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QUARTERLY GWMR

06/03/2011

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

TETRA TECH, INC.

June 3, 2011

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

RE: **(1 and 2)** ConocoPhillips Company, Nell Hall No. 1, San Juan County, New Mexico - September 2010 and March 2011 Semi-Annual Groundwater Monitoring Reports
(3) ConocoPhillips Company Randleman No. 1 Site, San Juan County, New Mexico - September 2010 Quarterly Groundwater Monitoring Report
(4) ConocoPhillips Company, San Juan 27-5 No. 34A, Rio Arriba County, New Mexico - March 2011 Quarterly Groundwater Monitoring Report
(5) ConocoPhillips Company, Sategna No. 2E, San Juan County, New Mexico - March 2011Quarterly Groundwater Monitoring Report
(6) ConocoPhillips Company, Shepherd & Kelsey No. 1E, San Juan County, New Mexico - March 2011 Quarterly Groundwater Monitoring Report
(7 and 8) ConocoPhillips Company Wilmuth No. 1 Site, San Juan County, New Mexico - December 2010 and March 2011 Quarterly Groundwater Monitoring Reports

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 (8)

Cc: Brandon Powell, New Mexico Oil Conservation Division (Aztec, NM Office)
Terry Lauck, ConocoPhillips Company Risk Management and Remediation (electronic only)
Chris Jaquez, Landowner (Nell Hall No. 1 only)

QUARTERLY GROUNDWATER MONITORING REPORT
MARCH 2011

CONOCOPHILLIPS COMPANY
RANDLEMAN No. 1
PRODUCTION FACILITY
SAN JUAN COUNTY, NEW MEXICO

OCD # 3RP-340-0
API # 30-045-10698

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. 1158690090

May 2011

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On March 2, 2009, groundwater was found seeping into the southeast corner of the excavation at a depth of approximately 20 feet bgs. A vacuum truck operated by Rock Springs was contracted by Envirotech to collect groundwater from the excavation. After removal of accumulated groundwater, Envirotech obtained a soil sample from the southeast corner of the excavation at a depth of 20 feet bgs. TPH and organic vapor results were found to be above OCD action levels. During field analysis of the soil sample, groundwater continued to seep into the excavation. Groundwater was again removed from the excavation, and additional excavation was performed to obtain a soil sample below OCD action levels. A groundwater sample was collected and sent for laboratory analysis of volatile organic compounds by EPA Method 8260B. The groundwater sample was found to contain benzene, total xylenes and total naphthalenes above NMWQCC groundwater quality standards. Soon after the groundwater sample was taken, the excavation caved in making further water removal via the vacuum truck impossible (Envirotech, 2009). The excavation area is depicted in **Figure 2.**

A total of 611 cubic yards of soil were removed from the Site and were transported to an OCD-permitted facility. Clean fill was obtained from the landowner to backfill the excavation. Envirotech recommended the installation of groundwater monitor wells at the Site under OCD guidelines (Envirotech, 2009).

Tetra Tech installed four groundwater monitor wells at the Site between June 9, 2009 and June 10, 2009. A generalized geologic cross section was produced using soil boring data collected during monitoring well installation (**Figure 3**). Following drilling activities in June 2009, the casings for Site monitor wells were surveyed using an arbitrary reference-elevation of 100 feet above mean sea level (amsl). Data obtained from the Site survey is used in conjunction with quarterly monitoring data to produce groundwater elevation maps for the Site (**Figure 4**). Groundwater flow direction at the Site is to the east/southeast.

Tetra Tech began conducting groundwater monitoring events at the Site on June 12, 2009. Hydrocarbon absorbent socks were placed in Monitor Wells MW-2 and MW-3 on June 18, 2009 due to the presence of a spotty, discontinuous light non-aqueous phase liquid (LNAPL) sheen present in purge water during sampling. The socks were removed during the March 2010 sampling event. Since the removal of the socks, LNAPL has not been detected in MW-2 or in MW-3. Soil and groundwater samples were also collected from the Kiffen Canyon Wash on October 21, 2009 and analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX). In both the soil and groundwater collected from Kiffen Canyon Wash, BTEX constituents were found to be below standards.

2.0 GROUNDWATER MONITORING SUMMARY, SAMPLING METHODOLOGY AND RESULTS

2.1 Monitoring Summary

A groundwater sampling event was conducted at the Site on March 16, 2011. 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 measured using a dual interface probe (**Table 2**). A groundwater elevation contour map reflecting March 2011 groundwater elevation is presented as **Figure 4**.

2.2 Groundwater Sampling Methodology

During the March 16, 2011 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 parameters were collected using a YSI 556 multi-parameter sonde and results were recorded on a Tetra Tech Water Sampling Field Form (**Appendix A**). Groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain-of-custody documentation to Southern Petroleum Laboratory (SPL) of Houston, Texas.

March 2011 groundwater samples were analyzed for BTEX by EPA Method 8260B; sulfate and chloride by EPA Method E300.0; TDS by EPA Method 2540C; and dissolved manganese by EPA Method 6010B (**Table 3**). A summary of analytical results from the March 16, 2011 sampling event is displayed in **Table 4**. Tetra Tech has prepared **Table 4** as a historical analytical results table to include all quarterly analytical parameters to help document trends in constituent concentrations over time. Results from future groundwater monitoring events at the Site will be compiled in this table.

2.3 Groundwater Sampling Analytical Results

The New Mexico Water Quality Control Commission (NMWQCC) mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedence of NMWQCC groundwater quality standards in Site monitoring wells are discussed below.

- **Chloride**
  - The NMWQCC domestic water supply groundwater quality standard for chloride is 250 milligrams per liter (mg/L); in March 2011, the groundwater sample collected from MW-4, the up-gradient monitoring well, was found to contain chloride at concentration of 2,310 mg/L.
- **Sulfate**
  - The NMWQCC domestic water supply groundwater quality standard for sulfate is 600 mg/L; groundwater samples collected in March 2011 from Monitor Well MW-1, MW-2, MW-3 and MW-4 were found to contain sulfate at concentrations of 1690 mg/L, 1,470 mg/L, 1,180 mg/L, and 3,300 mg/L, respectively.
- **Manganese**
  - The NMWQCC domestic water supply groundwater quality standard for manganese is 0.2 milligrams per liter (mg/L). In March 2011, groundwater samples collected from monitor

wells MW-2, MW-3 and MW-4 were found to contain concentrations of manganese above the standard at 2.94 mg/L, 1.63 mg/L, and 1.82 mg/L, respectively.

- **Total Dissolved Solids**
  - The NMWQCC groundwater quality standard for total dissolved solids (TDS) is 1,000 mg/L. The March 2011 groundwater samples collected from Monitor Wells MW-1, MW-2, MW-3 and MW-4 were above the standard with concentrations of 3,230 µg/L, 2,680 µg/L, 2,500 µg/L and 8,440 µg/L, respectively. The up-gradient well, MW-4, consistently contains TDS concentrations at higher levels than the other Site monitoring wells.

The corresponding laboratory analytical report for the March 2011 groundwater sampling event, including quality control summaries, is included in **Appendix B**. A map showing BTEX concentrations in groundwater from Site monitoring wells during the March 2011 groundwater sampling event is included as **Figure 5**. An isopleths map showing sulfate, chloride, and TDS concentrations is presented as **Figure 6**.

3.0 CONCLUSIONS AND RECOMMENDATIONS

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 analytical results indicate that all constituents of concern are consistently below NMWQCC groundwater quality standards. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

4.0 REFERENCES

Envirotech Incorporated (2009). *Spill Cleanup Report, Located at: Burlington Resources* [sic] *Randleman #1 Well Site, Section 13, Township 31N, Range 11W, San Juan County, New Mexico.* Prepared for ConocoPhillips. Report Dated February 2009. 3 pp (not including Figures, Tables, and Appendices).

New Mexico Energy, Minerals and Natural Resources Department (2002). *Case # 3R0-340, Randleman #1 Dehy Pit, San Juan County* [sic], *New Mexico.* Letter from NMEMNRD to Williams Field Services. Dated June 14, 2002. 6 pp.

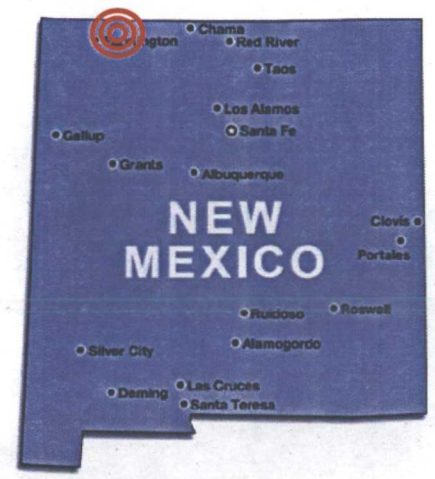
Williams Environmental Services (2002). *Randleman #1 Pit Remediation and Closure Report. Prepared for the New Mexico Oil Conservation Division.* Report Dated February 11, 2002. 3 pp (not including Figures, Tables, and Appendices).

FIGURES

ConocoPhillips - High Resolution Aerial Imagery 2008

FIGURE 1.

Site Location Map
ConocoPhillips
Randleman No. 1
Aztec, NM



ConocoPhillips
Randleman No.1 Site Location

0 225 450
Feet

N

TETRA TECH, INC.

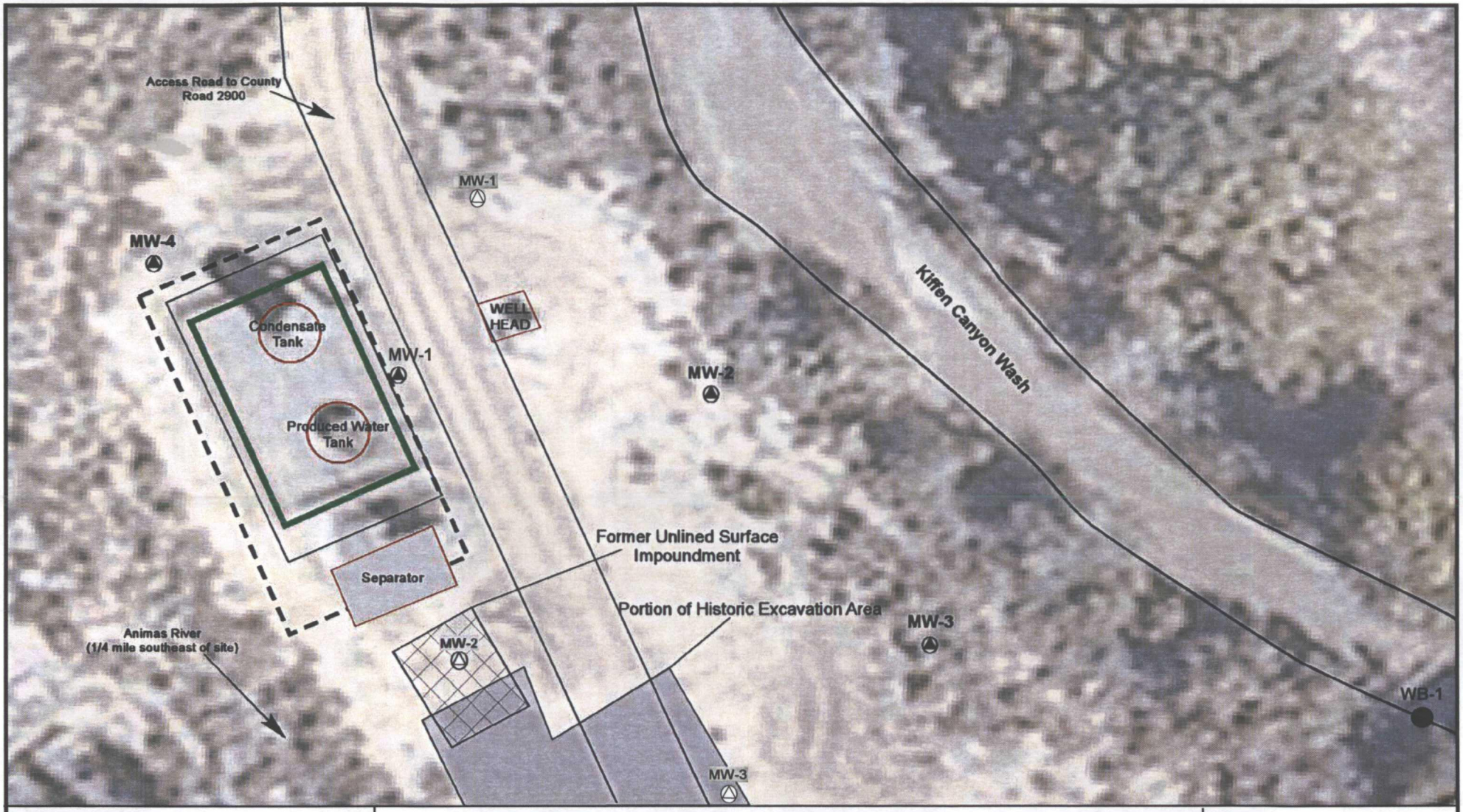


FIGURE 2:
SITE DETAIL MAP
CONOCOPHILLIPS COMPANY
RANDLEMAN #1
GAS PRODUCTION WELL
Sec 13, T31N, R11W
Aztec, New Mexico

LEGEND

- GENERAL AREA of FEBRUARY 2009 EXCAVATION
- EQUIPMENT
- BERM
- MONITORING WELL
- APPROXIMATE LOCATION of HISTORIC MONITORING WELL (plugged and abandoned)
- KIFFEN CANYON WASH BORING LOCATION

0 15 30
FEET

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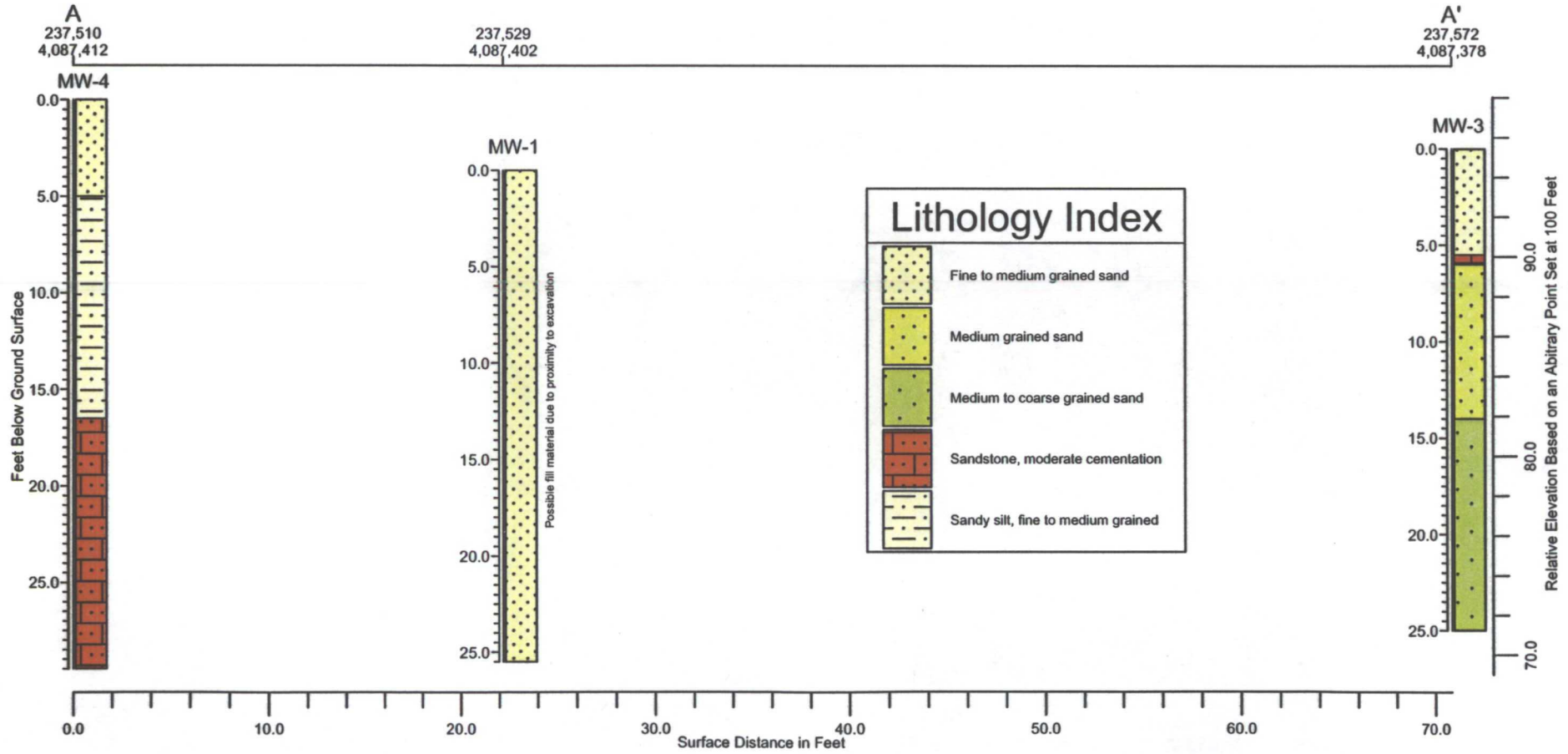
TETRA TECH, INC.

Figure 3. Randleman #1 - Cross-Section A-A'



2/11/2010

TETRA TECH

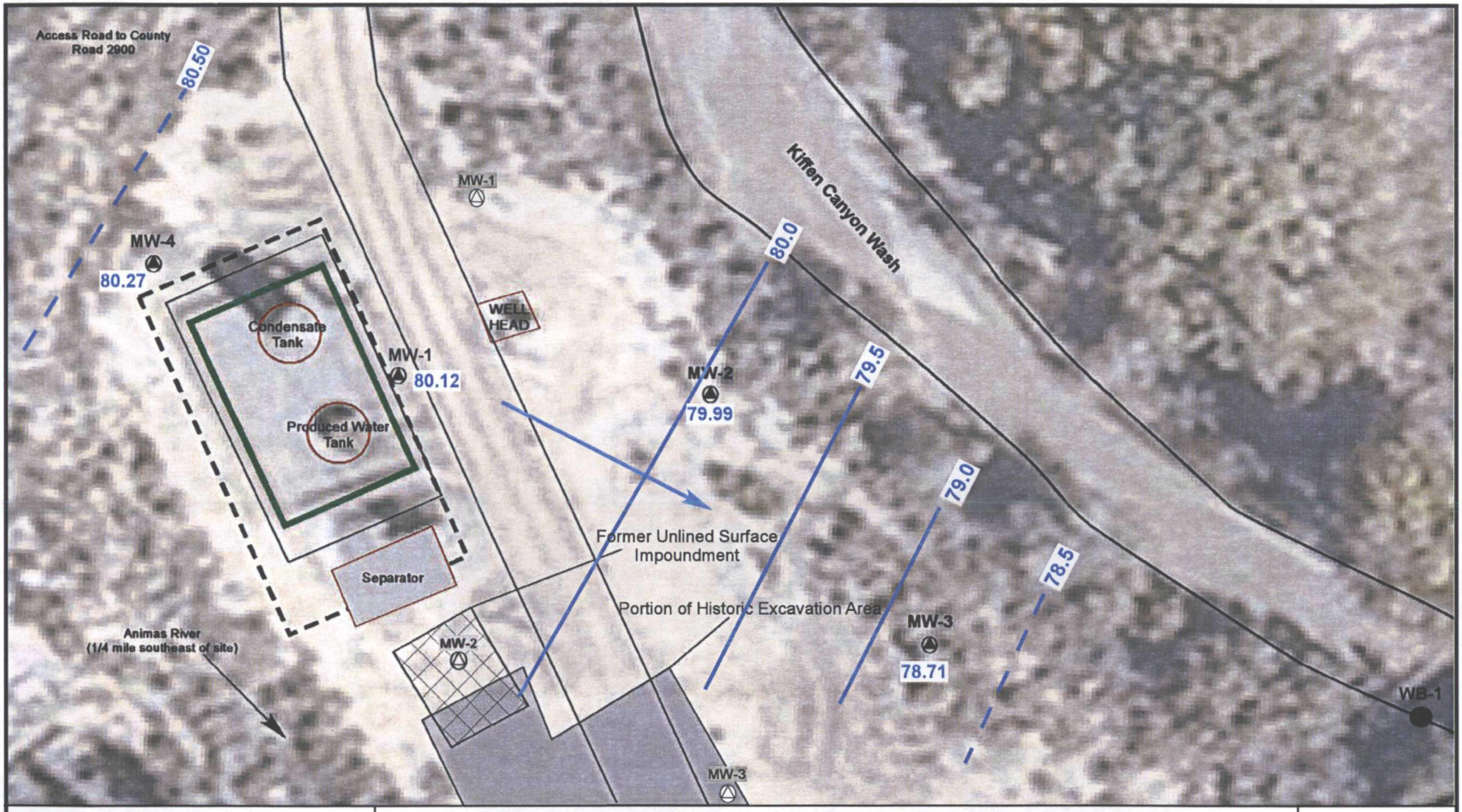


FIGURE 4:
GROUNDWATER ELEVATION MAP - March 2011
CONOCOPHILLIPS COMPANY
RANDLEMAN #1
GAS PRODUCTION WELL
Sec 13, T31N, R11W
Aztec, New Mexico

- GENERAL AREA of EXCAVATION
- BERM
- MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE LOCATION of HISTORIC MONITORING WELL (plugged and abandoned)
- 80.80 GROUNDWATER ELEVATION (elevation relative to wellhead; set at an arbitrary 100 feet above mean sea level)
- KIFFEN CANYON WASH BORING LOCATION

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FEET

TETRA TECH, INC.

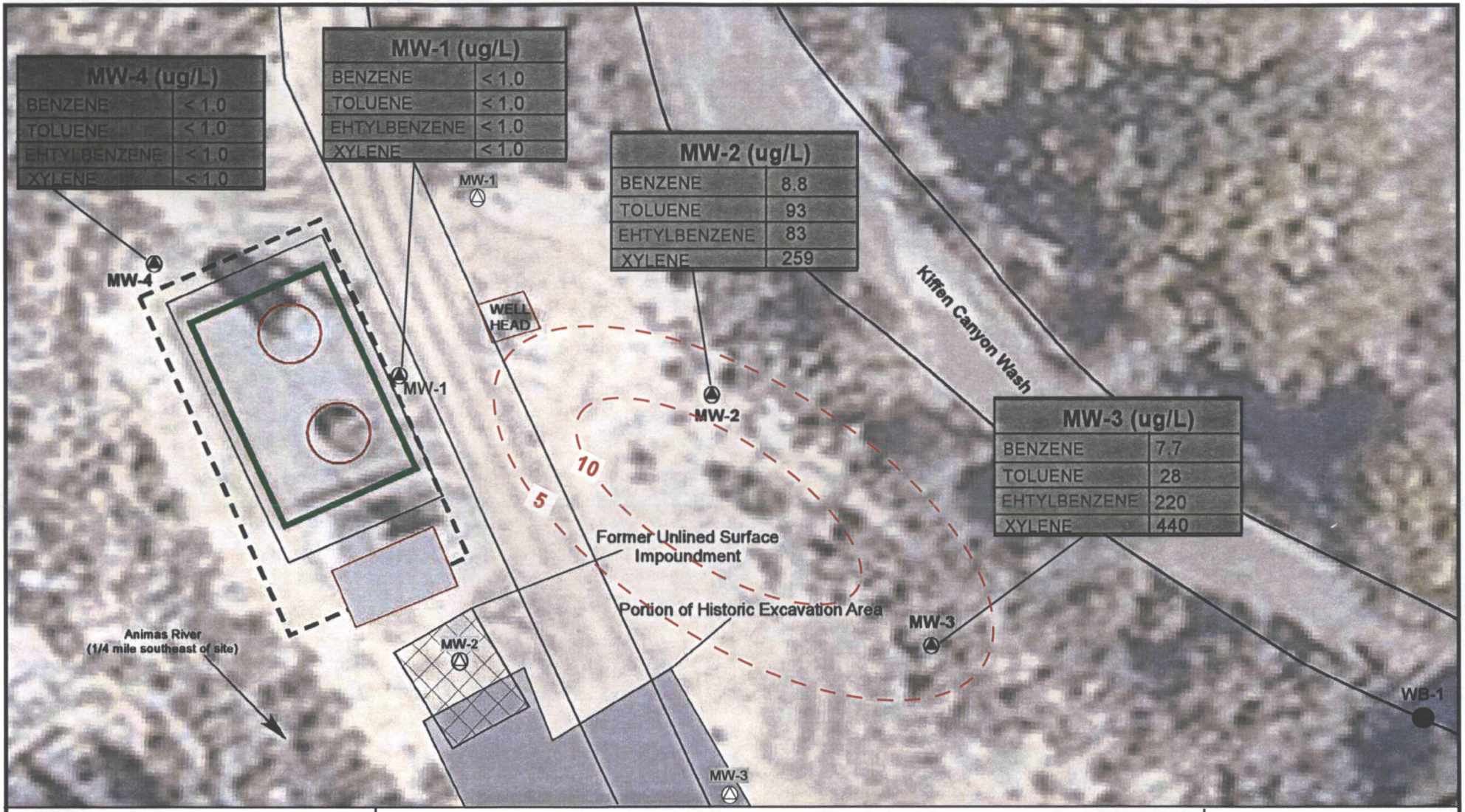

FIGURE 5:
BTEX GROUNDWATER CONCENTRATION MAP
March 2011
CONOCOPHILLIPS COMPANY
RANDLEMAN #1
GAS PRODUCTION WELL
Sec 13, T31N, R11W
Aztec, New Mexico

LEGEND

- EXCAVATION AREA
- BERM
- MONITORING WELL
- EQUIPMENT
- APPROXIMATE LOCATION of HISTORIC MONITORING WELL (plugged and abandoned)
- KIFFEN CANYON WASH BORING LOCATION
- BENZENE CONCENTRATION CONTOUR

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TETRA TECH, INC.

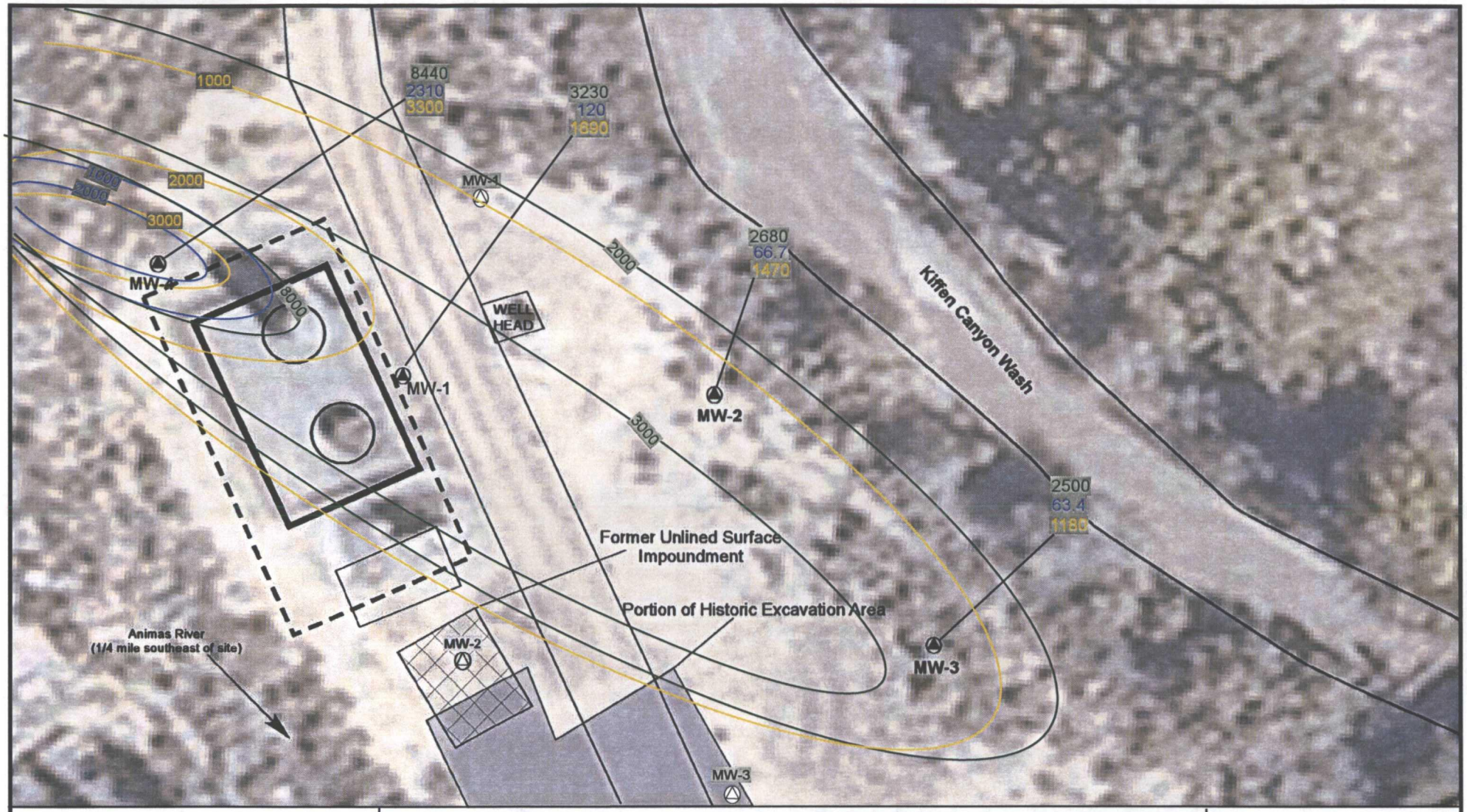

FIGURE 6:
Sulfate, Chloride, and TDS Isopleth Map

March 2011
CONOCOPHILLIPS COMPANY
RANDLEMAN #1
GAS PRODUCTION WELL
Sec 13, T31N, R11W
Aztec, New Mexico

LEGEND

- EXCAVATION AREA
- BERM/EQUIPMENT
- MONITORING WELL
- APPROXIMATE LOCATION of HISTORIC MONITORING WELL (plugged and abandoned)
- SULFATE
- CHLORIDE
- TDS

N

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TABLES

Table 1. Randleman No. 1 Site History Timeline

DATE	ACTIVITY
September 20, 1951	Well spudded by Southern Union Gas Company.
August 1, 1952	Well acquired by Aztec Oil and Gas Company.
December 1, 1976	Southland Royalty Company acquired Aztec Oil and Gas Company.
November 22, 1985	Southland Royalty Company acquired by Burlington Resources.
April 1, 1997	An unlined surface impoundment was discovered to have been impacted by petroleum hydrocarbons. On April 29, 1997, excavation of the soil beneath the impoundment began; once complete, a total of 613 cubic yards of hydrocarbon impacted soil were removed and landfarmed at the nearby Randleman #3 site.
May 14, 1997	Three groundwater monitor wells were installed at the Site. Groundwater monitoring was initiated on a quarterly basis through March 1998.
April 1, 1998	Evaluation of groundwater monitoring results initiated another excavation of 2,220 cubic yards of hydrocarbon impacted soil "to address residual soil contamination extending to the south of the original excavated area" (Williams, 2002).
February 1, 2002	Quarterly groundwater monitoring was continued through September 2000, and after 4 consecutive quarters of groundwater quality monitoring results below New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards for benzene, toluene, ethylbenzene, and total xylenes (BTEX), Williams Environmental Services (Williams) requested that the New Mexico Oil Conservation Division (OCD) grant closure status for the Site.
June 1, 2002	OCD granted closure for the Site, provided that Williams plug and abandon all Site groundwater monitoring wells according to OCD standards (NMEMNRD, 2002). The historical excavation area and historical groundwater monitor wells are displayed in Figure 2.
March 31, 2006	ConocoPhillips Company acquired Burlington Resources and all assets.
February 23, 2009	Approximately 60 barrels of condensate were found to have spilled from a hole located on the back side of an on-Site condensate tank into the bermed area. The spilled fluids remained in the berm and none of the condensate was recovered. Form C-141 stated that the spill impacted the soil on the ground surface around the tank, that the production tank was to be removed, and the affected soils were to be excavated.
February 26, 2009	Envirotech Inc. of Farmington, NM (Envirotech) performed the soil excavation and collected soil samples for analysis. The area of release was excavated to approximately 42 feet by 51 feet by 7 feet deep. 7 composite soil samples were collected from the excavation and were analyzed for total petroleum hydrocarbons (TPH) using EPA Method 418.1. Additionally, organic vapors were measured using a Photoionization Detector (PID). TPH results ranged from 8 parts per million (ppm) in the north wall sample to 1,080 ppm in the south wall sample. The OCD recommended action level for TPH at the Site was determined to be 100 ppm. Organic vapor concentrations ranged from 6.8 ppm from the north wall sample, to 898 ppm in the south wall sample. Due to high levels of TPH and organic vapors, the excavation was continued on February 27, 2009.
February 27, 2009	Envirotech continued the excavation and sampling activities. Samples collected from the north, west, and east ends of the excavation on February 26, 2009 were found to be below OCD action levels for TPH, the focus of the excavation on February 27, 2009 was the south wall, the southeast wall, and the bottom of the southeast corner. The final excavation measured 81 feet by 43 feet by 20 feet deep (total depth is given for the deepest part of the excavation; other areas determined to be below OCD action levels went to approximately 8 feet bgs). Eight soil samples were collected and analyzed in the field for TPH and organic vapors. Excavation continued until all samples were found to be below 100 ppm for both TPH and organic vapors.
March 2, 2009	Groundwater began to seep into the southeast corner of the excavation at 20 feet bgs. A vacuum truck was contracted to remove groundwater from the excavation. After removal of groundwater, a soil sample from the southeast corner of the excavation was collected. TPH and organic vapor results were found to be above OCD action levels. More water was then removed from the excavation, and additional soil removal was performed. A groundwater sample was collected from the area where water continued to seep into the excavation, and was analyzed for volatile organic compounds by EPA Method 8260. The groundwater sample was found to contain benzene, total xylenes and total naphthalenes above New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards. Once this sample had been obtained, the excavation caved in, making further water removal impossible (Envirotech, 2009). A total of 611 cubic yards of soil were romoved from the Site. Clean fill was used to backfill the excavation.
June 9 through 11, 2009	Tetra Tech installs four groundwater monitor wells at the Site; MW-1, MW-2, MW-3 and MW-4.
June 12, 2009	Tetra Tech conducts the first groundwater monitoring event at the Site.
June 17, 2009	Depth to water measurements were taken by Tetra Tech in Site monitor wells to determine if hydrocarbons were accumulating in the water column. Hydrocarbon sheen was detected in MW-2 and MW-3.

Table 1. Randleman No. 1 Site History Timeline

June 18, 2009	Hydrocarbon-absorbent socks were placed in monitor wells MW-2 and MW-3 by Tetra Tech.
September 23, 2009	Second quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
October 1, 2009	Tetra Tech on Site to hand auger one boring near the Kiffen Canyon Wash, which is located downgradient and east of the Site. Groundwater and soil samples collected from boring. No BTEX impacts were found.
December 16, 2009	Third quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
April 1, 2010	Fourth quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
June 9, 2010	Fifth quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
September 20, 2010	Sixth quarterly groundwater monitoring event at the Site conducted by Tetra Tech. Lock and cap were observed missing from MW-4. The ground surface near MW-3 shifted, resulting in the well casing sticking out of the completion. The PVC casing was cut and the site was re-surveyed by Tetra Tech.
December 17, 2010	Seventh quarterly groundwater monitoring event at the Site conducted by Tetra Tech.
March 16, 2011	Eighth quarterly groundwater monitoring event at the Site conducted by Tetra Tech.

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

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	25.5	9 - 24	95.19	6/12/2009	13.98	81.21
				6/14/2009	13.96	81.23
				9/23/2009	13.97	81.22
				12/16/2009	14.30	80.89
				4/1/2010	14.39	80.80
				6/9/2010	13.99	81.20
			94.90	9/20/2010	14.54	80.36
				12/17/2010	14.40	80.50
				3/16/2011	14.78	80.12
MW-2	23.80	8.9 - 23.8	96.79	6/12/2009	15.57	81.22
				6/14/2009	15.63	81.16
				9/23/2009	15.67	81.12
				12/16/2009	16.41	80.38
				4/1/2010	16.75	80.04
				6/9/2010	15.71	81.08
			96.51	9/20/2010	16.28	80.23
				12/17/2010	16.67	79.84
				3/16/2011	16.52	79.99
MW-3	22.00	6.5 - 21.5	96.31	6/12/2009	16.00	80.31
				6/14/2009	15.97	80.34
				9/23/2009	15.78	80.53
				12/16/2009	16.77	79.54
				4/1/2010	16.79	79.52
				6/9/2010	15.89	80.42
			96.07	9/20/2010	16.95	79.12
				12/17/2010	17.95	78.12
				3/16/2011	17.36	78.71
MW-4	29.50	11 - 26	98.83	6/12/2009	17.68	81.15
				6/14/2009	17.52	81.31
				9/23/2009	17.56	81.27
				12/16/2009	17.86	80.97
				4/1/2010	17.94	80.89
				6/9/2010	17.57	81.26
			98.54	9/20/2010	18.06	80.48
				12/17/2010	16.14	82.40
				3/16/2011	18.27	80.27

ft = Feet
TOC = Top of casing
bgs = below ground surface
* Elevation relative to an arbitrary data point of 100 feet; resurveyed during 9/20/10 sampling event

Table 3. ConocoPhillips Company - Randleman No. 1 - GroundwaterBaseline Analytical Results Summary - June 2009

Constituent			Sample ID (samples collected on June 12, 2009)					
Ions	**Method**	**Units**	**MW-1**	**MW-2**	**MW-3**	**Duplicate**	**MW-4**	**NMWQCC Groundwater Quality Standard**
Bromide	E300.0	mg/L	< 0.5	<0.5	<0.5	NA	< 0.5	NE
Chloride	E300.0	mg/L	119	40.1	40.3	NA	**2,310**	250
Fluoride	E300.0	mg/L	0.518	0.621	<0.5	NA	0.652	1.6
Orthophospate (as P)	E300.0	mg/L	< 0.5	< 0.5	<0.5	NA	< 0.5	NE
Sulfate	E300.0	mg/L	**1,690**	**1,360**	**1,510**	NA	**4,190**	600
Nitrate (as N)	E300.0	mg/L	0.78	0.52	< 0.5	NA	< 0.5	10
Nitrite (as N)	E300.0	mg/L	< 0.5	< 0.5	< 0.5	NA	< 0.5	NE
Metals, Total	**Method**	**Units**	**MW-1**	**MW-2**	**MW-3**	**Duplicate**	**MW-4**	**NMWQCC Groundwater Quality Standard**
Mercury	SW7470A	mg/L	<0.0002	<0.0002	<0.0002	NA	< 0.0002	NE
Aluminum	SW6010B	mg/L	9.22*	2.99*	1.1*	NA	13.6*	NE
Boron	SW6010B	mg/L	0.135	<0.1	0.107	NA	0.523	NE
Calcium	SW6010B	mg/L	473	528	527	NA	496	NE
Iron	SW6010B	mg/L	6.81*	3.7*	1.65*	NA	20*	NE
Magnesium	SW6010B	mg/L	27.1	19.7	23.9	NA	32.2	NE
Potassium	SW6010B	mg/L	7.31	7.53	6	NA	19.1	NE
Sodium	SW6010B	mg/L	454	196	242	NA	2720	NE
Strontium	SW6010B	mg/L	8.51	8.54	10.5	NA	11.6	NE
Tin	SW6010B	mg/L	<0.005	<0.005	0.0061	NA	<0.005	NE
Antimony	SW6020A	mg/L	< 0.005	<0.005	<0.005	NA	< 0.005	NE
Arsenic	SW6020A	mg/L	< 0.005	0.00759	< 0.005	NA	<0.005	NE
Barium	SW6020A	mg/L	0.0857	0.107	0.0537	NA	0.131	NE
Beryllium	SW6020A	mg/L	< 0.004	<0.004	<0.004	NA	0.00468	NE
Cadmium	SW6020A	mg/L	< 0.005	< 0.005	< 0.005	NA	<0.005	NE
Chromium	SW6020A	mg/L	0.00601	< 0.005	< 0.005	NA	0.117*	NE
Cobalt	SW6020A	mg/L	0.0157	< 0.005	< 0.005	NA	0.0312	NE
Copper	SW6020A	mg/L	0.022	0.00699	< 0.005	NA	0.041	NE
Lead	SW6020A	mg/L	0.0124	0.00561	< 0.005	NA	0.0418	NE
Manganese	SW6020A	mg/L	4.79*	3.56*	3*	NA	4.92*	NE
Molybdenum	SW6020A	mg/L	< 0.01	<0.01	<0.01	NA	0.0146	NE
Nickel	SW6020A	mg/L	0.0185	0.0107	0.00971	NA	0.0372	NE
Selenium	SW6020A	mg/L	< 0.005	< 0.005	< 0.005	NA	0.00558	NE
Silver	SW6020A	mg/L	< 0.005	< 0.005	< 0.005	NA	< 0.005	NE
Thallium	SW6020A	mg/L	< 0.005	< 0.005	< 0.005	NA	< 0.005	NE
Vanadium	SW6020A	mg/L	0.012	0.00592	< 0.005	NA	0.0269	NE
Zinc	SW6020A	mg/L	0.0322	0.0152	<0.01	NA	0.103	NE
SVOCS (detections only)	**Method**	**Units**	**MW-1**	**MW-2**	**MW-3**	**Duplicate**	**MW-4**	**NMWQCC Groundwater Quality Standard**
2,4-Dimethylphenol	8270C	µg/L	<5	<5	18	NA	<5	NE
2-Methylnaphthalene	8270C	µg/L	<5	13	12	NA	<5	see
Naphthalene	8270C	µg/L	<5	14	20	NA	<5	below
Sum of 2-Methylnaphthalene & Naphthalene	8270C	µg/L	--	27	**32**	NA	--	30
Benzyl alcohol	8270C	µg/L	<5	6.8	<5		<5	NE
2-Methylphenol	8270C	µg/L	<5	<5	7.2	NA	<5	NE
3&4-Methylphenol	8270C	µg/L	<5	<5	8.3	NA	<5	NE
VOCs (detections and BTEX only)	**Method**	**Units**	**MW-1**	**MW-2**	**MW-3**	**Duplicate**	**MW-4**	**NMWQCC Groundwater Quality Standard**
1,2,4-Trimethylbenzene	8260B	µg/L	< 5	300	440	NA	< 5	NE
1,3,5-Trimethylbenzene	8260B	µg/L	< 5	96	140	NA	< 5	NE
4-Isopropyltoluene	8260B	µg/L	< 5	7.2	6.3	NA	< 5	NE
Isopropylbenzene	8260B	µg/L	< 5	24	46	NA	< 5	NE
Naphthalene	8260B	µg/L	< 5	21	**36**	NA	< 5	30
n-Butylbenzene	8260B	µg/L	< 5	5.2	< 5	NA	< 5	NE
n-Propylbenzene	8260B	µg/L	< 5	25	48	NA	< 5	NE
sec-Butylbenzene	8260B	µg/L	< 5	6.6	6.1	NA	< 5	NE
Benzene	8260B	µg/L	5.1	9.4	**10**	**10**	< 5	10
Toluene	8260B	µg/L	7.6	**1,100**	**1,400**	**1,400**	< 5	750
Ethylbenzene	8260B	µg/L	< 5	180	490	540	< 5	750
Total Xylenes	8260B	µg/L	9.7	**2,280**	**4,050**	**4,300**	< 5	620
Other	**Method**	**Units**	**MW-1**	**MW-2**	**MW-3**	**Duplicate**	**MW-4**	**NMWQCC Groundwater Quality Standard**
Alkalinity (as Calcium Carbonate)	SM2320B	mg/L	165	215	99	NA	200	NE
Diesel Range Organics	SW8015B	mg/L	< 0.1	0.76	1.2	NA	< 0.1	NE
Gasoline Range Organics	SW8015B	mg/L	0.22	11	21	NA	< 0.1	NE

Notes:
MW = monitoring well
NMWQCC = New Mexico Water Quality Control Commission
Constituents in **BOLD** are in excess of NMWQCC groundwater quality standards
SVOCs = semi-volatile organic compounds
VOCs = volatile organic compounds
mg/L = milligrams per liter
µg/L = micrograms per liter
P = phosphate
N = nitrogen
NE = not established
NA = not analyzed
* = Concentration of total metals. Cannot be compared directly to the NMWQCC standard for dissolved metals; but were used to determine which metals to use dissolved metals analyses for during future quarterly sampling events.

Table 4. ConocoPhillips Randleman No. 1 - Quarterly Groundwater Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Naphthalene (µg/L)	Chloride (mg/L)	Sulfate (mg/L)	Aluminum (mg/L)	Iron (mg/L)	Chromium (mg/L)	Manganese (mg/L)	Total Dissolved Solids (mg/L)
MW-1	6/14/2009	5.1	7.6	< 5	9.7	< 5	119	**1690**	9.22*	6.81*	.00601*	4.79*	NA
	9/23/2009	**18**	5.4	1.3	11.6	< 1	80.5	**1640**	< 0.1	< 0.02	< 0.005	0.17	**2880**
	12/16/2009	< 1	< 1	< 1	< 1	NA	127	**1960**	NA	NA	NA	0.108	**3140**
	4/1/2010	< 1	< 1	< 1	< 1	NA	72.3	**1440**	NA	NA	NA	0.0849	**2850**
	6/9/2010	< 1	< 1	< 1	< 1	NA	83.8	**1450**	NA	NA	NA	0.114	**3340**
	9/20/2010	5.3	< 1	< 1	< 1	NA	84.9	**1710**	NA	NA	NA	**0.207**	**4070**
	12/17/2010	<1	<1	<1	<1	NA	93.5	**2100**	NA	NA	NA	0.131	**4340**
	3/16/2011	<1	<1	<1	<1	NA	120	**1690**	NA	NA	NA	0.102	**3230**
MW-2	6/14/2009	9.4	**1100**	180	**2280**	21	40.1	**1360**	2.99*	3.7*	< 0.005*	3.56*	NA
	9/23/2009	7.7	< 1	110	**720**	16	39.4	**1390**	< 0.1	0.0239	< 0.005	**6.82**	**2480**
	12/16/2009	**20**	7.9	240	**777.8**	NA	63.3	**1510**	NA	NA	NA	**5.26**	**2390**
	4/1/2010	9	27	180	547	NA	56.5	**1170**	NA	NA	NA	**4.1**	**2460**
	6/9/2010	3.8	9.3	99	265.6	NA	48.7	**1280**	NA	NA	NA	**3.24**	**2590**
	9/20/2010	5.0	7.6	61	136.5	NA	48.7	**1390**	NA	NA	NA	**2.7**	**2440**
	12/17/2010	6.8	19	71	117.7	NA	38.3	**1520**	NA	NA	NA	**2.28**	**2760**
	3/16/2011	8.8	93	83	259	NA	66.7	**1470**	NA	NA	NA	**2.94**	**2680**
MW-3	6/14/2009	**10**	**1400**	490	**4050**	**36**	40.3	**1510**	1.1*	1.65*	< 0.005*	3*	NA
	9/23/2009	**13**	8.5	89	320	3.9	64.5	**1500**	< 0.1	0.0486	< 0.005	**1.11**	**2720**
	12/16/2009	**18**	17	96	280	NA	99.1	**1920**	NA	NA	NA	**0.932**	**2560**
	4/1/2010	**18**	76	190	590	NA	5.34	**796**	NA	NA	NA	**1.04**	**1650**
	6/9/2010	**12**	20	24	69	NA	30.8	**989**	NA	NA	NA	0.193	**2200**
	9/20/2010	9.0	11	79	142	NA	49.9	493	NA	NA	NA	**0.818**	**2840**
	12/17/2010	4.0	3.4	48	71	NA	64.8	**1760**	NA	NA	NA	**0.41**	**2590**
	3/16/2011	7.7	28	220	440	NA	63.4	**1180**	NA	NA	NA	**1.63**	**2500**
MW-4	6/14/2009	< 5	< 5	< 5	< 5	< 5	**2310**	**4190**	13.9*	20*	0.117*	4.92*	NA
	9/23/2009	< 1	< 1	< 1	< 1	< 1	**2130**	**3320**	< 0.1	0.0308	< 0.005	**2.73**	**8600**
	12/16/2009	< 1	< 1	< 1	< 1	NA	**3430**	**4110**	NA	NA	NA	**1.8**	**9600**
	4/1/2010	< 1	< 1	< 1	< 1	NA	**2350**	**3110**	NA	NA	NA	**1.52**	**8560**
	6/9/2010	< 1	< 1	< 1	< 1	NA	**2190**	**2710**	NA	NA	NA	**1.06**	**4720**
	9/20/2010	< 1	< 1	< 1	< 1	NA	**2640**	**3260**	NA	NA	NA	**1.24**	**9550**
	12/17/2010	<1	<1	<1	<1	NA	**2350**	**3570**	NA	NA	NA	**1.68**	**9400**
	3/16/2011	<1	<1	<1	<1	NA	**2310**	**3300**	NA	NA	NA	**1.82**	**8440**
NMWQCC Standards		**10 (µg/L)**	**750 (µg/L)**	**750 (µg/L)**	**620 (µg/L)**	**30 (µg/L)**	**250 (mg/L)**	**600 (mg/L)**	**5 (mg/L)**	**1 (mg/L)**	**0.05 (mg/L)**	**0.2 (mg/L)**	**1000 (mg/L)**

Explanation
ND = Not Detected
NMWQCC = New Mexico Water Quality Control Commission
mg/L = milligrams per liter (parts per million)
µg/L = micrograms per liter (parts per billion)
NA = Not Analyzed
<0.7 = Below laboratory detection limit of 0.7 ug/L
Bold = concentrations that exceed the NMWQCC limits
* = Results reported for total metals analysis, results cannot be compared to NMWQCC Standards for dissolved metals

APPENDIX A

Groundwater Sampling Field Forms

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Randleman 1 Page 1 of 4

ct No.

Site Location Aztec, NM

Site/Well No. MW-1 Coded/ Replicate No. 0945 Date 3.16.11

Weather Sunny, warm 60° Time Sampling Began 0925 Time Sampling Completed 0940

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface

MP Elevation 94.9

Total Sounded Depth of Well Below MP ~~25.5~~ 23.84 Water-Level Elevation 80.12

Held ____ Depth to Water Below MP 14.78 Diameter of Casing 2"

Wet ____ Water Column in Well 9.06 Gallons Pumped/Bailed Prior to Sampling 4.5

Gallons per Foot 0.16

Gallons in Well 1.44 X3 = 4.34 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.)
0930	12.16	7.07	2573	2.216	10.40	92.1	28.9	4.0
0937	12.67	6.92	2688	2.287	4.67	44.2	44.7	4.25
0939	12.83	6.83	2722	2.325	4.10	39.0	57.4	4.5

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOAs	HCl
Chloride, Sulfate, TDS	32 oz Plastic	None
Dissolved MN	16 oz Plastic	None

Remarks H_2O is light tan w/ dendritic particulates

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 Randleman 1 Page 2 of 4

ct No.

Site Location Aztec, NM

Site/Well No. MW-2 Coded/ Replicate No. Date 3.16.11

Weather Sunny, warm 60° Time Sampling Began 0938 Time Sampling Completed 1015

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation 95.51

Total Sounded Depth of Well Below MP ~~23.8~~ 26.66 Water-Level Elevation 79.99

Held Depth to Water Below MP 16.52 Diameter of Casing 2"

Wet Water Column in Well 10.14 Gallons Pumped/Bailed Prior to Sampling 5.0

Gallons per Foot 0.16

Gallons in Well 10.22 = 4.80 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.)
1012	11.17	7.54	2058	1.816	2.65	24.1	-234.7	4.0
1013	11.15	7.53	2038	1.805	2.48	22.8	-243.0	4.5
1014	10.99	7.55	2022	1.795	2.42	22.0	-251.9	5.0

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOAs	HCl
Chloride, Sulfate, TDS	32 oz Plastic	None
Dissolved MN	16 oz Plastic	None

Remarks H_2O is gray w/ strong sulfer odor No sheen

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 Randleman 1 Page 3 of 4

Project No.

Site Location Aztec, NM

Site/Well No. MW-3 Coded/ Replicate No. Date 3/16/11

Weather Sunny, warm 60° Time Sampling Began 1005 Time Sampling Completed 1030

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation 96.07

Total Sounded Depth of Well Below MP ~~22~~ 24.70 Water-Level Elevation 78.71

Held Depth to Water Below MP 17.36 Diameter of Casing 2"

Wet Water Column in Well 7.34 Gallons Pumped/Bailed Prior to Sampling ~3

Gallons per Foot 0.16

Gallons in Well 1.174X3= 3.52 Sampling Pump Intake Setting (feet below land surface) ~~3.0~~

Purging Equipment Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm)	TDS (g/L)	DO (mg/L)	DO %	ORP (mV)	Volume (gal.)
1024	11.51	7.32	2108	1.841	4.34	41.3	-284.0	2.0
1025	11.43	7.29	2099	1.840	3.06	28.9	-302.6	2.25
1027	11.39	7.28	2.095	1.839	2.79	25.6	-313.9	2.5

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOAs	HCl
Chloride, Sulfate, TDS	32 oz Plastic	None
Dissolved MN	16 oz Plastic	None

Remarks Bailed dry @ 1.76 gallons. will collect parameters & sample after recharge. H2O is black w/ strong Sulfur odor. very Slight Green

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 Randleman 1 Page 4 of 4

ject No.

Site Location Aztec, NM

Site/Well No. MW-4 Coded/ Replicate No. Date 3/16/11

Weather Sunny, warm 60° Time Sampling Began 0925 Time Sampling Completed ~~0944~~ 1000

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface MP Elevation 98.54

Total Sounded Depth of Well Below MP ~~29.5~~ 28.76 Water-Level Elevation 80.27

Held ____ Depth to Water Below MP 18.27 Diameter of Casing 2"

Wet ____ Water Column in Well 10.49 Gallons Pumped/Bailed Prior to Sampling 5.25

Gallons per Foot 0.16

Gallons in Well 1.6784 x 3 = (5.0)

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.)
0953	13.63	7.29	9495	7.884	3.26	32.6	15.9	4.0
0955	13.60	7.23	9371	7.782	3.38	34.0	10.3	4.5
0956	13.62	7.23	9324	7.734	3.23	32.4	6.4	5.0

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOAs	HCl
Chloride, Sulfate, TDS	32 oz Plastic	None
Dissolved MN	16 oz Plastic	None

Remarks H_2O is light brown w/silt. Slight sulfur odor observed. no sheen.

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

APPENDIX B

Groundwater Laboratory Analysis Report

ACCUTEST LABORATORIES

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

Conoco Phillips

Certificate of Analysis Number:

11030464

Report To:		Project Name:	Randleman No. 1
Tetra Tech, Inc.		Site:	Aztec, NM
Kelly Blanchard		Site Address:	
6121 Indian School Road, N.E.			
Suite 200		PO Number:	
Albuquerque		State:	New Mexico
NM		State Cert. No.:	
87110-		Date Reported:	3/28/2011
ph (505) 237-8440 fax: (505) 881-3283			

This Report Contains A Total Of 20 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

3/28/2011

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:
11030464

Report To:		Project Name:	Randleman No. 1
Tetra Tech, Inc.		Site:	Aztec, NM
Kelly Blanchard		Site Address:	
6121 Indian School Road, N.E.			
Suite 200		PO Number:	
Albuquerque		State:	New Mexico
NM		State Cert. No.:	
87110-		Date Reported:	3/28/2011
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

3/28/2011

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:

11030464

his designee, as verified by the following signature.

3/28/2011

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

Conoco Phillips

Certificate of Analysis Number:

11030464

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: Randleman No. 1
Site: Aztec, NM
Site Address:
PO Number:
State: New Mexico
State Cert. No.:
Date Reported: 3/28/2011

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	11030464-01	Water	03/16/2011 9:40	3/18/2011 9:06:00 AM	302878	☐
MW-2	11030464-02	Water	03/16/2011 10:15	3/18/2011 9:06:00 AM	302878	☐
MW-3	11030464-03	Water	03/16/2011 10:30	3/18/2011 9:06:00 AM	302878	☐
MW-4	11030464-04	Water	03/16/2011 10:00	3/18/2011 9:06:00 AM	302850	☐
MW-4	11030464-04	Water	03/16/2011 10:00	3/18/2011 9:06:00 AM	302878	☐
Duplicate	11030464-05	Water	03/16/2011 9:45	3/18/2011 9:06:00 AM	302850	☐
Trip Blank	11030464-06	Water	03/16/2011 21:30	3/18/2011 9:06:00 AM	302850	☐

Erica Cardenas
Project Manager

3/28/2011
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:** 03/16/2011 9:40 **SPL Sample ID:** 11030464-01

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
ION CHROMATOGRAPHY				**MCL**	**E300.0**	**Units: mg/L**	
Chloride	120		5	10	03/19/11 15:49	ESK	5747474
Sulfate	1690		100	200	03/20/11 22:42	ESK	5747545
METALS BY METHOD 6010B, DISSOLVED				**MCL**	**SW6010B**	**Units: mg/L**	
Manganese	0.102		0.005	1	03/25/11 19:39	EG	5752223

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/18/2011 10:15	M_W	1.00

TOTAL DISSOLVED SOLIDS				**MCL**	**SM2540 C**	**Units: mg/L**	
Total Dissolved Solids (Residue,Filterable)	3230		20	2	03/22/11 11:30	MM1	5749759
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**	
Benzene	ND		1	1	03/22/11 9:47	JC	5749330
Ethylbenzene	ND		1	1	03/22/11 9:47	JC	5749330
Toluene	ND		1	1	03/22/11 9:47	JC	5749330
m,p-Xylene	ND		2	1	03/22/11 9:47	JC	5749330
o-Xylene	ND		1	1	03/22/11 9:47	JC	5749330
Xylenes,Total	ND		1	1	03/22/11 9:47	JC	5749330
Surr: 1,2-Dichloroethane-d4	80.7		% 70-130	1	03/22/11 9:47	JC	5749330
Surr: 4-Bromofluorobenzene	94.2		% 74-125	1	03/22/11 9:47	JC	5749330
Surr: Toluene-d8	101		% 82-118	1	03/22/11 9:47	JC	5749330

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-2 **Collected:** 03/16/2011 10:15 **SPL Sample ID:** 11030464-02

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit		Dil. Factor	Date Analyzed	Analyst	Seq. #
ION CHROMATOGRAPHY				**MCL**	**E300.0**	**Units: mg/L**		
Chloride	66.7		2.5		5	03/19/11 16:05	ESK	5747475
Sulfate	1470		50		100	03/20/11 23:30	ESK	5747548
METALS BY METHOD 6010B, DISSOLVED				**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	2.94		0.005		1	03/25/11 19:45	EG	5752224

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/18/2011 10:15	M_W	1.00

TOTAL DISSOLVED SOLIDS				**MCL**	**SM2540 C**	**Units: mg/L**		
Total Dissolved Solids (Residue,Filterable)	2680		20		2	03/22/11 11:30	MM1	5749760
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	8.8		1		1	03/22/11 10:15	JC	5749331
Ethylbenzene	83		1		1	03/22/11 10:15	JC	5749331
Toluene	93		1		1	03/22/11 10:15	JC	5749331
m,p-Xylene	210		2		1	03/22/11 10:15	JC	5749331
o-Xylene	49		1		1	03/22/11 10:15	JC	5749331
Xylenes,Total	259		1		1	03/22/11 10:15	JC	5749331
Surr: 1,2-Dichloroethane-d4	93.7		% 70-130		1	03/22/11 10:15	JC	5749331
Surr: 4-Bromofluorobenzene	101		% 74-125		1	03/22/11 10:15	JC	5749331
Surr: Toluene-d8	100		% 82-118		1	03/22/11 10:15	JC	5749331

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-3 **Collected:** 03/16/2011 10:30 **SPL Sample ID:** 11030464-03

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit		Dil. Factor	Date Analyzed	Analyst	Seq. #
ION CHROMATOGRAPHY				**MCL**	**E300.0**	**Units: mg/L**		
Chloride	63.4		5		10	03/19/11 16:21	ESK	5747476
Sulfate	1180		50		100	03/20/11 23:46	ESK	5747549
METALS BY METHOD 6010B, DISSOLVED				**MCL**	**SW6010B**	**Units: mg/L**		
Manganese	1.63		0.005		1	03/25/11 19:52	EG	5752225

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/18/2011 10:15	M_W	1.00

TOTAL DISSOLVED SOLIDS				**MCL**	**SM2540 C**	**Units: mg/L**		
Total Dissolved Solids (Residue,Filterable)	2500		20		2	03/22/11 11:30	MM1	5749761
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**		
Benzene	7.7		1		1	03/22/11 10:45	JC	5749332
Ethylbenzene	220		5		5	03/22/11 12:41	JC	5749335
Toluene	28		1		1	03/22/11 10:45	JC	5749332
m,p-Xylene	190		2		1	03/22/11 10:45	JC	5749332
o-Xylene	250		5		5	03/22/11 12:41	JC	5749335
Xylenes,Total	440		1		1	03/22/11 10:45	JC	5749332
Surr: 1,2-Dichloroethane-d4	76.6		% 70-130		5	03/22/11 12:41	JC	5749335
Surr: 1,2-Dichloroethane-d4	81.1		% 70-130		1	03/22/11 10:45	JC	5749332
Surr: 4-Bromofluorobenzene	99.6		% 74-125		5	03/22/11 12:41	JC	5749335
Surr: 4-Bromofluorobenzene	101		% 74-125		1	03/22/11 10:45	JC	5749332
Surr: Toluene-d8	99.0		% 82-118		5	03/22/11 12:41	JC	5749335
Surr: Toluene-d8	104		% 82-118		1	03/22/11 10:45	JC	5749332

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

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HOUSTON, TX 77054
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Client Sample ID MW-4 **Collected:** 03/16/2011 10:00 **SPL Sample ID:** 11030464-04

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
ION CHROMATOGRAPHY				**MCL**	**E300.0**	**Units: mg/L**	
Chloride	2310		250	500	03/19/11 16:37	ESK	5747477
Sulfate	3300		250	500	03/21/11 0:03	ESK	5747550
METALS BY METHOD 6010B, DISSOLVED				**MCL**	**SW6010B**	**Units: mg/L**	
Manganese	1.82		0.005	1	03/25/11 19:58	EG	5752226

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3005A	03/18/2011 10:15	M_W	1.00

TOTAL DISSOLVED SOLIDS				**MCL**	**SM2540 C**	**Units: mg/L**	
Total Dissolved Solids (Residue,Filterable)	8440		50	5	03/22/11 11:30	MM1	5749762
VOLATILE ORGANICS BY METHOD 8260B				**MCL**	**SW8260B**	**Units: ug/L**	
Benzene	ND		1	1	03/22/11 11:14	JC	5749333
Ethylbenzene	ND		1	1	03/22/11 11:14	JC	5749333
Toluene	ND		1	1	03/22/11 11:14	JC	5749333
m,p-Xylene	ND		2	1	03/22/11 11:14	JC	5749333
o-Xylene	ND		1	1	03/22/11 11:14	JC	5749333
Xylenes,Total	ND		1	1	03/22/11 11:14	JC	5749333
Surr: 1,2-Dichloroethane-d4	84.3	%	70-130	1	03/22/11 11:14	JC	5749333
Surr: 4-Bromofluorobenzene	98.4	%	74-125	1	03/22/11 11:14	JC	5749333
Surr: Toluene-d8	102	%	82-118	1	03/22/11 11:14	JC	5749333

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

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HOUSTON, TX 77054
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Client Sample ID Duplicate | **Collected:** 03/16/2011 9:45 | **SPL Sample ID:** 11030464-05

Site: Aztec, 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	03/22/11 11:43	JC	5749334
Ethylbenzene	ND		1	1	03/22/11 11:43	JC	5749334
Toluene	ND		1	1	03/22/11 11:43	JC	5749334
m,p-Xylene	ND		2	1	03/22/11 11:43	JC	5749334
o-Xylene	ND		1	1	03/22/11 11:43	JC	5749334
Xylenes,Total	ND		1	1	03/22/11 11:43	JC	5749334
Surr: 1,2-Dichloroethane-d4	97.7		% 70-130	1	03/22/11 11:43	JC	5749334
Surr: 4-Bromofluorobenzene	93.4		% 74-125	1	03/22/11 11:43	JC	5749334
Surr: Toluene-d8	101		% 82-118	1	03/22/11 11:43	JC	5749334

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

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Client Sample ID Trip Blank | **Collected:** 03/16/2011 21:30 | **SPL Sample ID:** 11030464-06

Site: Aztec, 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 16:15	JC	5750964
Ethylbenzene	ND			1	1	03/23/11 16:15	JC	5750964
Toluene	ND			1	1	03/23/11 16:15	JC	5750964
m,p-Xylene	ND			2	1	03/23/11 16:15	JC	5750964
o-Xylene	ND			1	1	03/23/11 16:15	JC	5750964
Xylenes,Total	ND			1	1	03/23/11 16:15	JC	5750964
Surr: 1,2-Dichloroethane-d4	91.2		%	70-130	1	03/23/11 16:15	JC	5750964
Surr: 4-Bromofluorobenzene	95.5		%	74-125	1	03/23/11 16:15	JC	5750964
Surr: Toluene-d8	99.2		%	82-118	1	03/23/11 16:15	JC	5750964

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

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

Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Metals by Method 6010B, Dissolved
Method: SW6010B
WorkOrder: 11030464
Lab Batch ID: 105539

Method Blank

RunID: ICP2_110325A-5752201 Units: mg/L
Analysis Date: 03/25/2011 17:25 Analyst: EG
Preparation Date: 03/18/2011 10:15 Prep By: M_ Method SW3005A

Analyte	Result	Rep Limit
Manganese	ND	0.005

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-01B	MW-1
11030464-02B	MW-2
11030464-03B	MW-3
11030464-04B	MW-4

Laboratory Control Sample (LCS)

RunID: ICP2_110325A-5752202 Units: mg/L
Analysis Date: 03/25/2011 17:31 Analyst: EG
Preparation Date: 03/18/2011 10:15 Prep By: M_ Method SW3005A

	Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Manganese		0.1000	0.1050	105.0	80	120

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

Sample Spiked: 11030446-02
RunID: ICP2_110325A-5752204 Units: mg/L
Analysis Date: 03/25/2011 17:43 Analyst: EG
Preparation Date: 03/18/2011 10:15 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
Manganese	1.211	0.1	1.354	N/C	0.1	1.308	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.

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Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 11030464
Lab Batch ID: R317397

Method Blank

RunID: Q_110322A-5749329 Units: ug/L
Analysis Date: 03/22/2011 9:18 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	75.6	70-130
Surr: 4-Bromofluorobenzene	94.0	74-125
Surr: Toluene-d8	99.1	82-118

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-01A	MW-1
11030464-02A	MW-2
11030464-03A	MW-3
11030464-04A	MW-4
11030464-05A	Duplicate

Laboratory Control Sample (LCS)

RunID: Q_110322A-5749328 Units: ug/L
Analysis Date: 03/22/2011 8:49 Analyst: JC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	18.3	91.7	74	123
Ethylbenzene	20.0	22.1	110	72	127
Toluene	20.0	22.2	111	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	111	71	130
Surr: 1,2-Dichloroethane-d4	50.0	40.1	80.2	70	130
Surr: 4-Bromofluorobenzene	50.0	48.6	97.1	74	125
Surr: Toluene-d8	50.0	49.4	98.7	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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HOUSTON, TX 77054
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Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Volatile Organics by Method 8260B
Method: SW8260B
WorkOrder: 11030464
Lab Batch ID: R317397

Sample Spiked: 11030506-02
RunID: Q_110322A-5749339 Units: ug/L
Analysis Date: 03/22/2011 15:34 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	106	20	154	N/C	20	142	N/C	N/C	22	70	124
Ethylbenzene	ND	20	22.5	113	20	22.7	114	0.963	20	76	122
Toluene	ND	20	23.2	112	20	23.1	111	0.233	24	80	117
m,p-Xylene	ND	40	45.7	114	40	46.0	115	0.737	20	69	127
o-Xylene	ND	20	22.8	114	20	22.5	112	1.30	20	84	114
Xylenes,Total	ND	60	68.5	114	60	68.5	114	0.0628	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	38.3	76.7	50	34.9	69.8 *	9.37	30	70	130
Surr: 4-Bromofluorobenzene	ND	50	49.6	99.1	50	49.2	98.5	0.652	30	74	125
Surr: Toluene-d8	ND	50	48.2	96.3	50	50.5	101	4.79	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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ACCUTEST LABORATORIES

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HOUSTON, TX 77054
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Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Volatile Organics by Method 8260B **WorkOrder:** 11030464
Method: SW8260B **Lab Batch ID:** R317462

Method Blank

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

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-06A	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	94.3	70-130
Surr: 4-Bromofluorobenzene	92.1	74-125
Surr: Toluene-d8	100.5	82-118

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.

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Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Volatile Organics by Method 8260B
Method: SW8260B

WorkOrder: 11030464
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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HOUSTON, TX 77054
(713) 660-0901

Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Ion Chromatography
Method: E300.0

WorkOrder: 11030464
Lab Batch ID: R317283A

Method Blank

RunID: IC1_110319A-5747460 Units: mg/L
Analysis Date: 03/19/2011 10:31 Analyst: ESK

Analyte	Result	Rep Limit
Chloride	ND	0.50

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-01C	MW-1
11030464-02C	MW-2
11030464-03C	MW-3
11030464-04C	MW-4

Laboratory Control Sample (LCS)

RunID: IC1_110319A-5747461 Units: mg/L
Analysis Date: 03/19/2011 10:47 Analyst: ESK

	Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride		10.00	9.841	98.41	90	110

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

Sample Spiked: 11030462-03
RunID: IC1_110319A-5747469 Units: mg/L
Analysis Date: 03/19/2011 14:28 Analyst: ESK

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	18.06	10	28.07	100.1	10	28.12	100.6	0.1815	15	80	120

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
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HOUSTON, TX 77054
(713) 660-0901

Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Ion Chromatography
Method: E300.0

WorkOrder: 11030464
Lab Batch ID: R317289

Method Blank

RunID: IC1_110320A-5747541 Units: mg/L
Analysis Date: 03/20/2011 20:49 Analyst: ESK

Analyte	Result	Rep Limit
Sulfate	ND	0.50

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-01C	MW-1
11030464-02C	MW-2
11030464-03C	MW-3
11030464-04C	MW-4

Laboratory Control Sample (LCS)

RunID: IC1_110320A-5747542 Units: mg/L
Analysis Date: 03/20/2011 21:05 Analyst: ESK

	Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Sulfate		10.00	10.03	100.3	90	110

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

Sample Spiked: 11030464-01
RunID: IC1_110320A-5747546 Units: mg/L
Analysis Date: 03/20/2011 22:58 Analyst: ESK

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Sulfate	1693	1000	2783	109.0	1000	2782	108.9	0.02670	15	80	120

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.

3/28/2011 3:53:21 PM

ACCUTEST LABORATORIES

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

Quality Control Report

Conoco Phillips

Randleman No. 1

Analysis: Total Dissolved Solids
Method: SM2540 C

WorkOrder: 11030464
Lab Batch ID: R317419

Method Blank

RunID: WET_110322K-5749750 Units: mg/L
Analysis Date: 03/22/2011 11:30 Analyst: MM1

Analyte	Result	Rep Limit
Total Dissolved Solids (Residue,Filterable)	ND	10

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
11030464-01C	MW-1
11030464-02C	MW-2
11030464-03C	MW-3
11030464-04C	MW-4

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: WET_110322K-5749752 Units: mg/L
Analysis Date: 03/22/2011 11:30 Analyst: MM1

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Total Dissolved Solids (Residue,Filterabl	200.0	205.0	102.5	200.0	205.0	102.5	0.0	10	95	107

Sample Duplicate

Original Sample: 11030462-01
RunID: WET_110322K-5749754 Units: mg/L
Analysis Date: 03/22/2011 11:30 Analyst: MM1

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Total Dissolved Solids (Residue,Filterabl	1200	1202	0	10

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.

3/28/2011 3:53:21 PM

Sample Receipt Checklist

And

Chain of Custody

ACCUTEST LABORATORIES

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

Sample Receipt Checklist

Workorder:	**11030464**	Received By:	**NB**
Date and Time Received:	**3/18/2011 9:06:00 AM**	Carrier name:	**Fedex-Standard Overnight**
Temperature:	**3.0/1.9/2.0/0.9/2.3/1.2**	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. 1103046 4 — 302878 — page 1 of 2

Client Name: TetraTech
Address: 6121 Indian Blvd NE Ste 200
City Albuquerque State NM Zip 87110
Phone/Fax: 505.237.8440
Client Contact: Kelly Blanchard Email: Kelly.blanchard@tetratech.com
Project Name/No.: Goodman No. 1
Site Name:
Site Location: Hobbs, NM Aztec, NM
Invoice To: Ph:

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil O=oil A=air SL=sludge E=encore X=other)	bottle (P=plastic A=amber glass G=glass V=vial X=other)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other)	pres. (1=HCl 2=HNO3 3=H2SO4 X=other)	Number of Containers	Requested Analysis: BTEX	Chlorides TDS	Gasoline MN
MW-1	3.16.11	0940		X	W	V	40	1	3	X		
MW-1	3.16.11	0940		X	W	P	16	Na	1			X
MW-1	3.16.11	0940		X	W	P	32	Na	1		X	
MW-2	3.16.11	1015		X	W	V	40	1	3	X		
MW-2	3.16.11	1015		X	W	P	16	Na	1			X
MW-2	3.16.11	1015		X	W	P	32	Na	1		X	
MW-3	3.16.11	1030		X	W	V	40	1	3	X		
MW-3	3.16.11	1030		X	W	P	16	Na	1			X
MW-3	3.16.11	1030		X	W	P	32	Na	1		X	
MW-4	3.16.11	1000		X	W	V	40	1	3	X		

REPORT TO

Client/Consultant Remarks: Please filter & preserve metals @ lab.
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):
PM review (initial):

	date	time	
1. Relinquished by Sampler:	3.17.11	0730	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date 3/18/11	time 0906	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

SPL, Inc.
Analysis Request & Chain of Custody Record

SPL Workorder No: 1103046 4 | 302850 | page 2 of 2

Client Name:	Tetra tech
Address:	6121 Indian School Rd NE Ste 200
City	ABQ. State NM Zip 87110
Phone/Fax:	(505) 237-8440
Client Contact:	Kelly Blanchard Email: kelly.blanchard@tetratech.com
Project Name/No.:	Rancaleman no.
Site Name:	
Site Location:	~~Flora Vista, NM~~ Aztec, NM
Invoice To:	Ph:

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil O=oil A=air SL=sludge E=encore X=other)	bottle (P=plastic A=amber glass G=glass V=vial X=other)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other)	pres. (1=HCl 2=HNO3 3=H2SO4 X=other)	Number of Containers	Requested Analysis: 8260B X	8260B TICs, Chlorides	dissolved Mn
MW-4	3.16.11	1000		X	W	P	16	Na	1			X
MW-4	3.16.11	1000		X	W	P	32	Na	1		X	
duplicate	3.16.11	0945		X	W	V	40	1	3	X		
trip blank	3.16.11	2130		X	W	V	40	1	2	X		

Client/Consultant Remarks: Please filter preserve metals @ lab

Laboratory remarks:

Intact? Y N
Ice? Y N
Temp:

Requested TAT
- ☐ 1 Business Day
- ☐ 2 Business Days
- ☐ 3 Business Days
- ☐ Contract
- ☒ Standard
- ☐ Other

Rush TAT requires prior notice

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

Special Detection Limits (specify):

PM review (initial):

	date	time	
1. Relinquished by: Sampler:	3.17.11	0730	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date 3/18/11	time 0906	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