



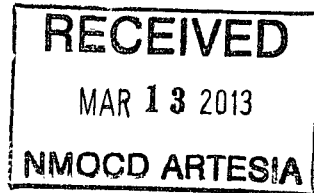
PHOENIX
TECHNOLOGY SERVICES

March 5, 2013

Oil Conservation Division
State of New Mexico
1625 N. French Drive
Hobbs, New Mexico 88240

Dear District 1 - Hobbs

Re: Bopco, LP
Poker Lake Unit #423H
Lea Co., NM
API #30-015-40710
Job No. 1310122



HOBBS OCD

MAR 12 2013

RECEIVED

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 606018). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Michael Layfield	423H	6,779	14,707	02/07/13	02/26/13	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Kelly Jo Walter

Kelly Jo Walter
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 9438

1805 Brittmoore Rd. Houston, TX 77043 • Phone (713) 337-0600 • Fax (713) 337-0599
www.phxtech.com

NEVIS ENERGY SERVICES INC. SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 1310122

OPERATOR Bopco LP

WELL NAME Poker Lake Unit #423H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER 30-015-40710

PROPOSED DIRECTION 134.72

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
6,729 ft	6,727.82 ft	1.08	213.27	-57.05	11.25	VES Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
7-Feb-13	6,779 ft	1.4	202.3

SURVEY INSTRUMENT

TYPE

Phoenix P360

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
26-Feb-13	14,707 ft	87.8	135.8

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
26-Feb-13	14,769 ft	87.8	135.8

Michael Layfield

PRINT YOUR NAME ABOVE

Michael Layfield

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.32
DECLINATION OR GRID	Grid

2/26/2013

TODAY'S DATE

MWD SUPERVISOR 1

Mike Layfield

DIRECTIONAL DRILLER 1

Casey Hendrix

MWD SUPERVISOR 2

Josh Braunig

DIRECTIONAL DRILLER 2

Dustin Barnett

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)

HOBBS OCD

MAR 12 2013

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised July 18, 2010

Submit one copy to appropriate
District Office

RECEIVED

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-40710	Pool Code 13360	Pool Name Corral Canyon- Delaware
Property Code 306402	Property Name POKER LAKE UNIT	Well Number 423H
OGRID No. 260737	Operator Name BOPCO, L.P.	Elevation 3178'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	19	25 S	30 E		1750'	SOUTH	880	EAST	EDDY

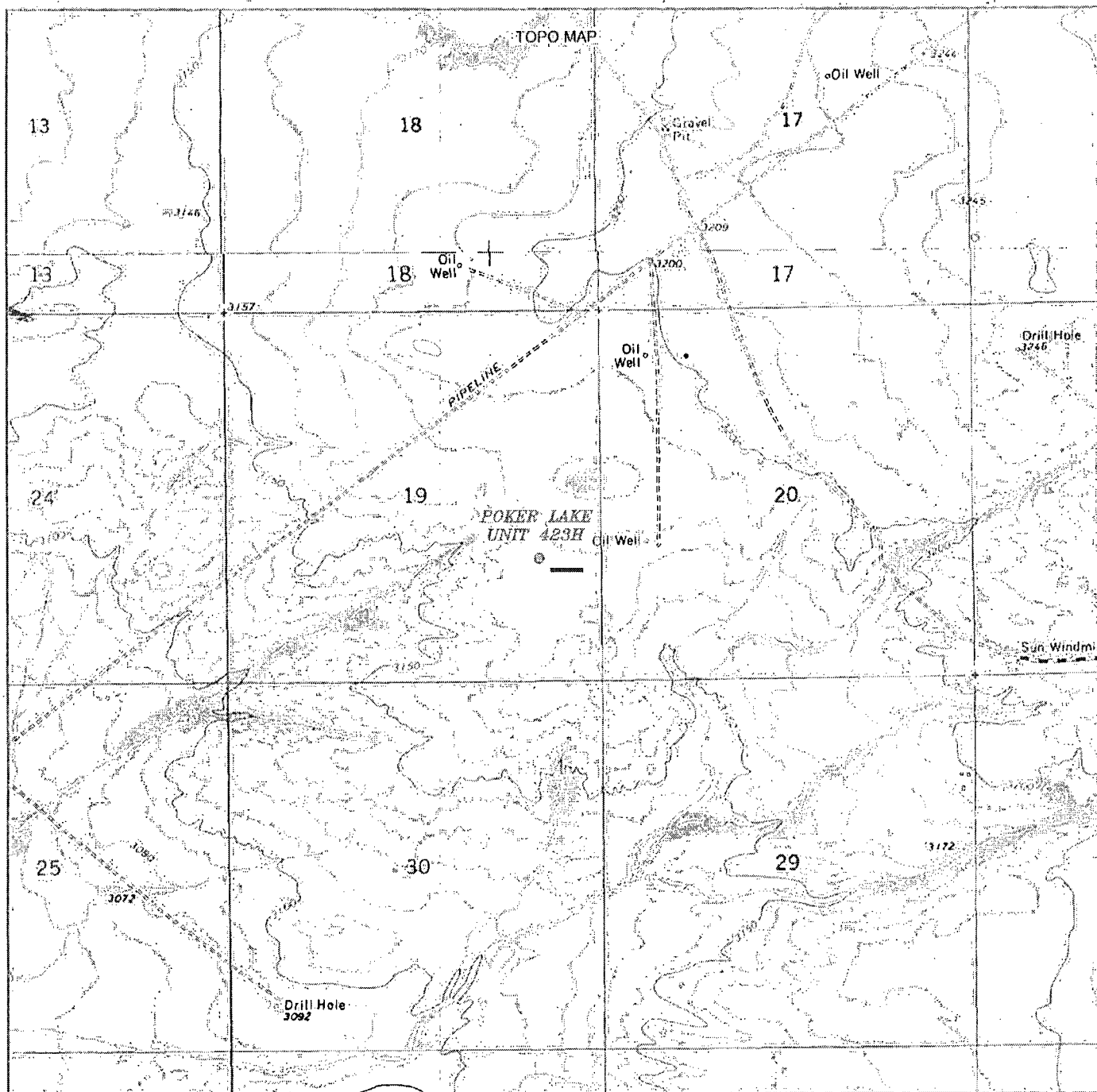
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	29	25 S	30 E		1600	SOUTH	800	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
360			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SURFACE LOCATION Lat - N 32°06'46.51" Long - W 103°54'51.91" NMSPC - E 629701.96 (NAD-27)	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Jeremy Braden</i> 7-18-12 Signature Date Jeremy Braden Printed Name jdbraden@basspet.com Email Address
BOTTOM HOLE LOCATION Lat - N 32°05'52.77" Long - W 103°53'48.65" NMSPC - E 635164.43 (NAD-27)	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date Surveyed MAY 28, 2013 Signature & Seal of Professional Surveyor 7977 No. 26762 Certificate No. Gary L. Jones 7977 BASIN SURVEYS 26762



POKER LAKE UNIT 423H

Located 1750' FSL and 880' FEL

Section 19, Township 25 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: DAL 26762

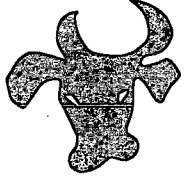
Survey Date: 05-28-2012

Scale: 1" = 2000'

Date: 06-04-2012

BOPCO, L.P.

Sheet 2 of 6 Sheets



Bopco L P

Eddy County, NM (NAD27 NME)

Poker Lake Unit #423H

Wellbore #1 / Job #1310122

Survey: Phoenix MWD Surveys

Phoenix Final Survey Report

27 February, 2013





Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay.5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay.5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay.5)	Database:	GCR DB

Project	Eddy County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Poker Lake Unit		
Site Position:		Northing:	435,896.68 usft
From:	Map	Easting:	646,110.12 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 51.0535 N
		Longitude:	103° 51' 39.5614 W
		Grid Convergence:	0.25 °

Well		#423H				
Well Position	+N/-S	0.00 usft	Northing:	405,055.21 usft	Latitude:	32° 6' 46.5126 N
	+E/-W	0.00 usft	Easting:	629,701.96 usft	Longitude:	103° 54' 51.9126 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,178.00 usft

Wellbore	Wellbore #1 / Job #1310122				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	01/23/13	7.54	59.99	48,353

Design					Surveys (McVay.5)						
Audit Notes:											
Version:		1.0		Phase:		ACTUAL		Tie On Depth:		0.00	
Vertical Section:		Depth From (TVD)		+N/-S		+E/-W		Direction			
		(usft)		(usft)		(usft)		(°)			
		0.00		0.00		0.00		134.72			

Survey Program		Date 02/27/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
6,779.00	14,769.00	Phoenix MWD Surveys (Wellbore #1 / Job	MWD	MWD - Standard



Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay 5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay 5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 5)	Database:	GCR DB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
6,729.00	1.08	213.27	-3,532.82	6,727.82	-57.05	11.25	48.14	0.00	404,998.16	629,713.21	
Tie-on to VES Gyro											
6,779.00	1.40	202.30	-3,582.81	6,777.81	-58.01	10.76	48.46	0.79	404,997.20	629,712.72	
Phoenix First MWD Survey											
6,811.00	1.30	146.90	-3,614.80	6,809.80	-58.67	10.81	48.97	3.93	404,996.54	629,712.77	
6,841.00	1.90	107.50	-3,644.79	6,839.79	-59.11	11.47	49.74	4.06	404,996.10	629,713.43	
6,872.00	4.00	101.20	-3,675.75	6,870.75	-59.47	13.02	51.10	6.84	404,995.74	629,714.98	
6,903.00	7.60	103.30	-3,706.58	6,901.58	-60.16	16.08	53.75	11.63	404,995.05	629,718.04	
6,935.00	12.10	105.10	-3,738.10	6,933.10	-61.52	21.38	58.48	14.09	404,993.69	629,723.34	
6,967.00	16.80	105.20	-3,769.08	6,964.08	-63.60	29.08	65.42	14.69	404,991.61	629,731.04	
6,999.00	21.80	103.70	-3,799.27	6,994.27	-66.23	39.32	74.54	15.70	404,988.98	629,741.28	
7,031.00	26.30	104.30	-3,828.49	7,023.49	-69.39	51.97	85.75	14.08	404,985.82	629,753.93	
7,062.00	30.10	101.50	-3,855.81	7,050.81	-72.63	66.25	98.18	12.98	404,982.58	629,768.21	
7,094.00	32.40	96.90	-3,883.17	7,078.17	-75.26	82.63	111.67	10.35	404,979.95	629,784.59	
7,126.00	36.30	100.00	-3,909.58	7,104.58	-77.94	100.48	126.24	13.35	404,977.27	629,802.44	
7,157.00	40.70	102.90	-3,933.84	7,128.84	-81.79	119.38	142.38	15.34	404,973.42	629,821.34	
7,188.00	45.20	105.10	-3,956.52	7,151.52	-86.92	139.86	160.54	15.30	404,968.29	629,841.82	
7,219.00	49.50	108.30	-3,977.53	7,172.53	-93.49	161.68	180.67	15.81	404,961.72	629,863.64	
7,250.00	53.00	111.90	-3,996.93	7,191.93	-101.81	184.37	202.64	14.47	404,953.40	629,886.33	
7,282.00	55.30	116.50	-4,015.68	7,210.68	-112.45	208.01	226.93	13.69	404,942.76	629,909.97	
7,312.00	56.60	121.50	-4,032.48	7,227.48	-124.50	229.73	250.84	14.47	404,930.71	629,931.69	
7,344.00	57.80	126.90	-4,049.82	7,244.82	-139.62	251.96	277.27	14.67	404,915.59	629,953.92	
7,375.00	60.00	131.50	-4,065.84	7,260.84	-156.40	272.52	303.68	14.55	404,898.81	629,974.48	
7,407.00	64.10	135.30	-4,080.84	7,275.84	-175.82	293.03	331.93	16.56	404,879.39	629,994.99	
7,421.00	66.10	135.80	-4,086.74	7,281.74	-184.89	301.92	344.63	14.65	404,870.32	630,003.88	
7,509.00	70.80	137.40	-4,119.05	7,314.05	-244.35	358.13	426.41	5.60	404,810.86	630,060.09	
7,539.00	74.60	138.40	-4,127.97	7,322.97	-265.60	377.33	455.00	13.06	404,789.61	630,079.29	



Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay.5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay.5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay.5)	Database:	GCR:DB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,571.00	77.10	139.10	-4,135.79	7,330.79	-288.93	397.78	485.95	8.10	404,766.28	630,099.74
7,602.00	79.90	139.90	-4,141.97	7,336.97	-312.02	417.51	516.22	9.38	404,743.19	630,119.47
7,633.00	81.40	140.50	-4,147.01	7,342.01	-335.52	437.09	546.66	5.20	404,719.69	630,139.05
7,664.00	84.20	141.30	-4,150.90	7,345.90	-359.39	456.48	577.24	9.39	404,695.82	630,158.44
7,695.00	87.00	140.20	-4,153.27	7,348.27	-383.32	476.04	607.97	9.70	404,671.89	630,178.00
7,789.00	88.80	140.40	-4,156.72	7,351.72	-455.59	536.04	701.46	1.93	404,599.62	630,238.00
7,882.00	90.20	140.90	-4,157.53	7,352.53	-527.51	595.00	793.96	1.60	404,527.70	630,296.96
7,975.00	90.90	142.20	-4,156.64	7,351.64	-600.33	652.83	886.29	1.59	404,454.88	630,354.79
8,069.00	90.20	138.40	-4,155.73	7,350.73	-672.64	712.86	979.82	4.11	404,382.57	630,414.82
8,163.00	89.70	136.10	-4,155.82	7,350.82	-741.66	776.66	1,073.72	2.50	404,313.55	630,478.62
8,256.00	90.30	136.50	-4,155.82	7,350.82	-808.90	840.91	1,166.69	0.78	404,246.31	630,542.87
8,350.00	89.30	134.80	-4,156.14	7,351.14	-876.11	906.62	1,260.67	2.10	404,179.10	630,608.58
8,443.00	87.80	134.30	-4,158.50	7,353.50	-941.33	972.87	1,353.64	1.70	404,113.88	630,674.83
8,537.00	87.80	133.80	-4,162.11	7,357.11	-1,006.64	1,040.38	1,447.56	0.53	404,048.57	630,742.34
8,630.00	89.60	134.10	-4,164.22	7,359.22	-1,071.16	1,107.32	1,540.52	1.96	403,984.05	630,809.28
8,723.00	89.60	134.50	-4,164.87	7,359.87	-1,136.11	1,173.87	1,633.52	0.43	403,919.10	630,875.83
8,817.00	89.10	135.30	-4,165.93	7,360.93	-1,202.46	1,240.45	1,727.51	1.00	403,852.75	630,942.41
8,910.00	88.00	134.70	-4,168.28	7,363.28	-1,268.20	1,306.19	1,820.48	1.35	403,787.01	631,008.15
9,003.00	89.40	134.90	-4,170.39	7,365.39	-1,333.71	1,372.16	1,913.45	1.52	403,721.50	631,074.12
9,096.00	89.20	134.70	-4,171.53	7,366.53	-1,399.24	1,438.15	2,006.45	0.30	403,655.97	631,140.11
9,189.00	91.80	134.70	-4,170.72	7,365.72	-1,464.65	1,504.24	2,099.43	2.80	403,590.56	631,206.20
9,282.00	92.30	134.20	-4,167.39	7,362.39	-1,529.73	1,570.59	2,192.37	0.76	403,525.48	631,272.55
9,376.00	90.50	135.80	-4,165.10	7,360.10	-1,596.17	1,637.03	2,286.34	2.56	403,459.04	631,338.99
9,470.00	90.60	136.30	-4,164.19	7,359.19	-1,663.85	1,702.27	2,380.31	0.54	403,391.36	631,404.23
9,562.00	90.40	135.60	-4,163.39	7,358.39	-1,729.97	1,766.23	2,472.28	0.79	403,325.24	631,468.19
9,655.00	90.50	134.80	-4,162.66	7,357.66	-1,795.95	1,831.76	2,565.27	0.87	403,259.26	631,533.72
9,748.00	90.00	135.20	-4,162.25	7,357.25	-1,861.71	1,897.52	2,658.27	0.69	403,193.50	631,599.48



Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay 5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay 5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 5)	Database:	GCR.DB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,841.00	90.00	135.00	-4,162.25	7,357.25	-1,927.59	1,963.17	2,751.27	0.22	403,127.62	631,665.13
9,933.00	88.30	136.00	-4,163.62	7,358.62	-1,993.20	2,027.64	2,843.25	2.14	403,062.01	631,729.60
10,026.00	88.00	135.70	-4,166.62	7,361.62	-2,059.89	2,092.38	2,936.18	0.46	402,995.32	631,794.34
10,119.00	90.20	136.10	-4,168.08	7,363.08	-2,126.67	2,157.09	3,029.14	2.40	402,928.54	631,859.05
10,212.00	90.40	134.60	-4,167.60	7,362.60	-2,192.82	2,222.45	3,122.13	1.63	402,862.39	631,924.41
10,306.00	90.50	134.70	-4,166.86	7,361.86	-2,258.88	2,289.32	3,216.13	0.15	402,796.33	631,991.28
10,399.00	90.20	134.30	-4,166.29	7,361.29	-2,324.07	2,355.65	3,309.13	0.54	402,731.14	632,057.61
10,492.00	91.40	134.90	-4,164.99	7,359.99	-2,389.36	2,421.86	3,402.12	1.44	402,665.85	632,123.82
10,585.00	89.70	134.90	-4,164.10	7,359.10	-2,455.00	2,487.73	3,495.11	1.83	402,600.21	632,189.69
10,671.00	90.00	134.90	-4,164.32	7,359.32	-2,515.70	2,548.65	3,581.11	0.35	402,539.51	632,250.61
10,749.00	89.40	133.60	-4,164.73	7,359.73	-2,570.13	2,604.51	3,659.10	1.84	402,485.08	632,306.47
10,811.00	89.60	133.80	-4,165.27	7,360.27	-2,612.96	2,649.34	3,721.09	0.46	402,442.25	632,351.30
10,905.00	91.00	133.50	-4,164.78	7,359.78	-2,677.84	2,717.35	3,815.07	1.52	402,377.37	632,419.31
10,998.00	90.40	133.70	-4,163.64	7,358.64	-2,741.97	2,784.69	3,908.04	0.68	402,313.24	632,486.65
11,091.00	89.10	134.50	-4,164.05	7,359.05	-2,806.69	2,851.48	4,001.03	1.64	402,248.52	632,553.44
11,184.00	90.10	134.70	-4,164.70	7,359.70	-2,871.99	2,917.69	4,094.03	1.10	402,183.22	632,619.65
11,279.00	89.00	135.60	-4,165.45	7,360.45	-2,939.34	2,984.69	4,189.02	1.50	402,115.87	632,686.65
11,372.00	88.00	135.90	-4,167.88	7,362.88	-3,005.93	3,049.56	4,281.97	1.12	402,049.28	632,751.52
11,466.00	88.40	136.60	-4,170.83	7,365.83	-3,073.80	3,114.53	4,375.89	0.86	401,981.41	632,816.49
11,561.00	88.80	135.60	-4,173.15	7,368.15	-3,142.23	3,180.38	4,470.84	1.13	401,912.98	632,882.34
11,655.00	93.20	136.70	-4,171.51	7,366.51	-3,209.99	3,245.47	4,564.77	4.82	401,845.22	632,947.43
11,749.00	91.90	136.50	-4,167.33	7,362.33	-3,278.22	3,310.00	4,658.62	1.40	401,776.99	633,011.96
11,843.00	89.50	136.60	-4,166.18	7,361.18	-3,346.45	3,374.63	4,752.56	2.56	401,708.76	633,076.59
11,938.00	88.90	136.80	-4,167.51	7,362.51	-3,415.58	3,439.78	4,847.49	0.67	401,639.63	633,141.74
12,032.00	86.00	135.80	-4,171.69	7,366.69	-3,483.46	3,504.65	4,941.35	3.26	401,571.75	633,206.61
12,127.00	86.00	134.70	-4,178.32	7,373.32	-3,550.76	3,571.37	5,036.12	1.16	401,504.45	633,273.33
12,221.00	86.20	132.90	-4,184.71	7,379.71	-3,615.67	3,639.05	5,129.88	1.92	401,439.54	633,341.01



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay 5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay 5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 5)	Database:	GCR DB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
12,315.00	85.30	132.20	-4,191.68	7,386.68	-3,679.06	3,708.11	5,223.56	1.21	401,376.15	633,410.07	
12,409.00	88.50	131.70	-4,196.76	7,391.76	-3,741.80	3,777.91	5,317.30	3.45	401,313.41	633,479.87	
12,503.00	91.00	130.60	-4,197.17	7,392.17	-3,803.65	3,848.68	5,411.10	2.91	401,251.56	633,550.64	
12,597.00	91.60	131.90	-4,195.04	7,390.04	-3,865.61	3,919.33	5,504.91	1.52	401,189.60	633,621.29	
12,692.00	93.00	132.20	-4,191.23	7,386.23	-3,929.18	3,989.82	5,599.72	1.51	401,126.03	633,691.78	
12,786.00	94.70	132.30	-4,184.91	7,379.91	-3,992.24	4,059.24	5,693.42	1.81	401,062.97	633,761.20	
12,880.00	95.10	133.10	-4,176.89	7,371.89	-4,055.76	4,128.07	5,787.02	0.95	400,999.45	633,830.03	
12,973.00	92.20	133.70	-4,170.97	7,365.97	-4,119.52	4,195.49	5,879.79	3.18	400,935.69	633,897.45	
13,066.00	91.30	133.60	-4,168.13	7,363.13	-4,183.68	4,262.75	5,972.73	0.97	400,871.53	633,964.71	
13,160.00	90.60	134.90	-4,166.57	7,361.57	-4,249.26	4,330.08	6,066.72	1.57	400,805.95	634,032.04	
13,255.00	88.40	134.10	-4,167.40	7,362.40	-4,315.84	4,397.83	6,161.70	2.46	400,739.37	634,099.79	
13,349.00	89.90	135.50	-4,168.79	7,363.79	-4,382.07	4,464.52	6,255.69	2.18	400,673.14	634,166.48	
13,443.00	89.50	136.90	-4,169.28	7,364.28	-4,449.91	4,529.57	6,349.65	1.55	400,605.30	634,231.53	
13,537.00	88.80	135.90	-4,170.68	7,365.68	-4,517.97	4,594.39	6,443.60	1.30	400,537.24	634,296.35	
13,632.00	89.80	136.10	-4,171.84	7,366.84	-4,586.30	4,660.38	6,538.57	1.07	400,468.91	634,362.34	
13,725.00	91.00	136.00	-4,171.19	7,366.19	-4,653.26	4,724.92	6,631.54	1.29	400,401.95	634,426.88	
13,819.00	90.20	137.20	-4,170.20	7,365.20	-4,721.55	4,789.50	6,725.48	1.53	400,333.66	634,491.46	
13,914.00	89.80	137.80	-4,170.20	7,365.20	-4,791.59	4,853.68	6,820.37	0.76	400,263.62	634,555.64	
14,005.00	90.30	137.80	-4,170.12	7,365.12	-4,859.00	4,914.81	6,911.24	0.55	400,196.21	634,616.77	
14,101.00	90.10	139.50	-4,169.79	7,364.79	-4,931.07	4,978.23	7,007.01	1.78	400,124.14	634,680.19	
14,195.00	87.80	138.40	-4,171.51	7,366.51	-5,001.94	5,039.94	7,100.73	2.71	400,053.27	634,741.90	
14,290.00	87.70	137.60	-4,175.24	7,370.24	-5,072.48	5,103.46	7,195.50	0.85	399,982.73	634,805.42	
14,383.00	89.40	138.30	-4,177.60	7,372.60	-5,141.51	5,165.73	7,288.32	1.98	399,913.70	634,867.69	
14,478.00	87.50	135.40	-4,180.17	7,375.17	-5,210.79	5,230.66	7,383.20	3.65	399,844.42	634,932.62	
14,572.00	89.30	136.30	-4,182.79	7,377.79	-5,278.21	5,296.11	7,477.14	2.14	399,777.00	634,998.07	
14,666.00	88.00	136.30	-4,185.00	7,380.00	-5,346.14	5,361.03	7,571.08	1.38	399,709.07	635,062.99	



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Bopco L P	Local Co-ordinate Reference:	Well #423H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3195.00usft (McVay 5)
Site:	Poker Lake Unit	MD Reference:	KB @ 3195.00usft (McVay 5)
Well:	#423H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310122	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 5)	Database:	GCR:DB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
14,707.00	87.80	135.80	-4,186.51	7,381.51	-5,375.64	5,389.47	7,612.04	1.31	399,679.57	635,091.43
Phoenix Last MWD Survey										
14,769.00	87.80	135.80	-4,188.89	7,383.89	-5,420.06	5,432.66	7,673.98	0.00	399,635.15	635,134.62
Projection to Bit										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,729.00	6,727.82	-57.05	11.25	Tie-on to VES Gyro
6,779.00	6,777.81	-58.01	10.76	Phoenix First MWD Survey
14,707.00	7,381.51	-5,375.64	5,389.47	Phoenix Last MWD Survey
14,769.00	7,383.89	-5,420.06	5,432.66	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County, NM (NAD27 NME)
Site: Poker Lake Unit
Well: #423H
Wellbore: Wellbore #1 / Job #1310122
Design: Plan #4 01-31-13



PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: 4.22°
Magnetic North: 7.32°
Magnetic Field
Strength: 48352.6nT
Dip Angle: 59.99°
Date: 6/12/2013
Model: IGRF2010_14

WELL DETAILS						
			Ground Level	3178.00		
+N-S	+E-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	405055.21	629701.96	32° 6' 46.5126 N	103° 54' 51.9126 W	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dieg	TFace	VSeet	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6782.54	0.00	0.00	6782.54	0.00	0.00	0.00	0.00	0.00	
3	7282.54	60.00	134.72	7196.04	-167.98	159.63	12.00	134.72	238.73	
4	7482.54	60.00	134.72	7296.04	-269.98	292.70	0.00	0.00	411.94	
5	7729.96	89.69	134.72	7368.00	-456.02	460.51	12.00	-0.01	648.09	
6	14769.22	89.69	134.72	7368.00	-5408.80	5462.47	0.00	0.00	7687.24	PBHL-PLU #423H

DESIGN TARGET DETAILS								
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-PLU #423H	7368.00	-5408.80	5462.47	399645.41	635164.43	32° 5' 52.7710 N	103° 53' 48.6549 W	Rectangle (Sides: L20.00 W100.00)
plan hits target center								

SITE DETAILS: Poker Lake Unit			
Site Centre Northing:	435896.68	Easting:	646110.12
Positional Uncertainty:	0.00	Convergence:	0.25
Local North: Grid			

PROJECT DETAILS: Eddy County, NM (NAD27 NME)			
Geodetic System:	US State Plane 1927 (Exact solution)	Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866	Zone:	New Mexico East 3001
System Datum: Mean Sea Level			

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipAngle
929.00	929.00	Rustler	0.99
1224.00	1224.00	Salado	0.99
3580.00	3580.00	Lamar	0.99
3623.00	3623.00	Delaware Sands	0.99
7149.98	7201.83	Lower Brushy Canyon 8A	0.99
7271.38	7433.23	Target Sand	0.99

CASING DETAILS			
TVD	MD	Name	Size
3607.00	3607.00	13 3/8"	13-3/8
7296.04	7482.54	7"	7
7368.00	14769.22	4 1/2"	4-1/2

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #423H, Grid North
Latitude: 32° 6' 46.5126 N
Longitude: 103° 54' 51.9126 W
Grid East: 629701.96
Grid North: 405055.21
Scale Factor: 1.000
Geomagnetic Model: IGRF2010_14
Sample Date: 23-Jan-13
Magnetic Declination: 7.54°
Dip Angle from Horizontal: 59.99°
Magnetic Field Strength: 48353
To convert a Magnetic Direction to a Grid Direction, Add 7.32°
To convert a Magnetic Direction to a True Direction, Add 7.54° East
To convert a True Direction to a Grid Direction, Subtract 0.22°

