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SEP 2010 QUARTERLY GWMR

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SEPTEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS COMPANY

HOWELL K No. 1
NATURAL GAS PRODUCTION SITE
SAN JUAN COUNTY, NEW MEXICO

OCD # _____

API #300-045-09313

Prepared for:

ConocoPhillips

Risk Management and Remediation
420 South Keeler Avenue
Bartlesville, OK 74004

Prepared by:

TETRA TECH, INC.

6121 Indian School Rd. NE, Suite 200
Albuquerque, NM 87110
Tetra Tech Project No. 114-690185

January 2011

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SEPTEMBER 2010 QUARTERLY GROUNDWATER MONITORING REPORT HOWELL K NO. 1, SAN JUAN COUNTY, NEW MEXICO

1.0 INTRODUCTION

This report presents the results of a quarterly groundwater monitoring event conducted by Tetra Tech, Inc. (Tetra Tech) on September 23, 2010, at the ConocoPhillips Howell K No. 1 site, located on BLM land, approximately ½ mile southeast of Navajo Lake State Park and 10 miles east of Aztec in Unit Letter K, Section 21, Township 30N, Range 8W of San Juan County, New Mexico (Site). The Site consists of a gas production well and associated equipment and installations. The location and general features of the Site are shown on **Figures 1** and **2**, respectively.

1.1 Site Background

The environmental investigation at the Site began in August 2005 with the excavation of approximately 4000 cubic yards of hydrocarbon impacted soil from an area southwest of the wellhead at the Howell K No. 1 site. The hydrocarbon impacted soils were discovered in the area during below grade tank removal activities. The final dimensions of the excavation were 70 feet by 50 feet by 36 feet deep (groundwater was encountered at a depth of approximately 34 feet below ground surface (bgs). Once this extent had been reached, the excavation was stopped due to the inability of the equipment to operate safely at this depth; however, the limits of the hydrocarbon impact had not been delineated. The excavation was backfilled with clean soil. In March 2006, one groundwater monitoring well (MW-1) was installed in the general area of the backfilled excavation by Envirotech. The location of this well is shown on **Figure 2**.

Due to the transition of Site consulting responsibilities from Lode Star LLC of Farmington, NM, to Tetra Tech following the acquisition of Burlington Resources by ConocoPhillips Company in March 2006, groundwater monitoring was not performed at the Site in March and June 2007. Tetra Tech began sampling groundwater at the Howell K No. 1 site in November of 2007 using MW-1 and continued to do so until August of 2008, when 3 additional monitoring wells were installed at the Site by WDC Exploration and Wells of Peralta, NM and under Tetra Tech supervision. Additional wells were installed in response to a request by the New Mexico Oil Conservation Division (OCD) for Site characterization and enhanced laboratory analyses. This request was communicated to Tetra Tech during an April 2008 meeting conducted in Santa Fe, New Mexico with Glenn Von Gonten, OCD Environmental Bureau Hydrologist. Groundwater Monitoring Well MW-2 was installed upgradient of MW-1 and Monitoring Wells MW-3 and MW-4 were installed down-gradient of MW-1 (**Figure 2**). A generalized geologic cross-section was compiled using subsurface data collected from each boring location during installation of Monitoring Wells; MW-2, MW-3 and

MW-4. Monitoring Wells MW-2 and MW-4 are represented on the cross-section which can be seen as **Figure 3**. October 2008 marked the first quarterly groundwater monitoring event to include all 4 monitoring wells for analysis at the Site. A summary of the Howell K No. 1 site history can be seen in **Table 1**.

2.0 MONITORING SUMMARY, SAMPLING METHODOLOGY, AND ANALYTICAL RESULTS

2.1 Monitoring Summary

Quarterly groundwater sampling was conducted by Tetra Tech on September 23, 2010. The groundwater sampling event included samples from Monitoring Wells; MW-1, MW-2, MW-3 and MW-4. Groundwater levels were measured in each site monitoring well prior to sampling and can be found in **Table 2**. Groundwater elevations for MW-1, however, can not be calculated or included on the groundwater contour map due to the gradual, continuous, upward shifting of the PVC well casing. The continual shifting of the PVC casing of MW-1 is likely due to the proximity of MW-1 to the 2005, below-grade tank removal excavation and the settling and shifting of the fill material in this area. Groundwater elevations are calculated from top of casing elevations which were derived from survey data collected from each site monitoring well by Tetra Tech on August 14, 2008. Survey data obtained from MW-1 is no longer valid due to the uplifting of the well casing which will continue to change over time, therefore; MW-1 will no longer be factored into future groundwater elevation contour maps. The groundwater flow direction is to the west based on groundwater elevation data collected on September 23, 2010 from MW-2, MW-3 and MW-4, and as seen on **Figure 4**.

2.2 Groundwater Sampling Methodology

During the sampling event, each monitoring well was purged either of three casing volumes of water or was purged until groundwater parameters had stabilized. Measured groundwater parameters included; temperature, pH, conductivity, total dissolved solids (TDS), oxidation-reduction potential (ORP) and dissolved oxygen (DO), and were collected using a YSI 556 multi-parameter sonde. A 1.5-inch clear, polyethylene, dedicated bailer was used to purge and to collect the groundwater samples from MW-2, MW-3 and MW-4. A 0.5 inch clear, polyethylene, dedicated bailer was used to purge and collect a groundwater sample from MW-1. The purge water generated during the event was disposed of in the produced water tank located on site (**Figure 2**). The groundwater samples were placed in laboratory prepared bottles, packed on ice, and shipped with chain-of-custody documentation to Southern Petroleum Laboratory (SPL) in Houston, Texas. All groundwater samples collected were analyzed for the presence of benzene, toluene, ethylbenezene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B, dissolved iron and manganese by EPA Method 6010B, as well as fluoride and sulfate by EPA method

300.0. The dissolved metals samples were collected in unpreserved containers supplied by the laboratory, to be filtered and preserved by laboratory personnel prior to analysis for dissolved metals. Dissolved metals testing will continue for metals exceeding NMWQCC drinking water standards.

2.3 Groundwater Sampling Analytical Results

Samples collected from MW-1, MW-2, MW-3, and MW-4 on September 23, 2010 indicate that groundwater concentrations for BTEX were below laboratory method detection limits (MDL). Although BTEX constituents were found to be below NMWQCC standards during the September 2010 quarterly analysis, other constituents were found to be above standard. Analyses of samples collected from all four wells on Site were found to be above the NMWQCC standard for sulfate. MW-1, MW-3 and MW-4 were also above standard for dissolved manganese and MW-1 was above standard for dissolved iron. **Table 3** lists the analytical results from groundwater sampling done during September 2010. Groundwater sampling field forms showing field parameters can be found in **Appendix A** and the corresponding laboratory analysis reports including quality control summaries can be found in **Appendix B**.

3.0 CONCLUSIONS

Based on the historical groundwater quality data, groundwater samples collected from MW-1 have never exceeded NMWQCC groundwater quality standards for BTEX constituents during sampling conducted from March 2006 to September 2010. BTEX concentrations were found to be below the minimum laboratory detection limits for these constituents consistently since October 2006. In addition, groundwater samples collected from MW-2, MW-3 and MW-4 have also not exceeded NMWQCC groundwater quality standards for BTEX constituents from October 2008 to September 2010. Since BTEX is below standards in all four site monitoring wells, but there are other constituents of concern above NMWQCC standards, Tetra Tech recommends the discontinuation of BTEX analysis and the continuation of quarterly groundwater monitoring for analysis of sulfate, dissolved manganese, and dissolved iron concentrations until those constituents are also below NMWQCC standards, appear stable or reach regional background levels. Please contact Kelly Blanchard at 505-237-8440 or kelly.blanchard@tetratech.com if you have any questions or require additional information.

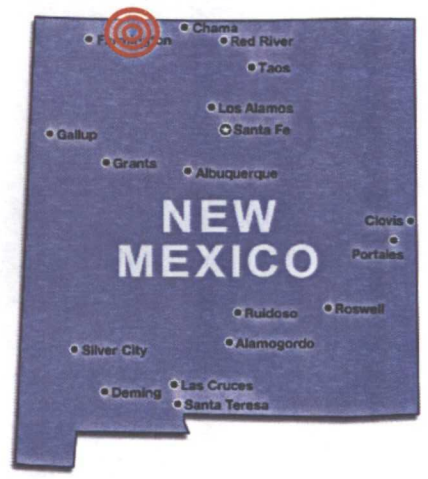
FIGURES

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

ConocoPhillips - High Resolution Aerial Imagery 2008

FIGURE 1.

Site Location Map
ConocoPhillips
Howell K No. 1
Aztec, NM



Approximate ConocoPhillips Howell K No. 1 Site location

Latitude = 36.79505 deg N
Longitude = -107.68474 deg W

N

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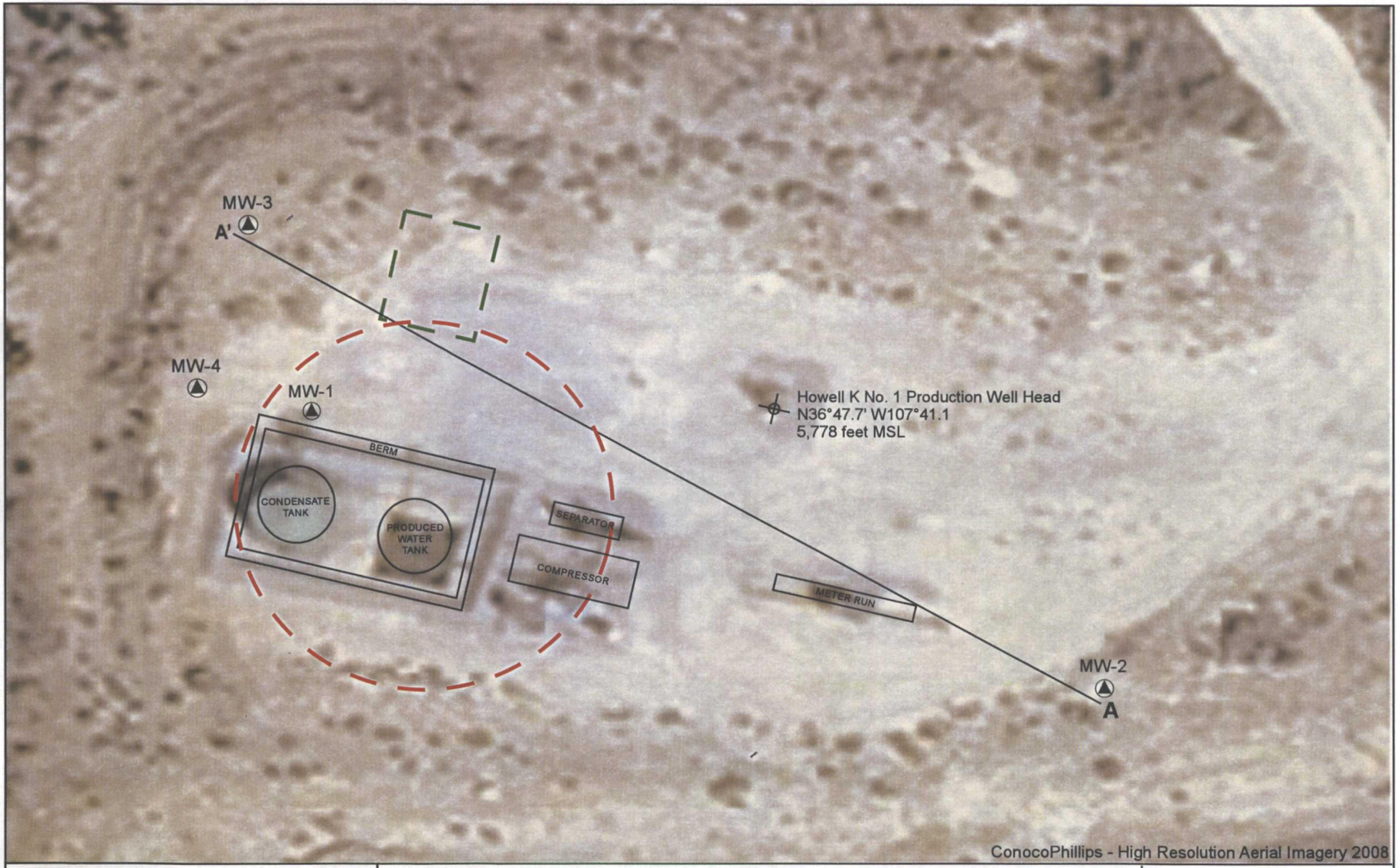


FIGURE 2:
SITE LAYOUT MAP
CONOCOPHILLIPS
HOWELL K No. 1
Unit K, Sec 21, Twp 30N, Rng 8W
San Juan County, New Mexico
Revised by CFM 06/10

LEGEND

- WELLHEAD
- MONITORING WELL
- GENERAL AREA OF BELOW-GRADE TANK REMOVAL EXCAVATION
- GENERAL AREA OF UNLINED EARTHEN PIT EXCAVATION

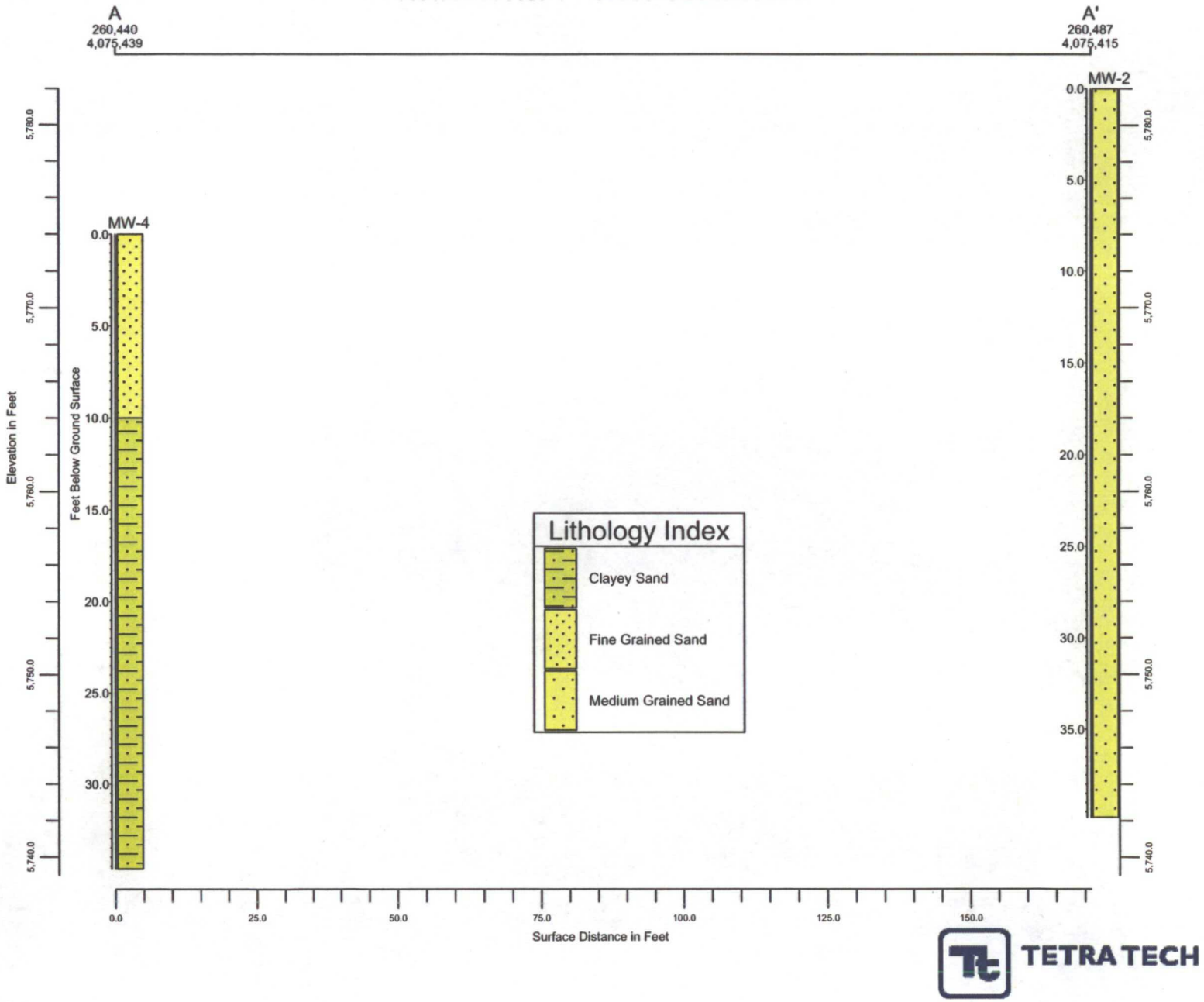
0 15 30
FEET

N

TETRA TECH, INC.

Figure 3.

Howell K No. 1 - Cross-Section A-A'



TETRA TECH

1/26/2011

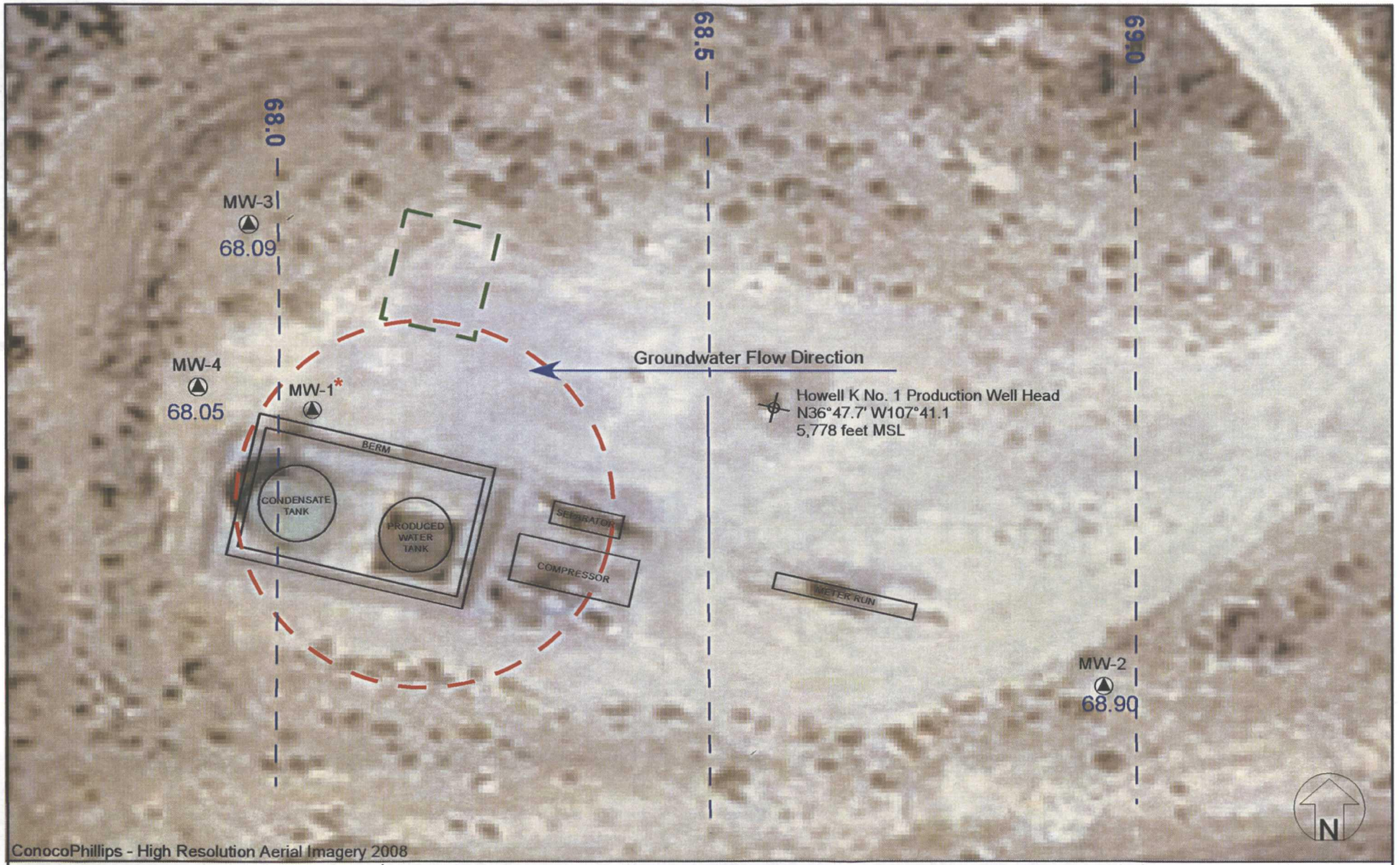


FIGURE 4:
SEPTEMBER 2010 GROUNDWATER ELEVATION CONTOUR MAP
CONOCOPHILLIPS COMPANY
HOWELL K No. 1
Unit K - T30N, R8W, Section 21
San Juan County, New Mexico
Revised by CFM 06/10

LEGEND

- WELLHEAD
- MONITORING WELL
- GENERAL AREA OF BELOW-GRADE TANK REMOVAL EXCAVATION
- GENERAL AREA OF UNLINED EARTHEN PIT EXCAVATION
- GROUNDWATER ELEVATION IN FEET (dashed where inferred)
- * Groundwater elevations can not be calculated accurately due to continual upward shifting of the PVC casing (see text of section 2.1, Monitoring Summary, for more information)

0 15 30
FEET

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TABLES

Table 1. ConocoPhillips Company, Howell K No. 1 - Site History Timeline

Date/Time Period	Event/Action	Description/Comments
July 26, through August 18, 2005	Initial Site Assessment	Environmental investigation began with the excavation of approximately 4000 cubic yards of impacted soil from an area southwest of the Howell K No.1 well head. Impacted soils were discovered during the removal activities of a below grade tank. Dimensions of the excavation were approximately 70 feet long by 50 feet wide by 36 feet deep. Groundwater was encountered at approximately 34 feet and soils were still impacted at 36 feet deep, the point at which excavation machinery was stopped at the practical limit for safe operation. The total verticle extent of hydrocarbon impacts were not completely deliniated. Soil was treated with 600 total gallons of potassium permanganate solution. The excavation area was backfilled with clean soil.
March 10, 2006	Groundwater monitoring well installation	One ground water monitoring well, MW-1, was installed in the center of the backfilled excavation by Envirotech. Total depth of well was set at 35 feet.
March 31, 2006	Site Transfer	ConocoPhillips Company completed acquisition of Burlington Resources.
March and June 2007	Groundwater monitoring not performed	After the acquisition of Burlington Resources by ConocoPhillips, consulting responsibilities were transferred from Lode Star LLC of Farmington New Mexico to Tetra Tech of Albuquerque. Due to the transition, first and second quarter sampling of 2007 was not performed.
November 9, 2007 through March 19, 2008	Groundwater monitoring	Tetra Tech began sampling the Howell K No. 1 site quarterly in November of 2007. Groundwater was sampled from MW-1 and was analyzed for BTEX constituents. No constituents were detected at levels that exceeded the NMWQCC standards at any point during this period.
April 1, 2008	Additional Monitoring Requested by OCD	Oil Conservation Division of NM Energy, Minerals, and Resources Dept. indicates additional investigation and sampling is necessary for closure consideration during a meeting with Glenn Von Gonten.
July 23, 2008	Groundwater monitoring postponed	Groundwater monitoring of MW-1 was postponed after it was found that there was an obstruction caused by settling and shifting of the MW-1 casing. It was determined that the obstruction could be avoided by using a smaller bailer to collect samples. Sampling was postponed and was set to follow upcoming monitoring well installation so that proper sampling materials could be used.
August 13 and 14, 2008	Groundwater monitoring well installation and groundwater monitoring	Three additional groundwater monitoring wells (MW-2, MW-3 and MW-4) were installed by WDC and overseen by Tetra Tech. MW-2 was installed up-gradient of MW-1. Both MW-3 and MW-4 were installed down-gradient of MW-1. All wells were developed by purging approximately 80 gallons of fluid using a surge block and a purge pump. A sample was collected from MW-1 on August 14th since sampling could not be done in July of 2008. A 3/4 inch disposable bailer was used to avoid obstruction in MW-1. Sample was analyzed for BTEX constituents. All constituents were below NMWQCC standards.
October 24, 2008	Groundwater monitoring	Third quarter 2008 groundwater monitoring was completed and was the first quarter of sampling to include all four monitoring wells on site. A baseline suite was completed including major ions, total metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) including BTEX, diesel range organics, and gasoline range organics. All BTEX constituents were below NMWQCC standards. All four wells were above standard for sulfate, and showed elevated total iron and total manganese concentrations. MW-4 was also above the NMWWCC standard for fluoride.
January 30, 2009	4th quarter 2008 groundwater monitoring	Tetra Tech conducted forth quarter 2008 groundwater monitoring at the site for BTEX constituents in all four monitoring wells. All wells are below NMWQCC standards for BTEX .
September 25,2009	2009 annual groundwater monitoring	Tetra Tech conducted 2009 annual groundwater monitoring of MW-2, MW-3 and MW-4 for BTEX, dissoved iron, dissolved manganese, sulfate, and fluoride. All three wells were below NMWQCC standards for BTEX. All three wells were above standard for sulfate. Dissolved manganese was above standard in MW-3 and MW-4 and flouride was above standard in MW-4. Dissolved metals analyses conducted for the first time since standards are based on dissolved metals testing. OCD concurred, allowing total metals testing to be discontinued.

Table 1. ConocoPhillips Company, Howell K No. 1 - Site History Timeline

Date/Time Period	Event/Action	Description/Comments
October 18, 2009	Groundwater monitoring	Tetra Tech conducted 2009 annual groundwater monitoring of MW-1 for BTEX, dissoved iron, dissolved manganese, sulfate, and fluoride. MW-1 was below NMWQCC standards for BTEX. Sulfate, dissolved manganese and dissolved iron were above standard in MW-1.
December 15, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, sulfate and flouride. All four monitoring wells are below NMWQCC standards for BTEX . All four monitoring wells were above standard for sulfate. MW-1, MW-3 and MW-4 were above standard for dissolved manganese and MW-3 and MW-1 were also above standard for dissolved iron.
March 30, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, and sulfate. All four monitoring wells are below NMWQCC standards for BTEX . All four monitoring wells were above standard for sulfate. MW-1, MW-3 and MW-4 were also above standard for dissolved manganese .
June 8, 2010	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, and sulfate. All four monitoring wells are below NMWQCC standards for BTEX . All four monitoring wells were above standard for sulfate. MW-1, MW-3 and MW-4 were also above standard for dissolved manganese . MW-1 was also above standard for iron.
September 23,2009	Groundwater monitoring	Tetra Tech conducted quarterly groundwater monitoring at the site for BTEX, dissolved iron, dissolved manganese, fluoride and sulfate. All four monitoring wells are below NMWQCC standards for BTEX . All four monitoring wells were above standard for sulfate. MW-1, MW-3 and MW-4 were also above standard for dissolved manganese . MW-1 was also above standard for iron.

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

Well ID	Total Depth (ft bgs)	Screen Interval (ft)	*Elevation (ft) (TOC)	Date Measured	Depth to Groundwater (ft below TOC)	Relative Groundwater Elevation
MW-1	37.47	21.0 - 36.0	97.84	3/22/2006	28.54	69.30
				6/21/2006	29.15	68.69
				10/19/2006	27.83	70.01
				12/12/2006	28.22	69.62
				March 2006	NS	--
				June 2006	NS	--
				11/9/2007	29.03	68.81
				1/15/2008	28.34	69.5
				3/19/2008	NM	NM
				7/23/2008	28.46	69.38
				10/24/2008	29.91	67.93
				1/30/2009	28.37	69.47
				9/25/2009	29.95	67.89
				10/18/2009	29.97	67.87
				12/15/2009	29.51	--(1)
				3/30/2010	28.18	--(1)
				6/8/2010	28.38	--(1)
				9/23/2010	29.51	--(1)
MW-2	39.81	21.0 - 36.0	95.28	10/24/2008	25.74	69.54
				1/30/2009	24.74	70.54
				9/25/2009	26.48	68.80
				12/15/2009	25.97	69.31
				3/30/2010	24.67	70.61
				6/8/2010	24.84	70.44
				9/23/2010	26.38	68.90
MW-3	37.47	19.0 - 34.0	95.44	10/24/2008	26.95	68.49
				1/30/2009	25.92	69.52
				9/25/2009	27.57	67.87
				12/15/2009	27.05	68.39
				3/30/2010	25.79	69.65
				6/8/2010	26.02	69.42
				9/23/2010	27.35	68.09
MW-4	34.66	17.0 - 32.0	95.36	10/24/2008	NM	NM
				1/30/2009	26.00	69.36
				9/25/2009	27.64	67.72
				12/15/2009	27.14	68.22
				3/30/2010	25.87	69.49
				6/8/2010	26.09	69.27
				9/23/2010	27.31	68.05

ft = Feet

TOC = Top of casing

bgs = below ground surface

* = Elevation relative to an arbitrary 100 feet

(1) = Groundwater elevations can not be calculated accurately due to continual upward shifting of the PVC casing (see text of section 2.1, Monitoring Summary, of this report for more information)

NS = Not Sampled (quarters not sampled due to change in consulting responsibilities from Lodestar LLC to Tetra Tech, Inc.)

NM = Not measured

Table 3. ConocoPhillips Company, Howell K No. 1 - Groundwater Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW-1	3/22/2006	ND	ND	1.00	2.00	NA	NA	NA	NA
	6/21/2006	1.40	1.40	ND	10.60	NA	NA	NA	NA
	10/19/2006	ND	ND	ND	1.10	NA	NA	NA	NA
	12/12/2006	ND	0.50	0.40	2.10	NA	NA	NA	NA
	11/9/2007	<0.5 U	<0.7 U	<0.8 U	<0.9 J	NA	NA	NA	NA
	1/15/2008	<0.5 U	<0.7 U	<0.8 U	<0.8 U	NA	NA	NA	NA
	3/19/2008	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
	8/14/2008	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
	10/24/2008	<0.5	<0.5	<0.5	<0.5	< 2.0	**2390**	32.1*	13.4*
	1/30/2009	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA
	10/18/2009	<0.5	<0.5	<0.5	<0.5	0.88	**3840**	**2.24**	**17.40**
	12/15/2009	<0.5	<0.5	<0.5	<0.5	< 50	**3290**	**1.70**	**16.50**
	3/30/2010	<0.5	<0.5	<0.5	<0.5	NA	**2950**	0.87	**14.90**
	6/8/2010	<0.5	<0.5	<0.5	<0.5	NA	**2570**	**11.20**	**14.70**
	9/23/2010	<1.0	<1.0	<1.0	<1.0	<0.5	**2740**	**4.43**	**13.4**
MW-2	10/24/2008	<0.5 U	<0.5 U	<0.5 U	<0.5 U	< 2	**1480**	3.28*	0.231*
	1/30/2009	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	ND	ND
	9/25/2009	<0.5	<0.5	<0.5	<0.5	1.09	**1700**	<0.02	<0.005
	12/15/2009	<0.5	<0.5	<0.5	<0.5	<100	**1570**	<0.02	<0.005
	3/30/2010	<0.5	<0.5	<0.5	<0.5	NA	**1410**	<0.02	0.14
	6/8/2010	<0.5	<0.5	<0.5	<0.5	NA	**1460**	0.0544	0.00930
	9/23/2010	<1.0	<1.0	<1.0	<1.0	<0.5	**1760**	<0.02	<0.005
MW-3	10/24/2008	<0.5 U	<0.5 U	<0.5 U	<0.5 U	< 2	**1480**	3.38*	1.31*
	1/30/2009	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	ND	ND
	9/25/2009	<0.5	<0.5	<0.5	<0.5	1.00	**1840**	<0.02	**0.38**
	12/15/2009	<0.5	<0.5	<0.5	<0.5	<50	**2500**	**1.35**	**0.32**
	3/30/2010	<0.5	<0.5	<0.5	<0.5	NA	**1890**	<0.02	**0.43**
	6/8/2010	<0.5	<0.5	<0.5	<0.5	NA	**1630**	0.0573	**0.383**
	9/23/2010	<1.0	<1.0	<1.0	<1.0	0.751	**1960**	<0.02	**0.35**

Table 3. ConocoPhillips Company, Howell K No. 1 - Groundwater Analytical Results Summary

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW-4	10/24/2008	<0.5 U	<0.5 U	<0.5 U	<0.5 U	**2.43**	**3400**	2.7*	7.79*
	1/30/2009	<0.5 U	<0.5 U	<0.5 U	<0.5 U	ND	ND	ND	ND
	9/25/2009	<1.0	<1.0	<1.0	<1.0	**2.47**	**3860**	<0.02	**7.80**
	12/15/2009	<1.0	<1.0	<1.0	<1.0	<50	**4540**	0.03	**7.40**
	3/30/2010	<1.0	<1.0	<1.0	<1.0	ND	**3970**	<0.02	**7.83**
	6/8/2010	<1.0	<1.0	<1.0	<1.0	ND	**3490**	0.0607	**7.97**
	9/23/2010	<1.0	<1.0	<1.0	<1.0	**1.81**	**3750**	<0.02	**9.73**
NMWQCC Standards		**10 (µg/L)**	**750 (µg/L)**	**750 (µg/L)**	**620 (µg/L)**	**1.6 (mg/L)**	**600 (mg/L)**	**1 (mg/L)**	**0.2 (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
U = Analyte was analyzed for but not detected at the indicated MDL
Bold = concentrations that exceed the NMWQCC limits
* = Results recorded by total metals analysis, not comparable to NMWQCC standards which are based on dissolved metals concentrations

APPENDIX A

September 2010 Quarterly Groundwater Sampling Field Forms

TETRA TECH, INC.

WATER SAMPLING FIELD FORM

Project Name Howell K1 Page 1 of 4

Project No.

Site Location San Juan County, NM

Site/Well No. MW-1 Coded/ Replicate No. ~~29151~~ 1635 Date 9/23/10

Weather Sunny, warm 70° Time Sampling Began 1435 Time Sampling Completed 1625

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface 37.46 MP Elevation

Total Sounded Depth of Well Below MP 37.47 Water-Level Elevation

Held ____ Depth to Water Below MP 29.51 Diameter of Casing 2"

Wet ____ Water Column in Well 7.95 Gallons Pumped/Bailed Prior to Sampling ≈ 4.0

Gallons per Foot 0.16

Gallons in Well 1.27 x 3 = 3.81 Sampling Pump Intake Setting (feet below land surface)

Purging Equipment Purge pump / Bailer

SAMPLING DATA/FIELD PARAMETERS

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

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Sulfate, Flouride	16 oz. Plastic	None
Dissolved ~~Metals~~ Fe, Mn	16 oz. Plastic	None

Remarks No Parameters due to small bailer & small volume per bailer

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

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WATER SAMPLING FIELD FORM

Project Name Howell K1 Page 2 of 4

Project No.

Site Location San Juan County, NM

Site/Well No. MW-2 Coded/ Replicate No. Date 9/23/10

Weather Sunny, warm 70° Time Sampling Began 1440 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 39.81 68 Water-Level Elevation

Hold Depth to Water Below MP 26.38 Diameter of Casing 2"

Wet Water Column in Well 13.3 Gallons Pumped/Bailed Prior to Sampling 6.5

Gallons per Foot 0.16

Gallons in Well 2.12 x 3 = 6.36

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.)
1455	14.34	6.99	2572	1,672	5.25	49.7	105.7	5.5
1457	14.36	6.95	2584	1,679	3.62	35.6	105.6	6.0
1458	14.35	6.97	2595	1,680	3.14	30.9	104.2	6.5

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Sulfate, Fluoride	16 oz. Plastic	None
Dissolved ~~Metals~~ Fe, Mn	16 oz. Plastic	None

Remarks H_2O is brown with high clay content, no odor or sheen detected

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 Howell K1 Page 3 of 4

Project No.

Site Location San Juan County, NM

Site/Well No. MW-3 Coded/ Replicate No. Date 9/23/10

Weather Sunny, warm 70° Time Sampling Began 1515 Time Sampling Completed 1530

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 37.41 Water-Level Elevation

Held Depth to Water Below MP 27.35 Diameter of Casing 2"

Wet Water Column in Well 9.81 Gallons Pumped/Bailed Prior to Sampling 4.75

Gallons per Foot 0.16

Gallons in Well 1.56 x 3 = 4.7

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.)
1526	15.13	7.09	2885	1.875	1.89	19.1	112.8	3.75
1527	15.00	7.06	2886	1.876	1.31	13.0	115.3	4.0
~~1528~~ 1529	~~14.97~~ 14.97	7.05	2887	1.876	1.17	11.7	116.0	4.25

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Sulfate, Fluoride	16 oz. Plastic	None
Dissolved Metals Fe, Mn	16 oz. Plastic	None

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

Sampling Personnel Christine Matthews & 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 Howell K1 Page 4 of 4

oject No.

Site Location San Juan County, NM

Site/Well No. MW-4 Coded/ Replicate No. Date 9/23/10

Weather Sunny, warm 70° Time Sampling Began 1545 Time Sampling Completed 1600

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 ~~34.86~~ 30 Water-Level Elevation

Held Depth to Water Below MP 27.31 Diameter of Casing 2"

Wet Water Column in Well 7.25 Gallons Pumped/Bailed Prior to Sampling 3.5

Gallons per Foot 0.16

Gallons in Well 1.16 x 3 = ~~3.48~~

Sampling Pump Intake Setting (feet below land surface)

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.)
1552	15.37	6.99	5941	3.865	2.96	27.7	4.0	~~3.5~~ 2.5
1554	15.33	6.97	6116	3.977	1.77	18.1	4.1	2.75
1556	15.37	6.97	6128	3.983	1.84	18.9	3.9	3.25

Sampling Equipment Purge Pump/Bailer

Constituents Sampled	Container Description	Preservative
BTEX	3 40mL VOA's	HCl
Sulfate, Fluoride	16 oz. Plastic	None
Dissolved Metals Fe, Mn	16 oz. Plastic	None

Remarks water is light tan; very slight hydrocarbon odor

Sampling Personnel Christine Mathews & Cassie Braun

Well Casing Volumes

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

APPENDIX B

September 2010 Quarterly Groundwater Laboratory Analytical Report

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

Certificate of Analysis

October 12, 2010

Workorder: H10090644

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

Project: COP - Howell K-1

Project Number: COP - Howell K-1

Site: COP - Howell K-1

PO Number: ENFOS

NELAC Cert. No.: T104704205-09-3

This Report Contains A Total Of 19 Pages

Excluding Any Attachments

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Certificate of Analysis

October 12, 2010

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Project: COP - Howell K-1

Project Number: COP - Howell K-1

Site: COP - Howell K-1

PO Number: ENFOS

NELAC Cert. No.: T104704205-09-3

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.

There were no exceptions noted.

III. GENERAL REPORTING COMMENTS:

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

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

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

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

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

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Certificate of Analysis

October 12, 2010

Workorder: H10090644

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

Project: COP - Howell K-1

Project Number: COP - Howell K-1

Site: COP - Howell K-1

PO Number: ENFOS

NELAC Cert. No.: T104704205-09-3

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

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

Erica Cardenas, Senior Project Manager

Enclosures

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

SAMPLE SUMMARY

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID	Sample ID	Matrix	COC ID	Date/Time Collected	Date/Time Received
H10090644001	MW-1	Water		9/23/2010 16:25	9/25/2010 08:55
H10090644002	MW-2	Water		9/23/2010 15:00	9/25/2010 08:55
H10090644003	MW-3	Water		9/23/2010 15:30	9/25/2010 08:55
H10090644004	MW-4	Water		9/23/2010 16:00	9/25/2010 08:55
H10090644005	Duplicate	Water		9/23/2010 16:35	9/25/2010 08:55
H10090644006	Trip Blank	Water		9/23/2010 12:30	9/25/2010 08:55

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

ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID: **H10090644001** Date/Time Received: 9/25/2010 08:55 Matrix: Water
Sample ID: **MW-1** Date/Time Collected: 9/23/2010 16:25

VOLATILES

Analysis Desc: SW-846 8260B SW-846 5030Analytical Batches:
Batch: 2691 SW-846 8260B on 10/04/2010 15:39 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	99.8 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	77.1 %		70-130		1			2691
Toluene-d8 (S)	107 %		82-118		1			2691

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B Preparation Batches:
Batch: 2100 SW-846 3010A on 09/27/2010 15:00 by R_V
Analytical Batches:
Batch: 1647 SW-846 6010B on 10/01/2010 14:31 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Iron	4.43		0.0200	0.00640	1		2100	1647
Manganese	13.4		0.00500	0.000300	1		2100	1647

WET CHEMISTRY

Analysis Desc: EPA 300.0 Analytical Batches:
Batch: 1465 EPA 300.0 on 09/26/2010 07:00 by GLN DF = 1
Batch: 1484 EPA 300.0 on 09/27/2010 20:47 by GLN DF = 1000

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Fluoride	ND		0.500	0.0430	1			1465
Sulfate	2740		500	43.5	1000			1484

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ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID: **H10090644002** Date/Time Received: 9/25/2010 08:55 Matrix: Water

Sample ID: **MW-2** Date/Time Collected: 9/23/2010 15:00

VOLATILES

Analysis Desc: SW-846 8260B — SW-846 5030Analytical Batches:
Batch: 2691 SW-846 8260B on 10/04/2010 16:08 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	98.3 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	77.9 %		70-130		1			2691
Toluene-d8 (S)	106 %		82-118		1			2691

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B — Preparation Batches:
Batch: 2100 SW-846 3010A on 09/27/2010 15:00 by R_V
Analytical Batches:
Batch: 1647 SW-846 6010B on 10/01/2010 14:37 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Iron	ND		0.0200	0.00640	1		2100	1647
Manganese	ND		0.00500	0.000300	1		2100	1647

WET CHEMISTRY

Analysis Desc: EPA 300.0 — Analytical Batches:
Batch: 1465 EPA 300.0 on 09/26/2010 07:17 by GLN DF = 1.
Batch: 1484 EPA 300.0 on 09/27/2010 21:04 by GLN DF = 1000.

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Fluoride	0.804		0.500	0.0430	1			1465
Sulfate	1760		500	43.5	1000			1484

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ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 | Project Number: COP - Howell K-1

Lab ID: **H10090644003** | Date/Time Received: 9/25/2010 08:55 | Matrix: Water

Sample ID: **MW-3** | Date/Time Collected: 9/23/2010 15:30

VOLATILES

Analysis Desc: SW-846 8260B | SW-846 5030Analytical Batches:
Batch: 2691 SW-846 8260B on 10/04/2010 16:37 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	99.2 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	80 %		70-130		1			2691
Toluene-d8 (S)	109 %		82-118		1			2691

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B | Preparation Batches:
Batch: 2100 SW-846 3010A on 09/27/2010 15:00 by R_V
Analytical Batches:
Batch: 1647 SW-846 6010B on 10/01/2010 14:43 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Iron	ND		0.0200	0.00640	1		2100	1647
Manganese	0.350		0.00500	0.000300	1		2100	1647

WET CHEMISTRY

Analysis Desc: EPA 300.0 | Analytical Batches:
Batch: 1465 EPA 300.0 on 09/26/2010 07:34 by GLN DF = 1.
Batch: 1484 EPA 300.0 on 09/27/2010 21:21 by GLN DF = 1000.

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Fluoride	0.751		0.500	0.0430	1			1465
Sulfate	1960		500	43.5	1000			1484

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ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID: **H10090644004** Date/Time Received: 9/25/2010 08:55 Matrix: Water
Sample ID: **MW-4** Date/Time Collected: 9/23/2010 16:00

VOLATILES

Analysis Desc: SW-846 8260B
SW-846 5030Analytical Batches:
Batch: 2691 SW-846 8260B on 10/04/2010 17:05 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	102 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	80.3 %		70-130		1			2691
Toluene-d8 (S)	106 %		82-118		1			2691

ICP DISSOLVED METALS

Analysis Desc: SW-846 6010B
Preparation Batches:
Batch: 2100 SW-846 3010A on 09/27/2010 15:00 by R_V
Analytical Batches:
Batch: 1647 SW-846 6010B on 10/01/2010 13:24 by EBG

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Iron	ND		0.0200	0.00640	1		2100	1647
Manganese	9.73		0.00500	0.000300	1		2100	1647

WET CHEMISTRY

Analysis Desc: EPA 300.0
Analytical Batches:
Batch: 1465 EPA 300.0 on 09/26/2010 07:51 by GLN DF = 1
Batch: 1484 EPA 300.0 on 09/27/2010 21:38 by GLN DF = 1000

Parameters	Results mg/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Fluoride	1.81		0.500	0.0430	1			1465
Sulfate	3750		500	43.5	1000			1484

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ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID: **H10090644005** Date/Time Received: 9/25/2010 08:55 Matrix: Water

Sample ID: **Duplicate** Date/Time Collected: 9/23/2010 16:35

VOLATILES

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

Batch: 2691 SW-846 8260B on 10/04/2010 17:34 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	102 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	78.6 %		70-130		1			2691
Toluene-d8 (S)	109 %		82-118		1			2691

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ANALYTICAL RESULTS

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID: **H10090644006** Date/Time Received: 9/25/2010 08:55 Matrix: Water

Sample ID: **Trip Blank** Date/Time Collected: 9/23/2010 12:30

VOLATILES

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

Batch: 2691 SW-846 8260B on 10/04/2010 15:10 by LKT

Parameters	Results ug/l	Qual	Report Limit	MDL	DF	RegLmt	Batch Information Prep	Analysis
Benzene	ND		1.0	0.13	1			2691
Ethylbenzene	ND		1.0	0.48	1			2691
Toluene	ND		1.0	0.13	1			2691
m,p-Xylene	ND		1.0	0.58	1			2691
o-Xylene	ND		1.0	0.35	1			2691
Xylenes, Total	ND		1.0	0.35	1			2691
4-Bromofluorobenzene (S)	99.7 %		74-125		1			2691
1,2-Dichloroethane-d4 (S)	78.2 %		70-130		1			2691
Toluene-d8 (S)	107 %		82-118		1			2691

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QUALITY CONTROL DATA

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

QC Batch: MSV/2690 Analysis Method: SW-846 8260B

QC Batch Method: SW-846 5030 Preparation: 10/04/2010 00:00 by LKT

Associated Lab Samples: H10090644001 H10090644002 H10090644003 H10090644004 H10090644005 H10090644006 H10090671002 H10100033001 H10100033002 H10100033003 H10100033004 H10100037001 H10100037002

METHOD BLANK: 73690

Analysis Date/Time Analyst: 10/04/2010 09:54 LKT

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Benzene	ug/l	ND		1.0
Ethylbenzene	ug/l	ND		1.0
Toluene	ug/l	ND		1.0
m,p-Xylene	ug/l	ND		1.0
o-Xylene	ug/l	ND		1.0
Xylenes, Total	ug/l	ND		1.0
4-Bromofluorobenzene (S)	%	99.2		74-125
1,2-Dichloroethane-d4 (S)	%	80.9		70-130
Toluene-d8 (S)	%	107		82-118

LABORATORY CONTROL SAMPLE: 73691

Analysis Date/Time Analyst: 10/04/2010 08:56 LKT

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Benzene	ug/l	20	19.7	98.6	74-123
Ethylbenzene	ug/l	20	20.5	103	72-127
Toluene	ug/l	20	21.6	108	74-126
m,p-Xylene	ug/l	40	40.3	101	71-129
o-Xylene	ug/l	20	20.1	100	74-130
Xylenes, Total	ug/l	60	60.33	101	71-130
4-Bromofluorobenzene (S)	%			104	74-125
1,2-Dichloroethane-d4 (S)	%			79.7	70-130
Toluene-d8 (S)	%			102	82-118

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 73692 73693 Original: H10100033001

MS Analysis Date/Time Analyst: 10/04/2010 13:15 LKT

MSD Analysis Date/Time Analyst: 10/04/2010 13:44 LKT

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Benzene	ug/l	ND	20	19.9	19.5	99.7	97.6	70-124	2.1	20
Ethylbenzene	ug/l	ND	20	19.0	20.1	94.9	100	35-175	5.6	20

QC results presented in the QC Control Data have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 73692 73693 Original: H10100033001

MS Analysis Date/Time Analyst: 10/04/2010 13:15 LKT

MSD Analysis Date/Time Analyst: 10/04/2010 13:44 LKT

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Toluene	ug/l	ND	20	21.3	21.8	107	109	70-131	2.2	20
m,p-Xylene	ug/l	ND	40	38.4	40.2	95.9	101	35-175	4.8	20
o-Xylene	ug/l	ND	20	19.0	19.6	94.9	98.1	35-175	3.4	20
Xylenes, Total	ug/l	ND	60	57.35	59.87	95.6	99.8	35-175	4.3	20
4-Bromofluorobenzene (S)	%	92.7				98.6	103	74-125		
1,2-Dichloroethane-d4 (S)	%	79.8				79.5	78.7	70-130		
Toluene-d8 (S)	%	99.6				99.7	105	82-118		

QC results presented in the QC Control Data have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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

QUALITY CONTROL DATA

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

QC Batch: DIGM/2100 Analysis Method: SW-846 6010B

QC Batch Method: SW-846 3010A Preparation: 09/27/2010 15:00 by R_V

Associated Lab Samples: H10090638001 H10090638002 H10090644001 H10090644002 H10090644003 H10090644004 H10090645001 H10090645002 H10090645003 H10090645004 H10090646001 H10090646002 H10090646003

METHOD BLANK: 71885

Analysis Date/Time Analyst: 10/01/2010 13:12 EBG

Parameter	Units	Blank Result	Qualifiers	Reporting Limit
Iron	mg/l	ND		0.0200
Manganese	mg/l	ND		0.00500

LABORATORY CONTROL SAMPLE: 71886

Analysis Date/Time Analyst: 10/01/2010 13:18 EBG

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Iron	mg/l	1.0	1.00	100	80-120
Manganese	mg/l	0.10	0.1014	101	80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 71883 71884 Original: H10090644004

MS Analysis Date/Time Analyst: 10/01/2010 13:30 EBG

MSD Analysis Date/Time Analyst: 10/01/2010 13:36 EBG

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Iron	mg/l	ND	1.0	0.9463	0.9748	93.1	96.0	75-125	3.0	20
Manganese	mg/l	9.73	0.10	9.713	9.957	NC	NC	75-125	NC	20

QC results presented in the QC Control Data have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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QUALITY CONTROL DATA

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

QC Batch: IC/1465 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: H10090644001 H10090644002 H10090644003 H10090644004

METHOD BLANK: 72048

Analysis Date/Time Analyst: 09/26/2010 02:45 GLN

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

LABORATORY CONTROL SAMPLE: 72049

Analysis Date/Time Analyst: 09/26/2010 03:02 GLN

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits
Fluoride	mg/l	10	9.232	92.3	85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 72050 72051 Original: H10090644004

MS Analysis Date/Time Analyst: 09/26/2010 08:08 GLN

MSD Analysis Date/Time Analyst: 09/26/2010 08:25 GLN

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Fluoride	mg/l	1.81	10	11.22	11.58	94.2	97.7	80-120	3.1	20

QC results presented in the QC Control Data have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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Houston, TX 77054
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QUALITY CONTROL DATA

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

QC Batch: IC/1484 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: H10090644001 H10090644002 H10090644003 H10090644004 H10090645001 H10090645002 H10090645003 H10090645004 H10090646001 H10090646002 H10090646003

METHOD BLANK: 74573

Analysis Date/Time Analyst: 09/27/2010 13:58 GLN

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

LABORATORY CONTROL SAMPLE & LCSD: 74574 74575

LCS Analysis Date/Time Analyst: 09/27/2010 14:15 GLN

LCSD Analysis Date/Time 09/28/2010 10:46 GLN

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD
Sulfate	mg/l	10	9.776	9.766	97.8	97.7	85-115	0.1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 74576 74577 Original: H10090644004

MS Analysis Date/Time Analyst: 09/27/2010 21:55 GLN

MSD Analysis Date/Time Analyst: 09/27/2010 22:12 GLN

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Sulfate	mg/l	3750	10000	14040	14010	103	103	80-120	0.2	20

QC results presented in the QC Control Data have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules. Also, MS/MSD % recoveries are calculated by the SPL LIMS using any detected value greater than the MDL.

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Legend

(S) - Indicates analyte is a surrogate

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: H10090644 : COP - Howell K-1 Project Number: COP - Howell K-1

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
H10090644001	**MW-1**	SW-846 3010A	DIGM/2100	SW-846 6010B	ICP/1647
H10090644002	**MW-2**	SW-846 3010A	DIGM/2100	SW-846 6010B	ICP/1647
H10090644003	**MW-3**	SW-846 3010A	DIGM/2100	SW-846 6010B	ICP/1647
H10090644004	**MW-4**	SW-846 3010A	DIGM/2100	SW-846 6010B	ICP/1647
H10090644001	**MW-1**	EPA 300.0	IC/1465		
H10090644002	**MW-2**	EPA 300.0	IC/1465		
H10090644003	**MW-3**	EPA 300.0	IC/1465		
H10090644004	**MW-4**	EPA 300.0	IC/1465		
H10090644001	**MW-1**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644002	**MW-2**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644003	**MW-3**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644004	**MW-4**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644005	**Duplicate**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644006	**Trip Blank**	SW-846 5030	MSV/2690	SW-846 8260B	MSV/2691
H10090644001	**MW-1**	EPA 300.0	IC/1484		
H10090644002	**MW-2**	EPA 300.0	IC/1484		
H10090644003	**MW-3**	EPA 300.0	IC/1484		
H10090644004	**MW-4**	EPA 300.0	IC/1484		

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Sample Receipt Checklist

WorkOrder:	H10090644	Received By	LOG
Date and Time	09/25/2010 08:55	Carrier Name:	FEDEXP
Temperature:	1.0°C	Chilled By:	Water Ice

1.	Shipping container/cooler in good condition?	YES
2.	Custody seals intact on shipping container/cooler?	YES
3.	Custody seals intact on sample bottles?	Not Present
4.	Chain of custody present?	YES
5.	Chain of custody signed when relinquished and received?	YES
6.	Chain of custody agrees with sample labels?	YES
7.	Samples in proper container/bottle?	YES
8.	Samples containers intact?	YES
9.	Sufficient sample volume for indicated test?	YES
10.	All samples received within holding time?	YES
11.	Container/Temp Blank temperature in compliance?	YES
12.	Water - VOA vials have zero headspace?	YES
13.	Water - Preservation checked upon receipt(except VOA*)?	Not Applicable

*VOA Preservation Checked After Sample Analysis

SPL Representative: Contact Date & Time:

Client Name Contacted:

Client Instructions:

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

Analysis Request and Chain of Custody Record

8880 Interchange Drive, Houston, TX 77054

H10090644

Company Name: Tetra Tech / Conoco Phillips
Contact: Kelly Blanchard
Address: 6121 Indian School Rd. NE, Ste. 200
Phone/Fax: (505) 237-8440 / (505) 237-8656
Email Address: kelly.blanchard@tetratech.com
Invoice To:
Purchase Order No:
Project Name/No: Howell K-1
Site Address:
Sampled By: Christine Mathews

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

QA/QC Level: TRRP [ ] Level 3 [ ] STD [X] Other [ ]

SAMPLE ID	DATE	TIME	Water	Soil	Sludge	Other	Number Containers	Container Type	Preservative	BTEX	Sulfate, Fl	Dissolved Fe, Mn				
MW-1	9/23/10	1625	X				3	VOA	HCL	X						
MW-1	9/23/10	1625	X				2	16oz P	Ø		X	X				
MW-2	9/23/10	1500	X				3	VOA	HCL	X						
MW-2	9/23/10	1500	X				2	16oz P	Ø		X	X				
MW-3	9/23/10	1530	X				3	VOA	HCL	X						
MW-3	9/23/10	1530	X				2	16oz P	Ø		X	X				
MW-4	9/23/10	1600	X				3	VOA	HCL	X						
MW-4	9/23/10	1600	X				2	16oz P	Ø		X	X				
Duplicate	9/23/10	1635	X				3	VOA	HCL	X						
Trip Blank	9/24/10	1230	X				2	VOA	HCL	X						

SHORT HOLDS

TAT: Same [ ] 72h [ ] 48hr [ ] 10 day [X] Other [ ] [ ]

Special Detection Limits (Specify): Fluoride detection Limit is .16

Special Reporting Requirements (Specify):

Consultant Remarks: please filter & preserve metals before analysis

Laboratory Remarks:

PM review:

Relinquished by Sampler	Date	Time	Received by
Christine Mathews	9/24/10	1300	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by SPL, Inc:
	9/25/10	8:55	Amanda McKenan