3R - 430

QUARTERLY GWMR

02/15/2011

3R430

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

TETRA TECH, INC.

February 15, 2011

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

RE: ✔ (1) ConocoPhillips Company Wilmuth No. 1 Site, Aztec, New Mexico. September 2010 Quarterly Groundwater Monitoring Report
(2) ConocoPhillips Company Randleman No. 1 Site, Aztec, New Mexico. September 2010 Quarterly Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed please find a copy of the above-referenced documents as compiled by Tetra Tech, Inc., for these San Juan Basin sites.

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

Sincerely,

Kelly E. Blanchard

Kelly E. Blanchard
Project Manager/Geologist

Enclosures (2)

SEPTEMBER 2010 GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS COMPANY

WILMUTH NO. 1
NATURAL GAS PRODUCTION SITE
SAN JUAN COUNTY, NEW MEXICO

OCD Order # TBD .

API # 30-045-10370

Prepared for:

ConocoPhillips

Risk Management and Remediation
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. 114-690153

February 2011

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SEPTEMBER 2010 GROUNDWATER MONITORING REPORT WILMUTH NO. 1, SAN JUAN COUNTY, NEW MEXICO

1.0 INTRODUCTION

This report discusses the groundwater monitoring event conducted by Tetra Tech, Inc. (Tetra Tech) on September 20, 2010 at the ConocoPhillips Company (ConocoPhillips) Wilmuth No. 1 site located outside of Aztec, New Mexico (Site). This report also presents the analytical results of the quarterly groundwater monitoring event.

The Site is located on private land leased to ConocoPhillips and is situated in Section 26, Township 31N, Range 11W, of San Juan County, New Mexico (**Figure 1**). A Site detail map is included as **Figure 2**.

1.1 Site Background

The Wilmuth No. 1 natural gas production well was spudded in 1958 by El Paso Natural Gas Company. Meridian Oil, Inc., a subsidiary of Burlington Resources, Inc. (Burlington), took over operation of the well on November 1, 1986. ConocoPhillips acquired Burlington on March 31, 2006.

A release of approximately 22 barrels (bbls) of produced water ocurred within the bermed area around the produced water tank on May 17, 2001. Twenty bbls were later recovered. A release of condensate occurred on December 17, 2002 from a corrosion hole in the condensate tank. Burlington excavated a total of 85 cubic yards of impacted soil and disposed of it at JFJ landfarm, located in Aztec, NM.

During December, 2009, ConocoPhilips personnel notified the New Mexico Oil Conservation Division (NMOCD) of groundwater seeping into two separate areas undergoing excavation to remove stained soil discovered during line tie-in procedures. Four groundwater monitoring wells were subsequently installed under the supervision of Tetra Tech in April, 2010. A generalized geologic cross section was produced using boring logs from monitoring well installation at the Site. The cross section is presented as **Figure 3**.

Tetra Tech began quarterly sampling immediately following development of the wells by collecting a baseline round of groundwater samples on April 8, 2010. The most recent sampling event took place on September 20, 2010, and represents the third round of sampling conducted by Tetra Tech at the Site. The historical timeline is also presented in **Table 1**.

2.0 MONITORING SUMMARY, SAMPLING METHODOLOGY, AND ANALYTICAL RESULTS

2.1 Monitoring Summary

A groundwater quality monitoring event was conducted on September 20, 2010 at the Wilmuth No. 1 site. Prior to collection of groundwater samples from Monitor Wells MW-1, MW-2, MW-3 and MW-4, depth to

groundwater in each well was determined. The casings for Site monitoring wells were surveyed on April 8, 2010 using an arbitrary reference-elevation of 100 feet above mean sea level (amsl). The data obtained from the Site survey and groundwater elevations collected during the September 2010 sampling event were used to create a groundwater elevation contour map for the Site and is presented as **Figure 4**. Using these data, it was determined that the groundwater flow direction at the Site is to the southwest. Numerical groundwater elevation information from September 2010 is also included in **Table 2**.

2.2 Groundwater Sampling Methodology

During the September 2010 groundwater monitoring event, Site monitor wells were purged of at least 3 casing volumes of groundwater using a 1.5-inch diameter, polyethylene, dedicated bailer. While bailing each well, groundwater parameter data such as temperature, pH, conductivity, total dissolved solids (TDS), oxidation-reduction potential (ORP) and dissolved oxygen (DO) were collected using a YSI 556 multi-parameter sonde and results were recorded on a Tetra Tech Water Sampling Field Form (**Appendix A**). Collected groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation. Analysis of all groundwater samples collected during the September 2010 event was performed by Southern Petroleum Laboratory (SPL) of Houston, Texas.

Samples collected during the September 2010 sampling event were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) by EPA Method 8260B; chloride and sulfate by EPA Method 300.0; and dissolved manganese by EPA Method 6010B. This list of constituents was determined based on the analytical results from the groundwater baseline and initial site groundwater concerns. Results of the September 2010 groundwater monitoring event are summarized in **Table 3** and discussed in more detail in the following section.

2.3 Groundwater Sampling Analytical Results

The NMWQCC mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedences of NMWQCC groundwater quality standards in Site monitor wells are discussed below. Results can be seen summarized in **Table 3**.

- **Dissolved Manganese**
    - The groundwater quality standard for dissolved manganese is 0.2 micrograms per liter (mg/L). Groundwater collected from all site monitoring wells was found to be above the standard for dissolved manganese during September 2010.
- **Total Dissolved Solids**
    - The groundwater quality standard for TDS is 1,000 mg/L. Groundwater collected from MW-1, MW-2 and MW-4, was found to contain TDS at concentrations greater than 1,000 mg/L during the September 2010 quarterly sampling events. Results were 1,020 mg/L, 1,130 mg/l and 1,160, respectively.

- **Sulfate**
    - The groundwater quality standard for sulfate is 600 mg/L. Sulfate concentrations were below the standard in all site monitoring wells during the September 2010 monitoring event.

No other analyzed constituents, including BTEX, were found above NMWQCC groundwater quality standards in Site monitor wells during the September 2010 monitoring event.

The corresponding laboratory analytical report for the September 2010 groundwater sampling events, including quality control summaries, are included in **Appendix B**.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Tetra Tech conducted the third round of quarterly groundwater monitoring at the Wilmuth No. 1 site on September 20, 2010. The groundwater monitoring wells will continue to be sampled on a quarterly monitoring schedule, and the next groundwater monitoring event at the Site is scheduled for December 2010. The groundwater flow direction at the Site was determined to be to the southwest as of September 2010. Tetra Tech will continue to monitor the groundwater flow direction at the Site and will note any changes should they occur.

As a result of the suite of chemical analyses conducted on all groundwater monitor wells at the Site during April 2010, continued groundwater quality monitoring beyond BTEX analysis is recommended. In order to move toward Site closure, Tetra Tech will continue to monitor for BTEX, chloride, sulfate, TDS and dissolved manganese. Tetra Tech recommends the continuation of quarterly groundwater monitoring until sulfate, TDS, and dissolved manganese concentrations are also below NMWQCC standards, appear stable or reach regional background levels. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

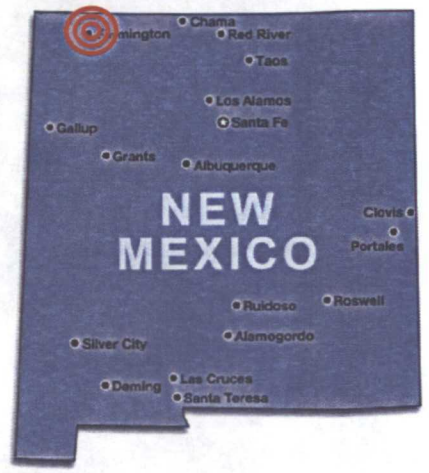
FIGURES

1. Site Location Map
2. Site Detail Map
3. Generalized Geologic Cross Section
4. Groundwater Elevation Contour Map – September 2010

FIGURE 1.

Site Location Map

ConocoPhillips Company
Wilmuth No. 1
Aztec, NM



ConocoPhillips Company
Wilmuth No. 1 Site
Location

Latitude: 36.864630° N
Longitude: -107.963910° W

N

ConocoPhillips

TETRA TECH, INC.

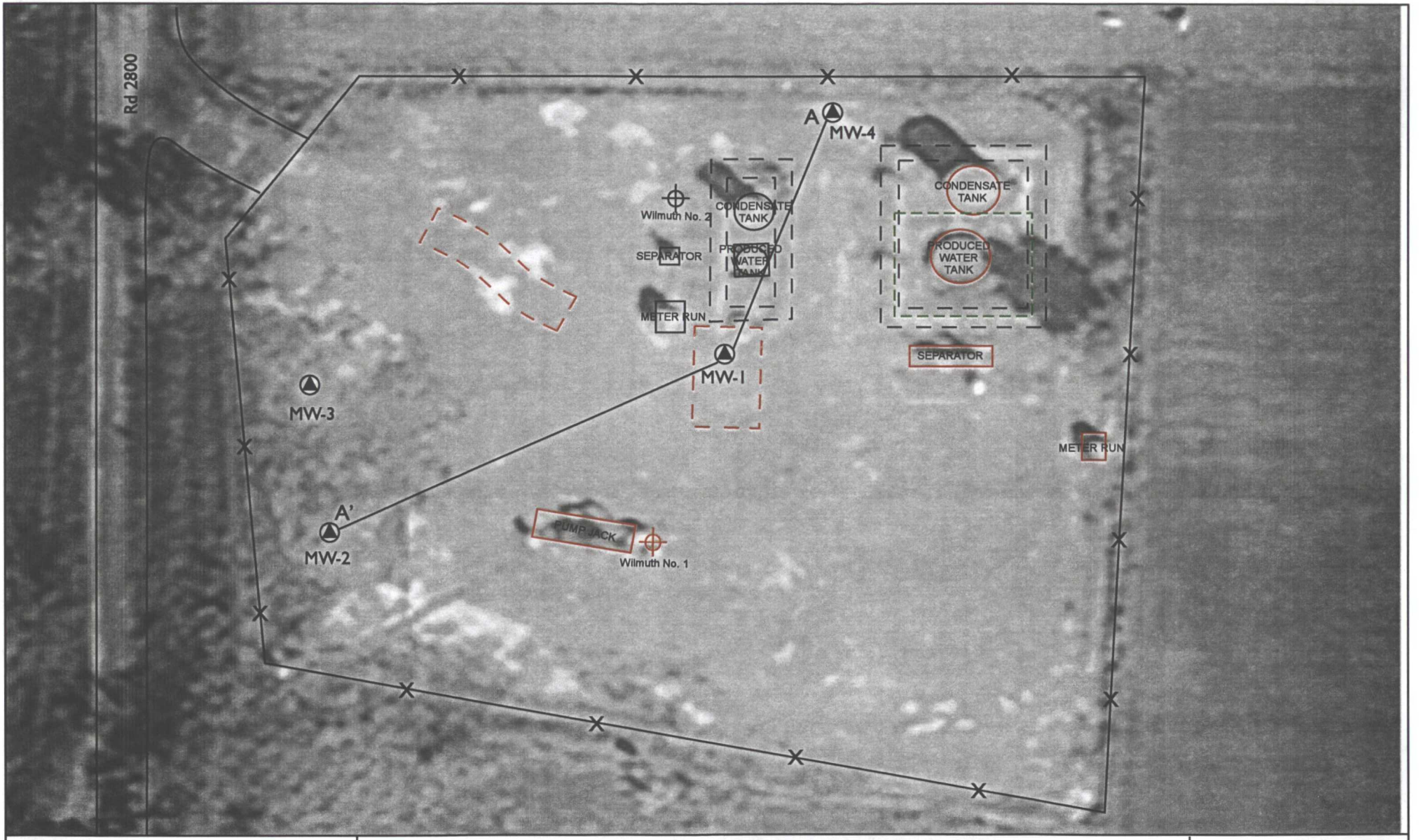


FIGURE 2:
SITE LAYOUT MAP
CONOCOPHILLIPS COMPANY
WILMUTH NO. 1
GAS PRODUCTION WELL
Sec 26, T31N, R11W
Aztec, New Mexico

LEGEND

- XTO Wilmuth No. 2 Wellhead
- ConocoPhillips Wilmuth No. 1 Wellhead
- Monitoring Well
- Approximate 2009 Excavation Location
- Approximate 2002 Excavation Location
- ConocoPhillips Production Equipment
- XTO Production Equipment
- Berm
- Site Boundary Fence

0 FEET 35

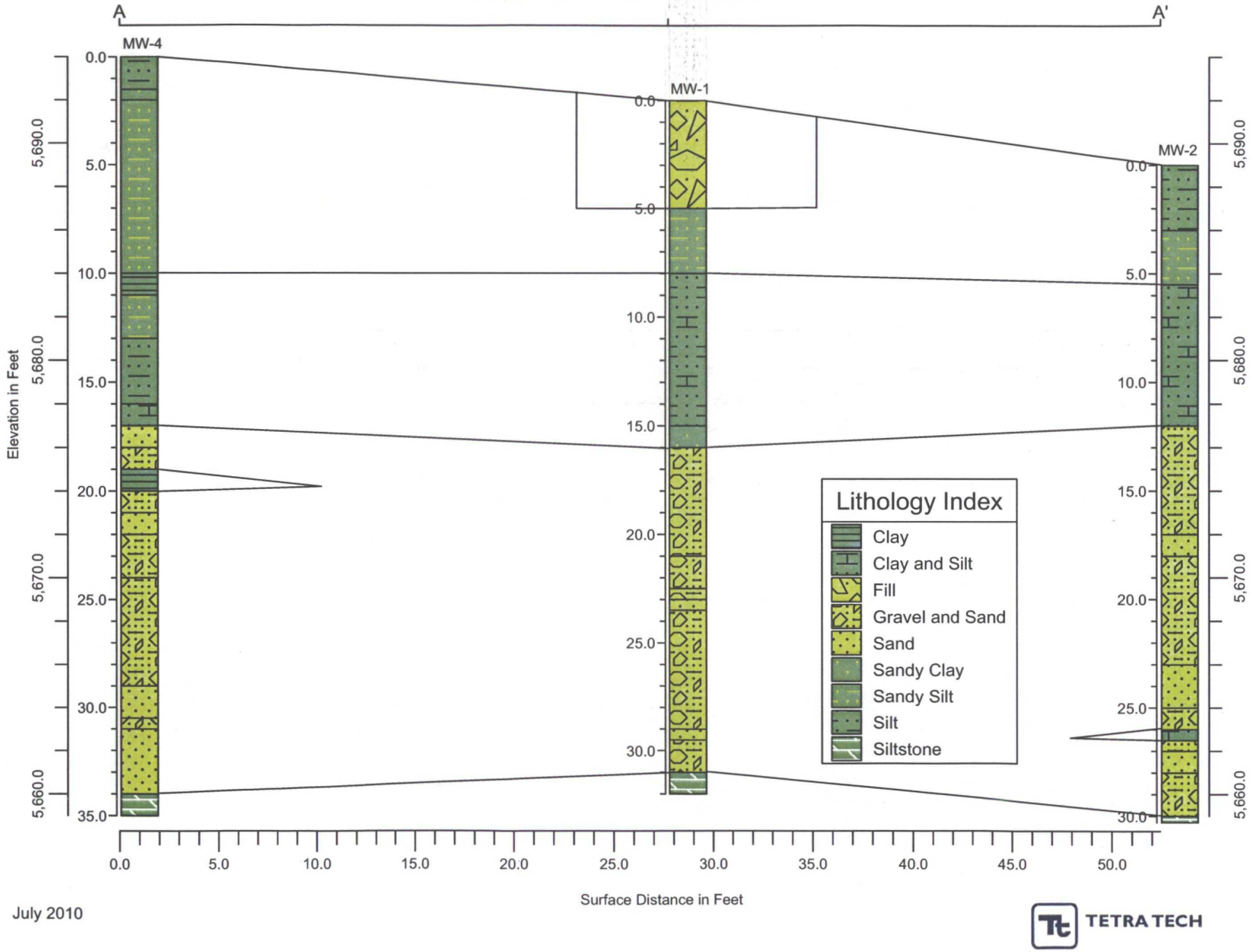
N

ConocoPhillips

TETRA TECH, INC.

Figure 3

Wilmuth No. 1A Cross-Section A-A'



July 2010

TETRA TECH

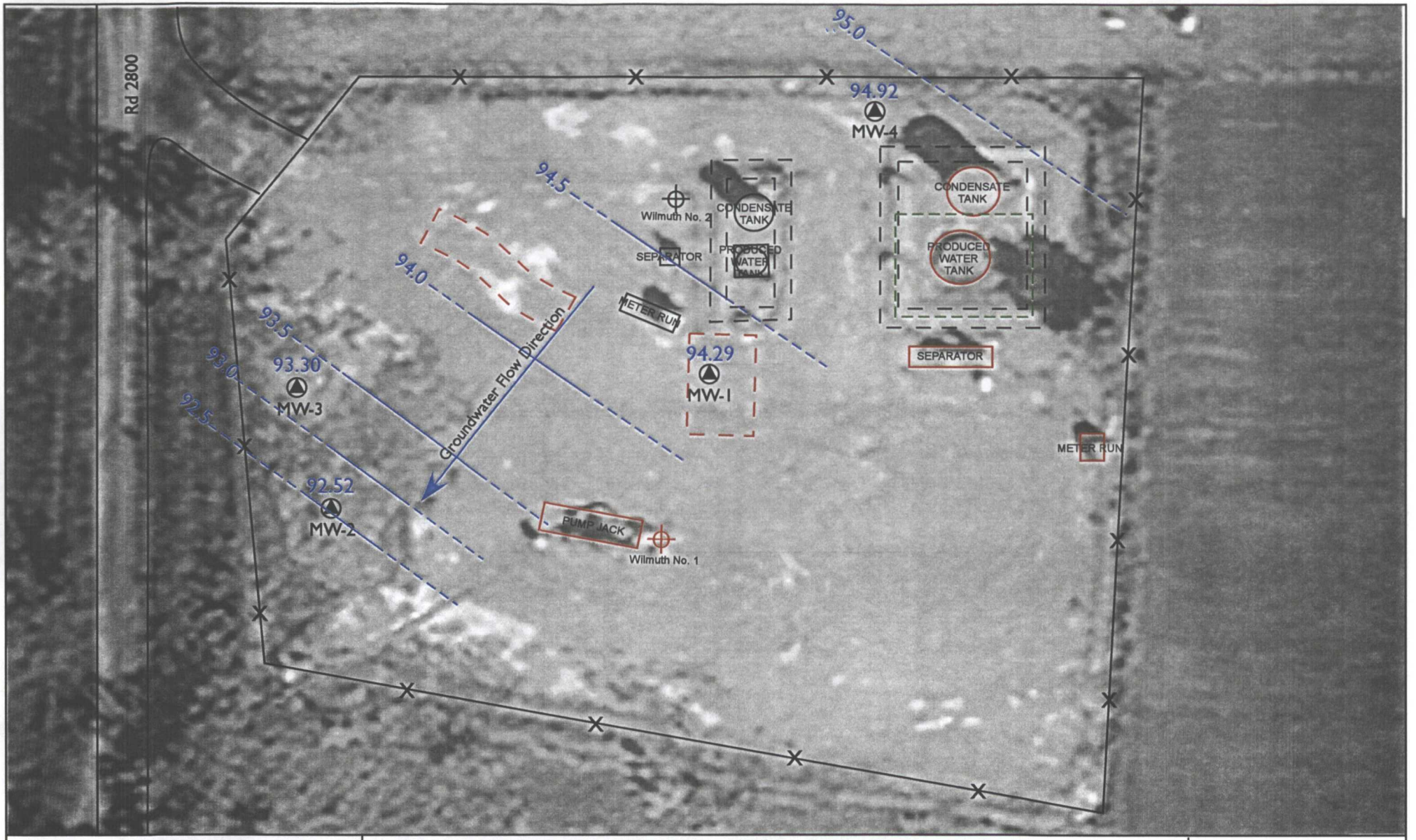


FIGURE 4:
GROUNDWATER CONTOUR MAP
SEPTEMBER 2010
CONOCOPHILLIPS COMPANY
WILMUTH NO. 1
NATURAL GAS PRODUCTION WELL
Sec 26, T31N, R11W
Aztec, New Mexico

LEGEND

- XTO Wilmuth No. 2 Wellhead
- ConocoPhillips Wilmuth No. 1 Wellhead
- Monitoring Well
- Approximate 2009 Excavation Location
- Approximate 2002 Excavation Location
- Groundwater Elevation Contour Line (dashed where inferred)
- ConocoPhillips Production Equipment
- XTO Production Equipment
- Berm
- 92.12 Groundwater Elevation (Feet)
- Site Boundary Fence

0 FEET 35

N

ConocoPhillips

TETRA TECH, INC.

TABLES

Table 1. ConocoPhillips Company, Wilmuth No. 1 - Site History Timeline

Date/Time Period	Event/Action	Description/Comments
July 24, 1958 to August 11, 1958	Production Well Completion	Well spudded and completed by El Paso Natural Gas Company.
November 1, 1986	Change of Operator	Operator changed from El Paso Natural Gas Company to Meridian Oil Inc. (a subsidiary of Burlington Resources, Inc.)
May 17, 2001	Release	Due to a broken dump arm, 22 barrels (bbls) of produced water was released within the bermed area around the produced water tank. 20 bbls were reported to be recovered.
December 17, 2002	Release	A corrosion hole in the bottom of a steel pit tank that collected fluids from the separator and condensate tank drain allowed an unknown volume of produced water and condensate to leak onto the ground. All fluids were contained inside the tank berm. Impacted gravel and soils were excavated and disposed of at JFJ Landfarm. Excavation dimensions were approximately 30 feet by 25 feet by 3 feet for a total o 85 cubic yards.
May 21, 2004	Workover Pit Proposal Approved	A lined workover pit was approved by Denny Faust of the NMOCD as detailed in Burlington Resources general pit construction plan dated April 26, 2004 which was also approved by the NMOCD.
March 31, 2006	Change of Operator	ConocoPhillips Company completed acquisition of Burlington Resources.
December 22 and 23, 2009	Potential for Groundwater Impacts Discovered	ConocoPhillips company notified Brandon Powell and Kelly Roberts of the OCD about groundwater seeping into two excavated areas on Site where discolored soils had been found during line tie in procedures. The type, volume and origin of the initial release was unknown. Groundwater samples were collected from the two areas and analyzed by Envirotech Inc. of Farmington, NM for benzene, toluene, ethylbenzene and total xylenes (BTEX), total petroleum hydrocarbons (TPH) and chloride. Analytical results indicate that BTEX and TPH are bellow NMWQCC groundwater standards, however, chloride was present at a concentration above the chloride standard of 250 mg/L with a concentration of 2,500 mg/L in the area of the excavation and a concentration of 950 mg/L in an trench associated with line tie-in procedures. Soil samples were collected from the same trench groundwater samples were collected from where discolored soil was present. The soil was analyzed by Envirotech for BTEX, TPH and Chloride. Analytical results for all soil samples were below NMOCD recommended soil action levels.
January 7, 2010	NMOCD Correspondence	C-141 Release Notification and Corrective Action form was submitted to the NMOCD by ConocoPhillips.
April 5, 2010 through April 7, 2010	Groundwater Monitoring Well Installation and Baseline Soil Sampling	Tetra Tech supervised the installation of 4 groundwater Monitoring Wells; MW-1, MW-2, MW-3 and MW-4, by Enviro-Drill Inc. of Albuquerque, NM. Each well was installed with 25 feet of screen. MW-1, MW-2 and MW-3 were all set at 30 feet below ground surface.MW 4 was set at 35 feet below ground surface. A confining layer of gray siltstone was found at depth in each of the four boring locations. Soil samples were collected from all four soil borings and analyzed for major ions, total metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) including BTEX, diesel range organics, and gasoline range organics. Analytical results for all soil samples were below NMOCD recommended soil action levels.
April 8, 2010	Baseline Groundwater Sampling	Tetra Tech conducted the initial groundwater sampling from site Monitoring Wells, MW-1, MW-2, MW-3 and MW-4. A baseline suite was completed including major ions, NMWQCC dissolved metals, SVOCs , VOCs including BTEX, diesel range organics, and gasoline range organics. All four site monitoring wells were below NMWQCC standards for BTEX constituents. All four wells were above standard for dissolved manganese. MW-1, MW-2 and MW-4 were above standard for total dissolved solids (TDS). MW-1 and MW-4 were also above standard for sulfate.
June 9, 2010	Quarterly Groundwater Monitoring Event	Quarterly groundwater sampling was conducted by Tetra Tech. Samples were collected from all site monitoring wells and analyzed for BTEX, dissolved manganese, chloride, sulfate, and TDS. All four site monitoring wells were below NMWQCC standards for BTEX constituents. Samples collected from all four site wells were above standard for dissolved manganese. Samples collected from MW-1, MW-2 and MW-4 were above standard for TDS.
September 20, 2010	Quarterly Groundwater Monitoring Event	Quarterly groundwater sampling was conducted by Tetra Tech. Samples were collected from all site monitoring wells and analyzed for BTEX, dissolved manganese, chloride, sulfate, and TDS. All four site monitoring wells were below NMWQCC standards for BTEX constituents. Samples collected from all four site wells were above standard for dissolved manganese. Samples collected from MW-1, MW-2 and MW-4 were above standard for TDS.

NMOCD = New Mexico Oil Conservation Division
NMWQCC = New Mexico Water Quality Control Commission
mg/kg - dry = milligrams per kilogram, analyzed after residual water removed from the soil
µg/kg - dry = micrograms per kilogram

Table 2. ConocoPhillips Company, Wilmuth No. 1 - Groundwater Elevation Data Summary

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
MW-1	30.00	4.5 - 29.5	95.8	4/8/2010	5.21	90.59
				6/9/2010	1.94	93.86
				9/20/2010	1.51	94.29
MW-2	30.00	4.5 - 29.5	95.8	4/8/2010	6.48	89.32
				6/9/2010	3.68	92.12
				9/20/2010	3.28	92.52
MW-3	30.00	4.5 - 29.5	96.32	4/8/2010	6.37	89.95
				6/9/2010	3.39	92.93
				9/20/2010	3.02	93.30
MW-4	35.00	9.5 - 34.5	98.7	4/8/2010	9.68	89.02(1)
				6/9/2010	4.41	94.29
				9/20/2010	3.78	94.92

ft = Feet
TOC = Top of casing
bgs = Below ground surface
* = Elevation relative to an arbitrary 100 feet
(1) = Anamolous data point

Table 3. ConocoPhillips Company, Wilmuth No. 1 - Groundwater Laboratory Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Chloride (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Manganese (mg/L)
MW-1	4/8/2010	< 1.0	< 1.0	< 1.0	< 1.0	143	**879**	**1780**	**3.03**
	6/9/2010	< 1.0	< 1.0	< 1.0	< 1.0	26.9	375	**1190**	**1.08**
	9/20/2010	< 1.0	< 1.0	< 1.0	< 1.0	30.0	425	**1020**	**0.933**
Duplicate	4/8/2010	< 1.0	1.1	< 1.0	1	NA	NA	NA	NA
	6/9/2010	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA
	9/20/2010	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA
MW-2	4/8/2010	< 1.0	< 1.0	< 1.0	< 1.0	27.7	533	**1120**	**2.48**
	6/9/2010	< 1.0	< 1.0	< 1.0	< 1.0	19.8	337	**1070**	**1.66**
	9/20/2010	< 1.0	< 1.0	< 1.0	< 1.0	20.4	304	**1130**	**0.822**
MW-3	4/8/2010	< 1.0	< 1.0	< 1.0	< 1.0	19.2	259	930	**1.38**
	6/9/2010	< 1.0	< 1.0	< 1.0	< 1.0	18.5	241	769	**1.43**
	9/20/2010	< 1.0	< 1.0	< 1.0	< 1.0	20.3	271	830	**0.736**
MW-4	4/8/2010	< 1.0	< 1.0	< 1.0	< 1.0	40	**918**	**1900**	**3.94**
	6/9/2010	< 1.0	< 1.0	< 1.0	< 1.0	29.6	542	**1380**	**3.44**
	9/20/2010	< 1.0	< 1.0	< 1.0	< 1.0	22.4	445	**1160**	**2.59**
NMWQCC Groundwater Quality Standards		10	750	750	620	250	600	1000	0.2

Notes:
MW = monitoring well
NMWQCC = New Mexico Water Quality Control Commission
Constituents in **BOLD** are in excess of NMWQCC groundwater quality standards
µg/L = micrograms per liter (parts per billion)
mg/L = milligrams per liter (parts per million)
< 1.0 = Below laboratory detection limit of 1.0 µg/L

APPENDIX A

September 2010 Quarterly Groundwater Sampling Field Forms

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Wilmuth No. 1 Page 1 of 4

Project No.

Site Location Aztec, NM

Site/Well No. MW-1 Coded/ Replicate No. 1645 Date 9-20-10

Weather cloudy, hot 80° Time Sampling Began 1616 Time Sampling Completed 1640

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface

MP Elevation

Total Sounded Depth of Well Below MP 25.7

Water-Level Elevation

Held ____ Depth to Water Below MP 1.51

Diameter of Casing 2"

Wet ____ Water Column in Well 24.19

Gallons Pumped/Bailed Prior to Sampling 11.5

Gallons per Foot 0.16

Gallons in Well 3.87 x 3 = 11.61

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.)
1633	16.43	7.20	1224	0.796	5.32	50.6	77.0	10.5
1639	16.26	7.17	1226	0.797	2.74	27.7	74.8	10.75
1635	16.26	7.15	1226	0.797	1.96	19.8	72.2	11.0
1637	16.61	7.16	1226	0.797	1.72	17.7	68.6	11.5

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
(3) 40m BTEX	(3) 40mL VOAs	HCl
SO4, TDS	32 oz Plastic	None
Dissolved Mn	16 oz Plastic	None

Remarks H2O is brown w/ fines, No odor or sheen observed

Sampling Personnel Christine Mathews & Cassie Brown

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

TETRATECH, INC.

WATER SAMPLING FIELD FORM

Project Name Wilmuth No. 1 Page 2 of 4

Project No.

Site Location Aztec, NM

Site/Well No. MW-2 Coded/ Replicate No. Date 9-20-10

Weather cloudy, hot 80° Time Sampling Began 1530 Time Sampling Completed 1605

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 32.35 Water-Level Elevation

Held Depth to Water Below MP 3.28 Diameter of Casing 2"

Wet Water Column in Well 29.07 Gallons Pumped/Bailed Prior to Sampling 14.25

Gallons per Foot 0.16

Gallons in Well 4.65x3= ~~24.15~~ 13.95 Sampling Pump Intake (feet below land

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.)
1602	16.17	7.22	1007	.654	3.62	36.7	88.7	13.5
1603	14.32	7.20	1006	.654	3.39	34.9	83.2	13.75
1604	15.89	7.19	1005	.653	2.57	29.9	82.9	14.0

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	(3) 40mL VOAs	HCL
SO4, TDS	32 oz. Plastic	None
Dissolved Mn	16 oz Plastic	None

Remarks H_2O is brown w/fines. No odor or sheen observed

Sampling Personnel Christine Matthews & Cassie Brown

Well Casing Volumes

Gal./ft.							
	1¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1½" = 0.10	2½" = 0.24	3"½ = 0.50	6" = 1.46

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Wilmuth No. 1 Page 3 of 4

ject No.

Site Location Aztec, NM

Site/Well No. MW-3 Coded/ Replicate No. Date 9-20-10

Weather Cloudy hot 80° Time Sampling Began 1515 Time Sampling Completed 1555

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 32.68 Water-Level Elevation

Held Depth to Water Below MP 3.02 Diameter of Casing 2"

Wet Water Column in Well 29.66 Gallons Pumped/Bailed Prior to Sampling 14.25

Gallons per Foot 0.16

Gallons in Well 4.74 x 3 = 14.22 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.)
1551	14.81	7.22	971	.631	5.67	54.7	87.3	13.25
1552	15.01	7.20	972	.632	3.75	36.1	86.9	13.5
1553	15.12	7.19	972	.632	2.75	27.2	86.5	13.75
1554	15.06	7.19	972	.632	2.86	28.8	86.7	14.25

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	(3) 40 mL VOAs	HCl
SO4, TDS	32 oz Plastic	None
Dissolved Mn	16 oz Plastic	None

Remarks H2O Brown with fines, no odor no sheen observed

Sampling Personnel Christine Mathews & Cassie Brown

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 Wilmuth No. 1 Page 4 of 4

ject No.

Site Location Aztec, NM

Site/Well No. MW - 4 Coded/ Replicate No. Date 9-20-10

Weather Cloudy, hot 80° Time Sampling Began 1625 Time Sampling Completed 1650

EVACUATION DATA

Description of Measuring Point (MP Top of Casing

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP 32.42 Water-Level Elevation

Held Depth to Water Below MP 3.78 Diameter of Casing 2"

Wet Water Column in Well 28.64 Gallons Pumped/Bailed Prior to Sampling 14.25

Gallons per Foot .16

Gallons in Well 4.58 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump / Bailer X3 = 13.74

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
1644	14.99	7.25	1230	.799	2.07	20.4	65.2	13.5
1646	15.24	7.22	1236	.803	1.80	17.9	62.9	13.75
1648	14.81	7.21	1200	.779	2.00	19.9	59.3	14.25

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	(3) 40 mL VOAs	HCl
SO4, TDS	32 oz Plastic	None
Dissolved Mn	16 oz Plastic	None

Remarks H2O is brown with lots of fines, no odor or sheen observed

Sampling Personnel 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

September 2010 Quarterly Groundwater Laboratory Analytical Report

SPL Inc.
8880 Interchange Drive
Houston, TX 77054
Phone: (713) 660-0901
Fax: (713) 660-8975

Certificate of Analysis

October 18, 2010

Workorder: H10100241

Kelly Blanchard
Tetra Tech
6121 Indian School Road NE
Suite 200
Albuquerque, NM 87110

Project: Wilmuth No. 1

Project Number: Wilmuth No. 1

Site: Wilmuth No. 1, Aztec, New Mexico

PO Number: ENFOS

NELAC Cert. No.: T104704205-09-3

This Report Contains A Total Of 25 Pages

Excluding Any Attachments

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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.

Due to laboratory error, your samples were analyzed outside the method holding time for the requested BTEX and TDS analyses.

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.

There were no exceptions noted.

III. GENERAL REPORTING COMMENTS:

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

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

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

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

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

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

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

Erica Cardenas, Senior Project Manager

Enclosures

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SAMPLE SUMMARY

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID	Sample ID	Matrix	COC ID	Date/Time Collected	Date/Time Received
H10100241001	MW-1	Water		9/20/2010 16:40	9/23/2010 09:00
H10100241002	MW-2	Water		9/20/2010 16:05	9/23/2010 09:00
H10100241003	MW-3	Water		9/20/2010 15:55	9/23/2010 09:00
H10100241004	MW-4	Water		9/20/2010 16:50	9/23/2010 09:00
H10100241005	Trip Blank	Water		9/20/2010 13:30	9/23/2010 09:00
H10100241006	Duplicate	Water		9/20/2010 16:45	9/23/2010 09:00

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 — Project Number: Wilmuth No. 1

Lab ID: **H10100241001** — Date/Time Received: 9/23/2010 09:00 — Matrix: Water

Sample ID: **MW-1 .** — Date/Time Collected: 9/20/2010 16:40

VOLATILES

Analysis Desc: SW-846 8260B — SW-846 5030Analytical Batches:

Batch: 2757 SW-846 8260B on 10/14/2010 15:29 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	107 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	114 %		70-130		1			2757
Toluene-d8 (S)	96 %		82-118		1			2757

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B — Preparation Batches:

Batch: 2150 SW-846 3010A on 10/12/2010 18:00 by R_V

Analytical Batches:

Batch: 1673 SW-846 6010B on 10/15/2010 14:04 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Manganese	0.933		0.00500	0.000300	1		2150	1673

Analysis Desc: EPA 300.0 — Analytical Batches:

Batch: 1494 EPA 300.0 on 10/13/2010 23:32 by GLN DF = 4

Batch: 1495 EPA 300.0 on 10/14/2010 01:14 by GLN DF = 100

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Chloride	30.0		2.00	0.504	4			1494
Sulfate	425		50.0	4.35	100			1495

WET CHEMISTRY

Analysis Desc: SM 2540 C — Analytical Batches:

Batch: 1852 SM 2540 C on 10/13/2010 13:17 by MMAL

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241001** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **MW-1** | Date/Time Collected: 9/20/2010 16:40

Parameters	Results	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Residue, Filterable (TDS)	1020	H	10.0	3.94	1			1852

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 — Project Number: Wilmuth No. 1

Lab ID: **H10100241002** — Date/Time Received: 9/23/2010 09:00 — Matrix: Water

Sample ID: **MW-2** — Date/Time Collected: 9/20/2010 16:05

VOLATILES

Analysis Desc: SW-846 8260B — SW-846 5030Analytical Batches:

Batch: 2757 SW-846 8260B on 10/14/2010 15:59 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	106 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	109 %		70-130		1			2757
Toluene-d8 (S)	93.7 %		82-118		1			2757

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B — Preparation Batches:

Batch: 2150 SW-846 3010A on 10/12/2010 18:00 by R_V

Analytical Batches:

Batch: 1673 SW-846 6010B on 10/15/2010 14:57 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Manganese	0.822		0.00500	0.000300	1		2150	1673

Analysis Desc: EPA 300.0 — Analytical Batches:

Batch: 1494 EPA 300.0 on 10/14/2010 00:23 by GLN DF = 4

Batch: 1495 EPA 300.0 on 10/14/2010 01:31 by GLN DF = 100

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Chloride	20.4		2.00	0.504	4			1494
Sulfate	304		50.0	4.35	100			1495

WET CHEMISTRY

Analysis Desc: SM 2540 C — Analytical Batches:

Batch: 1852 SM 2540 C on 10/13/2010 13:17 by MMAL

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241002** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **MW-2** | Date/Time Collected: 9/20/2010 16:05

Parameters	Results	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Batch Information Analysis
Residue, Filterable (TDS)	1130	H	10.0	3.94	1			1852

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241003** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **MW-3** | Date/Time Collected: 9/20/2010 15:55

VOLATILES

Analysis Desc: SW-846 8260B | SW-846 5030 Analytical Batches:
Batch: 2757 SW-846 8260B on 10/14/2010 16:30 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	105 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	106 %		70-130		1			2757
Toluene-d8 (S)	97.2 %		82-118		1			2757

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B | Preparation Batches:
Batch: 2150 SW-846 3010A on 10/12/2010 18:00 by R_V
Analytical Batches:
Batch: 1673 SW-846 6010B on 10/15/2010 15:03 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Manganese	0.736		0.00500	0.000300	1		2150	1673

Analysis Desc: EPA 300.0 | Analytical Batches:
Batch: 1494 EPA 300.0 on 10/14/2010 00:40 by GLN DF = 4
Batch: 1495 EPA 300.0 on 10/14/2010 02:22 by GLN DF = 100

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Chloride	20.3		2.00	0.504	4			1494
Sulfate	271		50.0	4.35	100			1495

WET CHEMISTRY

Analysis Desc: SM 2540 C | Analytical Batches:
Batch: 1852 SM 2540 C on 10/13/2010 13:17 by MMAL

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 — Project Number: Wilmuth No. 1

Lab ID: **H10100241003** — Date/Time Received: 9/23/2010 09:00 — Matrix: Water

Sample ID: **MW-3** — Date/Time Collected: 9/20/2010 15:55

Parameters	Results	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Residue, Filterable (TDS)	830	H	10.0	3.94	1			1852

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241004** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **MW-4** | Date/Time Collected: 9/20/2010 16:50

VOLATILES

Analysis Desc: SW-846 8260B | SW-846 5030Analytical Batches:

Batch: 2757 SW-846 8260B on 10/14/2010 17:00 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	103 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	108 %		70-130		1			2757
Toluene-d8 (S)	96.5 %		82-118		1			2757

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B | Preparation Batches:

Batch: 2150 SW-846 3010A on 10/12/2010 18:00 by R_V

Analytical Batches:

Batch: 1673 SW-846 6010B on 10/15/2010 15:09 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Manganese	2.59		0.00500	0.000300	1		2150	1673

Analysis Desc: EPA 300.0 | Analytical Batches:

Batch: 1494 EPA 300.0 on 10/14/2010 00:57 by GLN DF = 4.

Batch: 1495 EPA 300.0 on 10/14/2010 10:40 by GLN DF = 100.

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Chloride	22.4		2.00	0.504	4			1494
Sulfate	445		50.0	4.35	100			1495

WET CHEMISTRY

Analysis Desc: SM 2540 C | Analytical Batches:

Batch: 1852 SM 2540 C on 10/13/2010 13:17 by MMAL

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241004** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **MW-4** | Date/Time Collected: 9/20/2010 16:50

Parameters	Results	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Residue, Filterable (TDS)	1160	H	10.0	3.94	1			1852

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241005** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **Trip Blank** | Date/Time Collected: 9/20/2010 13:30

VOLATILES

Analysis Desc: SW-846 8260B | SW-846 5030Analytical Batches:

Batch: 2757 SW-846 8260B on 10/14/2010 14:58 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	108 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	104 %		70-130		1			2757
Toluene-d8 (S)	93.6 %		82-118		1			2757

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ANALYTICAL RESULTS

Workorder: H10100241 : Wilmuth No. 1 | Project Number: Wilmuth No. 1

Lab ID: **H10100241006** | Date/Time Received: 9/23/2010 09:00 | Matrix: Water

Sample ID: **Duplicate** | Date/Time Collected: 9/20/2010 16:45

VOLATILES

Analysis Desc: SW-846 8260B | SW-846 5030Analytical Batches:

Batch: 2757 SW-846 8260B on 10/14/2010 17:31 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND	H	1.0	0.13	1			2757
Ethylbenzene	ND	H	1.0	0.48	1			2757
Toluene	ND	H	1.0	0.13	1			2757
m,p-Xylene	ND	H	1.0	0.58	1			2757
o-Xylene	ND	H	1.0	0.35	1			2757
Xylenes, Total	ND	H	1.0	0.35	1			2757
4-Bromofluorobenzene (S)	101 %		74-125		1			2757
1,2-Dichloroethane-d4 (S)	110 %		70-130		1			2757
Toluene-d8 (S)	92.1 %		82-118		1			2757

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

QC Batch: MSV/2756 Analysis Method: SW-846 8260B

QC Batch Method: SW-846 5030 Preparation: 10/14/2010 00:00 by LKT

Associated Lab Samples: H10100241001 H10100241002 H10100241003 H10100241004 H10100241005 H10100241006

METHOD BLANK: 76081

Analysis Date/Time Analyst: 10/14/2010 11:24 LKT

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Benzene	ug/l	ND		1.0
Ethylbenzene	ug/l	ND		1.0
Toluene	ug/l	ND		1.0
m,p-Xylene	ug/l	ND		1.0
o-Xylene	ug/l	ND		1.0
Xylenes, Total	ug/l	ND		1.0
4-Bromofluorobenzene (S)	%	106		74-125
1,2-Dichloroethane-d4 (S)	%	99.5		70-130
Toluene-d8 (S)	%	96.4		82-118

LABORATORY CONTROL SAMPLE: 76082

Analysis Date/Time Analyst: 10/14/2010 10:53 LKT

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Benzene	ug/l	20	17.3	86.4	74-123
Ethylbenzene	ug/l	20	19.8	99.2	72-127
Toluene	ug/l	20	18.8	93.9	74-126
m,p-Xylene	ug/l	40	40.6	102	71-129
o-Xylene	ug/l	20	19.2	95.8	74-130
Xylenes, Total	ug/l	60	59.78	99.6	71-130
4-Bromofluorobenzene (S)	%			111	74-125
1,2-Dichloroethane-d4 (S)	%			95.5	70-130
Toluene-d8 (S)	%			96.6	82-118

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 76083 76084 Original: H10100241001

MS Analysis Date/Time Analyst: 10/14/2010 18:02 LKT

MSD Analysis Date/Time Analyst: 10/14/2010 18:32 LKT

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Benzene	ug/l	ND	20	16.8	17.7	84.1	88.3	70-124	4.8	20
Ethylbenzene	ug/l	ND	20	19.7	18.1	98.6	90.6	35-175	8.5	20
Toluene	ug/l	ND	20	18.3	16.3	91.7	81.7	70-131	11.6	20
m,p-Xylene	ug/l	ND	40	40.3	37.5	101	93.7	35-175	7.4	20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 76083 76084 Original: H10100241001

MS Analysis Date/Time Analyst: 10/14/2010 18:02 LKT

MSD Analysis Date/Time Analyst: 10/14/2010 18:32 LKT

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
o-Xylene	ug/l	ND	20	20.0	18.6	99.9	92.9	35-175	7.3	20
Xylenes, Total	ug/l	ND	60	60.32	56.05	101	93.4	35-175	7.3	20
4-Bromofluorobenzene (S)	%	107				115	108	74-125		
1,2-Dichloroethane-d4 (S)	%	114				111	112	70-130		
Toluene-d8 (S)	%	96				94.2	91.3	82-118		

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 — Project Number: Wilmuth No. 1

QC Batch: DIGM/2150 — Analysis Method: SW-846 6010B

QC Batch Method: SW-846 3010A — Preparation: 10/12/2010 18:00 by R_V

Associated Lab Samples: H10100241001 H10100241002 H10100241003 H10100241004

METHOD BLANK: 75316

Analysis Date/Time Analyst: 10/15/2010 13:52 EBG

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Manganese	mg/l	ND		0.00500

LABORATORY CONTROL SAMPLE: 75317

Analysis Date/Time Analyst: 10/15/2010 13:58 EBG

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Manganese	mg/l	0.10	0.1031	103	80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 75318 75319 Original: H10100241001

MS Analysis Date/Time Analyst: 10/15/2010 14:10 EBG

MSD Analysis Date/Time Analyst: 10/15/2010 14:16 EBG

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Manganese	mg/l	0.933	0.10	1.031	0.9891	NC	NC	75-125	NC	20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

QC Batch: IC/1494 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: H10100241001 H10100241002 H10100241003 H10100241004

METHOD BLANK: 75961

Analysis Date/Time Analyst: 10/13/2010 14:45 GLN

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Chloride	mg/l	ND		0.500

LABORATORY CONTROL SAMPLE: 75962

Analysis Date/Time Analyst: 10/13/2010 15:02 GLN

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Chloride	mg/l	10	10.5	105	85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 75963 75964 Original: H10100241001

MS Analysis Date/Time Analyst: 10/13/2010 23:49 GLN

MSD Analysis Date/Time Analyst: 10/14/2010 00:06 GLN

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec.	MSD % Rec	% Rec Limit	RPD	Max RPD
Chloride	mg/l	30	40	76.25	75.05	116	113	80-120	1.6	20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

QC Batch: IC/1495 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: H10100241001 H10100241002 H10100241003 H10100241004

METHOD BLANK: 75975

Analysis Date/Time Analyst: 10/13/2010 14:45 GLN

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Sulfate	mg/l	ND		0.500

LABORATORY CONTROL SAMPLE: 75976

Analysis Date/Time Analyst: 10/13/2010 15:02 GLN

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Sulfate	mg/l	10	10.81	108	85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 75977 75978 Original: H10100241004

MS Analysis Date/Time Analyst: 10/14/2010 02:39 GLN

MSD Analysis Date/Time Analyst: 10/14/2010 02:56 GLN

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Sulfate	mg/l	445	1000	1541	1580	110	114	80-120	2.5	20

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

QC Batch: WETS/1852 Analysis Method: SM 2540 C

QC Batch Method: SM 2540 C

Associated Lab Samples: H10100240001 H10100241001 H10100241002 H10100241003 H10100241004

METHOD BLANK: 75477

Analysis Date/Time Analyst: 10/13/2010 13:17 MMAL

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Residue, Filterable (TDS)	mg/l	ND		10.0

LABORATORY CONTROL SAMPLE & LCSD: 75478 75479

LCS Analysis Date/Time Analyst: 10/13/2010 13:17 MMAL

LCSD Analysis Date/Time 10/13/2010 13:17 MMAL

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD
Residue, Filterable (TDS)	mg/l	200	202.0	204.0	101	102	95-107	1.0	10

SAMPLE DUPLICATE: 75480 Original: H10100241001

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	DF
WET CHEMISTRY						1
Residue, Filterable (TDS)	mg/l	1020	1020	0.1	10	1

QC results presented in the QC Control Data 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. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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Legend

(S) - Indicates analyte is a surrogate

Qualifier	Qualifier Description
*	Recovery/RPD value outside QC limits
+	DCS Concentration
B	Analyte detected in the Method Blank
C	MTBE results were not confirmed by GCMS
D	Recovery out of range due to dilution
E	Results exceed calibration range
H	Exceeds holding time
I	Estimated value, between MDL and PQL (Florida)
J	Estimated value
JN	The analysis indicates the presence of an analyte
MI	Matrix Interference
N	Recovery outside of control limits
NC	Not Calculable (Sample Duplicate)
NC	Not Calculated - Sample concentration > 4 times the spike
ND	Not Detected at reporting Limits
P	Pesticide dual column results, greater then 25%
Q	Received past holding time
TNTC	Too numerous to count
U	Not Detected at reporting Limits

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: H10100241 : Wilmuth No. 1 Project Number: Wilmuth No. 1

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
H10100241001	**MW-1**	SW-846 3010A	DIGM/2150	SW-846 6010B	ICP/1673
H10100241002	**MW-2**	SW-846 3010A	DIGM/2150	SW-846 6010B	ICP/1673
H10100241003	**MW-3**	SW-846 3010A	DIGM/2150	SW-846 6010B	ICP/1673
H10100241004	**MW-4**	SW-846 3010A	DIGM/2150	SW-846 6010B	ICP/1673
H10100241001	**MW-1**	SM 2540 C	WETS/1852		
H10100241002	**MW-2**	SM 2540 C	WETS/1852		
H10100241003	**MW-3**	SM 2540 C	WETS/1852		
H10100241004	**MW-4**	SM 2540 C	WETS/1852		
H10100241001	**MW-1**	EPA 300.0	IC/1494		
H10100241002	**MW-2**	EPA 300.0	IC/1494		
H10100241003	**MW-3**	EPA 300.0	IC/1494		
H10100241004	**MW-4**	EPA 300.0	IC/1494		
H10100241001	**MW-1**	EPA 300.0	IC/1495		
H10100241002	**MW-2**	EPA 300.0	IC/1495		
H10100241003	**MW-3**	EPA 300.0	IC/1495		
H10100241004	**MW-4**	EPA 300.0	IC/1495		
H10100241001	**MW-1**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757
H10100241002	**MW-2**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757
H10100241003	**MW-3**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757
H10100241004	**MW-4**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757
H10100241005	**Trip Blank**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757
H10100241006	**Duplicate**	SW-846 5030	MSV/2756	SW-846 8260B	MSV/2757

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Sample Receipt Checklist

WorkOrder:	H10100241	Received By	LOG
Date and Time	09/23/2010 09:00	Carrier Name:	FEDEXP
Temperature:	1.4°C	Chilled By:	Water Ice

1.	Shipping container/cooler in good condition?	YES
2.	Custody seals intact on shipping container/cooler?	YES
3.	Custody seals intact on sample bottles?	Not Present
4.	Chain of custody present?	YES
5.	Chain of custody signed when relinquished and received?	YES
6.	Chain of custody agrees with sample labels?	YES
7.	Samples in proper container/bottle?	YES
8.	Samples containers intact?	YES
9.	Sufficient sample volume for indicated test?	YES
10.	All samples received within holding time?	NO
	Samples were received in holding time, but will be run out of holding time per client due to LogIn error.	
11.	Container/Temp Blank temperature in compliance?	YES
12.	Water - VOA vials have zero headspace?	YES
13.	Water - Preservation checked upon receipt(except VOA*)?	Not Applicable

*VOA Preservation Checked After Sample Analysis

SPL Representative: Contact Date & Time:

Client Name Contacted:

Client Instructions:

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Houston, TX 77054
Phone: (713) 660-0901
Fax: (713) 660-8975

8880 Interchange Drive, Houston, TX 77054

Analysis Request and Chain of Custody Record

H10100241

Company Name: **Tetra Tech / Conoco Phillips**
Contact: **Kelly Blanchard**
Address: **9121 Indian School Rd. NE, Ste. 200**
Phone/Fax: **(505) 237-8440 / (505) 237-8656**
Email Address: **kelly.blanchard@tetratech.com**
Invoice To:
Purchase Order No:
Project Name/No: **Wilmuth No.1**
Site Address:
Sampled By: Carson Brown

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

QA/QC Level: TRRP ☐ LVL 3 ☐ STD ☐ Other ☐

SAMPLE ID	DATE	TIME	Water	Soil	Sludge	Other	Number Containers	Container Type	Preservative	BTEX-8260	SO4,TDS	Dissolved Mn				
MW-1	9-20-10	1640	X				1	32oz	N/A		X					
MW-1	9-20-10	1640	X				1	16oz	N/A			X				
MW-1	9-20-10	1640	X				3	VOA	HCl	X						
MW-2	9-20-10	1605	X				1	32oz	N/A		X					
MW-2	9-20-10	1605	X				1	16oz	N/A			X				
MW-2	9-20-10	1605	X				3	VOA	HCl	X						
MW-3	9-20-10	1555	X				1	32oz	NA		X					
MW-3	9-20-10	1555	X				1	16oz	NA			X				
MW-3	9-20-10	1555	X				3	VOA	HCl	X						
MW-4	9-20-10	1630	X				1	32oz	NA		X					

TAT: 24hr ☐ 72hr ☐ 48hr ☐ 10 day ☐ Other ☐

Special Detection Limits (Specify):

Special Reporting Requirements (Specify):

Consultant Remarks: Please filter & preserve metals @ laboratory. Packed in same cooler as San Juan 27-5

Laboratory Remarks: Add CO3 per client

PM review: ?

Relinquished by	Date	Time	Received by
Relinquished by Sampler: Carson Brown	9.22.10	1400	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	9/23/10	9:00	Received by SPL, Inc.: Amanda Rickman

SPL Inc.
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Houston, TX 77054
Phone: (713) 660-0901
Fax: (713) 660-8975

Page 2 of 2

Analysis Request and Chain of Custody Record

8880 Interchange Drive, Houston, TX 77054

SPL Workorder No.: H10100241

Company Name: Tetra Tech / Conoco Phillips	Sampling Event Description
Contact: Kelly Blanchard	Quarterly ☐
Address: 6121 Indian School Rd. NE, Ste. 200	Semi-Annual ☐
Phone/Fax: (505) 237-8440 / (505) 237-8486	WC-Waste Char. ☐
Email Address: kelly.blanchard@tetratech.com	Other (describe below) ☐
Invoice To:	
Purchase Order No:	
Project Name/No: Wilmuth No.1	QA/QC Level
Site Address:	TRRP ☐ LVL 3 ☐
Sampled By: Cassi Bruce	STD ☐ Other ☐

Sample ID	Date	Time	Matrix: Water	Soil	Sludge	Other	Number Containers	Container Type	Preservative	BTEX-8260	SO4, TDS	Dissolved Mn				
MW-1	9.20.10	1650	X				1	1liter	N/A			X				
MW-4	9.20.10	1650	X				3	VOA	HCl	X						
trip blank	9.22.10	1330	X				3	VOA	HCl	X						
duplicate	9.20.10	1645	X				3	VOA	HCl	X						

TAT: 24hr ☐ 72hr ☐ 48hr ☐ 10 day ☐ Other ☐

Special Detection Limits (Specify):

Special Reporting Requirements (Specify):

Consultant Remarks: Please filter and preserve metals at laboratory. Packed in blue cooler as Sun Juan 275

Laboratory Remarks:

PM review:

	Date	Time	
Relinquished by Sampler: Cassi Bruce	9.22.10	1400	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	9/23/10	9:00	Received by SPL, Inc.: Amanda Nicknam

Report ID: H10100241_6089
Printed: 10/18/2010 14:56