

**3R - 069**

**AGWMR**

**11/09/2010**



TETRA TECH, INC.

3R069  
6121 Indian School Rd. NE Suite 200  
Albuquerque, NM 87110  
(505) 237-8440

November 9, 2010

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

RE: (1) ConocoPhillips Company, Hampton No. 4M Site, Aztec, New Mexico. 2009  
Annual Groundwater Monitoring Report

Dear Mr. von Gonten:

Enclosed please find one (1) copy of the above-referenced document as compiled by Tetra Tech, Inc. for this Aztec area site.

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

Sincerely,

Kelly E. Blanchard  
Project Manager/Geologist

Enclosures (1)

# **2009 ANNUAL GROUNDWATER MONITORING REPORT**

## **CONOCOPHILLIPS COMPANY HAMPTON 4M AZTEC, NEW MEXICO**

OCD # 3RP-69-0  
API # 30-045-25810

**Prepared for:**



420 South Keeler Avenue  
Bartlesville, OK 74004

**Prepared by:**



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Tetra Tech Project No. 114-690131

October 2009

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## ANNUAL GROUNDWATER MONITORING REPORT HAMPTON 4M, AZTEC, NEW MEXICO

### 1.0 INTRODUCTION

This report presents the results of the 2009 annual groundwater monitoring event conducted by Tetra Tech, Inc. (Tetra Tech), at the ConocoPhillips Company Hampton 4M site near Aztec, New Mexico.

The site is located approximately ¼ mile south of Hampton Arroyo and 2 miles southeast of Aztec, New Mexico. The site consists of a gas production well and associated equipment and installations on Federal land. The location and general features of the Hampton 4M site are shown on **Figures 1** and **2**, respectively.

#### 1.1 Site Background

The history of the site is outlined in **Table 1**. The Hampton 4M gas well was spudded on November 22, 1983, by Southland Royalty Company (Southland). Southland was acquired by Burlington Resources, Inc. (Burlington) in January of 1996 and Burlington was subsequently acquired by ConocoPhillips Company in March of 2006.

Environmental assessment and remediation activities at this site date back to April of 1996, when Public Service Company of New Mexico (PNM), the operator of some tanks, a dehydration unit and an unlined earthen pit on the north end of the Hampton 4M well pad, initiated pit closure work. Approximately 6,400 cubic yards of contaminated soil was removed from the site by Burlington Resources (Burlington) from November 10, 1998 through February 2, 1999. During this period, Monitor Wells MW-2, MW-3, MW-4, MW-6, MW-8 and MW-10 were removed. Maps outlining the excavation area for these activities, as well as a former excavation conducted by Burlington in December 1997 are provided in **Attachment A**. Monitor Wells MW-13 and MW-14 were removed during additional excavation activities in 2000. The existing monitor well network consists of 9 wells: MW-1, MW-5, MW-7, MW-9, MW-11, MW-12, MW-15, MW-16, and TMW-1. A nearby groundwater seep is also part of the current program to monitor the progression of natural remediation at the site. A generalized geologic cross section for the site is provided in **Figure 3**.

### 2.0 MONITORING SUMMARY AND SAMPLING METHODOLOGY / RESULTS

#### 2.1 Monitoring Summary

Groundwater samples were collected from Monitor Wells MW-1, MW-5, MW-7, MW-9, MW-11, MW-12, MW-15, MW-16, and a seep on location on September 24, 2009. Monitor Well TMW-1 was not sampled due to an insufficient water column. Prior to sampling, depth to groundwater was measured in all monitor wells. A groundwater contour map, showing a general flow direction to the south, is provided in **Figure 4**. Groundwater elevation data is included in **Table 2**.

## 2.2 Groundwater Sampling Methodology

Monitor Wells MW-1, MW-5, MW-7, MW-9, MW-11, MW-12, MW-15 and MW-16 were each purged of three well volumes of water and sampled. A 1.5-inch clear, polyvinyl chloride, disposable bailer was used to purge each well and to collect the groundwater sample. The purge water generated during the event was disposed of in the waste water tank located on site. The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation to Southern Petroleum Laboratories in Houston, Texas. All samples collected were analyzed for the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B. Field sampling forms are included as **Appendix A**.

## 2.3 Groundwater Sampling Analytical Results

Samples collected during the 2009 sampling event indicate the following results:

- Groundwater concentrations for BTEX were below laboratory method detection limits in Monitor Wells MW-1, MW-9, MW-11, MW-15, and the onsite seep.
- Groundwater concentrations exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard for:
  - benzene (10 micrograms per liter [ $\mu\text{g/L}$ ]), toluene (750  $\mu\text{g/L}$ ), and total xylenes (620  $\mu\text{g/L}$ ) in monitoring wells MW-5 and MW-16;
  - benzene in monitoring well MW-12.

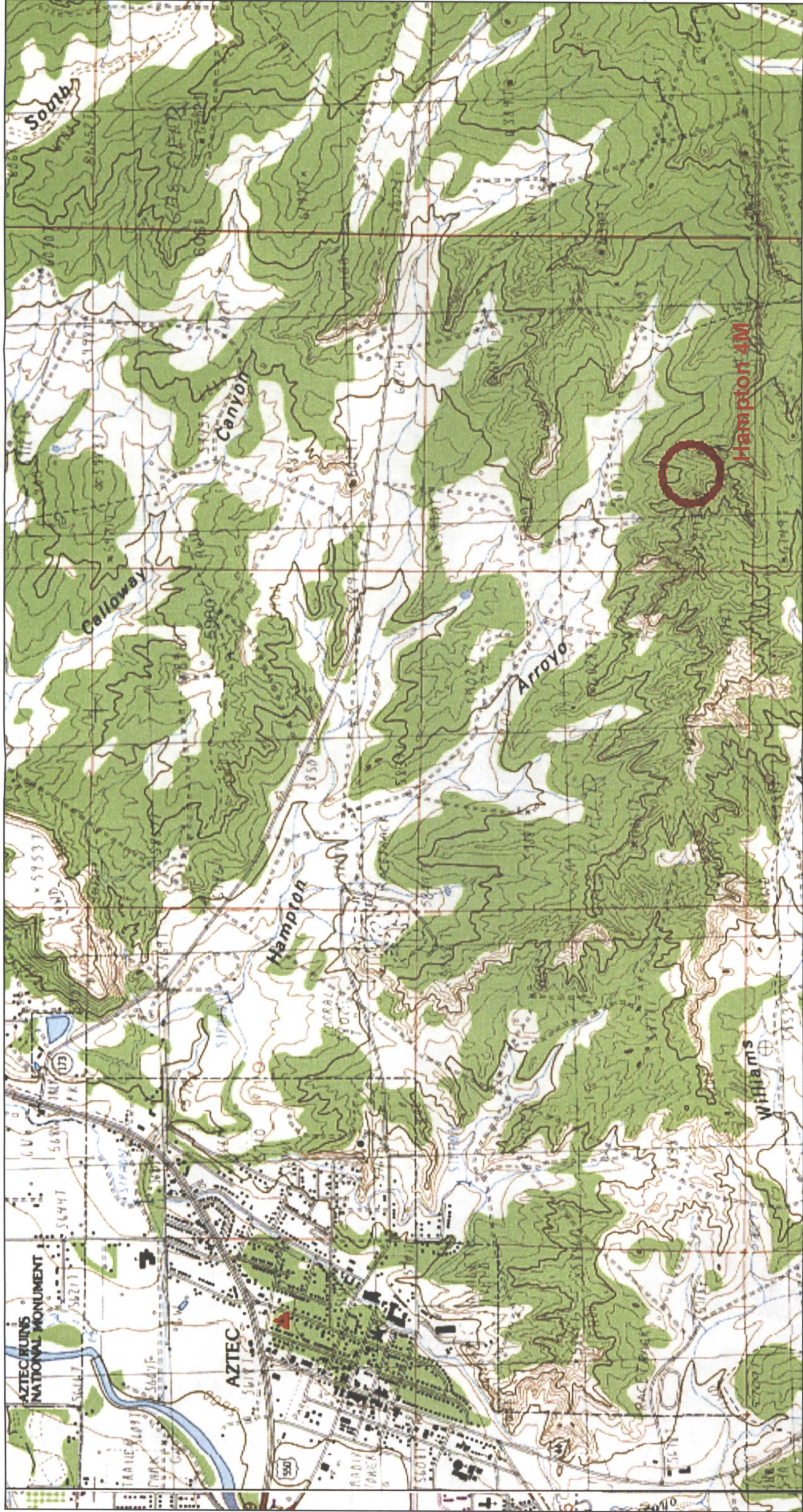
**Table 3** summarizes the laboratory analytical results for the 2009 sampling event. The corresponding laboratory analysis report including quality control summaries is included in **Appendix B**.

## 3.0 CONCLUSIONS

Tetra Tech recommends continued annual groundwater sampling at the Site in order to provide sufficient data for site closure. Site closure will be requested when groundwater quality results begin to 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](mailto:kelly.blanchard@tetratech.com) if you have any questions or require additional information.

## FIGURES





Approximate Scale:



Figure 1. Site Location Map  
ConocoPhillips Hampton 4M Site  
Aztec, New Mexico



TETRA TECH, INC.

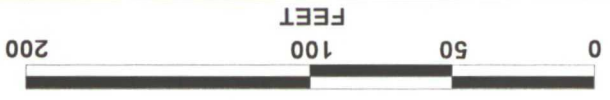


Figure 2. Site Layout Map  
 ConocoPhillips Company  
 Hampton 4M Site  
 Aztec, New Mexico

ConocoPhillips - Spatial Energy 2008 Imagery



- LEGEND**
- Monitoring Well
  - Seep
  - El Paso Gas Pipeline



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Figure 3. Groundwater Contour Map  
 ConocoPhillips Company  
 Hampton 4M Site  
 Aztec, New Mexico

<p><b>LEGEND</b></p> <p>  Monitoring Well   Seep   El Paso Gas Pipeline   Groundwater elevation contour         </p>		
<p> </p>		
<p><b>TETRA TECH, INC.</b></p>		



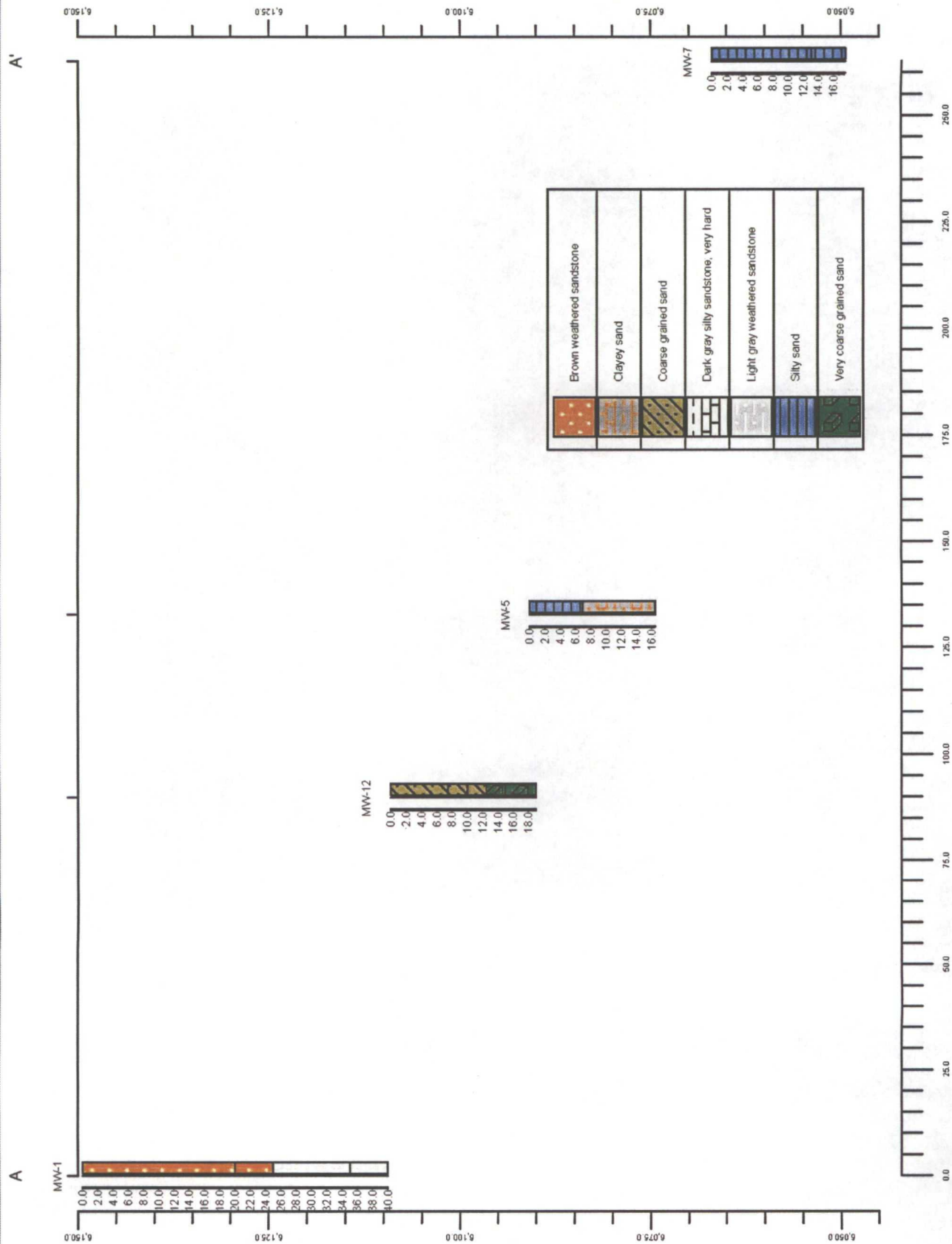


Figure 4. Hampton #4M Cross Section  
San Juan, County, New Mexico



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## TABLES

**Table 1. Hampton No. 4M Site History**

<u>Date</u>	<u>Event</u>
11/22/1983	Hampton No. 4M spudded by Southland Royalty Company (Southland).
3/1/1990	Southland entered into an agreement with Gas Company of New Mexico (predecessor to Public Service Company of New Mexico -- PNM) to sell production from the Hampton 4M well. PNM installed and operated dehydration equipment in the northern-most portion of the site as part of the contract.
6/30/1995	Williams Field Services purchased the dehydration equipment from PNM.
1/2/1996	Burlington Resources completed the acquisition of Southland Royalty Company.
4/23/1996	PNM discovered potential hydrocarbon contamination beneath PNM's dehydrator discharge pit during a site assessment. PNM subsequently began pit closure work.
12/16/1996	PNM discovered hydrocarbon-impacted groundwater while drilling to determine the vertical extent of hydrocarbon contamination beneath a former unlined, earthen dehydrator discharge pit located on the north end of the Hampton 4M well pad,. Total BTEX in groundwater was 20,620 parts per billion (ug/L) and benzene was 3,840 ug/L.
1/13/1997	PNM notified NMOC in writing of the discovery of groundwater contamination at the site.
1/28/1997	PNM gauged Monitor Well MW-2 and discovered approximately 4 feet of LNAPL.
1/31/1997	PNM installed two MWs up-gradient from PNM's former pit. One of the wells, adjacent to Burlington's equipment, encountered contaminated groundwater.
1/31/1997	PNM installed MW-3 and MW.
4/14/1997	During a site visit, Burlington discovered a surface seep north of the well pad with LNAPL discharging to a small drainage area. Burlington notified NMOCD and PNM on the same day.
4/16/1997	Burlington hosted an on-site meeting with PNM and NMOCD to discuss the seep. NMOCD asked for immediate action to contain the seep. The group agreed to install a collection trench.

**Table 1. Hampton No. 4M Site History**

<u>Date</u>	<u>Event</u>
4/17/1997	Burlington constructed a collection trench between the seep and the well head. A sandstone shelf was encountered 6 to 8 feet bgs. Black to grey saturated soil was found above the sandstone. Hydrocarbon vapors were monitored during construction of the trench with a photoionization detector (PID). PID readings were between 1,000 - 2,000 ppm.
4/30/1997	Burlington attempted to excavate the area of the former tank discharge pit. Sandstone was encountered at one foot below the bottom of the pit. The excavator could not penetrate the sandstone. There was no indication of hydrocarbon contamination in this area. Burlington subsequently excavated 9 to 10 test holes in the vicinity of the well pad. No hydrocarbon contaminated areas were found in any of the test holes.
06/05-06/1997	Burlington advanced 7 boreholes around the well pad. Each of the 7 boreholes was subsequently completed as a temporary monitoring well.
8/1/1997	NMOCD issued a letter to PNM and Burlington. PNM was directed to assess contamination downgradient of its pit and Burlington was directed to submit an assessment plan for the portion of the site upgradient of the PNM disposal pit.
Nov-97	PNM installed an LNAPL recovery well system adjacent to PNM's former pit in November 1997 (exact dates unknown).
December 1997 - 2000	Hydrocarbon impacted soil was excavated from December 1997 to 2000 at various locations to the depth of groundwater. Potassium permanganate was applied to the excavations.
Jan-98	PNM initiated LNAPL recovery (exact date unknown).
2/23/1998	Mr. J. Burton Everett, the owner of property downgradient from the site, wrote a letter to the NMOCD, expressing concern over the migration of hydrocarbons onto his property.
3/13/1998	NMOCD sent a letter to PNM directing the removal, within 30 days, of the remaining source areas of LNAPL in the vicinity and immediately downgradient of PNM's former pit.
April/May 1998	LNAPL was discovered upgradient from the dehydration pit and Burlington installed two additional monitoring wells.



Table 1. Hampton No. 4M Site History

<u>Date</u>	<u>Event</u>
10/28/1998	Burlington responded to NMOCD's letter of September 1, 1998. The letter stated that if PNM did not begin remediation of PNM's former pit by October 30, 1998, Burlington would begin remediating the entire site, starting at PNM's former pit and working south to Burlington's former pit.
Nov-98	PNM's LNAPL recovery efforts were terminated (exact date unknown) as a result of Burlington's removal of PNM's system during excavation activities.
4/14/1999	NMOCD sampled a groundwater seep to the northwest of the well pad. The analytical results revealed benzene in excess of NMWQCC groundwater quality standards.
3/24/2000	<p>NMOCD issued Order No. R-11134-A to Burlington and PNM. The Order</p> <ol style="list-style-type: none"> <li>1) denied the application by PNM for rescinding the prior directive,</li> <li>2) declared Burlington the responsible party for any contamination south and upgradient to the PNM disposal pit,</li> <li>3) declared PNM the responsible party for any soil contamination remaining below its former pit,</li> <li>4) directed PNM and Burlington to share responsibility of remediation for any groundwater or soil contamination, other than soil contamination below the former PNM pit, remaining north and downgradient of the property for which Burlington is responsible,</li> <li>5) directed PNM and Burlington to submit remediation plans to NMOCD,</li> <li>6) directed both PNM and Burlington to begin remedial activities within 10 days of NMOCD approval of the plans,</li> <li>7) directed PNM to have oversight and reporting responsibilities for GW remediation in the area north and downgradient of the property for which Burlington is responsible, and</li> <li>8) retained jurisdiction for NMOCD for any further orders as may be necessary.</li> </ol>

**Table 1. Hampton No. 4M Site History**

<u>Date</u>	<u>Event</u>
Second Quarter 2000	Burlington excavated approximately 120 c.y. of hydrocarbon-impacted soil down to groundwater in the vicinity of MW-13 and MW-14 in mid-2000 (exact dates unknown). Both wells were destroyed in the process. The excavation encountered a shale confining layer at the bottom. The excavated soil was landfarmed on a nearby wellpad lease.
Third Quarter 2001	Burlington backfilled the mid-2000 excavation area with clean fill.
3/31/2006	ConocoPhillips Company completed the acquisition of Burlington Resources.
11/8/2007	Tetra Tech conducted quarterly groundwater monitoring activities.
1/17/2008	Tetra Tech conducted quarterly groundwater monitoring activities.
3/19/2008	Tetra Tech conducted quarterly groundwater monitoring activities.
7/22/2008	Tetra Tech conducted quarterly groundwater monitoring activities.
10/23/2008	Tetra Tech conducted quarterly groundwater monitoring activities.
1/29/2009	Tetra Tech conducted quarterly groundwater monitoring activities.
8/6/2009	Tetra Tech submitted the 2008 Annual Report to the NMOCD.
24-Sep-09	Tetra Tech completed annual groundwater monitoring activities.

**Table 2. ConocoPhillips Company Hampton 4M - Groundwater Elevation Summary**

Monitor Well	TOC Elevation (ft AMSL)	Sample Date	Depth to Water (ft)	GW Elevation (ft AMSL)
MW-1	6149.42	11/8/2007	42.81	6106.61
		1/17/2008	42.96	6106.46
		3/19/2008	42.93	6106.49
		7/22/2008	42.74	6106.68
		10/23/2008	32.80	6116.62
		1/21/2009	42.90	6106.52
		9/24/2009	43.09	6106.33
MW-5	6090.83	11/8/2007	16.52	6074.31
		1/17/2008	15.65	6075.18
		3/19/2008	13.64	6077.19
		7/22/2008	15.72	6075.11
		10/23/2008	16.53	6074.30
		1/21/2009	16.04	6074.79
		9/24/2009	16.89	6073.94
TMW-1	No survey - DTW only	11/8/2007	19.06	NA
		1/17/2008	19.37	NA
		3/19/2008	18.55	NA
		7/22/2008	18.10	NA
		10/23/2008	19.19	NA
		1/21/2009	19.25	NA
		9/24/2009	19.61	NA
MW-7	6066.91	11/8/2007	20.22	6046.69
		1/17/2008	20.50	6046.41
		3/19/2008	20.02	6046.89
		7/22/2008	19.29	6047.62
		10/23/2008	19.95	6046.96
		1/21/2009	20.44	6046.47
		9/24/2009	20.55	6046.36
MW-9	6122.52	11/8/2007	22.91	6099.61
		1/17/2008	22.76	6099.76
		3/19/2008	22.38	6100.14
		7/22/2008	23.10	6099.42
		10/23/2008	23.02	6099.50
		1/21/2009	22.85	6099.67
		9/24/2009	23.64	6098.88



**Table 2. ConocoPhillips Company Hampton 4M - Groundwater Elevation Summary**

Monitor Well	TOC Elevation (ft AMSL)	Sample Date	Depth to Water (ft)	GW Elevation (ft AMSL)
MW-11	6015.75	11/8/2007	56.00	5959.75
		1/17/2008	55.86	5959.89
		3/19/2008	55.88	5959.87
		7/22/2008	55.71	5960.04
		10/23/2008	55.91	5959.84
		1/21/2009	55.75	5960.00
		9/24/2009	56.02	5959.73
MW-12	6109.02	11/8/2007	20.46	6088.56
		1/17/2008	20.24	6088.78
		3/19/2008	19.85	6089.17
		7/22/2008	20.54	6088.48
		10/23/2008	20.61	6088.41
		1/21/2009	20.37	6088.65
		9/24/2009	21.23	6087.79
MW-15	No survey - DTW only	11/8/2007	18.03	NA
		1/17/2008	18.20	NA
		3/19/2008	17.60	NA
		7/22/2008	17.79	NA
		10/23/2008	18.01	NA
		1/21/2009	18.20	NA
		9/24/2009	18.33	NA
MW-16	No survey - DTW only	11/8/2007	25.03	NA
		1/17/2008	24.88	NA
		3/19/2008	24.37	NA
		7/22/2008	25.00	NA
		10/23/2008	25.57	NA
		1/21/2009	24.97	NA
		9/24/2009	25.75	NA

**Explanation**

ft = feet

AMSL = Above mean sea level

DTW = Depth to water

NA = Not available

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-1	10/30/1997	2.4	2.3	<0.2	1.1
	1/12/1998	4.3	3.3	0.2	1.0
	4/14/1998	1.0	1.3	<0.5	<0.5
	7/1/1998	1.3	1.0	<0.5	3.7
	10/5/1998	<1.0	<1.0	<1.0	<3.0
	11/9/1998	No sample collected			
	1/27/1999	0.8	0.9	<0.5	<1.5
	5/5/1999	No sample collected			
	7/12/1999	1.1	0.5	<0.5	<0.5
	8/17/1999	No sample collected			
	10/21/1999	No sample collected			
	1/27/2000	No sample collected			
	6/13/2000	No sample collected			
	6/26/2001	No sample collected			
	9/18/2001	No sample collected			
	12/18/2002	No sample collected			
	3/22/2002	No sample collected			
	9/24/2003	0.9J	1	U	0.4J
	12/15/2003	1.1	0.9J	U	U
	3/15/2004	U	U	U	U
	6/21/2004	U	U	U	U
	9/29/2004	U	U	U	U
	12/31/2004	U	0.9J	U	3.3J
	3/22/2005	U	0.3J	U	U
	6/23/2005	Missing Lab Data			
	10/24/2005	U	U	U	U
	12/12/2005	U	0.7J	U	0.6J
	3/20/2006	1.1	0.9J	U	0.6J
	6/21/2006	0.3J	1.4	0.4J	1.8J
	10/18/2006	U	0.2	0.2	1.3
	12/12/2006	U	0.2	0.2	1.4
	3/26/2007	<0.3 U	0.3 J	0.2 J	0.4 J
	6/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	11/8/2007	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	1/15/2008	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	10/23/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	<1.0U	<1.0U	<1.0U	<1.0U

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-5	10/29/1997	5934	10024	709	8188
	1/12/1998	7521	11213	779	8436
	4/14/1998	7000	11000	720	7800
	7/1/1998	6500	10000	780	7500
	10/5/1998	6800	8400	740	6900
	11/9/1998	6200	8200	670	6500
	1/27/1999	6400	8900	660	6700
	5/5/1999	6800	9800	900	7800
	5/26/1999	6600	10000	650	8100
	7/12/1999	6300	10000	750	8800
	8/17/1999	5400	9800	670	7500
	8/17/1999	5900	8900	500	6200
	10/21/1999	5200	9600	650	6900
	1/27/2000	4700	10000	680	7400
	6/13/2000	8400	19000	1700	22000
	3/29/2001	3890	9600	640	7730
	6/26/2001	3800	11000	700	9000
	9/18/2001	4100	11000	760	10000
	12/18/2001	3200	9700	600	7800
	3/22/2002	3500	10000	830	8500
	6/28/2002	3700	12000	760	10000
	9/23/2002	3000	9800	640	8300
	12/31/2002	2900	8900	580	7300
	3/27/2003	1220	4870	487	6010
	6/27/2003	2040	8550	640	8050
	9/24/2003	2110	9090	700	9200
	12/15/2003	2150	9240	720	8810
	3/15/2005	1370	8100	660	8710
	6/21/2004	1610	8740	640	8220
	9/29/2004	1710	7250	670	8090
	12/31/2004	1820	9150	730	9030
	3/22/2005	420	1420	110	1160
	6/23/2005	Missing Lab Data			
	10/24/2005	1070	6660	610	7620
	12/12/2005	900	5930	520	6280
	3/20/2006	820	6270	510	6040
	6/21/2006	930	6110	580	6690
	10/18/2006	690	5140	500	5870
	12/18/2006	640	5090	500	5610
	3/26/2007	660	6470	530	5450
	6/26/2007	740	8070	640	7320
	11/8/2007	410	4800	390	5000
	1/17/2008	440	6400	510	6100
	3/19/2008	370	2900	240	2570
	7/22/2008	340	6100	550	6400
	10/23/2008	270	6200	440	6300
	1/21/2009	250	3800	510	5200
	9/24/2009	190	4300	470	5100



**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-7	1/12/1998	780	246	258	3942
	4/14/1998	820	340	190	2450
	7/1/1998	950	440	200	3020
	10/5/1998	1600	930	180	1530
	11/9/1998	1800	1000	160	1240
	1/27/1999	2100	1000	160	1050
	5/5/1999	210	3	30	147
	5/26/1999	190	7	32	150
	7/12/1999	130	7	22	101
	8/17/1999	No sample collected			
	10/21/1999	260	11	15	89
	1/27/2000	670	580	54	680
	6/17/2000	420	1100	75	1400
	3/29/2001	830	150	320	1790
	6/26/2001	540	330	250	1410
	9/18/2001	870	560	320	2020
	12/18/2001	400	30	160	885
	3/22/2002	180	U	78	260
	6/28/2002	89	1	41	79
	9/23/2002	80	3	31	18.89
	12/31/2002	160	2.2	74	31.5
	3/27/2003	195	0.4	44.2	109
	6/27/2003	300	1.4 J	117	461.6
	9/24/2003	90	12	2	694
	12/15/2004	150	4J	115	549
	3/15/2004	56	1J	6	3
	6/21/2004	180	U	55	58J
	9/29/2004	163	0.9J	54.5	69.8
	12/31/2004	94	3J	10	24J
	3/22/2005	20.8	U	2.4	4.8
	6/23/2005	Missing Lab Data			
	10/24/2005	65.2	0.7J	2	2.7J
	12/12/2005	66.2	1J	8.7	8.5J
	3/20/2006	72	U	12.6	16.9
	6/21/2006	89.9	10.6	4.8	14.5
	10/18/2006	31.9	0.4J	1.8	4.1
	12/12/2006	29.4	1.5	3.1	5.7
	3/26/2007	11.5	1.0	0.6 J	0.8 J
	6/26/2007	56	0.4 J	17.7	1.3
	11/8/2007	44	<0.7 U	2.0	<0.8 U
	1/17/2008	17	<0.7 U	3.0	<0.8 U
	3/19/2008	5	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	32	<5.0 U	12.0	7
	10/23/2008	17	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	3.7	<1.0U	<1.0U	<1.0U

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-9	7/1/1998	12.0	<1.0	<1.0	<3.0
	10/5/1998	0.8	<0.5	<0.5	2.2
	11/9/1998	73.0	<0.5	2.2	1.6
	1/27/1999	120.0	<0.5	2.5	1.8
	5/5/1999	120.0	<0.5	1.6	0.8
	5/26/1999	140.0	<0.5	1.5	<0.5
	5/26/1999	290.0	<0.5	0.6	<1.5
	7/12/1999	320.0	<0.5	0.6	<1.5
	8/17/1999	130.0	U	U	U
	10/21/1999	<0.5	1.9	<0.5	2.5
	1/27/2000	<0.2	<0.2	<0.2	<0.2
	6/13/2000	<0.5	<0.5	<0.5	<1.0
	3/29/2001	<0.5	<0.5	<0.5	<1.0
	6/26/2001	<0.5	<0.5	<0.5	<1.0
	9/18/2001	U	U	U	U
	12/18/2001	U	U	U	U
	3/22/2002	U	U	U	U
	6/28/2002	U	U	U	U
	9/23/2002	0.4 J	U	U	U
	3/27/2003	U	U	U	U
	6/27/2003	0.5J	U	U	U
	9/24/2003	U	U	U	U
	12/15/2003	U	U	U	U
	3/15/2004	U	U	U	U
	6/21/2004	U	0.4J	U	0.7J
	9/29/2004	U	U	U	U
	12/31/2004	Missing Lab Data			
	3/22/2005	U	U	U	U
	6/23/2005	U	0.3J	U	U
	12/12/2005	No sample collected			
	3/20/2006	U	U	U	U
	6/21/2006	U	U	U	U
	10/18/2006	U	U	U	0.3J
	12/12/2006	0.3J	0.7J	0.3J	1.2J
	3/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	6/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	11/8/2007	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	1/17/2008	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	10/23/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	<1.0U	<1.0U	<1.0U	<1.0U

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory  
Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-11	1/27/1999	<0.5	2.5	0.7	13.1
	5/5/1999	<0.5	<0.5	<0.5	<1.5
	5/26/1999	0.8	1.7	<0.5	1.1
	7/12/1999	No sample collected			
	8/17/1999	No sample collected			
	10/21/1999	<0.5	<0.5	<0.5	<1.5
	1/27/2000	<0.5	<0.5	<0.5	<0.5
	6/13/2000	<0.5	<0.5	<0.5	0.9
	3/29/2001	<0.2	<0.2	<0.2	<0.2
	6/26/2001	<0.5	<0.5	<0.5	<1.0
	9/18/2001	<0.5	<0.5	<0.5	<1.0
	12/18/2001	<0.5	<0.5	<0.5	<1.0
	12/19/2001	U	U	U	U
	12/20/2001	U	U	U	U
	12/21/2001	U	U	U	U
	12/22/2001	U	U	U	U
	5/24/2003	U	U	U	U
	6/27/2003	0.4J	0.3J	U	0.4J
	9/24/2003	U	U	U	U
	12/15/2003	0.5J	U	U	U
	3/15/2004	U	U	U	U
	6/21/04	U	U	U	0.5J
	9/29/2004	U	U	U	U
	12/31/2004	U	U	U	U
	3/22/2005	U	U	U	U
	6/23/2005	Missing Lab Data			
	10/24/2005	U	U	U	U
	12/12/2005	U	0.3J	U	U
	3/20/2006	U	U	U	U
	6/21/2006	U	0.3J	U	0.8J
	10/18/2006	U	0.3J	0.4J	1.2J
	12/12/2006	U	U	U	0.3J
	3/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	6/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	11/8/2007	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	1/17/2008	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	10/23/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	<1.0U	<1.0U	<1.0U	<1.0U

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-12	5/5/1999	790	840	260	2880
	5/5/1999	1200	13000	5100	68000
	5/26/1999	1900	820	200	1720
	5/26/1999	1800	640	160	1600
	7/12/1999	4500	760	400	3100
	7/12/1999	4600	730	390	3080
	8/17/1999	4800	5000	320	3390
	8/17/1999	5900	6100	390	4100
	10/21/1999	5600	650	540	2890
	1/27/2000	4100	550	430	2379
	6/13/2000	5000	1300	490	2700
	3/29/2001	5170	1790	366	2620
	6/26/2001	4800	1900	390	2560
	9/18/2001	5100	2400	430	2820
	12/18/2001	4000	1500	320	1880
	3/22/2002	3300	930	290	1270
	6/28/2002	4200	1800	410	1940
	9/23/2002	3800	1500	310	1510
	12/31/2002	3600	840	280	1010
	3/27/2003	Well dry - No samples collected			
	5/24/2003	3990	2230	299	1470
	6/27/2003	5290	2750	360	1600
	9/24/2003	4600	1690	290	1150
	12/15/2003	4200	1360	240	1150
	3/15/2004	2090	1120	300	1250
	6/21/2004	3870	1820	280	1500
	6/29/2004	5140	2220	240	1280
	12/31/2004	4160	1220	250	1150
	3/22/2005	2380	1100	130	710
	6/23/2005	Missing Lab Data			
	10/24/2005	1350	150	80	330
	12/16/2005	2380	422	111	341
	3/20/2006	2100	210	71	225
	6/21/2006	2270	385	85	355
	10/18/2006	1740	477	112	399
	12/12/2006	2400	1110	142	668
	3/26/2007	4130	1680	340	1180
	6/26/2007	1520	432	118	340
	11/8/2007	780	310	43	170
	1/17/2008	2000	1400	180	790
	3/19/2008	1600	560	160	530
	7/22/2008	730	22	14	21
	10/23/2008	500	30	22	40
	1/21/2009	1100	430	110	410
	9/24/2009	610	8.3	10	19.5

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-15	10/21/1999	<0.5	1.2	<0.5	1.5
	1/27/2000	<0.5	<0.5	<0.5	<0.5
	6/13/2000	<0.5	<0.5	<0.5	<0.5
	3/29/2001	<0.2	<0.2	<0.2	<0.2
	6/26/2001	<0.5	<0.5	<0.5	<0.5
	9/18/2001	<0.5	<0.5	<0.5	<0.5
	12/18/2001	<0.5	<0.5	<0.5	<0.5
	3/22/2002	U	U	U	U
	6/28/2002	U	U	U	U
	9/23/2002	U	U	U	U
	12/31/2002	U	U	U	U
	3/27/2003	U	0.3J	U	0.9J
	6/27/2003	0.4J	U	U	U
	9/24/2003	U	U	U	U
	12/15/2004	0.7J	U	U	U
	3/15/2004	U	0.3J	U	U
	6/21/2004	U	U	U	U
	9/29/2004	U	U	U	U
	12/31/2004	U	0.9J	0.3J	1.4J
	3/22/2005	U	U	U	U
	6/23/2005	Missing Lab Data			
	10/24/2005	U	U	U	U
	12/12/2005	U	0.3J	U	0.4J
	3/20/2006	U	U	U	U
	6/21/2006	0.7J	U	0.3J	U
	10/18/2006	U	0.3J	U	0.2J
	12/12/2006	U	U	U	U
	3/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	6/26/2007	<0.3 U	0.5 J	<0.2 U	<0.6 U
	11/8/2007	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	1/17/2008	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	10/23/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	<1.0U	<1.0U	<1.0U	<1.0U



**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
MW-16	10/21/1999	220	300	5	142
	10/21/1999	214	268	4	151
	1/27/2000	1600	170	56	225
	6/13/2000	8700	430	680	2200
	6/26/2001	9300	1100	810	3410
	9/18/2001	11000	6400	590	6400
	12/18/2001	9900	6900	570	7400
	3/22/2003	10000	6600	1100	7400
	6/28/2002	11000	7000	770	5700
	9/23/2002	8900	9900	610	8500
	12/31/2002	8800	7900	770	7400
	3/27/2003	10400	11200	840	8670
	5/27/2003	No sample collected			
	9/24/2003	10300	15400	870	10590
	12/15/2004	9640	12600	720	1550
	3/15/2004	9200	16000	1310	12000
	6/21/2004	8040	18100	2450	18580
	9/29/2004	8330	14000	760	8230
	12/31/2004	8340	17100	1550	18830
	3/28/2005	4140	5810	760	10480
	6/23/2005	Missing Lab Data			
	10/24/2005	6280	9800	670	6910
	12/12/2005	6940	11500	750	8060
	3/20/2006	6820	11500	830	8550
	6/21/2006	6640	11200	690	7570
	10/18/2006	5700	10200	620	6520
	12/12/2006	4600	10000	550	6830
	3/26/2007	2970	2820	260	5220
	6/26/2007	5230	9110	770	7760
	11/8/2007	5500	12000	570	6200
	1/17/2008	4600	9100	550	5600
	3/19/2008	5500	9600	510	6900
	7/22/2008	3600	6100	430	4500
	10/23/2008	4700	9100	480	6600
	1/21/2009	4200	7500	480 J	6900
	9/24/2009	3200	4600	340	3500

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
TMW-1	1/27/2000	930	1400	350	6700
	6/13/2000	2400	3400	550	9100
	6/26/2001	1100	3500	330	5500
	9/18/2001	No sample collected			
	12/18/2001	No sample collected			
	3/22/2002	No sample collected			
	6/28/2002	No sample collected			
	9/23/2002	No sample collected			
	12/31/2002	No sample collected			
	3/27/2003	No sample collected			
	5/23/2003	830	123	107	1004.7
	6/27/2003	474	36.6	59.6	490.7
	9/24/2003	292	139	17	221
	12/15/2003	55.9	1.3	3.9	42.5
	3/15/2004	No sample collected			
	6/21/2004	40.6	U	14.1	14.7
	9/29/2004	410	8.7	59.6	458.5
	12/31/2004	3J	5J	1J	11J
	3/22/2005	67.8	13.3	8.1	101.7
	6/23/2005	Missing Lab Data			
	10/24/2005	483	705	45	328
	12/12/2005	122	317	19	160
	3/20/2006	71	82	16	151
	6/21/2006	159	65.7	56.9	360
	10/18/2006	6.4	1.6	2.1	13.8
	12/12/2006	No sample collected			
	3/26/2007	NA	NA	NA	NA
	6/26/2007	269	2.6	4.9	15.7
	11/8/2007	300	12	6	38
	1/17/2008	0.8	<0.7 U	<0.8 U	1
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	130	29	11	22
	10/23/2008	NA	NA	NA	NA
	1/21/2009	13	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	NS	NS	NS	NS

**Table 3. ConocoPhillips Company Hampton 4M - Groundwater Laboratory Analytical Results Summary**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(µg/L)			
Seep	7/1/1998	1.6	0.7	0.6	0.36
	4/14/1999	40.0	2.2	2.1	19
	10/21/1999	65.0	230	11.0	434
	3/29/2001	11.6	<0.2	0.7J	25
	6/26/2001	<0.5	<0.5	<0.5	<1.0
	9/18/2001	<0.5	<0.5	<0.5	<1.0
	12/18/2001	<0.5	<0.5	<0.5	<1.0
	3/22/2002	5.9	U	0.8	3.4
	6/28/2002	U	U	U	U
	9/23/2002	U	U	U	U
	12/31/2002	0.7	U	U	U
	3/27/2003	6.3	0.2J	1.8	10
	9/24/2003	U	0.3J	U	U
	12/15/2003	0.4J	0.3J	U	U
	3/15/2004	U	U	U	U
	6/21/2004	U	U	U	U
	9/29/2004	U	U	U	U
	12/31/2004	U	0.2J	U	0.4J
	3/28/2005	U	U	U	U
	6/23/2005	Missing Lab Data			
	10/24/2005	U	J	U	U
	12/12/2005	U	0.5J	0.3J	0.9J
	3/20/2006	U	U	U	U
	6/21/2006	4	12.9	0.8J	15
	10/18/2006	U	0.5J	0.3J	1.4J
	12/12/2006	U	U	U	U
	3/26/2007	<0.3 U	0.3 J	<0.2 U	<0.6 UJ
	6/26/2007	<0.3 U	<0.2 U	<0.2 U	<0.6 U
	11/8/2007	<0.5 U	<0.7 U	<0.8 U	<0.8 U
	1/17/2008	NA	NA	NA	NA
	3/19/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	7/22/2008	NA	NA	NA	NA
	10/23/2008	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	1/21/2009	<5.0 U	<5.0 U	<5.0 U	<5.0 U
	9/24/2009	<1.0U	<1.0U	<1.0U	<1.0U
NMWQCC Standards		10 (µg/L)	750 (µg/L)	750 (µg/L)	620 (µg/L)

**Explanation**

J = Analyte concentration detected at a value between MDL and PQL

MDL = Method Detection Limit

NA = Not Analyzed

NS = Not Sampled

NMWQCC = New Mexico Water Quality Control Commission

PQL = Practical Quantitation Limit

U = Analyte was analyzed for but not detected at the indicated MDL

µg/L = micrograms per liter (parts per billion)

**APPENDIX A**  
**FIELD SAMPLING FORMS**



TETRA TECH, INC.

## WATER SAMPLING FIELD FORM

Project Name Hampton 4MPage 1 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-1Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather Cool, lt. breezeTime Sampling  
Began 1018Time Sampling  
Completed \_\_\_\_\_

## EVACUATION DATA

Description of Measuring Point (MP) Top of CasingHeight of MP Above/Below Land Surface 43.09

MP Elevation \_\_\_\_\_

Total Sounded Depth of Well Below MP 49.54 49.47

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 43.09Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 6.38Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well 1.02 x 3 = 3.06  
gallonsSampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>12:27</u>	<u>12.81</u>	<u>4.06</u>	<u>3162</u>	<u>2.055</u>	<u>3.77</u>	<u>35.8</u>

TURB  
156.1Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HCl

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 2 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-5Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather not, 75°Time Sampling  
Began 1455Time Sampling  
Completed 1500breezy

## EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface \_\_\_\_\_

MP Elevation \_\_\_\_\_

Total Sounded Depth of Well Below MP 20.19

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 16.89Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 3.3Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well 0.52 x 3 = 1.56Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>1459</u>	<u>16.50</u>	<u>6.67</u>	<u>4358</u>	<u>2.835</u>	<u>3.88</u>	<u>-294.8</u>

Turb  
63.48Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HClRemarks reduced bio odor, water is gray, light sheen

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 3 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-7 Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather \_\_\_\_\_ Time Sampling  
Began \_\_\_\_\_Time Sampling  
Completed 1505

## 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 59 21.2 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 20.55 Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well \_\_\_\_\_ Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well \_\_\_\_\_ Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)

Sampling Equipment Purge Pump/BailerConstituents Sampled Container Description PreservativeBTEX 3 40mL VOA's HCl

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 4 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-9 Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather 70°, breezy Time Sampling  
Began 1105Time Sampling  
Completed 1120

## 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 34.55 → 32.35 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 23.61 Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 8.71 Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well 1.39 x 3 = 4.17 Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>1110</u>	<u>14.89</u>	<u>5.59</u>	<u>3945</u>	<u>2.564</u>	<u>5.93</u>	<u>197.5</u>
<u>1114</u>	<u>14.50</u>	<u>5.88</u>	<u>3974</u>	<u>2.583</u>	<u>2.40</u>	<u>155.6</u>
<u>1118</u>	<u>14.57</u>	<u>5.94</u>	<u>3973</u>	<u>2.580</u>	<u>2.12</u>	<u>152.9</u>

Turb  
181.0  
108.7

Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HClRemarks well head is venting

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 5 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-11 Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather Cool, Sunny Time Sampling  
Began 1159Time Sampling  
Completed 1250

## 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 68.5 168.77 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 56.02 Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 12.7 Gallons Pumped/Bailed  
Prior to Sampling 6.09Gallons per Foot 0.16Gallons in Well 2.03 x 3 = 6.09 Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>1209</u>	<u>14.13</u>	<u>6.15</u>	<u>2884</u>	<u>1.875</u>	<u>3.21</u>	<u>57.7</u>
<u>1227</u>	<u>14.12</u>	<u>6.28</u>	<u>2888</u>	<u>1.877</u>	<u>2.35</u>	<u>24.1</u>
<u>1243</u>	<u>14.18</u>	<u>6.28</u>	<u>2880</u>	<u>1.872</u>	<u>3.11</u>	<u>16.5</u>

hrs  
103.1  
44.82  
26.56

Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HClRemarks Reddish water, clearing @ 3 volumesSampling Personnel GD, AM

## 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 Hampton 4MPage 6 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-12Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather 75°, breezyTime Sampling  
Began 1523/5/8Time Sampling  
Completed \_\_\_\_\_

## 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 30.19

Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP 21.23Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 8.96

Gallons Pumped/Bailed

Prior to Sampling \_\_\_\_\_

Gallons per Foot 0.16Gallons in Well 143 x 3 = 4.29Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	
<u>1520</u>	<u>14.68</u>	<u>5.9</u>	<u>3433</u>	<u>223</u>	<u>3.34</u>	<u>-241.6</u>	<u>46.23</u>
<u>1526</u>	<u>14.31</u>	<u>6.01</u>	<u>3482</u>	<u>2.266</u>	<u>2.06</u>	<u>-232.6</u>	<u>48.34</u>
<u>1528</u>	<u>14.26</u>	<u>6.07</u>	<u>3479</u>	<u>2.262</u>	<u>2.28</u>	<u>-240.8</u>	<u>39.59</u>

Sampling Equipment Purge Pump/Bailer

Constituents Sampled

Container Description

Preservative

BTEX 3 40mL VOA's HCl

Remarks \_\_\_\_\_

Sampling Personnel GD, AM

## 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

R:\Share\Maxim Forms\Field Forms\Hampton 4M Water Sampling Field Forms.xls



TETRA TECH, INC.

## WATER SAMPLING FIELD FORM

Project Name Hampton 4MPage 7 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-15Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather Warm, 70°Time Sampling  
Began 1040Time Sampling  
Completed 1055

## 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 27.29 24.84 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 18.33 Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well 6.51 Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well 1.04 x 3 = 3.12 Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

	Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)	
1.5	10.47	15.73	3.84	3619	2.352	3.03	387.4	33.75
2.5	10.51	15.86	3.86	3616	2.216	2.77	383.4	77.43

Sampling Equipment Purge Pump/Bailer

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

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 8 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. MW-16Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather Cool, SunnyTime Sampling  
Began 1158 1520Time Sampling  
Completed 1545

## EVACUATION DATA

DIP @ 1600

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface \_\_\_\_\_ MP Elevation \_\_\_\_\_

Total Sounded Depth of Well Below MP 31.0 29.72 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 25.75 Diameter of Casing 4"Wet \_\_\_\_\_ Water Column in Well 3.97 Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.10 0.65Gallons in Well 2.58 x 3 = 7.74 Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm³)	TDS (g/L)	DO (mg/L)	ORP (mV)
<u>1537</u>	<u>14.52</u>	<u>6.54</u>	<u>3307</u>	<u>2.151</u>	<u>5.98</u>	<u>-302.7</u>

Turbidity  
94.21Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HClRemarks DRY @ 4 gallons

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 9 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. TMW-1 Coded/  
Replicate No. \_\_\_\_\_

Date \_\_\_\_\_

Weather \_\_\_\_\_ Time Sampling  
Began \_\_\_\_\_Time Sampling  
Completed \_\_\_\_\_

## 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 19.4 19.61 Water-Level Elevation \_\_\_\_\_Held \_\_\_\_\_ Depth to Water Below MP 19.61 Diameter of Casing 2"Wet \_\_\_\_\_ Water Column in Well \_\_\_\_\_ Gallons Pumped/Bailed  
Prior to Sampling \_\_\_\_\_Gallons per Foot 0.16Gallons in Well \_\_\_\_\_ Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity ( $\mu\text{S}/\text{cm}^3$ )	TDS (g/L)	DO (mg/L)	ORP (mV)

Sampling Equipment Purge Pump/BailerConstituents Sampled Container Description PreservativeBTEX 3 40mL VOA's HCl

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

## 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 Hampton 4MPage 10 of 10

Project No. \_\_\_\_\_

Site Location San Juan County, Hwy 173 near Aztec, NMSite/Well No. seep Coded/  
Replicate No. \_\_\_\_\_Date 9/24/09Weather \_\_\_\_\_ Time Sampling  
Began \_\_\_\_\_Time Sampling  
Completed 1500

## 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 \_\_\_\_\_ Water-Level Elevation \_\_\_\_\_

Held \_\_\_\_\_ Depth to Water Below MP \_\_\_\_\_ Diameter of Casing \_\_\_\_\_

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

Gallons per Foot \_\_\_\_\_

Gallons in Well \_\_\_\_\_ Sampling Pump Intake Setting  
(feet below land surface) \_\_\_\_\_Purging Equipment Purge pump / Bailer

## SAMPLING DATA/FIELD PARAMETERS

Time	Temperature (°C)	pH	Conductivity (µS/cm <sup>3</sup> )	TDS (g/L)	DO (mg/L)	ORP (mV)

Sampling Equipment Purge Pump/Bailer

## Constituents Sampled

## Container Description

## Preservative

BTEX 3 40mL VOA's HCl

Remarks \_\_\_\_\_

Sampling Personnel \_\_\_\_\_

## Well Casing Volumes

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

**APPENDIX B**  
**LABORATORY ANALYSIS REPORT**



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

Conoco Phillips

Certificate of Analysis Number:

**09091280**

<b><u>Report To:</u></b>  Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440      fax:	<b><u>Project Name:</u></b> COP Hampton 4M <b><u>Site:</u></b> Aztec, NM <b><u>Site Address:</u></b>  <b><u>PO Number:</u></b> 4510016693 <b><u>State:</u></b> New Mexico <b><u>State Cert. No.:</u></b> <b><u>Date Reported:</u></b> 10/6/2009
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This Report Contains A Total Of 22 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

10/7/2009

Date



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

Case Narrative for:  
**Conoco Phillips**

Certificate of Analysis Number:  
**09091280**

<b>Report To:</b>  Tetra Tech, Inc. Kelly Blanchard 6121 Indian School Road, N.E. Suite 200 Albuquerque NM 87110- ph: (505) 237-8440      fax:	<b>Project Name:</b> COP Hampton 4M <b>Site:</b> Aztec, NM <b>Site Address:</b>  <b>PO Number:</b> 4510016693 <b>State:</b> New Mexico <b>State Cert. No.:</b> <b>Date Reported:</b> 10/6/2009
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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.

Sample "Seep" was received at lab with 2 of the 3 vials broken. Only one vial remains. Samples "MW-16 and MW-7" were received at lab with 1 of the three vials broken. Only two vials remain per sample.

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 his designee, as verified by the following signature.

09091280 Page 1

10/7/2009

Erica Cardenas  
Project Manager

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

Date



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

Conoco Phillips

Certificate of Analysis Number:

**09091280**

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

**Project Name:** COP Hampton 4M

**Site:** Aztec, NM

**Site Address:**

**PO Number:** 4510016693

**State:** New Mexico

**State Cert. No.:**

**Date Reported:** 10/6/2009

**Fax To:**

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1	09091280-01	Water	9/24/2009 11:45:00 AM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-5	09091280-02	Water	9/24/2009 3:00:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-7	09091280-03	Water	9/24/2009 3:05:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-9	09091280-04	Water	9/24/2009 11:20:00 AM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-11	09091280-05	Water	9/24/2009 12:50:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-12	09091280-06	Water	9/24/2009 3:30:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-15	09091280-07	Water	9/24/2009 10:55:00 AM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
MW-16	09091280-08	Water	9/24/2009 3:45:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
Seep	09091280-09	Water	9/24/2009 3:00:00 PM	9/26/2009 9:30:00 AM	331790	<input type="checkbox"/>
Duplicate	09091280-10	Water	9/24/2009 4:00:00 PM	9/26/2009 9:30:00 AM	331796	<input type="checkbox"/>
Trip Blank	09091280-11	Water	9/24/2009 4:05:00 PM	9/26/2009 9:30:00 AM	331796	<input type="checkbox"/>

*Erica Cardenas*

10/7/2009

Erica Cardenas  
Project Manager

Date

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

Ted Yen  
Quality Assurance Officer



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

Client Sample ID: MW-1

Collected: 09/24/2009 11:45

SPL Sample ID: 09091280-01

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	09/29/09 19:25	LU_L	5224256
Ethylbenzene	ND		1	1	09/29/09 19:25	LU_L	5224256
Toluene	ND		1	1	09/29/09 19:25	LU_L	5224256
m,p-Xylene	ND		2	1	09/29/09 19:25	LU_L	5224256
o-Xylene	ND		1	1	09/29/09 19:25	LU_L	5224256
Xylenes, Total	ND		1	1	09/29/09 19:25	LU_L	5224256
Surr: 1,2-Dichloroethane-d4	98.7		% 78-116	1	09/29/09 19:25	LU_L	5224256
Surr: 4-Bromofluorobenzene	100		% 74-125	1	09/29/09 19:25	LU_L	5224256
Surr: Toluene-d8	96.0		% 82-118	1	09/29/09 19:25	LU_L	5224256

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference





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

Client Sample ID: MW-5

Collected: 09/24/2009 15:00

SPL Sample ID: 09091280-02

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>			<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>		
Benzene	190		1	1	09/29/09 22:07	LU_L	5224259
Ethylbenzene	470		100	100	10/02/09 22:06	LU_L	5229674
Toluene	4300		100	100	10/02/09 22:06	LU_L	5229674
m,p-Xylene	3900		200	100	10/02/09 22:06	LU_L	5229674
o-Xylene	1200		100	100	10/02/09 22:06	LU_L	5229674
Xylenes, Total	5100		100	100	10/02/09 22:06	LU_L	5229674
Surr: 1,2-Dichloroethane-d4	93.8		% 78-116	100	10/02/09 22:06	LU_L	5229674
Surr: 1,2-Dichloroethane-d4	88.9		% 78-116	1	09/29/09 22:07	LU_L	5224259
Surr: 4-Bromofluorobenzene	102		% 74-125	100	10/02/09 22:06	LU_L	5229674
Surr: 4-Bromofluorobenzene	98.9		% 74-125	1	09/29/09 22:07	LU_L	5224259
Surr: Toluene-d8	95.6		% 82-118	100	10/02/09 22:06	LU_L	5229674
Surr: Toluene-d8	97.4		% 82-118	1	09/29/09 22:07	LU_L	5224259

**Qualifiers:**  
ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference



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

Client Sample ID: MW-7

Collected: 09/24/2009 15:05

SPL Sample ID: 09091280-03

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>			<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>		
Benzene	3.7		1	1	10/02/09 5:14	LU_L	5229610
Ethylbenzene	ND		1	1	10/02/09 5:14	LU_L	5229610
Toluene	ND		1	1	10/02/09 5:14	LU_L	5229610
m,p-Xylene	ND		2	1	10/02/09 5:14	LU_L	5229610
o-Xylene	ND		1	1	10/02/09 5:14	LU_L	5229610
Xylenes, Total	ND		1	1	10/02/09 5:14	LU_L	5229610
Surr: 1,2-Dichloroethane-d4	105		% 78-116	1	10/02/09 5:14	LU_L	5229610
Surr: 4-Bromofluorobenzene	99.8		% 74-125	1	10/02/09 5:14	LU_L	5229610
Surr: Toluene-d8	95.9		% 82-118	1	10/02/09 5:14	LU_L	5229610

**Qualifiers:**  
ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
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Client Sample ID: MW-9

Collected: 09/24/2009 11:20

SPL Sample ID: 09091280-04

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	10/02/09 5:41	LU_L	5229611
Ethylbenzene	ND		1	1	10/02/09 5:41	LU_L	5229611
Toluene	ND		1	1	10/02/09 5:41	LU_L	5229611
m,p-Xylene	ND		2	1	10/02/09 5:41	LU_L	5229611
o-Xylene	ND		1	1	10/02/09 5:41	LU_L	5229611
Xylenes, Total	ND		1	1	10/02/09 5:41	LU_L	5229611
Surr: 1,2-Dichloroethane-d4	91.1		% 78-116	1	10/02/09 5:41	LU_L	5229611
Surr: 4-Bromofluorobenzene	98.9		% 74-125	1	10/02/09 5:41	LU_L	5229611
Surr: Toluene-d8	95.8		% 82-118	1	10/02/09 5:41	LU_L	5229611

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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10/7/2009 3:12:43 PM



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

Client Sample ID: MW-11

Collected: 09/24/2009 12:50

SPL Sample ID: 09091280-05

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	10/02/09 6:08 LU_L		5229612
Ethylbenzene	ND		1	1	10/02/09 6:08 LU_L		5229612
Toluene	ND		1	1	10/02/09 6:08 LU_L		5229612
m,p-Xylene	ND		2	1	10/02/09 6:08 LU_L		5229612
o-Xylene	ND		1	1	10/02/09 6:08 LU_L		5229612
Xylenes, Total	ND		1	1	10/02/09 6:08 LU_L		5229612
Surr: 1,2-Dichloroethane-d4	103		% 78-116	1	10/02/09 6:08 LU_L		5229612
Surr: 4-Bromofluorobenzene	99.8		% 74-125	1	10/02/09 6:08 LU_L		5229612
Surr: Toluene-d8	95.7		% 82-118	1	10/02/09 6:08 LU_L		5229612

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



HOUSTON LABORATORY  
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Client Sample ID: MW-12

Collected: 09/24/2009 15:30

SPL Sample ID: 09091280-06

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	610		10	10	10/02/09 19:51	LU_L	5229669
Ethylbenzene	10		1	1	10/02/09 6:35	LU_L	5229613
Toluene	8.3		1	1	10/02/09 6:35	LU_L	5229613
m,p-Xylene	15		2	1	10/02/09 6:35	LU_L	5229613
o-Xylene	4.5		1	1	10/02/09 6:35	LU_L	5229613
Xylenes, Total	19.5		1	1	10/02/09 6:35	LU_L	5229613
Surr: 1,2-Dichloroethane-d4	93.9		% 78-116	10	10/02/09 19:51	LU_L	5229669
Surr: 1,2-Dichloroethane-d4	96.2		% 78-116	1	10/02/09 6:35	LU_L	5229613
Surr: 4-Bromofluorobenzene	104		% 74-125	10	10/02/09 19:51	LU_L	5229669
Surr: 4-Bromofluorobenzene	98.5		% 74-125	1	10/02/09 6:35	LU_L	5229613
Surr: Toluene-d8	98.8		% 82-118	10	10/02/09 19:51	LU_L	5229669
Surr: Toluene-d8	94.1		% 82-118	1	10/02/09 6:35	LU_L	5229613

**Qualifiers:**  
ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
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Client Sample ID: MW-15

Collected: 09/24/2009 10:55 SPL Sample ID: 09091280-07

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	10/02/09 7:03	LU_L	5229614
Ethylbenzene	ND		1	1	10/02/09 7:03	LU_L	5229614
Toluene	ND		1	1	10/02/09 7:03	LU_L	5229614
m,p-Xylene	ND		2	1	10/02/09 7:03	LU_L	5229614
o-Xylene	ND		1	1	10/02/09 7:03	LU_L	5229614
Xylenes, Total	ND		1	1	10/02/09 7:03	LU_L	5229614
Surr: 1,2-Dichloroethane-d4	92.4		% 78-116	1	10/02/09 7:03	LU_L	5229614
Surr: 4-Bromofluorobenzene	97.7		% 74-125	1	10/02/09 7:03	LU_L	5229614
Surr: Toluene-d8	94.3		% 82-118	1	10/02/09 7:03	LU_L	5229614

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
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Client Sample ID: MW-16

Collected: 09/24/2009 15:45

SPL Sample ID: 09091280-08

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	3200		100	100	10/02/09 21:12	LU_L	5229672
Ethylbenzene	340		100	100	10/02/09 21:12	LU_L	5229672
Toluene	4600		100	100	10/02/09 21:12	LU_L	5229672
m,p-Xylene	2500		200	100	10/02/09 21:12	LU_L	5229672
o-Xylene	1000		100	100	10/02/09 21:12	LU_L	5229672
Xylenes, Total	3500		100	100	10/02/09 21:12	LU_L	5229672
Surr: 1,2-Dichloroethane-d4	96.3		% 78-116	100	10/02/09 21:12	LU_L	5229672
Surr: 4-Bromofluorobenzene	99.6		% 74-125	100	10/02/09 21:12	LU_L	5229672
Surr: Toluene-d8	96.1		% 82-118	100	10/02/09 21:12	LU_L	5229672

Qualifiers: ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference



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

Client Sample ID: Seep

Collected: 09/24/2009 15:00

SPL Sample ID: 09091280-09

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>			<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>		
Benzene	ND		1	1	10/02/09 12:56	LU_L	5229620
Ethylbenzene	ND		1	1	10/02/09 12:56	LU_L	5229620
Toluene	ND		1	1	10/02/09 12:56	LU_L	5229620
m,p-Xylene	ND		2	1	10/02/09 12:56	LU_L	5229620
o-Xylene	ND		1	1	10/02/09 12:56	LU_L	5229620
Xylenes, Total	ND		1	1	10/02/09 12:56	LU_L	5229620
Surr: 1,2-Dichloroethane-d4	88.0		% 78-116	1	10/02/09 12:56	LU_L	5229620
Surr: 4-Bromofluorobenzene	98.9		% 74-125	1	10/02/09 12:56	LU_L	5229620
Surr: Toluene-d8	97.4		% 82-118	1	10/02/09 12:56	LU_L	5229620

**Qualifiers:**  
ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TX 77054  
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Client Sample ID: Duplicate

Collected: 09/24/2009 16:00

SPL Sample ID: 09091280-10

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	4000		100	100	10/02/09 21:39	LU_L	5229673
Ethylbenzene	430		100	100	10/02/09 21:39	LU_L	5229673
Toluene	6000		100	100	10/02/09 21:39	LU_L	5229673
m,p-Xylene	3100		200	100	10/02/09 21:39	LU_L	5229673
o-Xylene	1200		100	100	10/02/09 21:39	LU_L	5229673
Xylenes, Total	4300		100	100	10/02/09 21:39	LU_L	5229673
Surr: 1,2-Dichloroethane-d4	93.6		% 78-116	100	10/02/09 21:39	LU_L	5229673
Surr: 4-Bromofluorobenzene	102		% 74-125	100	10/02/09 21:39	LU_L	5229673
Surr: Toluene-d8	98.0		% 82-118	100	10/02/09 21:39	LU_L	5229673

**Qualifiers:**

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



HOUSTON LABORATORY  
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Client Sample ID: Trip Blank

Collected: 09/24/2009 16:05

SPL Sample ID: 09091280-11

Site: Aztec, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>VOLATILE ORGANICS BY METHOD 8260B</b>				<b>MCL</b>	<b>SW8260B</b>	<b>Units: ug/L</b>	
Benzene	ND		1	1	09/29/09 18:58	LU_L	5224255
Ethylbenzene	ND		1	1	09/29/09 18:58	LU_L	5224255
Toluene	ND		1	1	09/29/09 18:58	LU_L	5224255
m,p-Xylene	ND		2	1	09/29/09 18:58	LU_L	5224255
o-Xylene	ND		1	1	09/29/09 18:58	LU_L	5224255
Xylenes, Total	ND		1	1	09/29/09 18:58	LU_L	5224255
Surr: 1,2-Dichloroethane-d4	92.0		% 78-116	1	09/29/09 18:58	LU_L	5224255
Surr: 4-Bromofluorobenzene	103		% 74-125	1	09/29/09 18:58	LU_L	5224255
Surr: Toluene-d8	97.8		% 82-118	1	09/29/09 18:58	LU_L	5224255

**Qualifiers:**  
ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated Value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

## *Quality Control Documentation*



# Quality Control Report

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

## Conoco Phillips COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285050

### Method Blank

RunID: K\_090929B-5224254 Units: ug/L  
Analysis Date: 09/29/2009 15:46 Analyst: LU\_L

### Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09091280-01A	MW-1
09091280-02A	MW-5
09091280-11A	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	98.3	78-116
Surr: 4-Bromofluorobenzene	101.4	74-125
Surr: Toluene-d8	96.9	82-118

### Laboratory Control Sample (LCS)

RunID: K\_090929B-5224253 Units: ug/L  
Analysis Date: 09/29/2009 14:51 Analyst: LU\_L

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	20.8	104	74	123
Ethylbenzene	20.0	18.5	92.3	72	127
Toluene	20.0	20.5	102	74	126
m,p-Xylene	40.0	37.0	92.5	71	129
o-Xylene	20.0	18.4	92.1	74	130
Xylenes, Total	60.0	55.4	92.4	71	130
Surr: 1,2-Dichloroethane-d4	50.0	49.7	99.4	78	116
Surr: 4-Bromofluorobenzene	50.0	50.4	101	74	125
Surr: Toluene-d8	50.0	47.4	94.8	82	118

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

Sample Spiked: 09091280-01  
RunID: K\_090929B-5224257 Units: ug/L  
Analysis Date: 09/29/2009 19:52 Analyst: LU\_L

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

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

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# Quality Control Report

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

## Conoco Phillips

COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285050

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	22.0	110	20	22.3	112	1.65	22	70	124
Ethylbenzene	ND	20	19.0	95.0	20	19.3	96.7	1.83	20	76	122
Toluene	ND	20	19.6	98.0	20	20.3	101	3.31	24	80	117
m,p-Xylene	ND	40	37.0	92.6	40	37.2	93.1	0.555	20	69	127
o-Xylene	ND	20	18.5	92.7	20	18.7	93.5	0.870	20	84	114
Xylenes, Total	ND	60	55.5	92.6	60	55.9	93.2	0.660	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	48.3	96.6	50	48.6	97.3	0.654	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	48.1	96.1	50	49.3	98.6	2.49	30	74	125
Surr: Toluene-d8	ND	50	46.7	93.5	50	47.5	95.0	1.60	30	82	118

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

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

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# Quality Control Report

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

## Conoco Phillips

COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285376

### Method Blank

RunID: K\_091001G-5229609 Units: ug/L  
Analysis Date: 10/02/2009 4:47 Analyst: LU\_L

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	96.5	78-116
Surr: 4-Bromofluorobenzene	100.3	74-125
Surr: Toluene-d8	96.7	82-118

### Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09091280-03A	MW-7
09091280-04A	MW-9
09091280-05A	MW-11
09091280-06A	MW-12
09091280-07A	MW-15
09091280-09A	Seep

### Laboratory Control Sample (LCS)

RunID: K\_091001G-5229608 Units: ug/L  
Analysis Date: 10/02/2009 4:20 Analyst: LU\_L

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	22.8	114	74	123
Ethylbenzene	20.0	19.2	95.8	72	127
Toluene	20.0	20.1	101	74	126
m,p-Xylene	40.0	37.8	94.4	71	129
o-Xylene	20.0	19.0	94.8	74	130
Xylenes, Total	60.0	56.8	94.5	71	130
Surr: 1,2-Dichloroethane-d4	50.0	47.9	95.8	78	116
Surr: 4-Bromofluorobenzene	50.0	49.1	98.1	74	125
Surr: Toluene-d8	50.0	47	93.9	82	118

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

Sample Spiked: 09091378-08  
RunID: K\_091001G-5229618 Units: ug/L  
Analysis Date: 10/02/2009 10:13 Analyst: LU\_L

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

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

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

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# Quality Control Report

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

## Conoco Phillips

COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285376

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	21.9	109	20	21.4	107	2.40	22	70	124
Ethylbenzene	ND	20	19.7	98.7	20	19.0	95.2	3.53	20	76	122
Toluene	ND	20	20.6	103	20	19.5	97.6	5.46	24	80	117
m,p-Xylene	ND	40	37.5	93.8	40	37.0	92.6	1.28	20	69	127
o-Xylene	ND	20	19.7	98.4	20	18.8	94.1	4.45	20	84	114
Xylenes, Total	ND	60	57.2	95.3	60	55.8	93.1	2.36	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	46.9	93.8	50	46.9	93.9	0.0853	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	48.9	97.8	50	49.1	98.3	0.432	30	74	125
Surr: Toluene-d8	ND	50	48.8	97.6	50	48.2	96.4	1.30	30	82	118

### Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

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

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# Quality Control Report

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

## Conoco Phillips

COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285380

### Method Blank

RunID: K\_091002B-5229668 Units: ug/L  
Analysis Date: 10/02/2009 17:34 Analyst: LU\_L

### Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
09091280-02A	MW-5
09091280-06A	MW-12
09091280-08A	MW-16
09091280-10A	Duplicate

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	98.7	78-116
Surr: 4-Bromofluorobenzene	99.3	74-125
Surr: Toluene-d8	97.3	82-118

### Laboratory Control Sample (LCS)

RunID: K\_091002B-5229667 Units: ug/L  
Analysis Date: 10/02/2009 16:39 Analyst: LU\_L

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	22.2	111	74	123
Ethylbenzene	20.0	19.2	96.1	72	127
Toluene	20.0	19.6	97.9	74	126
m,p-Xylene	40.0	37.8	94.5	71	129
o-Xylene	20.0	19.4	97.2	74	130
Xylenes, Total	60.0	57.2	95.4	71	130
Surr: 1,2-Dichloroethane-d4	50.0	49	97.9	78	116
Surr: 4-Bromofluorobenzene	50.0	50.2	100	74	125
Surr: Toluene-d8	50.0	48.4	96.7	82	118

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

Sample Spiked: 09091280-06  
RunID: K\_091002B-5229670 Units: ug/L  
Analysis Date: 10/02/2009 20:18 Analyst: LU\_L

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

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

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# Quality Control Report

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

## Conoco Phillips COP Hampton 4M

Analysis: Volatile Organics by Method 8260B  
Method: SW8260B

WorkOrder: 09091280  
Lab Batch ID: R285380

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	613	200	823	105	200	836	112	1.58	22	70	124
Ethylbenzene	15.9	200	204	93.8	200	191	87.7	6.18	20	76	122
Toluene	13.5	200	214	100	200	200	93.4	6.41	24	80	117
m,p-Xylene	21.0	400	401	95.0	400	382	90.3	4.78	20	69	127
o-Xylene	ND	200	201	101	200	194	97.1	3.54	20	84	114
Xylenes, Total	21.0	600	602	96.9	600	576	92.6	4.37	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	500	490	98.0	500	481	96.3	1.82	30	78	116
Surr: 4-Bromofluorobenzene	ND	500	508	102	500	494	98.9	2.60	30	74	125
Surr: Toluene-d8	ND	500	486	97.2	500	476	95.3	2.01	30	82	118

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B/V - Analyte detected in the associated Method Blank  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

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

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*Sample Receipt Checklist  
And  
Chain of Custody*



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

**Sample Receipt Checklist**

Workorder:	09091280	Received By:	AMV
Date and Time Received:	9/26/2009 9:30:00 AM	Carrier name:	Fedex-Priority
Temperature:	2.0°C	Chilled by:	Water Ice

1. Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐
2. Custody seals intact on shipping 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 ☒  
1. Sample "Seep" was received at lab with 2 of the 3 vials broken. Only one vial remains. 2. Samples "MW-16 and MW-7" were received at lab with 1 of the three vials broken. Only two vials remain per sample.
9. Sufficient sample volume for indicated test? Yes ☒ No ☐
10. All samples received within holding time? Yes ☒ No ☐
11. Container/Temp Blank temperature in compliance? Yes ☒ No ☐
12. Water - VOA vials have zero headspace? Yes ☒ No ☐ VOA Vials Not Present ☐
13. Water - Preservation checked upon receipt (except VOA\*)? Yes ☐ No ☐ Not Applicable ☒

\*VOA Preservation Checked After Sample Analysis

SPL Representative:

Contact Date & Time:

Client Name Contacted:

Non Conformance Issues:  1/2. Wrote "Limited sample volume" in the sample comments and notified PM.

Client Instructions:



SPL, Inc.

Analysis Request &amp; Chain of Custody Record

SPL Workorder No. <u>331790</u>		page <u>1</u> of <u>2</u>									
Client Name: <u>Tetra Tech / ConocoPhillips</u>		Requested Analysis									
Address: <u>6121 Indian School Rd Ste 200</u>											
City: <u>Albuquerque</u> State: <u>NM</u> Zip: <u>87110</u>											
Phone/Fax: <u>505.237.8440</u> <u>505.237.8666</u>											
Client Contact: <u>Kelly Blanchard</u> Email: <u>kelly.blanchard@tetratex.com</u>											
Project Name/No.: <u>HAZOP Hampton #4M</u>											
Site Name:											
Site Location: <u>Aztec, NM</u>											
Invoice To: <u>ConocoPhillips</u>											
SAMPLE ID	DATE	TIME	comp	grab	matrix	bottle	size	pres.	Number of Containers	Requested Analysis	
MW-1	9/24/09	1146		X	W	V	40	1	3	BTEX ONLY	
MW-5	9/24/09	1500		X	W	V	40	1	3		
MW-7	9/24/09	1505		X	W	V	40	1	3		
MW-9	9/24/09	1120		X	W	V	40	1	3		
MW-11	9/24/09	1250		X	W	V	40	1	3		
MW-12	9/24/09	1530		X	W	V	40	1	3		
MW-15	9/24/09	1055		X	W	V	40	1	3		
MW-16	9/24/09	1545		X	W	V	40	1	3		
FMW-1	9/24/09			X	W	V	40	1	3		
Seep	9/24/09	1500		X	W	V	40	1	3		
Client/Consultant Remarks:										Intact? <input checked="" type="checkbox"/> Ice? <input checked="" type="checkbox"/> Temp: <u>2.0</u>	
Laboratory remarks:										Special Detection Limits (specify):	
Requested TAT <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Contract <input type="checkbox"/> 2 Business Days <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 3 Business Days <input type="checkbox"/> Other										Special Reporting Requirements Results: Fax <input type="checkbox"/> Email <input checked="" type="checkbox"/> PO <input checked="" type="checkbox"/> Standard QC <input checked="" type="checkbox"/> Level 3 QC <input type="checkbox"/> Level 4 QC <input type="checkbox"/> TX TRRP <input type="checkbox"/> LA RECAP <input type="checkbox"/> 1. Relinquished by Sampler: <u>9/25/09</u> date <u>1450</u> time 3. Relinquished by: <u>9/25/09</u> date 5. Relinquished by: <u>9/25/09</u> date <u>9:30</u> time 6. Received by Laboratory: <u>Amanda Viernan</u>	
Rush TAT requires prior notice										PM review (initials): <u>[Signature]</u>	

8880 Interchange Drive  
Houston, TX 77054 (713) 660-0901500 Ambassador Caffery Parkway  
Scott, LA 70583 (337) 237-4775459 Hughes Drive  
Traverse City, MI 49686 (231) 947-5777



## **ATTACHMENTS**



# Hampton #4M Site Diagram

