supervision of On Site.
October 29, 2004	Groundwater Removal from Monitor Well MW-1	First removal of groundwater - 160 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
November 1, 2004	Groundwater Removal from Monitor Well MW-1	40 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
December 3, 2004	Groundwater Removal from Monitor Well MW-1	150 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
May 9th and 10th, 2005	Monitor Well Sampling	Tetra Tech begins quarterly monitoring at the site. Groundwater samples collected from monitor wells MW-1 and MW-6. A sheen is noted in MW-1; an oil absorbant sock is placed in the well.
July 6, 2005	Groundwater Removal from Monitor Well MW-1	138 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
October 19, 2005	Groundwater Removal from Monitor Well MW-1 and Monitor Well Sampling	Groundwater samples collected from monitor wells MW-1 and MW-6. 186 gallons removed from MW-1; a sheen is observed in purge water and oil absorbant sock is replaced.
February 16, 2006	Groundwater Removal from Monitor Well MW-1	144 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
May 15, 2006		152 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
August 2, 2006		457 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
November 14, 2006		423 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
November 14, 2006	Monitor Well Sampling	Third sampling of monitor wells MW-1 and MW-6 conducted by Tetra Tech
February 20, 2007	Groundwater Removal from Monitor Well MW-1	220 gallons removed vacuum truck operated by Riley Industrial Services of Farmington, NM
May 15, 2007		364 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
August 21, 2007		684 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
November 7, 2007		651 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
November 7, 2007	Monitor Well Sampling	Fourth sampling of monitor wells MW-1 and MW-6 conducted by Tetra Tech
January 16, 2008	Groundwater Removal from Monitor Well MW-1	149 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM
March 18, 2008	Groundwater Removal from Monitor Well MW-1	93 gallons removed by vacuum truck operated by Riley Industrial Services of Farmington, NM

Table 1. Site History Timeline - Farmington B Com No. 1E

Date/Time Period	Event/Action	Description
July 24, 2008	Monitor Well Sampling	Initiation of quarterly sampling for monitor wells MW-1and MW-6
October 22, 2008	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6
January 21, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. Free product found in MW-1; oil absorbent sock placed in the well.
April 1, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1.

Table 2. Farmington B Com #1E
Groundwater Elevation Summary

Well ID	Total Depth (ft. bgs)	Screen Interval (ft)	*Elevation (ft.) (TOC)	Date Measured	Depth to Water (ft. below TOC)	Depth to Product (ft. below TOC)**	Relative Groundwater Elevation (ft TOC)
MW-1	34.09	19.09 - 34.09	101.37	5/9/2005	28.30	Sheen	73.07
				7/6/2005	26.50	NA	74.87
				10/19/2005	25.12	Sheen	76.25
				2/16/2006	28.23	NA	73.14
				5/15/2006	27.02	NA	74.35
				8/2/2006	24.37	NA	77.00
				11/14/2006	26.48	Sheen	74.89
				2/20/2007	29.03	Sheen	72.34
				5/15/2007	26.97	NA	74.40
				8/21/2007	25.20	Sheen	76.17
				11/7/2007	26.30	26.1	75.07
				1/16/2008	29.24	27.88	72.13
				3/18/2008	29.27	29.27	72.10
				7/24/2008	25.73	Sheen	75.64
				10/22/2008	25.35	Sheen	76.02
				1/21/2009	28.25	27.90	73.12
				4/1/2009	29.47	NA	71.90
MW-2	33.72	18.72 - 33.72	101.57	5/9/2005	27.28	NA	74.29
				7/6/2005	25.52	NA	76.05
				10/19/2005	24.30	NA	77.27
				2/16/2006	27.38	NA	74.19
				5/15/2006	25.62	NA	75.95
				8/2/2006	23.51	NA	78.06
				11/14/2006	26.08	NA	75.49
				2/20/2007	28.13	NA	73.44
				5/15/2007	25.86	NA	75.71
				8/21/2007	24.45	NA	77.12
				11/7/2007	25.31	NA	76.26
				1/16/2008	27.27	NA	74.30
				3/18/2008	28.68	NA	72.89
				7/24/2008	24.77	NA	76.80
				10/22/2008	24.55	NA	77.02
				1/21/2009	27.23	NA	74.34
				4/1/2009	28.76	NA	72.81

Table 2. Farmington B Com #1E
Groundwater Elevation Summary

Well ID	Total Depth (ft. bgs)	Screen Interval (ft)	*Elevation (ft.) (TOC)	Date Measured	Depth to Water (ft. below TOC)	Depth to Product (ft. below TOC)**	Relative Groundwater Elevation (ft TOC)
MW-3	32.44	17.44 - 32.44	102.1	5/9/2005	27.81	NA	74.29
				7/6/2005	26.03	NA	76.07
				10/19/2005	25.06	NA	77.04
				2/16/2006	28.57	NA	73.53
				5/15/2006	26.15	NA	75.95
				8/2/2006	23.83	NA	78.27
				11/14/2006	26.75	NA	75.35
				2/20/2007	29.31	NA	72.79
				5/15/2007	26.23	NA	75.87
				8/21/2007	25.00	NA	77.10
				11/7/2007	26.12	NA	75.98
				1/16/2008	28.46	NA	73.64
				3/18/2008	29.97	NA	72.13
				7/24/2008	25.27	NA	76.83
				10/22/2008	25.35	NA	76.75
				1/21/2009	28.56	NA	73.54
				4/1/2009	30.20	NA	71.90
MW-4	32.72	17.72 - 32.72	101.4	5/9/2005	28.73	NA	72.67
				7/6/2005	26.66	NA	74.74
				10/19/2005	25.62	NA	75.78
				2/16/2006	28.91	NA	72.49
				5/15/2006	26.86	NA	74.54
				8/2/2006	24.59	NA	76.81
				11/14/2006	27.02	NA	74.38
				2/20/2007	29.61	NA	71.79
				5/15/2007	27.25	NA	74.15
				8/21/2007	25.56	NA	75.84
				11/7/2007	26.50	NA	74.90
				1/16/2008	28.55	NA	72.85
				3/18/2008	29.99	NA	71.41
				7/24/2008	26.02	NA	75.38
				10/22/2008	25.84	NA	75.56
				1/21/2009	28.69	NA	72.71
				4/1/2009	30.22	NA	71.18

Table 2. Farmington B Com #1E
Groundwater Elevation Summary

Well ID	Total Depth (ft. bgs)	Screen Interval (ft)	*Elevation (ft.) (TOC)	Date Measured	Depth to Water (ft. below TOC)	Depth to Product (ft. below TOC)**	Relative Groundwater Elevation (ft TOC)
MW-5	34.09	19.09 - 34.09	100.52	5/9/2005	28.50	NA	72.02
				7/6/2005	26.32	NA	74.20
				10/19/2005	25.30	NA	75.22
				2/16/2006	28.62	NA	71.90
				5/15/2006	26.55	NA	73.97
				8/2/2006	24.23	NA	76.29
				11/14/2006	27.67	NA	72.85
				2/20/2007	29.34	NA	71.18
				5/15/2007	27.04	NA	73.48
				8/21/2007	25.21	NA	75.31
				11/7/2007	26.13	NA	74.39
				1/16/2008	28.18	NA	72.34
				3/18/2008	29.65	NA	70.87
				7/24/2008	25.73	NA	74.79
				10/22/2008	25.49	NA	75.03
				1/21/2009	28.38	NA	72.14
				4/1/2009	29.92	NA	70.60
MW-6	34.02	19.02 - 34.02	102.14	5/9/2005	29.94	NA	72.20
				7/6/2005	27.89	NA	74.25
				10/19/2005	26.70	NA	75.44
				2/16/2006	29.85	NA	72.29
				5/15/2006	28.11	NA	74.03
				8/2/2006	25.83	NA	76.31
				11/14/2006	27.91	NA	74.23
				2/20/2007	30.52	NA	71.62
				5/15/2007	28.61	NA	73.53
				8/21/2007	26.67	NA	75.47
				11/7/2007	27.52	NA	74.62
				1/16/2008	29.43	NA	72.71
				3/18/2008	30.85	NA	71.29
				7/24/2008	27.26	NA	74.88
				10/22/2008	26.85	NA	75.29
				1/21/2009	29.52	NA	72.62
				4/1/2009	31.00	NA	71.14

ft. = Feet

TOC = Top of casing

bgs = below ground surface

* Relative Elevation

** Where non-aqueous phase liquid (NAPL) is present, depth to water equals the Top of Casing elevation minus the depth to water, plus the NAPL thickness multiplied by 0.79.

NA - not applicable or not measured.

Table 3. Farmington B Com No.1E Groundwater Laboratory Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Nitrate as N (mg/L)	Sulfate (mg/L)	Iron (mg/L)
MW-1	2/19/1998	210	34	370	2,044	NS	NS	NS
	6/12/1998	3" free product in bailer - not sampled						
	9/15/1998	free product - not sampled						
	12/29/1998	350	BDL	420	2,800	NS	NS	NS
	1/22/2004	free product - not sampled						
	5/9/2005	17	<0.7	74	250	<0.40	77.8	14.9*
	10/19/2005	34	<1.0	170	1400	0.15	39.9	15*
	11/14/2006	18	<0.7	190	1600	<0.015	145	8.8*
	11/7/2007	7	<0.7	120	250	<0.015	38.4	6.4*
	7/24/2008	<5.0	<5.0	90	35	<0.5	4.76	17.2*
	Duplicate	<5.0	<5.0	110	59	NS	NS	NS
	10/22/2008	<5.0	<5.0	88	165	<0.5	17	21.1*
	Duplicate	<5.0	<5.0	95	186	NS	NS	NS
	1/21/2009	free product - not sampled						
MW-6	4/1/2009	<5.0	<5.0	11	<5.0	NS	NS	5.26*
	9/15/1998	BDL	BDL	BDL	BDL	NS	NS	NS
	12/29/1998	BDL	BDL	BDL	BDL	NS	NS	NS
	3/3/1999	BDL	BDL	BDL	BDL	NS	NS	NS
	6/15/1999	BDL	BDL	BDL	BDL	NS	NS	NS
	9/15/1999	BDL	0.7	1.1	BDL	NS	NS	NS
	12/14/1999	BDL	1.8	0.7	1.9	NS	NS	NS
	1/22/2004	BDL	BDL	BDL	BDL	NS	NS	NS
	5/9/2005	<0.5	<0.7	<0.8	<0.8	<0.4	97	15.9*
	10/19/2005	<0.5	<0.7	<0.8	<0.8	5.4	52.6	1.4*
	11/14/2006	<0.5	<0.7	<0.8	1	<0.015	159	5.8*
	11/7/2007	<0.5	<0.7	<0.8	<0.8	<0.015	112	3*
	7/24/2008	<5.0	<5.0	<5.0	<5.0	<0.5	44.4	28.5*
	10/22/2008	<5.0	<5.0	<5.0	<5.0	<0.5	43.7	1.77*
NMWQCC Standards	1/21/2009	<5.0	<5.0	<5.0	<5.0	<0.5	31.1	9.59*
	4/1/2009	<5.0	<5.0	<5.0	<5.0	NS	NS	16.2*

NMWQCC = New Mexico Water Quality Control Commission
 mg/L = milligrams per liter (parts per million)
 µg/L = micrograms per liter (parts per billion)
 NE=Not Established
 NS = not sampled
 BDL = Below laboratory detection limits
 <0.7 = Below laboratory detection limit of 0.7 µg/L
 * = Results reported for total ferrous iron, not comparable to NMWQCC standard for dissolved iron

APPENDIX A
GROUNDWATER SAMPLING FIELD FORMS



TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name B Com #1EPage 1 of 2Project No. 1158690096Site Location Farmington, NMSite/Well No. MW-6Coded/
Replicate No. DuplicateDate 4/1/09Weather partly cloudy
windy & coldTime Sampling
Began _____Time Sampling
Completed 1435

EVACUATION DATA

Description of Measuring Point (MP) Top of CasingHeight of MP Above/Below Land Surface Approx. 3.5" MP Elevation 102.14*Total Sounded Depth of Well Below MP 34.02 Water-Level Elevation _____Held _____ Depth to Water Below MP 31.00 Diameter of Casing 2"Wet _____ Water Column in Well 3.02 Gallons Pumped/Bailed
Prior to Sampling ~2 gallonsGallons per Foot 0.16Gallons in Well 483 Sampling Pump Intake Setting
(feet below land surface) N/APurging Equipment X3 = 1.45

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature	pH	Conductivity	TDS in ppm	Other	ORP	DO
<u>1416</u>	<u>16.07</u>	<u>7.24</u>	<u>849</u>	<u>0.552</u>	<u>59.8</u>		
<u>1417</u>	<u>16.01</u>	<u>7.23</u>	<u>847</u>	<u>0.551</u>	<u>52.8</u>	<u>2.99</u>	<u>10.2</u>
<u>1418</u>	<u>16.01</u>	<u>7.23</u>	<u>840</u>	<u>0.550</u>	<u>51.3</u>	<u>0.96</u>	<u>9.7</u>

Sampling Equipment 1.5" Polyvinyl Disposable Bailer

Constituents Sampled

Container Description

Preservative

BTEX, Sulfate, Nitrate, PhosphateFerrous IronRemarks a bit of tan sediment, water was not in color.Sampling Personnel Christine Mathews, Ana Moreno Kelly Blanchard & Cassie Brown

Well Casing Volumes

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



TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name B Com #1EPage 2 of 2Project No. 1158690096Site Location Farmington, NMSite/Well No. MW-1Coded/
Replicate No. 1420
DuplicateDate 4/1/09Weather partly cloudy, cold
but notTime Sampling
Began _____Time Sampling
Completed 1400

EVACUATION DATA

Description of Measuring Point (MP) Top of CasingHeight of MP Above/Below Land Surface Approx. 3.5' MP Elevation 101.37*Total Sounded Depth of Well Below MP 213
34.09 Water-Level Elevation _____Held _____ Depth to Water Below MP 29.47 Diameter of Casing 2"Wet _____ Water Column in Well 4.62 Gallons Pumped/Bailed
Prior to Sampling _____Gallons per Foot 0.16Gallons in Well 739 Sampling Pump Intake Setting
(feet below land surface) N/APurging Equipment 3X = 2.22SAMPLING DATA/FIELD PARAMETERS ORP

Time	Temperature	pH	Conductivity	TDS in ppm	Other
<u>1345</u>	<u>16.20</u>	<u>7.13</u>	<u>923</u>	<u>0.600</u>	<u>-165.4</u>
<u>1346</u>	<u>16.31</u>	<u>7.18</u>	<u>922</u>	<u>0.600</u>	<u>-169.1</u>

Sampling Equipment 1.5" Polyvinyl Disposable Bailer

Constituents Sampled

Container Description

Preservative

BTEX, Sulfate, Nitrate, Phosphate _____Ferrous Iron _____Remarks water is dark gray, with dark, floating particles. Green presentSampling Personnel Christine Mathews, Ana Moreno, Kelly Blanchard, Cassie Brown

Well Casing Volumes

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

duplicate collected @ MW-1

APPENDIX B
LABORATORY ANALYTICAL REPORT



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

Conoco Phillips

Certificate of Analysis Number:

09040043

<u>Report To:</u> Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440 fax:	<u>Project Name:</u> COP BCom #1E <u>Site:</u> Farmington, NM <u>Site Address:</u> <u>PO Number:</u> 4509596739 <u>State:</u> New Mexico <u>State Cert. No.:</u> <u>Date Reported:</u> 4/13/2009
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This Report Contains A Total Of 14 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

4/14/2009

Date



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

Case Narrative for:
Conoco Phillips

Certificate of Analysis Number:
09040043

Report To: Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440 fax:	Project Name: COP BCom #1E Site: Farmington, NM Site Address: PO Number: 4509596739 State: New Mexico State Cert. No.: Date Reported: 4/13/2009
---	--

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 ").

Both samples were received expired for Ferrous Iron. The holding time for Ferrous Iron is immediate and should be performed at the time of sampling. Client is aware of the holding time and request SPL to perform the analysis.

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

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

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

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

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

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

Erica Cardenas
Project Manager

09040043 Page 1
4/14/2009

Date

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



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

Conoco Phillips

Certificate of Analysis Number:

09040043

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

Project Name: COP BCom #1E
Site: Farmington, NM
Site Address:

PO Number: 4509596739

State: New Mexico

State Cert. No.:

Date Reported: 4/13/2009

Fax To:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09040043-01	Water	4/1/2009 2:00:00 PM	4/2/2009 10:00:00 AM		<input type="checkbox"/>
MW-6	09040043-02	Water	4/1/2009 2:35:00 PM	4/2/2009 10:00:00 AM		<input type="checkbox"/>
Trip Blank	09040043-03	Water	4/1/2009 4:00:00 PM	4/2/2009 10:00:00 AM		<input type="checkbox"/>
Duplicate	09040043-04	Water	4/1/2009 2:20:00 PM	4/2/2009 10:00:00 AM		<input type="checkbox"/>

4/14/2009

Erica Cardenas
Project Manager

Date

Kesavalu M. Bagawandoss
Laboratory Director

Ted Yen
Quality Assurance Officer



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

Client Sample ID: MW-1

Collected: 04/01/2009 14:00 SPL Sample ID: 09040043-01

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
IRON, FERROUS				MCL	M3500-FE D	Units: mg/L	
Iron, Ferrous	5.26		0.5	5	04/02/09 13:45	ESK	4971771
VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/L	
Benzene	ND		5	1	04/09/09 12:34	LU_L	4981626
Ethylbenzene	11		5	1	04/09/09 12:34	LU_L	4981626
Toluene	ND		5	1	04/09/09 12:34	LU_L	4981626
m,p-Xylene	ND		5	1	04/09/09 12:34	LU_L	4981626
o-Xylene	ND		5	1	04/09/09 12:34	LU_L	4981626
Xylenes, Total	ND		5	1	04/09/09 12:34	LU_L	4981626
Surr: 1,2-Dichloroethane-d4	100		% 62-130	1	04/09/09 12:34	LU_L	4981626
Surr: 4-Bromofluorobenzene	100		% 70-130	1	04/09/09 12:34	LU_L	4981626
Surr: Toluene-d8	102		% 74-122	1	04/09/09 12:34	LU_L	4981626

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-6

Collected: 04/01/2009 14:35

SPL Sample ID: 09040043-02

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
IRON, FERROUS				MCL	M3500-FE D	Units: mg/L	
Iron, Ferrous	16.2		2	20	04/02/09 13:45	ESK	4971772
VOLATILE ORGANICS BY METHOD 8260B				MCL	SW8260B	Units: ug/L	
Benzene	ND		5	1	04/04/09 10:13	LU_L	4977198
Ethylbenzene	ND		5	1	04/04/09 10:13	LU_L	4977198
Toluene	ND		5	1	04/04/09 10:13	LU_L	4977198
m,p-Xylene	ND		5	1	04/04/09 10:13	LU_L	4977198
o-Xylene	ND		5	1	04/04/09 10:13	LU_L	4977198
Xylenes, Total	ND		5	1	04/04/09 10:13	LU_L	4977198
Surr: 1,2-Dichloroethane-d4	96.0		% 62-130	1	04/04/09 10:13	LU_L	4977198
Surr: 4-Bromofluorobenzene	102		% 70-130	1	04/04/09 10:13	LU_L	4977198
Surr: Toluene-d8	112		% 74-122	1	04/04/09 10:13	LU_L	4977198

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: Trip Blank

Collected: 04/01/2009 16:00

SPL Sample ID: 09040043-03

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		5	1	04/04/09 8:16	LU_L	4977194
Ethylbenzene	ND		5	1	04/04/09 8:16	LU_L	4977194
Toluene	ND		5	1	04/04/09 8:16	LU_L	4977194
m,p-Xylene	ND		5	1	04/04/09 8:16	LU_L	4977194
o-Xylene	ND		5	1	04/04/09 8:16	LU_L	4977194
Xylenes, Total	ND		5	1	04/04/09 8:16	LU_L	4977194
Surr: 1,2-Dichloroethane-d4	96.0		% 62-130	1	04/04/09 8:16	LU_L	4977194
Surr: 4-Bromofluorobenzene	100		% 70-130	1	04/04/09 8:16	LU_L	4977194
Surr: Toluene-d8	112		% 74-122	1	04/04/09 8:16	LU_L	4977194

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: 04/01/2009 14:20

SPL Sample ID: 09040043-04

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		5	1	04/09/09 13:03	LU_L	4981627
Ethylbenzene	16		5	1	04/09/09 13:03	LU_L	4981627
Toluene	ND		5	1	04/09/09 13:03	LU_L	4981627
m,p-Xylene	ND		5	1	04/09/09 13:03	LU_L	4981627
o-Xylene	ND		5	1	04/09/09 13:03	LU_L	4981627
Xylenes, Total	ND		5	1	04/09/09 13:03	LU_L	4981627
Surr: 1,2-Dichloroethane-d4	98.0		% 62-130	1	04/09/09 13:03	LU_L	4981627
Surr: 4-Bromofluorobenzene	98.0		% 70-130	1	04/09/09 13:03	LU_L	4981627
Surr: Toluene-d8	102		% 74-122	1	04/09/09 13:03	LU_L	4981627

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



Quality Control Report

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

Conoco Phillips

COP BCom #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09040043
Lab Batch ID: R269727

Method Blank

Samples in Analytical Batch:

RunID: K_090403E-4977193

Units: ug/L

Lab Sample ID

Client Sample ID

Analysis Date: 04/04/2009 7:48

Analyst: LU_L

09040043-02A

MW-6

Preparation Date: 04/04/2009 7:48

Prep By: Method

09040043-03A

Trip Blank

Analyte	Result	Rep Limit
Benzene	ND	5.0
Ethylbenzene	ND	5.0
Toluene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
Xylenes, Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	100.0	62-130
Surr: 4-Bromofluorobenzene	100.0	70-130
Surr: Toluene-d8	112.0	74-122

Laboratory Control Sample (LCS)

RunID: K_090403E-4977192

Units: ug/L

Analysis Date: 04/04/2009 6:49

Analyst: LU_L

Preparation Date: 04/04/2009 6:49

Prep By: Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.0	100	76	126
Ethylbenzene	20.0	24.0	120	67	122
Toluene	20.0	23.0	115	70	131
m,p-Xylene	40.0	44.0	110	72	150
o-Xylene	20.0	23.0	115	78	141
Xylenes, Total	60	67	110	72	150
Surr: 1,2-Dichloroethane-d4	50.0	49	98.0	62	130
Surr: 4-Bromofluorobenzene	50.0	50	100	70	130
Surr: Toluene-d8	50.0	55	110	74	122

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

Sample Spiked: 09040043-01

RunID: K_090403E-4977196

Units: ug/L

Analysis Date: 04/04/2009 9:15

Analyst: LU_L

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

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.

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4/14/2009 1:47:03 PM



Quality Control Report

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

Conoco Phillips COP BCom #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09040043
Lab Batch ID: R269727

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	19.0	95.0	20	20.0	100	5.13	22	76	127
Ethylbenzene	12.0	20	34.0	110	20	34.0	110	0	20	35	175
Toluene	ND	20	23.0	115	20	23.0	115	0	24	70	131
m,p-Xylene	ND	40	45.0	108	40	46.0	110	2.20	20	35	175
o-Xylene	ND	20	23.0	115	20	23.0	115	0	20	35	175
Xylenes, Total	ND	60	68	110	60	69	110	1.5	20	35	175
Surr: 1,2-Dichloroethane-d4	ND	50	50	100	50	48.0	96.0	4.08	30	62	130
Surr: 4-Bromofluorobenzene	ND	50	50	100	50	50.0	100	0	30	70	130
Surr: Toluene-d8	ND	50	55	110	50	55.0	110	0	30	74	122

Qualifiers: ND/U - Not Detected at the Reporting Limit MI - Matrix Interference
B/V - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL * - Recovery Outside Advisable QC Limits
E - Estimated Value exceeds calibration curve
N/C - Not Calculated - Sample concentration is greater 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.



Quality Control Report

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

Conoco Phillips

COP BCom #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09040043
Lab Batch ID: R270070

Method Blank

Samples in Analytical Batch:

RunID: K_090409A-4981625 Units: ug/L
Analysis Date: 04/09/2009 12:05 Analyst: LU_L
Preparation Date: 04/09/2009 12:05 Prep By: Method

Lab Sample ID 09040043-01A
09040043-04A

Client Sample ID MW-1
Duplicate

Analyte	Result	Rep Limit
Benzene	ND	5.0
Ethylbenzene	ND	5.0
Toluene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
Xylenes, Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	98.0	62-130
Surr: 4-Bromofluorobenzene	100.0	70-130
Surr: Toluene-d8	106.0	74-122

Laboratory Control Sample (LCS)

RunID: K_090409A-4981624 Units: ug/L
Analysis Date: 04/09/2009 11:08 Analyst: LU_L
Preparation Date: 04/09/2009 11:08 Prep By: Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.0	100	76	126
Ethylbenzene	20.0	24.0	120	67	122
Toluene	20.0	22.0	110	70	131
m,p-Xylene	40.0	47.0	118	72	150
o-Xylene	20.0	24.0	120	78	141
Xylenes, Total	60	71	120	72	150
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	62	130
Surr: 4-Bromofluorobenzene	50.0	52	104	70	130
Surr: Toluene-d8	50.0	53	106	74	122

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

Sample Spiked: 09040105-01
RunID: K_090409A-4981629 Units: ug/L
Analysis Date: 04/09/2009 14:00 Analyst: LU_L

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
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.

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4/14/2009 1:47:03 PM



Quality Control Report

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

Conoco Phillips COP BCom #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 09040043
Lab Batch ID: R270070

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	19.0	85.0	20	20.0	90.0	5.13	22	76	127
Ethylbenzene	52.0	20	69.0	85.0	20	70.0	90.0	1.44	20	35	175
Toluene	ND	20	20.0	95.0	20	20.0	95.0	0	24	70	131
m,p-Xylene	340	40	360	N/C	40	370	N/C	N/C	20	35	175
o-Xylene	22.0	20	42.0	100	20	42.0	100	0	20	35	175
Xylenes, Total	362	60	402	N/C	60	412	N/C	N/C	20	35	175
Surr: 1,2-Dichloroethane-d4	ND	50	49	98.0	50	51.0	102	4.00	30	62	130
Surr: 4-Bromofluorobenzene	ND	50	51	102	50	52.0	104	1.94	30	70	130
Surr: Toluene-d8	ND	50	52	104	50	53.0	106	1.90	30	74	122

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
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.

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4/14/2009 1:47:03 PM



Quality Control Report

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

Conoco Phillips COP BCom #1E

Analysis: Iron, Ferrous
Method: M3500-Fe D

WorkOrder: 09040043
Lab Batch ID: R269396

Method Blank

RunID: WET_090402D-4971763 Units: mg/L
Analysis Date: 04/02/2009 13:45 Analyst: ESK

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09040043-01B	MW-1
09040043-02B	MW-6

Analyte	Result	Rep Limit
Iron, Ferrous	ND	0.10

Laboratory Control Sample (LCS)

RunID: WET_090402D-4971764 Units: mg/L
Analysis Date: 04/02/2009 13:45 Analyst: ESK

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Iron, Ferrous	2.000	2.100	105.0	85	115

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

Sample Spiked: 09040042-02
RunID: WET_090402D-4971769 Units: mg/L
Analysis Date: 04/02/2009 13:45 Analyst: ESK

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Iron, Ferrous	0.8219	1	1.729	90.74	1	1.627	80.52 *	6.090	20	85	115

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
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.

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4/14/2009 1:47:03 PM

*Sample Receipt Checklist
And
Chain of Custody*



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

Sample Receipt Checklist

Workorder: 09040043

Received By: RE

Date and Time Received: 4/2/2009 10:00:00 AM

Carrier name: Fedex-Priority

Temperature: 3.0°C

Chilled by: Water Ice

- | | | | |
|---|---|--|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. All samples received within holding time?
Ferrous Iron was received expired. | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| 11. Container/Temp Blank temperature in compliance? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | VOA Vials Not Present <input checked="" type="checkbox"/> |
| 13. Water - Preservation checked upon receipt (except VOA*)? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/> |

*VOA Preservation Checked After Sample Analysis

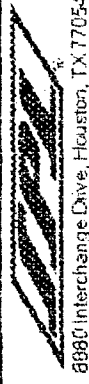
SPL Representative:

Contact Date & Time:

Client Name Contacted:

Non Conformance
Issues:

Client Instructions:



Analysis Request and Chain of Custody Record

SPL Workorder No.

09040043

Company Name: Tetra Tech / Conoco Phillips
Contact: Kelly Blanchard
Address: 6121 Indian School Rd. NE, Ste. 200
Phone/Fax: (505) 237-8440 / (505) 237-8556
Email Address: kelly.blanchard@tetratech.com

Sampling Event Description
☐ Quarterly
☐ Semi-Annual
☐ WC-Waste Char.
☐ Other (describe below)

REQUESTED ANALYSIS

Container Type	Number Containers	Preservative	BTEX - 8260	Ammonia	Sulfate, Orthophosphate (P)	Ferrous Iron
VOA	3	HCL	X			
Amber HCL	1	HCL				X
VOA	3	HCL	X			
Amber HCL	1	HCL				X
VOA	3	HCL	X			
VOA	3	HCL	X			

QA/QC Level
TRCP ☐ LV 3 ☐
STD ☒ Other ☐
Water ☐ Soil ☐ Sludge ☐ Other ☐

Special Detection Limits (Specify):
Special Reporting Requirements (Specify):

SAMPLE ID	DATE	TIME	Water	Soil	Sludge	Other
MW-1	4.1.09	1400	X			
MW-1	4.1.09	1400	X			
MW-6	4.1.09	1435	X			
MW-6	4.1.09	1435	X			
Trip Blank	4.1.09	1600	X			
Duplicate	4.1.09	1420	X			

3.0c
PM review

Received by: [Signature]
Time: 4.1.09 1630
Data: 4.1.09
Received by: [Signature]
Time: 4/2/09 1000
Data: 4/2/09
Reinquired by: [Signature]

APPENDIX C
HISTORICAL ANALYTICAL DATA

Table 2
BTEX Ground Water Analytical Summary
Farmington B Com 1E
Unit O, Sec. 15 T29N, R13W

Sample Date	Sample ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)			
				Benzene	Toluene	Ethylbenzene	Total-Xylene
2/19/98	9802020-01A	MW#1	On Site Lab.	210.0	34.0	370.0	2044.0
6/12/98	3" of free product	in the bailer					
9/15/98	Not Sampled	free product	in well				
12/29/98	9812053-04A			350.0	BDL	420	2800.0
No	Water	Samples	Taken	in	1999		
1/22/04	Not Sampled	free product	in well				
2/19/98	9802020-02A	MW#2	On Site Lab.	2.4	5.3	16.0	470.0
6/12/98	9806055-02A			0.8	2.7	32.0	171.0
9/15/98	9809035-01A			1.3	2.5	39.0	33.3
12/29/98	9812053-05A			BDL	0.6	2.1	35.0
3/3/99	9903012-05A			BDL	BDL	64	119.0
6/15/99	9906055-05A			BDL	BDL	BDL	BDL
9/15/99	9909054-05A			BDL	BDL	4.1	68.1
12/14/99	9912018-05A			BDL	BDL	1.8	36.4
1/22/04	0401011-004A		lina ba Lab	BDL	BDL	BDL	BDL
2/19/98	9802020-03A	MW#3	On Site Lab.	0.9	1.2	1.6	5.3
06/12/98	9806055-01A			BDL	BDL	0.5	2.0
9/15/98	9809035-02A			BDL	BDL	BDL	BDL
12/29/98	9812053-06A			BDL	BDL	BDL	BDL
3/3/99	9903012-04A			BDL	BDL	BDL	BDL
6/15/99	9906055-04A			BDL	0.9	3.1	56.0
9/15/99	9909054-04A			BDL	0.6	BDL	BDL
12/14/99	9912018-04A			BDL	BDL	BDL	BDL
1/22/04	0401011-002A		lina ba Lab	BDL	BDL	BDL	BDL
WQCC	Action	Levels		10.0	750.0	750.0	620.0

Table 2
BTEX Ground Water Analytical Summary
Farmington B Com 1E
Unit O, Sec. 15 T29N, R13W

Sample Date	Sample ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)				
9/15/98	9809035-03A	MW#4	On Site Lab.	BDL	BDL	BDL	BDL	BDL
12/29/98	9812053-03A			BDL	BDL	0.6		BDL
3/3/99	9903012-03A			BDL	BDL			BDL
6/15/99	9906055-03A			BDL	BDL	BDL		BDL
9/15/99	9909054-03A			BDL	BDL	BDL		BDL
12/14/99	9912018-03A			BDL	0.7	BDL		BDL
3/27/00	0003041-01A			BDL	BDL			BDL
6/5/00	0006009-02A			BDL	BDL	BDL		BDL
9/11/00	0009020*01A			BDL	BDL	BDL		BDL
1/22/04	0401011-003A		lina ba Lab	BDL	BDL	BDL		BDL
9/15/98	9809035-04A	MW#5	On Site Lab.	BDL	BDL	BDL		BDL
12/29/98	9812053-02A			BDL	BDL	BDL		BDL
3/3/99	9903012-02A			BDL	BDL	BDL		BDL
6/15/99	9906055-02A			BDL	BDL	BDL		BDL
9/15/99	9909054-02A			BDL	BDL	BDL		BDL
12/14/99	9912018-02A			BDL	0.8	BDL		BDL
3/27/00	0003041-02A			BDL	BDL	BDL		BDL
6/5/00	0006009-01A			BDL	BDL	BDL		BDL
12/14/99	9912018-05A			BDL	BDL	1.8		36.4
1/22/04	0401011-005A		lina ba Lab	BDL	BDL	BDL		BDL
9/15/98	9809035-05A	MW#6	On Site Lab.	BDL	BDL	BDL		BDL
12/29/98	9812053-01A			BDL	BDL	BDL		BDL
3/3/99	9903012-01A			BDL	BDL	BDL		BDL
6/15/99	9906055-01A			BDL	BDL	BDL		BDL
9/15/99	9909054-01A			BDL	0.7	1.1		BDL
12/14/99	9912018-01A			BDL	1.8	0.7		1.9
1/22/04	0401011-006A		lina ba Lab	BDL	BDL	BDL		BDL
WQCC	Action	Levels		10.0	750.0	750.0		620.0

Table 2
 BTEX Ground Water Analytical Summary
 Farmington B Com 1E
 Unit O, Sec. 15 T29N, R13W

Sample Date	Sample ID#	Monitor Well	Remarks	Anions ppm	Iron ppm	BOD	COD
1/22/04		MW#1	Ilina ba Lab		Not Sampled		
1/22/04	0401011-004	MW#2		65.1	BDL		
1/22/04	0401011-002	MW#3		73.3	BDL		
1/22/04	0401011-003	MW#4		67.7	BDL		
1/22/04	0401011-005	MW#5		86.8	BDL		
1/22/04	0401011-006	MW#6		28.2	0.194		