



PHOENIX
TECHNOLOGY SERVICES

November 9, 2016

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

HOBBS CCD

NOV 21 2016

RECEIVED

Dear District 1 - Hobbs

Re BC Operating
Abe State #3H ✓
Lea County, NM
API #30-025-42230 ✓
Job No. 60407

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	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Larry Seebeck	3H	168	16098	10/11/16	10/28/16	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,

Brittany Carley

Brittany Carley
Operations Administrator

Certified mail receipt number: _____

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

60407

ENERGY COMPANY BC Operating

WELL NAME Abe State #3H

COUNTY & STATE

Lea, New Mexico

API WELL NUMBER

30-025-4223

PROPOSED DIRECTION

353.41

TIE-IN DATA

MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
.00 ft	.00 ft	0.00	0.00	.00 ft	.00 ft	Surface

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
11-Oct-16	168.00 ft	0.28	227.97

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
28-Oct-16	16,098.00 ft	88.26	357.27

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

Larry Seebeck

PRINT YOUR NAME ABOVE

Larry Seebeck

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.53
DECLINATION OR GRID	GRID

TODAY'S DATE

MWD SUPERVISOR 1

Larry Seebeck

DIRECTIONAL DRILLER 1

Vinn Adams

MWD SUPERVISOR 2

Jeff Arenas

DIRECTIONAL DRILLER 2

Ruben Cano

12329 Cutten Rd., Houston, Texas 777066 (713)337-0600 (Voice), (713)337-0599 (Fax)



BC Operating, Inc.

Lea County, NM (NAD27 NME)

Abe State

#3H

OH / Job #60407

Survey: Phoenix MWD Surveys

Standard Survey Report

31 October, 2016



Company:	BC Operating, Inc.	Local Co-ordinate Reference:	Well #3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 3729.50usft (Patterson 244)
Site:	Abe State	MD Reference:	GL + KB @ 3729.50usft (Patterson 244)
Well:	#3H	North Reference:	Grid
Wellbore:	OH / Job #60407	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 244)	Database:	Compass 5000 GCR

Project	Lea 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	Abe State		
Site Position:		Northing:	525,680.84 usft
From:	Map	Easting:	730,337.85 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 34.78612 N
		Longitude:	103° 35' 12.09220 W
		Grid Convergence:	0.40 °

Well	#3H		
Well Position	+N/-S	0.00 usft	Northing: 525,255.88 usft
	+E/-W	0.00 usft	Easting: 730,341.33 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 26' 30.58082 N
		Longitude:	103° 35' 12.08626 W
		Ground Level:	3,701.00 usft

Wellbore	OH / Job #60407		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/3/2016	6.93	60.37	48,378

Design	Surveys (Patterson 244)		
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Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	353.41

Survey Program	From (usft)	To (usft)	Date	Survey (Wellbore)	Tool Name	Description
	168.00	16,155.00	10/31/2016	Phoenix MWD Surveys (OH / Job #60407)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168.00	0.28	227.97	168.00	-0.27	-0.30	-0.24	0.17	0.17	0.00
First Phoenix MWD Survey									
352.00	0.38	230.24	352.00	-0.97	-1.11	-0.83	0.05	0.05	1.23
535.00	0.47	207.57	534.99	-2.02	-1.92	-1.79	0.10	0.05	-12.39
693.00	0.65	228.64	692.98	-3.19	-2.89	-2.83	0.17	0.11	13.34
877.00	0.77	221.52	876.97	-4.80	-4.50	-4.25	0.08	0.07	-3.87
1,061.00	0.88	227.96	1,060.95	-6.67	-6.37	-5.90	0.08	0.06	3.50
1,246.00	1.29	230.27	1,245.92	-8.96	-9.02	-7.86	0.22	0.22	1.25
1,431.00	1.64	224.08	1,430.86	-12.19	-12.47	-10.68	0.21	0.19	-3.35
1,616.00	1.08	201.05	1,615.81	-15.72	-14.93	-13.90	0.42	-0.30	-12.45

Company: BC Operating, Inc.
Project: Lea County, NM (NAD27 NME)
Site: Abe State
Well: #3H
Wellbore: OH / Job #60407
Design: Surveys (Patterson 244)

Local Co-ordinate Reference: Well #3H
TVD Reference: GL + KB @ 3729.50usft (Patterson 244)
MD Reference: GL + KB @ 3729.50usft (Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,657.00	0.90	189.85	1,656.80	-16.40	-15.13	-14.55	0.64	-0.44	-27.32
1,801.00	0.91	196.79	1,800.78	-18.60	-15.65	-16.68	0.08	0.01	4.82
1,986.00	2.10	273.25	1,985.73	-19.82	-19.46	-17.45	1.13	0.64	41.33
2,175.00	2.58	273.15	2,174.57	-19.39	-27.17	-16.14	0.25	0.25	-0.05
2,363.00	2.75	275.39	2,362.37	-18.73	-35.88	-14.49	0.11	0.09	1.19
2,552.00	2.71	282.53	2,551.15	-17.34	-44.76	-12.08	0.18	-0.02	3.78
2,741.00	3.99	291.86	2,739.83	-13.92	-55.22	-7.49	0.73	0.68	4.94
2,929.00	3.70	298.85	2,927.40	-8.56	-66.60	-0.85	0.29	-0.15	3.72
3,117.00	3.35	310.28	3,115.05	-2.08	-76.11	6.67	0.42	-0.19	6.08
3,306.00	3.68	304.40	3,303.70	4.92	-85.33	14.68	0.26	0.17	-3.11
3,494.00	3.78	292.28	3,491.30	10.68	-96.04	21.63	0.42	0.05	-6.45
3,684.00	4.94	255.84	3,680.78	11.05	-109.77	23.58	1.55	0.61	-19.18
3,872.00	4.72	252.51	3,868.11	6.74	-124.99	21.05	0.19	-0.12	-1.77
4,249.00	5.00	243.64	4,243.76	-5.21	-154.51	12.56	0.21	0.07	-2.35
4,437.00	5.43	240.77	4,430.99	-13.19	-169.61	6.37	0.27	0.23	-1.53
4,626.00	5.21	239.33	4,619.17	-21.94	-184.80	-0.58	0.14	-0.12	-0.76
4,720.00	3.05	244.79	4,712.92	-25.18	-190.73	-3.12	2.33	-2.30	5.81
4,812.00	1.29	253.73	4,804.85	-26.51	-193.94	-4.07	1.94	-1.91	9.72
5,000.00	2.17	54.45	4,992.82	-25.04	-193.08	-2.70	1.82	0.47	85.49
5,095.00	2.24	56.48	5,087.75	-22.96	-190.07	-0.99	0.11	0.07	2.14
5,188.00	2.36	54.37	5,180.67	-20.85	-186.99	0.76	0.16	0.13	-2.27
5,282.00	2.27	59.06	5,274.60	-18.76	-183.82	2.47	0.22	-0.10	4.99
5,366.00	2.41	57.08	5,358.53	-16.95	-180.91	3.94	0.19	0.17	-2.36
5,460.00	2.22	57.56	5,452.45	-14.89	-177.72	5.61	0.20	-0.20	0.51
5,554.00	2.21	59.17	5,546.38	-12.99	-174.63	7.14	0.07	-0.01	1.71
5,648.00	2.09	56.32	5,640.31	-11.11	-171.64	8.67	0.17	-0.13	-3.03
5,741.00	0.90	80.05	5,733.28	-10.04	-169.51	9.48	1.42	-1.28	25.52
5,835.00	0.88	80.24	5,827.27	-9.79	-168.07	9.57	0.02	-0.02	0.20
5,929.00	0.99	76.26	5,921.26	-9.48	-166.57	9.71	0.14	0.12	-4.23
6,024.00	0.95	84.69	6,016.24	-9.21	-164.99	9.79	0.16	-0.04	8.87
6,118.00	0.97	81.16	6,110.23	-9.02	-163.43	9.81	0.07	0.02	-3.76
6,212.00	1.11	67.96	6,204.21	-8.55	-161.80	10.08	0.29	0.15	-14.04
6,307.00	0.92	158.39	6,299.20	-8.92	-160.67	9.59	1.52	-0.20	95.19
6,401.00	1.08	163.71	6,393.19	-10.47	-160.14	7.99	0.20	0.17	5.66
6,495.00	1.19	152.87	6,487.17	-12.19	-159.45	6.20	0.26	0.12	-11.53
6,590.00	1.20	164.13	6,582.15	-14.02	-158.72	4.29	0.25	0.01	11.85
6,684.00	1.24	159.25	6,676.13	-15.92	-158.09	2.34	0.12	0.04	-5.19
6,778.00	1.32	161.15	6,770.11	-17.90	-157.38	0.29	0.10	0.09	2.02
6,872.00	1.39	160.32	6,864.08	-19.99	-156.65	-1.88	0.08	0.07	-0.88
6,967.00	1.27	166.99	6,959.05	-22.10	-156.03	-4.05	0.21	-0.13	7.02
7,062.00	1.36	174.42	7,054.03	-24.25	-155.68	-6.22	0.20	0.09	7.82
7,156.00	1.57	171.28	7,148.00	-26.63	-155.38	-8.62	0.24	0.22	-3.34
7,250.00	0.43	297.41	7,241.99	-27.75	-155.49	-9.71	1.97	-1.21	134.18

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Well:	#3H	North Reference:	Grid
Wellbore:	OH / Job #60407	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 244)	Database:	Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,345.00	0.40	315.89	7,336.99	-27.34	-156.04	-9.25	0.14	-0.03	19.45
7,439.00	0.24	307.33	7,430.98	-26.99	-156.43	-8.85	0.18	-0.17	-9.11
7,533.00	0.42	259.13	7,524.98	-26.93	-156.92	-8.74	0.34	0.19	-51.28
7,628.00	0.62	286.36	7,619.98	-26.85	-157.76	-8.57	0.33	0.21	28.66
7,722.00	0.59	288.41	7,713.97	-26.56	-158.70	-8.16	0.04	-0.03	2.18
7,816.00	0.67	287.52	7,807.97	-26.24	-159.69	-7.73	0.09	0.09	-0.95
7,911.00	0.63	239.04	7,902.96	-26.34	-160.66	-7.72	0.56	-0.04	-51.03
8,005.00	0.80	215.92	7,996.96	-27.14	-161.49	-8.42	0.35	0.18	-24.60
8,099.00	0.98	211.90	8,090.94	-28.35	-162.30	-9.53	0.20	0.19	-4.28
8,193.00	1.04	204.87	8,184.93	-29.81	-163.09	-10.89	0.15	0.06	-7.48
8,287.00	0.93	196.05	8,278.92	-31.32	-163.65	-12.32	0.20	-0.12	-9.38
8,381.00	0.51	53.27	8,372.91	-31.80	-163.53	-12.82	1.46	-0.45	-151.89
8,475.00	0.50	33.51	8,466.91	-31.21	-162.97	-12.29	0.18	-0.01	-21.02
8,570.00	0.48	18.57	8,561.90	-30.48	-162.61	-11.61	0.14	-0.02	-15.73
8,664.00	0.22	331.66	8,655.90	-29.95	-162.57	-11.09	0.39	-0.28	-49.90
8,758.00	0.10	317.61	8,749.90	-29.73	-162.71	-10.86	0.13	-0.13	-14.95
8,852.00	0.60	283.80	8,843.90	-29.55	-163.25	-10.62	0.55	0.53	-35.97
8,947.00	0.79	291.09	8,938.89	-29.20	-164.34	-10.14	0.22	0.20	7.67
9,041.00	1.19	296.46	9,032.88	-28.53	-165.82	-9.31	0.44	0.43	5.71
9,135.00	1.83	302.82	9,126.85	-27.28	-167.96	-7.82	0.70	0.68	6.77
9,230.00	1.28	340.63	9,221.81	-25.46	-169.58	-5.82	1.19	-0.58	39.80
9,323.00	0.97	325.25	9,314.80	-23.83	-170.38	-4.12	0.46	-0.33	-16.54
9,418.00	1.46	300.69	9,409.77	-22.56	-171.87	-2.67	0.74	0.52	-25.85
9,512.00	0.83	347.49	9,503.76	-21.28	-173.05	-1.27	1.15	-0.67	49.79
9,606.00	1.16	323.75	9,597.74	-19.85	-173.76	0.23	0.55	0.35	-25.26
9,700.00	1.03	21.17	9,691.73	-18.29	-174.02	1.81	1.13	-0.14	61.09
9,795.00	1.29	52.04	9,786.71	-16.84	-172.87	3.12	0.70	0.27	32.49
9,889.00	0.91	14.44	9,880.69	-15.46	-171.85	4.37	0.85	-0.40	-40.00
9,984.00	0.36	10.85	9,975.69	-14.44	-171.60	5.36	0.58	-0.58	-3.78
10,078.00	2.25	129.70	10,069.66	-15.33	-170.13	4.30	2.60	2.01	126.44
10,172.00	2.20	131.73	10,163.59	-17.71	-167.36	1.62	0.10	-0.05	2.16
10,284.00	1.59	156.90	10,275.53	-20.57	-165.15	-1.47	0.91	-0.54	22.47
10,378.00	1.38	167.95	10,369.50	-22.88	-164.40	-3.85	0.38	-0.22	11.76
10,473.00	0.89	180.35	10,464.48	-24.73	-164.17	-5.72	0.57	-0.52	13.05
10,520.00	3.35	341.63	10,511.46	-23.79	-164.60	-4.74	8.94	5.23	343.15
10,567.00	9.26	352.99	10,558.16	-18.73	-165.50	0.39	12.79	12.57	24.17
10,614.00	14.64	2.25	10,604.13	-9.04	-165.72	10.05	12.12	11.45	19.70
10,661.00	18.62	5.09	10,649.15	4.38	-164.82	23.27	8.64	8.47	6.04
10,708.00	22.33	4.03	10,693.18	20.76	-163.53	39.40	7.93	7.89	-2.26
10,755.00	26.17	2.15	10,736.02	40.03	-162.51	58.43	8.33	8.17	-4.00
10,802.00	30.44	359.24	10,777.39	62.31	-162.28	80.53	9.55	9.09	-6.19
10,850.00	35.08	356.87	10,817.75	88.25	-163.20	106.41	10.03	9.67	-4.94
10,897.00	40.06	357.75	10,854.99	116.87	-164.53	134.99	10.66	10.60	1.87

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Well:	#3H	North Reference:	Grid
Wellbore:	OH / Job #60407	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 244)	Database:	Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
10,944.00	45.18	357.71	10,889.57	148.66	-165.79	166.71	10.89	10.89	-0.09
10,991.00	49.02	356.26	10,921.55	183.03	-167.62	201.07	8.48	8.17	-3.09
11,038.00	52.25	355.41	10,951.36	219.27	-170.26	237.36	7.01	6.87	-1.81
11,085.00	56.56	354.61	10,978.71	257.33	-173.59	275.56	9.27	9.17	-1.70
11,132.00	61.22	354.89	11,002.99	297.39	-177.27	315.78	9.93	9.91	0.60
11,179.00	65.22	355.14	11,024.16	339.18	-180.91	357.71	8.52	8.51	0.53
11,227.00	69.43	354.92	11,042.66	383.30	-184.75	401.97	8.78	8.77	-0.46
11,274.00	73.76	355.77	11,057.50	427.74	-188.36	446.53	9.37	9.21	1.81
11,321.00	77.61	357.08	11,069.12	473.18	-191.20	492.00	8.63	8.19	2.79
11,368.00	80.42	357.93	11,078.07	519.27	-193.21	538.02	6.24	5.98	1.81
11,415.00	83.95	357.95	11,084.46	565.79	-194.88	584.43	7.51	7.51	0.04
11,418.00	84.17	357.96	11,084.77	568.78	-194.99	587.40	7.37	7.36	0.30
Hardline Crossing - 11418' MD									
11,462.00	87.41	358.09	11,088.00	612.63	-196.50	631.13	7.37	7.36	0.30
11,531.00	90.14	357.53	11,089.48	681.55	-199.13	699.91	4.04	3.96	-0.81
11,626.00	90.45	354.89	11,088.99	776.33	-205.41	794.78	2.80	0.33	-2.78
11,720.00	90.98	354.26	11,087.81	869.91	-214.30	888.76	0.88	0.56	-0.67
11,814.00	91.93	354.34	11,085.43	963.41	-223.63	982.71	1.01	1.01	0.09
11,908.00	92.49	353.96	11,081.80	1,056.85	-233.21	1,076.64	0.72	0.60	-0.40
12,002.00	90.48	354.43	11,079.37	1,150.33	-242.71	1,170.59	2.20	-2.14	0.50
12,096.00	90.42	354.12	11,078.63	1,243.86	-252.09	1,264.58	0.34	-0.06	-0.33
12,190.00	90.00	353.88	11,078.28	1,337.34	-261.91	1,358.57	0.51	-0.45	-0.26
12,284.00	90.67	353.84	11,077.73	1,430.80	-271.97	1,452.57	0.71	0.71	-0.04
12,378.00	91.68	353.78	11,075.81	1,524.23	-282.10	1,546.54	1.08	1.07	-0.06
12,472.00	92.88	353.37	11,072.07	1,617.57	-292.61	1,640.47	1.35	1.28	-0.44
12,566.00	93.58	353.79	11,066.77	1,710.83	-303.10	1,734.31	0.87	0.74	0.45
12,660.00	91.09	355.87	11,062.94	1,804.36	-311.56	1,828.19	3.45	-2.65	2.21
12,754.00	92.07	356.27	11,060.35	1,898.10	-318.00	1,922.06	1.13	1.04	0.43
12,848.00	92.57	356.31	11,056.54	1,991.82	-324.08	2,015.86	0.53	0.53	0.04
12,943.00	93.42	356.62	11,051.58	2,086.51	-329.93	2,110.59	0.95	0.89	0.33
13,036.00	91.56	356.50	11,047.54	2,179.25	-335.51	2,203.36	2.00	-2.00	-0.13
13,131.00	91.59	356.89	11,044.93	2,274.06	-340.98	2,298.17	0.41	0.03	0.41
13,225.00	91.59	356.86	11,042.32	2,367.88	-346.10	2,391.96	0.03	0.00	-0.03
13,320.00	91.59	356.64	11,039.68	2,462.69	-351.49	2,486.76	0.23	0.00	-0.23
13,414.00	89.24	356.72	11,039.00	2,556.53	-356.93	2,580.60	2.50	-2.50	0.09
13,508.00	89.52	356.86	11,040.02	2,650.37	-362.19	2,674.43	0.33	0.30	0.15
13,602.00	89.78	353.37	11,040.59	2,744.02	-370.20	2,768.37	3.72	0.28	-3.71
13,696.00	90.09	357.06	11,040.70	2,837.67	-378.04	2,862.31	3.94	0.33	3.93
13,790.00	90.45	357.22	11,040.26	2,931.55	-382.73	2,956.11	0.42	0.38	0.17
13,884.00	90.14	355.41	11,039.77	3,025.35	-388.77	3,049.98	1.95	-0.33	-1.93
13,978.00	89.30	354.98	11,040.23	3,119.02	-396.64	3,143.94	1.00	-0.89	-0.46
14,072.00	91.20	354.12	11,039.82	3,212.59	-405.57	3,237.91	2.22	2.02	-0.91
14,166.00	91.31	354.66	11,037.77	3,306.12	-414.76	3,331.87	0.59	0.12	0.57
14,261.00	90.53	353.61	11,036.24	3,400.61	-424.46	3,426.85	1.38	-0.82	-1.11

Company:	BC Operating, Inc.	Local Co-ordinate Reference:	Well #3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 3729.50usft (Patterson 244)
Site:	Abe State	MD Reference:	GL + KB @ 3729.50usft (Patterson 244)
Well:	#3H	North Reference:	Grid
Wellbore:	OH / Job #60407	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 244)	Database:	Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,355.00	91.65	353.43	11,034.45	3,493.99	-435.07	3,520.83	1.21	1.19	-0.19
14,450.00	91.56	353.61	11,031.79	3,588.34	-445.79	3,615.80	0.21	-0.09	0.19
14,544.00	91.59	352.62	11,029.21	3,681.63	-457.05	3,709.76	1.05	0.03	-1.05
14,638.00	91.68	352.54	11,026.52	3,774.80	-469.18	3,803.71	0.13	0.10	-0.09
14,732.00	91.26	352.92	11,024.11	3,868.02	-481.07	3,897.67	0.60	-0.45	0.40
14,826.00	90.31	352.70	11,022.83	3,961.27	-492.84	3,991.66	1.04	-1.01	-0.23
14,920.00	88.96	353.00	11,023.42	4,054.53	-504.54	4,085.65	1.47	-1.44	0.32
15,014.00	88.85	354.19	11,025.22	4,147.93	-515.02	4,179.63	1.27	-0.12	1.27
15,108.00	88.52	355.07	11,027.38	4,241.49	-523.82	4,273.58	1.00	-0.35	0.94
15,203.00	88.88	355.53	11,029.53	4,336.15	-531.60	4,368.51	0.61	0.38	0.48
15,297.00	90.50	356.31	11,030.04	4,429.90	-538.29	4,462.41	1.91	1.72	0.83
15,391.00	91.85	356.39	11,028.11	4,523.69	-544.27	4,556.26	1.44	1.44	0.09
15,485.00	92.44	355.58	11,024.60	4,617.39	-550.85	4,650.10	1.07	0.63	-0.86
15,580.00	92.94	355.67	11,020.14	4,712.01	-558.09	4,744.93	0.53	0.53	0.09
15,674.00	92.75	356.23	11,015.47	4,805.66	-564.72	4,838.72	0.63	-0.20	0.60
15,768.00	92.77	356.29	11,010.95	4,899.35	-570.84	4,932.49	0.07	0.02	0.06
15,862.00	91.71	356.40	11,007.27	4,993.09	-576.83	5,026.29	1.13	-1.13	0.12
15,956.00	90.42	356.62	11,005.52	5,086.89	-582.55	5,120.14	1.39	-1.37	0.23
16,051.00	88.83	357.09	11,006.15	5,181.75	-587.76	5,214.96	1.75	-1.67	0.49
16,055.00	88.78	357.11	11,006.23	5,185.74	-587.96	5,218.95	1.27	-1.21	0.38
Hardline Crossing - 16055' MD									
16,098.00	88.26	357.27	11,007.34	5,228.67	-590.07	5,261.84	1.27	-1.21	0.38
Final Phoenix MWD Survey									
16,155.00	88.26	357.27	11,009.07	5,285.58	-592.79	5,318.69	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
168.00	168.00	-0.27	-0.30	First Phoenix MWD Survey
11,418.00	11,084.77	568.78	-194.99	Hardline Crossing - 11418' MD
16,055.00	11,006.23	5,185.74	-587.96	Hardline Crossing - 16055' MD
16,098.00	11,007.34	5,228.67	-590.07	Final Phoenix MWD Survey
16,155.00	11,009.07	5,285.58	-592.79	Projection to TD

Checked By: _____ Approved By: _____ Date: _____