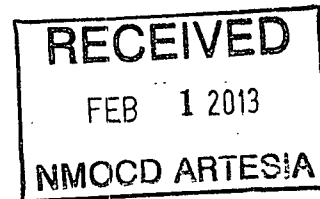




PHOENIX
TECHNOLOGY SERVICES

January 24, 2013

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210



Dear District 2 – Artesia

Re: Bopco, LP
PLU Ross Ranch 28-25-30 #1H
Eddy Co., NM
API #30-015-40765
Job No. 1211257

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	
Spencer Brown	1H	1738	13,726	01/02/13	01/16/13	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 8431

PHOENIX TECHNOLOGY SERVICES INC.
SURVEY DATA CERTIFICATION

RECEIVED

FEB 1 2013



PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER 1211257

OPERATOR BOPCO

WELL NAME PLU Ross Ranch 28-25-30 1H

COUNTY & STATE

Eddy Co., NM

API WELL NUMBER 30-015-40765

PROPOSED DIRECTION 359.59

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
1,738 ft	1,737.41 ft	1.6	44.8	19.76 N	24.19 E	MWD

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
2-Jan-13	1,738 ft	1.6	44.8

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
16-Jan-13	13,726 ft	88.7	359.7

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

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
16-Jan-13	13,792 ft	88.7	359.7

Spencer Brown

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.3
DECLINATION OR GRID	Grid

16-Jan

TODAY'S DATE

MWD SUPERVISOR 1

Spencer Brown

DIRECTIONAL DRILLER 1

Brady Welch

MWD SUPERVISOR 2

Jia Lewis

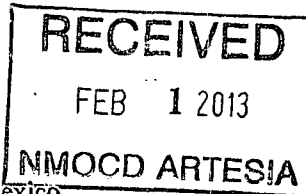
DIRECTIONAL DRILLER 2

Steven Startz

1805 Brittmore Road

Houston, Texas 77043

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



District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Abo, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-40765		² Pool Code 13354	³ Pool Name CORRAL CANYON BONE SPRING, SOUTH
⁴ Property Code 39490	⁵ Property Name PLU ROSS RANCH 28 25 30 USA		⁶ Well Number 1H
⁷ OGRID No. 147179	⁸ Operator Name CHESAPEAKE OPERATING, INC.		⁹ Elevation 3196'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	28	25S	30E		150'	SOUTH	660'	WEST	EDDY

¹¹ 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
D	28	25S	30E		100'	NORTH	660'	WEST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
160			

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.

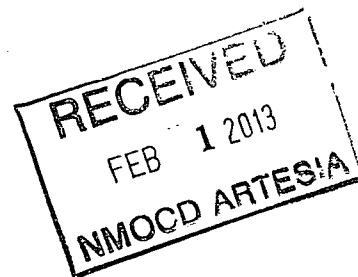
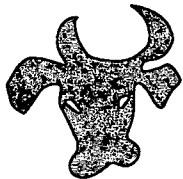
Project Area

	PROPOSED BOTTOM HOLE LOCATION X= 636,581 NAD 27 Y= 403,229 LAT. 32.107825 LONG. 103.892183 X= 667,777 NAD83 Y= 403,287 LAT. 32.107949 LONG. 103.892675
	PLU ROSS RANCH 28 25 30 USA NO. 1H WELL X= 636,627 NAD 27 Y= 398,209 LAT. 32.094024 LONG. 103.892145 X= 677,812 NAD83 Y= 398,267 LAT. 32.094148 LONG. 103.892626 ELEVATION +3197' NAVD 88

" 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 undivided 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. Signature Date 05/29/2012 Printed Name Bryan Arrant E-mail Address bryan.arrant@chk.com	
"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 of Survey May 22 2012 Signature and Seal of Professional Surveyor Certificate Number #15078	

FIRST PROPOSED PERFORATIONS
330' FSL 660' FWL

EXHIBIT A



Bopco L P

Eddy County NM (NAD 27)
PLU Ross Ranch 28-25-30 #1H
#1H
Wellbore #1 / Job #1211257

Survey: Phoenix MWD

Phoenix Final Survey Report

17 January, 2013





Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD 27)	TVD Reference:	WELL @ 3213.00usft (Original Well Elev)
Site:	PLU Ross Ranch 28-25-30 #1H	MD Reference:	WELL @ 3213.00usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1211257	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Rig: Latshaw 14)	Database:	GCR DB

Project:	Eddy County, NM (NAD 27)		
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		PLU Ross Ranch 28-25-30 #1H			
Site Position:		Northing:		398,209.00 usft	
From:		Easting:		636,627.00 usft	
Position Uncertainty:		Slot Radius:		13-3/16 "	
Map		Latitude:		32° 5' 38.4871 N	
0.00 usft		Longitude:		103° 53' 31.7206 W	
		Grid Convergence:		0.23 °	

Well		#1H				
Well Position	+N/-S	0.00 usft	Northing:	398,209.00 usft	Latitude:	32° 5' 38.4871 N
	+E/-W	0.00 usft	Easting:	636,627.00 usft	Longitude:	103° 53' 31.7206 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	17.00 usft	Ground Level:	3,196.00 usft	

Wellbore		Wellbore #1 / Job #1211257			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	01/12/13	7.53	59.97	48,347

Design: Surveys (Rig: Latshaw 14)				
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	359.59



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Bopco LP	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD 27)	TVD Reference:	WELL @ 3213.00usft (Original Well Elev)
Site:	PLU Ross Ranch 28-25-30 #1H	MD Reference:	WELL @ 3213.00usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1211257	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Rig, Latshaw, 14)	Database:	GCR DB

Survey Program		Date	01/17/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	1,500.00	SDI Gyro (Wellbore #1 / Job #1211257)	UNKNOWN	Unknown survey	
1,738.00	13,792.00	Phoenix MWD (Wellbore #1 / Job #121125)	MWD	MWD - Standard	

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)	
1,500.00	1.97	31.91	1,713.48	1,499.52	13.95	19.67	13.80	0.00	398,222.95	636,646.67	
1,738.00	1.60	44.80	1,475.59	1,737.41	19.78	24.17	19.60	0.23	398,228.78	636,651.17	
First Phoenix MWD Survey											
1,928.00	0.80	38.20	1,285.63	1,927.37	22.70	26.86	22.51	0.43	398,231.70	636,653.86	
2,119.00	0.30	67.40	1,094.64	2,118.36	23.94	28.15	23.74	0.29	398,232.94	636,655.15	
2,309.00	0.30	63.80	904.65	2,308.35	24.35	29.06	24.14	0.01	398,233.35	636,656.06	
2,499.00	0.50	19.30	714.65	2,498.35	25.35	29.78	25.14	0.19	398,234.35	636,656.78	
2,689.00	0.50	0.10	524.66	2,688.34	26.96	30.05	26.75	0.09	398,235.96	636,657.05	
2,879.00	0.80	327.80	334.67	2,878.33	28.92	29.35	28.70	0.24	398,237.92	636,656.35	
3,070.00	1.80	85.00	143.70	3,069.30	30.31	31.62	30.08	1.19	398,239.31	636,658.62	
3,260.00	1.50	135.30	-46.23	3,259.23	28.80	36.35	28.54	0.75	398,237.80	636,663.35	
3,450.00	5.00	148.50	-235.90	3,448.90	19.97	42.42	19.66	1.87	398,228.97	636,669.42	
3,644.00	2.60	162.10	-429.46	3,642.46	8.57	48.19	8.23	1.31	398,217.57	636,675.19	
3,833.00	1.40	199.70	-618.35	3,831.35	2.32	48.73	1.97	0.91	398,211.32	636,675.73	
4,024.00	0.80	214.00	-809.31	4,022.31	-0.99	47.20	-1.32	0.34	398,208.01	636,674.20	
4,214.00	0.70	215.90	-999.30	4,212.30	-3.02	45.78	-3.35	0.05	398,205.98	636,672.78	
4,405.00	0.70	210.50	-1,190.28	4,403.28	-4.98	44.50	-5.29	0.03	398,204.02	636,671.50	
4,595.00	0.70	210.70	-1,380.27	4,593.27	-6.97	43.32	-7.28	0.00	398,202.03	636,670.32	
4,785.00	0.70	206.80	-1,570.25	4,783.25	-9.01	42.21	-9.31	0.03	398,199.99	636,669.21	
4,976.00	0.60	205.80	-1,761.24	4,974.24	-10.95	41.24	-11.24	0.05	398,198.05	636,668.24	
5,166.00	0.50	216.10	-1,951.23	5,164.23	-12.51	40.32	-12.80	0.07	398,196.49	636,667.32	



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD 27)	TVD Reference:	WELL @ 3213.00usft (Original Well Elev)
Site:	PLU Ross Ranch 28-25-30 #1H	MD Reference:	WELL @ 3213.00usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1211257	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Rig: Latshaw 14)	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)	
5,356.00	0.50	218.80	-2,141.23	5,354.23	-13.83	39.31	-14.11	0.01	398,195.17	636,666.31	
5,546.00	0.50	204.10	-2,331.22	5,544.22	-15.23	38.46	-15.51	0.07	398,193.77	636,665.46	
5,736.00	0.70	194.90	-2,521.21	5,734.21	-17.11	37.82	-17.38	0.12	398,191.89	636,664.82	
5,926.00	0.70	211.70	-2,711.19	5,924.19	-19.22	36.91	-19.48	0.11	398,189.78	636,663.91	
6,116.00	0.70	220.90	-2,901.18	6,114.18	-21.09	35.54	-21.34	0.06	398,187.91	636,662.54	
6,306.00	0.70	217.60	-3,091.17	6,304.17	-22.88	34.07	-23.13	0.02	398,186.12	636,661.07	
6,496.00	0.70	214.70	-3,281.15	6,494.15	-24.76	32.70	-24.99	0.02	398,184.24	636,659.70	
6,686.00	0.70	192.80	-3,471.14	6,684.14	-26.84	31.79	-27.07	0.14	398,182.16	636,658.79	
6,876.00	0.80	195.30	-3,661.12	6,874.12	-29.25	31.18	-29.48	0.06	398,179.75	636,658.18	
7,067.00	0.90	197.20	-3,852.10	7,065.10	-31.97	30.38	-32.19	0.05	398,177.03	636,657.38	
7,256.00	1.10	177.20	-4,041.07	7,254.07	-35.20	30.03	-35.42	0.21	398,173.80	636,657.03	
7,446.00	1.70	180.90	-4,231.01	7,444.01	-39.84	30.08	-40.06	0.32	398,169.16	636,657.08	
7,635.00	1.60	148.30	-4,419.94	7,632.94	-44.89	31.42	-45.11	0.49	398,164.11	636,658.42	
7,825.00	1.80	112.30	-4,609.86	7,822.86	-48.28	35.58	-48.53	0.56	398,160.72	636,662.58	
8,015.00	1.70	194.90	-4,799.80	8,012.80	-52.14	37.61	-52.40	1.22	398,156.86	636,664.61	
8,205.00	2.20	237.90	-4,989.70	8,202.70	-56.80	33.80	-57.04	0.79	398,152.20	636,660.80	
8,343.00	2.50	263.00	-5,127.59	8,340.59	-58.57	28.57	-58.77	0.77	398,150.43	636,655.57	
8,375.00	1.10	313.90	-5,159.57	8,372.57	-58.44	27.65	-58.64	6.24	398,150.56	636,654.65	
8,406.00	4.50	353.90	-5,190.53	8,403.53	-57.03	27.31	-57.22	12.02	398,151.97	636,654.31	
8,438.00	6.80	19.40	-5,222.38	8,435.38	-53.99	27.80	-54.19	10.47	398,155.01	636,654.80	
8,469.00	9.80	354.80	-5,253.06	8,466.06	-49.63	28.18	-49.83	14.79	398,159.37	636,655.18	
8,498.00	10.80	349.80	-5,281.59	8,494.59	-44.50	27.47	-44.69	4.62	398,164.50	636,654.47	
8,532.00	15.00	345.70	-5,314.73	8,527.73	-37.10	25.82	-37.28	12.64	398,171.90	636,652.82	
8,564.00	18.60	354.10	-5,345.36	8,558.36	-28.00	24.27	-28.18	13.54	398,181.00	636,651.27	
8,596.00	21.80	353.00	-5,375.39	8,588.39	-17.03	23.02	-17.19	10.07	398,191.97	636,650.02	
8,627.00	26.70	352.20	-5,403.65	8,616.65	-4.41	21.37	-4.56	15.84	398,204.59	636,648.37	
8,659.00	29.40	352.80	-5,431.88	8,644.88	10.51	19.41	10.37	8.48	398,219.51	636,646.41	



Phoenix Technology Services
Phoenix Final Survey Report



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Design:	Surveys (Rig Latshaw 14)	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)	
8,690.00	32.70	351.80	-5,458.44	8,671.44	26.35	17.27	26.23	10.77	398,235.35	636,644.27	
8,722.00	34.90	353.90	-5,485.03	8,698.03	44.02	15.06	43.91	7.78	398,253.02	636,642.06	
8,754.00	36.80	359.30	-5,510.97	8,723.97	62.71	13.97	62.61	11.52	398,271.71	636,640.97	
8,786.00	38.30	3.20	-5,536.35	8,749.35	82.20	14.41	82.09	8.78	398,291.20	636,641.41	
8,818.00	42.50	3.20	-5,560.71	8,773.71	102.90	15.56	102.79	13.12	398,311.90	636,642.56	
8,850.00	45.90	1.00	-5,583.65	8,796.65	125.19	16.37	125.07	11.65	398,334.19	636,643.37	
8,881.00	47.70	358.90	-5,604.87	8,817.87	147.78	16.34	147.66	7.62	398,356.78	636,643.34	
8,913.00	52.20	358.60	-5,625.46	8,838.46	172.27	15.80	172.15	14.08	398,381.27	636,642.80	
8,944.00	55.60	358.90	-5,643.72	8,856.72	197.30	15.26	197.19	11.00	398,406.30	636,642.26	
8,976.00	57.60	359.50	-5,661.33	8,874.33	224.01	14.89	223.90	6.44	398,433.01	636,641.89	
9,008.00	60.70	358.90	-5,677.74	8,890.74	251.48	14.50	251.37	9.82	398,460.48	636,641.50	
9,040.00	63.90	359.00	-5,692.61	8,905.61	279.81	13.98	279.70	10.00	398,488.81	636,640.98	
9,068.00	66.80	358.10	-5,704.29	8,917.29	305.24	13.34	305.14	10.76	398,514.24	636,640.34	
9,103.00	70.80	358.10	-5,716.94	8,929.94	337.85	12.26	337.75	11.43	398,546.85	636,639.26	
9,134.00	74.70	357.70	-5,726.14	8,939.14	367.43	11.17	367.34	12.64	398,576.43	636,638.17	
9,166.00	78.70	357.40	-5,733.50	8,946.50	398.54	9.84	398.46	12.53	398,607.54	636,636.84	
9,198.00	82.70	357.20	-5,738.67	8,951.67	430.07	8.35	430.00	12.52	398,639.07	636,635.35	
9,262.00	90.00	356.70	-5,742.74	8,955.74	493.81	4.95	493.76	11.43	398,702.81	636,631.95	
9,357.00	92.40	357.20	-5,740.75	8,953.75	588.65	-0.10	588.63	2.58	398,797.65	636,626.90	
9,452.00	92.10	356.80	-5,737.02	8,950.02	683.44	-5.07	683.46	0.53	398,892.44	636,621.93	
9,547.00	93.00	358.70	-5,732.79	8,945.79	778.27	-8.79	778.31	2.21	398,987.27	636,618.21	
9,641.00	92.70	358.20	-5,728.12	8,941.12	872.12	-11.33	872.18	0.62	399,081.12	636,615.67	
9,736.00	93.20	359.10	-5,723.23	8,936.23	966.97	-13.57	967.04	1.08	399,175.97	636,613.43	
9,831.00	93.50	358.60	-5,717.68	8,930.68	1,061.78	-15.47	1,061.87	0.61	399,270.78	636,611.53	
9,926.00	93.20	359.00	-5,712.13	8,925.13	1,156.60	-17.46	1,156.70	0.53	399,365.60	636,609.54	
10,021.00	93.10	0.90	-5,706.90	8,919.90	1,251.45	-17.54	1,251.55	2.00	399,460.45	636,609.46	
10,117.00	90.10	2.10	-5,704.22	8,917.22	1,347.37	-15.03	1,347.44	3.37	399,556.37	636,611.97	



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD 27)	TVD Reference:	WELL @ 3213.00usft (Original Well Elev)
Site:	PLU Ross Ranch 28-25-30 #1H	MD Reference:	WELL @ 3213.00usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1211257	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Rig: Latshaw 14)	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)	
10,212.00	90.00	2.00	-5,704.14	8,917.14	1,442.31	-11.63	1,442.36	0.15	399,651.31	636,615.37	
10,307.00	89.90	2.50	-5,704.22	8,917.22	1,537.24	-7.90	1,537.25	0.54	399,746.24	636,619.10	
10,402.00	90.30	2.00	-5,704.06	8,917.06	1,632.16	-4.17	1,632.15	0.67	399,841.16	636,622.83	
10,498.00	90.00	1.90	-5,703.81	8,916.81	1,728.11	-0.90	1,728.07	0.33	399,937.11	636,626.10	
10,593.00	89.20	1.30	-5,704.47	8,917.47	1,823.07	1.75	1,823.01	1.05	400,032.07	636,628.75	
10,688.00	89.10	1.20	-5,705.88	8,918.88	1,918.03	3.82	1,917.96	0.15	400,127.03	636,630.82	
10,783.00	88.40	0.50	-5,707.95	8,920.95	2,013.00	5.23	2,012.91	1.04	400,222.00	636,632.23	
10,878.00	90.20	0.60	-5,709.11	8,922.11	2,107.98	6.14	2,107.88	1.90	400,316.98	636,633.14	
10,973.00	89.80	0.40	-5,709.11	8,922.11	2,202.98	6.97	2,202.87	0.47	400,411.98	636,633.97	
11,067.00	89.90	0.40	-5,709.36	8,922.36	2,296.98	7.63	2,296.86	0.11	400,505.98	636,634.63	
11,162.00	89.60	359.70	-5,709.77	8,922.77	2,391.97	7.71	2,391.86	0.80	400,600.97	636,634.71	
11,258.00	91.00	359.70	-5,709.27	8,922.27	2,487.97	7.21	2,487.85	1.46	400,696.97	636,634.21	
11,353.00	90.50	359.50	-5,708.03	8,921.03	2,582.96	6.54	2,582.85	0.57	400,791.96	636,633.54	
11,447.00	90.30	359.00	-5,707.37	8,920.37	2,676.95	5.31	2,676.84	0.57	400,885.95	636,632.31	
11,543.00	90.40	359.00	-5,706.78	8,919.78	2,772.93	3.64	2,772.83	0.10	400,981.93	636,630.64	
11,638.00	89.90	358.70	-5,706.54	8,919.54	2,867.91	1.73	2,867.83	0.61	401,076.91	636,628.73	
11,733.00	89.50	358.10	-5,707.03	8,920.03	2,962.87	-0.92	2,962.80	0.76	401,171.87	636,626.08	
11,828.00	89.10	357.90	-5,708.19	8,921.19	3,057.81	-4.24	3,057.76	0.47	401,266.81	636,622.76	
11,923.00	88.60	356.90	-5,710.10	8,923.10	3,152.69	-8.54	3,152.67	1.18	401,361.69	636,618.46	
12,018.00	89.90	357.90	-5,711.34	8,924.34	3,247.58	-12.85	3,247.59	1.73	401,456.58	636,614.15	
12,113.00	89.50	357.70	-5,711.84	8,924.84	3,342.51	-16.50	3,342.54	0.47	401,551.51	636,610.50	
12,208.00	90.10	358.20	-5,712.17	8,925.17	3,437.45	-19.90	3,437.50	0.82	401,646.45	636,607.10	
12,303.00	89.60	358.70	-5,712.42	8,925.42	3,532.41	-22.47	3,532.48	0.74	401,741.41	636,604.53	
12,398.00	89.80	358.90	-5,712.92	8,925.92	3,627.39	-24.46	3,627.47	0.30	401,836.39	636,602.54	
12,493.00	89.30	358.40	-5,713.67	8,926.67	3,722.36	-26.70	3,722.45	0.74	401,931.36	636,600.30	
12,588.00	90.90	358.60	-5,713.50	8,926.50	3,817.32	-29.18	3,817.43	1.70	402,026.32	636,597.82	
12,682.00	90.50	358.50	-5,712.35	8,925.35	3,911.29	-31.56	3,911.41	0.44	402,120.29	636,595.44	



Phoenix Technology Services

Phoenix Final Survey Report



Company:	Bopco L.P.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County,NM (NAD,27)	TVD Reference:	WELL @ 3213.00usft (Original Well Elev)
Site:	PLU Ross Ranch,28-25-30 #1H	MD Reference:	WELL @ 3213.00usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1/ Job #1211257	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Rig Latshaw 14)	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)
12,777.00	89.80	358.30	-5,712.10	8,925.10	4,006.25	-34.21	4,006.39	0.77	402,215.25	636,592.79
12,872.00	89.30	358.20	-5,712.85	8,925.85	4,101.20	-37.11	4,101.36	0.54	402,310.20	636,589.89
12,967.00	89.20	359.30	-5,714.09	8,927.09	4,196.17	-39.19	4,196.34	1.16	402,405.17	636,587.81
13,062.00	89.20	358.80	-5,715.42	8,928.42	4,291.15	-40.76	4,291.33	0.53	402,500.15	636,586.24
13,156.00	89.80	0.60	-5,716.24	8,929.24	4,385.14	-41.25	4,385.32	2.02	402,594.14	636,585.75
13,251.00	89.90	0.30	-5,716.49	8,929.49	4,480.13	-40.51	4,480.31	0.33	402,689.13	636,586.49
13,347.00	89.50	0.70	-5,716.99	8,929.99	4,576.13	-39.67	4,576.29	0.59	402,785.13	636,587.33
13,442.00	89.30	0.20	-5,717.99	8,930.99	4,671.12	-38.92	4,671.28	0.57	402,880.12	636,588.08
13,537.00	89.40	0.50	-5,719.06	8,932.06	4,766.11	-38.34	4,766.26	0.33	402,975.11	636,588.66
13,632.00	89.10	359.90	-5,720.31	8,933.31	4,861.10	-38.01	4,861.25	0.71	403,070.10	636,588.99
13,726.00	88.70	359.70	-5,722.11	8,935.11	4,955.08	-38.34	4,955.23	0.48	403,164.08	636,588.66
Phoenix MWD Survey										
13,792.00	88.70	359.70	-5,723.61	8,936.61	5,021.07	-38.69	5,021.21	0.00	403,230.07	636,588.31

Projection to Bit

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,738.00	1,737.41	19.78	24.17	First Phoenix MWD Survey
13,726.00	8,935.11	4,955.08	-38.34	Phoenix MWD Survey
13,792.00	8,936.61	5,021.07	-38.69	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____