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MAR 2011
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3R084

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

TETRA TECH, INC.

June 10, 2011

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

RE: Farmington B-Com Number 1E Natural Gas Well Site, Farmington, New Mexico. March 2011 Quarterly Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed please find a copy of the above-referenced document as compiled by Tetra Tech, Inc., 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 (1)

Cc: Brandon Powell, NMOCD, Aztec, NM
Terry Lauck, ConocoPhillips RM&R

QUARTERLY GROUNDWATER MONITORING REPORT MARCH 2011 SAMPLING EVENT

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

OCD # 3R0084

API # 30-045-24774

Prepared for:

ConocoPhillips

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

April 2011

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QUARTERLY GROUNDWATER MONITORING REPORT B COM NO.1E NATURAL GAS WELL SITE FARMINGTON, NEW MEXICO MARCH 2011

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring completed by Tetra Tech, Inc. (Tetra Tech) on March 18, 2011, 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 at the Site for 2011.

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 of the site 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 benzene, toluene, ethylbenzene, and xylenes (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 (SMA) 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. SMA determined that an active skimmer was not a viable method of LNAPL recovery in MW-1 and proposed passive skimming or periodic hand bailing.

Tetra Tech began groundwater quality monitoring at the site in May 2005. Most recently, groundwater quality monitoring took place on March 18, 2011. Groundwater elevation measurements were collected from MW-1 and MW-6. A small amount (0.02 inches) of LNAPL on top of the purged water was encountered in MW-1 prior to sampling. 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 dissolved manganese. Manganese was above NMWQCC standards in MW-1.

2.0 METHODOLOGY AND RESULTS

2.1 Groundwater Monitoring Methodology

Groundwater Elevation Measurements

On March 18, 2011, groundwater elevation measurements were recorded for Monitor Wells MW-1 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.** Groundwater elevations were at the lowest levels since monitoring began in five of the six Site monitoring wells. Based on the March 18, 2011 monitoring data, groundwater flow remains to the west and is consistent with recent and historical records at the Site. The Animas River is approximately ¾ miles from the Site and flows west as well.

Groundwater sampling

Groundwater samples were obtained from Monitor Wells MW-1 and MW-6 on March 18, 2011. This represents the twelfth round of consecutive quarterly groundwater monitoring at the Site. Approximately three well volumes were purged from each monitor well with a dedicated polyethylene 1.5-inch disposable bailer. Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Southern Petroleum Laboratories in Houston, Texas. The samples were analyzed for the presence of BTEX in accordance with Environmental Protection Agency (EPA) Method 8260B, dissolved iron and dissolved manganese according to EPA Method 6010B. Groundwater sampling field forms are included as **Appendix A**.

2.2 Groundwater Sampling Analytical Results

The NMWQCC mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC).

- **Volatiles (BTEX)**

- Monitoring Well MW-1 contained 0.02 inches of LNAPL during the March 2011 sampling event. Laboratory analysis of groundwater samples collected from MW-1 revealed that neither benzene, toluene, or total xylenes were present in concentrations above the laboratory detection limits. NMWQCC groundwater quality standards for benzene, toluene, and total xylenes are 10 µg/L, 750 µg/L, and 620 µg/L, respectively. Ethylbenzene was detected at a concentration of 10 µg/L; the NMWQCC groundwater quality standard for ethylbenzene is 750 µg/L.

- **Dissolved Manganese**
  - The groundwater quality standard for dissolved manganese is 0.2 milligrams per liter (mg/L). Laboratory analysis of groundwater samples collected from Monitor Wells MW-1 and MW-6 revealed dissolved manganese at concentrations of 0.477 mg/L and 0.0679 mg/L, respectively.

Table 3 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 SMA historical analytical data is attached as **Appendix C**.

3.0 CONCLUSIONS

Although a measureable amount of LNAPL was observed in Monitor Well MW-1 during the March 2011 monitoring event, BTEX constituents remain below laboratory detection limits. A hydrocarbon sheen or measureable LNAPL has been intermittently detectable during quarterly groundwater pumping events since 2005 and is shown in a hydrograph of groundwater elevations in MW-1 and MW-6 (**Figure 6**). Generally, if MW-1 does not have an oil absorbent sock, a hydrocarbon sheen or measureable LNAPL is observed at various times of the year and at various depths.

Groundwater sample analytical results for Monitor Wells MW-1 and MW-6 continue to show BTEX concentrations below NMWQCC groundwater quality standards. To date, BTEX levels in MW-1 have been below NMWQCC groundwater quality standards since April 2009. Tetra Tech recommends continued quarterly groundwater sampling at the Site in order to provide sufficient data for Site closure. Site closure will be requested when groundwater sample analytical results indicate that all constituents of concern are consistently below NMWQCC groundwater quality standards or have reached Site-specific background levels. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have anyquestions or require additional information.

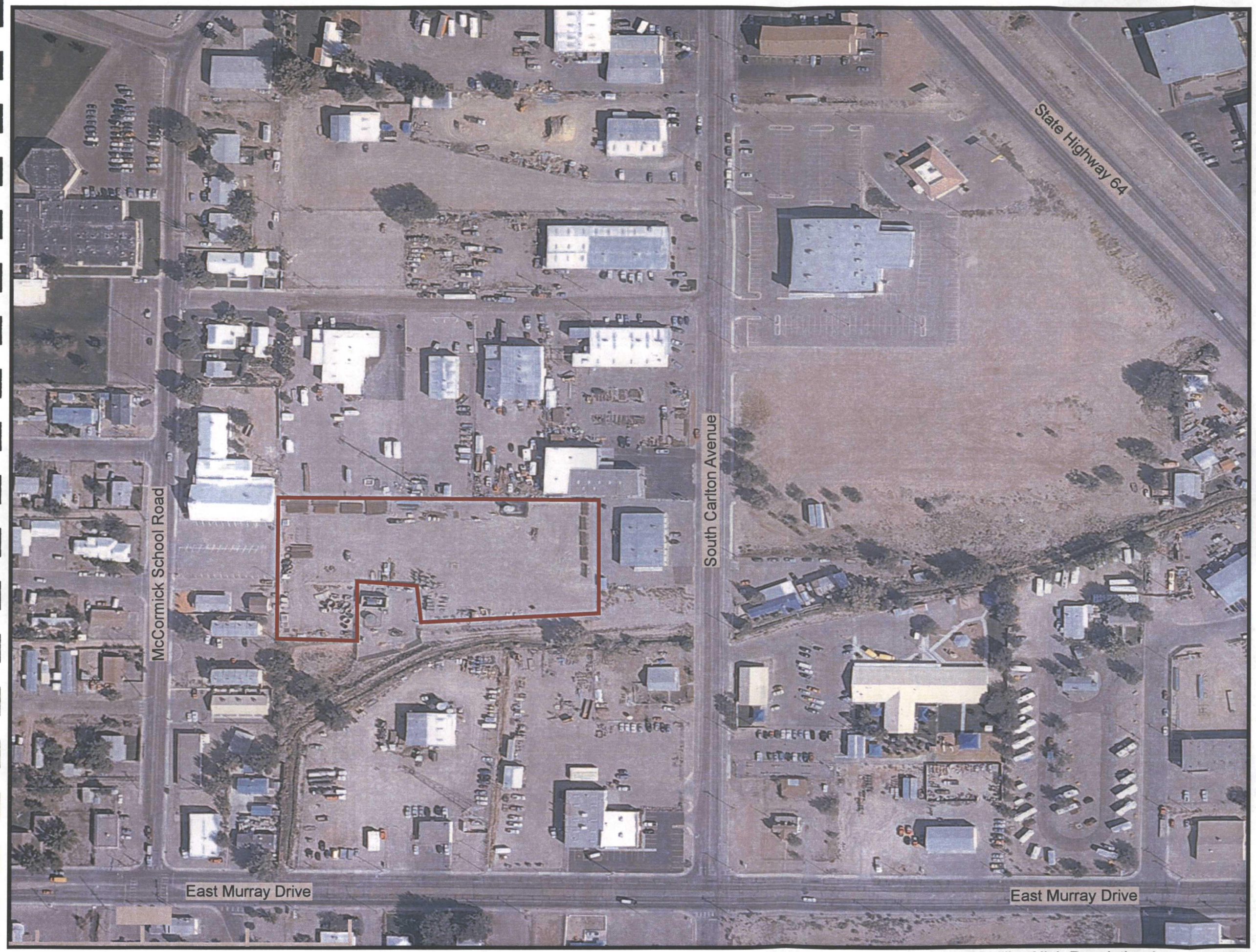
4.0 REFERENCES

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



ConocoPhillips High Resolution Aerial imagery

FIGURE 1.

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

ConocoPhillips Company B Com #1E Site Location

Feet
0 150 300

Section 15, T29N, R13W
San Juan County, NM

N

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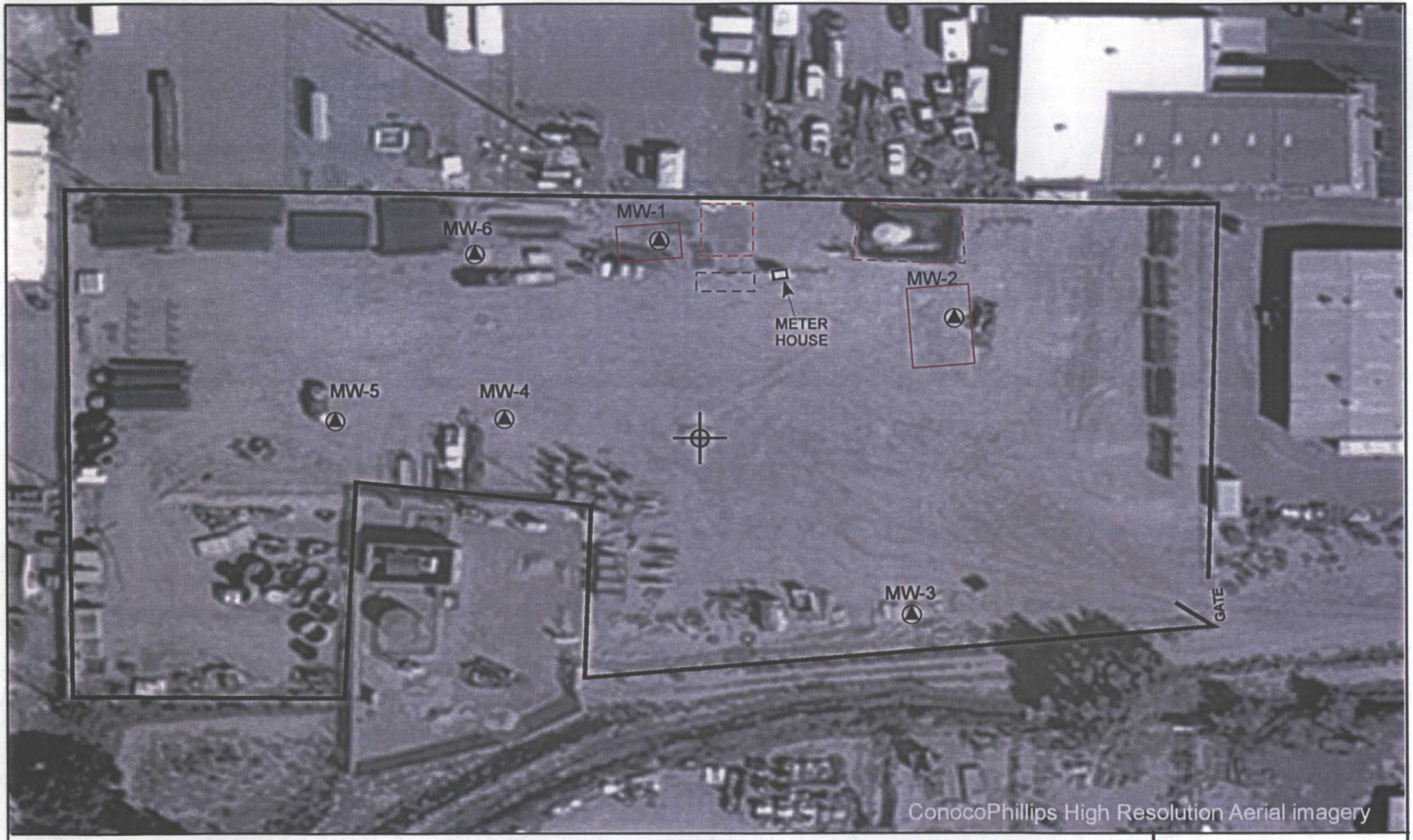

FIGURE 2:
SITE LAYOUT MAP

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 EQUIPMENT
- FORMER PIT EXCAVATION

0 40 80
FEET

N

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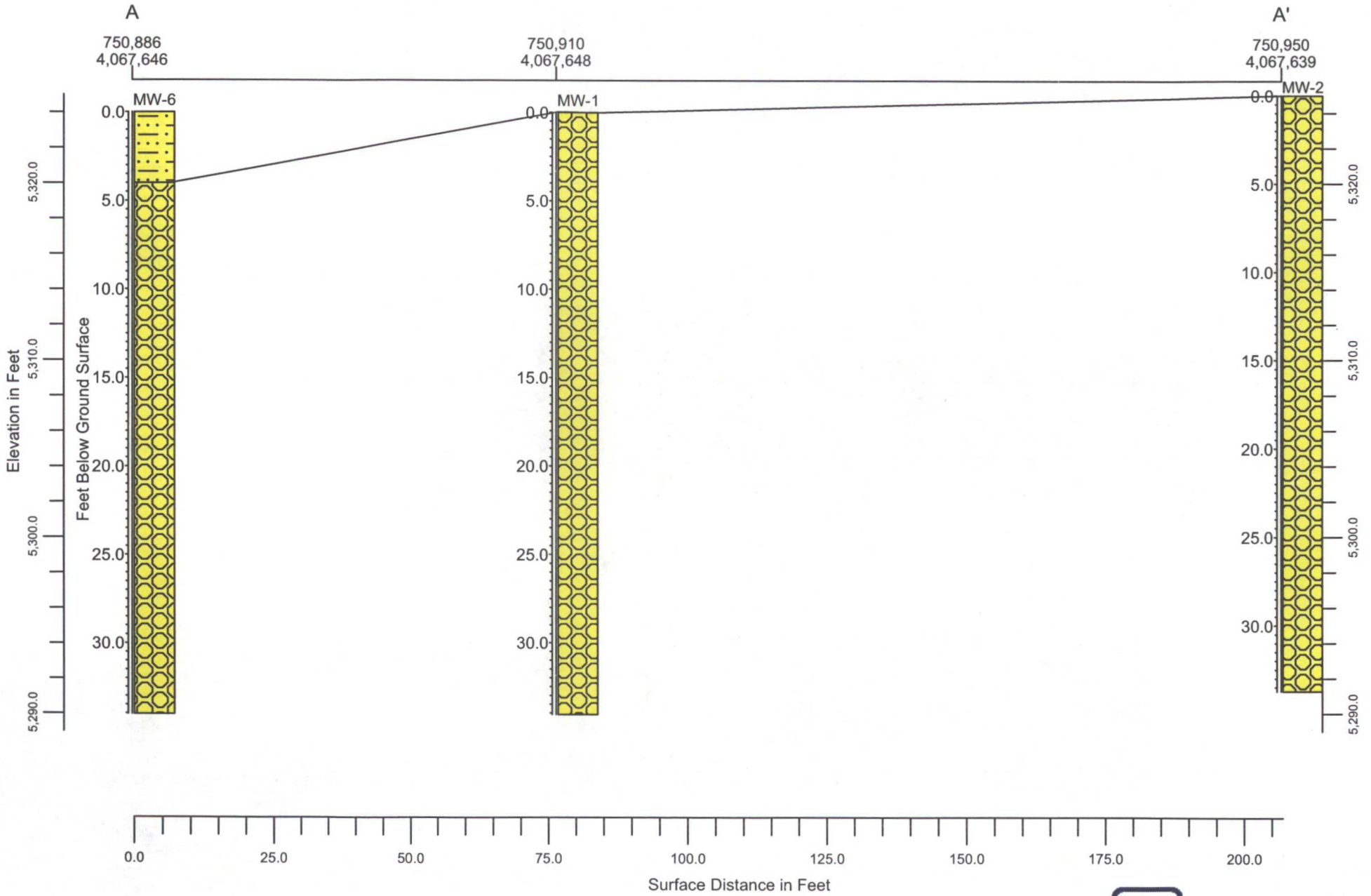
Figure 3.

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



5/24/2010

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FIGURE 4:
GROUNDWATER ELEVATION CONTOUR MAP
MARCH 2011 QUARTERLY MONITORING
APRIL 2011
FARMINGTON B COM NO. 1E
Section 15, T29N, R13W
San Juan County, NM

LEGEND

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

N

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FIGURE 5:
BTEX CONCENTRATION MAP
MARCH 2011 QUARTERLY MONITORING
April 2011
FARMINGTON
B COM NO. 1E
Section 15, T29N, R13W
San Juan County, NM

LEGEND

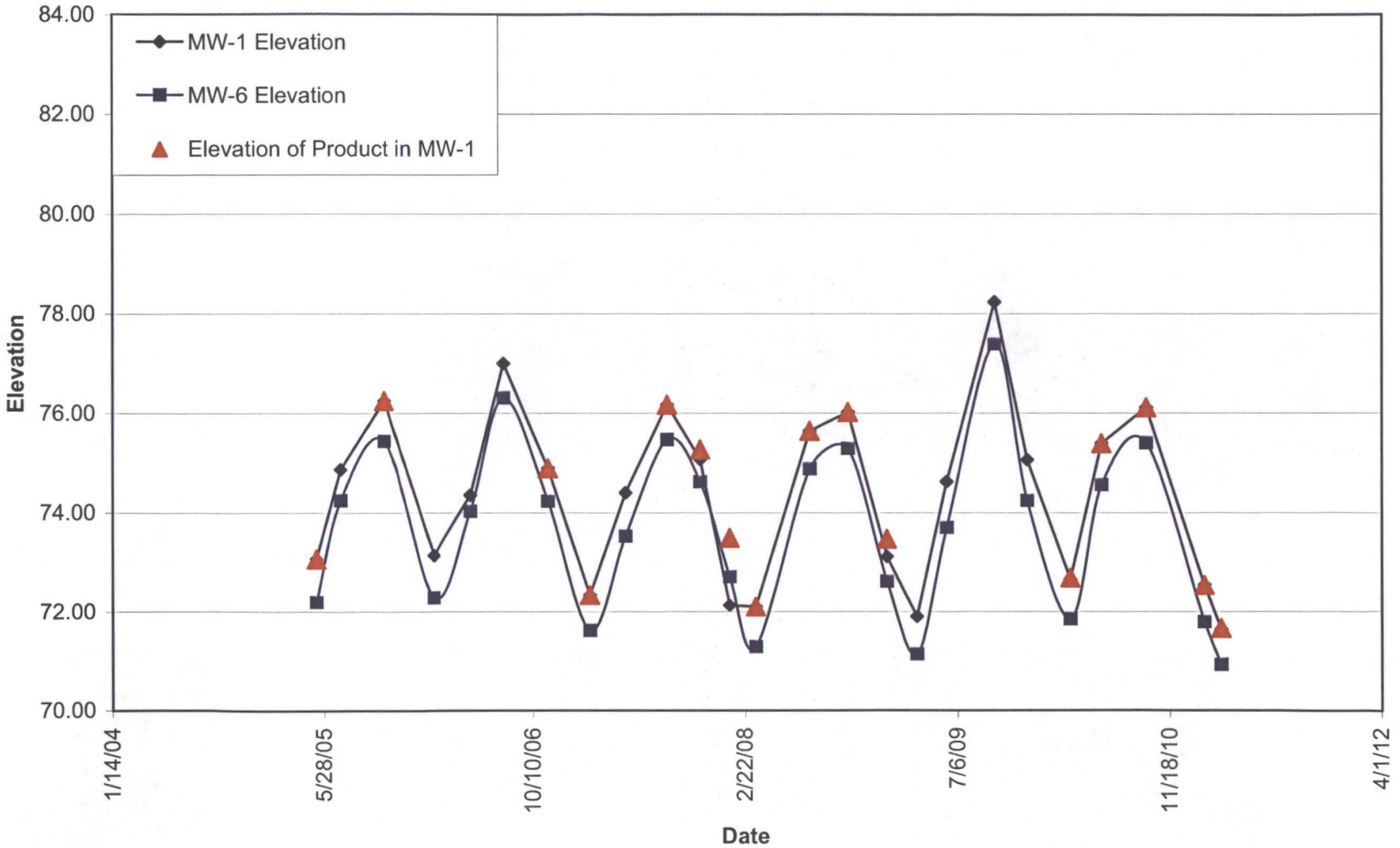
- WELLHEAD
- MONITORING WELL
- FENCE
- FORMER SEPARATOR/DEHYDRATOR
- FORMER SEPARATOR/DEHYDRATOR PIT
- EXISTING MERRION OIL PRODUCED WATER AND CONDENSATE TANKS
- FORMER PIT EXCAVATION

0 40 80
FEET

N

TETRA TECH, INC.

FIGURE 6
FARMINGTON B-COM NO. 1E HYDROGRAPH
Updated: April 2011



TABLES

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
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

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

Date/Time Period	Event/Action	Description
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.
June 10, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1.
October 1, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. **First quarter of compliance** with all COCs bellow NMWQCC standards.
December 17, 2009	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. No free product detected in MW-1. **Second quarter of compliance** with all COCs bellow NMWQCC standards.
March 29, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. **Third quarter of compliance** with all COC's below NMWQCC standards.
June 11, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. **Fourth quarter of compliance** with all COC's below NMWQCC standards
September 24, 2010	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. **Fifth quarter of compliance** with all COC's below NMWQCC standards.
February 7, 2011	Monitor Well Sampling	Continuation of quarterly sampling for monitor wells MW-1 and MW-6. A thin hydrocarbon sheen is detected in MW-1. **Sixth quarter of compliance** with NMWQCC standards for BTEX; however, dissolved manganese concentrations in MW-1 and MW-6 were above standards. This was the first time samples were analyzed for dissolved manganese.
March 18, 2011	Monitor Well Sampling	Twelfth consecutive quarterly groundwater sampling for Monitor Wells MW-1 and MW-6. **Seventh quarter of compliance** with NMWQCC standards for BTEX; however, dissolved manganese concentrations in MW-1 were above standards.

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
				6/10/2009	26.75	NA	74.62
				10/1/2009	23.14	NA	78.23
				12/17/2009	26.31	NA	75.06
				3/29/2010	28.71	28.68	72.66
				6/11/2010	25.98	Sheen	75.39
				9/24/2010	25.26	Sheen	76.11
				2/7/2011	28.83	Sheen	72.54
				3/18/2011	29.73	29.71	71.64
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
				6/10/2009	25.76	NA	75.81
				10/1/2009	22.22	NA	79.35
				12/17/2009	25.62	NA	75.95
				3/29/2010	27.96	NA	73.61
				6/11/2010	24.99	NA	76.58
				9/24/2010	24.54	NA	77.03
				2/7/2011	28.22	NA	73.35
				3/18/2011	29.14	NA	72.43

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
				6/10/2009	26.55	NA	75.55
				10/1/2009	23.00	NA	79.10
				12/17/2009	26.86	NA	75.24
				3/29/2010	29.41	NA	72.69
				6/11/2010	25.62	NA	76.48
				9/24/2010	25.23	NA	76.87
				2/7/2011	29.47	NA	72.63
				3/18/2011	30.40	NA	71.70
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
				6/10/2009	27.31	NA	74.09
				10/1/2009	23.80	NA	77.60
				12/17/2009	27.07	NA	74.33
				3/29/2010	29.51	NA	71.89
				6/11/2010	26.43	NA	74.97
				9/24/2010	25.70	NA	75.70
				2/7/2011	29.49	NA	71.91
				3/18/2011	30.38	NA	71.02

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
				6/10/2009	27.09	NA	73.43
				10/1/2009	23.50	NA	77.02
				12/17/2009	26.77	NA	73.75
				3/29/2010	29.21	NA	71.31
				6/11/2010	26.16	NA	74.36
				9/24/2010	25.31	NA	75.21
				2/7/2011	29.13	NA	71.39
				3/18/2011	30.10	NA	70.42
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
				6/10/2009	28.44	NA	73.70
				10/1/2009	24.75	NA	77.39
				12/17/2009	27.90	NA	74.24
				3/29/2010	30.29	NA	71.85
				6/11/2010	27.58	NA	74.56
				9/24/2010	26.74	NA	75.40
				2/7/2011	30.35	NA	71.79
				3/18/2011	31.21	NA	70.93

ft. = Feet
TOC = Top of casing
* Relative Elevation
NA - not applicable or not measured.
bgs = below ground surface
** Where non-aqueous phase liquid (NAPL) is present greater than sheen, depth to water equals the Top of Casing elevation minus the depth to water, plus the NAPL thickness multiplied by 0.79.

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)	Dissolved Manganese (mg/L)
MW-1	2/19/1998	**210**	34	370	**2,044**	NS	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	NS
	1/22/2004	free product - not sampled							
	5/9/2005	**17**	<0.7	74	250	<0.40	77.8	14.9*	NS
	10/19/2005	**34**	<1.0	170	**1400**	0.15	39.9	15*	NS
	11/14/2006	**18**	<0.7	190	**1600**	<0.015	145	8.8*	NS
	11/7/2007	7	<0.7	120	250	<0.015	38.4	6.4*	NS
	7/24/2008	<5.0	<5.0	90	35	<0.5	4.76	17.2*	NS
	Duplicate	<5.0	<5.0	110	59	NS	NS	NS	NS
	10/22/2008	<5.0	<5.0	88	165	<0.5	17	21.1*	NS
	Duplicate	<5.0	<5.0	95	186	NS	NS	NS	NS
	1/21/2009	free product - not sampled							
	4/1/2009	<5.0	<5.0	11	<5.0	NS	NS	5.26*	NS
	6/10/2009	<5.0	<5.0	96	<5.0	NS	NS	9.8*	NS
	10/1/2009	1.3	<1.0	58	142	NS	NS	0.233	NS
	12/17/2009	1.4	<1.0	100	2.8	NS	NS	0.521	NS
	3/29/2010	<1.0	<1.0	51	<1.0	NS	NS	0.0803	NS
	6/11/2010	1.1	<1.0	98	1.8	NS	NS	0.0217	NS
	9/24/2010	<1.0	<1.0	92	27.8	NS	NS	0.0285	NS
	2/7/2011	<1.0	<1.0	26	<1.0	NS	NS	NS	**0.459**
	3/18/2011	<1.0	<1.0	10	<1.0	NS	NS	<0.02	**0.477**
MW-6	9/15/1998	BDL	BDL	BDL	BDL	NS	NS	NS	NS
	12/29/1998	BDL	BDL	BDL	BDL	NS	NS	NS	NS
	3/3/1999	BDL	BDL	BDL	BDL	NS	NS	NS	NS
	6/15/1999	BDL	BDL	BDL	BDL	NS	NS	NS	NS
	9/15/1999	BDL	0.7	1.1	BDL	NS	NS	NS	NS
	12/14/1999	BDL	1.8	0.7	1.9	NS	NS	NS	NS
	1/22/2004	BDL	BDL	BDL	BDL	NS	NS	NS	NS
	5/9/2005	<0.5	<0.7	<0.8	<0.8	<0.4	97	15.9*	NS
	10/19/2005	<0.5	<0.7	<0.8	<0.8	5.4	52.6	1.4*	NS
	11/14/2006	<0.5	<0.7	<0.8	1	<0.015	159	5.8*	NS
	11/7/2007	<0.5	<0.7	<0.8	<0.8	<0.015	112	3*	NS
	7/24/2008	<5.0	<5.0	<5.0	<5.0	<0.5	44.4	28.5*	NS
	10/22/2008	<5.0	<5.0	<5.0	<5.0	<0.5	43.7	1.77*	NS
	1/21/2009	<5.0	<5.0	<5.0	<5.0	<0.5	31.1	9.59*	NS
	4/1/2009	<5.0	<5.0	<5.0	<5.0	NS	NS	16.2*	NS
	6/10/2009	<5.0	<5.0	<5.0	<5.0	NS	NS	3.86*	NS
	10/1/2009	<1.0	<1.0	<1.0	<1.0	NS	NS	<0.02	NS
	12/17/2009	<1.0	<1.0	<1.0	<1.0	NS	NS	0.0511	NS
	3/29/2010	<1.0	<1.0	<1.0	<1.0	NS	NS	<0.0200	NS
	6/11/2010	<1.0	<1.0	<1.0	<1.0	NS	NS	<0.0200	NS
	9/24/2010	<1.0	<1.0	<1.0	<1.0	NS	NS	<0.0200	NS
	2/7/2011	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	**0.543**
	3/18/2011	<1.0	<1.0	<1.0	<1.0	NS	NS	<0.02	0.0679
NMWQCC Standards		**10 (µg/L)**	**750 (µg/L)**	**750 (µg/L)**	**620 (µg/L)**	**10 (mg/L)**	**600 (mg/L)**	**1 (mg/L)**	**0.2 (mg/L)**

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 1E — Page 2 of 2

ect No.

Site Location Farmington, NM

Site/Well No. MW-6 — Coded/ Replicate No. — Date 3.18.11

Weather Sunny, Cool 40° — Time Sampling Began 840 — Time Sampling Completed 955

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface — MP Elevation 102.14

Total Sounded Depth of Well Below MP ~~34.02~~ 33.97 — Water-Level Elevation

Held ____ Depth to Water Below MP 31.21 — Diameter of Casing 2"

Wet ____ Water Column in Well 2.76 — Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot 0.16

Gallons in Well 0.441 x3 = 1.32 — 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)	DO %	ORP (mV)	Volume (gal.)
845	15.85	7.22	804	0.680	3.35	33.3	171.5	0.5
847	16.08	7.24	802	0.675	2.28	22.9	149.0	1.0
850	16.26	7.22	800	0.671	2.18	22.3	91.6	1.5

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Dissolved Fe	1 16 oz plastic	none

Remarks H2O is turbid & silty. No color or sheen

Sampling Personnel Cassie Brown, Christine Mathews

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 B Com 1E Page 1 of 2

ect No.

Site Location Farmington, NM

Site/Well No. MW-1 Coded/ Replicate No. 905 Date 3-18-11

Weather sunny, cool 40° Time Sampling Began 835 Time Sampling Completed 900

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation 101.37

Total Sounded Depth of Well Below MP 34.09 Water-Level Elevation

Held Depth to Water Below MP 29.73 Diameter of Casing 2"

Wet Water Column in Well 4.36 Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot 0.16

Gallons in Well 0.69 x 3 = 2.09 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)	DO %	ORP (mV)	Volume (gal.)

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Dissolved Fe	1 16 oz plastic	none

Remarks DTP = 29.71 DTW = 29.73 probe picked up liquid

Sampling Personnel Cassie Brown, Christine Mathews

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

ACCUTEST LABORATORIES

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

Conoco Phillips

Certificate of Analysis Number:

11030511

Report To:		Project Name:	COP B Com #1E
Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph (505) 237-8440 fax: (505) 881-3283		Site:	Farmington, NM
		Site Address:	
		PO Number:	4509596739
		State:	New Mexico
		State Cert. No.:	
		Date Reported:	3/31/2011

This Report Contains A Total Of 15 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

4/1/2011

Date

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

Version 2.1 - Modified February 11, 2011

ACCUTEST LABORATORIES

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

Case Narrative for:

Conoco Phillips

Certificate of Analysis Number:

11030511

Report To:		Project Name:	COP B Com #1E
Tetra Tech, Inc.		Site:	Farmington, NM
Kelly Blanchard		Site Address:	
6121 Indian School Road, N.E.			
Suite 200		PO Number:	4509596739
Albuquerque		State:	New Mexico
NM		State Cert. No.:	
87110-		Date Reported:	3/31/2011
ph (505) 237-8440	fax: (505) 881-3283		

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.

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

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

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

4/1/2011

Erica Cardenas
Project Manager

Date

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

ACCUTEST LABORATORIES

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

Case Narrative for:

Conoco Phillips

Certificate of Analysis Number:

11030511

his designee, as verified by the following signature.

Erica Cardenas
Project Manager

Date

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

ACCUTEST LABORATORIES

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

Conoco Phillips

Certificate of Analysis Number:

11030511

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 B Com #1E
Site: Farmington, NM
Site Address:

PO Number: 4509596739
State: New Mexico
State Cert. No.:
Date Reported: 3/31/2011

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	11030511-01	Water	03/18/2011 9:00	3/22/2011 9:26:00 AM	302868	☐
MW-6	11030511-02	Water	03/18/2011 8:55	3/22/2011 9:26:00 AM	302868	☐
Duplicate	11030511-03	Water	03/18/2011 9:05	3/22/2011 9:26:00 AM	302868	☐
Trip Blank	11030511-04	Water	03/21/2011 10:30	3/22/2011 9:26:00 AM	302868	☐

Erica Cardenas
Project Manager

4/1/2011
Date

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

Ted Yen
Quality Assurance Officer

ACCUTEST LABORATORIES

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

Client Sample ID MW-1 **Collected:** 03/18/2011 9:00 **SPL Sample ID:** 11030511-01

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Iron	ND		0.02	1	03/29/11 23:11	R_V	5754966
Manganese	0.477		0.005	1	03/29/11 23:11	R_V	5754966

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/22/2011 9:45	M_W	1.00

VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	03/23/11 16:44	JC	5750234
Ethylbenzene	10		1	1	03/23/11 16:44	JC	5750234
Toluene	ND		1	1	03/23/11 16:44	JC	5750234
m,p-Xylene	ND		2	1	03/23/11 16:44	JC	5750234
o-Xylene	ND		1	1	03/23/11 16:44	JC	5750234
Xylenes,Total	ND		1	1	03/23/11 16:44	JC	5750234
Surr: 1,2-Dichloroethane-d4	95.0	%	70-130	1	03/23/11 16:44	JC	5750234
Surr: 4-Bromofluorobenzene	95.8	%	74-125	1	03/23/11 16:44	JC	5750234
Surr: Toluene-d8	98.4	%	82-118	1	03/23/11 16:44	JC	5750234

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

ACCUTEST LABORATORIES

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

Client Sample ID MW-6 **Collected:** 03/18/2011 8:55 **SPL Sample ID:** 11030511-02

Site: Farmington, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
METALS BY METHOD 6010B, DISSOLVED			**MCL**	**SW6010B**	**Units: mg/L**		
Iron	ND		0.02	1	03/29/11 23:17	R_V	5754967
Manganese	0.0679		0.005	1	03/29/11 23:17	R_V	5754967

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/22/2011 9:45	M_W	1.00

VOLATILE ORGANICS BY METHOD 8260B			**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	ND		1	1	03/23/11 17:13	JC	5750235
Ethylbenzene	ND		1	1	03/23/11 17:13	JC	5750235
Toluene	ND		1	1	03/23/11 17:13	JC	5750235
m,p-Xylene	ND		2	1	03/23/11 17:13	JC	5750235
o-Xylene	ND		1	1	03/23/11 17:13	JC	5750235
Xylenes,Total	ND		1	1	03/23/11 17:13	JC	5750235
Surr: 1,2-Dichloroethane-d4	93.3	%	70-130	1	03/23/11 17:13	JC	5750235
Surr: 4-Bromofluorobenzene	93.9	%	74-125	1	03/23/11 17:13	JC	5750235
Surr: Toluene-d8	92.9	%	82-118	1	03/23/11 17:13	JC	5750235

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

ACCUTEST LABORATORIES

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

Client Sample ID Duplicate | **Collected:** 03/18/2011 9:05 | **SPL Sample ID:** 11030511-03

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	03/23/11 17:42	JC	5750236
Ethylbenzene	9.4		1	1	03/23/11 17:42	JC	5750236
Toluene	ND		1	1	03/23/11 17:42	JC	5750236
m,p-Xylene	ND		2	1	03/23/11 17:42	JC	5750236
o-Xylene	ND		1	1	03/23/11 17:42	JC	5750236
Xylenes,Total	ND		1	1	03/23/11 17:42	JC	5750236
Surr: 1,2-Dichloroethane-d4	94.6		% 70-130	1	03/23/11 17:42	JC	5750236
Surr: 4-Bromofluorobenzene	96.1		% 74-125	1	03/23/11 17:42	JC	5750236
Surr: Toluene-d8	96.5		% 82-118	1	03/23/11 17:42	JC	5750236

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

ACCUTEST LABORATORIES

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

Client Sample ID Trip Blank **Collected:** 03/21/2011 10:30 **SPL Sample ID:** 11030511-04

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	03/24/11 10:30	JC	5751075
Ethylbenzene	ND		1	1	03/24/11 10:30	JC	5751075
Toluene	ND		1	1	03/24/11 10:30	JC	5751075
m,p-Xylene	ND		2	1	03/24/11 10:30	JC	5751075
o-Xylene	ND		1	1	03/24/11 10:30	JC	5751075
Xylenes,Total	ND		1	1	03/24/11 10:30	JC	5751075
Surr: 1,2-Dichloroethane-d4	92.8		% 70-130	1	03/24/11 10:30	JC	5751075
Surr: 4-Bromofluorobenzene	94.9		% 74-125	1	03/24/11 10:30	JC	5751075
Surr: Toluene-d8	96.6		% 82-118	1	03/24/11 10:30	JC	5751075

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated value between MDL and PQL
E - Estimated Value exceeds calibration curve
TNTC - Too numerous to count
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

Quality Control Documentation

ACCUTEST LABORATORIES

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

Quality Control Report

Conoco Phillips

COP B Com #1E

Analysis: Metals by Method 6010B, Dissolved
Method: SW6010B
WorkOrder: 11030511
Lab Batch ID: 105581

Method Blank

RunID: ICP2_110329A-5754942 Units: mg/L
Analysis Date: 03/29/2011 21:46 Analyst: R_V
Preparation Date: 03/22/2011 9:45 Prep By: M_ Method SW3005A

Analyte	Result	Rep Limit
Iron	ND	0.02
Manganese	ND	0.005

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030511-01B	MW-1
11030511-02B	MW-6

Laboratory Control Sample (LCS)

RunID: ICP2_110329A-5754944 Units: mg/L
Analysis Date: 03/29/2011 21:52 Analyst: R_V
Preparation Date: 03/22/2011 9:45 Prep By: M_ Method SW3005A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Iron	1.000	0.9760	97.60	80	120
Manganese	0.1000	0.09890	98.90	80	120

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

Sample Spiked: 11030506-02
RunID: ICP2_110329A-5754947 Units: mg/L
Analysis Date: 03/29/2011 22:04 Analyst: R_V
Preparation Date: 03/22/2011 9:45 Prep By: M_ Method SW3005A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Iron	7.722	1	8.722	N/C	1	8.638	N/C	N/C	20	75	125
Manganese	3.161	0.1	3.278	N/C	0.1	3.302	N/C	N/C	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

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

4/1/2011 11:59:55 AM

ACCUTEST LABORATORIES

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

Quality Control Report

Conoco Phillips

COP B Com #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 11030511
Lab Batch ID: R317462

Method Blank

RunID: Q_110323B-5750229 Units: ug/L
Analysis Date: 03/23/2011 10:57 Analyst: JC

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	2.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	94.3	70-130
Surr: 4-Bromofluorobenzene	92.1	74-125
Surr: Toluene-d8	100.5	82-118

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030511-01A	MW-1
11030511-02A	MW-6
11030511-03A	Duplicate

Laboratory Control Sample (LCS)

RunID: Q_110323B-5750228 Units: ug/L
Analysis Date: 03/23/2011 10:28 Analyst: JC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.6	103	74	123
Ethylbenzene	20.0	21.6	108	72	127
Toluene	20.0	23.7	119	74	126
m,p-Xylene	40.0	44.3	111	71	129
o-Xylene	20.0	22.0	110	74	130
Xylenes,Total	60.0	66.3	110	71	130
Surr: 1,2-Dichloroethane-d4	50.0	43.9	87.8	70	130
Surr: 4-Bromofluorobenzene	50.0	45.7	91.3	74	125
Surr: Toluene-d8	50.0	50.9	102	82	118

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

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

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

Version 2.1 - Modified February 11, 2011

ACCUTEST LABORATORIES

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

Quality Control Report

Conoco Phillips

COP B Com #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 11030511
Lab Batch ID: R317462

Sample Spiked: 11030531-02
RunID: Q_110323B-5750231 Units: ug/L
Analysis Date: 03/23/2011 14:47 Analyst: JC

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	20.9	104	20	20.9	105	0.440	22	70	124
Ethylbenzene	ND	20	21.4	107	20	21.8	109	1.93	20	76	122
Toluene	ND	20	21.9	109	20	21.9	109	0.0732	24	80	117
m,p-Xylene	ND	40	42.8	107	40	43.5	109	1.53	20	69	127
o-Xylene	ND	20	21.9	110	20	20.7	104	5.46	20	84	114
Xylenes,Total	ND	60	64.7	108	60	64.2	107	0.783	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	46.5	93.1	50	45.6	91.2	2.07	30	70	130
Surr: 4-Bromofluorobenzene	ND	50	46.5	93.0	50	46.1	92.2	0.874	30	74	125
Surr: Toluene-d8	ND	50	47.7	95.4	50	47.4	94.8	0.591	30	82	118

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

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

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

Quality Control Report

Conoco Phillips

COP B Com #1E

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 11030511
Method: SW8260B **Lab Batch ID:** R317516

Method Blank

RunID: Q_110324A-5751074 Units: ug/L
Analysis Date: 03/24/2011 10:01 Analyst: JC

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030511-04A	Trip Blank

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	2.0
o-Xylene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,2-Dichloroethane-d4	92.2	70-130
Surr: 4-Bromofluorobenzene	94.5	74-125
Surr: Toluene-d8	98.0	82-118

Laboratory Control Sample (LCS)

RunID: Q_110324A-5751073 Units: ug/L
Analysis Date: 03/24/2011 9:32 Analyst: JC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.7	103	74	123
Ethylbenzene	20.0	20.9	105	72	127
Toluene	20.0	21.6	108	74	126
m,p-Xylene	40.0	43.1	108	71	129
o-Xylene	20.0	21.3	106	74	130
Xylenes,Total	60.0	64.4	107	71	130
Surr: 1,2-Dichloroethane-d4	50.0	45.5	90.9	70	130
Surr: 4-Bromofluorobenzene	50.0	48.1	96.2	74	125
Surr: Toluene-d8	50.0	47.9	95.7	82	118

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

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

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

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

Quality Control Report

Conoco Phillips

COP B Com #1E

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 11030511
Lab Batch ID: R317516

Sample Spiked: 11030582-02
RunID: Q_110324A-5751082 Units: ug/L
Analysis Date: 03/24/2011 14:50 Analyst: JC

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	21.7	108	20	21.6	108	0.268	22	70	124
Ethylbenzene	ND	20	21.8	109	20	21.7	109	0.395	20	76	122
Toluene	ND	20	22.5	112	20	22.2	111	1.18	24	80	117
m,p-Xylene	ND	40	44.2	110	40	42.7	107	3.40	20	69	127
o-Xylene	ND	20	21.6	108	20	21.6	108	0.157	20	84	114
Xylenes,Total	ND	60	65.8	110	60	64.3	107	2.33	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	47.9	95.8	50	47.2	94.3	1.61	30	70	130
Surr: 4-Bromofluorobenzene	ND	50	46.1	92.2	50	48.2	96.3	4.37	30	74	125
Surr: Toluene-d8	ND	50	47.7	95.5	50	48.1	96.2	0.793	30	82	118

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte Detected In The Associated Method Blank
J - Estimated Value Between MDL And PQL
E - Estimated Value exceeds calibration curve
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.
TNTC - Too numerous to count

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

Sample Receipt Checklist

And

Chain of Custody

ACCUTEST®
LABORATORIES

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

Sample Receipt Checklist

Workorder:	11030511	Received By:	T_B
Date and Time Received:	3/22/2011 9:26:00 AM	Carrier name:	Fedex-Standard Overnight
Temperature:	3.5/3.5°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: _____

Client Instructions: _____

SPL, Inc.
Analysis Request & Chain of Custody Record

SPL Workorder No.: 302868
1030511
page 1 of 1

Client Name: Tetra Tech
Address: 6121 Indian School #200
City: Albuquerque State: NM Zip: 87110
Phone/Fax: 505 237-8440
Client Contact: Kelly Blanchard Email: kelly.blanchard@tetratech.com
Project Name/No.: B Com #1E
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=entire 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)	preserv (1=HCl 2=HNO3 3=H2SO4 X=other Ø=NONE)	Number of Containers	Requested Analysis: BTEX	Requested Analysis: Dissolved Fe, Mn
MW-1	3.18.11	900		X	W	V	40	1	3	X	
MW-1	3.18.11	900		X	W	P	16	Ø	1		X
MW-6	3.18.11	855		X	W	V	40	1	3	X	
MW-6	3.18.11	855		X	W	P	16	Ø	1		X
Duplicate	3.18.11	905		X	W	V	40	1	3	X	
Trip Blank	3.21.11	1030			W	V	40	1	2	X	

Client/Consultant Remarks: please filter metals before analysis

Laboratory remarks:

Intact? ☐ Y ☐ N
Ice? ☐ Y ☐ N
Temp:

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): NMWQCC Standards

PM review (initial):

	date	time	
1. Relinquished by: Sampler	3.21.11	1100	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date 3/22/11	time 9:26	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

APPENDIX C

HISTORICAL ANALYTICAL DATA

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

Sample ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)			
			Benzene	Toluene	Ethylbenzene	Total-Xylene
9802020-01A	MW#1	On Site Lab.	210.0	34.0	370.0	2044.0
3" of free product	in the bailer					
Not Sampled	free product	in well				
9812053-04A			350.0	BDL	420	2800.0
Water	Samples	Taken	in	1999		
Not Sampled	free product	in well				
9802020-02A	MW#2	On Site Lab.	2.4	5.3	16.0	470.0
9806055-02A			0.8	2.7	32.0	171.0
9809035-01A			1.3	2.5	39.0	33.3
9812053-05A			BDL	0.6	2.1	35.0
9903012-05A			BDL	BDL	64	119.0
9906055-05A			BDL	BDL	BDL	BDL
9909054-05A			BDL	BDL	4.1	68.1
9912018-05A			BDL	BDL	1.8	36.4
0401011-004A		lina ba Lab	BDL	BDL	BDL	BDL
9802020-03A	MW#3	On Site Lab.	0.9	1.2	1.6	5.3
9806055-01A			BDL	BDL	0.5	2.0
9809035-02A			BDL	BDL	BDL	BDL
9812053-06A			BDL	BDL	BDL	BDL
9903012-04A			BDL	BDL	BDL	BDL
9906055-04A			BDL	0.9	3.1	56.0
9909054-04A			BDL	0.6	BDL	BDL
9912018-04A			BDL	BDL	BDL	BDL
0401011-002A		lina ba Lab	BDL	BDL	BDL	BDL
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 ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)			
9809035-03A	MW#4	On Site Lab.	BDL	BDL	BDL	BDL
9812053-03A			BDL	BDL	0.6	BDL
9903012-03A			BDL	BDL	BDL	BDL
9906055-03A			BDL	BDL	BDL	BDL
9909054-03A			BDL	BDL	BDL	BDL
9912018-03A			BDL	0.7	BDL	BDL
0003041-01A			BDL	BDL	BDL	BDL
0006009-02A			BDL	BDL	BDL	BDL
0009020*01A			BDL	BDL	BDL	BDL
0401011-003A		lina ba Lab	BDL	BDL	BDL	BDL
9809035-04A	MW#5	On Site Lab.	BDL	BDL	BDL	BDL
9812053-02A			BDL	BDL	BDL	BDL
9903012-02A			BDL	BDL	BDL	BDL
9906055-02A			BDL	BDL	BDL	BDL
9909054-02A			BDL	BDL	BDL	BDL
9912018-02A			BDL	0.8	BDL	BDL
0003041-02A			BDL	BDL	BDL	BDL
0006009-01A			BDL	BDL	BDL	BDL
9912018-05A			BDL	BDL	1.8	36.4
0401011-005A		lina ba Lab	BDL	BDL	BDL	BDL
9809035-05A	MW#6	On Site Lab.	BDL	BDL	BDL	BDL
9812053-01A			BDL	BDL	BDL	BDL
9903012-01A			BDL	BDL	BDL	BDL
9906055-01A			BDL	BDL	BDL	BDL
9909054-01A			BDL	0.7	1.1	BDL
9912018-01A			BDL	1.8	0.7	1.9
0401011-006A		lina ba Lab	BDL	BDL	BDL	BDL
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 ID#	Monitor Well	Remarks	Anions ppm	Iron ppm	BOD	COD
	MW#1	lina ba Lab	Not Sampled			
0401011-004	MW#2		65.1	BDL		
0401011-002	MW#3		73.3	BDL		
0401011-003	MW#4		67.7	BDL		
0401011-005	MW#5		86.8	BDL		
0401011-006	MW#6		28.2	0.194		