

PRO DIRECTIONAL

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Marathon Oil Corporation

Dogie Draw Fed Com 25-34-14 AV #24H
Lea County, NM

April 03, 2019

Job No. LNM1428319
API No. 30-025-45091

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

April 03, 2019



Marathon Oil[®]
Corporation

Operator Name: Marathon Oil
Well Name: Dogie Draw Fed Com 25-34-14 AV No. 24H
County/Parish: Lea County,
State: NM
Rig Name: H&P 498
Job Number: LNM1428319

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	2,855' MD – 16,967' MD	17,027' MD	02/21/19 – 03/09/19	MWD

Sincerely,

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

The Standard of Excellence in Directional Supervision



Marathon Oil

Marathon Oil

Lea County, NM

Dogie Draw Fed Com 25-34-14 AV

No. 24H

OH

Survey: ProDirectional

Survey Report

03 April, 2019





ProDirectional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 24H
Project:	Lea County, NM(NAD 83)	TVD Reference:	Well @ 3357.50usft
Site:	Dogie Draw Fed Com 25-34-14 AV	MD Reference:	Well @ 3357.50usft
Well:	No. 24H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	MWD	Database:	WellPlanner1

Project	Lea County, NM(NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Dogie Draw Fed Com 25-34-14 AV		
Site Position:		Northing:	412,301.07 usft
From:	Map	Easting:	815,592.32 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.130394
		Longitude:	-103.447366
		Grid Convergence:	0.47 °

Well	No. 24H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty		0.00 usft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	1/31/2019	6.63	59.77	47,833.20

Design	MWD				
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	179.52	



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey Program		Date	4/3/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	2,785.00	Survey #1 (OH)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
2,855.00	17,027.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HRGM	

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (")	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	412,301.07	815,592.32
100.00	1.07	343.98	99.99	-0.90	0.90	-0.26	0.93	343.98	412,301.97	815,592.06
110.00	1.15	343.57	109.99	-1.09	1.08	-0.31	1.13	343.94	412,302.15	815,592.01
120.00	1.25	343.73	119.99	-1.29	1.28	-0.37	1.34	343.90	412,302.35	815,591.95
130.00	1.28	341.53	129.99	-1.50	1.50	-0.44	1.56	343.72	412,302.57	815,591.88
140.00	1.36	337.74	139.99	-1.72	1.71	-0.52	1.79	343.18	412,302.78	815,591.80
150.00	1.41	339.31	149.98	-1.94	1.94	-0.61	2.03	342.63	412,303.01	815,591.71
160.00	1.40	339.13	159.98	-2.17	2.16	-0.69	2.27	342.26	412,303.23	815,591.63
170.00	1.58	340.34	169.98	-2.42	2.41	-0.78	2.53	342.01	412,303.48	815,591.54
180.00	1.49	338.18	179.97	-2.67	2.66	-0.88	2.80	341.75	412,303.73	815,591.44
190.00	1.48	336.47	189.97	-2.91	2.90	-0.98	3.06	341.37	412,303.97	815,591.34
200.00	1.45	335.37	199.97	-3.14	3.13	-1.08	3.31	340.95	412,304.20	815,591.24
210.00	1.37	334.45	209.96	-3.36	3.35	-1.19	3.56	340.54	412,304.42	815,591.13
220.00	1.39	333.74	219.96	-3.58	3.57	-1.29	3.80	340.13	412,304.64	815,591.03
230.00	1.38	335.28	229.96	-3.80	3.79	-1.39	4.04	339.79	412,304.86	815,590.93
240.00	1.39	335.15	239.95	-4.02	4.01	-1.50	4.28	339.54	412,305.08	815,590.82
250.00	1.37	336.67	249.95	-4.24	4.23	-1.59	4.52	339.34	412,305.30	815,590.73
260.00	1.46	337.05	259.95	-4.47	4.46	-1.69	4.77	339.21	412,305.53	815,590.63
270.00	1.46	336.30	269.94	-4.70	4.69	-1.79	5.02	339.09	412,305.76	815,590.53
280.00	1.37	335.34	279.94	-4.93	4.92	-1.89	5.27	338.93	412,305.99	815,590.43
290.00	1.42	335.91	289.94	-5.15	5.14	-1.99	5.51	338.79	412,306.21	815,590.33

Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
300.00	1.35	333.80	299.94	-5.37	5.36	-2.10	5.75	338.62	412,306.43	815,590.22	
310.00	1.38	335.34	309.93	-5.59	5.57	-2.20	5.99	338.46	412,306.64	815,590.12	
320.00	1.34	335.68	319.93	-5.81	5.79	-2.30	6.23	338.35	412,306.86	815,590.02	
330.00	1.43	337.80	329.93	-6.03	6.01	-2.39	6.47	338.29	412,307.08	815,589.93	
340.00	1.23	336.63	339.92	-6.24	6.22	-2.48	6.70	338.26	412,307.29	815,589.84	
350.00	1.20	336.46	349.92	-6.44	6.42	-2.57	6.91	338.20	412,307.49	815,589.75	
360.00	1.06	333.59	359.92	-6.62	6.60	-2.65	7.11	338.12	412,307.67	815,589.67	
370.00	0.98	332.61	369.92	-6.78	6.76	-2.73	7.29	338.00	412,307.83	815,589.59	
380.00	0.85	329.00	379.92	-6.92	6.89	-2.81	7.44	337.84	412,307.96	815,589.51	
390.00	0.73	331.19	389.92	-7.04	7.01	-2.88	7.58	337.70	412,308.08	815,589.44	
400.00	0.70	337.36	399.92	-7.15	7.13	-2.93	7.71	337.65	412,308.20	815,589.39	
410.00	0.50	330.54	409.91	-7.25	7.22	-2.98	7.81	337.60	412,308.29	815,589.34	
420.00	0.29	322.31	419.91	-7.30	7.28	-3.01	7.88	337.52	412,308.35	815,589.31	
430.00	0.15	323.91	429.91	-7.33	7.31	-3.04	7.91	337.45	412,308.38	815,589.28	
440.00	0.04	330.33	439.91	-7.35	7.32	-3.05	7.93	337.42	412,308.39	815,589.27	
450.00	0.07	157.77	449.91	-7.35	7.32	-3.04	7.93	337.42	412,308.39	815,589.28	
460.00	0.17	157.88	459.91	-7.33	7.30	-3.04	7.91	337.42	412,308.37	815,589.28	
470.00	0.30	150.14	469.91	-7.29	7.26	-3.02	7.87	337.44	412,308.33	815,589.30	
480.00	0.44	151.89	479.91	-7.23	7.21	-2.99	7.80	337.49	412,308.28	815,589.33	
490.00	0.51	151.09	489.91	-7.16	7.14	-2.95	7.72	337.56	412,308.21	815,589.37	
500.00	0.48	154.26	499.91	-7.08	7.06	-2.91	7.63	337.61	412,308.13	815,589.41	
510.00	0.46	150.24	509.91	-7.01	6.99	-2.87	7.55	337.67	412,308.06	815,589.45	
520.00	0.48	150.18	519.91	-6.94	6.91	-2.83	7.47	337.75	412,307.98	815,589.49	
530.00	0.48	147.13	529.91	-6.87	6.84	-2.79	7.39	337.85	412,307.91	815,589.53	
540.00	0.50	151.94	539.91	-6.79	6.77	-2.74	7.30	337.95	412,307.84	815,589.58	
550.00	0.52	147.36	549.91	-6.72	6.69	-2.70	7.22	338.05	412,307.76	815,589.62	
560.00	0.48	148.50	559.91	-6.64	6.62	-2.65	7.13	338.18	412,307.69	815,589.67	

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TVD Reference: Well @ 3357.50usft
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Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
570.00	0.46	151.30	569.91	-6.57	6.55	-2.61	7.05	338.27	412,307.62	815,589.71	
580.00	0.49	148.94	579.91	-6.50	6.48	-2.57	6.97	338.37	412,307.55	815,589.75	
590.00	0.49	151.97	589.91	-6.42	6.40	-2.53	6.88	338.47	412,307.47	815,589.79	
600.00	0.49	153.96	599.91	-6.35	6.33	-2.49	6.80	338.54	412,307.40	815,589.83	
610.00	0.51	155.46	609.91	-6.27	6.25	-2.45	6.71	338.59	412,307.32	815,589.87	
620.00	0.49	149.10	619.91	-6.19	6.17	-2.41	6.62	338.67	412,307.24	815,589.91	
630.00	0.46	145.50	629.91	-6.12	6.10	-2.36	6.54	338.81	412,307.17	815,589.96	
640.00	0.50	152.16	639.91	-6.05	6.03	-2.32	6.46	338.94	412,307.10	815,590.00	
650.00	0.49	151.88	649.91	-5.97	5.95	-2.28	6.37	339.03	412,307.02	815,590.04	
660.00	0.47	147.90	659.91	-5.90	5.88	-2.24	6.29	339.15	412,306.95	815,590.08	
670.00	0.50	152.01	669.91	-5.82	5.81	-2.20	6.21	339.28	412,306.88	815,590.12	
680.00	0.50	150.20	679.91	-5.75	5.73	-2.15	6.12	339.39	412,306.80	815,590.17	
690.00	0.50	146.82	689.91	-5.67	5.66	-2.11	6.04	339.55	412,306.73	815,590.21	
700.00	0.53	148.48	699.91	-5.60	5.58	-2.06	5.95	339.73	412,306.65	815,590.26	
710.00	0.54	151.12	709.91	-5.52	5.50	-2.01	5.86	339.88	412,306.57	815,590.31	
720.00	0.56	151.93	719.91	-5.43	5.41	-1.97	5.76	340.02	412,306.48	815,590.35	
730.00	0.53	150.15	729.90	-5.35	5.33	-1.92	5.67	340.17	412,306.40	815,590.40	
740.00	0.52	148.32	739.90	-5.27	5.25	-1.88	5.58	340.35	412,306.32	815,590.44	
750.00	0.54	153.43	749.90	-5.19	5.17	-1.83	5.49	340.51	412,306.24	815,590.49	
760.00	0.46	164.56	759.90	-5.11	5.09	-1.80	5.40	340.54	412,306.16	815,590.52	
770.00	0.41	167.55	769.90	-5.03	5.02	-1.78	5.32	340.46	412,306.09	815,590.54	
780.00	0.41	164.83	779.90	-4.96	4.95	-1.76	5.25	340.38	412,306.02	815,590.56	
790.00	0.42	164.58	789.90	-4.89	4.88	-1.74	5.18	340.32	412,305.95	815,590.58	
800.00	0.43	170.12	799.90	-4.82	4.81	-1.73	5.11	340.22	412,305.88	815,590.59	
810.00	0.47	174.03	809.90	-4.74	4.73	-1.72	5.03	340.04	412,305.80	815,590.60	
820.00	0.48	177.33	819.90	-4.66	4.64	-1.71	4.95	339.78	412,305.71	815,590.61	
830.00	0.34	174.24	829.90	-4.59	4.57	-1.71	4.88	339.54	412,305.64	815,590.61	

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TVD Reference: Well @ 3357.50usft
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
840.00	0.40	179.93	839.90	-4.52	4.51	-1.70	4.82	339.31	412,305.58	815,590.62
850.00	0.50	182.59	849.90	-4.44	4.43	-1.71	4.75	338.95	412,305.50	815,590.61
860.00	0.46	186.07	859.90	-4.36	4.35	-1.71	4.67	338.51	412,305.42	815,590.61
870.00	0.50	188.39	869.90	-4.28	4.26	-1.72	4.60	338.01	412,305.33	815,590.60
880.00	0.50	192.28	879.90	-4.19	4.18	-1.74	4.53	337.42	412,305.25	815,590.58
890.00	0.44	192.20	889.90	-4.11	4.10	-1.75	4.46	336.82	412,305.17	815,590.57
900.00	0.44	199.01	899.90	-4.04	4.02	-1.78	4.40	336.19	412,305.09	815,590.54
910.00	0.46	205.82	909.90	-3.97	3.95	-1.81	4.34	335.45	412,305.02	815,590.51
920.00	0.51	203.45	919.90	-3.89	3.87	-1.84	4.29	334.59	412,304.94	815,590.48
930.00	0.52	205.41	929.90	-3.81	3.79	-1.88	4.23	333.66	412,304.86	815,590.44
940.00	0.42	206.52	939.90	-3.74	3.72	-1.91	4.18	332.77	412,304.79	815,590.41
950.00	0.49	209.79	949.90	-3.67	3.65	-1.95	4.14	331.87	412,304.72	815,590.37
960.00	0.60	211.52	959.90	-3.58	3.57	-2.00	4.09	330.73	412,304.64	815,590.32
970.00	0.53	213.79	969.90	-3.50	3.48	-2.05	4.04	329.49	412,304.55	815,590.27
980.00	0.52	212.97	979.90	-3.43	3.41	-2.10	4.00	328.32	412,304.48	815,590.22
990.00	0.56	210.90	989.90	-3.35	3.33	-2.15	3.96	327.10	412,304.40	815,590.17
1,000.00	0.55	211.39	999.90	-3.26	3.25	-2.20	3.92	325.82	412,304.32	815,590.12
1,010.00	0.51	216.60	1,009.90	-3.19	3.17	-2.25	3.89	324.56	412,304.24	815,590.07
1,020.00	0.51	217.02	1,019.89	-3.12	3.10	-2.31	3.86	323.30	412,304.17	815,590.01
1,030.00	0.47	215.82	1,029.89	-3.05	3.03	-2.36	3.84	322.08	412,304.10	815,589.96
1,040.00	0.45	219.18	1,039.89	-2.98	2.96	-2.41	3.82	320.92	412,304.03	815,589.91
1,050.00	0.45	221.51	1,049.89	-2.93	2.90	-2.46	3.81	319.75	412,303.97	815,589.86
1,060.00	0.46	217.13	1,059.89	-2.86	2.84	-2.51	3.79	318.58	412,303.91	815,589.81
1,070.00	0.43	219.11	1,069.89	-2.80	2.78	-2.56	3.78	317.42	412,303.85	815,589.76
1,080.00	0.48	227.21	1,079.89	-2.75	2.72	-2.61	3.77	316.22	412,303.79	815,589.71
1,090.00	0.48	219.93	1,089.89	-2.69	2.66	-2.67	3.77	314.95	412,303.73	815,589.65
1,100.00	0.40	216.05	1,099.89	-2.63	2.60	-2.72	3.76	313.79	412,303.67	815,589.60



ProDirectional Survey Report



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Design: MWD

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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
1,110.00	0.42	223.00	1,109.89	-2.57	2.55	-2.76	3.76	312.70	412,303.62	815,589.56	
1,120.00	0.43	220.48	1,119.89	-2.52	2.49	-2.81	3.76	311.57	412,303.56	815,589.51	
1,130.00	0.46	211.67	1,129.89	-2.45	2.43	-2.86	3.75	310.39	412,303.50	815,589.46	
1,140.00	0.41	213.27	1,139.89	-2.39	2.37	-2.90	3.74	309.24	412,303.44	815,589.42	
1,150.00	0.44	216.80	1,149.89	-2.33	2.31	-2.94	3.74	308.11	412,303.38	815,589.38	
1,160.00	0.46	218.94	1,159.89	-2.27	2.24	-2.99	3.74	306.90	412,303.31	815,589.33	
1,170.00	0.49	218.35	1,169.89	-2.20	2.18	-3.04	3.74	305.64	412,303.25	815,589.28	
1,180.00	0.50	215.20	1,179.89	-2.14	2.11	-3.09	3.74	304.31	412,303.18	815,589.23	
1,190.00	0.50	212.14	1,189.89	-2.06	2.04	-3.14	3.74	302.98	412,303.11	815,589.18	
1,200.00	0.48	212.68	1,199.89	-1.99	1.97	-3.19	3.74	301.67	412,303.04	815,589.13	
1,210.00	0.51	214.08	1,209.89	-1.92	1.89	-3.23	3.75	300.35	412,302.96	815,589.09	
1,220.00	0.50	217.50	1,219.89	-1.85	1.82	-3.28	3.76	299.01	412,302.89	815,589.04	
1,230.00	0.53	217.46	1,229.89	-1.78	1.75	-3.34	3.77	297.66	412,302.82	815,588.98	
1,240.00	0.59	215.20	1,239.89	-1.70	1.67	-3.40	3.79	296.20	412,302.74	815,588.92	
1,250.00	0.60	210.30	1,249.89	-1.61	1.58	-3.45	3.80	294.64	412,302.65	815,588.87	
1,260.00	0.59	216.20	1,259.89	-1.53	1.50	-3.51	3.82	293.10	412,302.57	815,588.81	
1,270.00	0.58	215.44	1,269.89	-1.44	1.41	-3.57	3.84	291.62	412,302.48	815,588.75	
1,280.00	0.55	213.06	1,279.89	-1.36	1.33	-3.63	3.86	290.19	412,302.40	815,588.69	
1,290.00	0.53	218.90	1,289.88	-1.29	1.26	-3.68	3.89	288.86	412,302.33	815,588.64	
1,300.00	0.54	217.81	1,299.88	-1.22	1.18	-3.74	3.92	287.57	412,302.25	815,588.58	
1,310.00	0.55	215.41	1,309.88	-1.14	1.11	-3.80	3.95	286.27	412,302.18	815,588.52	
1,320.00	0.61	211.04	1,319.88	-1.05	1.02	-3.85	3.98	284.87	412,302.09	815,588.47	
1,330.00	0.60	212.15	1,329.88	-0.97	0.93	-3.91	4.02	283.43	412,302.00	815,588.41	
1,340.00	0.60	216.78	1,339.88	-0.88	0.85	-3.97	4.05	282.05	412,301.92	815,588.35	
1,350.00	0.59	214.29	1,349.88	-0.80	0.76	-4.03	4.10	280.72	412,301.83	815,588.29	
1,360.00	0.57	217.73	1,359.88	-0.71	0.68	-4.09	4.14	279.45	412,301.75	815,588.23	
1,370.00	0.55	221.46	1,369.88	-0.64	0.60	-4.15	4.19	278.30	412,301.67	815,588.17	



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogie Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
1,380.00	0.56	221.67	1,379.88	-0.57	0.53	-4.21	4.24	277.20	412,301.60	815,588.11	
1,390.00	0.60	220.73	1,389.88	-0.49	0.46	-4.28	4.30	276.09	412,301.53	815,588.04	
1,400.00	0.63	219.60	1,399.88	-0.41	0.37	-4.35	4.36	274.92	412,301.44	815,587.97	
1,410.00	0.59	218.00	1,409.88	-0.33	0.29	-4.41	4.42	273.77	412,301.36	815,587.91	
1,420.00	0.56	220.01	1,419.88	-0.25	0.21	-4.48	4.48	272.73	412,301.28	815,587.84	
1,430.00	0.56	220.66	1,429.88	-0.18	0.14	-4.54	4.54	271.75	412,301.21	815,587.78	
1,440.00	0.63	216.97	1,439.88	-0.10	0.06	-4.61	4.61	270.72	412,301.13	815,587.71	
1,450.00	0.59	214.31	1,449.88	-0.01	-0.03	-4.67	4.67	269.65	412,301.04	815,587.65	
1,460.00	0.56	216.29	1,459.88	0.07	-0.11	-4.73	4.73	268.66	412,300.96	815,587.59	
1,470.00	0.60	219.95	1,469.88	0.15	-0.19	-4.79	4.79	267.73	412,300.88	815,587.53	
1,480.00	0.60	221.69	1,479.87	0.23	-0.27	-4.86	4.86	266.82	412,300.80	815,587.46	
1,490.00	0.55	223.26	1,489.87	0.30	-0.34	-4.92	4.94	266.01	412,300.73	815,587.40	
1,500.00	0.53	224.69	1,499.87	0.37	-0.41	-4.99	5.01	265.29	412,300.66	815,587.33	
1,510.00	0.57	225.97	1,509.87	0.44	-0.48	-5.06	5.08	264.59	412,300.59	815,587.26	
1,520.00	0.58	221.59	1,519.87	0.51	-0.55	-5.13	5.16	263.86	412,300.52	815,587.19	
1,530.00	0.58	219.77	1,529.87	0.58	-0.63	-5.19	5.23	263.11	412,300.44	815,587.13	
1,540.00	0.61	219.87	1,539.87	0.66	-0.71	-5.26	5.31	262.34	412,300.36	815,587.06	
1,550.00	0.64	218.11	1,549.87	0.75	-0.79	-5.33	5.39	261.54	412,300.28	815,586.99	
1,560.00	0.64	214.99	1,559.87	0.84	-0.88	-5.39	5.47	260.71	412,300.19	815,586.93	
1,570.00	0.52	227.53	1,569.87	0.91	-0.96	-5.46	5.54	260.04	412,300.11	815,586.86	
1,580.00	0.52	226.25	1,579.87	0.97	-1.02	-5.53	5.62	259.54	412,300.05	815,586.79	
1,590.00	0.56	218.74	1,589.87	1.04	-1.09	-5.59	5.70	258.96	412,299.98	815,586.73	
1,600.00	0.54	216.58	1,599.87	1.12	-1.17	-5.65	5.77	258.34	412,299.90	815,586.67	
1,610.00	0.53	218.27	1,609.87	1.19	-1.24	-5.71	5.84	257.74	412,299.83	815,586.61	
1,620.00	0.53	219.03	1,619.87	1.26	-1.31	-5.76	5.91	257.17	412,299.76	815,586.56	
1,630.00	0.55	215.79	1,629.87	1.34	-1.39	-5.82	5.98	256.59	412,299.68	815,586.50	
1,640.00	0.60	211.68	1,639.87	1.42	-1.47	-5.88	6.06	255.95	412,299.60	815,586.44	



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
1,650.00	0.53	212.90	1,649.87	1.50	-1.55	-5.93	6.13	255.31	412,299.52	815,586.39	
1,660.00	0.52	212.89	1,659.87	1.58	-1.63	-5.98	6.20	254.74	412,299.44	815,586.34	
1,670.00	0.56	211.51	1,669.87	1.66	-1.71	-6.03	6.27	254.16	412,299.36	815,586.29	
1,680.00	0.50	209.97	1,679.87	1.74	-1.79	-6.08	6.33	253.58	412,299.28	815,586.24	
1,690.00	0.46	202.16	1,689.87	1.81	-1.87	-6.11	6.39	253.03	412,299.20	815,586.21	
1,700.00	0.48	204.02	1,699.86	1.89	-1.94	-6.14	6.44	252.47	412,299.13	815,586.18	
1,710.00	0.46	208.50	1,709.86	1.96	-2.01	-6.18	6.50	251.95	412,299.06	815,586.14	
1,720.00	0.46	205.16	1,719.86	2.03	-2.09	-6.22	6.56	251.45	412,298.98	815,586.10	
1,730.00	0.45	203.20	1,729.86	2.11	-2.16	-6.25	6.61	250.95	412,298.91	815,586.07	
1,740.00	0.51	198.11	1,739.86	2.18	-2.24	-6.28	6.67	250.39	412,298.83	815,586.04	
1,750.00	0.50	194.33	1,749.86	2.27	-2.32	-6.30	6.72	249.78	412,298.75	815,586.02	
1,760.00	0.50	194.25	1,759.86	2.35	-2.41	-6.33	6.77	249.18	412,298.66	815,585.99	
1,770.00	0.53	193.48	1,769.86	2.44	-2.49	-6.35	6.82	248.55	412,298.58	815,585.97	
1,780.00	0.49	195.93	1,779.86	2.53	-2.58	-6.37	6.87	247.95	412,298.49	815,585.95	
1,790.00	0.55	190.70	1,789.86	2.61	-2.67	-6.39	6.92	247.34	412,298.40	815,585.93	
1,800.00	0.60	190.40	1,799.86	2.71	-2.77	-6.41	6.98	246.65	412,298.30	815,585.91	
1,810.00	0.53	194.44	1,809.86	2.81	-2.86	-6.43	7.04	246.00	412,298.21	815,585.89	
1,820.00	0.63	188.80	1,819.86	2.91	-2.96	-6.45	7.10	245.33	412,298.11	815,585.87	
1,830.00	0.71	186.74	1,829.86	3.02	-3.08	-6.46	7.16	244.54	412,297.99	815,585.86	
1,840.00	0.62	189.14	1,839.86	3.14	-3.19	-6.48	7.22	243.78	412,297.88	815,585.84	
1,850.00	0.50	191.00	1,849.86	3.23	-3.29	-6.50	7.28	243.15	412,297.78	815,585.82	
1,860.00	0.47	186.32	1,859.86	3.32	-3.37	-6.51	7.33	242.62	412,297.70	815,585.81	
1,870.00	0.49	187.49	1,869.86	3.40	-3.46	-6.52	7.38	242.08	412,297.61	815,585.80	
1,880.00	0.49	189.53	1,879.86	3.49	-3.54	-6.53	7.43	241.55	412,297.53	815,585.79	
1,890.00	0.47	188.97	1,889.86	3.57	-3.62	-6.55	7.48	241.04	412,297.45	815,585.77	
1,900.00	0.43	190.40	1,899.86	3.64	-3.70	-6.56	7.53	240.58	412,297.37	815,585.76	
1,910.00	0.43	189.01	1,909.86	3.72	-3.77	-6.57	7.58	240.14	412,297.30	815,585.75	

Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogie Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
1,920.00	0.43	185.86	1,919.86	3.79	-3.85	-6.58	7.62	239.69	412,297.22	815,585.74
1,930.00	0.43	180.70	1,929.86	3.87	-3.92	-6.59	7.67	239.22	412,297.15	815,585.73
1,940.00	0.46	181.61	1,939.86	3.95	-4.00	-6.59	7.71	238.73	412,297.07	815,585.73
1,950.00	0.49	179.20	1,949.85	4.03	-4.08	-6.59	7.75	238.21	412,296.99	815,585.73
1,960.00	0.55	180.62	1,959.85	4.12	-4.17	-6.59	7.80	237.64	412,296.90	815,585.73
1,970.00	0.52	178.43	1,969.85	4.21	-4.27	-6.59	7.85	237.06	412,296.80	815,585.73
1,980.00	0.52	179.53	1,979.85	4.30	-4.36	-6.59	7.90	236.50	412,296.71	815,585.73
1,990.00	0.52	181.80	1,989.85	4.39	-4.45	-6.59	7.95	235.96	412,296.62	815,585.73
2,000.00	0.59	180.98	1,999.85	4.49	-4.55	-6.59	8.01	235.40	412,296.52	815,585.73
2,010.00	0.58	178.42	2,009.85	4.59	-4.65	-6.59	8.06	234.80	412,296.42	815,585.73
2,020.00	0.51	182.80	2,019.85	4.69	-4.74	-6.59	8.12	234.25	412,296.33	815,585.73
2,030.00	0.52	182.16	2,029.85	4.78	-4.83	-6.59	8.18	233.76	412,296.24	815,585.73
2,040.00	0.49	180.86	2,039.85	4.87	-4.92	-6.60	8.23	233.27	412,296.15	815,585.72
2,050.00	0.56	183.06	2,049.85	4.96	-5.01	-6.60	8.29	232.78	412,296.06	815,585.72
2,060.00	0.52	184.79	2,059.85	5.05	-5.11	-6.61	8.35	232.29	412,295.96	815,585.71
2,070.00	0.47	184.56	2,069.85	5.14	-5.19	-6.61	8.41	231.86	412,295.88	815,585.71
2,080.00	0.45	180.41	2,079.85	5.22	-5.27	-6.62	8.46	231.45	412,295.80	815,585.70
2,090.00	0.45	181.00	2,089.85	5.30	-5.35	-6.62	8.51	231.04	412,295.72	815,585.70
2,100.00	0.43	178.30	2,099.85	5.37	-5.43	-6.62	8.56	230.64	412,295.64	815,585.70
2,110.00	0.49	176.10	2,109.85	5.45	-5.51	-6.61	8.61	230.21	412,295.56	815,585.71
2,120.00	0.42	179.79	2,119.85	5.53	-5.59	-6.61	8.66	229.79	412,295.48	815,585.71
2,130.00	0.38	171.73	2,129.85	5.60	-5.66	-6.60	8.70	229.42	412,295.41	815,585.72
2,140.00	0.36	160.30	2,139.85	5.66	-5.72	-6.59	8.73	229.04	412,295.35	815,585.73
2,150.00	0.39	152.84	2,149.85	5.72	-5.78	-6.56	8.75	228.63	412,295.29	815,585.76
2,160.00	0.49	149.17	2,159.85	5.79	-5.85	-6.53	8.76	228.14	412,295.22	815,585.79
2,170.00	0.56	148.45	2,169.85	5.87	-5.92	-6.48	8.78	227.56	412,295.15	815,585.84
2,180.00	0.44	147.07	2,179.85	5.94	-6.00	-6.43	8.80	227.00	412,295.07	815,585.89



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
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Survey Calculation Method: Minimum Curvature
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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
2,190.00	0.44	153.05	2,189.85	6.01	-6.07	-6.39	8.81	226.51	412,295.00	815,585.93	
2,200.00	0.45	149.08	2,199.85	6.08	-6.13	-6.36	8.83	226.02	412,294.94	815,585.96	
2,210.00	0.40	138.30	2,209.85	6.14	-6.19	-6.31	8.84	225.55	412,294.88	815,586.01	
2,220.00	0.39	148.85	2,219.85	6.20	-6.25	-6.27	8.85	225.11	412,294.82	815,586.05	
2,230.00	0.43	148.46	2,229.84	6.26	-6.31	-6.23	8.87	224.66	412,294.76	815,586.09	
2,240.00	0.41	142.51	2,239.84	6.32	-6.37	-6.19	8.88	224.20	412,294.70	815,586.13	
2,250.00	0.40	136.23	2,249.84	6.37	-6.42	-6.15	8.89	223.74	412,294.65	815,586.17	
2,260.00	0.38	131.50	2,259.84	6.42	-6.47	-6.10	8.89	223.31	412,294.60	815,586.22	
2,270.00	0.47	126.97	2,269.84	6.47	-6.52	-6.04	8.89	222.83	412,294.55	815,586.28	
2,280.00	0.51	120.65	2,279.84	6.51	-6.56	-5.97	8.87	222.28	412,294.51	815,586.35	
2,290.00	0.51	120.92	2,289.84	6.56	-6.61	-5.89	8.86	221.72	412,294.46	815,586.43	
2,300.00	0.52	109.44	2,299.84	6.60	-6.65	-5.81	8.83	221.16	412,294.42	815,586.51	
2,310.00	0.59	103.72	2,309.84	6.63	-6.68	-5.72	8.79	220.59	412,294.39	815,586.60	
2,320.00	0.60	101.46	2,319.84	6.65	-6.70	-5.62	8.74	219.99	412,294.37	815,586.70	
2,330.00	0.62	107.49	2,329.84	6.68	-6.72	-5.52	8.70	219.36	412,294.35	815,586.80	
2,340.00	0.68	113.02	2,339.84	6.72	-6.76	-5.41	8.66	218.65	412,294.31	815,586.91	
2,350.00	0.66	115.33	2,349.84	6.77	-6.81	-5.30	8.63	217.90	412,294.26	815,587.02	
2,360.00	0.67	112.01	2,359.84	6.81	-6.86	-5.20	8.60	217.15	412,294.21	815,587.12	
2,370.00	0.75	116.22	2,369.84	6.87	-6.91	-5.08	8.58	216.34	412,294.16	815,587.24	
2,380.00	0.81	119.68	2,379.84	6.93	-6.97	-4.96	8.56	215.44	412,294.10	815,587.36	
2,390.00	0.76	116.85	2,389.84	7.00	-7.04	-4.84	8.54	214.53	412,294.03	815,587.48	
2,400.00	0.67	108.79	2,399.84	7.05	-7.09	-4.73	8.52	213.71	412,293.98	815,587.59	
2,410.00	0.69	106.58	2,409.84	7.08	-7.12	-4.61	8.49	212.94	412,293.95	815,587.71	
2,420.00	0.73	102.33	2,419.83	7.12	-7.15	-4.49	8.45	212.14	412,293.92	815,587.83	
2,430.00	0.81	104.87	2,429.83	7.15	-7.19	-4.36	8.41	211.27	412,293.88	815,587.96	
2,440.00	0.83	108.55	2,439.83	7.19	-7.23	-4.23	8.37	210.33	412,293.84	815,588.09	
2,450.00	0.86	107.02	2,449.83	7.24	-7.27	-4.09	8.34	209.34	412,293.80	815,588.23	



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
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Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,460.00	0.89	105.76	2,459.83	7.28	-7.31	-3.94	8.31	208.31	412,293.76	815,588.38
2,470.00	0.95	108.06	2,469.83	7.33	-7.36	-3.79	8.28	207.22	412,293.71	815,588.53
2,480.00	1.03	109.07	2,479.83	7.39	-7.42	-3.62	8.25	206.04	412,293.65	815,588.70
2,490.00	1.05	108.46	2,489.83	7.45	-7.47	-3.45	8.23	204.78	412,293.60	815,588.87
2,500.00	1.01	108.91	2,499.82	7.50	-7.53	-3.28	8.22	203.54	412,293.54	815,589.04
2,510.00	0.99	111.12	2,509.82	7.57	-7.59	-3.12	8.21	202.32	412,293.48	815,589.20
2,520.00	1.01	111.89	2,519.82	7.63	-7.66	-2.95	8.21	201.10	412,293.41	815,589.37
2,530.00	0.98	115.69	2,529.82	7.70	-7.73	-2.80	8.22	199.89	412,293.34	815,589.52
2,540.00	0.93	115.54	2,539.82	7.78	-7.80	-2.65	8.23	198.74	412,293.27	815,589.67
2,550.00	0.90	117.72	2,549.82	7.85	-7.87	-2.50	8.26	197.64	412,293.20	815,589.82
2,560.00	0.88	123.17	2,559.82	7.93	-7.95	-2.37	8.29	196.60	412,293.12	815,589.95
2,570.00	0.82	134.66	2,569.81	8.02	-8.04	-2.25	8.35	195.66	412,293.03	815,590.07
2,580.00	0.75	150.56	2,579.81	8.13	-8.15	-2.17	8.43	194.92	412,292.92	815,590.15
2,590.00	0.74	165.67	2,589.81	8.25	-8.27	-2.12	8.54	194.40	412,292.80	815,590.20
2,600.00	0.75	171.10	2,599.81	8.38	-8.39	-2.10	8.65	194.02	412,292.68	815,590.22
2,610.00	0.80	172.71	2,609.81	8.51	-8.53	-2.08	8.78	193.69	412,292.54	815,590.24
2,620.00	0.86	175.85	2,619.81	8.65	-8.67	-2.06	8.91	193.38	412,292.40	815,590.26
2,630.00	1.06	183.35	2,629.81	8.82	-8.84	-2.06	9.08	193.14	412,292.23	815,590.26
2,640.00	1.27	193.64	2,639.81	9.02	-9.04	-2.09	9.28	193.05	412,292.03	815,590.23
2,650.00	1.50	198.56	2,649.80	9.25	-9.27	-2.16	9.52	193.13	412,291.80	815,590.16
2,660.00	1.62	205.96	2,659.80	9.50	-9.52	-2.27	9.79	193.39	412,291.55	815,590.05
2,670.00	2.04	212.16	2,669.79	9.78	-9.80	-2.42	10.10	193.89	412,291.27	815,589.90
2,680.00	2.12	216.95	2,679.79	10.08	-10.10	-2.63	10.44	194.59	412,290.97	815,589.69
2,690.00	2.23	216.51	2,689.78	10.38	-10.40	-2.86	10.79	195.35	412,290.67	815,589.46
2,700.00	2.18	219.04	2,699.77	10.68	-10.71	-3.09	11.14	196.10	412,290.36	815,589.23
2,710.00	2.17	220.43	2,709.77	10.97	-11.00	-3.33	11.49	196.86	412,290.07	815,588.99
2,720.00	2.45	228.64	2,719.76	11.25	-11.28	-3.62	11.85	197.77	412,289.79	815,588.70



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
2,730.00	2.62	231.92	2,729.75	11.53	-11.57	-3.96	12.22	198.89	412,289.50	815,588.36	
2,740.00	2.74	232.08	2,739.74	11.82	-11.85	-4.33	12.62	200.05	412,289.22	815,587.99	
2,750.00	2.84	231.92	2,749.73	12.11	-12.15	-4.71	13.03	201.18	412,288.92	815,587.61	
2,760.00	2.93	234.93	2,759.71	12.41	-12.45	-5.11	13.46	202.32	412,288.62	815,587.21	
2,770.00	3.01	238.07	2,769.70	12.69	-12.74	-5.55	13.89	203.52	412,288.33	815,586.77	
2,780.00	3.24	237.97	2,779.68	12.98	-13.03	-6.01	14.35	204.76	412,288.04	815,586.31	
2,785.00	3.21	241.50	2,784.68	13.12	-13.17	-6.25	14.58	205.39	412,287.90	815,586.07	
2,855.00	3.70	252.70	2,854.55	14.69	-14.78	-10.13	17.92	214.43	412,286.29	815,582.19	
Pro MWD First Survey: 2855' MD											
2,950.00	2.90	287.60	2,949.40	14.83	-14.96	-15.35	21.43	225.73	412,286.11	815,576.97	
3,044.00	3.10	329.60	3,043.28	11.89	-12.05	-18.90	22.42	237.48	412,289.02	815,573.42	
3,139.00	2.50	319.30	3,138.17	8.08	-8.26	-21.55	23.08	249.02	412,292.81	815,570.77	
3,234.00	2.50	271.50	3,233.09	6.43	-6.64	-24.97	25.84	255.11	412,294.43	815,567.35	
3,327.00	3.10	258.20	3,325.98	6.85	-7.10	-29.46	30.31	256.45	412,293.97	815,562.86	
3,422.00	2.90	269.60	3,420.85	7.35	-7.64	-34.38	35.22	257.47	412,293.43	815,557.94	
3,516.00	2.70	279.10	3,514.74	6.98	-7.31	-38.95	39.62	259.37	412,293.76	815,553.37	
3,611.00	1.60	287.70	3,609.67	6.20	-6.55	-42.42	42.92	261.22	412,294.52	815,549.90	
3,705.00	0.30	43.20	3,703.66	5.61	-5.97	-43.50	43.91	262.18	412,295.10	815,548.82	
3,800.00	1.00	76.70	3,798.65	5.24	-5.60	-42.52	42.89	262.50	412,295.47	815,549.80	
3,894.00	1.10	94.80	3,892.64	5.15	-5.49	-40.83	41.19	262.34	412,295.58	815,551.49	
3,989.00	0.90	181.10	3,987.63	5.98	-6.31	-39.93	40.43	261.02	412,294.76	815,552.39	
4,084.00	0.60	212.60	4,082.62	7.14	-7.47	-40.21	40.90	259.47	412,293.60	815,552.11	
4,178.00	0.30	186.60	4,176.62	7.79	-8.13	-40.51	41.32	258.65	412,292.94	815,551.81	
4,272.00	0.10	172.50	4,270.61	8.12	-8.46	-40.52	41.40	258.21	412,292.61	815,551.80	
4,366.00	0.30	266.30	4,364.61	8.22	-8.56	-40.76	41.65	258.14	412,292.51	815,551.56	
4,461.00	0.50	300.20	4,459.61	8.02	-8.36	-41.37	42.20	258.57	412,292.71	815,550.95	
4,555.00	0.60	329.30	4,553.61	7.38	-7.73	-41.97	42.68	259.56	412,293.34	815,550.35	

Company: Marathon Oil
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Survey Calculation Method: Minimum Curvature
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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
4,650.00	0.50	53.60	4,648.60	6.71	-7.06	-41.89	42.48	260.43	412,294.01	815,550.43	
4,744.00	1.00	98.90	4,742.60	6.60	-6.94	-40.75	41.34	260.33	412,294.13	815,551.57	
4,838.00	1.40	106.40	4,836.58	7.07	-7.40	-38.84	39.54	259.22	412,293.67	815,553.48	
4,932.00	1.40	124.50	4,930.55	8.06	-8.37	-36.79	37.73	257.18	412,292.70	815,555.53	
5,027.00	1.10	165.30	5,025.53	9.61	-9.91	-35.60	36.96	254.45	412,291.16	815,556.72	
5,121.00	1.30	188.10	5,119.51	11.54	-11.84	-35.52	37.45	251.57	412,289.23	815,556.80	
5,216.00	1.40	179.10	5,214.48	13.77	-14.07	-35.66	38.33	248.47	412,287.00	815,556.66	
5,245.00	1.40	178.40	5,243.47	14.47	-14.77	-35.64	38.58	247.49	412,286.30	815,556.68	
5,336.00	1.40	178.10	5,334.45	16.70	-17.00	-35.58	39.43	244.46	412,284.07	815,556.74	
5,399.00	1.10	206.00	5,397.43	18.01	-18.31	-35.81	40.22	242.92	412,282.76	815,556.51	
5,493.00	1.30	244.20	5,491.41	19.27	-19.58	-37.17	42.01	242.22	412,281.49	815,555.15	
5,588.00	2.20	266.90	5,586.37	19.82	-20.15	-39.96	44.75	243.24	412,280.92	815,552.36	
5,682.00	4.30	274.80	5,680.21	19.57	-19.95	-45.28	49.48	246.22	412,281.12	815,547.04	
5,777.00	5.60	270.40	5,774.86	19.18	-19.62	-53.46	56.95	249.84	412,281.45	815,538.86	
5,871.00	5.80	268.90	5,868.39	19.16	-19.68	-62.79	65.81	252.60	412,281.39	815,529.53	
5,965.00	5.70	266.50	5,961.92	19.45	-20.06	-72.20	74.94	254.47	412,281.01	815,520.12	
6,060.00	5.70	268.10	6,056.45	19.82	-20.50	-81.63	84.16	255.90	412,280.57	815,510.69	
6,154.00	5.80	267.20	6,149.98	20.13	-20.89	-91.04	93.40	257.08	412,280.18	815,501.28	
6,248.00	5.60	267.50	6,243.51	20.48	-21.32	-100.36	102.60	258.01	412,279.75	815,491.96	
6,342.00	5.40	266.50	6,337.08	20.88	-21.79	-109.36	111.51	258.73	412,279.28	815,482.96	
6,437.00	5.30	266.90	6,431.66	21.31	-22.30	-118.20	120.29	259.31	412,278.77	815,474.12	
6,531.00	5.30	265.70	6,525.26	21.80	-22.86	-126.87	128.91	259.78	412,278.21	815,465.45	
6,626.00	5.20	263.70	6,619.86	22.53	-23.66	-135.52	137.57	260.09	412,277.41	815,456.80	
6,720.00	5.30	264.40	6,713.47	23.35	-24.56	-144.08	146.15	260.33	412,276.51	815,448.24	
6,814.00	5.20	262.70	6,807.08	24.24	-25.52	-152.62	154.74	260.51	412,275.55	815,439.70	
6,909.00	5.10	264.30	6,901.69	25.14	-26.49	-161.09	163.26	260.66	412,274.58	815,431.23	
7,004.00	5.10	263.00	6,996.32	26.00	-27.42	-169.49	171.69	260.81	412,273.65	815,422.83	

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
7,098.00	5.10	262.50	7,089.94	26.99	-28.48	-177.77	180.04	260.90	412,272.59	815,414.55
7,192.00	4.90	262.50	7,183.59	27.99	-29.54	-185.90	188.23	260.97	412,271.53	815,406.42
7,287.00	4.90	262.90	7,278.24	28.95	-30.58	-193.95	196.34	261.04	412,270.49	815,398.37
7,381.00	4.80	262.40	7,371.90	29.90	-31.59	-201.83	204.29	261.10	412,269.48	815,390.49
7,476.00	4.80	261.60	7,466.57	30.94	-32.70	-209.70	212.23	261.14	412,268.37	815,382.62
7,570.00	3.40	260.50	7,560.33	31.92	-33.73	-216.34	218.95	261.14	412,267.34	815,375.98
7,665.00	2.00	255.90	7,655.22	32.75	-34.60	-220.73	223.42	261.09	412,266.47	815,371.59
7,759.00	1.90	252.30	7,749.16	33.60	-35.48	-223.80	226.60	260.99	412,265.59	815,368.52
7,853.00	0.90	257.60	7,843.13	34.21	-36.11	-226.01	228.87	260.92	412,264.96	815,366.31
7,948.00	0.80	233.10	7,938.12	34.76	-36.67	-227.27	230.21	260.84	412,264.40	815,365.05
8,043.00	0.70	244.90	8,033.12	35.40	-37.31	-228.32	231.35	260.72	412,263.76	815,364.00
8,137.00	0.80	58.20	8,127.11	35.29	-37.21	-228.28	231.30	260.74	412,263.86	815,364.04
8,232.00	0.80	72.40	8,222.10	34.75	-36.66	-227.09	230.03	260.83	412,264.41	815,365.23
8,327.00	0.70	78.10	8,317.10	34.44	-36.34	-225.89	228.79	260.86	412,264.73	815,366.43
8,421.00	0.30	91.40	8,411.09	34.34	-36.23	-225.08	227.98	260.86	412,264.84	815,367.24
8,515.00	0.30	84.40	8,505.09	34.32	-36.21	-224.59	227.49	260.84	412,264.86	815,367.73
8,609.00	0.30	100.80	8,599.09	34.35	-36.23	-224.10	227.01	260.82	412,264.84	815,368.22
8,704.00	0.50	161.30	8,694.09	34.79	-36.67	-223.73	226.71	260.69	412,264.40	815,368.59
8,799.00	0.50	158.40	8,789.08	35.57	-37.45	-223.44	226.56	260.49	412,263.62	815,368.88
8,894.00	0.40	218.00	8,884.08	36.22	-38.09	-223.49	226.72	260.33	412,262.98	815,368.83
8,989.00	6.10	175.90	8,978.89	41.52	-43.39	-223.34	227.51	259.00	412,257.68	815,368.98
9,083.00	16.40	176.80	9,070.96	59.81	-61.67	-222.23	230.63	254.49	412,239.40	815,370.09
9,178.00	25.00	185.50	9,159.77	93.24	-95.12	-223.41	242.82	246.94	412,205.95	815,368.91
9,272.00	34.00	186.00	9,241.50	139.21	-141.12	-228.07	268.20	238.25	412,159.95	815,364.25
9,366.00	42.50	183.50	9,315.25	197.11	-199.06	-232.77	306.28	229.46	412,102.01	815,359.55
9,461.00	51.00	187.70	9,380.30	265.80	-267.82	-239.69	359.41	221.83	412,033.25	815,352.63
9,555.00	58.10	191.40	9,434.80	341.12	-343.24	-252.49	426.10	216.34	411,957.83	815,339.83

Company: Marathon Oil
Project: Lea County, NM(NAD 83)
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
9,650.00	64.90	193.40	9,480.11	422.44	-424.72	-270.45	503.52	212.49	411,876.35	815,321.87
9,745.00	70.70	186.40	9,516.02	508.87	-511.28	-285.44	585.56	209.17	411,789.79	815,306.88
9,839.00	77.10	188.40	9,542.08	598.28	-600.79	-297.09	670.23	206.31	411,700.28	815,295.23
9,934.00	91.80	187.50	9,551.24	691.55	-694.17	-310.13	760.30	204.07	411,606.90	815,282.19
9,958.00	94.00	186.90	9,550.03	715.31	-717.95	-313.13	783.27	203.56	411,583.12	815,279.19
10,053.00	92.50	184.10	9,544.64	809.62	-812.35	-322.22	873.92	201.64	411,488.72	815,270.10
10,147.00	89.30	182.10	9,543.16	903.41	-906.19	-327.30	963.48	199.86	411,394.88	815,265.02
10,242.00	89.10	179.70	9,544.49	998.37	-1,001.16	-328.79	1,053.77	198.18	411,299.91	815,263.53
10,336.00	90.10	179.40	9,545.15	1,092.36	-1,095.15	-328.05	1,143.23	196.68	411,205.92	815,264.27
10,431.00	89.10	179.50	9,545.81	1,187.36	-1,190.14	-327.14	1,234.29	195.37	411,110.93	815,265.18
10,525.00	87.90	180.40	9,548.27	1,281.32	-1,284.11	-327.06	1,325.10	194.29	411,016.96	815,265.26
10,620.00	88.60	181.10	9,551.17	1,376.26	-1,379.06	-328.30	1,417.59	193.39	410,922.01	815,264.02
10,714.00	88.30	181.00	9,553.72	1,470.19	-1,473.00	-330.02	1,509.52	192.63	410,828.07	815,262.30
10,808.00	88.30	178.90	9,556.50	1,564.14	-1,566.96	-329.94	1,601.32	191.89	410,734.11	815,262.38
10,903.00	87.30	177.00	9,560.15	1,659.03	-1,661.82	-326.55	1,693.60	191.12	410,639.25	815,265.77
10,997.00	87.60	176.90	9,564.33	1,752.84	-1,755.60	-321.55	1,784.80	190.38	410,545.47	815,270.77
11,091.00	88.90	176.90	9,567.20	1,846.70	-1,849.41	-316.47	1,876.29	189.71	410,451.66	815,275.85
11,185.00	89.70	178.90	9,568.35	1,940.65	-1,943.34	-313.03	1,968.39	189.15	410,357.73	815,279.29
11,280.00	89.10	178.30	9,569.35	2,035.63	-2,038.30	-310.71	2,061.85	188.67	410,262.77	815,281.61
11,374.00	87.80	179.90	9,571.89	2,129.59	-2,132.25	-309.23	2,154.56	188.25	410,168.82	815,283.09
11,469.00	88.60	180.40	9,574.87	2,224.53	-2,227.20	-309.48	2,248.60	187.91	410,073.87	815,282.84
11,563.00	86.90	179.10	9,578.56	2,318.45	-2,321.12	-309.07	2,341.61	187.58	409,979.95	815,283.25
11,657.00	87.10	179.40	9,583.48	2,412.32	-2,414.99	-307.84	2,434.53	187.26	409,886.08	815,284.48
11,752.00	86.30	178.60	9,588.95	2,507.16	-2,509.81	-306.18	2,528.42	186.96	409,791.26	815,286.14
11,846.00	86.40	178.70	9,594.94	2,600.96	-2,603.60	-303.97	2,621.28	186.66	409,697.47	815,288.35
11,941.00	87.00	179.10	9,600.41	2,695.80	-2,698.42	-302.15	2,715.29	186.39	409,602.65	815,290.17
12,035.00	87.60	177.30	9,604.83	2,789.66	-2,792.27	-299.20	2,808.25	186.12	409,508.80	815,293.12



ProDirectional Survey Report



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Dogle Draw Fed Com 25-34-14 AV
Well: No. 24H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 24H
TVD Reference: Well @ 3357.50usft
MD Reference: Well @ 3357.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
12,130.00	88.60	177.20	9,607.98	2,884.53	-2,887.10	-294.65	2,902.10	185.83	409,413.97	815,297.67
12,224.00	89.20	176.80	9,609.79	2,978.42	-2,980.96	-289.73	2,995.00	185.55	409,320.11	815,302.59
12,318.00	89.70	179.30	9,610.69	3,072.38	-3,074.89	-286.53	3,088.21	185.32	409,226.18	815,305.79
12,412.00	89.20	180.70	9,611.59	3,166.37	-3,168.88	-286.53	3,181.81	185.17	409,132.19	815,305.79
12,507.00	88.70	181.70	9,613.33	3,261.31	-3,263.84	-288.52	3,276.57	185.05	409,037.23	815,303.80
12,601.00	88.10	180.50	9,615.96	3,355.24	-3,357.79	-290.33	3,370.32	184.94	408,943.28	815,301.99
12,695.00	89.50	180.80	9,617.93	3,449.20	-3,451.76	-291.39	3,464.04	184.83	408,849.31	815,300.93
12,790.00	87.60	179.70	9,620.33	3,544.15	-3,546.72	-291.81	3,558.71	184.70	408,754.35	815,300.51
12,884.00	88.00	180.40	9,623.94	3,638.08	-3,640.65	-291.89	3,652.33	184.58	408,660.42	815,300.43
12,979.00	87.90	179.10	9,627.34	3,733.02	-3,735.59	-291.47	3,746.94	184.46	408,565.48	815,300.85
13,073.00	89.10	178.90	9,629.80	3,826.98	-3,829.54	-289.83	3,840.49	184.33	408,471.53	815,302.49
13,168.00	88.90	179.90	9,631.46	3,921.96	-3,924.52	-288.84	3,935.13	184.21	408,376.55	815,303.48
13,262.00	86.90	180.50	9,634.90	4,015.89	-4,018.45	-289.17	4,028.84	184.12	408,282.62	815,303.15
13,357.00	88.00	181.00	9,639.13	4,110.77	-4,113.35	-290.41	4,123.59	184.04	408,187.72	815,301.91
13,451.00	87.70	179.60	9,642.65	4,204.69	-4,207.28	-290.90	4,217.32	183.96	408,093.79	815,301.42
13,546.00	88.10	179.70	9,646.14	4,299.63	-4,302.21	-290.32	4,312.00	183.86	407,998.86	815,302.00
13,640.00	88.20	179.90	9,649.17	4,393.58	-4,396.16	-289.99	4,405.72	183.77	407,904.91	815,302.33
13,735.00	89.20	178.50	9,651.33	4,488.55	-4,491.12	-288.67	4,500.39	183.68	407,809.95	815,303.65
13,829.00	89.40	178.30	9,652.47	4,582.52	-4,585.08	-286.04	4,593.99	183.57	407,715.99	815,306.28
13,923.00	90.20	178.30	9,652.80	4,676.50	-4,679.04	-283.25	4,687.60	183.46	407,622.03	815,309.07
14,018.00	88.70	178.30	9,653.71	4,771.47	-4,773.99	-280.44	4,782.22	183.36	407,527.08	815,311.88
14,113.00	88.50	178.40	9,656.04	4,866.42	-4,868.92	-277.70	4,876.83	183.26	407,432.15	815,314.62
14,207.00	89.40	178.50	9,657.76	4,960.39	-4,962.87	-275.16	4,970.49	183.17	407,338.20	815,317.16
14,302.00	90.00	178.80	9,658.25	5,055.38	-5,057.84	-272.92	5,065.20	183.09	407,243.23	815,319.40
14,396.00	88.60	179.70	9,659.40	5,149.37	-5,151.82	-271.69	5,158.98	183.02	407,149.25	815,320.63
14,491.00	86.60	180.10	9,663.38	5,244.28	-5,246.73	-271.52	5,253.76	182.96	407,054.34	815,320.80
14,585.00	88.00	180.70	9,667.81	5,338.16	-5,340.63	-272.18	5,347.56	182.92	406,960.44	815,320.14



ProDirectional Survey Report



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Local Co-ordinate Reference: Well No. 24H
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
14,679.00	89.00	180.80	9,670.27	5,432.10	-5,434.58	-273.41	5,441.46	182.88	406,866.49	815,318.91
14,774.00	89.40	181.00	9,671.60	5,527.07	-5,529.56	-274.90	5,536.39	182.85	406,771.51	815,317.42
14,868.00	90.20	181.10	9,671.92	5,621.03	-5,623.55	-276.63	5,630.34	182.82	406,677.52	815,315.69
14,963.00	88.80	180.70	9,672.75	5,716.00	-5,718.53	-278.12	5,725.29	182.78	406,582.54	815,314.20
15,057.00	88.60	180.80	9,674.89	5,809.95	-5,812.50	-279.35	5,819.20	182.75	406,488.57	815,312.97
15,120.00	88.30	180.70	9,676.59	5,872.91	-5,875.47	-280.17	5,882.14	182.73	406,425.60	815,312.15
15,215.00	89.80	179.00	9,678.17	5,967.89	-5,970.45	-279.92	5,977.01	182.68	406,330.62	815,312.40
15,310.00	90.60	179.70	9,677.83	6,062.89	-6,065.44	-278.85	6,071.85	182.63	406,235.63	815,313.47
15,404.00	90.00	176.40	9,677.34	6,156.84	-6,159.37	-275.65	6,165.53	182.56	406,141.70	815,316.67
15,498.00	90.90	175.90	9,676.60	6,250.68	-6,253.15	-269.34	6,258.95	182.47	406,047.92	815,322.98
15,592.00	87.20	175.80	9,678.16	6,344.46	-6,346.88	-262.54	6,352.31	182.37	405,954.19	815,329.78
15,687.00	88.60	176.90	9,681.64	6,439.24	-6,441.62	-256.49	6,446.72	182.28	405,859.45	815,335.83
15,781.00	89.60	179.90	9,683.12	6,533.20	-6,535.56	-253.87	6,540.49	182.22	405,765.51	815,338.45
15,876.00	90.50	181.00	9,683.04	6,628.19	-6,630.55	-254.61	6,635.44	182.20	405,670.52	815,337.71
15,970.00	90.80	181.40	9,681.97	6,722.14	-6,724.53	-256.58	6,729.42	182.19	405,576.54	815,335.74
16,064.00	90.40	179.90	9,680.99	6,816.11	-6,818.51	-257.65	6,823.38	182.16	405,482.56	815,334.67
16,159.00	91.10	180.10	9,679.74	6,911.10	-6,913.50	-257.65	6,918.30	182.13	405,387.57	815,334.67
16,253.00	92.10	180.70	9,677.12	7,005.05	-7,007.46	-258.31	7,012.22	182.11	405,293.61	815,334.01
16,347.00	93.00	181.10	9,672.94	7,098.93	-7,101.36	-259.78	7,106.11	182.10	405,199.71	815,332.54
16,441.00	94.60	181.10	9,666.71	7,192.69	-7,195.13	-261.58	7,199.88	182.08	405,105.94	815,330.74
16,528.00	93.80	180.60	9,660.33	7,279.43	-7,281.88	-262.87	7,286.63	182.07	405,019.19	815,329.45
16,630.00	95.00	180.60	9,652.51	7,381.11	-7,383.58	-263.93	7,388.29	182.05	404,917.49	815,328.39
16,724.00	95.30	181.10	9,644.07	7,474.70	-7,477.19	-265.32	7,481.89	182.03	404,823.88	815,327.00
16,818.00	96.30	180.90	9,634.57	7,568.19	-7,570.69	-266.95	7,575.39	182.02	404,730.38	815,325.37
16,913.00	97.30	181.10	9,623.32	7,662.49	-7,665.01	-268.60	7,669.71	182.01	404,636.06	815,323.72
16,967.00	97.90	181.40	9,616.18	7,715.99	-7,718.52	-269.77	7,723.23	182.00	404,582.55	815,322.55

Last Survey: 16967' MD

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
17,027.00	97.90	181.40	9,607.94	7,775.39	-7,777.93	-271.22	7,782.66	182.00	404,523.14	815,321.10
PTB: 17027' MD										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,855.00	2,854.55	-14.78	-10.13	Pro MWD First Survey: 2855' MD
16,967.00	9,616.18	-7,718.52	-269.77	Last Survey: 16967' MD
17,027.00	9,607.94	-7,777.93	-271.22	PTB: 17027' MD