



PHOENIX
TECHNOLOGY SERVICES

30-025-43138

August 3, 2017

Oil Conservation Division
State of New Mexico
1625 N. French Drive
District 1 - Hobbs
Hobbs, New Mexico 88240

HOBBS OCD
AUG 17 2017
RECEIVED

Attention: Regulatory Department

Re: Marathon Oil Corporation
Chili Parlor 17 Federal 3H
Lea County, New Mexico
API #30-025-43138
Job No. 61500

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. 664171). 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	
Michael Johnson	3H	1,170	15,685	7/13/17	7/29/17	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

**Phoenix Technology Services
SURVEY DATA CERTIFICATION**



PHOENIX JOB NUMBER 61500

ENERGY COMPANY Marathon Oil Corporation

WELL NAME Chili Parlor 17 Federal 3H

COUNTY & STATE

Lea Co., NM

API WELL NUMBER 30-025-43138

PROPOSED DIRECTION 180.06

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
973.00 ft	972.70 ft	2.17	200.27	-18.60 ft	-5.42 ft	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
13-Jul-17	1,170.00 ft	1.79	199.52

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
29-Jul-17	15,685.00 ft	90.64	182.76

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
29-Jul-17	15,750.00 ft	90.64	182.76

Michael D Johnson

PRINT YOUR NAME ABOVE

Michael D Johnson

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.47
DECLINATION OR GRID	GRID

Saturday, July 29, 2017

TODAY'S DATE

MWD SUPERVISOR 1

Michael Johnson

DIRECTIONAL DRILLER 1

Vinn Adams

MWD SUPERVISOR 2

Scott Walston

DIRECTIONAL DRILLER 2

Ruben Cano

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



Marathon Oil EF LLC

**Lea County, NM (NAD27 NME)
Chili Parlor 17 Federal
3H**

OH / Job #61500

Survey: Phoenix MWD Surveys

Standard Survey Report

29 July, 2017

HOBBS OCD

AUG 17 2017

RECEIVED



Company:	Marathon Oil EF LLC	Local Co-ordinate Reference:	Site Chili Parlor 17 Federal
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 3597.50usft (Patterson 244)
Site:	Chili Parlor 17 Federal	MD Reference:	GL + KB @ 3597.50usft (Patterson 244)
Well:	3H	North Reference:	Grid
Wellbore:	OH / Job #61500	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	Chili Parlor 17 Federal		
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Site Position:		Northing:	509,889.81 usft	Latitude:	32° 23' 58.64963 N
From:	Map	Easting:	728,603.42 usft	Longitude:	103° 35' 33.60764 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	3H				
Well Position	+N/-S	0.00 usft	Northing:	509,889.81 usft	Latitude: 32° 23' 58.64963 N
	+E/-W	0.00 usft	Easting:	728,603.42 usft	Longitude: 103° 35' 33.60764 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level: 3,569.00 usft

Wellbore	OH / Job #61500				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/31/2017	6.87	60.28	48,263

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	180.06

Survey Program		Date	7/29/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
1,170.00	15,750.00	Phoenix MWD Surveys (OH / Job #61500)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

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)
973.00	2.17	200.27	972.70	-18.60	-5.42	18.61	0.00	0.00	0.00
Tie In									
1,170.00	1.79	199.52	1,169.58	-25.00	-7.74	25.01	0.19	-0.19	-0.38
First Phoenix Survey									
1,264.00	0.25	253.71	1,263.57	-26.44	-8.43	26.45	1.76	-1.64	57.65
1,358.00	0.27	257.84	1,357.56	-26.54	-8.84	26.55	0.03	0.02	4.39
1,452.00	0.34	251.94	1,451.56	-26.68	-9.32	26.69	0.08	0.07	-6.28
1,546.00	0.28	251.66	1,545.56	-26.84	-9.81	26.85	0.06	-0.06	-0.30
1,641.00	0.28	228.90	1,640.56	-27.06	-10.20	27.07	0.12	0.00	-23.96
1,735.00	0.13	252.25	1,734.56	-27.25	-10.48	27.26	0.18	-0.16	24.84

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Well:	3H	North Reference:	Grid
Wellbore:	OH / Job #61500	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)
1,830.00	0.09	320.02	1,829.56	-27.22	-10.63	27.23	0.13	-0.04	71.34
1,924.00	0.22	30.84	1,923.56	-27.01	-10.58	27.02	0.22	0.14	75.34
2,019.00	0.34	60.44	2,018.56	-26.71	-10.24	26.73	0.19	0.13	31.16
2,114.00	0.49	79.89	2,113.56	-26.50	-9.60	26.51	0.21	0.16	20.47
2,208.00	0.73	79.26	2,207.55	-26.32	-8.61	26.33	0.26	0.26	-0.67
2,302.00	0.99	73.43	2,301.54	-25.98	-7.25	25.99	0.29	0.28	-6.20
2,397.00	1.41	71.19	2,396.52	-25.37	-5.35	25.37	0.44	0.44	-2.36
2,491.00	1.10	351.97	2,490.50	-24.10	-4.39	24.11	1.72	-0.33	-84.28
2,586.00	1.32	1.96	2,585.48	-22.10	-4.47	22.11	0.32	0.23	10.52
2,680.00	1.56	8.23	2,679.45	-19.76	-4.25	19.76	0.31	0.26	6.67
2,774.00	1.79	14.14	2,773.41	-17.07	-3.71	17.07	0.31	0.24	6.29
2,869.00	0.84	96.69	2,868.39	-15.71	-2.66	15.71	1.97	-1.00	86.89
2,963.00	1.10	89.40	2,962.38	-15.78	-1.07	15.78	0.31	0.28	-7.76
3,058.00	1.43	73.88	3,057.35	-15.44	0.98	15.44	0.50	0.35	-16.34
3,152.00	2.13	93.57	3,151.31	-15.22	3.85	15.22	0.98	0.74	20.95
3,246.00	0.77	70.48	3,245.28	-15.12	6.19	15.11	1.55	-1.45	-24.56
3,340.00	1.38	60.48	3,339.26	-14.35	7.77	14.34	0.68	0.65	-10.64
3,434.00	0.27	150.49	3,433.25	-13.99	8.86	13.98	1.50	-1.18	95.76
3,528.00	0.68	149.65	3,527.25	-14.66	9.25	14.65	0.44	0.44	-0.89
3,623.00	0.57	2.54	3,622.25	-14.68	9.56	14.66	1.26	-0.12	-154.85
3,717.00	1.59	0.09	3,716.23	-12.90	9.58	12.89	1.09	1.09	-2.61
3,812.00	1.89	4.58	3,811.18	-10.02	9.71	10.01	0.35	0.32	4.73
3,906.00	1.58	1.79	3,905.14	-7.18	9.87	7.17	0.34	-0.33	-2.97
4,000.00	1.77	359.74	3,999.10	-4.44	9.91	4.43	0.21	0.20	-2.18
4,095.00	1.56	351.60	4,094.06	-1.69	9.71	1.68	0.33	-0.22	-8.57
4,189.00	2.14	353.87	4,188.01	1.32	9.34	-1.33	0.62	0.62	2.41
4,284.00	0.88	318.86	4,282.98	3.63	8.67	-3.64	1.59	-1.33	-36.85
4,378.00	0.67	320.72	4,376.97	4.60	7.84	-4.61	0.22	-0.22	1.98
4,472.00	0.48	333.98	4,470.96	5.38	7.32	-5.39	0.25	-0.20	14.11
4,567.00	0.45	323.09	4,565.96	6.04	6.93	-6.04	0.10	-0.03	-11.46
4,661.00	0.53	304.36	4,659.96	6.58	6.34	-6.58	0.19	0.09	-19.93
4,755.00	0.68	305.01	4,753.95	7.14	5.53	-7.15	0.16	0.16	0.69
4,839.00	0.75	293.20	4,837.95	7.65	4.62	-7.65	0.19	0.08	-14.06
4,933.00	0.72	299.39	4,931.94	8.18	3.54	-8.18	0.09	-0.03	6.59
5,027.00	1.47	278.07	5,025.92	8.64	1.83	-8.64	0.89	0.80	-22.68
5,121.00	2.13	276.73	5,119.87	9.01	-1.10	-9.01	0.70	0.70	-1.43
5,215.00	3.32	275.77	5,213.77	9.49	-5.54	-9.48	1.27	1.27	-1.02
5,310.00	3.11	278.66	5,308.62	10.15	-10.83	-10.14	0.28	-0.22	3.04
5,404.00	3.14	276.79	5,402.48	10.84	-15.91	-10.82	0.11	0.03	-1.99
5,498.00	3.10	275.83	5,496.34	11.40	-20.99	-11.38	0.07	-0.04	-1.02
5,592.00	2.69	278.13	5,590.22	11.97	-25.70	-11.95	0.45	-0.44	2.45
5,687.00	2.76	284.01	5,685.11	12.84	-30.13	-12.81	0.30	0.07	6.19
5,780.00	2.74	272.83	5,778.00	13.50	-34.52	-13.46	0.58	-0.02	-12.02

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Wellbore:	OH / Job #61500	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)
5,874.00	2.69	272.33	5,871.90	13.70	-38.97	-13.65	0.06	-0.05	-0.53
5,969.00	2.71	276.21	5,966.79	14.03	-43.43	-13.98	0.19	0.02	4.08
6,064.00	2.52	279.32	6,061.69	14.61	-47.72	-14.56	0.25	-0.20	3.27
6,157.00	0.90	262.48	6,154.65	14.85	-50.47	-14.79	1.81	-1.74	-18.11
6,252.00	1.00	283.48	6,249.64	14.94	-52.01	-14.88	0.38	0.11	22.11
6,346.00	1.12	283.62	6,343.62	15.35	-53.70	-15.29	0.13	0.13	0.15
6,440.00	1.13	275.40	6,437.60	15.65	-55.52	-15.59	0.17	0.01	-8.74
6,534.00	0.54	159.27	6,531.60	15.33	-56.28	-15.26	1.54	-0.63	-123.54
6,628.00	0.47	188.51	6,625.59	14.53	-56.18	-14.47	0.28	-0.07	31.11
6,722.00	0.44	202.95	6,719.59	13.82	-56.38	-13.75	0.13	-0.03	15.36
6,816.00	0.63	192.13	6,813.59	12.98	-56.63	-12.92	0.23	0.20	-11.51
6,910.00	0.42	225.93	6,907.58	12.23	-56.99	-12.17	0.39	-0.22	35.96
7,004.00	0.59	204.97	7,001.58	11.56	-57.44	-11.49	0.26	0.18	-22.30
7,098.00	0.88	127.23	7,095.57	10.68	-57.07	-10.62	1.01	0.31	-82.70
7,193.00	0.43	210.91	7,190.57	9.93	-56.67	-9.87	0.99	-0.47	88.08
7,286.00	0.67	317.71	7,283.57	10.04	-57.22	-9.97	0.96	0.26	114.84
7,381.00	0.76	306.12	7,378.56	10.82	-58.10	-10.75	0.18	0.09	-12.20
7,475.00	0.60	98.24	7,472.56	11.12	-58.12	-11.05	1.40	-0.17	161.83
7,570.00	0.83	231.40	7,567.55	10.61	-58.16	-10.55	1.38	0.24	140.17
7,664.00	0.92	276.16	7,661.54	10.27	-59.44	-10.20	0.71	0.10	47.62
7,758.00	1.07	156.18	7,755.54	9.55	-59.84	-9.48	1.83	0.16	-127.64
7,852.00	0.41	192.23	7,849.53	8.42	-59.56	-8.35	0.83	-0.70	38.35
7,946.00	1.26	153.75	7,943.52	7.16	-59.17	-7.10	1.04	0.90	-40.94
8,041.00	0.56	158.91	8,038.50	5.79	-58.54	-5.73	0.74	-0.74	5.43
8,135.00	1.87	190.15	8,132.48	3.85	-58.65	-3.79	1.51	1.39	33.23
8,229.00	0.41	35.64	8,226.47	2.62	-58.72	-2.55	2.39	-1.55	-164.37
8,323.00	0.60	208.33	8,320.47	2.46	-58.76	-2.39	1.07	0.20	183.71
8,417.00	0.78	226.52	8,414.46	1.58	-59.46	-1.52	0.30	0.19	19.35
8,512.00	0.47	237.99	8,509.45	0.93	-60.26	-0.86	0.35	-0.33	12.07
8,606.00	1.01	219.47	8,603.45	0.09	-61.11	-0.02	0.62	0.57	-19.70
8,700.00	0.46	28.68	8,697.44	-0.22	-61.45	0.29	1.56	-0.59	180.01
8,795.00	0.43	311.30	8,792.44	0.35	-61.54	-0.28	0.59	-0.03	-81.45
8,889.00	1.02	226.54	8,886.43	0.01	-62.41	0.06	1.14	0.63	-90.17
8,983.00	1.83	343.12	8,980.42	0.87	-63.45	-0.80	2.62	0.86	124.02
9,078.00	0.51	174.26	9,075.40	1.90	-63.85	-1.83	2.46	-1.39	-177.75
9,173.00	0.70	260.07	9,170.40	1.38	-64.38	-1.31	0.88	0.20	90.33
9,268.00	2.67	234.28	9,265.36	-0.01	-66.75	0.09	2.17	2.07	-27.15
9,361.00	1.00	196.80	9,358.31	-2.06	-68.74	2.13	2.12	-1.80	-40.30
9,455.00	0.40	10.10	9,452.30	-2.52	-68.92	2.60	1.49	-0.64	184.36
9,549.00	1.00	215.73	9,546.30	-2.86	-69.35	2.94	1.46	0.64	-164.22
9,643.00	1.18	215.28	9,640.28	-4.32	-70.38	4.40	0.19	0.19	-0.48
9,737.00	1.09	203.09	9,734.26	-5.93	-71.29	6.01	0.27	-0.10	-12.97
9,832.00	1.18	199.93	9,829.25	-7.68	-71.98	7.76	0.12	0.09	-3.33
9,926.00	1.29	198.89	9,923.22	-9.59	-72.65	9.67	0.12	0.12	-1.11

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Survey

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10,021.00	1.34	205.73	10,018.20	-11.60	-73.48	11.69	0.17	0.05	7.20
10,116.00	1.41	186.73	10,113.17	-13.77	-74.10	13.85	0.48	0.07	-20.00
10,164.00	5.92	163.62	10,161.06	-16.73	-73.47	16.81	9.70	9.40	-48.15
10,211.00	9.86	163.69	10,207.61	-22.92	-71.66	23.00	8.38	8.38	0.15
10,258.00	10.87	163.20	10,253.84	-31.02	-69.25	31.10	2.16	2.15	-1.04
10,304.00	10.41	162.24	10,299.05	-39.13	-66.72	39.21	1.07	-1.00	-2.09
10,351.00	12.30	169.44	10,345.13	-48.10	-64.51	48.17	5.02	4.02	15.32
10,398.00	16.09	173.38	10,390.69	-59.50	-62.84	59.57	8.32	8.06	8.38
10,445.00	20.13	174.78	10,435.35	-74.03	-61.36	74.09	8.64	8.60	2.98
10,493.00	23.67	174.94	10,479.88	-91.85	-59.75	91.92	7.38	7.38	0.33
10,540.00	28.07	176.64	10,522.16	-112.30	-58.27	112.37	9.49	9.36	3.62
10,587.00	32.20	175.94	10,562.80	-135.84	-56.74	135.91	8.82	8.79	-1.49
10,635.00	36.02	174.06	10,602.54	-162.65	-54.37	162.71	8.26	7.96	-3.92
10,682.00	41.41	175.34	10,639.20	-191.91	-51.68	191.96	11.59	11.47	2.72
10,729.00	45.97	177.26	10,673.17	-224.29	-49.60	224.35	10.10	9.70	4.09
10,776.00	50.12	178.79	10,704.59	-259.22	-48.41	259.27	9.16	8.83	3.26
10,823.00	53.22	179.42	10,733.73	-296.08	-47.84	296.13	6.68	6.60	1.34
10,870.00	56.99	179.68	10,760.62	-334.62	-47.54	334.67	8.03	8.02	0.55
10,917.00	61.36	180.55	10,784.69	-374.97	-47.63	375.02	9.43	9.30	1.85
10,964.00	64.76	181.21	10,805.99	-416.86	-48.28	416.91	7.34	7.23	1.40
11,012.00	68.78	181.84	10,824.91	-460.94	-49.45	461.00	8.46	8.38	1.31
11,059.00	72.73	181.85	10,840.40	-505.28	-50.88	505.34	8.40	8.40	0.02
11,107.00	76.95	180.47	10,852.95	-551.59	-51.82	551.65	9.22	8.79	-2.88
11,126.00	78.59	180.33	10,856.98	-570.16	-51.94	570.22	8.67	8.64	-0.75
FTP									
11,154.00	81.01	180.12	10,861.94	-597.71	-52.05	597.77	8.67	8.64	-0.74
11,201.00	83.85	180.22	10,868.13	-644.30	-52.19	644.36	6.05	6.04	0.21
11,248.00	87.28	180.07	10,871.76	-691.15	-52.31	691.21	7.30	7.30	-0.32
11,295.00	89.26	179.59	10,873.18	-738.13	-52.17	738.19	4.33	4.21	-1.02
11,342.00	89.58	179.49	10,873.66	-785.12	-51.79	785.18	0.71	0.68	-0.21
11,374.00	89.64	179.27	10,873.87	-817.12	-51.45	817.18	0.71	0.19	-0.69
11,468.00	90.09	178.09	10,874.09	-911.09	-49.28	911.15	1.34	0.48	-1.26
11,562.00	90.06	177.69	10,873.97	-1,005.03	-45.82	1,005.08	0.43	-0.03	-0.43
11,656.00	89.44	179.65	10,874.38	-1,099.00	-43.64	1,099.05	2.19	-0.66	2.09
11,750.00	88.43	180.62	10,876.13	-1,192.98	-43.86	1,193.03	1.49	-1.07	1.03
11,845.00	88.18	182.01	10,878.94	-1,287.91	-46.04	1,287.96	1.49	-0.26	1.46
11,939.00	88.04	181.36	10,882.04	-1,381.82	-48.80	1,381.87	0.71	-0.15	-0.69
12,033.00	90.64	182.19	10,883.12	-1,475.76	-51.71	1,475.81	2.90	2.77	0.88
12,127.00	90.90	181.67	10,881.86	-1,569.70	-54.88	1,569.76	0.62	0.28	-0.55
12,222.00	90.67	179.80	10,880.56	-1,664.67	-56.10	1,664.74	1.98	-0.24	-1.97
12,316.00	90.08	179.43	10,879.94	-1,758.67	-55.46	1,758.73	0.74	-0.63	-0.39
12,411.00	89.24	179.52	10,880.51	-1,853.66	-54.59	1,853.72	0.89	-0.88	0.09
12,505.00	89.69	178.92	10,881.38	-1,947.65	-53.31	1,947.71	0.80	0.48	-0.64

Company:	Marathon Oil EF LLC	Local Co-ordinate Reference:	Site Chili Parlor 17 Federal
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 3597.50usft (Patterson 244)
Site:	Chili Parlor 17 Federal	MD Reference:	GL + KB @ 3597.50usft (Patterson 244)
Well:	3H	North Reference:	Grid
Wellbore:	OH / Job #61500	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)
12,599.00	88.80	179.74	10,882.62	-2,041.63	-52.21	2,041.69	1.29	-0.95	0.87
12,694.00	88.49	178.70	10,884.87	-2,136.60	-50.92	2,136.65	1.14	-0.33	-1.09
12,788.00	89.94	175.75	10,886.16	-2,230.46	-46.37	2,230.52	3.50	1.54	-3.14
12,882.00	90.45	177.33	10,885.84	-2,324.29	-40.70	2,324.33	1.77	0.54	1.68
12,976.00	90.53	177.76	10,885.03	-2,418.20	-36.67	2,418.24	0.47	0.09	0.46
13,071.00	90.56	177.86	10,884.13	-2,513.13	-33.04	2,513.16	0.11	0.03	0.11
13,165.00	91.34	177.55	10,882.57	-2,607.04	-29.28	2,607.07	0.89	0.83	-0.33
13,259.00	92.18	178.10	10,879.68	-2,700.92	-25.71	2,700.95	1.07	0.89	0.59
13,353.00	91.48	179.45	10,876.68	-2,794.85	-23.70	2,794.88	1.62	-0.74	1.44
13,447.00	90.98	180.28	10,874.66	-2,888.83	-23.48	2,888.85	1.03	-0.53	0.88
13,541.00	90.28	181.34	10,873.63	-2,982.81	-24.81	2,982.84	1.35	-0.74	1.13
13,635.00	90.28	181.12	10,873.17	-3,076.79	-26.83	3,076.82	0.23	0.00	-0.23
13,729.00	90.98	179.65	10,872.14	-3,170.78	-27.46	3,170.81	1.73	0.74	-1.56
13,823.00	90.48	180.75	10,870.94	-3,264.77	-27.79	3,264.80	1.29	-0.53	1.17
13,917.00	90.50	181.30	10,870.14	-3,358.75	-29.47	3,358.78	0.59	0.02	0.59
14,011.00	89.61	180.38	10,870.05	-3,452.74	-30.85	3,452.77	1.36	-0.95	-0.98
14,106.00	88.12	180.54	10,871.93	-3,547.71	-31.61	3,547.75	1.58	-1.57	0.17
14,200.00	87.54	180.15	10,875.49	-3,641.64	-32.18	3,641.68	0.74	-0.62	-0.41
14,294.00	88.21	179.77	10,878.97	-3,735.58	-32.11	3,735.61	0.82	0.71	-0.40
14,389.00	88.04	178.73	10,882.08	-3,830.52	-30.87	3,830.55	1.11	-0.18	-1.09
14,483.00	89.55	177.23	10,884.06	-3,924.43	-27.56	3,924.46	2.26	1.61	-1.60
14,577.00	90.11	177.99	10,884.34	-4,018.35	-23.64	4,018.37	1.00	0.60	0.81
14,671.00	89.92	178.97	10,884.31	-4,112.31	-21.14	4,112.34	1.06	-0.20	1.04
14,765.00	91.20	179.24	10,883.39	-4,206.30	-19.67	4,206.32	1.39	1.36	0.29
14,858.00	90.78	178.14	10,881.79	-4,299.26	-17.55	4,299.27	1.27	-0.45	-1.18
14,952.00	90.03	178.94	10,881.12	-4,393.22	-15.15	4,393.24	1.17	-0.80	0.85
15,047.00	89.89	178.83	10,881.19	-4,488.20	-13.31	4,488.22	0.19	-0.15	-0.12
15,141.00	94.25	178.03	10,877.79	-4,582.08	-10.73	4,582.09	4.72	4.64	-0.85
15,235.00	94.56	178.18	10,870.57	-4,675.76	-7.63	4,675.76	0.37	0.33	0.16
15,299.00	94.93	178.88	10,865.28	-4,739.51	-6.00	4,739.52	1.23	0.58	1.09
15,393.00	92.10	180.33	10,859.52	-4,833.32	-5.35	4,833.33	3.38	-3.01	1.54
15,488.00	92.21	181.41	10,855.94	-4,928.24	-6.79	4,928.25	1.14	0.12	1.14
15,582.00	90.25	181.81	10,853.93	-5,022.18	-9.43	5,022.19	2.13	-2.09	0.43
15,685.00	90.64	182.76	10,853.13	-5,125.09	-13.54	5,125.11	1.00	0.38	0.92
Final Phoenix MWD Survey									
15,750.00	90.64	182.76	10,852.40	-5,190.01	-16.67	5,190.03	0.00	0.00	0.00
Projection to TD									

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Well:	3H	North Reference:	Grid
Wellbore:	OH / Job #61500	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 244)	Database:	Compass 5000 GCR

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
973.00				Tie In
1,170.00	1,169.58	-25.00	-7.74	First Phoenix Survey
11,126.00	10,856.98	-570.16	-51.94	FTP
15,685.00	10,853.13	-5,125.09	-13.54	Final Phoenix MWD Survey
15,750.00	10,852.40	-5,190.01	-16.67	Projection to TD