



DCP Midstream
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303-595-3331
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January 4, 2012

Mr. Leonard Lowe
Environmental Engineer
New Mexico Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 87505

**RE: 3rd Quarter 2011 Groundwater Monitoring Results
DCP Hobbs Gas Plant (GW-175)
Unit G, Section 36, Township 18 South, Range 36 East
Lea County, New Mexico**

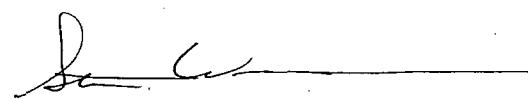
Dear Mr. Lowe:

DCP Midstream, LP (DCP) is pleased to submit for your review, one copy of the 3rd Quarter 2011 Groundwater Monitoring Results for the DCP Hobbs Gas Plant located in Lea County, New Mexico (Unit G, Section 36, Township 18 South, Range 36 East).

If you have any questions regarding the report, please call at 303-605-1718 or e-mail me swweathers@dcpmidstream.com.

Sincerely

DCP Midstream, LP

A handwritten signature in black ink, appearing to read "Stephen Weathers".

Stephen Weathers, P.G.
Principal Environmental Specialist

cc: Larry Johnson, OCD Hobbs District Office (Copy on CD)
Environmental Files

A vertical filing stamp with the text "SEARCHED", "INDEXED", "FILED", and "SERIALIZED" stacked vertically, with a date "JAN 15 2012" at the bottom.



THIRD QUARTER 2011 GROUNDWATER MONITORING REPORT

DCP HOBBS GAS PLANT

GW-175

LATITUDE: N 32.70533° LONGITUDE: W 103.3066°

LEA COUNTY, NEW MEXICO

Prepared For:

**Mr. Steve Weathers
DCP Midstream, LP
370 17th Street, Suite 2500
Denver, Colorado 80202**

A handwritten signature of Stephen Pritchard is written over a horizontal line.

**Stephen Pritchard
Project Geologist**

A handwritten signature of John Raggi, P.G. is written over a horizontal line.

**John Raggi, P.G.
Senior Project Geologist**

**Prepared by:
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JANUARY 2, 2012

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**CONESTOGA-ROVERS
& ASSOCIATES**

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**CONESTOGA-ROVERS
& ASSOCIATES**

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**CONESTOGA-ROVERS
& ASSOCIATES**

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) is submitting this *Third Quarter 2011 Groundwater Monitoring Report* to DCP Midstream, LP (DCP) for the Hobbs Gas Plant in Lea County, New Mexico. This report summarizes the September 2011 groundwater sampling event. Groundwater monitoring and sampling details, analytical results, and conclusions are presented below.

Site Background

The site is a cryogenic processing plant located in Lea County, New Mexico approximately nine miles west of Hobbs, New Mexico (Figure 1). The site occupies approximately 3.5 acres in an undeveloped area. Facilities include a laboratory, an amine unit, compressors, sumps, mol sieve dehydration, tank batteries and an onsite water production well used for non-potable water. The DCP Apex Compressor Station is located approximately 750 feet (ft) north of the Hobbs Gas Plant. There are six groundwater monitoring wells onsite.

Hydrogeology

Historical static groundwater depths have ranged between 60.13 (MW-A) and 62.85 ft below ground surface (bgs) (MW-F). Static groundwater depths ranged from 61.04 (MW-A) to 62.85 ft bgs (MW-F) on September 27, 2011. Groundwater flows to the southeast with a gradient of 0.0050 ft/ft (Figure 2).

2.0 GROUNDWATER MONITORING AND SAMPLING

CRA gauged and collected samples from groundwater monitoring wells MW-A through MW-F on September 27, 2011. Each well cap was removed to allow groundwater levels to stabilize and equilibrate prior to gauging. All sampled groundwater monitoring wells were purged of approximately three well-casing volumes while temperature, pH, and conductivity were measured. Groundwater samples, including a duplicate sample, were collected using clean disposable bailers and decanted into clean containers supplied by the analytical laboratory. Groundwater samples were submitted under chain-of-custody to Accutest Laboratories of Texas. CRA well sampling forms are presented as Appendix A. CRA's standard operating procedures for groundwater monitoring and sampling are presented as Appendix B.

Purged Groundwater

Purged groundwater was transported to the DCP Linam Ranch Facility, where purged groundwater was disposed in the onsite sump.



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3.0 ANALYTICAL RESULTS

Groundwater Analytical Methods

Groundwater samples collected from MW-A through MW-F were analyzed for:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by SW-846 8260B.

Groundwater Sampling Results

No BTEX was detected above New Mexico Water Quality Control Commission (NMWQCC) cleanup levels in groundwater samples MW-A, MW-D, MW-E, and MW-F. Sample MW-B contained 225 micrograms per liter ($\mu\text{g/l}$) benzene and $464 \mu\text{g/l}$ xylenes. Groundwater samples collected from well MW-C contained $40.3 \mu\text{g/l}$ benzene. Hydrocarbon concentrations in groundwater are presented on Figure 3. Current groundwater analytical results are summarized in Table 1. Historical groundwater analytical results are summarized in Table 2. The laboratory analytical report is presented as Appendix C.

4.0 CONCLUSIONS

No BTEX has been detected above NMWQCC cleanup levels in samples MW-A, MW-D, MW-E, or MW-F since March 3, 2008. Benzene and xylene concentrations suggest the dissolved phase plume is in a steady state or shrinking. DCP will continue quarterly monitoring and sampling in 2011 to evaluate site groundwater conditions.

FIGURES

FIGURE 1: VICINITY MAP

FIGURE 2: GROUNDWATER ELEVATION CONTOUR MAP

FIGURE 3: GROUNDWATER ANALYTICAL RESULTS

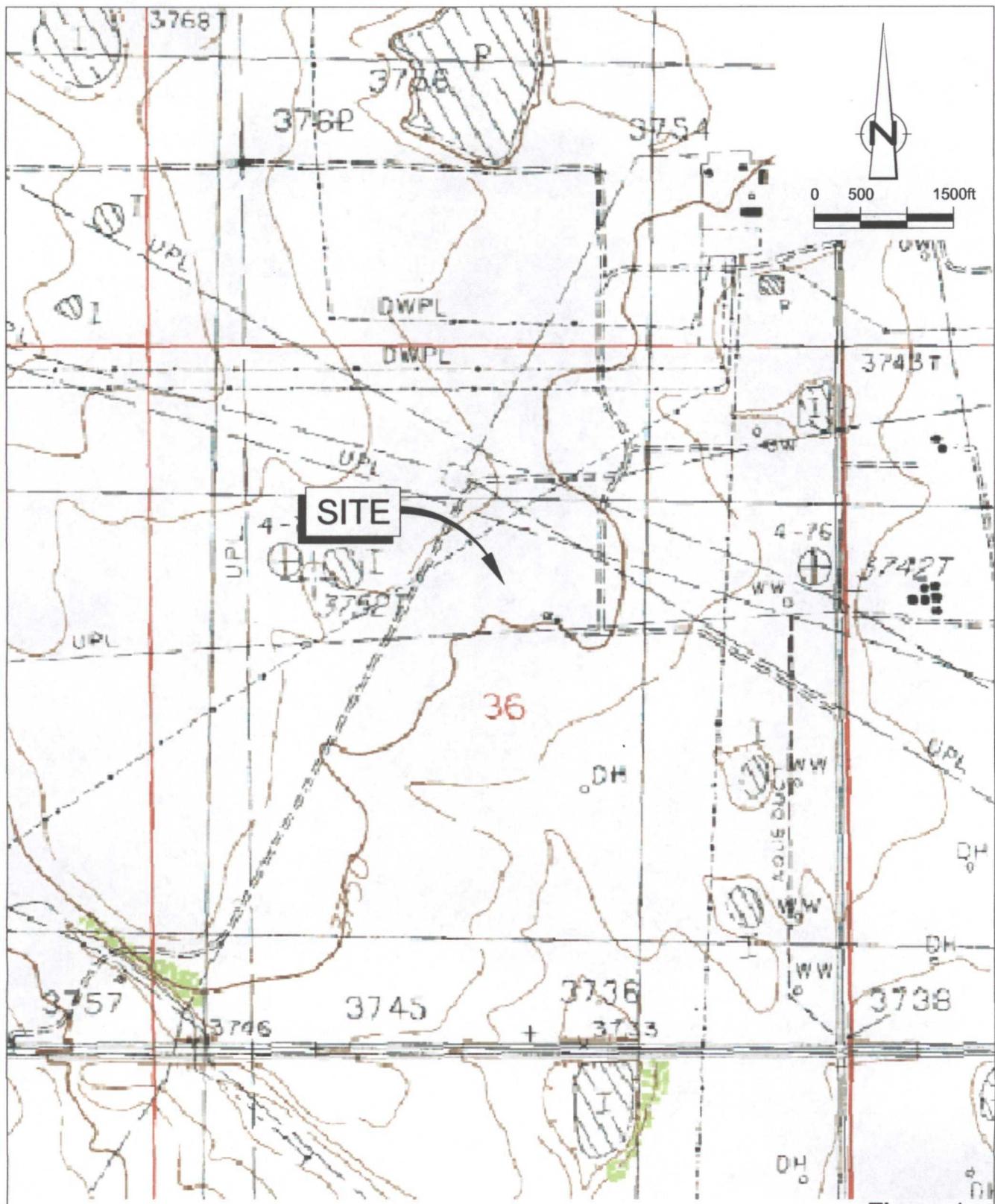
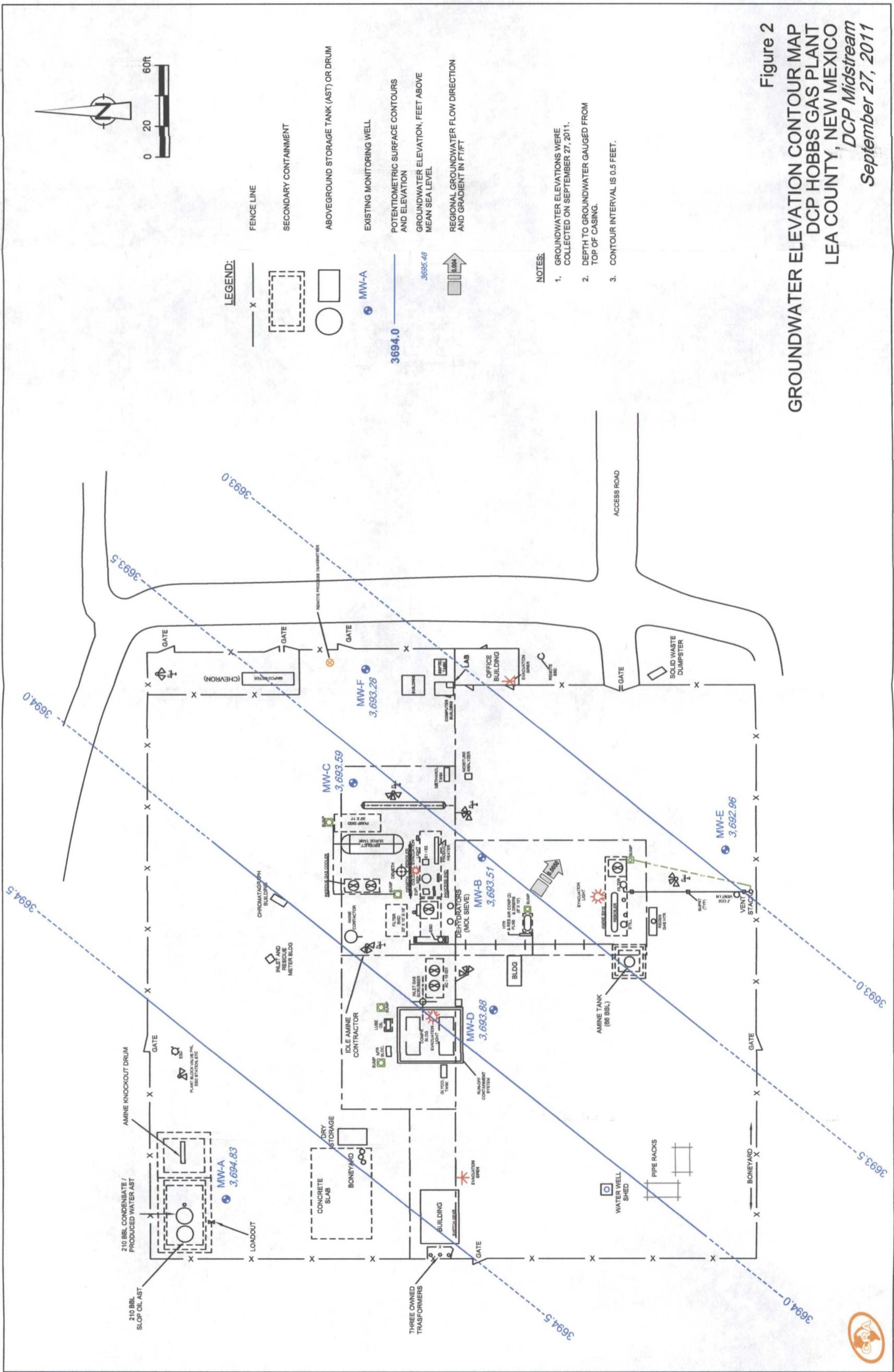


Figure 1

VICINITY MAP
HOBBS GAS PLANT
LEA COUNTY, NEW MEXICO
DCP Midstream



059097-10(010)GN-MD001 FEB 09/2010



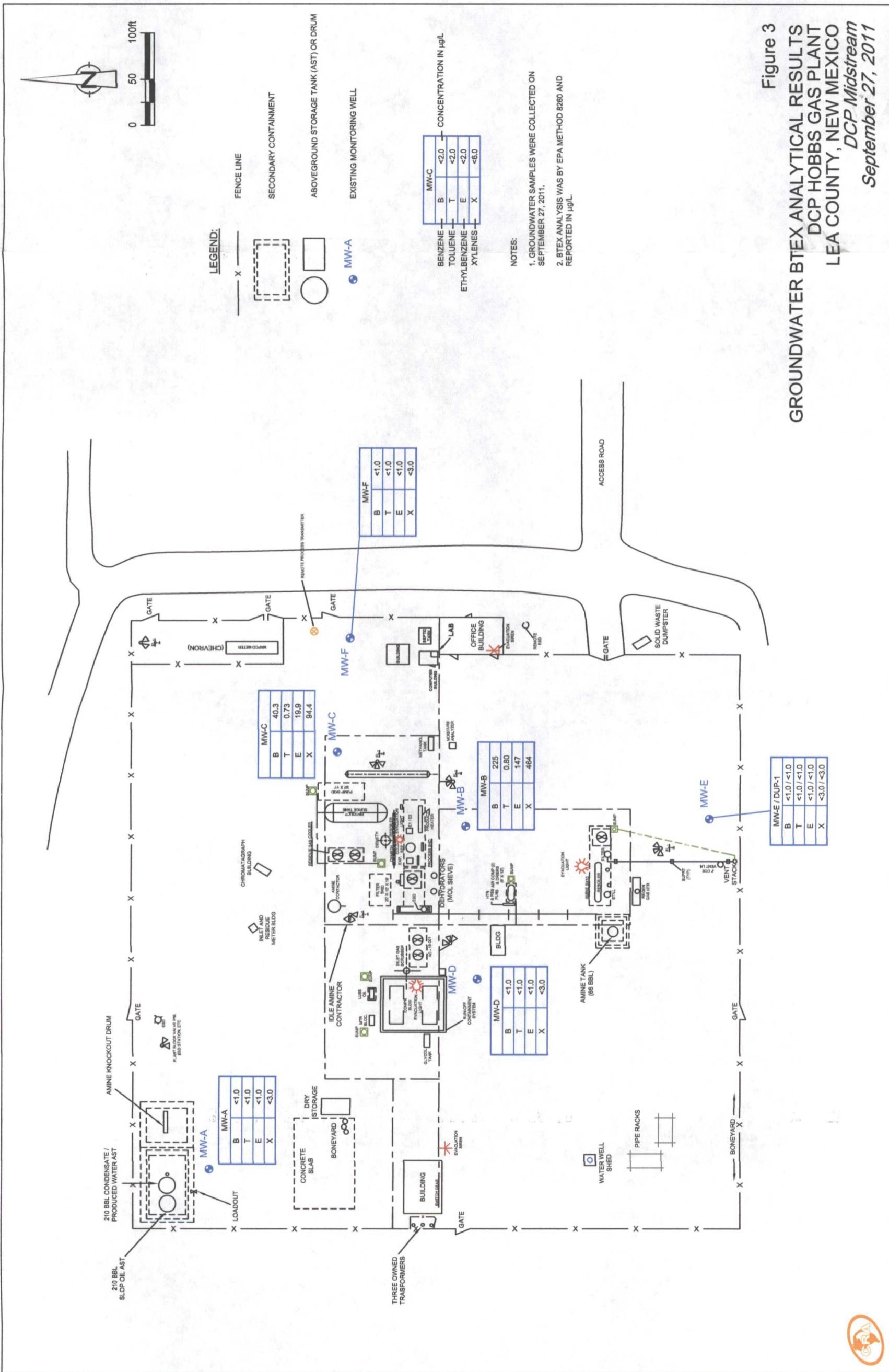


Figure 3
GROUNDWATER BTEX ANALYTICAL RESULTS
DCP HOBBS GAS PLANT
LEA COUNTY, NEW MEXICO
DCP Midstream
September 27, 2011



TABLES

TABLE 1: CURRENT GROUNDWATER ANALYTICAL RESULTS

TABLE 2: HISTORICAL GROUNDWATER ANALYTICAL RESULTS

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Table 1. Current Groundwater Analytical Results - DCP Hobbs Gas Plant, Lea County, New

Well ID	Date	TOC	DTW	GWE	Benzene	Toluene	Ethyl- benzene	Total Xylenes
		(ft msl)	(ft bgs)	(ft msl)	Concentrations in µg/l			
NMWQCC Cleanup Levels								
MW-A	9/27/2011	3755.87	61.04	3755.87	<1.0	<1.0	<1.0	<3.0
MW-B	9/27/2011	3755.94	62.43	3693.51	225 a	0.8	147	464 a
MW-C	9/27/2011	3755.59	62.00	3693.59	40.3	0.7	19.9	94.4
MW-D	9/27/2011	3755.43	61.55	3693.88	<1.0	<1.0	<1.0	<3.0
MW-E	9/27/2011	3754.36	61.43	3692.93	<1.0 / <1.0	<1.0 / <1.0	<1.0 / <1.0	<3.0 / <3.0
MW-F	9/27/2011	3756.13	62.85	3693.28	<1.0	<1.0	<1.0	<3.0

Notes and Abbreviations:

ID = Identification

TOC = Top of casing

DTW = Depth to water

GWE = Groundwater elevation

BTEX = Benzene, toluene, ethylbenzene, and total xylenes by SW-846 8021 or 8260B

ft msl = Feet above mean sea level

ft bgs = Feet below ground surface

µg/l = Micrograms per liter

x/y = Sample results/blind duplicate results

<x = Not detected above x µg/l

BOLD = Indicates concentration above the NMQCC Cleanup Levels

a = results from run #2

NMWQCC = New Mexico Water Quality Control Commission

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Table 2. Historical Groundwater Analytical Results - DCP Hobbs Gas Plant, Lea County, New Mexico

Well ID	Date	TOC (mg/L)	DIW (mV)	GWE (mV)	pH	Conductivity µS/cm	Temperature °C	DO mg/l	ORP mV	Benzene	Toluene	Ethyl- benzene	Total xlenes	Concentration in µg/l		
														10	750	750
NMWQCC Cleanup Levels																
MW-C	3/5/2008	3755.59	61.18	3694.41	6.91	535	17.46	6.50	-104.1	61	5.3	19.0	78.0			
MW-C(d)	3/5/2008	3755.59	61.18	3694.41	6.91	535	17.46	6.50	-104.1	160	<25	160	140			
MW-C	6/2/2008	3755.59	61.22	3694.37	6.90	781	20.00	2.64	-121.2	75.4	4.9	26.3	121			
MW-C(d)	6/2/2008	3755.59	61.22	3694.37	6.90	781	20.00	2.64	-121.2	103	8.1	36.9	170			
MW-C	9/15/2008	3755.59	61.54	3694.05	6.51	679	18.99	1.97	160.3	130	5.7	47.3	222			
MW-C	12/3/2008	3755.59	61.48	3694.11	6.88	621	18.24	2.31	-17.8	39.0	<0.48	10.5	33.3			
MW-C(d)	12/3/2008	3755.59	61.48	3694.11	6.88	621	18.24	2.31	-17.8	50.6	<0.48	13.6	44.5			
MW-C	2/27/2009	3755.59	61.15	3694.44	6.90	614	18.56	1.96	-8.7	69.9	0.78	20.1	86.8			
MW-C(d)	2/27/2009	3755.59	61.15	3694.44	6.90	614	18.56	1.96	-8.7	36.6	<0.48	10.0	43.3			
MW-C	6/25/2009	3755.59	61.16	3694.43	6.60	760	19.60	4.42	54.0	54.3	0.72	11.9	53.0			
MW-C(d)	6/25/2009	3755.59	61.16	3694.43	6.60	760	19.60	4.42	54.0	64.2	0.87	19.0	82.4			
MW-C	9/1/2009	3755.59	61.35	3694.24	6.78	990	19.27	2.66	40.0	82.8	1.3	23.1	132			
MW-C(d)	9/1/2009	3755.59	61.35	3694.24	6.78	990	19.27	2.66	40.0	71.5	1.0	19.8	110			
MW-C	11/17/2009	3755.59	61.37	3694.22	7.26	631	17.17	--	--	30	<2.0	9.3	53			
MW-C(d)	11/17/2009	3755.59	61.37	3694.22	7.26	631	17.17	--	--	25.7	<2.0	7.7	44.3			
MW-C	3/25/2010	3755.59	61.27	3694.32	7.13	686	19.20	--	--	48.2	3.0	16.9	141			
MW-C(d)	3/25/2010	3755.59	61.27	3694.32	7.13	686	19.20	--	--	52.2	2.9	20.3	123			
MW-C	6/8/2010	3755.59	61.33	3694.26	6.92	621	23.06	--	--	20.4	1.1	8.5	52.3			
MW-C	9/21/2010	3755.59	61.10	3694.49	6.58	741.8	19.2	--	--	124	3.1	50.4	276			
MW-C	12/16/2010	3755.59	61.15	3694.44	6.95	760.5	18.1	--	--	10.7	0.59	5.1	25.2			
MW-C(d)	12/16/2010	3755.59	61.15	3694.44	6.95	760.5	18.1	--	--	5.4	<0.43	2.8	12.6			
MW-C	3/11/2011	3755.59	61.28	3694.31	6.80	725.3	19.3	--	--	95.8	5.7	42.4	235			
MW-C	6/14/2011	3755.59	61.52	3694.07	6.60	737.1	21.2	--	--	66.0	2.8	29.8	145			
MW-C	9/27/2011	3755.59	62.00	3693.59	7.34	677.2	20.5	--	--	40.3	0.7	19.9	94.4			

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Table 2. Historical Groundwater Analytical Results - DCP Hobbs Gas Plant, Lea County, New Mexico

Well ID	Date	TOC (ft msl)	DTW (ft bgs)	GWE (ft msl)	pH s.u.	Conductivity μS/cm	Temperature °C	DO mg/l	ORP mV	Benzene	Ethyl- benzene	Total Xylenes
										10	750	620
NMWQCC Cleanup Levels												
MW-F	3/5/2008	3756.13	62.01	3694.12	6.76	657	17.01	9.71	3.6	1.9	<5.0	<1.0
MW-F	6/2/2008	3756.13	62.06	3694.07	6.76	879	19.00	3.08	21.4	<0.46	<0.48	<1.4
MW-F	9/15/2008	3756.13	62.44	3693.69	6.43	876	19.17	2.52	234.3	<0.46	<0.48	<1.4
MW-F	12/3/2008	3756.13	62.22	3693.91	6.76	917	17.79	3.79	188.4	<0.46	<0.48	<1.4
MW-F	2/27/2009	3756.13	61.97	3694.16	6.77	857	18.61	3.85	93.4	<0.46	<0.48	<1.4
MW-F	6/25/2009	3756.13	61.96	3694.17	6.20	100	19.80	5.56	221.0	<2.0	<2.0	<6.0
MW-F	9/1/2009	3756.13	62.18	3693.95	6.51	110	19.25	5.27	108.0	<2.0	<2.0	<6.0
MW-F	11/17/2009	3756.13	62.13	3694.00	6.93	1,030	18.67	--	--	<2.0	<2.0	<6.0
MW-F	3/25/2010	3756.13	62.02	3694.11	6.94	1,053	19.00	--	--	<2.0	<2.0	<6.0
MW-F	6/8/2010	3756.13	62.12	3694.01	7.03	900	22.06	--	--	<2.0	<2.0	<6.0
MW-F	9/21/2010	3756.13	61.92	3694.21	6.67	1,003	19.10	--	--	<0.50	<0.43	<0.55
MW-F	12/16/2010	3756.13	61.93	3694.20	6.90	1,058	17.60	--	--	<0.50	<0.43	<0.55
MW-F	3/11/2011	3756.13	62.05	3694.08	6.84	1,017	19.00	--	--	<2.0	<2.0	<6.0
MW-F	6/14/2011	3756.13	62.35	3693.78	6.53	1,053	20.10	--	--	<1.0	<1.0	<3.0
MW-F	9/27/2011	3756.13	62.85	3693.28	7.05	890	20.40	--	--	<1.0	<1.0	<3.0

Notes and Abbreviations:

- ID = Identification
- TOC = Top of casing
- DTW = Depth to water
- GWE = Groundwater elevation
- DO = Dissolved oxygen
- s.u. = Standard unit
- μS/cm = Microsiemens per centimeter
- °C = Degrees Celsius
- mg/l = Milligrams per liter
- mV = Millivolts
- μg/l = Micrograms per liter
- NMWQCC = New Mexico Water Quality Control Commission
- a = Result is from run # 2
- BOLD** = Indicates concentration above the NMWQCC Cleanup Levels
- <x = Not detected above x μg/l
- = Not measured/not analyzed
- (d) = Duplicate sample

APPENDIX A
WELL SAMPLING FORMS



CONESTOGA-ROVERS
& ASSOCIATES

Groundwater Monitoring Field Sheet

Well ID	Time	DTP	DTW	Depth to Bottom	Product Thickness	Amount of Product Removed	Casing Diam.	Comments
MW-D	1139	—	61.55	69.80			2	
MW-F	1143	—	62.85	73.88			2	
MW-A	1154	—	61.04	70.93			2	
MW-E	1158	—	61.43	71.45			2	
MW-C	1203	—	62.00	73.89			2	
MW-B	1209	—	62.43	70.79			2	

Project Name: HOBBS GAS PLANT

Field Staff: SP/SR ()

Project Number/Task: 059097-11-02

Date: 9-27-11



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& ASSOCIATES

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-A
Project Number: 059097	Date: 9-27-01	Well Yield: 5.00
Site Address:	Sampling Method: Hand Bailing	Well Diameter 2
		Field Staff: SP/SP/
Initial Depth to Water: 61.04	Total Well Depth: 71.45	Water Column Height: 10.41
Volume/ft: .15	1 Casing Volume: 1.56	3 Casing Volumes: 4.68
Purging Device: Bailer	Did Well Dewater?: NO	Total Gallons Purged: 5.00
Start Purge Time: 12:37	Stop Purge Time: 12:39	Total Time: 2 min

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
12:37	.25	20.9	7.75	539.6	
12:38		20.6	7.68	540.9	
12:39		20.8	7.65	538.6	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-A	9-27-01	12:40	#0-1	None	B100	



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& ASSOCIATES

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-B
Project Number: 059097	Date: 9-22-11	Well Yield: 4.0
Site Address:	Sampling Method: Hand Bailing	Well Diameter Q
		Field Staff: JP/JRL
Initial Depth to Water: 62.43	Total Well Depth: 70.79	Water Column Height: 8.36
Volume/ft: 15	1 Casing Volume: 1.25	3 Casing Volumes: 3.76
Purging Device: Ba. 152	Did Well Dewater?: NO	Total Gallons Purged: 4.0
Start Purge Time: 1317	Stop Purge Time: 1324	Total Time: 7 m ~

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
1322	25	23.8	7.22	974.9	
1323		21.5	7.29	893.2	
1324		20.8	7.30	872.7	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-13	9-22-11	1325	10-1	McC	B700	

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-C
Project Number: 059097	Date: 9-27-11	Well Yield: 5.50
Site Address:	Sampling Method: Hand Bailing	Well Diameter 2
		Field Staff: JP/LZL
Initial Depth to Water: 62.00	Total Well Depth: 73.89	Water Column Height: 11.89
Volume/ft: .15	1 Casing Volume: 1.78	3 Casing Volumes: 5.35
Purging Device: BAILER	Did Well Dewater?: NO	Total Gallons Purged: 5.35
Start Purge Time: 1300	Stop Purge Time: 1311	Total Time: 11m

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
1308		23.3	7.36	685.3	
1310		20.4	7.39	674.9	
1311		20.5	7.34	677.2	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-C	9-27-11	1312	40m1	NCC	1370t	

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-D
Project Number: 059097	Date: 9-27-11	Well Yield: 4.00
Site Address:	Sampling Method: Hand Bailing	Well Diameter: 8
		Field Staff: JP/JRL
Initial Depth to Water: 61.55	Total Well Depth: 69.80	Water Column Height: 8.25
Volume/ft: .65	1 Casing Volume: 1.23	3 Casing Volumes: 3.71
Purging Device: Bore	Did Well Dewater?: No	Total Gallons Purged: 4.0
Start Purge Time: 1213	Stop Purge Time: 1221	Total Time: 8-min

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
1219	.25	21.3	7.35	712.2	
1220		20.7	7.29	707.1	
1221		20.6	7.21	708.7	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-D	9-27-11	1222	40-1	HCC	BTOX	

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-E
Project Number: 059097	Date:	Well Yield: 4.75
Site Address:	Sampling Method: Hand Bailing	Well Diameter 2
		Field Staff: JP/JRC
Initial Depth to Water: 61.43	Total Well Depth: 71.45	Water Column Height: 10.02
Volume/ft: .15	1 Casing Volume: 1.50	3 Casing Volumes: 4.50
Purging Device: Bailing	Did Well Dewater?: no	Total Gallons Purged: 4.75
Start Purge Time: 1245	Stop Purge Time: 1254	Total Time: 9 min

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
1252	.95	22.6	7.40	634.4	DUP/
1253		20.6	7.42	615.8	
1254		20.9	7.42	607.3	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-E	9-27-11	1255	100mL PEC		B10R	



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& ASSOCIATES

WELL SAMPLING FORM

Project Name: Hobbs Gas Plant	CRA Mgr: John Riggi	Well ID: MW-F
Project Number: 059097	Date: 9-27-11	Well Yield: 5.00
Site Address:	Sampling Method: Hand Bailing	Well Diameter 2
		Field Staff: JP/JRL
Initial Depth to Water: 62.85	Total Well Depth: 73.88	Water Column Height: 11.03
Volume/ft: .15	1 Casing Volume: 1.65	3 Casing Volumes: 4.96
Purging Device: Bore	Did Well Dewater?: NO	Total Gallons Purged: 5.00
Start Purge Time: 1222	Stop Purge Time: 1230	Total Time: 8--~

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Volume Purged (gallons)	Temp. (°C)	pH	Cond. (uS)	Comments
1228	.25	20.5	7.10	903.7	
1229		20.4	7.09	879.3	
1230		20.4	7.05	890.2	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-F	9-27-11	1231	40ml	HCl	B70K	

CHAIN OF CUSTODY

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

Client / Reporting Information		Project Information		Requested Analyses		Bottle Order Control #	
Company Name Conestoga Rovers and Associates		Project Name / No. DCP Midstream-Hobbs GN00/390560601 Bill to DCP Midstream-Hobbs Steve Weathers Address					
Project Contact James Omelias		Invoice Attn.					
Address 2135 South Loop 250 W							
City Midland		State Texas		Zip 79703		State ZIP	
Phone No. 432 686-0086		Fax No.		Phone No.		Fax No.	
Sampler's Name <i>James Omelias</i>		Client Purchase Order # <i>8260BTEX</i>					
Accusest Sample #	Field ID / Point of Collection	Collection		# of bottles	Number of preserved bottles	Comments / Remarks	LAB USE ONLY
	MW-A	9-27-11	6/24/0	GW	3	3	X
	MW-B	9-27-11	1325	GW	3	3	X
	MW-C	9-27-11	1322	GW	3	3	X
	MW-D	9-27-11	1328	GW	3	3	X
	MW-E	9-27-11	1255	GW	3	3	X
	MW-F	9-27-11	1231	GW	3	3	X
	Duplicate	9-27-11	—	GW	3	3	X
	Trip Blank	9-27-11	—	GW	3	3	X
				GW	3	3	
Turnaround Time (Business days)	Data Deliverable Information		Comments / Remarks				
<input type="checkbox"/> 10 Day STANDARD	Approved By / Date: <i>John [Signature]</i>		<input type="checkbox"/> Commercial "A" <input checked="" type="checkbox"/> Commercial "B"- <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> Full Data Package Commercial "A" = Results Only Commercial "B" = Results & Standard QC				
<input type="checkbox"/> 7 Day							
<input type="checkbox"/> 4 Day RUSH							
<input type="checkbox"/> 3 Day EMERGENCY							
<input type="checkbox"/> 2 Day EMERGENCY							
<input type="checkbox"/> 1 Day EMERGENCY							
<input type="checkbox"/> Other <input checked="" type="checkbox"/> Real time analytical data available via LabLink			10 calendar day				
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY							
Relinquished by stamp:	Date Time: <i>9-27-11 15421</i>	Received By:	Relinquished By:	Date Time:	Received By:	DW - Drinking Water GW - Ground Water WW - Wastewater SO - Soil SL - Sludge OI - Oil LIQ - Liquid SOL - Other Solid	
1			2				
3	Date Time: <i>3</i>	Received By:	Relinquished By:	Date Time: <i>4</i>	Custody Seal # <i>4</i>	Preserved where applicable <input type="checkbox"/>	On Ice <input type="checkbox"/>
5	Date Time: <i>5</i>	Received By:					Cooler Temp. <input type="checkbox"/>

APPENDIX B

**STANDARD OPERATING PROCEDURES FOR
GROUNDWATER MONITORING AND SAMPLING**



**CONESTOGA-ROVERS
& ASSOCIATES**

STANDARD FIELD PROCEDURES FOR GROUNDWATER MONITORING AND SAMPLING

This document presents standard field methods for groundwater monitoring, purging and sampling, and well development. These procedures are designed to comply with Federal, State and local regulatory guidelines. Conestoga-Rovers & Associates' specific field procedures are summarized below.

Groundwater Monitoring

Prior to performing monitoring activities, the historical monitoring and analytical data of each monitoring well shall be reviewed to determine if any of the wells are likely to contain separate phase hydrocarbons (SPH) and to determine the order in which the wells will be monitored (i.e. cleanest to dirtiest). Groundwater monitoring should not be performed when the potential exists for surface water to enter the well (i.e. flooding during a rainstorm).

Prior to monitoring, each well shall be opened and the well cap removed to allow water levels to stabilize and equilibrate. The condition of the well box and well cap shall be observed and recommended repairs noted. Any surface water that may have entered and flooded the well box should be evacuated prior to removing the well cap. In wells with no history of SPH, the static water level and total well depth shall be measured to the nearest 0.01 foot with an electronic water level meter. Wells with the highest contaminant concentrations shall be monitored last. In wells with a history of SPH, the SPH level/thickness and static water level shall be measured to the nearest 0.01 foot using an electronic interface probe. The water level meter and/or interface probe shall be thoroughly cleaned and decontaminated at the beginning of the monitoring event and between each well. Monitoring equipment shall be washed using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water.

Groundwater Purging and Sampling

Prior to groundwater purging and sampling, the historical analytical data of each monitoring well shall be reviewed to determine the order in which the wells should be purged and sampled (i.e. cleanest to dirtiest). No purging or groundwater sampling shall be performed on wells with a measurable thickness of SPH or floating SPH globules. If a sheen is observed, the well should be purged and a groundwater sample collected only if no SPH is present. Wells shall be purged either by hand using a disposal or PVC bailer or by using an aboveground pump (e.g. peristaltic or Wattera™) or down-hole pump (e.g. Grundfos™ or DC Purger pump).

Groundwater wells shall be purged approximately three to ten well-casing volumes (depending on the regulatory agency requirements) or until groundwater parameters of temperature, pH, and conductivity have stabilized to within 10% for three consecutive readings. Temperature, pH, and conductivity shall be measured and recorded at the start of purging, once per well casing volume removed, and at the completion of purging. The total volume of groundwater removed shall be recorded along with any other notable physical characteristic such as color and odor. If required, field parameters such as turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) shall be measured prior to collection of each groundwater sample.

Groundwater samples shall be collected after the well has been purged and allowed to recharge to 80% of the pre-purging static water level, or if the well is slow to recharge, after waiting a minimum of 2 hours. Groundwater samples shall be collected using clean disposable bailers or



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pumps (if an operating remediation system exists on site and the project manager approves of its use for sampling) and shall be decanted into clean containers supplied by the analytical laboratory. New latex gloves and disposable tubing or bailers shall be used for sampling each well. If a PVC bailer or down-hole pump is used for groundwater purging, it shall be decontaminated before purging each well by using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water. If a submersible pump with non-dedicated discharge tubing is used for groundwater purging, both the inside and outside of pump and discharge tubing shall be decontaminated as described above.

Sample Handling

Except for samples that will be tested in the field, or that require special handling or preservation, samples shall be stored in coolers chilled to 4° C for shipment to the analytical laboratory. Samples shall be labeled, placed in protective foam sleeves or bubble wrap as needed, stored on crushed ice at or below 4° C, and submitted under chain-of-custody (COC) to the laboratory. The laboratory shall be notified of the sample shipment schedule and arrival time. Samples shall be shipped to the laboratory within a time frame to allow for extraction and analysis to be performed within the standard sample holding times.

Sample labels shall be filled out using indelible ink and must contain the site name; field identification number; the date, time, and location of sample collection; notation of the type of sample; identification of preservatives used; remarks; and the signature of the sampler. Field identification must be sufficient to allow easy cross-reference with the field datasheet.

All samples submitted to the laboratory shall be accompanied by a COC record to ensure adequate documentation. One copy of the COC shall be kept in the QA/QC file and another copy shall be retained in the project file. Information on the COC shall consist of the project name and number; project location; sample numbers; sampler/recorder's signature; date and time of collection of each sample; sample type; analyses requested; name of person receiving the sample; and date of receipt of sample.

Laboratory-supplied trip blanks shall accompany the samples and be analyzed to check for cross-contamination, if requested by the project manager.

Well Development

Wells shall be developed using a combination of groundwater surging and extraction. A surge block shall be used to swab the well and agitate the groundwater in order to dislodge any fine sediment from the sand pack. After approximately ten minutes of swabbing the well, groundwater shall be extracted from the well using a bailer, pump and/or reverse air-lifting through a pipe to remove the sediments from the well. Alternating surging and extraction shall continue until the sediment volume in the groundwater (i.e. turbidity) is negligible, which typically requires extraction of approximately ten well-casing volumes of groundwater. Preliminary well development usually is performed during well installation prior to placing the sanitary surface seal to ensure sand pack stabilization. Well development that is performed after surface seal installation, should occur 72 hours after seal installation to ensure that the cement has had adequate time to set.



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Waste Handling and Disposal

Groundwater extracted during development and sampling shall be stored onsite in sealed U.S. DOT H17 55-gallon drums. Each drum shall be labeled with the contents, date of generation, generator identification and consultant contact. If hydrocarbon concentrations in the purged groundwater are below ADEC cleanup levels or the site is in a remote area (pending ADEC approval) groundwater will be discharged to the ground surface, at least 100 feet from the nearest surface water body.

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APPENDIX C
LABORATORY ANALYTICAL REPORT