

CHEVRON U.S.A., INC.
MARK OWEN #9 RESERVE PIT (AP #57)
NW/4 OF SE/4 (J) SECTION 34, T-21-S; R-37-E
LEA COUNTY, NEW MEXICO



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LEA COUNTY, NEW MEXICO

Prepared For:

Mr. Matt Hudson CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY UPSTREAM BUSINESS UNIT 1400 Smith Street, Room 07062 Houston, Texas 77002

> Prepared by: Conestoga-Rovers & Associates

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SEPTEMBER 26, 2011 Ref. No. 046121 (7)

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1.0 INTRODUCTION

This Annual Groundwater Monitoring Report presents groundwater data collected during the 2010 reporting period at Mark Owen #9 Reserve Pit (hereafter referred to as the "Site"). On February 25, June 3, August 31, and November 22, 2010, Conestoga-Rovers & Associates (CRA) conducted the semi-annual groundwater monitoring events on behalf of Chevron Environmental Management Company (CEMC).

The legal description of the Site is the NW/4 of the SE/4 of Section 34, Township 21 South, Range 37 East, Lea County, New Mexico (FIGURE 1). The Site is situated immediately southeast of the town of Eunice, New Mexico and is associated with a release of fluids from the reserve pit utilized in the drilling of the Mark Owen #9 oil well by Chevron in 2006. Global Positioning System (GPS) coordinates for the site are Latitude 32° 25′56.49″ North and Longitude 103° 08′ 46.27″ West. The O-GRID number assigned to the Site is reported as #4323. The Mark Owen #9 well site is currently operated by Chevron USA.

A Revised Stage 1 Abatement Plan for the Mark Owen #9 Reserve Pit was submitted on behalf of CEMC by CRA to the New Mexico Oil Conservation Division (NMOCD) in a correspondence dated March 13, 2007. The NMOCD assigned AP #57 to this Abatement Plan, however, the agency has not yet provided a written response to the March 2007 submittal that included data from soil and groundwater investigation and remedial activities performed at the site (by Environmental Plus, Inc.) at the site in 2006. Consequently, an investigation was performed at the site in October 2007 to collect current information associated with the indicated May 2006 release of drilling fluids from the reserve pit into the surrounding soils and groundwater. An Interim Investigation Report was submitted to the agency in March 2008 summarizing the results of the October 2007 investigation. A 2009 Annual Groundwater Monitoring Report was submitted by CRA to CEMC in April 2010. Currently the Site is monitored quarterly by CRA.

2.0 REGULATORY FRAMEWORK

The NMOCD guidelines require groundwater to be analyzed for constituents of concern (COC) as defined by the New Mexico Water Quality Control Commission (NMWQCC) regulations. The NMWQCC regulations provide Human Health Standards for Groundwater. The COC in affected groundwater at the Site is chloride. In this report, groundwater analytical results for chloride, TDS, BTEX, sulfates and total alkalinity are compared to the NMWQCC standards shown in the following table:

Analyte	NMWQCC Standard for Groundwater (mg/L)
Chloride ²	250
Fluoride ¹	1.6
Nitrate (NO ₃ as N) ¹	10
Sulfate (SO ₄) ²	600
Total Dissolved Solids (TDS) ²	1,000
Benzene ¹	0.01
Toluene ¹	0.75
Ethylbenzene ¹	0.75
Total Xylenes ¹	0.62

Notes:

- 1) ¹NMWQCC Human Health Standards per NMAC 20.6.2.310B
- 2) ²NMWQCC OTHER STANDARDS FOR DOMESTIC WATER SUPPLY PER NMAC20.6.2.3103B

3.0 GROUNDWATER INVESTIGATION ACTIVITIES

In September 2010, three groundwater monitoring wells, MW-5, MW-6, and MW-7, were installed at the Site. The wells were installed to further delineate COCs associated with the reserve pit release. Groundwater gauging results are in Table I. Groundwater analytical results are in Tables II and III. Soil sample results are located in Table IV. The respective well locations are presented in FIGURE 2.

3.1 FIELD METHODOLOGIES

Prior to mobilizing the drilling equipment to the Site, the boring location areas were marked and a utility notification made at least 48-hour prior to mobilization. Each location was cleared with a post hole digger prior to drilling operations.

An air-rotary rig, operated by a licensed State of Texas water well driller, White Drilling of Clyde, Texas, was utilized to advance the borings to depths ranging from 45 to 50-feet bgs to assess the nature and extent of chloride, sulfate and total dissolved solids groundwater impact at the site as well as soils conditions in the vadose zone.

The three borings were converted into four-inch groundwater monitoring wells (MW-5, MW-6, and MW-7) at each location utilizing 35feet of screen straddling the soil/ water interface. PVC casing was installed to extend three feet above the ground surface was used on all four wells. The four monitoring wells, MW-5, MW-6, and MW-7, were terminated 50, 45, and 48 feet below the ground surface, respectively. General well specifications included: four-inch diameter PVC casing/screens with gravel-packed screened intervals, 0.020-inch slotted screen , bentonite seals above the gravel pack, and above ground surface completions with concrete pads. The wells were developed by pump and bailing. The purge water was containerized in drums and disposed of by Nabors Well Services LTD (Nabors).

3.2 GROUNDWATER ASSESSMENT RESULTS

Groundwater was encountered 31.85 feet below top of casing (TOC) in MW-5, 30.22 feet below TOC in MW-6, and 34.69 feet below TOC in MW-7 in a September 23, 2010 gauging event. The NMOSE Well Records and CRA Soil Boring Logs and Monitor Well Details are in APPENDIX B.

Historic depth to groundwater and related measurements and information pertaining to the monitoring wells are presented in TABLE I – Groundwater Gauging Summary. A Topographic Survey of Monitor Wells, utilized to calculate top of casing (TOC) elevations and depth to groundwater elevations, is presented in APPENDIX C. The three new wells are consistent in elevation and gradient with the historical data. The survey was performed by West Company of Midland, Inc. in October 2010; MW-5, MW-6, and MW-7 were surveyed.

Groundwater samples were collected after developing of the monitor wells. Samples from the four monitoring wells were shipped to Lancaster Laboratories of Lancaster, Pennsylvania using EPA-approved chain-of-custody procedures. The water samples were analyzed for chlorides, sulfates, and TDS by Environmental Protection Agency (EPA) Methods 300.0 and 2540C. The fluids recovered during the sampling event were containerized and disposed of by Nabors Well Services LTD (Nabors). Groundwater COCs detected above the secondary drinking water standards for MW-5 and MW-6 are highlighted in TABLE II and are listed below:

Chloride was detected at concentrations of 571 mg/L in MW-5 and 554 mg/L in MW-6, above the TCEQ secondary standard (250 mg/L) in September 2010;

The three new wells, MW-5, MW-6, and MW-7 were also re-sampled in November 2010 as part of the fourth quarter sampling event. Copies of the certified analytical reports and chain-of-custody documentation are attached in APPENDIX A.

4.0 GROUNDWATER MONITORING ACTIVITIES

The Site is monitored quarterly with a network of four monitor wells (MW-1, MW-2, MW-3, and MW-4) installed in October 2007. Three additional wells (MW-5, MW-6, and MW-7) were installed in September 2010 and subsequently added to the quarterly schedule. Each well has an above-ground surface completion with protective bollards.

Prior to purging the monitor wells, static fluid levels were measured with an electronic interface probe to the nearest hundredth of a foot. After recording fluid levels, the wells were purged of three casing volumes of groundwater using a monsoon pump. Water quality parameters pH, temperature and conductivity were recorded during purging. All non-disposable groundwater sampling equipment was decontaminated with a soap (Liquinox®) and potable water wash, a potable water rinse and a final de-ionized water rinse. Subsequent to the purging process, groundwater samples were collected with new disposable PVC bailers. Laboratory-supplied sample containers were filled directly from the bailers.

The groundwater samples were placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers were sealed for shipment and proper chain-of-custody documentation accompanied the samples to Lancaster Laboratories of Lancaster, Pennsylvannia using EPA-approved chain-of-custody procedures. The water samples were analyzed for total petroleum hydrocarbons by (TPH) by EPA Method 8015 modified for diesel range organics (DRO) and gasoline range organics (GRO) benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8021B, and groundwater quality (total alkalinity, chloride, sulfate and total dissolved solids (TDS) by EPA Methods 160.1, 300.0 and 310.1, respectively. The fluids generated during the sampling events were containerized onsite in labeled drums and subsequently managed at an NMOCD permitted salt water disposal (SWD) facility by Nabors Well Services LTD (Nabors).

4.1 POTENTIOMETRIC SURFACE AND GRADIENT

Groundwater elevation data are presented in TABLE I and are consistent with elevations from the 2009 data. Groundwater gradient maps for February, June, August and November 2010 are presented in FIGURES 3, 4, 5 and 6, respectively. Depth to groundwater ranged from 32.68-feet to 36.42-feet below top of casing on February 25, 2010, ranged from 32.80-feet to 36.41-feet below top of casing on June 3, 2010, ranged from 32.51-feet to 36.05-feet below top of casing on August 31, 2010 and from 29.26-feet to 35.93-feet below top of casing on November 22, 2010. Groundwater flow at the Site is to the southeast at a gradient of 0.004-ft/ft.

4.2 <u>ANALYTICAL RESULTS</u>

The 2010 analytical results are summarized in TABLE II and TABLE III. Five monitor wells (MW-1, MW-4, MW-5, MW-6 and MW-7) exceeded chloride and TDS NMWQCC standards. All seven monitoring wells exhibited BTEX below NMWQCC standards. The groundwater analytical summaries (including comparisons to applicable NMWQCC standards) are provided in TABLES II and III. Isopleth maps approximating chloride and

TDS concentrations for the February, June, August and November 2010 events are shown on FIGURES 7 through 14.

Groundwater COCs detected above the NMWQCC "Other Standards for Domestic Water Supply" are highlighted in TABLE III and are listed below:

- Chloride was detected at concentrations above the NMWQCC "Other Standards for Domestic Water Supply" (250 mg/L) in MW-1 and MW-4 during the February, June and August 2010 events, and in MW-1, MW-4, MW-5, MW-6, and MW-7 during the November 2010 event;
- Total Dissolved Solids were detected at concentrations above the NMWQCC "Other Standards for Domestic Water Supply" (1,000 mg/L) in MW-1 and MW-4 during February, June and August 2010 events, and in MW-1, MW-4, MW-5, MW-6, and MW-7 during the November 2010 event.

Duplicate samples were collected from MW-1 during the February 2010 event, from MW-4 during the June and August 2010 events and MW-6 during the November 2010 event. Duplicate constituents were detected without any significant deviations during all events. Copies of the certified analytical reports and chain-of-custody documentation are attached in APPENDIX A.

5.0 **SUMMARY OF FINDINGS**

Based on groundwater assessment activities performed by CRA at the Site in February, June, August and November, 2010, the summaries of findings include the following:

- CRA/CEMC has yet to receive comments on a Revised Stage 1 AP Plan (AP#57) that was submitted to the NMOCD on March 13, 2007. Consequently, a Site investigation was performed in October 2007 and a groundwater sampling event conducted on November 1, 2007. An Interim Investigation Report was submitted to the agency in March 2008. CRA conducted quarterly groundwater monitoring for 2010 and installed three additional monitor wells in September 2010;
- The depth to groundwater from TOC ranged from 32.72-feet to 32.68-feet to 36.42-feet below top of casing on February 25, 2010, ranged from 32.80-feet to 36.41-feet below top of casing on June 3, 2010, ranged from 32.51-feet to 36.05-feet below top of casing on August 31, 2010 and from 29.26-feet to 35.93-feet below top of casing on November 22, 2010. Groundwater flow at the Site is to the southeast at a gradient of 0.004-ft/ft;
- Two monitor wells exceeded NMOCD "Other Standards for Domestic Water Supply" for chlorides and TDS during the February, June and August 2010 events: MW-1 and MW-4;
- Five monitor wells exceeded NMOCD "Other Standards for Domestic Water Supply" for chlorides and TDS during November 2010 events: MW-1, MW-4, MW-5, MW-6 and MW-7;
- All seven monitoring wells exhibited BTEX and Sulfate concentrations below their respective NMWQCC standards;
- The chloride plume is not delineated down gradient of MW-5.

6.0 **RECOMMENDATIONS**

Based upon the summary of findings presented in this report, the following is recommended:

- Delineate groundwater impacts to the east and south of the reserve pit;
- Continue quarterly groundwater sampling in 2011 to monitor the fluctuating levels chlorides and total dissolved solids;
- Omit BTEX analysis from future groundwater sampling events since all monitor wells exhibit BTEX below detectable limits for the past four events.

All of Which is Respectfully Submitted,

CONESTOGA-ROVERS & ASSOCIATES

Desireé Crenshaw

Project Manager

Thomas C. Larson Senior Project Geologist

Thomas Clayon

EUNICE QUADRANGLE NEW MEXICO LAT= 32° 25' 56.9" N LONG= 103° 08' 47.9"W PHOTOREVISED 1977



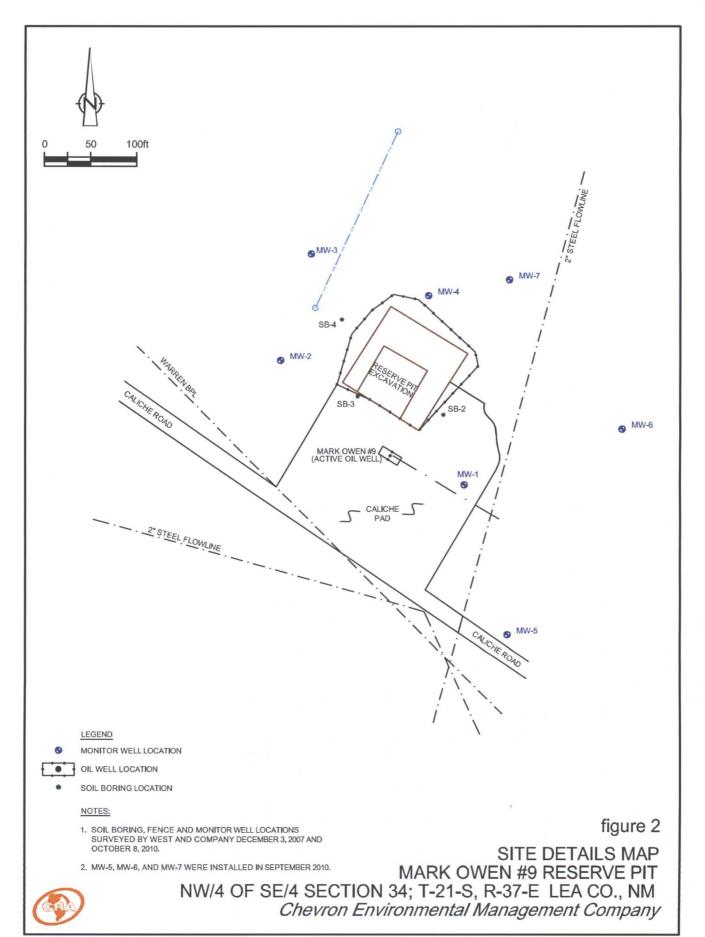


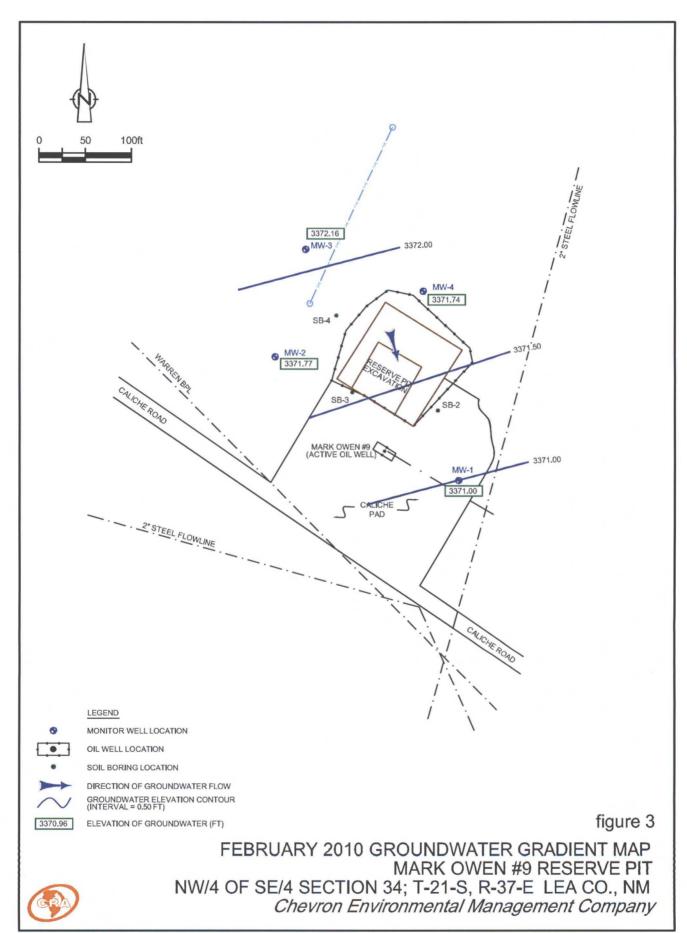
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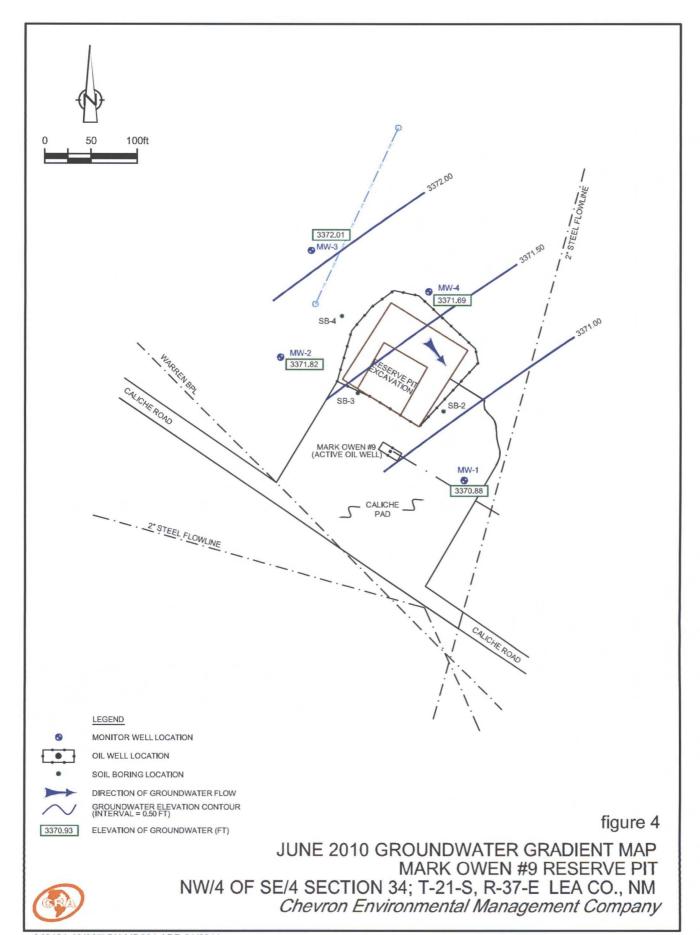
SITE LOCATION MAP MARK OWEN #9 RESERVE PIT 34; T-21-S, R-37-E LEA CO., NM

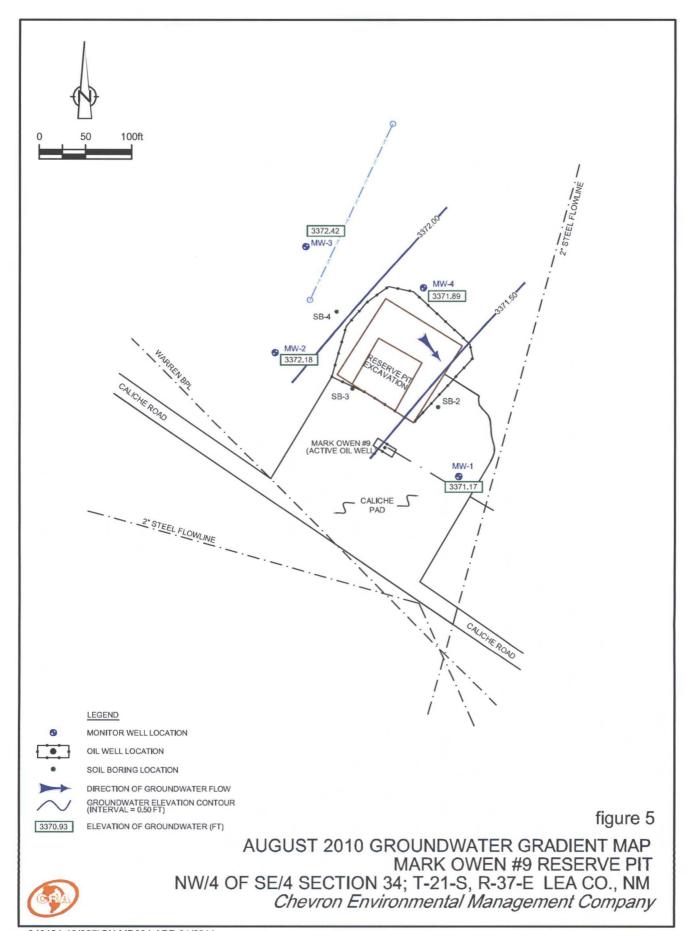
NW/4 OF SE/4 SECTION 34; T-21-S, R-37-E LEA CO., NM Chevron Environmental Management Company

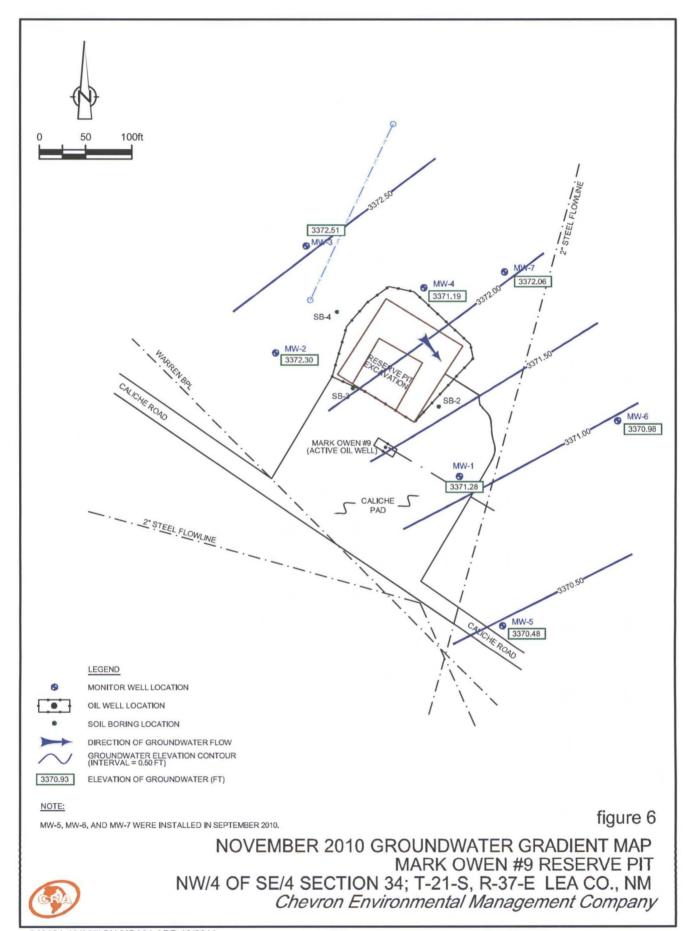


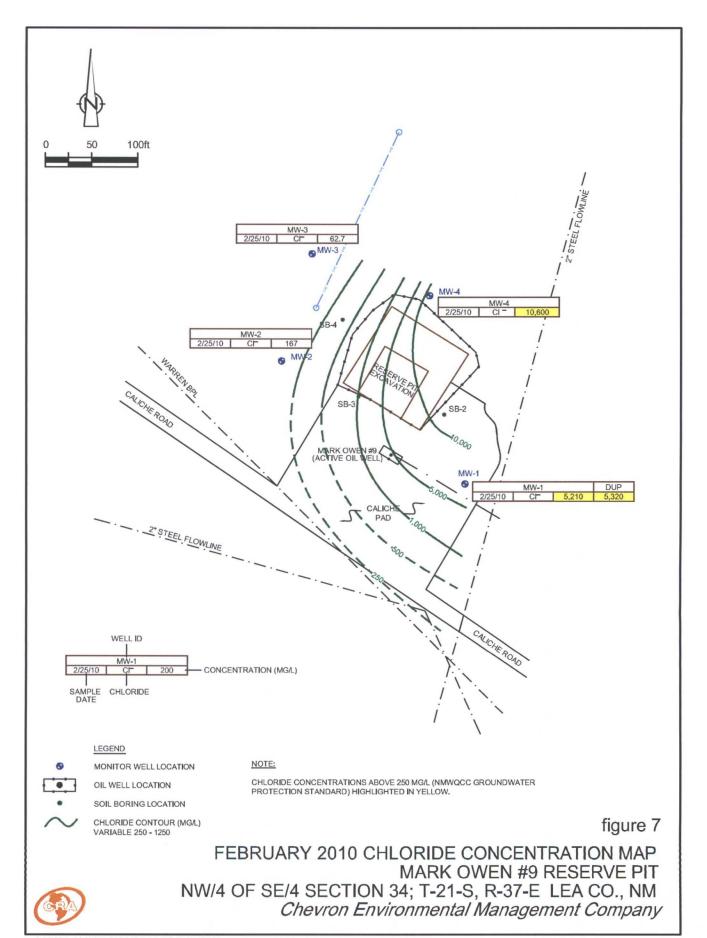


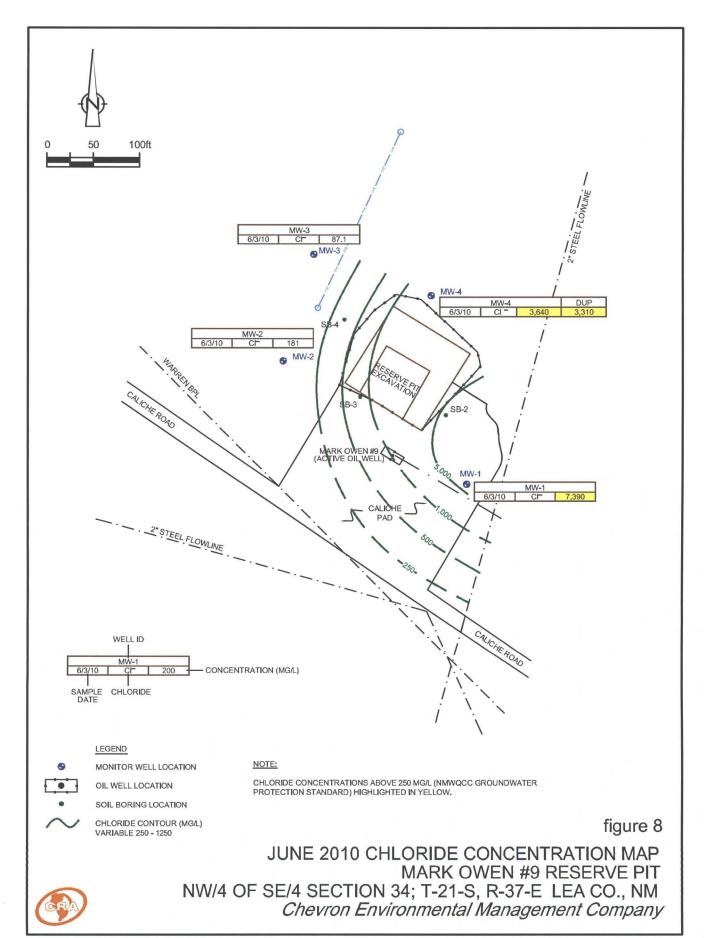


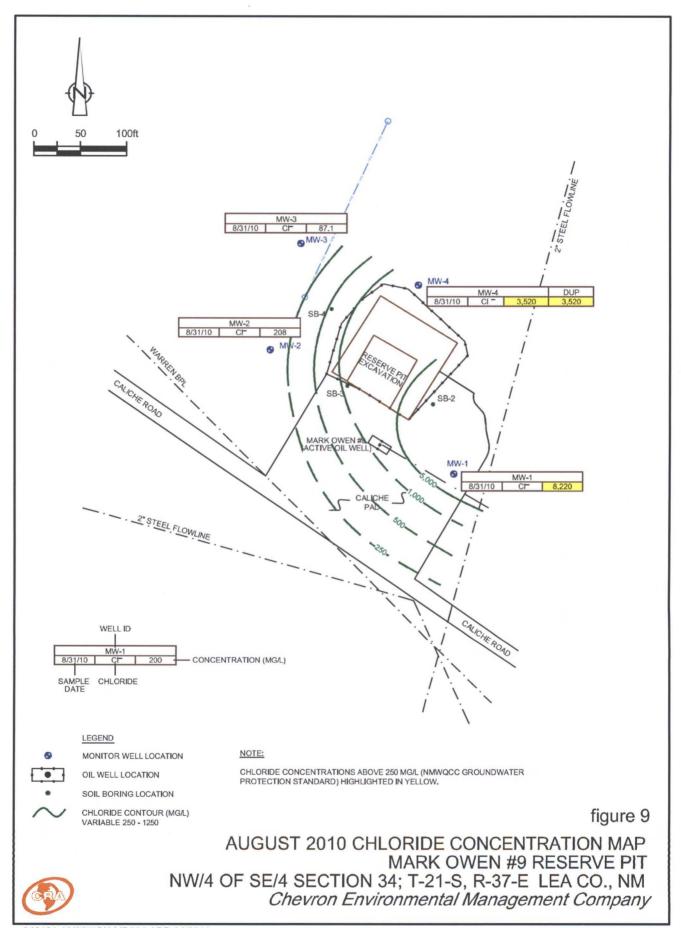


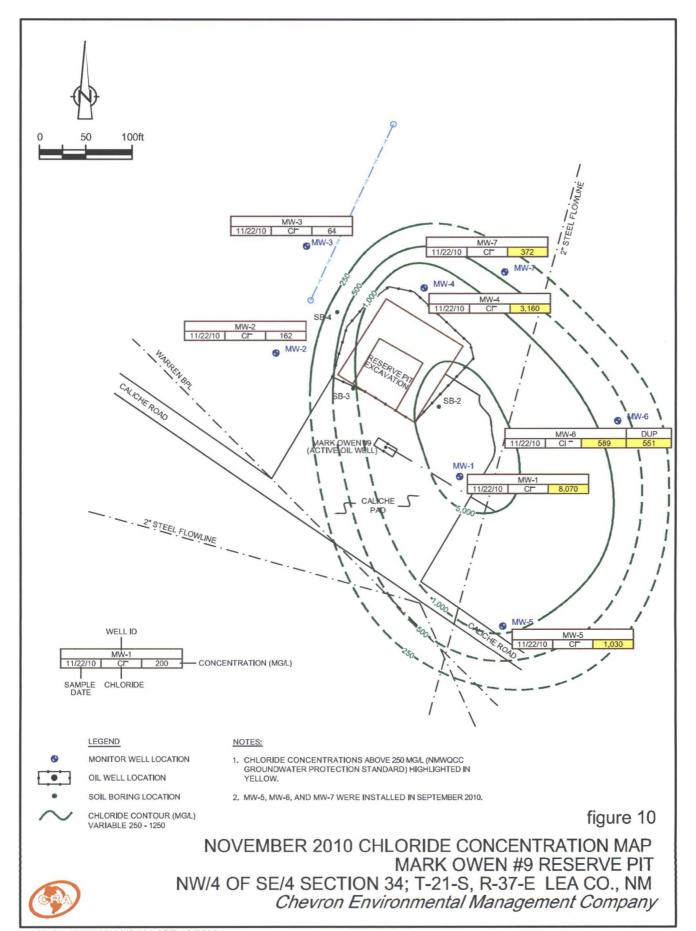


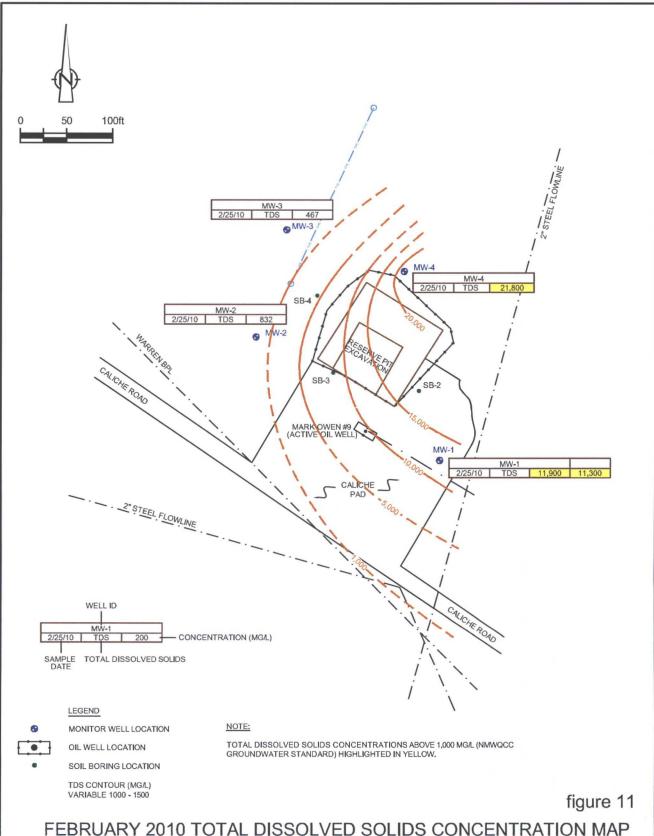






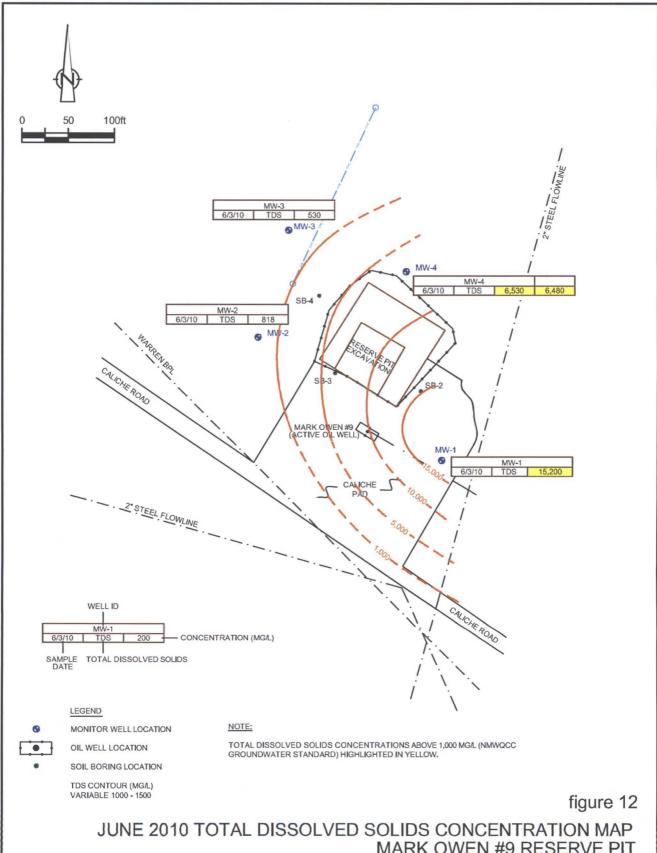




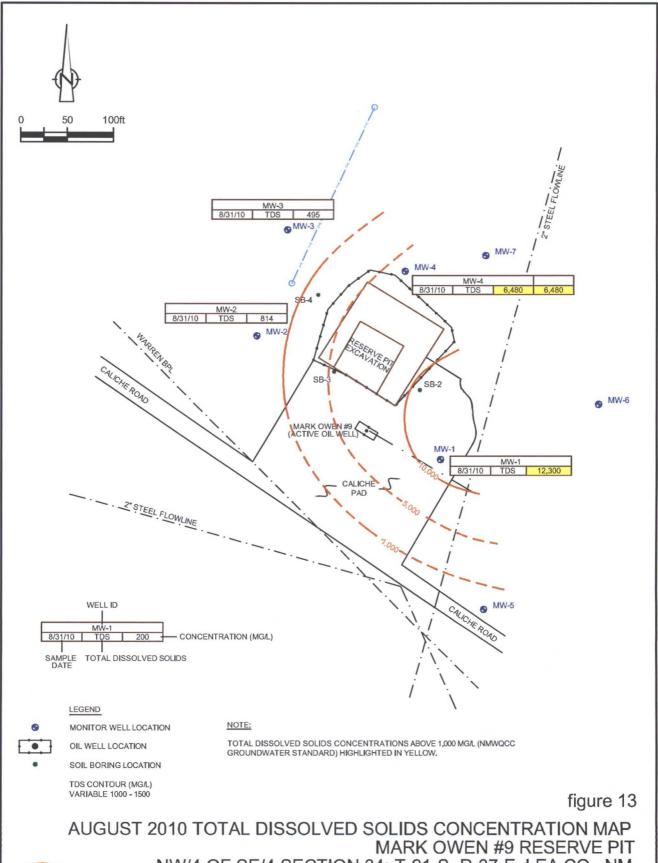


MARK OWEN #9 RESERVE PIT

NW/4 OF SE/4 SECTION 34; T-21-S, R-37-E LEA CO., NM Chevron Environmental Management Company



NE 2010 TOTAL DISSOLVED SOLIDS CONCENTRATION MAP MARK OWEN #9 RESERVE PIT NW/4 OF SE/4 SECTION 34; T-21-S, R-37-E LEA CO., NM Chevron Environmental Management Company



NW/4 OF SE/4 SECTION 34; T-21-S, R-37-E LEA CO., NM Chevron Environmental Management Company

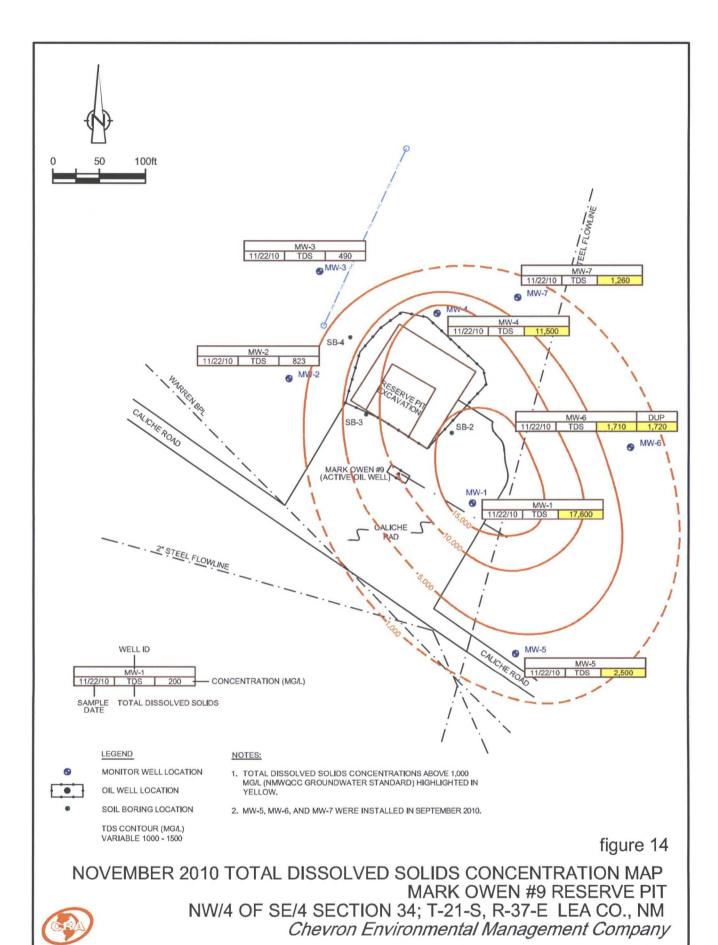


TABLE I

GROUNDWATER GAUGING SUMMARY CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY OWEN #9 RESERVE PIT RELEASE NW/4, SE/4, SECTION 34, TOWNSHIP 21 SOUTH, RANGE 37 EAST LEA COUNTY, NEW MEXICO

WELL TOC elev ¹	DATE	Well Diameter (inches)	Total Depth (ft below TOC)	Depth to Water (ft below TOC)	Depth to LNAPL (ft below TOC)	LNAPL Thickness (ft)	Corrected Groundwater Elevation (ft above MSL ²)	Scree: interval (
MW-01	11/1/2007	4	54.00	32.55			3371.13	i
3,403.68	4/25/2008		54.03	32.60			3371.08	
·	9/16/2008			32.81			3370.87	
	4/20/2009		55.00	32.72		!	3370.96	
	10/26/2009		54.10	32.75			3370.93	
	2/25/2010		53.90	32.68			3371.00	16'-51
	6/3/2010		54,02	32.80			3370.88	
	8/31/2010		53.85	32.51			3371.17	
	11/22/2010		53.90	32.40			3371.28	
MW-02	11/1/2007	4	60.00	36.24			3371.99	
3,408.23	4/25/2008		60.29	36.40			3371.83	
	9/16/2008			36.48			3371.75	
	4/20/2009	i	60.22	36.45			3371.78	
	10/26/2009		60.30	36.46			3371.77	22'-57
	2/25/2010		61.25	36.42			3371.81	22-5/
	6/3/2010		60.26	36.41			3371.82	
	8/31/2010		60.28	36.05	-		3372.18	
	11/22/2010		60.19	35.93	_	-	3372.30	
MW-03	11/1/2007	4	56.50	34.69			3372.35	
3,407.04	4/25/2008		57.55	34.89			3372.15	
	9/16/2008			35.00			3372.04	
	4/20/2009		57.51	35.02			3372.02	
	10/26/2009		57.44	35.05			3371.99	19'-54
	2/25/2010		58.60	34.88		_	3372.16	
	6/3/2010		57.52	35.03	_	_	3372.01	
	8/31/2010		57.55	34.62			3372.42	
	11/22/2010		57.55	34.53			3372.51	
MW-04	11/1/2007	4	54.00	32.69			3372.05	
3,404.74	4/25/2008		54.22	32.83	_		3371.91	16'-51
	9/16/2008			33.02			3371.72	l
	4/20/2009		54.23	33.02			3371.72	
	10/26/2009		54.25	33.05			3371.69	
	2/25/2010		54.92	33.00	_		3371.74	
	6/3/2010		54.07	33.05	_		3371.69	
	8/31/2010		54.15	32.85	_		3371.89	
	11/22/2010		54.15	32.55			3372.19	
MW-05 3402.1	11/22/2010	4	52.74	31.62			3370.48	
MW-06 3400.24	11/22/2010	4	48.68	29.26			3370.98	
MW-07 3402.13	11/22/2010	4	51.01	30.07			3372.06	

Notes: ¹TOC - Top of Casing ²MSL - Mean Sea Level ³BGS - Below ground surface

Professional Survey conducted by West Company of Midland, Inc. on December 10, 2007.

TABLE II

GROUNDWATER ANALYTICAL SUMMARY - BTEX AND TPH CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY OWEN #9 RESERVE PIT RELEASE NW/4, SE/4, SECTION 34, TOWNSHIP 21 SOUTH, RANGE 37 EAST LEA COUNTY, NEW MEXICO

Sample				Ethyl-		3 1	TPH	
ID	Sample Date	Benzene	Toluene	Benzene	Total Xylenes	∉ GRO∴	DRO	Total
		New Mex	ico Water Qual	ity Control Co	mmission Stan	dard		
		0.01	0.75	0.75	0.62			
MW-1	11/1/07	<0.00006	<0.0001	<0.00012	<0.00021	<0.02014	<0.36	<0.38014
	4/25/08	<0.00037	<0.00039	< 0.00042	0.00035	<0.050	<0.000024	<0.050024
	9/16/08	<0.001	<0.001	< 0.001	<0.003	<0.100	0.25	0.25
	4/21/09	< 0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
DUP	4/21/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	10/27/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	2/25/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
DUP	2/25/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	8/31/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	11/22/10	<0.0002	<.0002	<.0002	<0.0006	NA	NA	NA
MW-2	11/1/07	<0.00006	0.00035J	<0.00012	<0.00021	<0.02014	1.8	1.82014
	4/25/08	<0.00037	<0.00039	<0.00042	0.00035	<0.050	<0.000024	<0.050024
	9/16/08	<0.001	<0.001	<0.001	<0.003	<0.100	0.07	0.070
	4/21/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	10/27/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	2/25/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	8/31/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	11/22/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
MW-3	11/1/07	<0.00006	0.0005J	<0.00012	<0.00021	<0.02014	<0.36	<0.38014
	4/25/08	< 0.00037	<0.00039	<0.00042	0.00035	<0.050	<0.000024	<0.050024
	9/16/08	< 0.001	<0.001	< 0.001	< 0.003	<0.100	0.073	0.073
	4/21/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	10/27/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	2/25/10	< 0.0002	<0.0002	< 0.0002	<0.0006	NA	NA	NA
	8/31/10	<0.0002	<0.0002	< 0.0002	<0.0006	NA	NA	NA
	11/22/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
MW-4	11/1/07	<0.00006	0.00052J	<0.00012	<0.00021	<0.02014	<0.36	<0.38014
DUP	11/1/07	<0.00006	0.00054J	<0.00012	<0.00021	< 0.02014	<0.36	<0.38014
	4/25/08	<0.00037	<0.00039	< 0.00042	0.00035	<0.050	<0.000024	<0.050024
DUP	4/25/08	<0.00037	<0.00039	< 0.00042	0.00035	<0.050	<0.000024	<0.050024
	9/16/08	<0.001	<0.001	<0.001	<0.003	<0.100	0.052	0.052
DUP	9/16/08	<0.001	<0.001	<0.001	<0.003	<0.100	0.052	0.052
	4/21/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	10/27/09	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
	2/25/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA
,	8/31/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA

TABLE II

GROUNDWATER ANALYTICAL SUMMARY - BTEX AND TPH CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY OWEN #9 RESERVE PIT RELEASE NW/4, SE/4, SECTION 34, TOWNSHIP 21 SOUTH, RANGE 37 EAST LEA COUNTY, NEW MEXICO

Sample ID	Sample Date		Toluene	Ethyl- Benzene	Total Xylenes	GRÓ	TPH DRO	Total,		
	New Mexico Water Quality Control Commission Standard									
		0.01	0.75	0.75	0.62					
MW-4	11/22/10	<0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA		
(continued)							1			
MW-5	9/23/10	<0.0002	<0.0002	<0.0002	<0.0006	<0.0020	0.002	0.002		
	11/22/10	< 0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA		
]			
MW-6	9/23/10	<0.0002	<0.0002	<0.0002	<0.0006	<0.0020	0.280	0.280		
	11/22/10	< 0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA		
DUP	11/22/10	< 0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA		
MW-7	9/23/10	<0.0002	<0.0002	<0.0002	<0.0006	<0.0020	0.340	0.340		
	11/22/10	< 0.0002	<0.0002	<0.0002	<0.0006	NA	NA	NA		

Notes:

- 1) Bold concentrations above lab reporting limits.
 2) BTEX analysis by EPA Method 8021B
 3) TPH (GRO/DRO) analysis by EPA Method 8015 Modified.
 4) Results shown in mg/L.
 5) J = estimated value between RL & MDL
 6) DUP = Duplicate sample

TABLE III

GROUNDWATER ANALYTICAL SUMMARY - BTEX AND TPH CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY OWEN #9 RESERVE PIT RELEASE NW/4, SE/4, SECTION 34, TOWNSHIP 21 SOUTH, RANGE 37 EAST LEA COUNTY, NEW MEXICO

					RCRA	Metals				AND EAST FOR TO	Groundwat	ter Quality	
Sample I. D.		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Alkalinity (CaCO ₃)	Chloride	Sulfate	Total Dissolved Solids
No.	Date	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			NMWQCC I	Iuman Health	Standards fo	or Groundwa	iter ¹			NMWQCC Oth	er Standards	for Domestic	Water Supply ²
		0.1	1.0	0.01	0.05	0.05	0.002	0.05	0.05		250	600	1000
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L
MW-1	11/01/07	0.0144B	0.0839	< 0.00073	<0.00155	<0.0021	<0.000053	0.00752B	<0.00125	201	321	84.4	1,010
	04/25/08	0.0118B	0.127	< 0.00073	0.0036B	< 0.0021	< 0.000066	0.00536B	< 0.00125	167	623	124	NA
	09/16/08	0.014	0.40	< 0.002	0.0024B	< 0.003	< 0.0002	0.0072	< 0.005	146	1,590	154	3,620
	04/21/09	NA	NA	NA	NA	NA	NA	NA	NA	212	1,320	207	2,860
DUP	04/21/09	NA	NA	NA	NA	NA	NA	NA	NA	200	1,740	181	3,720
	10/27/09	NA	NA	NA	NA	NA	NA	NA	NA	126	9,770	297	19,000
	02/25/10	NA	NA	NA	NA	NA	NA	NA	NA	163	5,210	207	11,900
DUP	02/25/10	NA	NA	NA	NA	NA	NA	NA	NA	163	5,320	204	11,300
	06/03/10	NA	NA	NA	NA	NA	NA	NA	NA	140	7,390	243	15,200
	08/31/10	NA	NA	NA	NA	NA	NA	NA	NA	166	8,220	196	12,300
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	158	8,070	264	17,600
	, , , , , , , , , , , , , , , , , , , ,												
MW-2	11/01/07	0.0123B	0.0979	< 0.00073	<0.00155	< 0.0021	< 0.000053	0.00403B	< 0.00125	187	200	72.4	698
	04/25/08	0.0133B	0.0992	< 0.00073	0.00186B	< 0.0021	< 0.000066	0.00315B	< 0.00125	174	190	72.9	NA
	09/16/08	0.012	0.12B	< 0.002	0.0056	< 0.003	< 0.0002	0.006	< 0.005	181	182	91.9	729
	04/21/09	NA	NA	NA	NA	NA	NA	NA	NA	203	167	172	744
	10/27/09	NA	NA	NA	NA	NA	NA	NA	NA	205	175	163	830
	02/25/10	NA	NA	NA	NA	NA	NA	NA	NA	224	167	193	832
	06/03/10	NA	NA	NA	NA	NA	NA	NA	NA	221	181	141	818
	08/31/10	NA	NA	NA	NA	NA	NA	NA	NA	226	208	138	814
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	233	162	125	823
		-											
MW-3	11/01/07	0.0185B	0.102	< 0.00073	< 0.00155	< 0.0021	< 0.000053	0.00282B	< 0.00125	212	77	40.6	476
	04/25/08	0.0218	0.0882	< 0.00073	0.00178B	< 0.0021	<0.000066	< 0.00203	< 0.00125	206	99.3	49.9	NA
	09/16/08	0.026	0.096B	< 0.002	<0.005	< 0.003	< 0.0002	< 0.005	< 0.005	222	63.7	31.8	457
	04/21/09	NA	NA	NA	NA	NA	NA	NA	NA	229	53.6	32.2	447

					RCRA I	Metals					Groundwat	er Quality	
Sample I. D.		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Total Alkalinity (CaCO ₃)	Chloride	Sulfate	Total Dissolved Solids
No.	Date	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-3	10/27/09	NA	NA	NA	NA	NA	NA	NA	NA	223	65.5	35.5	488
continued)	02/25/10	NA	NA	NA	NA	NA	NA	NA	NA	231	62.7	34.8	467
	06/03/10	NA	NA	NA	NA	NA	NA	NA	NA	230	87.1	42.2	530
	08/31/10	NA	NA	NA	NA	NA	NA	NA	NA	226	82.4	46.8	495
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	225	64	52.6	490
MW-4	11/01/07	0.0203	0.117	<0.00073	<0.00205	<0.0021	<0.000053	0.00425B	<0.00125	193	6,360	180	12,100
DUP	11/01/07	0.0176B	0.116	< 0.00073	<0.00155	< 0.0021	< 0.000053	0.00246B	< 0.00125	193	6,170	189	12,800
	04/25/08	0.0206	0.0856	< 0.00073	<0.00155	< 0.0021	<0.000066	0.00316B	< 0.00125	195	5,680	163	NA
DUP	04/25/08	0.0203	0.0858	< 0.00073	<0.00158	< 0.0021	< 0.000066	< 0.00203	< 0.00125	191	5,540	163	NA
	09/16/08	0.018	0.092B	< 0.002	<0.005	< 0.003	< 0.0002	< 0.005	< 0.005	196	4,420	136	8,140
DUP	09/16/08	0.019	0.088B	<0.002	<0.005	< 0.003	< 0.0002	< 0.005	< 0.005	202	4,210	135	7,940
	04/21/09	NA	NA	NA	NA	NA	NA	NA	NA	208	128	33.2	551
	10/27/09	NA	NA	NA	NA	NA	NA	NA	NA	196	5,070	173	10,800
DUP	10/27/09	NA	NA	NA	NA	NA	NA	NA	NA	209	1,520	73.4	2,810
	02/25/10	NA	NA	NA	NA	NA	NA	NA	NA	189	10,600	339	21,800
	06/30/10	NA	NA	NA	NA	NA	NA	NA	NA	204	3,640	124	6,530
DUP	06/30/10	NA	NA	NA	NA	NA	NA	NA	NA	202	3,310	124	6,480
	08/31/10	NA	NA	NA	NA	NA	NA	NA	NA	205	3,520	121	6,480
DUP	08/31/10	NA	NA	NA	NA	NA	NA	NA	NA	207	3,520	125	6,480
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	202	3,160	122	11,500
MW-5	09/23/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	571	102	NA
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	285	1,030	120	2,500
MW-6	09/23/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	554	349	NA
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	198	589	310	1,710
DUP	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	193	551	302	1,720
MW-7	09/23/10	NA	NA	NA	NA	NA	NA	NA	NA	NA	120	70.5	NA
	11/22/10	NA	NA	NA	NA	NA	NA	NA	NA	204	372	178	1,260

Notes:

- 1) RCRA Metals Analysis by EPA Methods 6010B and 7470A.
- 2) Groundwater Quality by EPA Methods 160.1, 300.0, and 310.1.
- 3) Bold concentrations above lab reporting limits.
- 4) Higlighted concentrations above NMWQCC Other Standards for Domestic Water Supply.
- 5) 1 NMWQCC Human Health Standards Per NMAC 20.6.2.3103A

- 6) ² NMWQCC Other Standards for Domestic Water Supply Per NMAC 20.6.2.3103B
- 7) B = estimated value between RL & MDL
- 8) NA= Not analyzed
- 9) DUP = Duplicate sample

TABLE IV

SUMMARY OF SOIL ANALYTICAL DATA - BTEX/TPH/CHLORIDES Owen #9 Assessment Eunice, NM

					ETHYL-		TOTAL		TP	H (8015 M	odified)
SAMPLE ID	DATE	DEPTH (feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	BENZENE (mg/kg)	XYLENES (mg/kg)	BTEX (mg/kg)	CHLORIDE (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH (GRO/DRO) (mg/kg)
	Ne	w Mexico (Oil Conservation	n Division Reco	ommended Ren	nediation Action	n Levels (To	otal Ranking Sco	re >19)		
			10 mg/Kg				50.0 mg/Kg		-		100 mg/Kg
					Soil Boring Sam	iples					
SB-1/MW-1 9-10'	10/22/2007	10-Sep	<0.00248	<0.00683	<0.00592	<0.001819	BDL	74.4	0.324J	220	220
SB-1/MW-1 19-20'	10/22/2007	19-20	< 0.00254	<0.00699	<0.00607	<0.001869	BDL	302	0.392J	<1.25	<1.25
SB-1/MW-1 29-30'	10/22/2007	29-30	< 0.00229	< 0.0063	<0.00547	<0.0168	BDL	168	0.317J	<1.13	<1.13
SB-2 9-10'	10/23/2007	9-10	< 0.00241	< 0.00663	<0.00575	< 0.01766	BDL	20.1	0.399J	<1.19	<1.19
SB-2 19-20'	10/23/2007	19-20	< 0.00238	< 0.00656	< 0.00569	< 0.01747	BDL	22.7	0.423J	<1.18	<1.18
SB-2 29-30'	10/23/2007	29-30	< 0.00247	<0.00681	<0.00591	<0.01815	BDL	46.4	0.361J	<1.22	<1.22
SB-3 9-10'	10/23/2007	9-10	< 0.00216	< 0.00594	<0.00515	<0.01582	BDL	21.3	0.397J	78	78
SB-3 19-20'	10/23/2007	19-20	< 0.00215	<0.00592	0.01010J	0.0201J	BDL	17.1	0.306J	<1.06	<1.06
SB-3 29-30'	10/23/2007	29-30	< 0.00258	0.00717J	<0.00616	<0.0189	BDL	30.3	0.314J	16	16
SB-4 9-10'	10/23/2007	9-10	< 0.00223	<0.00613	<0.00532	< 0.01634	BDL	26.7	0.372J	13	13
SB-4 19-20'	10/23/2007	19-20	<0.00255	<0.00704	<0.0061	< 0.01874	BDL	25.2	0.334J	<1.26	<1.26
SB-4 30-31'	10/23/2007	30-31	< 0.00239	<0.00659	0.00828J	<0.01755	BDL	29.8	0.354J	<1.18	<1.18
SB-5/MW-2 9-10'	10/23/2007	9-10	<0.00229	<0.00631	< 0.00547	<0.01680	BDL	12	0.368J	<1.13	<1.13
SB-5/MW-2 19-20'	10/23/2007	19-20	< 0.0025	<0.00689	<0.00598	<0.01836	BDL	20.9	0.331J	<1.24	<1.24
SB-5/MW-2 33-34'	10/23/2007	33-34	<0.00216	< 0.00596	<0.00517	<0.01589	BDL	35	0.330J	320	320
SB-6/MW-3 9-10'	10/24/2007	9-10	<0.00222	<0.00612	<0.00531	< 0.01631	BDL	20.5	0.241J	<1.1	<1.1
SB-6/MW-3 19-20'	10/24/2007	19-20	<0.00209	<0.00574	<0.00498	<0.01531	BDL	14.1	0.315J	<1.03	<1.03
SB-6/MW-3 31-32'	10/24/2007	31-32	<0.00253	<0.00697	<0.00604	<0.01856	BDL	43.1	0.330J	250	250
SB-7/MW-4 9-10'	10/24/2007	9-10	<0.00258	<0.00711	<0.00617	< 0.01895	BDL	24.2	0.352J	26	26

TABLE IV

SUMMARY OF SOIL ANALYTICAL DATA - BTEX/TPH/CHLORIDES Owen #9 Assessment Eunice, NM

					ETHYL-		TOTAL		TF	H (8015 M	odified)	
SAMPLE ID	DATE	DATE	(feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	BENZENE (mg/kg)	XYLENES (mg/kg)	BTEX (mg/kg)	CHLORIDE (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH (GRO/DRO) (mg/kg)
	No	ur Mavica (Dil Consomuatio	n Division Post	mmonded Don	adiation Action	n Lovole (Te	otal Ranking Sco	wa >10)			
	Ne	w Mexico C	10				50.0			-	100	
			mg/Kg		Soil Boring San	ples	mg/Kg				mg/Kg	
SB-7/MW-4 19-20'	10/24/2007	19-20	<0.00206	<0.00569	<0.00493	<0.01516	BDL	1080	0.358J	15	15	
SB-7/MW-4 29-30'	10/24/2007	29-30	< 0.00263	<0.00726	< 0.00629	< 0.01933	BDL	217	0.389J	410	410	
MW-5 20'	9/22/2010	20	< 0.0021	< 0.0021	<0.0021	< 0.0054	BDL	98.1	<0.200	11	11	
MW-5 25'	9/22/2010	25	< 0.0022	< 0.0022	<0.0022	<.0.0055	BDL	132	<0.200	8.2	8.2	
MW-5 35'	9/22/2010	35	< 0.0023	< 0.0023	< 0.0023	< 0.0056	BDL	172	<0.200	<4.6	BDL	
MW-6 20'	9/22/2010	20'	< 0.0021	< 0.0021	<0.0021	< 0.0052	BDL	71.6	<0.200	<4.2	BDL	
MW-6 30'	9/22/2010	30	< 0.0022	< 0.0022	< 0.0022	< 0.0056	BDL	108	<0.200	11	11	
MW-6 35'	9/22/2010	35	< 0.0020	< 0.0020	<0.0020	< 0.0051	BDL	57.5	<0.200	7.8	7.8	
MW-7 5'	9/22/2010	5	<0.0021	<0.0021	<0.0021	< 0.0053	BDL	11.5	<0.200	<4.2	BDL	
MW-7 10'	9/22/2010	10	< 0.0020	< 0.0020	<0.0020	< 0.0051	BDL	30.9	<0.200	<4.2	BDL	
MW-7 35'	9/22/2010	35	< 0.0022	< 0.0022	< 0.0022	< 0.0055	BDL	14.1	<0.200	<4.4	BDL	



Analysis Report

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ANALYTICAL RESULTS

Prepared for:

CRA 6320 Rothway Suite 100 Houston TX 77040

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

March 11, 2010

Project: Mark Owen #9 Lea County, NM

Samples arrived at the laboratory on Friday, February 26, 2010. The PO# for this group is 4027644 and the release number is 046121. The group number for this submittal is 1183976.

Client Sample Description	<u>Lancaster Labs (LLI) #</u>
MW-1 Grab Water	5915804
MW-2 Grab Water	5915805
MW-3 Grab Water	5915806
MW-4 Grab Water	5915807
DUP Grab Water	5915808
Trip Blank Grab Water	5915809

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC CRA
COPY TO
ELECTRONIC CRA
COPY TO

Attn: Pat Lynch

Attn: Desiree Crenshaw



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Questions? Contact your Client Services Representative Wendy A Kozma at (717) 656-2300

Respectfully Submitted,

Valerie L. Tomayko Group Leader



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Page 1 of 1

Sample Description: MW-1 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 5915804 LLI Group # 1183976

NM

Project Name: Mark Owen #9

Lea County, NM

Collected: 02/25/2010 11:30

by DC

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010

CRA

6320 Rothway Suite 100

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	8021B	mg/l	mg/l	mg/l	•
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 300	.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	5,210	200	400	1000
00228	Sulfate		14808-79-8	207	15.0	50.0	50
		SM20 23	20 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.		n.a.	163	0.46	2.0	1
00201	Alkalinity to pH 8.	3	n,a.	N.D.	0,46	2.0	1
		SM20 25	40 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ids	n.a.	11,900	388	1,200	10

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	me	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10060A53A	03/01/2010	21:40	Tyler O Griffin	1
08213	BTEX (8021)	SW-846 8021B	1	10060A53A	03/01/2010	21:40	Tyler O Griffin	1
00224	Chloride	EPA 300.0	1	10068196101B	03/09/2010	17:59	Ashley M Adams	1000
00228	Sulfate	EPA 300.0	1	10068196101B	03/10/2010	23:30	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10064020201A	03/05/2010	15:42	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10064020201A	03/05/2010	15:42	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10061021201A	03/02/2010	08:51	Hannah M Royer	10



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Page 1 of 1

Sample Description: MW-2 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 5915805 LLI Group # 1183976

NM

Project Name: Mark Owen #9 Lea County, NM

Collected: 02/25/2010 11:07

har DO

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010 at

CRA

6320 Rothway

Suite 100

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	Latiles	SW-8	46 802	21B	mg/l	mg/l	mg/l	-
08213	Benzene			71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene			100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene			108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes			1330-20-7	N.D.	0.0006	0.0030	1
Wet Cl	nemistry	EPA :	300.0		mg/l	mg/l	mg/1 .	
00224	Chloride			16887-00-6	167	20.0	40.0	100
00228	Sulfate			14808-79-8	193	30.0	100	100
		SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.	5		n.a.	224	0.46	2.0	1
00201	Alkalinity to pH 8.	3	•	n.a.	N.D.	0.46	2.0	1
		SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ids		n.a.	832	19.4	60.0	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10060A53A	03/01/2010 22:	04 Tyler O Griffin	1
08213	BTEX (8021)	SW-846 8021B	1	10060A53A	03/01/2010 22:	04 Tyler O Griffin	1
00224	Chloride	EPA 300.0	1	10068196101B	03/09/2010 18:	14 Ashley M Adams	100
00228	Sulfate	EPA 300.0	1	10068196101B	03/09/2010 18:	14 Ashley M Adams	100
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10064020201A	03/05/2010 15:	42 Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	. 1	10064020201A	03/05/2010 15:	42 Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10061021201A	03/02/2010 08:	51 Hannah M Royer	1



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Sample Description: MW-3 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5915806 LLI Group # 1183976

Project Name: Mark Owen #9

Lea County, NM

Collected: 02/25/2010 10:45

by DC

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010

CRA

6320 Rothway Suite 100

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles SW-84	6 802	1B	mg/1	mg/1	mg/1	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry EPA 3	00.0		mg/l	mg/1 .	mg/l	
00224	Chloride		16887-00-6	62.7	10.0	20.0	50
00228	Sulfate		14808-79-8	34.8	1.5	5.0	5
	SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	231	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids		n.a.	467	9.7	30.0	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10060A53A	03/01/2010 22:2	Tyler O Griffin	1
08213	BTEX (6021)	SW-846 8021B	1	10060A53A	03/01/2010 22:2	Tyler O Griffin	1
00224	Chloride	EPA 300.0	1	10068196101B	03/09/2010 18:2	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10068196101B	03/10/2010 23:4	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10064020201A	03/05/2010 15:4	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10064020201A	03/05/2010 15:4:	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10061021201A	03/02/2010 08:5	. Hannah M Royer	1



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Page 1 of 1

Sample Description: MW-4 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 5915807 LLI Group # 1183976

NM

Project Name: Mark Owen #9 Lea County, NM

Collected: 02/25/2010 10:20 by DC

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010

CRA

6320 Rothway Suite 100

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846 8	021B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 300.	D	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	10,600	400	800	2000
00228	Sulfate		14808-79-8	339	15.0	50.0	50
		SM20 232	Ø 0	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.	5	n.a.	189	0.46	2.0	1
00201	Alkalinity to pH 8.3	3	n.a.	N.D.	0.46	2.0	1 .
		SM20 254	0 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ids	n.a.	21,800	776	2,400	10

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10060A53A	03/01/2010 22:52	Tyler O Griffin	1
08213	BTEX (8021)	SW-846 8021B	1	10060A53A	03/01/2010 22:52	Tyler O Griffin	1
00224	Chloride	EPA 300.0	1	10068196101B	03/09/2010 18:43	Ashley M Adams	2000
00228	Sulfate	EPA 300.0	1	10068196101B	03/10/2010 23:59	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10064020201A	03/05/2010 15:42	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10064020201A	03/05/2010 15:42	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10061021201A	03/02/2010 08:51	Hannah M Royer	10



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Page 1 of 1

Sample Description: DUP Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5915808 LLI Group # 1183976

NM

Project Name: Mark Owen #9 Lea County, NM

Collected: 02/25/2010

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010

CRA

6320 Rothway Suite 100

Houston TX 77040

Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
latiles	SW-846	8021B	mg/l	mg/l	mg/l	
Benzene		71-43-2	N.D.	0.0002	0.0010	1
Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
Toluene		108-88-3	N.D.	0.0002	0.0010	1
Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
hemistry	EPA 300	0.0	mg/l	mg/l	mg/l	
Chloride		16887-00-6	5,320	200	400	1000
Sulfate		14808-79-8	204	15.0	50.0	50
	SM20 23	20 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
Alkalinity to pH 4.	5	n.a.	163	0.46	2.0	1
Alkalinity to pH 8.3	3	n.a.	N.D.	0.46	2.0	1
	SM20 25	40 C	mg/l	mg/l	mg/l	
Total Dissolved Soli	ids	n.a.	11,300	388	1,200	10
	latiles Benzene Ethylbenzene Toluene Total Xylenes hemistry Chloride Sulfate Alkalinity to pH 4.5 Alkalinity to pH 8.3	latiles SW-846 Benzene Ethylbenzene Toluene Total Xylenes hemistry EPA 300 Chloride Sulfate SM20 23 Alkalinity to pH 4.5 Alkalinity to pH 8.3	SW-846 8021B Benzene	Analysis Name CAS Number Result latiles SW-846 8021B mg/1 Benzene T1-43-2 N.D. 100-41-4 N.D. 108-88-3 N.D. Total Xylenes 1330-20-7 N.D. hemistry EPA 300.0 mg/1 Chloride Sulfate SM20 2320 B Mg/1 as CaCO3 Alkalinity to pH 4.5 Alkalinity to pH 8.3 N.D. SM20 2540 C mg/1	Analysis Name CAS Number Result Method Detection Limit* Result mg/l mg/l mg/l Method Detection Limit* Result Mg/l Mg/l	Analysis Name CAS Number Result Method Detection Limit* Quantitation mg/l mg/l mg/l mg/l mg/l Method Detection Limit* Method Detection

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	. 1	10060A53A	03/01/2010 2	23:17	Tyler O Griffin	1
08213	BTEX (8021)	SW-846 8021B	1	10060A53A	03/01/2010 2	23:17	Tyler O Griffin	1
00224		EPA 300.0	1	10068196101B	03/09/2010 1	18:58	Ashley M Adams	1000
	Sulfate	EPA 300.0	1	10068196101B	03/11/2010 0	00:14	Ashley M Adams	50
	Alkalinity to pH 4.5	SM20 2320 B	. 1	10064020201A	03/05/2010 1	15:42	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10064020201A	03/05/2010 1	15:42	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10061021201A	03/02/2010 0	08:51	Hannah M Royer	10



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Sample Description: Trip Blank Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 5915809 LLI Group # 1183976

MM

Project Name: Mark Owen #9 Lea County, NM

Collected: 02/25/2010

Account Number: 11938

Submitted: 02/26/2010 11:30

Reported: 03/11/2010 at 13:33

Discard: 04/11/2010

CRA

6320 Rothway

Suite 100

Houston TX 77040

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846 8021B	mg/l	mg/l	mg/l	
08213	Benzene	71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene	100-41-4	N.D.	0.0002	0.0010	1 .
08213	Toluene	108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes	1330-20-7	N.D.	0.0006	0.0030	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
	GC VOA Water Prep	SW-846 5030B	1	10060A53A	03/01/2010 18:50	Tyler O Griffin	1
	BTEX (8021)	SW-846 8021B	1	10060A53A	03/01/2010 18:50	Tyler O Griffin	1



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Quality Control Summary

Client Name: CRA

Group Number: 1183976

Reported: 03/11/10 at 01:33 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank MDL**	Blank <u>LOQ</u>	Report <u>Units</u>	LCS %REC	LCSD %REC	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 10060A53A	Sample nu	mber(s): 5	915804-591	5809					
Benzene	N.D.	0.0002	0.0010	mg/l	110	105	80-120	5	30
Ethylbenzene .	N.D.	0.0002	0.0010	mg/l	105	105	80-120	0	30
Toluene	N.D.	0.0002	0.0010	mg/l	105	105	80-120	0	30
Total Xylenes	N.D.	0.0006	0.0030	mg/l	108	108	80-120	0	30
Batch number: 10068196101B	Sample nu	mber(s): 5	915804-591	.5808					
Chloride	N.D.	0.20	0.40	mg/l	103		90-110		
Sulfate	N.D.	0.30	1.0	mg/l	103		89-110		
Batch number: 10061021201A	Sample nur	mber(s): 59	915804~591	5808					
Total Dissolved Solids	N.D.	9.7	30.0	mg/l	103		80-120 `		
Batch number: 10064020201A Sample number(s): 5915804-5915808									
Alkalinity to pH 4.5	N.D.	0.46	2.0	mg/l as CaCO3	101		98-103		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	ms %rec	MSD %REC	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 10060A53A	Sample	number(s)	: 5915804	-59158	09 UNSE	K: P916351			
Benzene	100		80-152						
Ethylbenzene	110		80-133						
Toluene	110		80-133						
Total Xylenes	110		80-148						
Batch number: 10068196101B Chloride Sulfate	Sample 90 102	number(s)	: 5915804 90-110 90-110	-59158	08 UNSE	PK: P916364 1.1 J 4.1 J	BKG: P916364 2.5 3.8 J	73* (1) 6 (1)	20 20
Batch number: 10061021201A	Sample	number(s)	: 5915804	-59158	08 UNSE	K: P915839	BKG: P915839)	
Total Dissolved Solids	131	132	54-143	0	12	2,440	2,400	1	9
Batch number: 10064020201A Alkalinity to pH 4.5 Alkalinity to pH 8.3	Sample 99	number(s) 99	: 5915804 64-130	-59158 0	08 UNSE 2	PK: 5915804 163 N.D.	BKG: 5915804 166 N.D.	1 0 (1)	4 4

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.



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Quality Control Summary

Client Name: CRA

Group Number: 1183976

Reported: 03/11/10 at 01:33 PM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021) Batch number: 10060A53A Trifluorotoluene-P

Limits:	58-146		 	 	
MS	84				
LCSD	85				
LCS	85				
Blank	82				
5915809	83				
\$915808	85				
5915807	85				
5915806	83				
5915805	83	v.			
5915804	84				

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11938 Group# 118397 (Sample #5915804-09 COC #

231594

Please print. Instructions on reverse side correspond with circled numbers. For Lab Use Only 5 Analyses Requested FSC: Matrix / Preservation Codes Client: ARA Acct. #: **Preservation Codes** Project Name/#: Mark Dwans # 9 T=Thiosulfate H=HCI P.O.#: N=HNO₃ B=NaOH Project Manager: Tosices' Crenshaw S=H₂SO₄ O=Other Sampler: <u>Desiree Crensnau</u> Quote #: Name of state where samples were collected: Colleges Callerier Spinole Klafikin alfon Remarks 2-25-16 11.30 MW-1 1107 1045 Inzu NA \sqrt{NN} Trio Blank Fer Time Received by: Turnaround Time Requested (TAT) (please circle): Normal Time (9 Date (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) 2/19/10 /330 Date results are needed: Time Received by: Relinquished by: Ďate Date Time Rush results requested by (please circle): Phone Fax E-mail ___ Fax #: __ Phone #: Religguished by: Time Received by: Date Time E-mail address: Data Package Options (please circle if required) SDG Complete? Type I (validation/NJ Reg) TX TRRP-13 Yes No Date Time Relinquished by: Time Received by: MA MCP CT RCP Type II (Tier II) Type III (Reduced NJ) Site-specific QC (MS/MSD/Dup)? Yes No Time Redeived by: Date Type IV (CLP SOW) Relinquished by: Date Time (If yos, indicate OC sample and submit injecte volume.) Type VI (Raw Data Only) Internal COC Required? Yes / No

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (M7) 656-6766 Copies; White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Lancaster Laboratories **Explanation of Symbols and Abbreviations**

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
ΙÜ	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	1	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can < be reliably determined using this specific test.
- greater than

parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. ppm For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Defined in case narrative

Dry weight Results printed under this heading have been adjusted for moisture content. This increases the analyte weight basis concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Α

В

C

D

Е

J

N

X,Y,Z

Organic Qualifiers

TIC is a possible aldol-condensation product Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quatitated on a diluted sample Concentration exceeds the calibration range of the instrument Estimated value Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% Compound was not detected	B E M N S U W * +	Value is <crdl, (msa)="" <0.995<="" additions="" amount="" analysis="" but="" calculation="" coefficient="" compound="" control="" correlation="" detected="" digestion="" due="" duplicate="" estimated="" for="" injection="" interference="" limits="" met="" method="" msa="" not="" of="" out="" post="" precision="" spike="" standard="" th="" to="" used="" was="" within="" ≥idl=""></crdl,>
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Inorganic Qualifiers

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Prepared for:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

CRA 6320 Rothway Suite 100 Houston TX 77040

June 18, 2010

Project: Mark Owen #9 Lea County, NM

Submittal Date: 06/04/2010 Group Number: 1197361 PO Number: 4027644 Release Number: 046121 State of Sample Origin: NM

Client Sample Description	Lancaster Labs (LLI) #
MW1 Grab Water	5997811
MW2 Grab Water	5997812
MW3 Grab Water	5997813
MW4 Grab Water	5997814
DUP Grab Water	5997815

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC

CRA

Attn: Pat Lynch

COPY TO

CRA

Attn: Desiree Crenshaw

ELECTRONIC

COPY TO



Questions? Contact your Client Services Representative Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Robert Heisey Robert Heisey Senior Specialist



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Page 1 of 1

Sample Description: MW1 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5997811 LLI Group # 1197361 # 11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 06/03/2010 11:01

CRA

Submitted: 06/04/2010 09:10

6320 Rothway Suite 100

Reported: 06/18/2010 15:42

Discard:

07/19/2010

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet C	hemistry	EPA 300.0)	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	7,390	1,000	2,000	5000
00228	Sulfate		14808-79-8	243	15.0	50.0	50
		SM20 2320) в	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	140	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
		SM20 2540) C	mg/l	mg/l	mg/l	
00212	Total Dissolved Soli	đs	n.a.	15,200	388	1,200	10

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	10167196102A	06/18/2010 07	:17 Ashley M Adams	5000
00228	Sulfate	EPA 300.0	1	10167196102A	06/16/2010 23	:01 Ashley M Adams	50
	Alkalinity to pH 4.5	SM20 2320 B	1	10160020201B	06/09/2010 12	:26 Geraldine C Smitl	1 1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10160020201B	06/09/2010 12	:26 Geraldine C Smit	1 1
00212	Total Dissolved Solids	SM20 2540 C	1	10159021201A	06/08/2010 08	:50 Hannah M Royer	10



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Page 1 of 1

Sample Description: MW2 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 5997812 LLI Group # 1197361 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 06/03/2010 10:43 by

CRA

Submitted: 06/04/2010 09:10

6320 Rothway

Reported: 06/18/2010 15:42

Suite 100

Discard: 07/19/2010

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet C	hemistry E	PA 300.	0	mg/1	mg/l	mg/l	
00224	Chloride		16887-00-6	181	10.0	20.0	50
00228	Sulfate		14808-79-8	141	15.0	50.0	50
	S	M20 232	0 в	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	221	0.46	2.0	1
00201~	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	S	M20 254	0 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids	3	n.a.	818	19.4	60.0	ı

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	ne	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1.	10167196102A	06/16/2010	23:47	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10167196102A	06/16/2010	23:47	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10159021201A	06/08/2010	08:50	Hannah M Royer	1



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Sample Description: MW3 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5997813 LLI Group # 1197361 # 11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 06/03/2010 10:25

CRA

Submitted: 06/04/2010 09:10

6320 Rothway Suite 100

Reported: 06/18/2010 15:42

Discard:

07/19/2010

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet	Chemistry	EPA 300	.0	mg/l	mg/1	mg/l	
00224	4 Chloride		16887-00-6	87.1	10.0	20.0	50
00228	Sulfate		14808-79-8	42.2	3.0	10.0	10
		SM20 23	20 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4	.5	n.a.	230	0.46	2.0	1
00201	l Alkalinity to pH 8	1.3	n.a.	N.D.	0.46	2.0	1
		SM20 25	40 C	mg/l	mg/l	mg/l	
00212	? Total Dissolved So	lids	n.a.	530	9.7	30.0	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne.	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	10167196102A	06/17/2010	00:02	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10167196102A	06/18/2010	07:32	Ashley M Adams	10
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10159021201A	06/08/2010	08:50	Hannah M Royer	1.



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Page 1 of 1

Sample Description: MW4 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5997814

LLI Group # 1197361 Account # 11938

Project Name: Mark Owen #9

Lea County, NM

Collected: 06/03/2010 09:58

CRA

Submitted: 06/04/2010 09:10

6320 Rothway

Reported: 06/18/2010 15:42

Suite 100

Discard:

07/19/2010

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Rosult	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet C	hemistry	EPA :	300.0		mg/l	mg/l	mg/l	
00224	Chloride			16887-00-6	3,640	200	400	1000
00228	Sulfate			14808-79-8	124	15.0	50.0	50 '
	1	SM20	2320	В	mg/1 as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5			n.a.	204	0.46	2.0	1
00201	Alkalinity to pH 8.3			n.a.	N.D.	0.46	2.0	1
	;	SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Solid	ds		n.a.	6,530	194	600	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	. 10167196102A	06/18/2010	07:47	Ashley M Adams	1000
00228	Sulfate	EPA 300.0	1	10167196102A	06/17/2010	00:18	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10159021201A	06/08/2010	08:50	Hannah M Royer	1



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Page 1 of 1

Sample Description: DUP Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 5997815 LLI Group # 1197361

11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 06/03/2010

CRA

00212 Total Dissolved Solids

Submitted: 06/04/2010 09:10

6320 Rothway

Reported: 06/18/2010 15:42

Suite 100

Discard:

07/19/2010

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet C	hemistry	EPA	300.0		mg/1	mg/1	mg/l	
00224	Chloride			16887-00-6	3,310	200	400	1000
00228	Sulfate			14808-79-8	124	15.0	50.0	50
		SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4	.5		n.a.	202	0.46	2.0	1
00201	Alkalinity to pH 8	.3		n.a.	N.D.	0.46	2.0	1
		SM20	2540	С	mg/l	mg/l	mg/l	

General Sample Comments

6,480

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Nethod	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	10167196102A	06/18/2010	08:03	Ashley M Adams	1000
00228	Sulfate	EPA 300.0	1	10167196102A	06/17/2010	00:33	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10160020201B	06/09/2010	12:26	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	10159021201A	06/08/2010	08:50	Hannah M Royer	1



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Quality Control Summary

Client Name: CRA

Group Number: 1197361

Reported: 06/18/10 at 03:42 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank MDL**	Blank <u>LOO</u>	Report <u>Units</u>	LCS %REC	LCSD %REC	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 10167196102A Chloride Sulfate	Sample num N.D. N.D.	mber(s): 5 0.20 0.30	997811-59 0.40 1.0	97815 mg/l mg/l	95 104		90-110 89-110		
Batch number: 10159021201A Total Dissolved Solids	Sample num	mber(s): 5 9.7	997811-59 30.0	97815 mg/l	101		80-120		
Batch number: 10160020201B Alkalinity to pH 4.5	Sample num	mber(s): 5 0.46	997811-59 2.0	97815 mg/l_as CaCO3	100		98-103		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG Conc	DUP <u>Conc</u>	DUP RPD	Dup RPD Max
Batch number: 10167196102A Chloride Sulfate	Sample 105 108	number(s)	90-110 90-110 90-110	-59978.	15 UNSP	PK: P997495 16.4 12.7	BKG: P997495 15.7 12.7	5 0 (1)	20 20
Batch number: 10159021201A Total Dissolved Solids	Sample 98	number(s)	: 5997811 62-135	-59978: 3	15 UNSP 12	K: P998111 866	BKG: P997201 884	2	9
Batch number: 10160020201B Alkalinity to pH 4.5 Alkalinity to pH 8.3	Sample 99	number(s)	: 5997811 73-121	-59978	15 UNSP	PK: P998261 47.1 N.D.	BKG: P997497 47.3 N.D.	0 0 (1)	5 5

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody



Acct. #: 11938 Sample #: 5997811-15

013815

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Facility#:					Matri	ix					Ī	res	ervat	ion	Cod	es				Pres	serva	rtive Coc	es
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Consultant Prj. Mgr.: Desirer Pros	shaw				T Z		වි	3 82		Ì		88	ž		ang.	1)	12	13	-	possible	for 8	260 comp	ounds
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Sampler: <u>Veil Parg</u> Service Order#:	1Non SAR:			<u> </u>	١.	Air	5	E	SCS	Oxygenates	TPHG	표	Ba	Ŧ	포	7	3	-31				ts by 8260	
Sample Identification	Date Collected	Time Collected	Grab	Colliposite	Water	Ö	Total Number	BTEX + MTBE	8260 full scan			TPH D Extended Rng.	ead T	VPHÆPH	NWTPH HHCID	Tota 1	1005	Morides		Run Run	_ ox	y's on high y's on all h	est hit its
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm C meq g ug mi m3	micromhos/cm degrees Celsius milliequivalents gram(s) microgram(s) milliliter(s) cubic meter(s)	ng F Ib. kg mg I ul	nanogram(s) degrees Fahrenheit pound(s) kilogram(s) milligram(s) liter(s) microliter(s)

- < less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

Inorganic Qualifiers

- ppb parts per billion
- Dry weight basis

 Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	organio dadinioro		morganic description
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	υ	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
X,Y,Z	Defined in case narrative		

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425 Prepared for:

CRA 6320 Rothway Suite 100 Houston TX 77040

September 15, 2010

Project: Mark Owen #9 Lea County, NM

Submittal Date: 09/02/2010 Group Number: 1210235 PO Number: 4027644 Release Number: 046121 State of Sample Origin: NM

Client Sample Description	<u>Lancaster Labs (LLI) #</u>
MW-1 Grab Water	6075938
MW-2 Grab Water	6075939
MW-3 Grab Water	6075940
MW-4 Grab Water	6075941
DUP Grab Water	6075942

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC

CRA

Attn: Pat Lynch

COPY TO **ELECTRONIC**

CRA

Attn: Desiree Crenshaw

COPY TO



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Questions? Contact your Client Services Representative Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Sarah M. Snyder



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Sample Description: MW-1 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 6075938 LLI Group # 1210235

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 08/31/2010 10:51

by NM

CRA

Submitted: 09/02/2010 09:00

6320 Rothway Suite 100

Reported: 09/15/2010 14:36

Houston TX 77040

Discard: 10/16/2010

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles SW	-846	8021B	mg/1	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Vet C	hemistry EP	A 300	0.0	mg/l	mg/1	mg/l	
00224	Chloride		16887-00-6	8,220	1,000	2,000	5000
00228	Sulfate		14808-79-8	196	15.0	50.0	50
	SM	20 23	320 в	mg/l as CaCO3	mg/1 as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	166	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	SM	20 25	540 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids		n.a.	12,300	388	1,200	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1.	10249A94A	09/06/2010 23:30	Marie D John	1
08213	BTEX (8021) Water	SW-846 8021B	1	10249A94A	09/06/2010 23:30	Marie D John	1
00224	Chloride	EPA 300.0	1	10253196603A	09/11/2010 11:00	Ashley M Adams	5000
00228	Sulfate	EPA 300.0	1	10253196603A	09/13/2010 22:43	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10252020201A	09/09/2010 06:14	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10252020201A	09/09/2010 06:14	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10246021201B	09/03/2010 07:41	Susan A Engle	10



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Sample Description: MW-2 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 6075939 LLI Group # 1210235 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 08/31/2010 10:00

by NM

CRA

Submitted: 09/02/2010 09:00

6320 Rothway

Reported: 09/15/2010 14:36

Suite 100

Discard: 10/16/2010

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-84	6 802	1B	mg/l	mg/l	mg/l	
08213	Benzene			71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene			100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene			108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes			1330-20-7	N.D.	0.0006	0,0030	1
Wet C	hemistry	EPA 3	00.0		mg/l	mg/l	mg/1	
00224	Chloride			16887-00-6	208	10.0	20.0	50
00228	Sulfate			14808-79-8	138	15.0	50.0	50
	:	SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalimity to pH 4.5	i		n,a.	226	0.46	2.0	1
00201	Alkalinity to pH 8.3	i		n.a.	N.D.	0.46	2.0	1
		SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Soli	ds		n.a.	814	19.4	60.0	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sam	ple Ana	lysis	Record
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CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10249A94A	09/06/2010	23:56	Marie D John	1
08213	BTEX (8021) Water	SW-846 8021B	1	10249A94A	09/06/2010	23:56	Marie D John	1
00224	Chloride	EPA 300.0	1	10253196603A	09/11/2010	11:23	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10253196603A	09/13/2010	22:59	Ashley M Adams	50 ·
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10252020201A	09/09/2010	06:14	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10252020201A	09/09/2010	06:14	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10246021201B	09/03/2010	07:41	Susan A Engle	1



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Page 1 of 1

Sample Description: MW-3 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6075940 LLI Group # 1210235

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 08/31/2010 10:15

by NM

CRA

Submitted: 09/02/2010 09:00

6320 Rothway

Suite 100

Reported: 09/15/2010 14:36

Houston TX 77040

Discard: 10/16/2010

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-84	6 802	21B	mg/l	mg/l	mg/l	
08213	Benzene			71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene			100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene			108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes			1330-20-7	N.D.	0.0006	0.0030	1
Vet C	hemistry	EPA 3	300.0		mg/l	mg/l	mg/1	
00224	Chloride			16887-00-6	82.4	4.0	8.0	20
00228	Sulfate			14808-79-8	46.8	6.0	20.0	20
		SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/1 as CaCO3	
00202	Alkalinity to pH 4.	5		n.a.	226	0.46	2.0	1
00201	Alkalinity to pH 8.	3		n.a.	N.D.	0.46	2.0	1
		SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ids		n.a.	495	9.7	30.0	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10249A94A	09/07/2010	00:23	Marie D John	1
08213	BTEX (8021) Water	SW-846 8021B	1	10249A94A	09/07/2010	00:23	Marie D John	1
00224	Chloride	EPA 300.0	1	10253196603A	09/11/2010	11:40	Ashley M Adams	20
00228	Sulfate	EPA 300.0	1	10253196603A	09/13/2010	23:48	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10252020201A	09/09/2010	06:14	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10252020201A	09/09/2010	06:14	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10246021201B	09/03/2010	07:41	Susan A Engle	1



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Page I of 1

Sample Description: MW-4 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6075941

LLI Group # 1210235 # 11938 Account

Project Name: Mark Owen #9 Lea County, NM

Collected: 08/31/2010 09:25

by NM

CRA

Submitted: 09/02/2010 09:00

6320 Rothway

Suite 100

Reported: 09/15/2010 14:36 Discard: 10/16/2010

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles SW-84	6 802	1B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry EPA 3	00.0		mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	3,520	400	800	2000
00228	Sulfate		14808-79-8	121	15.0	50.0	50
	SM20 2	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	205	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	SM20	2540	С	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids		n.a.	6,480	194	600	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	me	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10249A94A	09/07/2010	03:02	Marie D John	1
08213	BTEX (8021) Water	SW-846 8021B	1	10249A94A	09/07/2010	03:02	Marie D John	1
00224	Chloride	EPA 300.0	2	10253196603A	09/15/2010	09:15	Ashley M Adams	2000
00228	Sulfate	BPA 300.0	2	10253196603A	09/15/2010	04:19	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10253020201A	09/10/2010	06:09	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	ı	10253020201A	09/10/2010	06:09	Susan A Engle .	1
00212	Total Dissolved Solids	SM20 2540 C	1	10246021202B	09/03/2010	09:28	Hannah M Royer	1



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Page 1 of 1

Sample Description: DUP Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6075942 LLI Group # 1210235 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 08/31/2010

CRA

6320 Rothway

Submitted: 09/02/2010 09:00

Suite 100

Reported: 09/15/2010 14:36

Houston TX 77040

Discard: 10/16/2010

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	Latiles SV	-846	8021B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Vet C	nemistry El	A 300	0.0	mg/1	mg/l	mg/l	
00224	Chloride		16887-00-6	3,520	400	800	2000
00228	Sulfate		14808-79-8	125	15.0	50.0	50
	Sì	20 23	320 B	mg/l as CaCO3	mg/1 as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	207	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	SI	20 2	540 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids		n.a.	6,480	194	600	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10249A94A	09/07/2010	03:29	Marie D John	1
08213	BTEX (8021) Water	SW-846 8021B	1	10249A94A	09/07/2010	03:29	Marie D John	1
00224	Chloride	EPA 300.0	2	10253196603A	09/15/2010	05:41	Ashley M Adams	2000
00228	Sulfate	EPA 300.0	2	10253196603A	09/15/2010	05:08	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10253020201A	09/10/2010	06:09	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10253020201A	09/10/2010	06:09	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10246021202B	09/03/2010	09:28	Hannah M Royer	1



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Page 1 of 2

Quality Control Summary

Client Name: CRA

Group Number: 1210235

Reported: 09/15/10 at 02:36 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	Blank <u>Result</u>	Blank MDL**	Blank <u>LOO</u>	Report <u>Units</u>	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 10249A94A	Sample num	ber(s): 60	75938-607	5942					
Benzene	N.D.	0.0002	0.0010	mg/1	95	85	80-120	11	30
Ethylbenzene	N.D.	0.0002	0.0010	mg/l	90	85	80-120	6	30
Toluene	N.D.	0.0002	0.0010	mg/l	90	85	80-120	6	30
Total Xylenes	N.D.	0.0006	0.0030	mg/l	93	88	80-120	6	30
Batch number: 10253196603A	Sample num	her(s) · 60	75938-607	5942					
Chloride	N.D.	0.20	0.40	mg/1	100		90-110		
Sulfate	N.D.	0.30	1.0	mq/1	105		89-110		

Batch number: 10246021201B	Sample num	ber(s): 60	75938-607	5940					
Total Dissolved Solids	N.D.	9.7	30.0	mg/l	96		80-120		
Batch number: 10246021202B	Sample num	heris). 60	175941-607	5942					
Total Dissolved Solids	N.D.	9.7	30.0	mg/1	99		80-120		
				3, =	• =				
Batch number: 10252020201A	Sample num	ber(s): 60	75938-607	5940					
Alkalinity to pH 4.5	N.D.	0.46	2.0	mg/l as CaCO3	99		98-103		
Batch number: 10253020201A	Sample num	ber(s): 60	75941-607	5942					
Alkalinity to pH 4.5	N.D.	0.46	2.0	mg/l as CaCO3	99		98-103		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %RBC	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG <u>Conc</u>	DUP Conc	_	UP PD	Dup RPD Max
Batch number: 10249A94A Benzene Ethylbenzene Toluene Total Xylenes	Sample 100 105 105 105	number(s)	0: 6075938 80-152 80-133 80-133 80-148	-607594	12 UNSP	K: 6075942				
Batch number: 10253196603A Chloride Sulfate	Sample 104 96	number(s)	90-110 90-110 90-110	i-607594	2 UNSP	K: P075230 1.1 J 7.5	BKG: P07523 1.0 J 7.8	8	(1) (1).	20 20
Batch number: 10246021201B Total Dissolved Solids	Sample 88	number(s) 70	62-135	7 - 60 7 594	0 UNSP	K: P070090 6,940	BKG: P07215 7,160	3 3		9

^{*-} Outside of specification

- **-This limit was used in the evaluation of the final result for the blank
- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



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Page 2 of 2

Quality Control Summary

Client Name: CRA

Group Number: 1210235

Reported: 09/15/10 at 02:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS <u>&REC</u>	MSD %RBC	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG <u>Conc</u>	DUP Conc	DUP <u>RPD</u>	Dup RPD
Batch number: 10246021202B Total Dissolved Solids	Sample 101	number(s)	: 6075941 62-135	-60759	42 UNSE	PK: P07510: 1,910	3 BKG: P0753 1,890	361 1	9.
Batch number: 10252020201A Alkalinity to pH 4.5 Alkalinity to pH 8.3	Sample 98	number(s) 98	: 6075938 73-121		40 UNSE 5	PK: P07588 226 N.D.	4 BKG: 60759 224 N.D.	939 1 0 (1)	5 5
Batch number: 10253020201A Alkalinity to pH 4.5 Alkalinity to pH 8.3	Sample 98	number(s)	: 6075941 73-121	-60759	42 UNSE	PK: P07651 205 N.D.	8 BKG: 60759 206 N.D.	0 0 0 {1)	5 5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021) Water Batch number: 10249A94A

Batch number: 10249A94A Trifluorotoluene-P

6075938	87
6075939	86
6075940	86
6075941	87
6075942	86
Blank	87
LCS	86
LCSD	86
MS	86

Limits: 58-146

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody



Acct. # 11938 Group# 1210235 Sample # 6075938-43 COC # 243550

Please print, Instructions on reverse side correspond with circled numbers. For Lab Use Only (5) Analyses Requested FSC: SCR#: G4 658 Matrix **Preservation Codes** Preservation Codes Project Name/#: <u>046/2/- /3-0</u> PWSID #: T=Thiosulfate (6) Project Manager: Desires Creashow P.O.#: Containers N=HNO₁ B=NaOH samples requested) S=H₂SO₄ O=Other Sampler: Quote #: _____ Name of state where samples were collected: jo 😑 ō Temperature ou upon receipt (i 2 Date Time Collected | Sample Identification Collected Remarks 8-31-10 1051 Mist-1 1015 8-31-10 915 Turnaround Time Requested (TAT) (please circle): Normal Rush Relinquished by: Date Time (9 Time Received by: Rush TAT is subject to Lancaster Laboratories approval and surcharge.) 8/24/10/07/5 Date results are needed: ___ Relinquished by: Date Time Received by Date Time Rush results requested by (please circle): Phone Fax E-mail Phone #: Fax #: _____ Time Received by: Relinquished by: Date Time E-mail address: 8 Pata Package Options (please circle if required) SDG Complete? Yes No Type I (validation/NJ Reg) TX TRRP-13 Time Received by: Date Lime Relinquished by: Type II (Tier II) MA MCP CT RCP Site-specific QC (MS/MSD/Dup)? Yes No Type III (Reduced NJ) Time Received by: Relinquished by: Date Time Type IV (CLP SOW) all yes industra QC sample one ocomé hipicale ve umb.) Type VI (Raw Data Only) Internal COC Required? Yes / No 1900



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
С	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion
- **Dry weight basis**Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA <0.995
X,Y,Z	Defined in case narrative		

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Prepared for:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425

CRA 6320 Rothway Suite 100 Houston TX 77040

December 02, 2010

Project: Mark Owen #9 Lea County, NM

Submittal Date: 11/23/2010 Group Number: 1222517 PO Number: 4027644 Release Number: 046121 State of Sample Origin: NM

Client Sample Description	Lancaster Labs (LLI) #
MW-1 112210 Grab Water	6148526
MW-2 112210 Grab Water	6148527
MW-3 112210 Grab Water	6148528
MW-4 112210 Grab Water	6148529
MW-5 112210 Grab Water	6148530
MW-6 112210 Grab Water	6148531
MW-7 112210 Grab Water	6148532
DUP 112210 Grab Water	6148533
TRIP Water	6148534

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC

CRA

Attn: Pat Lynch

COPY TO

ELECTRONIC

Attn: Desiree Crenshaw

COPY TO

CRA



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Questions? Contact your Client Services Representative Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Juney (). (I) ().
Tracy A. Cole
Senior Specialist



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Page 1 of 1

Sample Description: MW-1 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 6148526 LLI Group # 1222517

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010 14:20

by JP

CRA

Submitted: 11/23/2010 10:00

6320 Rothway

Suite 100

Reported: 12/02/2010 14:48

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-84	6 802	21B	mg/l	mg/l	mg/l	
08213	Benzene			71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene			100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene			108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes			1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 3	00.0		mg/l	mg/l	mg/l	
00224	Chloride			16887-00-6	8,070	1,000	2,000	5000
00228	Sulfate			14808~79-8	264	6.0	20.0	20
		SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.	5		n.a.	158	0.46	2.0	1
00201	Alkalinity to pH 8.			n.a.	N.D.	0.46	2.0	1
		SM20	2540	c	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ids		n.a.	17,600	776	2,400	10

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	ė	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 0	00:20	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 0	00:20	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 1	12:59	Ashley M Adams	5000
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010 0	02:59	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010 0	06:07	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010 0	06:07	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010 0	08:20	Susan A Engle	10



Account

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LLI Sample # WW 6148527

11938

LLI Group # 1222517

Sample Description: MW-2 112210 Grab Water

Semi-Annual Groundwater Event

Mark Owen #9 Lea County, NM

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010 14:05

by JP

CRA

6320 Rothway

Suite 100

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	5 8021B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	ı
Wet C	hemistry	EPA 3	00.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	162	10.0	20.0	50
00228	Sulfate		14808-79-8	125	6.0	20.0	20
		SM20 2	2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.	5	n.a.	233	0.46	2.0	1
00201	Alkalinity to pH 8.		n.a.	N.D.	0.46	2.0	1
		SM20 2	2540 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Sol	ide	n.a.	823	19.4	60.0	1.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010	00:44	Martha L Seidel	1 .
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010	00:44	Martha L Seidel	ı
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010	13:51	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010	03:51	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010	06:07	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010	06:07	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010	08:20	Susan A Engle	1



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Sample Description: MW-3 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148528 LLI Group # 1222517 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010 13:45

CRA

Submitted: 11/23/2010 10:00

6320 Rothway Suite 100

Reported: 12/02/2010 14:48

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles SW	-846	8021B	mg/l	mg/l	mg/1	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry EP	A 300	.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	64.0	4.0	8.0	20
00228	Sulfate		14808-79-8	52.6	6.0	20.0	20
	SM	20 23	20 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	225	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	SM	20 25	40 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Solids		n.a.	490	9.7	30.0	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Pactor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 01:0	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 01:0	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 14:0	Ashley M Adams	20
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010 04:4	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010 06:0	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010 06:0	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010 08:2	Susan A Engle	1



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Sample Description: MW-4 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148529 LLI Group # 1222517

Account # 11938

Project Name: Mark Owen #9

Lea County, NM

Collected: 11/22/2010 13:30

by JP

CRA

6320 Rothway

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48 Suite 100

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	8021B	mg/l	mg/l	mg/1	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 30	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	3,160	200	400	1000
00228	Sulfate		14808-79-8	122	6.0	20.0	20
		SM20 2	320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	202	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
		SM20 2	540 C	mg/l	mg/l	mg/l	
00212	Total Dissolved Soli	ds	n.a.	11,500	388	1,200	10

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 01	1:33 M	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 01	1:33 N	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 14	4:26 A	Ashley M Adams	1000
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010 05	5:01 A	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010 06	6:07 5	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010 06	6:07 5	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010 08	8:20	Susan A Engle	10



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Sample Description: MW-5 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM LLI Sample # WW 6148530 LLI Group # 1222517 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010 14:40

by JP

CRA

6320 Rothway Suite 100

Houston TX 77040

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vol	latiles	SW-846	8021B	mg/l	mg/1	mg/1	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet Cl	nemistry	EPA 300	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	1,030	100	200	500
00228	Sulfate		14808-79-8	120	6.0	20.0	20
	:	BM20 23	320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	285	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
		SM20 25	540 C	mg/l	mg/1	mg/l	
00212	Total Dissolved Solid	is	n.a.	2,500	77.6	240	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	me	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010	01:57	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010	01:57	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010	14:43	Ashley M Adams	500
00228	Sulfate	EPA 300.0	1	10333196601B .	11/30/2010	05:19	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010	06:07	Susan A Engle	1
00201	Alkalinity to-pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010	06:07	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010	08:20	Susan A Engle	1



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Sample Description: MW-6 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148531 LLI Group # 1222517

11938 Account

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010 15:00

CRA

Submitted: 11/23/2010 10:00

6320 Rothway

Suite 100

Reported: 12/02/2010 14:48

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	8021B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 30	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	589	40.0	80.0	200
00228	Sulfate		14808-79-8	310	15.0	50.0	50
		SM20 2	320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4	. 5	n.a.	198	0.46	2,0	1
00201	Alkalinity to pH 8		n.a.	N.D.	0.46	2.0	1
		SM20 2	540 C	mg/l	mg/l	mg/l	
00212	Total Dissolved So	lids	n.a.	1,710	77.6	240	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	e	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 (03:10	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 (03:10	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 1	15:18	Ashley M Adams	200
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010 1	15:01	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	· 1	10335020201B	12/01/2010 (06:07	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010 (06:07	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010 (08:20	Susan A Engle	1



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Sample Description: MW-7 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148532 LLI Group # 1222517 Account # 11938

Project Name: Mark Owen #9

Lea County, NM

Collected: 11/22/2010 15:20

by JP

CRA

6320 Rothway

Suite 100

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48

Houston TX 77040

CAT No.	Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-84	6 80	21B	mg/l	mg/l	mg/1	
08213	Benzene			71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene			100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene			108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes			1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry	EPA 3	300.0		mg/l	mg/l	mg/l	
00224	Chloride			16887-00-6	372	20.0	40.0	100
00228	Sulfate			14808-79-8	178	6.0	20.0	20
		SM20	2320	В	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.	5		n.a.	204	0.46	2.0	1
00201	Alkalinity to pH 8.	3		n.a.	N.D.	0.46	2.0	1
		SM20	2540	C	mg/l	mg/l	mg/1	
00212	Total Dissolved Sol	ids		n.a.	1,260	38.8	120	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 03:3	4 Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 03:3	4 Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 15:3	6 Ashley M Adams	100
00228	Sulfate	EPA 300.0	1	10333196601B	11/30/2010 05:5	4 Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010 06:0	7 Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	10335020201B	12/01/2010 06:0	7 Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	1	10333021201B	11/29/2010 08:2	O Susan A Engle	1



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Sample Description: DUP 112210 Grab Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148533 LLI Group # 1222517 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 11/22/2010

CRA

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48

6320 Rothway

Suite 100

Houston TX 77040

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles S	W-846	8021B	mg/l	mg/1	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
Wet C	hemistry E	PA 300	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	551	40.0	80.0	200
00228	Sulfate		14808-79-8	302	15.0	50.0	50
	S	M20 23	320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5		n.a.	193	0.46	2.0	1
00201	Alkalinity to pH 8.3		n.a.	N.D.	0.46	2.0	1
	s	M20 25	540 C	mg/l	mg/1	mg/l	
00212	Total Dissolved Solid		n.a.	1,720	77.6	240	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	a	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/30/2010 0	3:59	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/30/2010 0	3:59	Martha L Seidel	1
00224	Chloride	EPA 300.0	1	10333196601B	11/30/2010 1	16:45	Ashley M Adams	200
00228	Sulfate	EPA 300.0	. 1	10333196601B	11/30/2010 1	l6:2B	Ashley M Adams	50
00202	Alkalinity to pH 4.5	SM20 2320 B	1	10335020201B	12/01/2010 0	06:07	Susan A Engle	1
00201	Alkalinity to pH 8.3	SM20 2320 B	. 1	10335020201B	12/01/2010 0	06:07	Susan A Engle	1
00212	Total Dissolved Solids	SM20 2540 C	ī	10333021201B	11/29/2010 0	08:20	Susan A Engle	1



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Sample Description: TRIP Water

Semi-Annual Groundwater Event Mark Owen #9 Lea County, NM

LLI Sample # WW 6148534 LLI Group # 1222517 # 11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 11/22/2010

CRA

6320 Rothway

Suite 100

Houston TX 77040

Submitted: 11/23/2010 10:00 Reported: 12/02/2010 14:48

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	8021B	mg/l	mg/1	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021) Water	SW-846 8021B	1	10333A53A	11/29/2010 23:07	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	10333A53A	11/29/2010 23:07	Martha L Seidel	1 ·



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Quality Control Summary

Client Name: CRA

Group Number: 1222517

Reported: 12/02/10 at 02:48 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank MDL**	Blank <u>LOQ</u>	Report <u>Units</u>	LCS %RBC	LCSD %REC	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 10333A53A	Sample num	ber(s): 61	48526-614	8534					•
Benzene	N.D.	0.00020	0.0010	mg/1	90	100	80-120	11	30
Ethylbenzene	N.D.	0.00020	0.0010	mg/1	90	100	80-120	11	30
Toluene	N.D.	0.00020	0.0010	mg/l	90	100	80-120	11	30
Total Xylenes	N.D.	0.0006	0.0030	mg/l	95	105	80-120	10	30
Batch number: 10333196601B	Sample num	ber(s): 61	48526-614	8533					
Chloride	N.D.	0.20	0.40	mg/l	91		90-110		
Sulfate	N.D.	0.30	1.0	mg/l	103		89-110		
Batch number: 10333021201B	Sample num	ber(s): 61	.48526-614	8533					
Total Dissolved Solids	N.D.	9.7	30.0	mg/l	91		80-120		
Batch number: 10335020201B	Sample num	ber(s): 61	.48526-614	8533					
Alkalinity to pH 4.5	N.D.	0.46	2.0	mg/l as CaCO3	100		98-103		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS <u>%RBC</u>	MSD %RBC	MS/MSD Limits	RPD	RPD MAX	BKG Cong	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 10333A53A Benzene Ethylbenzene Toluene Total Xylenes	Sample n 110 110 110 113	number(s)	: 6148526 80-152 80-133 80-133 80-148	-614853	4 UNSP	K: P148456			
Batch number: 10333196601B Chloride Sulfate	Sample n 82* 67*	umber(s)	: 6148526 90-110 90-110	-614853	3 UNSP	K: 6148526 8,070 264	BKG: 6148526 8,190 270	1 (1)	20 20
Batch number: 10333021201B Total Dissolved Solids	Sample n	number(s)	: 6148526 62-135	-614853	3 UNSP	K: 6148533 1,720	BKG: 6148533 1,790	4	9
Batch number: 10335020201B Alkalinity to pH 4.5 Alkalinity to pH 8.3	Sample n 45*	umber(s)	: 6148526 73-121	-614853	3 UNSP	K: 6148526 158 N.D.	BKG: 6148526 156 N.D.	1 0 (1)	5 5

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.



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Page 2 of 2

Quality Control Summary

Client Name: CRA

Group Number: 1222517

Reported: 12/02/10 at 02:48 PM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021) Water

Batch number: 10333A53A Trifluorotoluene-P

6148526	88
6148527	89
6148528	88
6148529	88
6148530	88
6148531	87
6148532	87
6148533	88
6148534	87
Blank	86
LCS	88
LCSD	87
MS	88

Limits: 58-146

*- Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

Acct. # 11938 Group# 222517 Sample # 6148526-34 COC # 245920

Please print, Instructions on reverse side correspond with circled numbers. For Lab Use Only (5) Analyses Requested Occiont: CRA FSC: Matrix 4 98253 **Preservation Codes** SCR#: ____ Acct. #: ______ H 000 Project Name #: Owen #9/046121 PWSID #:_____ **Preservation Codes** H=HCI T=Thiosulfate 6 Project Manager. Desiree Crenshaw P.O.# N=HNO₃ B=NaOH emperature of samples pon receipt (if requested) 5=H,SO, O=Other! (.C. Sampler: JP/C5 Name of state where samples were collected: MM 2 Date Time g Collected Collected O Sample Identification Remarks MW-1 11221D 1420 11-22-10 11-22-101 MW-2 112210 1405 MW-3 112210 11-22-18 1345 2 11-22-10 1330 mw-4 112216 mW-5 112210 11-22-10 1440 1122-10 1500 2 mw-6 112210 11-22-16 1520 mw-7 112210 11-22-10 112210 Dup TIP Turnaround Time Requested (TAT) (please circle): Normal Rush Relinquished by: Date Time Received by Date Time (9 Rush TAT is subject to Lancaster Laboratories approval and surcharge.) -17-10820 (MM/MM 11-22-10 0800 Date results are needed: Time Received by: Rush results requested by (please circle): Phone Fax E-mail Phone #:_____ Fax #:____ Relinguished by: Time Received by: Date Time E-mail address: "Data Package Options (please circle if required) SDG Complete? Type I (validation/NJ Reg) TX TRRP-13 Yes No Time Received by: Date Relinguished by: Date Time Type II (Tier II) MA MCP CT RCP Type III (Reduced NJ) Site-specific QC (MS/MSD/Dup)? Yes No Time Received by: Relinguished by: Date /Date Time Type IV (CLP SOW) Hi yes, indicale GC samp o and submit stylicate volume.) Type VI (Raw Data Only) Internal COC Required? Yes / No

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: 7127656-6766 Copies; White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management 2102.05



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
umhos/cm C	micromhos/cm degrees Celsius	ng F	nanogram(s) degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion
- Dry weight basis

Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Inorganic Qualifiers TIC is a possible aldol-condensation product В Value is <CRDL, but ≥IDL В Analyte was also detected in the blank E Estimated due to interference C Pesticide result confirmed by GC/MS М Duplicate injection precision not met D Compound quantitated on a diluted sample Ν Spike sample not within control limits Concentration exceeds the calibration range of Method of standard additions (MSA) used E S the instrument for calculation N Presumptive evidence of a compound (TICs only) U Compound was not detected Concentration difference between primary and W Post digestion spike out of control limits Duplicate analysis not within control limits confirmation columns >25% Compound was not detected Correlation coefficient for MSA < 0.995 X,Y,Z Defined in case narrative

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425 Prepared for:

CRA 6320 Rothway Suite 100 Houston TX 77040

October 06, 2010

Project: Mark Owen #9 Lea County, NM

Submittal Date: 09/25/2010 Group Number: 1213626 PO Number: 4019867 Release Number: 046121 State of Sample Origin: NM

Client Sample Description	<u>Lancaster Labs (LLI) #</u>
MW-5 20' BGS Grab Soil	6095365
MW-5 25' BGS Grab Soil	6095366
MW-5 35' BGS Grab Soil	6095367
MW-5 Grab Water	6095368
MW-6 20' BGS Grab Soil	6095369
MW-6 30' BGS Grab Soil	6095370
MW-6 35' BGS Grab Soil	6095371
MW-6 Grab Water	6095372
MW-7 5' BGS Grab Soil	6095373
MW-7 10' BGS Grab Soil	6095374
MW-7 35' BGS Grab Soil	6095375
MW-7 Grab Water	6095376
Trip Blank Water	6095377

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC

CRA

Attn: Pat Lynch

COPY TO

ELECTRONIC

CRA

Attn: Desiree Crenshaw

COPY TO



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Page 1 of 1

Sample Description: MW-5 20' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095365 LLI Group # 1213626

Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 09/22/2010 11:00

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway Suite 100

Reported: 10/06/2010 16:34

Discard: 11/06/2010 Houston TX 77040

520--

Cat No.	Analysis Name		CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
C Vol	atiles	SW-846	8015B	mg/kg		mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10		n.a.	N.D.		0.2	1.1	24.51
C Vol	atiles	SW-846	8021B	ug/kg		ug/kg	ug/kg	
08180	Benzene		71-43-2	N.D.		2.1	5.4	24.51
08180	Ethylbenzene		100-41-4	N.D.		2.1	5.4	24.51
08180	Toluene		108-88-3	N.D.		2.1	5.4	24.51
08180	Total Xylenes		1330-20-7	N.D.		5.4	16	24.51
C Ext	ractable TPH	SW-846	8015B	mg/kg		mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28	3	n.a.	11	J	4.4	13	1
let Ch	emistry	EPA 300	0.0	mg/kg		mg/kg	mg/kg	
07333	Chloride by IC (soli	.d)	16887-00-6	98.1		10.9	21.8	2
07338	Sulfate by IC (solid	i)	14808-79-8	28.8		5.5	16.4	1
Vet Ch	emistry	SM20 25	340 G	%		%	%	
00111	Moisture		n.a.	8.4		0.50	0.50	1
	"Moisture" represent 103 - 105 degrees Co as-received basis.							

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	10:58	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 8015B	1	10271A16A	09/28/2010	16:52	Marie D John	24.51
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010	16:52	Marie D John	24.51
08270	TPH-DRO soil Cl0-C28	SW-846 8015B	1	102710015A	09/29/2010	21:27	Melissa McDermott	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010	17:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	10/02/2010	06:31	Ashley M Adams	2
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	15:38	Ashley M Adams	1
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010	12:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	10273820003A	09/30/2010	18:21	Scott W Freisher	. 1



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Page 1 of 1

Sample Description: MW-5 25' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095366 LLI Group # 1213626 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 11:05

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway

Reported: 10/06/2010 16:34

Suite 100

Discard:

11/06/2010

Houston TX 77040

525--

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vo	latiles SW-	846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10		n.a.	N.D.	0.2	1.1	25.85
GC Vol	latiles SW-	846	3021B	ug/kg	ug/kg	ug/kg	
08180	Benzene		71~43-2	N.D.	2.2	5.5	25.85
08180	Ethylbenzene		100-41-4	N.D.	2.2	5.5	25.85
08180	Toluene		108-88-3	N.D.	2.2	5.5	25.85
08180	Total Xylenes		1330-20-7	N.D.	5.5	17	25.85
GC Ext	ractable TPH SW-	846	3015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28		n.a.	8.2 J	4.3	13	1
Wet Cl	nemistry EPA	300	. 0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (solid)		16887-00-6	132	26.7	53.4	5
07338	Sulfate by IC (solid)		14808-79-8	18.1	5.3	16.0	1
Wet Cl	nemistry SM2	20 25	10 G	%	ч	%	
00111	Moisture		n.a.	6.4	0.50	0.50	1
	"Moisture" represents the second of the seco						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	we	Analyst	Dilution Factor
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	11:09	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 B015B	1	10271A16A	09/28/2010	17:30	Marie D John	25.85
08180	BTEX (8021) Soil	SW-846 B021B	1	10271A16A	09/28/2010	17:30	Marie D John	25.85
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/29/2010	22:32	Melissa McDermott	1
07004	Extraction - DRO (Soils)	SW-846 3550B	· 1	102710015A	09/28/2010	17:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	10/02/2010	06:47	Ashley M Adams	5
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	16:26	Ashley M. Adams	1
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010	12:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	10273820003A	09/30/2010	18:21	Scott W Freisher	1



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Page 1 of 1

Sample Description: MW-5 35' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095367 LLI Group # 1213626 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 11:10

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway

Reported: 10/06/2010 16:34

Suite 100

Houston TX 77040

Discard: 11/06/2010

535~-

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vol	latiles s	SW-846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10		n.a.	N.D.	0.2	1.1	24.51
3C Vol	latiles s	SW-846	8021B	ug/kg	ug/kg	ug/kg	
08180	Benzene		71-43-2	N.D.	2.3	5.6	24.51
08180	Ethylbenzene		100-41-4	N.D.	2.3	5.6	24.51
08180	Toluene		108-88-3	N.D.	2.3	5.6	24,51
08180	Total Xylenes		1330-20-7	N.D.	5.6	17	24,51
3C Ext	ractable TPH S	SW-846	8015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28		n.a.	N.D.	4.6	14	1
Vet Cl	nemistry I	EPA 300	0.0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (solid	3)	16887-00-6	172	28.8	57.5	5
07338	Sulfate by IC (solid)		14808-79-8	26.6	5.8	17.3	1
Net Cl	nemistry S	BM20 25	540 G	%	8	%	
00111	Moisture		n.a.	13.1	0.50	0.50	1
	"Moisture" represents 103 - 105 degrees Cel as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

•	Laboratory Sample Analysis Record											
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor				
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	11:06	Larry E Bevins	n.a.				
01638	TPH-GRO soil C6-C10	SW-846 8015B	1	10271A16A	09/28/2010	18:08	Marie D John	24.51				
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010	18:08	Marie D John	24.51				
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/30/2010	01:05	Melissa McDermott	1				
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010	17:45	Sally L Appleyard	1				
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	10/02/2010	07:03	Ashley M Adams	5				
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	16:42	Ashley M Adams	1				
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010	12:45	Nancy J Shoop	1				
00111	Moisture	SM20 2540 G	1	10273820003A	09/30/2010	18:21	Scott W Freisher	1				



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Page 1 of 1

Sample Description: MW-5 Grab Water

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # WW 6095368 LLI Group # 1213626 # 11938 Account

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/23/2010 13:15

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway

Suite 100

Reported: 10/06/2010 16:34 Discard: 11/06/2010

Houston TX 77040

CAT No, Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Volatiles	SW-846	8015B	ug/l	ug/l	ug/l	
01636 TPH-GRO water C6-	C10	n.a.	N.D.	20	50	1
GC Volatiles	SW-846	8021B	mg/l	mg/1	mg/l	
08213 Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213 Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	3
08213 Toluene		108-88-3	N,D,	0.0002	0.0010	1
08213 Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
GC Extractable TPH	SW-846	8015B	ug/l	ug/l	ug/l	
08269 TPH-DRO water Clo	-C28	n.a.	220	30	95	1
Wet Chemistry	EPA 30	0.0	mg/l	mg/l	mg/l	
00224 Chloride		16887-00-6	571	40.0	80.0	200
00228 Sulfate		14808-79-8	102	15.0	50.0	50

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10272A53A	09/30/2010 18:3	O Carrie E Miller	1
01636	TPH-GRO water C6-C10	SW-846 8015B	1	10272A53A	09/30/2010 18:3	O Carrie E Miller	1
08213	BTEX (8021) Water	SW-846 8021B	1	10272A53A	09/30/2010 18:3	O Carrie E Miller	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	102700019A	09/29/2010 06:1	3 Melissa McDermott	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	102700019A	09/28/2010 09:4	0 Karen R Rettew	1
00224	Chloride	EPA 300.0	1	10272196901B	09/30/2010 11:3	7 Ashley M Adams	200
00328	Sulfate	EPA 300.0	1	10272196901B	09/29/2010 17:3	1 Ashley M Adams	50



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Page 1 of 1

Sample Description: MW-6 20' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095369 LLI Group # 1213626

11938 Account

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 13:00

by DC CRA

Submitted: 09/25/2010 09:30

6320 Rothway Suite 100

Reported: 10/06/2010 16:34

Discard: 11/06/2010 Houston TX 77040

620--

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vo	iatiles S	W-846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10		n.a.	N.D.	0.2	1.0	24.75
GC Vo	latiles S	W-846	8021B	ug/kg	ug/kg	ug/kg	
08180	Benzene		71-43-2	N.D.	2.1	5.2	24.75
08180	Ethylbenzene		100-41-4	N.D.	2.1	5.2	24.75
08180	Toluene		108-88-3	N.D.	2,1	5.2	24.75
08180	Total Xylenes		1330-20-7	N.D.	5.2	16	24.75
GC Ext	tractable TPH S	W-846	8015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28		n.a.	N.D.	4.2	13	1
Wet C	nemistry E	PA 300	.0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (solid))	16887-00-6	71.6	10.4	20.9	2
07338	Sulfate by IC (solid)		14808-79-8	138	5.2	15.7	1
Wet C	nemistry S	M20 25	640 G	%	%	%	
00111	Moisture		n.a.	4.3	0.50	0.50	1
	"Moisture" represents 103 - 105 degrees Cels as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

	Laboratory Sample Analysis Record													
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor							
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	. 1	201027022401	09/27/2010 11:05	Larry E Bevins	n.a.							
01638	TPH-GRO soil C6-C10	SW-846 8015B	. 1	10271A16A	09/28/2010 18:45	Marie D John	24.75							
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010 18:45	Marie D John	24.75							
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/29/2010 22:54	Melissa McDermott	1							
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010 17:45	Sally L Appleyard	1							
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	10/02/2010 07:19	Ashley M Adams	2							
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010 16:58	Ashley M Adams	1							
01352	Deionized Water Extraction	EPA 300.0	`1	10272272201A	09/29/2010 12:45	Nancy J Shoop	1							
00111		SM20 2540 G	1	10273820003B	09/30/2010 18:21	Scott W Freisher	1							



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Sample Description: MW-6 30' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095370 LLI Group # 1213626 # 11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 09/22/2010 13:05

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway

Reported: 10/06/2010 16:34

Suite 100

Houston TX 77040

Discard: 11/06/2010

630--

CAT No.	Analysis Name		CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vol	atiles	SW-846	8015B	mg/kg		mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10	1	n.a.	N.D.		0.2	1.1	24.63
3C Vol	atiles	SW-846	8021B	ug/kg		ug/kg	ug/kg	
08180	Benzene		71-43-2	N.D.		2.2	5.6	24.63
08180	Ethylbenzene		100-41-4	N.D.		2.2	5.6	24.63
08180	Toluene		108-88-3	N.D.		2.2	5.6	24.63
08180	Total Xylenes		1330-20-7	N.D.		5.6	17	24.63
C Ext	ractable TPH	SW-846	8015B	mg/kg		mg/kg	mg/kg	
08270	TPH-DRO soil Cl0-C2	8	n.a.	11	J	4.5	14	1.
et Cl	lemistry	EPA 300	0.0	mg/kg		mg/kg	mg/kg	
07333	Chloride by IC (sol	id)	16887-00-6	108		11.3	22,6	2
07338	Sulfate by IC (soli	.d)	14808-79-8	112		5.6	16.9	1
Vet Cl	nemistry	SM20 2	540 G	*		%	%	
00111	Moisture		n.a.	11.4		0.50	0.50	1.
	"Moisture" represent 103 - 105 degrees C as-received basis.		ss in weight of th	e sample		oven drying at		

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory	Sample	Analysis	Record
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CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010 13	1:05	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 8015B	1	10271A16A	09/28/2010 19	9:23	Marie D John	24.63
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010 19	9:23	Marie D John	24.63
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/29/2010 23	3:16	Melissa McDermott	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010 17	7:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	10/02/2010 07	7:35	Ashley M Adams	2
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010 17	7:14	Ashley M Adams	1.
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010 12	2:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	. 1	10273820003B	09/30/2010 18	8:21	Scott W Freisher	1



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Page 1 of 1

Sample Description: MW-6 35' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095371 LLI Group # 1213626 # 11938 Account

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 13:10

by DC

CRA

Submitted: 09/25/2010 09:30

6320 Rothway Suite 100

Reported: 10/06/2010 16:34

Discard: 11/06/2010

Houston TX 77040

635--

GC Volatiles SW-846 8021B ug/kg ug/kg ug/kg 08180 Benzene 71-43-2 N.D. 2.0 5.1 24 08180 Ethylbenzene 100-41-4 N.D. 2.0 5.1 24 08180 Toluene 108-88-3 N.D. 2.0 5.1 24	CAT No. Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles SW-846 8021B ug/kg ug/kg ug/kg 08180 Benzene 71-43-2 N.D. 2.0 5.1 24 08180 Ethylbenzene 100-41-4 N.D. 2.0 5.1 24 08180 Toluene 108-88-3 N.D. 2.0 5.1 24 08180 Total Xylenes 1330-20-7 N.D. 5.1 15 GC Extractable TPH SW-846 8015B mg/kg mg/kg mg/kg 08270 TPH-DRO soil C10-C28 n.a. 7.8 J 4.2 13 1 Wet Chemistry EPA 300.0 mg/kg mg/kg mg/kg 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1	GC Volatiles	SW-846	8015B	mg/kg	mg/kg	mg/kg	
08180 Benzene 71-43-2 N.D. 2.0 5.1 24 08180 Ethylbenzene 100-41-4 N.D. 2.0 5.1 24 08180 Toluene 108-88-3 N.D. 2.0 5.1 24 08180 Total Xylenes 1330-20-7 N.D. 5.1 15 24 08180 Total Xylenes 1330-20-7 N.D. 5.1 15 24 GC Extractable TPH SW-846 8015B mg/kg mg/kg mg/kg 08270 TPH-DRO soil C10-C28 n.a. 7.8 J 4.2 13 1 Net Chemistry EPA 300.0 mg/kg mg/kg mg/kg 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Net Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1	01638 TPH-GRO soil C6	-C10	n.a.	N,D,	0.2	1.0	24.06
08180 Ethylbenzene 100-41-4 N.D. 2.0 5.1 24 08180 Toluene 108-88-3 N.D. 2.0 5.1 24 08180 Total Xylenes 1330-20-7 N.D. 5.1 15 24 GC Extractable TPH SW-846 8015B mg/kg mg/kg mg/kg 08270 TPH-DRO soil C10-C28 n.a. 7.8 J 4.2 13 1 Wet Chemistry EPA 300.0 mg/kg mg/kg mg/kg 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at	GC Volatiles	SW-846	8021B	ug/kg	ug/kg	ug/kg	
08180 Toluene	08180 Benzene		71-43-2	N.D.	2.0	5.1	24.06
08180 Total Xylenes 1330-20-7 N.D. 5.1 15 24 3C Extractable TPH SW-846 8015B mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg 13 1 Wet Chemistry EPA 300.0 mg/kg mg/kg mg/kg mg/kg mg/kg 10.6 1 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at	08180 Ethylbenzene		100-41-4	N.D.	2.0	5.1	24.06
### SW-846 8015B mg/kg mg/kg mg/kg mg/kg mg/kg ### O8270 TPH-DRO soil C10-C28 n.a. 7.8	08180 Toluene		108-88-3	Ń.D.	2.0	5.1	24.06
08270 TPH-DRO soil C10-C28 n.a. 7.8 J 4.2 13 1 Wet Chemistry EPA 300.0 mg/kg mg/kg mg/kg 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at	08180 Total Xylenes		1330-20-7	N.D.	5.1	15	24.06
Net Chemistry EPA 300.0 mg/kg mg/kg mg/kg 07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Net Chemistry SM20 2540 \$ \$ \$ \$ 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at 1 0.50 1	GC Extractable TPH	SW-846	8015B	mg/kg	mg/kg	mg/kg	
07333 Chloride by IC (solid) 16887-00-6 57.5 5.3 10.6 1 07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at	08270 TPH-DRO soil C1	0-028	n.a.	7.8 J	4.2	13	1
07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Net Chemistry SM20 2540 G	let Chemistry	EPA 30	0.0	mg/kg	mg/kg	mg/kg	
07338 Sulfate by IC (solid) 14808-79-8 62.4 5.3 15.9 1 Wet Chemistry SM20 2540 G % % % 00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at	07333 Chloride by IC	(solid)	16887-00-6	57.5	5.3	10.6	1
00111 Moisture n.a. 5.4 0.50 0.50 1 "Moisture" represents the loss in weight of the sample after oven drying at			14808-79-8	62.4	5.3	15.9	1
"Moisture" represents the loss in weight of the sample after oven drying at	Vet Chemistry	SM20 2	540 G	% .	%	96	
	00111 Moisture		n.a.	5.4	0.50	0.50	1
as-received basis.	103 - 105 degre	es Celsius. T					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	11:08	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 8015B	1	10271A16A	09/28/2010	20:01	Marie D John	24.06
08180	BTEX (8021) Soil	SW-846 8021B	. 1	10271A16A	09/28/2010	20:01	Marie D John	24.06
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/29/2010	23:38	Melissa McDermott	1
07004	Extraction - DRO (Soils)	SW-846 3550B	. 1	102710015A	09/28/2010	17:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	17:30	Ashley M Adams	1
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	17:30	Ashley M Adams	1
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010	12:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	10273820003B	09/30/2010	18:21	Scott W Freisher	1



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Sample Description: MW-6 Grab Water

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # WW 6095372 LLI Group # 1213626

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

by DC

Collected: 09/23/2010 13:30 by

CRA

6320 Rothway

Suite 100

Houston TX 77040

Submitted: 09/25/2010 09:30 Reported: 10/06/2010 16:34

Discard: 11/06/2010

--6---

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vol	atiles	SW-846	8015B	ug/l	ug/l	ug/1	
01636	TPH-GRO water C6-C10	1	n.a.	N.D.	20	50	1
3C Vol	atiles.	SW-846	8021B	mg/l	mg/l	mg/l	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0:0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	1
3C Ext	ractable TPH	SW-846	8015B	ug/l	ug/l	ug/l	
08269	TPH-DRO water C10-C2	8	n.a.	280	30	95	1
Wet Ch	nemistry	EPA 300	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	554	20.0	40.0	100
00228	Sulfate		14808-79-8	349	30.0	100	100

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	,	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10272A53A	09/30/2010 1	8:54	Carrie E Miller	1
01636	TPH-GRO water C6-C10	SW-846 8015B	1	10272A53A	09/30/2010 18	8:54	Carrie E Miller	1
08213	BTEX (8021) Water	SW-846 8021B	1	10272A53A	09/30/2010 1	8:54	Carrie E Miller	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	102700019A	09/29/2010 0	6:35	Melissa McDermott	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	102700019A	09/28/2010 0	9:40	Karen R Rettew	1
00224	Chloride	EPA 300.0	1	10272196901B	09/29/2010 1	7:47	Ashley M Adams	100
00228	Sulfate	EPA 300.0	1	10272196901B	09/29/2010 1	7:47	Ashley M Adams	100



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Sample Description: MW-7 5' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095373

LLI Group # 1213626

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 15:50

by DC

CRA

6320 Rothway

Submitted: 09/25/2010 09:30

Suite 100

Reported: 10/06/2010 16:34

Houston TX 77040

Discard: 11/06/2010

75---

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vol	latiles SW-846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10	n.a.	N.D.	0.2	1,1	25.15
GC Vol	Latiles SW-846	8021B	ug/kg	ug/kg	ug/kg	
08180	Benzene	71-43-2	N.D.	2.1	5.3	25.15
08180	Ethylbenzene	100-41-4	N.D.	2.1	5.3	25.15
08180	Toluene	108-88-3	N.D.	2.1	5.3	25.15
08180	Total Xylenes	1330-20-7	N.D.	5.3	16	25.15
3C Ext	ractable TPH SW-846	8015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28	n.a.	N.D.	4.2	13	1
Vet Cl	nemistry EPA 30	0.0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (solid)	16887-00-6	11.5	5.2	10.5	1
07338	Sulfate by IC (solid)	14808-79-8	95.1	5.2	15.7	1
Wet Cl	nemistry SM20 2	540 G	*	%	%	
00111	Moisture	n.a.	4.5	0.50	0.50	1
	"Moisture" represents the lo 103 - 105 degrees Celsius. T as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	me	Analyst	Dilution Factor
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	11:03	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 B015B	1	10271A16A	09/28/2010	20:39	Marie D John	25.15
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010	20:39	Marie D John	25.15
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/30/2010	00:00	Melissa McDermott	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010	17:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	17:46	Ashley M Adams	1
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201A	09/29/2010	17:46	Ashley M Adams	1
01352	Deionized Water Extraction	EPA 300.0	1	10272272201A	09/29/2010	12:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	10273820003B	09/30/2010	18:21	Scott W Freisher	1.



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Dilution

Factor

Sample Description: MW-7 10' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095374 LLI Group # 1213626 # 11938 Account

Project Name: Mark Owen #9

Lea County, NM

Collected: 09/22/2010 15:55

CRA

6320 Rothway

Submitted: 09/25/2010 09:30

Suite 100

Reported: 10/06/2010 16:34 Discard:

11/06/2010

Houston TX 77040

710--

CAT

No.

Analysis Name

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vol	atiles	SW-846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10		n.a.	N.D.	0.2	1.0	24.32
GC Vol	atiles	SW-846	8021B	ug/kg	ug/kg	ug/kg	
08180	Benzene		71-43-2	N.D.	2.0	5.1	24.32
08180	Ethylbenzene		100-41-4	N.D.	2.0	5.1	24.32
08180	Toluene		108-88-3	N.D.	2.0	5.1	24.32
08180	Total Xylenes		1330-20-7	N.D.	5.1	15	24.32
GC Ext	ractable TPH	SW-846	8015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C2	В	n.a.	N.D.	4.2	13	1
Wet C	nemistry	EPA 30	0.0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (sol	id)	16887-00-6	30.9	5.2	10.4	1
07338	Sulfate by IC (solid		14808-79-8	25.9	5.2	15.7	1
Wet Cl	nemistry	SM20 2	540 G	8	%	%	
00111	Moisture		n.a.	4.2	0.50	0.50	1
	"Moisture" represent 103 - 105 degrees Co as-received basis.		ss in weight of th	ne sample afte	er oven drying at		

General Sample Comments

Laboratory Sample Analysis Record

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Method

	Trial#	Batch#	Analysis Date and Ti	me	Analyst
5035A	1	201027022401	09/27/2010		Larry E

01150 GC - Bulk Soil Prep E Bevins SW-846 n.a. Modified 01638 TPH-GRO soil C6-C10 1 10271A16A Marie D John 24.32 SW-846 8015B 09/28/2010 23:10 08180 BTEX (8021) Soil SW-846 B021B 10271A16A 09/28/2010 23:10 Marie D John 24.32 08270 TPH-DRO soil C10-C28 09/30/2010 00:21 Melissa McDermott SW-846 8015B 102710015A Sally L Appleyard 07004 Extraction - DRO (Soils) SW-846 3550B 1 102710015A 09/28/2010 17:45 07333 Chloride by IC (solid) Ashley M Adams EPA 300.0 10272272201B 09/29/2010 18:02 07338 Sulfate by IC (solid) 01352 Deionized Water Extraction EPA 300.0 10272272201B 09/29/2010 18:02 Ashley M Adams 1 Nancy J Shoop EPA 300.0 10272272201B 09/29/2010 12:45 09/30/2010 18:21 Scott W Freisher 00111 Moisture SM20 2540 G 1 10273820003B



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Sample Description: MW-7 35' BGS Grab Soil

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # SW 6095375 LLI Group # 1213626

Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/22/2010 16:05

by DC

CRA

6320 Rothway Suite 100

Houston TX 77040

Submitted: 09/25/2010 09:30 Reported: 10/06/2010 16:34

Discard: 11/06/2010

735--

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Vol	latiles SW-846	8015B	mg/kg	mg/kg	mg/kg	
01638	TPH-GRO soil C6-C10	n.a.	N.D.	0.2	1.1	24.63
GC Vol	latiles SW-846	8021B	ug/kg	ug/kg	ug/kg	
08180	Benzene	71-43-2	N.D.	2.2	5.5	24.63
08180	Ethylbenzene	100-41-4	N.D.	2.2	5.5	24.63
08180	Toluene	108-88-3	N.D.	2.2	5.5	24.63
08180	Total Xylenes	1330-20-7	N.D.	5.5	16	24.63
GC Ext	ractable TPH SW-846	8015B	mg/kg	mg/kg	mg/kg	
08270	TPH-DRO soil C10-C28	n.a.	N.D.	4.4	13	1
Wet Cl	nemistry EPA 30	0.0	mg/kg	mg/kg	mg/kg	
07333	Chloride by IC (solid)	16887-00-6	14.1	5.6	11.1	1
07338		14808-79-8	31.7	5,6	16.7	1
Wet C	nemistry SM20 2	2540 G	%	%	46	
00111	Moisture	n.a.	10	0.50	0.50	1
	"Moisture" represents the 1- 103 - 105 degrees Celsius. as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

		Labora	tory Se	mple Analysi	s Record			
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
01150	GC - Bulk Soil Prep	SW-846 5035A Modified	1	201027022401	09/27/2010	11:02	Larry E Bevins	n.a.
01638	TPH-GRO soil C6-C10	SW-846 8015B	1	10271A16A	09/28/2010	23:48	Marie D John	24.63
08180	BTEX (8021) Soil	SW-846 8021B	1	10271A16A	09/28/2010	23:48	Marie D John	24.63
08270	TPH-DRO soil C10-C28	SW-846 8015B	1	102710015A	09/30/2010	00:43	Melissa McDermott	· 1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	102710015A	09/28/2010	17:45	Sally L Appleyard	1
07333	Chloride by IC (solid)	EPA 300.0	1	10272272201B	09/29/2010	18:50	Ashley M Adams	1
07338	Sulfate by IC (solid)	EPA 300.0	1	10272272201B	09/29/2010	18:50	Ashley M Adams	1
01352	Deionized Water Extraction	EPA 300.0	1	10272272201B	09/29/2010	12:45	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	10273820003B	09/30/2010	18:21	Scott W Freisher	1



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Page 1 of 1

Sample Description: MW-7 Grab Water

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # WW 6095376 LLI Group # 1213626 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/23/2010 13:45

by DC

CRA

00 20

6320 Rothway

Submitted: 09/25/2010 09:30

Suite 100

Discard: 13

Reported: 10/06/2010 16:34

Houston TX 77040

11/06/2010

-7---

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846	8015B	ug/l	ug/l	ug/1	
01636	TPH-GRO water C6-C1	.0	n,a.	N.D.	20	50	1
GC Vo	latiles	SW-846	8021B	mg/l	mg/l	mg/1	
08213	Benzene		71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene		100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene		108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes		1330-20-7	N.D.	0.0006	0.0030	·1
GC Ex	tractable TPH	SW-846	8015B	ug/l	ug/1	ug/l	
08269	TPH-DRO water Clo-C	228	n.a.	340	30	95	1
Wet C	hemistry	EPA 300	0.0	mg/l	mg/l	mg/l	
00224	Chloride		16887-00-6	120	10.0	20.0	50
00228	Sulfate		14808-79-8	70.5	6.0	20.0	20

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10272A53A	09/30/2010 19:1	Carrie E Miller	1
01636	TPH-GRO water C6-C10	SW-846 8015B	1	10272A53A	09/30/2010 19:1	3 Carrie E Miller	1
08213	BTEX (8021) Water	SW-846 8021B	1.	10272A53A	09/30/2010 19:1	Carrie E Miller	1
08269	TPH-DRO water C10-C28	SW-846 8015B	1	102700019A	09/29/2010 06:5	7 Melissa McDermott	1
07003	Extraction - DRO (Waters)	SW-846 3510C	1	102700019A	09/28/2010 09:4) Karen R Rettew	1
00224	Chloride	EPA 300.0	1	10272196901B	09/30/2010 11:5	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	10272196901B	09/29/2010 18:0	Ashley M Adams	20



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Page 1 of 1

Sample Description: Trip Blank Water

Drilling Event

Mark Owen #9 Lea County, NM

LLI Sample # WW 6095377

LLI Group # 1213626 Account # 11938

Project Name: Mark Owen #9 Lea County, NM

Collected: 09/23/2010 13:45

CRA

6320 Rothway

Submitted: 09/25/2010 09:30 Suite 100 Reported: 10/06/2010 16:34

Houston TX 77040

Discard: 11/06/2010

TBDRE

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Vo	latiles	SW-846 8021B	mg/l	mg/l	mg/l	
08213	Benzene	71-43-2	N.D.	0.0002	0.0010	1
08213	Ethylbenzene	100-41-4	N.D.	0.0002	0.0010	1
08213	Toluene	108-88-3	N.D.	0.0002	0.0010	1
08213	Total Xylenes	1330-20-7	N.D.	0.0006	0.0030	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01146	GC VOA Water Prep	SW-846 5030B	1	10272A53A	09/30/2010 16:	2 Carrie E Miller	1
08213	BTEX (8021) Water	SW-846 8021B	1	10272A53A	09/30/2010 16:	52 Carrie E Miller	1



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Page 1 of 3

Quality Control Summary

Client Name: CRA

Group Number: 1213626

Reported: 10/06/10 at 04:34 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

30 30
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Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

MS MSD MS/MSD RPD BKG DUP DUP DUP RPD RP	ms	MSD	ms/msd	RPD	BKG	DUP	DUP	Dup RPD
--	----	-----	--------	-----	-----	-----	-----	---------

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.



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Page 2 of 3

Quality Control Summary

Client Name: CRA Reported: 10/06/10 at	04.24 DM	Group Nu	ımber:	12136	526				
Analysis Name		REC Limits	RPD	MAX	Conc	Conc	RPI	<u>Max</u>	בינ
Batch number: 10272A53A	Sample num	ber(s): 609536	8,60953	72,6095	376-6095	377 UNSPK:	6095368	, P096321	
Benzene	105 10	05 80-152	0	30					
Ethylbenzene	102 10	02 80-133	0	30					
Toluene	104 , 10	80-133	0	30					
TPH-GRO water C6-C10	73	63-154							
Total Xylenes	107 10	07 80-148	0	30					
Batch number: 102710015A	Sample num BKG: 60953		5-60953	67,6095	369-60953	371,609537	73-609537	5 UNSPK: 609536	35
TPH-DRO soil C10-C28	83	30-159			9.8	J N.D.	200)* (1) 20	
Batch number: 10272196901B Chloride Sulfate	Sample num 94 96	ber(s): 609536 90-110 90-110	8,60953	72,6095	376 UNSP 2.5 10.6	K: P095867 2.2 10.7		(1) 20	
Batch number: 10272272201A	Sample num P094898	ber(s): 609536	5-60953	67,6095	369-60953	371,609537	3 UNSPK:	P094898 BKG:	
Chloride by IC (solid)	99	90-110			25.4	33.3	27	(1) 20	
Sulfate by IC (solid)	96	90-110			14.1	J 14.3	J 2	(1) 20	
Batch number: 10272272201B	Sample num	ber(s): 609537	4-60953	75 UNSP	K: 60953	74 BKG: 60			
Chloride by IC (solid)	78*	90-110			29.6	27.8	7	(1) 20	
Sulfate by IC (solid)	90	90-110			24.8	21.7	14	(1) 20	
Batch number: 10273820003A Moisture	Sample num	ber(s): 609536	5-60953	67 BKG	6095367 13.1	13.7	5	15	
Batch number: 10273820003B Moisture	Sample num	ber(s): 609536	9-60953	71,6095	373-60953 4.3	875 BKG: 4.4	6095369 1	15	

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021) Soil

		-		, ,	_
Batch	number:	1	0271A	16A	

	Trifluorotoluene-F	Trifluorototuene-P	
6095365	75	89	
6095366	76	90	
6095367	74	88	
6095369	78	96	
6095370	75	91	
6095371	76	93	
6095373	81	99	
6095374	80	97	
6095375	75	88	
Blank	77	96	
LCS	81	87	
LCSD	73	94	
Limits:	61-122	73-117	

Analysis Name: BTEX (8021) Water

- **-This limit was used in the evaluation of the final result for the blank
- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

^{*-} Outside of specification



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Quality Control Summary

Client Name: CRA

Reported: 10/06/10 at 04:34 PM

Group Number: 1213626

Surrogate Quality Control

			Surrogai	e Marrel	COHLLICAT	
Batch nu	mber: 10272A53A Trilluorotoluene-F	Trifluorotoluene-P				
6095368	76	89			· · · · · · · · · · · · · · · · · · ·	
6095372	77	89				
6095376		89				
	74					
6095377		88				
Blank	72	87				
LCS	78	89				
LCSD	82	89				
MS	76	89				
MSD		89				
Limits:	63-135	58-146				
	Name: TPH-DRO wa	ter C10-C28				
Batch nu	mber: 102700019A					
	Orthoterphenyl					
6095368	89					
6095372	84					
6095376	84					
Blank	85					
LCS	91					
LCSD	83					
Limits:	54-127		, , ,			
Analysis	Name: TPH-DRO so	il C10-C28				
Batch nu	mber: 102710015A					
	Orthoterphenyl					
	Oralotospilonyi					
6095365	94					
6095366	90					
6095367	92					
6095369	92					
6095370	91					
6095371	92					
6095373	92					
6095374	94					
6095375	92					
Blank	93					
DUP	97					
LCS	101					
MS	107					

Limits: 59-129

^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

	For Lancaster Labo		
Aca. # 11930	Group# 1213626	_Sample #_	6095365-77

COC # 250465

5		iease print. insi	rucaor	is on r	everse	SIGE CO	respon	(5			Reque	sted		For Lab Use Only		
TClient: <u>CEMC / CRA</u>	Acct. #:				Matrix	4			Pre	servati	on Code	2 S		SCR#:		
Project Name/#: Mark Coon #9/ Project Manager: Descree Crevel Sampler: Name of state where samples were collected	<u>کابل کا</u> P.O.#: Quote #	#:			☐ Potable Check if ☐ NPDES Applicable	ontainers	V 4021	۱ ا)	->05				Preservation Codes H=HCI T=Thiosul N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other	ate	of samples (9) (if requested)
2 Sample Identification	Date Collected	Time Collected	Grab &	Compos	Water	Other Total # o	PATEN	TPH TPH	the	17				Remarks		Temperature upon receipl
MW-5 20' BGS	9-22-10	1100	X	Ý		2	,		j					Projection	NM	
MW-5 25' BGS	9-22-10	1105				3								par SSOW		
MW-3 35' BGS	7-22-10	1110		1)	5									week	:
	9-23-1	1315			X	7	-								9/2	7/10
MW-6 +5: 201	9-22-10	1300		X		3										
MW-6 30' BGS	9-22-h	1300 Ch	-			17										
MW-6 35' 365	9-22-10	1310			1	3	1		Ĺ							
mw-6	9-23-10	1330			X	7	-11									
MW-7 5' BGS	9-22-10	7555a		X		3										
MW-7 10' BGS	9-22-10	175702	U		t	3	3/	W	V	7						
Turnaround Time Requested (TAT) (pleas (Rush TAT is subject to Lancaster Laboratories a)				elinqu 3	uished	by:	<u> </u>	_	_	Date	Time	Receive	ed by:		Date	Time (
Date results are needed: Rush results requested by (please circle): Phone #:					uished	by:		,	/	Date	Time	Receive	ed by:	-	Date	Time
E-mail address:			R	elinqu	uished	by:		1		Date	Time	Receive	ed by:		Date	Time
Pata Package Options (please circle if requin Type I (validation/NJ Reg) TX TRRP-13 Type II (Tier II) MA MCP C	T RCP	G Complete?	<u> </u>	elinqu	uished	by:	$\overline{}$	/		Date	Time	Receive	ed by:		Date	Time
Type IV (CLP SOW) (three recents GC surple to	C (MS/MSD/Dup)? : sucrest release version: Required? Yes / No		R	elinqu	uished	by:	/			Date	Time				Date	

Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11939 Group# 1213626 Sample # 6095365-77 CQC # 250466 For Lancaster Laboratories use only

U. Ediboratories	Р	lease print, ins	tructio	ns on	revers	e sid	le cor	respon	d with	circle	d numb	ers.			For Lab Use Onl		
1)									(5	A (alyse	s Re	ques	ted	FSC:		
Client: CEMC / CRA	Acct. #:			. L	Mate		(4)			Pre	servat	tion (Code	S	SCR#:	5545	
Project Name/#: Mark Quen # 7 Project Manager: Transhau Sampler:	PWSID P.O.#: _	#:		.	Potable Check if	DES Approprie	ainers	1.0	2	Ç					Preservation Co H=HCl T=Tr N=HNO ₃ B=N S=H ₂ SO ₄ O=0	niosulfate . aOH	oles (9)
Name of state where samples were collected:				ite	□ G	2	f Cont	1. Ca. 9.		1	" [_	,					of samp
2 Sample Identification	Date Collected	Time Collected	Grab (Composite	Water	Other	Total # of Containers	Brey	TPH	H. d.L.	-10				Remarks		Temperature upon receipt
MW-7 35' 2 3GS	9-22-10	T :	X)	Χ		3		1	1,					Miet	~ NN	1
MW-7	9-2310	1345	X	+	+>	+	7	1	7	U	V				Moject i	ow was	*
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Turnaround Time Requested (TAT) (please of Rush TAT is subject to Lancaster Laboratories appr	' - '		R	lelinq:	uishe	d by		<u> </u>] uL	<u>_</u> ?	Date	7	те 50	Received by	r. C	Date	Time (9
Date results are needed: Rush results requested by (please circle): Phone #: For #:			F	eling	uishe	d by	: 				Date			Received by	r	Date	Time
Phone #:									Received by	<u>r. / </u>	Date	Time					
Pata Package Options (please circle if required) Type I (validation/NJ Reg) Type II (Tier II) MA MCP CT	RCP Y	G Complete' es No	- ⊢	Keling	uishe	d by	:			<u> </u>	Date	T	ime	Received by	, /	Date	Time
Type III (Reduced NJ) Type IV (CLP SOW) Type VI (Raw Data Only) Site-specific QC (I	T : hizikale vzluse.		F	elinq	uishe	d by	·:		/		Date	7 T	ime	Received by		Date 9 15/1n	Time 7:30

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management 2102.05



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ίU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
, С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mĺ	milliliter(s)	Ĭ	titer(s)
m3	cubic meter(s)	ul	microliter(s)

- < less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

Inorganic Qualifiers

Duplicate analysis not within control limits

- ppb parts per billion
- Dry weight basis

 Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

BCDE

N P

TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
Analyte was also detected in the blank	E	Estimated due to interference
Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Concentration difference between primary and	W	Post digestion spike out of control limits

U Compound was not detected + Correlation coefficient for MSA <0.995

X,Y,Z Defined in case narrative

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

confirmation columns >25%

Organic Qualifiers

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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SOIL BORING LOG OWEN #9 ASSESSMENT Project: File No.: 46121 **EUNICE, NEW MEXICO** Date: 9/22/2010 WHITE DRILLING MW-5 **Drilling Co.:** No. Supervisor: JOE BLACKBURN Client: CHEVRON ENVIROMENTAL AIR ROTARY Type Rig: MANAGEMENT COMPANY Logged by: DESIREE CRENSHAW LABORATORY TEST DATA FIELD DATA **BORING DATA** Results Reported in mg/kg Screen Interval Water Level Photo-Ionization Total TPH (C6-C35) Depth (feet) Toluene Detection Reading (ppm) Start Time: 915 Finish Time: 1200 Vegetation/ caliche Caliche: Hard, white with some sandy clay 0 10 0 Silty sand: Light reddish brown 15 -0 20 0.1 25 Silty sand: Light reddish brown, moist (0.1) 30 35 Clayey sand: Light reddish brown, moist 0 40 Water First Noted X Stratification is Inferred And May Not be Exact. Soil Classification Based on Visual-Manual Procedure Sampling Interval **Analyzed Sample** page 1 of 2

SOIL BORING LOG

Project: **OWEN #9 ASSESSMENT**

EUNICE, NEW MEXICO

File No.: Date:

46121 9/22/2010

No. MW-5 CONT'D

Drilling Co.: Supervisor:

WHITE DRILLING JOE BLACKBURN

Client: CHEVRON ENVIROMENTAL

MANAGEMENT COMPANY

AIR ROTARY

Type Rig: Logged by:

DESIREE CRENSHAW

	LABORATORY TEST DATA FIELD DATA Results Reported in mg/kg							BORING DATA					
Benzene	Toluene	Ethyl- benzene pan	Xylenes	Total TPH (C6-C35)	Photo- lonization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 915 Finish Time: 1200			
										Clayey Sand: Light reddish brown, saturated			
					0		— 45 —						
					0		EO	1		Clay: Red, saturated, soft.			
							— 50 — — 55 — — 60 —			BORING TERMINATED AT 50'			
							70 75 80						

Stratification is Inferred And May Not be Exact. Soil Classification Based on Visual-Manual Procedure



MONITORING WELL CONSTRUCTION DETAIL Project: OWEN #9 ASSESSMENT File No.: **EUNICE, NEW MEXICO** 10/22/2007 Date: MW-5 Drilling Co.: WHITE DRILLING No Supervisor: JOE BLACKBURN Client: CHEVRON ENVIROMENTAL Type Rig: AIR ROTARY MANAGEMENT COMPANY DESIREE CRENSHAW Logged by: Top of Casing Elevation: 3402.10 ft Surface Completion: VAULT ft-Stick Up: 3 ft ground surface Surface Seal: CEMENT Top of Seal at 10 ft Well Casing - Annulus Backfill Type: SAND 50' - 13' HOLE-PLUG, Bottom of Seal at 13 ft - Seal Type: BENTONITE 3/8" Top of Screen at 15 ft Pack Type: Sand, size 8/16 Depth to Groundwater (TOC) 31.85 ft Gravel Natural Bottom of screen at 50 ft Note: All dimensions are below ground surface Total Well Depth (TOC) 50 ft (bgs) except where noted.

Well	Casing	Material:

Screen Type:

Screen Material:

stainless steel

PVC

Screen Length: 35 feet Screen Diameter: 4 inches

X PVC

perforated

Screen Slot Size: 0.020 inches

other:

Well Casing Diameter: 4 inches

Hole Diameter: 8 inches

Duration/Volume: 1 hour to clean

Development - Method: Bailed 55 gallons

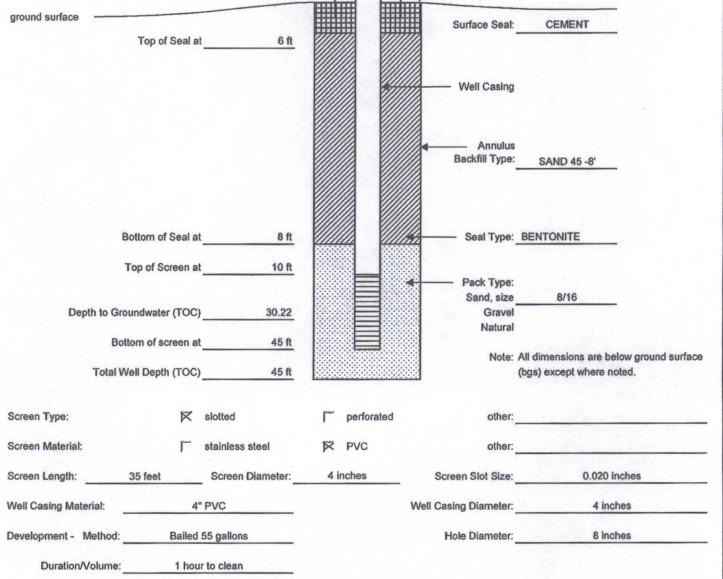


SOIL BORING LOG OWEN #9 ASSESSMENT File No.: 46121 Project: **EUNICE, NEW MEXICO** 9/22/2010 Date: MW-6 **Drilling Co.:** WHITE DRILLING No. Supervisor: JOE BLACKBURN Client: **CHEVRON ENVIROMENTAL** Type Rig: AIR ROTARY MANAGEMENT COMPANY Logged by: **DESIREE CRENSHAW** LABORATORY TEST DATA FIELD DATA **BORING DATA** Results Reported in mg/kg Photo-Water Level Total TPH (C6-C35) Ionization Depth (feet) enzene Ethyl-benzene **Foluene** Detection Reading (ppm) Finish Time: 1600 Start Time: 1210 Vegetation: Grasses, algae, mesquite, cacti 0 Caliche: White, hard with some sandy clay 10 0 15 Caliche: White, hard with some tan sandy clay 20 Silty Sand: Reddish brown with some hard caliche (0) 25 Silty Sand: Reddish brown with minor hard caliche, moist 0 30 0 0 35 40 Water First Noted X Stratification is Inferred And May Not be Exact. Sampling Interval Soil Classification Based on Visual-Manual Procedure Analyzed Sample page 1 of 2

SOIL BORING LOG **OWEN #9 ASSESSMENT** Project: File No.: 46121 **EUNICE, NEW MEXICO** Date: 9/22/2011 WHITE DRILLING MW-6 **Drilling Co.:** CONT'D Supervisor: JOE BLACKBURN Client: CHEVRON ENVIROMENTAL AIR ROTARY Type Rig: MANAGEMENT COMPANY DESIREE CRENSHAW Logged by: LABORATORY TEST DATA FIELD DATA **BORING DATA** Results Reported in mg/kg Start Time: 1210 Photo-Sampling Ionization Total TPH (C6-C35) Depth (feet) Foluene Detection Reading (ppm) Finish Time: 1600 Clay: Red, saturated = 45 = TOTAL DEPTH OF BORING = 45' 50 - 55 60 65 - 70 75 Stratification is Inferred And May Not be Exact. Soil Classification Based on Visual-Manual Procedure

page 2 of 2

MONITORING WELL CONSTRUCTION DETAIL Project: OWEN #9 ASSESSMENT File No.: 46121 **EUNICE, NEW MEXICO** 9/22/2011 Date: Drilling Co.: MW-6 WHITE DRILLING Supervisor: JOW BLACKBURN Client: **CHEVRON ENVIROMENTAL** Type Rig: AIR ROTARY MANAGEMENT COMPANY Logged by: **DESIREE CRENSHAW** Top of Casing Elevation: 3400.24 ft Surface Completion: VAULT ft-Stick Up: 3 ft ground surface





SOIL BORING LOG Project: **OWEN #9 ASSESSMENT** File No.: 46121 **EUNICE, NEW MEXICO** 9/22/2011 9/22/2011 WHITE DRILLING MW-7 No. **Drilling Co.:** Supervisor: JOE BLACKBURN Client: CHEVRON ENVIROMENTAL AIR ROTARY Type Rig: MANAGEMENT COMPANY **DESIREE CRENSHAW** Logged by: LABORATORY TEST DATA FIELD DATA **BORING DATA** Results Reported in mg/kg Screen Interval Photo-Ionization Total TPH (C6-C35) Sampli Depth (feet) Ethyl-benzene Detection Reading (ppm) Start Time: 1500 Finish Time: 1645 5 0.1) Caliche: White< hard< with some white sandy clay 10 Silty Clay:Tan, with caliche, hard (0.3) 15 -0 20 0 25 Clayey sand: Slightly moist, light reddish brown, with some caliche 0 30 Sandy clay: Moist, light reddish brown with < 5 % caliche 0 35 0 Clayey sand: Light reddish, very moist, with stray caliche Water First Noted X Stratification is Inferred And May Not be Exact. Sampling Interval Soil Classification Based on Visual-Manual Procedure Analyzed Sample page 1 of 2

SOIL BORING LOG

Project:

OWEN #9 ASSESSMENT EUNICE, NEW MEXICO

File No.:

46121

MW-7 CONT'D

Date: Drilling Co.:

9/22/2011

CHEVRON ENVIROMENTAL Client:

MANAGEMENT COMPANY

Supervisor:

WHITE DRILLING JOE BLACKBURN AIR ROTARY

Type Rig: Logged by:

DESIREE CRENSHAW

L	ABORAT	CORY TES	T DATA		FIE	LDI	ATA			BORING DATA
Benzene	Results R	Ethyl- benzene benzene	xylenes Xylenes	Total TPH (C6-C35)	Photo- Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 1500 Finish Time: 1645
<u> </u>		مس	X	15	0	×			o	Clayey Sand: Light Reddish Brown, very moist
					0	X	— 45 —			Clay: Red, saturated
							50			TOTAL DEPTH OF BORING = 48'
							55			
							— 60 —			
							65			
							<u> </u>			
							— 75 —		The second second second	
							80		Control of the control	

Stratification is Inferred And May Not be Exact. Soil Classification Based on Visual-Manual Procedure



		MONITORING	WELL CONSTRU		
Project:	OWEN #9 ASSESSMENT EUNICE, NEW MEXICO		No. MW-7	File No.: Date: Drilling Co.: Supervisor:	46121 9/22/2011 WHITE DRILLING JOE BLACKBURN
Client:	CHEVRON ENVIROMENTAL MANAGEMENT COMPANY			Type Rig: Logged by:	AIR ROTARY DESIREE CRENSHAW
	Top of Casing Elevation	3402.13 ft		_	
	Surface Completion	: VAULT ft-	→	Stick Up	3 ft
ground	d surface Top of Seal a	t8ft_		Surface Seal:	CEMENT
				Well Casing	
				Annulus Backfill Type:	
	Bottom of Seal at	t10 ft		Seal Type:	BENTONITE
	Top of Screen at	t13 ft	l 📗	Pack Type: Sand, size	
	Depth to Groundwater (TOC)			Gravel Natural	
	Bottom of screen al Total Well Depth (TOC)			Note:	All dimensions are below ground surface (bgs) except where noted.
Screen	Type:	slotted	r perforated	other:	0.020 SLOT PVC
Screen	Material:	stainless steel	₩ PVC	other:	
Screen	Length: 35 feet	Screen Diameter:	4 inches	Screen Slot Size:	0.020 inches
Well C	asing Material:	PVC		Well Casing Diameter:	4 inches
Develo	pment - Method: Bailed	55 gallons		Hole Diameter:	8 inches
	Duration/Volume: 1	hour			



WHITE DRILLING COMPANY, INC.

P.O. Box 906, Clyde, TX 79510

	f	ACSIMILE TRANSMI	TTAL SHEET				
то:		FROM:	ene White				
Desiree	Crenshaw						
COMPANY:		DATE:	•				
CRA		· · · · · · · · · · · · · · · · · · ·					
FAX NUMBER:		TOTAL	R:				
432-68	6-0186	7					
PHONE NUMBER	: -	SENDE	YS FAX NUMBER:				
432-68	6-0086	325-893-4099					
RE:		SENDER'S PHONE NUMBER:					
		3	25-893-2950				
☐ URGENT	X FOR REVIEW	PLEASE COMMENT	☐ PLEASE REPLY	☐ PLEASE RECYCLE			
NOTES/COMME	NTS:						

OSE FILE NUMBER(S)



POD NUMBER (WELL NUMBER)

Z	MW-5									İ					
GENERAL AND WELL LOCATION	WELL OWN	VER NAM	E(S)								PHONE (OPTIO	NAL)			
000	Chevror	Envir	ronr	nental Man	age	ment Co.									
LLI	WELL OW										CITY		STATE		ZIP
WE	1400 Sr	nith St	t., H	DU 140/19	00-1	A					Houston		TX	77	002
QN!	WELL				DE	GREES	MINU	TES S	ECONI						
ALA	LOCATI	_	LAT	TUDE		32		25	55.	.20 N		REQUIRED: ONE TEN	NTH OF A SEC	COND	
VER	(FROM C	GPS)	LON	GITUDE		103		8	46.	.50 W	* DATUM REC	UIRED: WGS 84			
GE	DESCRIPT	ION REL	ATIN	G WELL LOCAT	ONTO	STREET ADDRES	SS AND (COMMON LA	NDMA	RKS					
-	Owen #	9													
	(2.5 ACI	KE)	-	(10 ACRE)		(40 ACRE)	(160 ACRE)		SECTION		TOWNSHIP		RANGE	
L		4		1/4		1/4	,	1/4			34	21	ITROA SOUTH	37	☑ EAST
ONA	SUBDIVISI		E			/4		/4	\dashv	LOT NUM	IBER	BLOCK NUMBER	A SOUTH	UNIT/TRAC	
OPTIONAL															
2.0	HYDROGRAPHIC SURVEY MAP NUMBER										TRACT NU	IMBER			
	LICENSE N	CENSE NUMBER NAME OF LICENSED DRILLER NAME OF WELL DRILLING COMPANY													
	WD-	1456		John W. V	Vhite							White Drilling		•	
	DRILLING		0	DRILLING EN		DEPTH OF COM		WELL (FT)		BORE HO	LE DEPTH (FT)	DEPTH WATER FI			
ON	9/2	2/10		9/22/10	,		50.0						29.1		
IATI	COMPLETI	ED WELL	ıs.	ARTESIA:	N	DRY HOLE	V	SHALLOW (U	UNCON	(FINED)		STATIC WATER LI	29.1		L(FT)
ORA											20.1		-		
DRILLING INFORMATION	DRILLING			AIR		MUD		ADDITIVES -							
ING	DRILLING):	▼ ROTARY		HAMMER		CABLE TOOL	L	OTHE	ER - SPECIFY;		7		** **
IILL		H (FT)		BORE HOI DIA. (IN)					NECTION (CASING)	INSIDE DIA. CASING (IN)		G WALL NESS (IN)	SLOT SIZE (IN)		
3. DH	FROM 0.0	TO 15.0		7 7/8			h. 40 F		-		reads	4.0		14"	SIZE (IIV)
۳,	15.0	50.0	_	7 7/8			h. 40 F				reads	4.0		/4"	.020
	1010			. ,,,				-	_			7.0		, ,	.020
	DEPT	H (FT)		THICKNES	22	F	ORMA	TION DESC	RIPT	ION OF P	RINCIPAL W	ATER-BEARING	STRATA		YIELD
RATA	FROM	ТО		(FT)								R FRACTURE ZO			(GPM)
STRA	24.0	32.	0	8.0		100			77.4	Reddish	brown sand	1.		i de la composição	
S															
RIN															
BE			_												
rer										***					
4. WATER BEARING	METHOD	USED TO	ESTI	MATE YIELD OF	WATE	R-BEARING STRA	ATA					TOTAL ESTIMATE	D WELL YIE	LD (GPM)	
4.															
	FOR OO	E INTER	2014	UCE				100000000000000000000000000000000000000				WELL DECK	200 6 1 6 6		(0/00)
	FOR OSI		KNAL	USE				POD NUI	MBER	2		TRN NUMB		r (Version 6	79/08)
	LOCATI							. 02 1.01				1		PAGEIO	OF 2

3MP	TYPE OF	PUMP:	SUBMER TURBIN		☐ JET ☐ CYLINDER	☐ NO PUMP – WELL NOT EQUIPPED☐ OTHER – SPECIFY:				
SEAL AND PUMP	ANNU	II A D	DEPTH	TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHO PLACE		
AL	SEAL	AND	50.0	13.0	7 7/8	8/16 Sand.	20 sacks	Hand	Mix	
S. SI	GRAVE	L PACK	13.0	10.0	7 7/8	Bentonite Pellets	1 sack	Hand Mix		
			10.0	0.0	7 7/8	Cement	1.997	Hand	Mix	
	DEPTI	H (FT)	THICK (F)		1	COLOR AND TYPE OF MATERIAL ENCOUN JDE WATER-BEARING CAVITIES OR FRAC		WA'		
	0.0	1.0	1.		,	Tan sand.		☐ YES	☑ NO	
	1.0	6.0				Caliche.		☐ YES	☑ NO	
	6.0	24.0		5.0 Caliche. 18.0 Tannish brown sand.					☑ NO	
						☐ YES	□ NO			
	24.0	32.0	-	8.0 Reddish brown sand.						
TT	32.0	49.0	17			Tan sandy clay.		☐ YE\$	☑ NO	
GEOLOGIC LOG OF WELL	49.0	50.0	1.	0		Red clay.		YES	☑ NO	
105								☐ YES	□ NO	
ro								☐ YES	□ NO	
cic								☐ YES	□ NO	
LO		14 AND ANDRESS AND D						☐ YES	□ NO	
GEO							☐ YES	□ NO		
6.								☐ YES	□ NO	
								☐ YES	□ NO	
							TO THE RESIDENCE OF THE PARTY O	. YES	□ NO	
					-	1))))))		☐ YES	□ №	
							THE PARTY OF THE P	☐ YES	□ NO	
					1			☐ YES	□ NO	
			ATTACH	ADDITION	AL PAGES AS NE	EDED TO FULLY DESCRIBE THE GEOLOGI	CLOG OF THE WELL	10.20		
	I		Y				O DOO OF THE WEEL			
FO	WELL	. TEST	METHOD:	BAILE		☐ AIR LIFT ☐ OTHER - SPECIFY:				
IONAL INFO	W 5.L.I.	. 1631				ATA COLLECTED DURING WELL TESTING AND DRAWDOWN OVER THE TESTING PER		IME, END T	IME,	
7. TEST & ADDITION	ADDITIONAL STATEMENTS OR EXPLANATIONS.									
-	THE UN	DERSIGN	ED HEREBY	CERTIFIES	THAT, TO THE BI	EST OF HIS OR HER KNOWLEDGE AND BEL	IEF, THE FOREGOING	S A TRUE A	ND	
8. SIGNATURE	CORRE	CTRECOR	D OF THE AL	BOVE DESC	RIBED HOLE AN	D THAT HE OR SHE WILL FILE THIS WELL ON OF WELL DRILLING:	RECORD WITH THE ST	ATE ENGIN	EER AND	
SIGN			0			11/3/2010				
œ			SIGNATU	RE OF DRIL	LER	DATE		No. 111. Procedure was hondred to the 1	· · · · · · · · · · · · · · · · · · ·	

FOR OSE INTERNAL USE		WELL RECORD & LOG (Version 6/9/08)			
FILE NUMBER	POD NUMBER	TRN NUMBER			
LOCATION		PAGE 2 OF 2			



z	POD NUMB	ER (WELL	NUMBER)	ALL ALL TORRESONTE	ATT			OSE FILE NUM	IBER(S)			
LIO	WELLOW	JED NAME	/E/					PHONE (OPTIO	NAI)			
CA			nmental Man	agement Co.				1110112 (01111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			*
LLC			NG ADDRESS					CTTY		STATE		ZIP
GENERAL AND WELL LOCATION	1400 Sr	nith St.,	HDU 140/19	00-1A				Houston TX 77002				
QN	WELL			DEGREES	MINUTES	SECO	ND\$					
AL.A	LOCATI	ON L	ATITUDE	32	25	57	7.30 N		REQUIRED: ONE TEN	TH OF A SEC	COND	
NER	(FROM C	iPS)	ONGITUDE	103	8	44	4.90 W	* DATUM REC	UIRED: WGS 84			
GE			TING WELL LOCATION	ON TO STREET ADDRES	S AND COMMON L	ANDM	ARKS					
Τ.	Owen #	9										
	(2.5 ACI	RE)	(10 ACRE)	(40 ACRE)	(160 ACRE)		SECTION		TOWNSHIP	NORTII	RANGE	₹ EAST
AL	,	/4	1/4	1/4	1/4			34	21	✓ sount	37	WEST
ION	SUBDIVISI	ON NAME					LOT NUM	BER	BLOCK NUMBER		UNIT/TRAC	СТ
OPTIONAL	HYDROGR	VBING BIN	N/PM						MAD NI IN COURT		TRACT NU	L CDED
2.	HTIROGR	APPIC SUR	CVET						MAP NUMBER		IRACTNO	MBER
	1 IOTNOT N											
	LICENSE NUMBER NAME OF LICENSED DRILLER NAME OF WELL DRILLING COMPANY WD-1456 John W. White White Drilling Company, Inc.											
	DRILLING STARTED DRILLING ENDED DEPTH OF COMPLETED WELL (FT) BORE HOLE DEPTH (FT) DEPTH WATER FIRST ENCOUNTERED (FT)											
z		2/10	9/22/10		45.0			, ,		28.3	, ,	
3. DRILLING INFORMATION									STATIC WATER LE			L (FT)
RM	COMPLETI	ED WELL IS		DRY HOLE	✓ SHALLOW	(UNCC	ONFINED)			28.3	35	
NFO	DRILLING	FLUID:	✓ AIR	MUD	ADDITIVES	S-SPE	CIFY:		M. J.			
NGI	DRILLING	METHOD:	✓ ROTARY	HAMMER	CABLE TO	OL	ОТНЕ	R - SPECIFY:				
LLI		H (FT)	BORE HOL		CASING			NECTION	INSIDE DIA.		G WALL	SLOT
DR	FROM	TO	DIA. (IN)		ATERIAL			(CASING)	CASING (IN)	-	VESS (IN)	\$IZE (IN)
6	10.0	10.0 45.0	7 7/8		n. 40 PVC			reads	4.0		/4" /4"	020
	10.0	45.0	1 776	301	1. 40 PVC		LI	ireads	4.0	1	14	.020
										-		
	DEPT	H (FT)	THOUNE	E E	DEMATION DES	CDID	TION OF F	PINCIPAL W	ATER-BEARING S	TDATA		
ľĀ	FROM	ТО	THICKNES (FT)	55					R FRACTURE ZON			(GPM)
r.V.	19.0	41.0	22.0					brown sand				
G S.												
RIN												
BEA												
ER					The same of the sa							
4. WATER BEARING STRATA	METHOD	USED TO E	STIMATE YIELD OF	WATER-BEARING STRA	ATA				TOTAL ESTIMATE	D WELL YIE	LD (GPM)	
4.												
	DOD 000	E INTERES	141 1105						WELL DECO	nn e 100	201	(0.400)
	FILENU	THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO PERSONS AND THE PERSON NAMED IN COLUMN TWO PERSONS AND THE PERSON NAMED IN COLUMN TWO PERSONS AND THE PERSON NAMED IN COLUMN TRANSPORT AND THE PERSON NAMED IN COLUMN TWO PERSONS AND THE PERSON NAMED IN COLUMN TWO PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN T	NAL USE		POD NI	UMBF	R		TRN NUMBE		version 6	/9/08)
	LOCATION PAGE LOF 2											

JMP	TYPE OF	PUMP:	☐ SUBMER		☐ JET ☐ CYLINDER	☐ NO PUMP – WELL NOT EQUIPPED☐ OTHER – SPECIFY:			
SEAL AND PUMP	ANINI	n	DEPTH	(FT) TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHO PLACE	
AL	ANNU		45.0	8.0	7 7/8	8/16 Sand.	20 sacks	Hand	Mix
5. SE	GRAVE	L PACK	8.0	6.0	7 7/8	Bentonite Pellets	1 sack	Hand	Mix
			6.0	0.0	7 7/8	Cement	1.1982	Hand	Míx
	DEPTI	H (FT)	THICK!			COLOR AND TYPE OF MATERIAL ENCOUN'		WA'I BEAR	
	0.0	1.0	1.0		(Tan sand.		☐ YES	☑ NO
	1.0	5.0	4.0			Caliche.		☐ YES	☑ NO
	5.0	16.0	11.			Tannish brown sand.		☐ YES	☑ NO
	16.0	19.0	3.0			Hard chert.		☐ YES	☑ NO
								☑ YES	□ NO
6. GEOLOGIC LOG OF WELL	19.0	41.0	22.			Reddish brown sand.			
F W	41.0	44.0	3.0			Chert.	***	☐ YES	☑ NO
0 9	44.0	45.0	1.0	<u> </u>		Red clay.		☐ YES	☑ NO
07								☐ YES	□ NO
CIC								☐ YES	□ NO
070						AUTOMORPHICA CONTRACTOR CONTRACTO		☐ YES	□ NO
GE								☐ YES	□ NO
.9								☐ YES	□ NO
								☐ YES	□ NO
								☐ YES	□ NO
								☐ YES	□ NO
								☐ YES	□NO
						1,111		YES	□NO
			ATTACH	ADDITION	IAL PAGES AS NE	EDED TO FULLY DESCRIBE THE GEOLOGI	C LOG OF THE WELL		
0			METHOD:	BAIL	R DPUMP	☐ AIR LIFT ☐ OTHER - SPECIFY:	***************************************		
ONAL INFO	WELL	TEST				ATA COLLECTED DURING WELL TESTING AND DRAWDOWN OVER THE TESTING PER		IME, END T	ME,
ONA	ADDITION	NALSTATE	4ENTS OR EXPL	ANATIONS:					
TEST & ADDITIO									
TEST									
7.									
(e)						ST OF HIS OR HER KNOWLEDGE AND BEL			
rrur						O THAT HE OR SHE WILL FILE THIS WELL F ON OF WELL DRILLING:	RECORD WITH THE STA	ATE ENGIN	EER AND
SIGNATURE			0/2			11/3/2010			
00			SIGNATUR	E OF DRIL	LER	DATE			

FOR OSE INTERNAL USE		WELL RECORD & LOG (Version 6/9/08)
FILE NUMBER	POD NUMBER	TRN NUMBER	
LOCATION			PAGE 2 OF 2

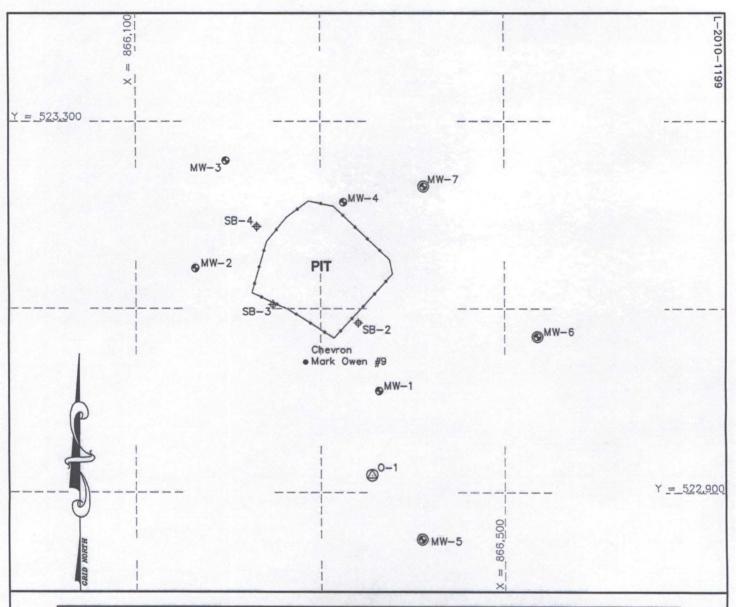


z	POD NUMB	ER (WEL	L NU	MBER)					OSE FILE NUM	IBER(S)			
GENERAL AND WELL LOCATION		Imp al and	1000		A ALLEMAN	***************************************			DISCOULT COMMISS				
CAI	WELL OWN			montal Mana					PHONE (OPTIC	ONAL)			
2				mental Mana	gement Co.	***************************************							
TT	WELL OW				0.44				СПУ		STATE	77	ZIP
WE	1400 51	nith Si	t., F	IDU 140/190	U-1A	was a			Houston		TX	11	002
ND	WELL	,	-		DEGREES	MINUTES	SECON	DS					
IL.A	LOCATI	ON	LAT	TUDE	32	25	58.	3.00 1		REQUIRED: ONE TENTH OF A SECOND			
ER	(FROM C	(PS)	LON	GITUDE	103	103 8 46.60 W				QUIRED: WGS 84			
EN	DESCRIPT	ION REL			N TO STREET ADDRES	***							
1.0	Owen#												
	(2.5 ACF	RE)		(10 ACRE)	(40 ACRE)	(160 ACRE)		SECTION		TOWNSHIP	NORITE	RANGE	₹ RAST
7	,	4		1/4	1/4	1/4			34	21	SOUTH	37	WEST
NO.	SUBDIVISI	ON NAM	Ε					LOT NUM	BER	BLOCK NUMBER		UNITITRA	
OPTIONAL													
0	HYDROGR	APHIC ST	URVE	Y						MAP NUMBER		TRACT NU	MBER
.,													
	LICENSE N	TIMBED	-	NAME OF LICEN	SED DETLIER					NAME OF WELL DE	III LING CON	IDANV	
		1456		John W. Wh						White Drilling			
	DRILLING		D	DRILLING ENDE		PLETED WELL (FT)		BORE HO	E DEPTH (FT)	DEPTH WATER FIR		-	
		2/10		9/22/10	DEI THOU COM	48.0	}	001101	L OLI III (I I)	DEITH WATER IN	29.1		
IO.				0/22/10		10.0				STATIC WATER LE			I /177)
DRILLING INFORMATION	COMPLETED WELL IS: ARTESIAN DRY HOLE SHALLOW (UNCONFINED)									STATIO WATER DE	29.1		(11)
NFOF	DRILLING	FLUID:		✓ AIR	☐ MUD	ADDITIVES	S-SPEC	IFY:					
(6.1	DRILLING	METHOD):	✓ ROTARY	HAMMER	CABLE TO	OL	OTHE	R - SPECIFY:			***	
T	DEPT	H (FT)		BORE HOLE		CASING	T	CON	VECTION	INSIDE DIA.	CASINO	G WALL	SLOT
RIE	FROM	то		DIA. (IN)		ATERIAL			(CASING)	CASING (IN)		IESS (IN)	SIZE (IN)
3. D	0.0	13.0	0	7 7/8	Sch	1. 40 PVC		Th	reads	4.0	1,	14"	
	13.0	48.	0	7 7/8	Sch	1. 40 PVC		Th	reads	4.0	1.	/4"	.020
	DEPT	H (FT)			E	OBMATION DEC	CDIDT	TON OF B	DINCIDAL W	ATER-BEARING S	TDATA		14151.5
1	FROM	ТО		THICKNESS (FT)	'					R FRACTURE ZON			(GPM)
R.Y.I	17.0	46.		29.0					brown sand				
ST	17.0	40.		20.0				100000	DIOWII SAIR				
NG										TO A DE COMPANION			
AR					+								
4. WATER BEARING STRATA													
TER										I			
WA	METHOD	USED TO	EST(MATE YIELD OF W	ATER-BEARING STR	ATA				TOTAL ESTIMATE	O WELL YIEI	LD (GPM)	
4													

	FOR OS	EINTER	RNA	LUSE						WELL RECO		(Version 6	/9/08)
	FILE NU	MBER				PODNU	JMBEI	R		TRN NUMBI	ER		
	LOCATION PAGE 1 OF 2												

UNIP	TYPE OF PUMP: SUBMERSIBLE TURBINE DEPTH (FT)		☐ JET ☐ CYLINDER	☐ NO PUMP – WELL NOT EQUIPPED☐ OTHER – SPECIFY:						
SEAL AND PUMP	ANNU	II AD	DEPTH	TO	BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METH(
:AL	SEAL	AND	48.0	11.0	7 7/8	8/16 Sand.	20 sacks	Hand Mix		
5. SI	GRAVE	L PACK	11.0	8.0	7 7/8	Bentonite Pellets	1 sack	Hand	Mix	
			8.0	0.0	7 7/8	Cement	1.5976	Hand	Mix	
	DEPTI	H (FT)	THICK		1	COLOR AND TYPE OF MATERIAL ENCOUNIDE WATER-BEARING CAVITIES OR FRAC		WATER BEARING?		
	0.0	0.5	0.	5		Tan sand,		☐ YES	☑ NO	
	0.5	6.0	5.			Caliche,		☐ YES	☑ NO	
	6.0	15.0	9.			Tannish brown sand.		☐ YES	Ø NO	
	15.0	17.0	2.			Hard chert.		☐ YES	Ø NO	
	17.0	46.0	29			Reddish brown sand.		☑ YES	□ NO	
6, GEOLOGIC LOG OF WELL										
F W	46.0					Chert.			Ø NO Ø NO	
0 0	47.0	48.0	48.0 1.0 Red clay. □ YE.							
07									□ NO	
CIC						AND THE PARTY OF T	YES	□ NO		
OLO							YES	□ NO		
GE					***************************************		YES	□ NO		
6,								☐ YES	□ NO	
								☐ YES	□ NO	
								. YES	□ NO	
								☐ YES	□ NO	
								☐ YES	□ NO	
								☐ YES	□NO	
			ATTACH	ADDITION	AL PAGES AS NE	EDED TO FULLY DESCRIBE THE GEOLOGI	C LOG OF THE WELL		ALIAN AMBIA	
			METHOD:	BAILE	R □ PUMP	☐ AIR LIFT ☐ OTHER - SPECIFY:				
VFO	WELL	TEST				ATA COLLECTED DURING WELL TESTING	INCLUDING STARTT	IME END T	IME	
ONAL INFO						AND DRAWDOWN OVER THE TESTING PER		IIVIE, END I	IIVIE,	
7, TEST & ADDITION	ADDITIONAL STATEMENTS OR EXPLANATIONS:									
	THE UN	DERSIGN	ED HEREBY	CERTIFIES	THAT, TO THE BE	ST OF HIS OR HER KNOWLEDGE AND BEL	JEF. THE FOREGOING	S A TRUE A	ND	
SIGNATURE	CORREC	TRECOR	D OF THE AL	BOVE-DESC	RIBED HOLE ANI	OTHAT HE OR SHE WILL FILE THIS WELL ON OF WELL DRILLING:				
IGN			Chart			11/3/2010				
96			SIGNATU	RE OF DRIL	LER	DATE				

FOR OSE INTERNAL USE	WELL RECORD & LOG (Version 6/9/08)			
FILENUMBER	POD NUMBER	TRN NUMBER		
LOCATION		PAGE 2 OF 2		



DESCRIPTION	NORTHING (Y)	EASTING (X)	LATITUDE	LONGITUDE	TOP OF	CONCRETE NATURA
					CASING	PAD GROUN
MW-1	523,010.0	866,363.8	32°25'56.17" N	103°08'45.33" V	V 3,403.68	3,401.18 3,400
MW-2	523,142.9	866,164.8	32°25'57.51" N	103°08'47.64" V	V 3,408.23	3,405.66 3,405
MW-3	523,257.6	866,197.8	32°25'58.64" N	103°08'47.24" \	W 3,407.04	3,404.51 3,404
MW-4	523,213.0	866,325.2	32°25'58.19" N	103°08'45.76" \	N 3,404.74	3,401.94 3,401
MW-5	522,848.7	866,410.5	32°25'54.57" N	103°08'44.81" \	W 3,402.10	3,399.51 3,399
MW-6	523,069.5	866,535.4	32°25'56.74" N	103°08'43.32" \	N 3,400.24	3,397.28 3,396
MW-7	523,229.9	866,412.7	32°25'58.34" N	103°08'44.73" \	N 3,402.13	3,399.46 3,399
SB-2	523,084.4	866,341.3	32°25'56.91" N	103°08'45.59" \	N	3,400
SB-3	523,104.3	866,248.6	32°25'57.12" N	103°08'46.67"	N	3,401
SB-4	523,187.0	866,231.1	32°25'57.94" N	103°08'46.86"	N	3,403
0-1	522,918.4	866,355.8	32°25'55.27" N	103°08'45.44"	W	3,400

Date Surveyed: December 3, 2007 and October 8, 2010

NOTE:

- Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1927.
- Elevations shown hereon reference the National Geodetic Vertical Datum of 1929.
- Geodetic Coordinates shown hereon references the North American Datum of 1927, (Clarke Spheroid of 1866). Reference Stations – "ODESSA RRP2" – CORS (DF5393), "ROSWELL" – and "ROSWELL" – CORS (DG6517) and "LUBBOCK RRP2" – CORS (DF5391).

I HEREBY CERTIEN THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION.

MACON McDONALD NEW MEXICO PLOS No. 12185

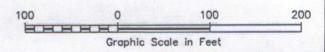
WEST COMPANY

of Midland, Inc.

110 W. LOUISIANA, STE. 110 MIDLAND TEXAS, 79701 (432) 687-0865 - (432) 687-0868 FAX

LEGEND

- Denotes Producing Well Location
- Denotes Newly Installed Monitor Well
- - Denotes Monitor Well
- Denotes Soil Bore Location
- Denotes Static GPS Control Station
 - Denotes Fence Line



CONESTOGA-ROVERS & ASSOCIATES

Topographic Survey of
MONITOR WELLS
AND SOIL BORE LOCATIONS

Located Around the
Chevron Mark Owen #9 Reserve Pit
Section 34, T-21-S, R-37-E, N.M.P.M.
Lea County, New Mexico

	The state of the s		
Drawn By: SJA	Date: October 19, 2010		
Scale: 1"=100'	Field Book: 376 / 56-58		
Revision Date:	Quadrangles: Eunice		
W.O. No: 2010-1199	Dwg. No.: L-2010-1199		