

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 17 2017

RECEIVED

Marathon Oil Permian, LLC

Eddy County, NM (NAD27)

Mariner Fee

23-28-20 TB #5H

OH

Plan: Plan#1

Standard Flanning Report

09 November, 2017



Scientific Drilling

www.scientificdrilling.com

Planning Report

Database:	Midland District	Local Coordinate Reference:	Well 23-28-20 TB #15H
Company:	Marathon Oil Permian, LLC	Typ. Reference:	KB = 28' @103.00usft (Patterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Patterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project:	Eddy County, NM (NAD27)		
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		Using geodetic scale factor

Site:	Mariner Fee			
Site Position:		Northing:	467,045.09 usft	Latitude: 32° 17'1.795 N
From:	Map	Easting:	567,982.27 usft	Longitude: 104° 6'48.067 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence: 0.12°

Well:	23-28-20 TB #15H			
Well Position	+N/-S	0.00 usft	Northing:	467,045.09 usft
	+E/-W	30.00 usft	Easting:	568,012.27 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	3,075.00 usft

Wellbore:	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/3/2017	7.32	60.12	48,074

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (VD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(bearing)
	0.00	0.00	0.00	11.24

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,336.50	6.73	90.00	1,335.73	0.00	19.74	2.00	2.00	0.00	90.00	
8,848.69	6.73	90.00	8,796.15	0.00	900.10	0.00	0.00	0.00	0.00	
9,758.89	91.00	359.77	9,365.20	583.16	966.11	10.00	9.26	-9.91	-90.11	
13,953.32	91.00	359.77	9,292.00	4,776.92	949.26	0.00	0.00	0.00	0.00	BHL(MF#15H)

Planning Report

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Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 28' @103.00usft (Paterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Paterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	N/S (usft)	E/W (usft)	Vertical Section (usft)	Doped 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
460.00	0.00	0.00	460.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
865.00	0.00	0.00	865.00	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 2.0° / 10									
1,100.00	2.00	90.00	1,099.98	0.00	1.75	0.34	2.00	2.00	0.00
1,200.00	4.00	90.00	1,199.84	0.00	6.98	1.36	2.00	2.00	0.00
1,300.00	6.00	90.00	1,299.45	0.00	15.69	3.06	2.00	2.00	0.00
1,336.50	6.73	90.00	1,335.73	0.00	19.74	3.85	2.00	2.00	0.00
EOB - OLD									
1,400.00	6.73	90.00	1,398.79	0.00	27.18	5.30	0.00	0.00	0.00
1,500.00	6.73	90.00	1,498.10	0.00	38.90	7.58	0.00	0.00	0.00
1,600.00	6.73	90.00	1,597.41	0.00	50.62	9.87	0.00	0.00	0.00
1,700.00	6.73	90.00	1,696.72	0.00	62.34	12.15	0.00	0.00	0.00
1,800.00	6.73	90.00	1,796.03	0.00	74.06	14.43	0.00	0.00	0.00
1,900.00	6.73	90.00	1,895.34	0.00	85.78	16.72	0.00	0.00	0.00
2,000.00	6.73	90.00	1,994.65	0.00	97.50	19.00	0.00	0.00	0.00
2,100.00	6.73	90.00	2,093.97	0.00	109.22	21.29	0.00	0.00	0.00
2,200.00	6.73	90.00	2,193.28	0.00	120.93	23.57	0.00	0.00	0.00
2,300.00	6.73	90.00	2,292.59	0.00	132.65	25.86	0.00	0.00	0.00
2,350.76	6.73	90.00	2,343.00	0.00	138.60	27.01	0.00	0.00	0.00
Base of Sat									
2,400.00	6.73	90.00	2,391.90	0.00	144.37	28.14	0.00	0.00	0.00
2,500.00	6.73	90.00	2,491.21	0.00	156.09	30.42	0.00	0.00	0.00
2,514.89	6.73	90.00	2,506.00	0.00	157.84	30.76	0.00	0.00	0.00
Iamar									
2,541.07	6.73	90.00	2,532.00	0.00	160.90	31.36	0.00	0.00	0.00
Bell Canyon									
2,600.00	6.73	90.00	2,590.52	0.00	167.81	32.71	0.00	0.00	0.00
2,700.00	6.73	90.00	2,689.83	0.00	179.53	34.99	0.00	0.00	0.00
2,800.00	6.73	90.00	2,789.14	0.00	191.25	37.28	0.00	0.00	0.00
2,900.00	6.73	90.00	2,888.45	0.00	202.97	39.56	0.00	0.00	0.00
3,000.00	6.73	90.00	2,987.76	0.00	214.69	41.84	0.00	0.00	0.00
3,100.00	6.73	90.00	3,087.08	0.00	226.41	44.13	0.00	0.00	0.00
3,200.00	6.73	90.00	3,186.39	0.00	238.13	46.41	0.00	0.00	0.00
3,300.00	6.73	90.00	3,285.70	0.00	249.84	48.70	0.00	0.00	0.00
3,385.89	6.73	90.00	3,371.00	0.00	259.91	50.66	0.00	0.00	0.00
Cherry Canyon									
3,400.00	6.73	90.00	3,385.01	0.00	261.56	50.98	0.00	0.00	0.00
3,500.00	6.73	90.00	3,484.32	0.00	273.28	53.26	0.00	0.00	0.00
3,600.00	6.73	90.00	3,583.63	0.00	285.00	55.55	0.00	0.00	0.00
3,700.00	6.73	90.00	3,682.94	0.00	296.72	57.83	0.00	0.00	0.00

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Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Paterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+W-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,800.00	6.73	90.00	3,782.25	0.00	308.44	60.12	0.00	0.00	0.00
3,900.00	6.73	90.00	3,881.56	0.00	320.16	62.40	0.00	0.00	0.00
4,000.00	6.73	90.00	3,980.87	0.00	331.88	64.69	0.00	0.00	0.00
4,100.00	6.73	90.00	4,080.18	0.00	343.60	66.97	0.00	0.00	0.00
4,200.00	6.73	90.00	4,179.50	0.00	355.32	69.25	0.00	0.00	0.00
4,300.00	6.73	90.00	4,278.81	0.00	367.03	71.54	0.00	0.00	0.00
4,400.00	6.73	90.00	4,378.12	0.00	378.75	73.82	0.00	0.00	0.00
4,500.00	6.73	90.00	4,477.43	0.00	390.47	76.11	0.00	0.00	0.00
4,526.76	6.73	90.00	4,504.00	0.00	393.61	76.72	0.00	0.00	0.00
Brushy Canyon									
4,600.00	6.73	90.00	4,576.74	0.00	402.19	78.39	0.00	0.00	0.00
4,700.00	6.73	90.00	4,676.05	0.00	413.91	80.67	0.00	0.00	0.00
4,800.00	6.73	90.00	4,775.36	0.00	425.63	82.96	0.00	0.00	0.00
4,900.00	6.73	90.00	4,874.67	0.00	437.35	85.24	0.00	0.00	0.00
5,000.00	6.73	90.00	4,973.98	0.00	449.07	87.53	0.00	0.00	0.00
5,100.00	6.73	90.00	5,073.29	0.00	460.79	89.81	0.00	0.00	0.00
5,200.00	6.73	90.00	5,172.61	0.00	472.51	92.09	0.00	0.00	0.00
5,300.00	6.73	90.00	5,271.92	0.00	484.23	94.38	0.00	0.00	0.00
5,400.00	6.73	90.00	5,371.23	0.00	495.94	96.66	0.00	0.00	0.00
5,500.00	6.73	90.00	5,470.54	0.00	507.66	98.95	0.00	0.00	0.00
5,600.00	6.73	90.00	5,569.85	0.00	519.38	101.23	0.00	0.00	0.00
5,700.00	6.73	90.00	5,669.16	0.00	531.10	103.52	0.00	0.00	0.00
5,800.00	6.73	90.00	5,768.47	0.00	542.82	105.80	0.00	0.00	0.00
5,900.00	6.73	90.00	5,867.78	0.00	554.54	108.08	0.00	0.00	0.00
6,000.00	6.73	90.00	5,967.09	0.00	566.26	110.37	0.00	0.00	0.00
6,100.00	6.73	90.00	6,066.40	0.00	577.98	112.65	0.00	0.00	0.00
6,117.72	6.73	90.00	6,084.00	0.00	580.05	113.06	0.00	0.00	0.00
Bone Spring									
6,200.00	6.73	90.00	6,165.71	0.00	589.70	114.94	0.00	0.00	0.00
6,300.00	6.73	90.00	6,265.03	0.00	601.42	117.22	0.00	0.00	0.00
6,400.00	6.73	90.00	6,364.34	0.00	613.14	119.50	0.00	0.00	0.00
6,500.00	6.73	90.00	6,463.65	0.00	624.85	121.79	0.00	0.00	0.00
6,600.00	6.73	90.00	6,562.96	0.00	636.57	124.07	0.00	0.00	0.00
6,700.00	6.73	90.00	6,662.27	0.00	648.29	126.36	0.00	0.00	0.00
6,800.00	6.73	90.00	6,761.58	0.00	660.01	128.64	0.00	0.00	0.00
6,900.00	6.73	90.00	6,860.89	0.00	671.73	130.93	0.00	0.00	0.00
7,000.00	6.73	90.00	6,960.20	0.00	683.45	133.21	0.00	0.00	0.00
7,005.84	6.73	90.00	6,966.00	0.00	684.13	133.34	0.00	0.00	0.00
1st Bone Spring Sand									
7,100.00	6.73	90.00	7,059.51	0.00	695.17	135.49	0.00	0.00	0.00
7,200.00	6.73	90.00	7,158.82	0.00	706.89	137.78	0.00	0.00	0.00
7,300.00	6.73	90.00	7,258.13	0.00	718.61	140.06	0.00	0.00	0.00
7,400.00	6.73	90.00	7,357.45	0.00	730.33	142.35	0.00	0.00	0.00
7,500.00	6.73	90.00	7,456.76	0.00	742.05	144.63	0.00	0.00	0.00
7,600.00	6.73	90.00	7,556.07	0.00	753.76	146.91	0.00	0.00	0.00
7,700.00	6.73	90.00	7,655.38	0.00	765.48	149.20	0.00	0.00	0.00
7,800.00	6.73	90.00	7,754.69	0.00	777.20	151.48	0.00	0.00	0.00
7,820.45	6.73	90.00	7,775.00	0.00	779.60	151.95	0.00	0.00	0.00
2nd Bone Spring Sand									
7,900.00	6.73	90.00	7,854.00	0.00	788.92	153.77	0.00	0.00	0.00
8,000.00	6.73	90.00	7,953.31	0.00	800.64	156.05	0.00	0.00	0.00
8,100.00	6.73	90.00	8,052.62	0.00	812.36	158.33	0.00	0.00	0.00
8,200.00	6.73	90.00	8,151.93	0.00	824.08	160.62	0.00	0.00	0.00
8,300.00	6.73	90.00	8,251.24	0.00	835.80	162.90	0.00	0.00	0.00

Planning Report

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Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 28' @103.00usft (Paterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Paterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	N-E (usft)	E-W (usft)	Vertical Section (usft)	Degled Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,400.00	6.73	90.00	8,350.56	0.00	847.52	165.19	0.00	0.00	0.00
8,500.00	6.73	90.00	8,449.87	0.00	859.24	167.47	0.00	0.00	0.00
8,600.00	6.73	90.00	8,549.18	0.00	870.96	169.76	0.00	0.00	0.00
8,700.00	6.73	90.00	8,648.49	0.00	882.67	172.04	0.00	0.00	0.00
8,800.00	6.73	90.00	8,747.80	0.00	894.39	174.32	0.00	0.00	0.00
8,848.69	6.73	90.00	8,796.15	0.00	900.10	175.44	0.00	0.00	0.00
Curve IOP - Build 0.0° / 00									
8,850.00	6.73	88.88	8,797.45	0.00	900.25	175.47	10.00	0.08	-85.32
8,900.00	8.45	52.50	8,847.04	2.30	906.10	178.86	10.00	3.43	-72.76
8,950.00	12.13	33.18	8,896.24	8.93	911.89	186.50	10.00	7.37	-38.63
9,000.00	16.52	23.34	8,944.68	19.86	917.59	198.33	10.00	8.77	-19.69
9,034.00	19.66	19.17	8,977.00	29.71	921.38	208.72	10.00	9.25	-12.25
3rd Bone Spring Sand									
9,050.00	21.17	17.63	8,992.00	35.00	923.14	214.26	10.00	9.42	-9.64
9,100.00	25.95	13.92	9,037.82	54.24	928.51	234.17	10.00	9.56	-7.41
9,150.00	30.79	11.31	9,081.80	77.42	933.66	257.91	10.00	9.69	-5.23
9,200.00	35.68	9.35	9,123.61	104.37	938.54	285.30	10.00	9.77	-3.92
9,250.00	40.58	7.81	9,162.93	134.89	943.12	316.12	10.00	9.82	-3.09
9,300.00	45.51	6.54	9,199.46	168.74	947.36	350.16	10.00	9.85	-2.52
9,312.38	46.73	6.27	9,208.04	177.61	948.36	359.05	10.00	9.87	-2.26
FTP(MF#15H)									
9,350.00	50.45	5.48	9,232.92	205.67	951.24	387.13	10.00	9.88	-2.09
9,400.00	55.39	4.56	9,263.06	245.40	954.72	426.77	10.00	9.89	-1.84
9,450.00	60.34	3.74	9,289.64	287.62	957.77	468.78	10.00	9.90	-1.64
9,500.00	65.30	3.00	9,312.47	332.01	960.38	512.82	10.00	9.91	-1.48
9,506.12	65.91	2.91	9,315.00	337.57	960.66	518.33	10.00	9.92	-1.41
Wolfcamp									
9,550.00	70.26	2.31	9,331.38	378.23	962.52	558.58	10.00	9.92	-1.36
9,600.00	75.22	1.67	9,346.21	425.93	964.17	605.69	10.00	9.92	-1.29
9,650.00	80.19	1.06	9,356.85	474.76	965.33	653.80	10.00	9.93	-1.23
9,700.00	85.15	0.46	9,363.23	524.33	965.99	702.55	10.00	9.93	-1.19
9,750.00	90.12	359.87	9,365.29	574.27	966.14	751.56	10.00	9.93	-1.17
9,758.89	91.00	359.77	9,365.20	583.16	966.11	760.27	10.00	9.93	-1.17
EOC - MLD									
9,800.00	91.00	359.77	9,364.49	624.26	965.94	800.56	0.00	0.00	0.00
9,900.00	91.00	359.77	9,362.74	724.25	965.54	898.55	0.00	0.00	0.00
10,000.00	91.00	359.77	9,361.00	824.23	965.14	996.54	0.00	0.00	0.00
10,100.00	91.00	359.77	9,359.25	924.21	964.74	1,094.52	0.00	0.00	0.00
10,200.00	91.00	359.77	9,357.50	1,024.20	964.34	1,192.51	0.00	0.00	0.00
10,300.00	91.00	359.77	9,355.76	1,124.18	963.93	1,290.50	0.00	0.00	0.00
10,400.00	91.00	359.77	9,354.01	1,224.17	963.53	1,388.49	0.00	0.00	0.00
10,500.00	91.00	359.77	9,352.27	1,324.15	963.13	1,486.48	0.00	0.00	0.00
10,600.00	91.00	359.77	9,350.52	1,424.13	962.73	1,584.46	0.00	0.00	0.00
10,700.00	91.00	359.77	9,348.78	1,524.12	962.33	1,682.45	0.00	0.00	0.00
10,800.00	91.00	359.77	9,347.03	1,624.10	961.93	1,780.44	0.00	0.00	0.00
10,900.00	91.00	359.77	9,345.29	1,724.09	961.52	1,878.43	0.00	0.00	0.00
11,000.00	91.00	359.77	9,343.54	1,824.07	961.12	1,976.42	0.00	0.00	0.00
11,100.00	91.00	359.77	9,341.80	1,924.05	960.72	2,074.41	0.00	0.00	0.00
11,200.00	91.00	359.77	9,340.05	2,024.04	960.32	2,172.39	0.00	0.00	0.00
11,300.00	91.00	359.77	9,338.31	2,124.02	959.92	2,270.38	0.00	0.00	0.00
11,400.00	91.00	359.77	9,336.56	2,224.01	959.52	2,368.37	0.00	0.00	0.00
11,500.00	91.00	359.77	9,334.82	2,323.99	959.11	2,466.36	0.00	0.00	0.00
11,600.00	91.00	359.77	9,333.07	2,423.97	958.71	2,564.35	0.00	0.00	0.00

Planning Report

Database:	Midland District	Local Coordinate Reference:	Well 23-28-20 TB #15H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 28' @103.00usft (Patterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Patterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,700.00	91.00	359.77	9,331.33	2,523.96	958.31	2,662.33	0.00	0.00	0.00	
11,800.00	91.00	359.77	9,329.58	2,623.94	957.91	2,760.32	0.00	0.00	0.00	
11,900.00	91.00	359.77	9,327.84	2,723.93	957.51	2,858.31	0.00	0.00	0.00	
12,000.00	91.00	359.77	9,326.09	2,823.91	957.11	2,956.30	0.00	0.00	0.00	
12,100.00	91.00	359.77	9,324.35	2,923.89	956.70	3,054.29	0.00	0.00	0.00	
12,200.00	91.00	359.77	9,322.60	3,023.88	956.30	3,152.28	0.00	0.00	0.00	
12,300.00	91.00	359.77	9,320.85	3,123.86	955.90	3,250.26	0.00	0.00	0.00	
12,400.00	91.00	359.77	9,319.11	3,223.85	955.50	3,348.25	0.00	0.00	0.00	
12,500.00	91.00	359.77	9,317.36	3,323.83	955.10	3,446.24	0.00	0.00	0.00	
12,600.00	91.00	359.77	9,315.62	3,423.81	954.70	3,544.23	0.00	0.00	0.00	
12,700.00	91.00	359.77	9,313.87	3,523.80	954.30	3,642.22	0.00	0.00	0.00	
12,800.00	91.00	359.77	9,312.13	3,623.78	953.89	3,740.20	0.00	0.00	0.00	
12,900.00	91.00	359.77	9,310.38	3,723.77	953.49	3,838.19	0.00	0.00	0.00	
13,000.00	91.00	359.77	9,308.64	3,823.75	953.09	3,936.18	0.00	0.00	0.00	
13,100.00	91.00	359.77	9,306.89	3,923.73	952.69	4,034.17	0.00	0.00	0.00	
13,200.00	91.00	359.77	9,305.15	4,023.72	952.29	4,132.16	0.00	0.00	0.00	
13,300.00	91.00	359.77	9,303.40	4,123.70	951.89	4,230.14	0.00	0.00	0.00	
13,400.00	91.00	359.77	9,301.66	4,223.69	951.48	4,328.13	0.00	0.00	0.00	
13,500.00	91.00	359.77	9,299.91	4,323.67	951.08	4,426.12	0.00	0.00	0.00	
13,600.00	91.00	359.77	9,298.17	4,423.65	950.68	4,524.11	0.00	0.00	0.00	
13,700.00	91.00	359.77	9,296.42	4,523.64	950.28	4,622.10	0.00	0.00	0.00	
13,800.00	91.00	359.77	9,294.68	4,623.62	949.88	4,720.09	0.00	0.00	0.00	
13,900.00	91.00	359.77	9,292.93	4,723.61	949.48	4,818.07	0.00	0.00	0.00	
13,953.32	91.00	359.77	9,292.00	4,776.92	949.26	4,870.32	0.00	0.00	0.00	
TD at 3953.32 -BHL(MF#15H)										

Design Targets										
Target Name	Hit/mis target	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL(MF#15H)		0.00	0.00	9,292.00	4,776.92	949.26	471,821.60	568,961.45	32° 17' 49.045 N	104° 6' 36.544 W
	- plan hits target center									
	- Point									
FTP(MF#15H)		0.00	0.00	9,292.00	99.57	967.18	467,144.65	568,979.37	32° 17' 2.760 N	104° 6' 36.449 W
	- plan misses target center by 116.16usft at 9312.38usft MD (9208.04 TVD, 177.61 N, 948.36 E)									
	- Point									

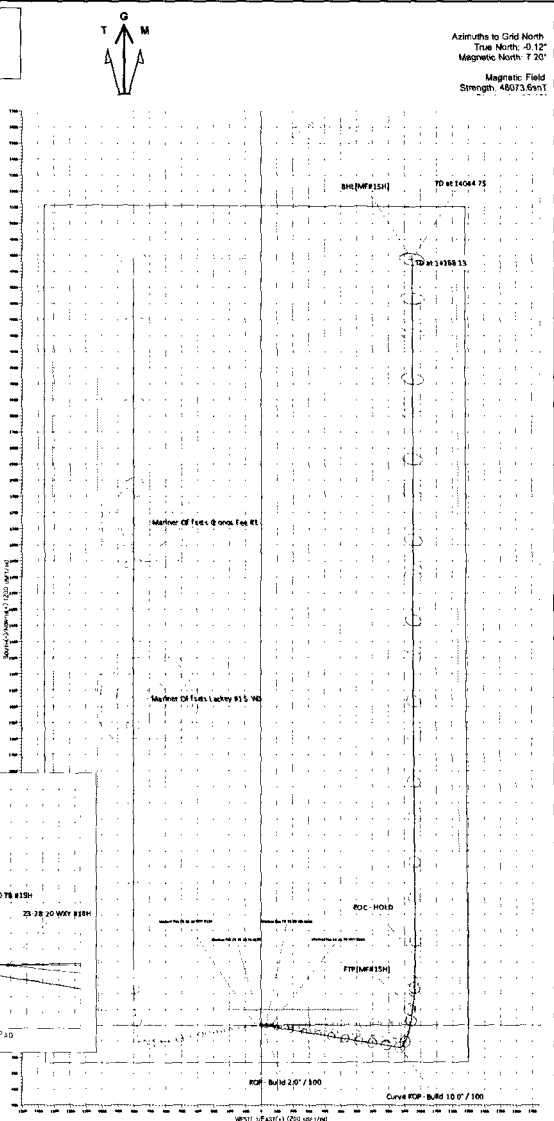
Planning Report

Database:	Midland District	Local Coordinate Reference:	Well 23-28-20 TB #15H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 28' @103.00usft (Paterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28' @103.00usft (Paterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
460.00	460.00	Salado			
865.00	865.00	Castile			
2,350.76	2,343.00	Base of Salt			
2,514.89	2,506.00	Iamar			
2,541.07	2,532.00	Bell Canyon			
3,385.89	3,371.00	Cherry Canyon			
4,526.76	4,504.00	Brushy Canyon			
6,117.72	6,084.00	Bone Spring			
7,005.84	6,966.00	1st Bone Spring Sand			
7,820.45	7,775.00	2nd Bone Spring Sand			
9,034.00	8,977.00	3rd Bone Spring Sand			
9,506.12	9,315.00	Wolfcamp			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		N-S (usft)	E-W (usft)		
1,000.00	1,000.00	0.00	0.00	KOP -Build 20° / 100	
1,336.50	1,335.73	0.00	19.74	EOB -HOLD	
8,848.69	8,796.15	0.00	900.10	Curve KOP - Build 10.0° /100	
9,758.89	9,365.20	583.16	966.11	EOC -HOLD	
13,953.32	9,292.00	4,776.92	949.26	TD at 13953.32	

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Marathon Oil Permian, LLC

Eddy County, NM (NAD27)

Mariner Fee

23-28-20 TB #15H

OH

Plan #1

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 17 2017

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Anticollision Report

10 November, 2017



Scientific Drilling

www.scientificdrilling.com

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference:	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 2,099.49 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date: 11/10/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,044.75	Plan #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Summary						
Offset Well - Wellbore - Design						
Carter Farms A Fee Com 3H						
Carter #1 - Wellbore #1 - Actual	14,045.25	9,243.18	1,137.97	781.78	3.195	CC, ES, SF
Mariner Fee						
23-28-20 WA #14H - OH - Plan #1	9,158.95	9,111.68	24.65	-40.55	0.378	Level 1, CC, ES, SF
23-28-20 WXY #11H - OH - Plan #1	1,000.00	1,000.00	30.00	23.29	4.471	CC, ES
23-28-20 WXY #11H - OH - Plan #1	1,100.00	1,098.94	31.70	24.29	4.276	SF
23-28-20 WXY #18H - OH - Plan #1	9,065.78	9,037.15	9.14	-55.30	0.142	Level 1, CC, ES, SF
Mariner Offsets						
Cronos Fee #1 - OH - As-Drilled	12,417.32	9,264.32	1,670.56	1,382.45	5.798	CC, ES
Cronos Fee #1 - OH - As-Drilled	12,500.00	9,264.32	1,672.61	1,383.51	5.786	SF
Lackey #1 SWD - OH - As-Drilled	11,323.74	9,265.79	1,677.45	1,380.08	5.641	CC, ES
Lackey #1 SWD - OH - As-Drilled	11,400.00	9,265.79	1,679.18	1,381.07	5.633	SF

Offset Design		Carter Farms A Fee Com 3H - Carter #1 - Wellbore #1 - Actual										Offset Site Error:		0.00 usft
Survey Program: 100												Offset Well Error:		0.00 usft
Reference														
Small Master Axis														
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Tolerance	Offset Wellbore Error	Distance Between Centres	Distance Between Ellipses	Minimum Separation	Separation Factor	Warning		
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(")	(usft)	(usft)	(usft)	(usft)				
13,100.00	9,292.03	9,243.21	9,242.03	65.57	279.08	-90.01	5,807.61	465.86	2,034.62	1,690.61	344.01	5.914		
13,200.00	9,292.03	9,243.21	9,242.03	66.82	279.08	-90.01	5,807.61	465.86	1,937.57	1,592.31	345.27	5.612		
13,300.00	9,292.03	9,243.21	9,242.03	68.07	279.08	-90.01	5,807.61	465.86	1,840.85	1,494.32	346.53	5.312		
13,400.00	9,292.02	9,243.20	9,242.02	69.33	279.08	-90.01	5,807.61	465.86	1,744.49	1,396.69	347.81	5.016		
13,500.00	9,292.02	9,243.20	9,242.02	70.60	279.08	-90.01	5,807.61	465.86	1,648.57	1,299.48	349.09	4.723		
13,600.00	9,292.02	9,243.20	9,242.02	71.88	279.08	-90.01	5,807.61	465.86	1,553.16	1,202.78	350.38	4.433		
13,700.00	9,292.01	9,243.19	9,242.01	73.17	279.08	-90.01	5,807.61	465.86	1,458.37	1,106.70	351.67	4.147		
13,800.00	9,292.01	9,243.19	9,242.01	74.46	279.08	-90.01	5,807.61	465.86	1,364.32	1,011.35	352.97	3.865		
13,900.00	9,292.01	9,243.19	9,242.01	75.75	279.08	-90.01	5,807.61	465.86	1,271.18	916.90	354.28	3.588		
14,000.00	9,292.00	9,243.18	9,242.00	77.06	279.08	-90.01	5,807.61	465.86	1,179.16	823.57	355.59	3.316		
14,045.25	9,292.00	9,243.18	9,242.00	77.69	279.08	-90.00	5,807.61	465.86	1,137.97	781.78	356.18	3.195 CC, ES, SF		

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Mariner Fee - 23-28-20 WA #14H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: DAWD - OHM														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset Depth (usft)	Horizontal Distance (ft)	Offset Wellbore Depth (usft)	Horizontal Distance (usft)	Vertical Depth (usft)	Horizontal Distance (usft)	Vertical Depth (usft)	Horizontal Distance (usft)	Vertical Depth (usft)	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	30.00	30.00						
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	30.00	30.00	29.74	0.26	116.224			
200.00	200.00	200.00	200.00	0.49	0.49	90.00	0.00	30.00	30.00	29.02	0.98	30.765			
300.00	300.00	300.00	300.00	0.85	0.85	90.00	0.00	30.00	30.00	28.31	1.69	17.729			
400.00	400.00	400.00	400.00	1.20	1.20	90.00	0.00	30.00	30.00	27.59	2.41	12.453			
500.00	500.00	500.00	500.00	1.56	1.56	90.00	0.00	30.00	30.00	26.87	3.13	9.596			
600.00	600.00	600.00	600.00	1.92	1.92	90.00	0.00	30.00	30.00	26.15	3.84	7.806			
700.00	700.00	700.00	700.00	2.28	2.28	90.00	0.00	30.00	30.00	25.44	4.56	6.579			
800.00	800.00	800.00	800.00	2.64	2.64	90.00	0.00	30.00	30.00	24.72	5.28	5.685			
900.00	900.00	900.00	900.00	3.00	3.00	90.00	0.00	30.00	30.00	24.00	5.99	5.005			
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	90.00	0.00	30.00	30.00	23.29	6.71	4.470			
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	90.00	0.00	30.00	30.00	22.57	7.43	4.039			
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	90.00	0.00	30.00	30.00	21.85	8.14	3.683			
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	90.00	0.00	30.00	30.00	21.14	8.86	3.385			
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	90.00	0.00	30.00	30.00	20.42	9.58	3.132			
1,500.00	1,500.00	1,500.00	1,500.00	5.15	5.15	90.00	0.00	30.00	30.00	19.70	10.30	2.914			
1,600.00	1,600.00	1,600.00	1,600.00	5.51	5.51	90.00	0.00	30.00	30.00	18.99	11.01	2.724			
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	90.00	0.00	30.00	30.00	18.27	11.73	2.558			
1,751.90	1,751.90	1,751.90	1,751.90	6.05	6.05	90.00	0.00	30.00	30.00	17.90	12.10	2.479			
1,800.00	1,800.00	1,799.68	1,799.68	6.22	6.22	90.01	-0.01	30.16	30.16	17.72	12.44	2.424			
1,900.00	1,900.00	1,898.56	1,898.56	6.58	6.56	90.18	-0.10	32.91	32.94	19.81	13.14	2.508			
2,000.00	2,000.00	1,997.13	1,996.89	6.94	6.90	90.46	-0.32	39.05	39.17	25.34	13.84	2.831			
2,100.00	2,100.00	2,095.16	2,094.46	7.30	7.24	90.76	-0.65	48.50	48.82	34.28	14.54	3.359			
2,200.00	2,200.00	2,194.01	2,192.58	7.66	7.59	91.01	-1.06	60.44	60.90	45.66	15.24	3.995			
2,300.00	2,300.00	2,293.26	2,291.09	8.02	7.94	91.17	-1.49	72.53	73.09	57.13	15.96	4.581			
2,400.00	2,400.00	2,392.52	2,389.61	8.37	8.30	91.29	-1.91	84.61	85.27	68.60	16.67	5.115			
2,500.00	2,500.00	2,491.77	2,488.12	8.73	8.66	91.38	-2.33	96.70	97.46	80.07	17.39	5.604			
2,600.00	2,600.00	2,591.02	2,586.64	9.09	9.03	91.45	-2.75	108.79	109.64	91.53	18.11	6.054			
2,700.00	2,700.00	2,690.28	2,685.15	9.45	9.39	91.50	-3.17	120.88	121.83	102.99	18.84	6.468			
2,800.00	2,800.00	2,789.53	2,783.67	9.81	9.76	91.55	-3.60	132.97	134.02	114.45	19.56	6.851			
2,900.00	2,900.00	2,888.79	2,882.18	10.17	10.13	91.59	-4.02	145.06	146.20	125.91	20.29	7.206			
3,000.00	3,000.00	2,988.04	2,980.70	10.52	10.50	91.62	-4.44	157.15	158.39	137.37	21.02	7.535			
3,100.00	3,100.00	3,087.30	3,079.21	10.88	10.88	91.65	-4.86	169.24	170.58	148.83	21.75	7.842			
3,200.00	3,200.00	3,186.55	3,177.73	11.24	11.25	91.67	-5.28	181.32	182.76	160.28	22.48	8.129			
3,300.00	3,300.00	3,285.81	3,276.24	11.60	11.63	91.69	-5.71	193.41	194.95	171.73	23.22	8.397			
3,400.00	3,400.00	3,385.06	3,374.76	11.96	12.00	91.71	-6.13	205.50	207.14	183.19	23.95	8.648			
3,500.00	3,500.00	3,484.33	3,473.28	12.31	12.38	-7.27	-6.55	217.59	219.24	194.80	24.43	8.973			
3,600.00	3,599.96	3,583.85	3,572.06	12.65	12.76	-7.31	-6.97	229.71	228.93	203.80	25.13	9.110			
3,700.00	3,699.78	3,683.65	3,671.12	12.99	13.14	-7.47	-7.40	241.87	235.17	209.37	25.80	9.115			
3,800.00	3,799.32	3,783.60	3,770.32	13.34	13.53	-7.73	-7.82	254.04	237.96	211.51	26.44	8.999			
3,900.00	3,898.47	3,883.58	3,869.56	13.68	13.91	-8.12	-8.25	266.22	237.29	210.24	27.06	8.770			
4,000.00	3,997.12	3,983.47	3,968.71	14.03	14.30	-8.64	-8.67	278.39	233.28	205.61	27.67	8.431			
4,100.00	4,095.60	4,083.32	4,067.81	14.39	14.68	-9.20	-9.10	290.55	228.25	199.87	28.38	8.044			
4,200.00	4,194.09	4,183.17	4,166.91	14.75	15.07	-9.80	-9.52	302.71	223.24	194.16	29.08	7.676			
4,300.00	4,292.57	4,283.01	4,266.01	15.11	15.45	-10.42	-9.95	314.87	218.26	188.47	29.80	7.325			
4,400.00	4,391.05	4,382.86	4,365.12	15.48	15.84	-11.07	-10.37	327.03	213.31	182.80	30.51	6.992			
4,500.00	4,489.53	4,482.71	4,464.22	15.85	16.23	-11.75	-10.80	339.19	208.38	177.16	31.22	6.674			
4,600.00	4,588.01	4,582.55	4,563.32	16.23	16.61	-12.47	-11.22	351.35	203.49	171.54	31.94	6.370			
4,700.00	4,686.49	4,682.40	4,662.43	16.60	17.00	-13.22	-11.65	363.51	198.63	165.96	32.67	6.081			
4,800.00	4,784.97	4,782.25	4,761.53	16.98	17.39	-14.00	-12.07	375.67	193.80	160.41	33.39	5.804			
4,900.00	4,883.45	4,882.10	4,860.63	17.37	17.78	-14.83	-12.50	387.83	189.01	154.90	34.12	5.540			
5,000.00	4,981.93	4,981.94	4,959.74	17.75	18.17	-15.70	-12.92	399.99	184.27	149.42	34.85	5.288			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: Mariner Fee - 23-28-20 WA #14H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Properties: GAWD/HDDGM														Offset Well Error:	0.00 usft
Reference		Offset		Base Meter Axis		Distance		Minimum Separation		Separation Factor		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Height (ft)	Offset Wellbore Depth (usft)	Horizontal Distance (usft)	Vertical Distance (usft)	Minimum Separation (usft)	Separation Factor				
5,100.00	5,080.41	5,081.79	5,058.84	18.14	18.56	-16.62	-13.35	412.15	179.57	143.98	35.58	5.047			
5,200.00	5,178.89	5,181.64	5,157.94	18.53	18.95	-17.58	-13.77	424.32	174.91	138.59	36.32	4.816			
5,300.00	5,277.37	5,281.48	5,257.04	18.92	19.34	-18.60	-14.19	436.48	170.31	133.25	37.06	4.596			
5,400.00	5,375.85	5,381.33	5,356.15	19.32	19.73	-19.67	-14.62	448.64	165.77	127.96	37.80	4.385			
5,500.00	5,474.34	5,481.18	5,455.25	19.71	20.12	-20.80	-15.04	460.80	161.28	122.73	38.55	4.183			
5,600.00	5,572.82	5,581.03	5,554.35	20.11	20.51	-22.00	-15.47	472.96	156.87	117.56	39.31	3.991			
5,700.00	5,671.30	5,680.87	5,653.46	20.51	20.90	-23.27	-15.89	485.12	152.52	112.46	40.07	3.807			
5,800.00	5,769.78	5,780.72	5,752.56	20.91	21.29	-24.61	-16.32	497.28	148.26	107.43	40.83	3.631			
5,900.00	5,868.26	5,880.57	5,851.66	21.31	21.68	-26.02	-16.74	509.44	144.08	102.47	41.60	3.463			
6,000.00	5,966.74	5,980.42	5,950.76	21.71	22.07	-27.52	-17.17	521.60	139.99	97.61	42.38	3.303			
6,100.00	6,065.22	6,080.26	6,049.87	22.12	22.46	-29.11	-17.59	533.76	136.01	92.84	43.17	3.151			
6,200.00	6,163.70	6,180.11	6,148.97	22.52	22.85	-30.80	-18.02	545.92	132.13	88.17	43.96	3.006			
6,300.00	6,262.18	6,279.96	6,248.07	22.93	23.24	-32.58	-18.44	558.09	128.38	83.61	44.76	2.868			
6,400.00	6,360.66	6,379.80	6,347.18	23.34	23.64	-34.47	-18.87	570.25	124.76	79.18	45.58	2.737			
6,500.00	6,459.14	6,479.65	6,446.28	23.75	24.03	-36.47	-19.29	582.41	121.28	74.88	46.40	2.614			
6,600.00	6,557.62	6,579.50	6,545.38	24.16	24.42	-38.59	-19.72	594.57	117.96	70.72	47.24	2.497			
6,700.00	6,656.10	6,679.35	6,644.49	24.57	24.81	-40.82	-20.14	606.73	114.81	66.73	48.09	2.388			
6,800.00	6,754.59	6,779.19	6,743.59	24.98	25.20	-43.18	-20.56	618.89	111.85	62.90	48.94	2.285			
6,900.00	6,853.07	6,879.04	6,842.69	25.39	25.60	-45.66	-20.99	631.05	109.08	59.26	49.82	2.190			
7,000.00	6,951.55	6,978.89	6,941.79	25.80	25.99	-48.26	-21.41	643.21	106.53	55.83	50.70	2.101			
7,100.00	7,050.03	7,078.73	7,040.90	26.22	26.38	-50.99	-21.84	655.37	104.21	52.61	51.59	2.020			
7,200.00	7,148.51	7,178.58	7,140.00	26.63	26.77	-53.83	-22.26	667.53	102.13	49.64	52.50	1.945			
7,300.00	7,246.99	7,278.43	7,239.10	27.05	27.17	-56.78	-22.69	679.69	100.32	46.91	53.41	1.878			
7,400.00	7,345.47	7,378.28	7,338.21	27.46	27.56	-59.84	-23.11	691.86	98.79	44.46	54.33	1.818			
7,500.00	7,443.95	7,478.12	7,437.31	27.88	27.95	-62.97	-23.54	704.02	97.54	42.29	55.25	1.765			
7,600.00	7,542.43	7,577.97	7,536.41	28.30	28.35	-66.18	-23.96	716.18	96.60	40.43	56.17	1.720			
7,700.00	7,640.91	7,677.82	7,635.51	28.71	28.74	-69.45	-24.39	728.34	95.96	38.87	57.09	1.681			
7,800.00	7,739.39	7,777.66	7,734.62	29.13	29.13	-72.74	-24.81	740.50	95.64	37.65	58.00	1.649			
7,850.48	7,789.11	7,828.07	7,784.64	29.34	29.33	-74.41	-25.03	746.64	95.60	37.15	58.45	1.636			
7,900.00	7,837.87	7,877.51	7,833.72	29.55	29.52	-76.05	-25.24	752.66	95.64	36.75	58.89	1.624			
8,000.00	7,936.35	7,977.36	7,932.82	29.97	29.92	-79.34	-25.66	764.82	95.96	36.18	59.78	1.605			
8,100.00	8,034.84	8,077.21	8,031.93	30.39	30.31	-82.61	-26.09	776.98	96.59	35.95	60.64	1.593			
8,200.00	8,133.32	8,177.05	8,131.03	30.81	30.70	-85.82	-26.51	789.14	97.53	36.04	61.49	1.586			
8,300.00	8,231.80	8,276.90	8,230.13	31.23	31.10	-88.96	-26.93	801.30	98.77	36.45	62.32	1.585			
8,400.00	8,330.28	8,376.75	8,329.24	31.65	31.49	-92.01	-27.36	813.46	100.31	37.17	63.13	1.589			
8,500.00	8,428.76	8,476.59	8,428.34	32.07	31.89	-94.96	-27.78	825.63	102.12	38.19	63.92	1.597			
8,600.00	8,527.24	8,576.44	8,527.44	32.50	32.28	-97.80	-28.21	837.79	104.19	39.49	64.70	1.610			
8,700.00	8,625.72	8,676.29	8,626.54	32.92	32.67	-100.53	-28.63	849.95	106.51	41.05	65.46	1.627			
8,800.00	8,724.20	8,776.14	8,725.65	33.34	33.07	-96.03	-29.06	862.11	108.92	42.70	66.22	1.645			
8,900.00	8,822.27	8,875.52	8,824.29	33.75	33.46	-53.38	-29.48	874.21	100.87	34.79	66.08	1.527			
9,000.00	8,917.47	8,971.90	8,919.95	34.12	33.84	-41.37	-29.89	886.95	76.39	12.11	64.28	1.188 Level 2			
9,100.00	9,006.89	9,062.35	9,009.73	34.44	34.20	-57.11	-30.28	896.97	39.09	-23.64	62.73	0.623 Level 1			
9,158.95	9,055.80	9,111.68	9,058.66	34.59	34.39	-101.18	-28.84	902.97	24.65	-40.55	65.19	0.378 Level 1, CC, ES, SF			
9,200.00	9,087.83	9,147.09	9,093.61	34.71	34.52	-136.34	-25.23	907.24	32.78	-28.96	61.74	0.531 Level 1			
9,300.00	9,157.82	9,238.82	9,182.51	34.92	34.86	-165.91	-5.83	918.07	79.29	28.35	50.95	1.556			
9,400.00	9,214.75	9,340.74	9,276.26	35.09	35.19	-172.89	32.14	929.43	131.91	89.37	42.54	3.101			
9,500.00	9,256.87	9,456.96	9,373.08	35.22	35.52	-175.73	95.01	941.07	184.16	149.40	34.76	5.298			
9,600.00	9,282.91	9,593.08	9,467.72	35.35	35.84	-177.43	191.75	952.31	232.83	204.38	28.45	8.183			
9,700.00	9,292.08	9,755.47	9,547.25	35.49	36.13	-178.79	332.41	961.52	274.04	248.44	25.60	10.707			
9,800.00	9,292.09	9,949.12	9,586.60	35.68	36.51	-179.87	521.03	965.63	294.72	268.76	25.97	11.351			
9,900.00	9,292.09	10,060.29	9,587.01	35.93	36.81	-179.89	632.20	965.25	294.93	268.29	26.63	11.073			
10,000.00	9,292.08	10,160.29	9,587.01	36.26	37.15	-179.89	732.20	964.87	294.93	267.58	27.35	10.785			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Coordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MO Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: Mariner Fee - 23-28-20 WA #14H - OH - Plan #1													Offset Well Error:
Survey Program: QMWDOHDM													Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.00	9,292.08	10,260.29	9,587.01	36.66	37.54	-179.89	832.20	964.48	294.93	266.80	28.13	10.485	
10,200.00	9,292.08	10,360.29	9,587.01	37.12	38.00	-179.90	932.20	964.10	294.93	265.95	28.98	10.179	
10,300.00	9,292.08	10,460.29	9,587.01	37.64	38.52	-179.90	1,032.20	963.72	294.93	265.05	29.88	9.871	
10,400.00	9,292.08	10,560.29	9,587.01	38.22	39.08	-179.90	1,132.20	963.33	294.93	264.09	30.84	9.564	
10,500.00	9,292.08	10,660.29	9,587.01	38.85	39.70	-179.91	1,232.20	962.95	294.93	263.09	31.84	9.262	
10,600.00	9,292.08	10,760.29	9,587.01	39.53	40.36	-179.91	1,332.20	962.56	294.93	262.04	32.89	8.966	
10,700.00	9,292.08	10,860.29	9,587.01	40.25	41.06	-179.91	1,432.20	962.18	294.93	260.95	33.98	8.679	
10,800.00	9,292.08	10,960.29	9,587.01	41.02	41.81	-179.92	1,532.20	961.80	294.93	259.82	35.11	8.400	
10,900.00	9,292.08	11,060.29	9,587.01	41.82	42.59	-179.92	1,632.19	961.41	294.93	258.66	36.27	8.132	
11,000.00	9,292.08	11,160.29	9,587.01	42.66	43.40	-179.92	1,732.19	961.03	294.93	257.48	37.46	7.874	
11,100.00	9,292.08	11,260.29	9,587.01	43.53	44.25	-179.93	1,832.19	960.65	294.94	256.26	38.67	7.626	
11,200.00	9,292.08	11,360.29	9,587.01	44.44	45.13	-179.93	1,932.19	960.26	294.94	255.02	39.92	7.389	
11,300.00	9,292.07	11,460.29	9,587.01	45.37	46.04	-179.93	2,032.19	959.88	294.94	253.76	41.18	7.162	
11,400.00	9,292.07	11,560.29	9,587.01	46.33	46.98	-179.93	2,132.19	959.49	294.94	252.48	42.46	6.946	
11,500.00	9,292.07	11,660.29	9,587.01	47.32	47.95	-179.94	2,232.19	959.11	294.94	251.18	43.76	6.738	
11,600.00	9,292.07	11,760.29	9,587.01	48.33	48.94	-179.94	2,332.19	958.73	294.94	249.86	45.08	6.542	
11,700.00	9,292.07	11,860.29	9,587.01	49.36	49.95	-179.94	2,432.19	958.34	294.94	248.53	46.42	6.354	
11,800.00	9,292.07	11,960.29	9,587.01	50.42	50.98	-179.95	2,532.19	957.96	294.95	247.18	47.77	6.175	
11,900.00	9,292.06	12,060.29	9,587.01	51.49	52.04	-179.95	2,632.19	957.57	294.95	245.82	49.13	6.003	
12,000.00	9,292.06	12,160.29	9,587.01	52.59	53.11	-179.95	2,732.19	957.19	294.95	244.45	50.50	5.840	
12,100.00	9,292.06	12,260.29	9,587.01	53.70	54.20	-179.96	2,832.19	956.81	294.95	243.06	51.89	5.684	
12,200.00	9,292.06	12,360.29	9,587.01	54.83	55.31	-179.96	2,932.18	956.42	294.95	241.67	53.28	5.535	
12,300.00	9,292.05	12,460.29	9,587.01	55.97	56.44	-179.96	3,032.18	956.04	294.96	240.27	54.69	5.393	
12,400.00	9,292.05	12,560.29	9,587.01	57.13	57.58	-179.97	3,132.18	955.65	294.96	238.86	56.10	5.258	
12,500.00	9,292.05	12,660.29	9,587.01	58.30	58.73	-179.97	3,232.18	955.27	294.96	237.44	57.52	5.128	
12,600.00	9,292.05	12,760.29	9,587.01	59.48	59.90	-179.97	3,332.18	954.89	294.96	236.01	58.95	5.003	
12,700.00	9,292.04	12,860.29	9,587.01	60.68	61.08	-179.98	3,432.18	954.50	294.97	234.58	60.39	4.884	
12,800.00	9,292.04	12,960.29	9,587.01	61.88	62.27	-179.98	3,532.18	954.12	294.97	233.14	61.83	4.771	
12,900.00	9,292.04	13,060.29	9,587.01	63.10	63.47	-179.98	3,632.18	953.73	294.97	231.69	63.28	4.661	
13,000.00	9,292.04	13,160.29	9,587.01	64.33	64.69	-179.98	3,732.18	953.35	294.98	230.24	64.73	4.557	
13,100.00	9,292.03	13,260.29	9,587.01	65.57	65.91	-179.99	3,832.18	952.97	294.98	228.78	66.19	4.456	
13,200.00	9,292.03	13,360.29	9,587.01	66.82	67.14	-179.99	3,932.18	952.58	294.98	227.32	67.66	4.360	
13,300.00	9,292.03	13,460.29	9,587.01	68.07	68.38	-179.99	4,032.18	952.20	294.98	225.86	69.13	4.267	
13,400.00	9,292.02	13,560.29	9,587.01	69.33	69.63	-180.00	4,132.18	951.81	294.99	224.39	70.60	4.178	
13,500.00	9,292.02	13,660.29	9,587.01	70.60	70.89	-180.00	4,232.18	951.43	294.99	222.91	72.08	4.093	
13,600.00	9,292.02	13,760.29	9,587.01	71.88	72.16	-180.00	4,332.17	951.05	294.99	221.44	73.56	4.010	
13,700.00	9,292.01	13,860.29	9,587.01	73.17	73.43	-180.00	4,432.17	950.66	295.00	219.96	75.04	3.931	
13,800.00	9,292.01	13,960.29	9,587.01	74.46	74.71	-179.99	4,532.17	950.28	295.00	218.47	76.53	3.855	
13,900.00	9,292.01	14,060.29	9,587.01	75.75	76.00	-179.99	4,632.17	949.89	295.01	216.98	78.02	3.781	
14,000.00	9,292.00	14,160.29	9,587.01	77.06	77.29	-179.99	4,732.17	949.51	295.01	215.49	79.52	3.710	
14,023.91	9,292.00	14,184.20	9,587.01	77.39	77.60	-179.99	4,756.08	949.42	295.01	215.14	79.87	3.694	
14,045.25	9,292.00	14,205.02	9,587.01	77.69	77.87	-179.99	4,776.90	949.34	295.01	214.83	80.19	3.679	

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Mariner Fee - 23-28-20 WXY #11H - OH - Plan #1														Offset Site Error	0.00 usft
Survey Program: MWD-HDGM														Offset Well Error	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Horizontal Distance (usft)	Offset (usft)	Horizontal Distance (usft)	Offset (usft)	Horizontal Distance (usft)	Offset (usft)	Horizontal Distance (usft)	Offset (usft)	Horizontal Distance (usft)	Offset (usft)	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-30.00	30.00	29.74	0.26	116.244			
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-30.00	30.00	29.03	0.98	30.771			
200.00	200.00	200.00	200.00	0.49	0.49	-90.00	0.00	-30.00	30.00	28.31	1.69	17.732			
300.00	300.00	300.00	300.00	0.85	0.85	-90.00	0.00	-30.00	30.00	27.59	2.41	12.455			
400.00	400.00	400.00	400.00	1.20	1.20	-90.00	0.00	-30.00	30.00	26.88	3.13	9.598			
500.00	500.00	500.00	500.00	1.56	1.56	-90.00	0.00	-30.00	30.00	26.16	3.84	7.807			
600.00	600.00	600.00	600.00	1.92	1.92	-90.00	0.00	-30.00	30.00	25.44	4.56	6.580			
700.00	700.00	700.00	700.00	2.28	2.28	-90.00	0.00	-30.00	30.00	24.73	5.28	5.686			
800.00	800.00	800.00	800.00	2.64	2.64	-90.00	0.00	-30.00	30.00	24.01	5.99	5.006			
900.00	900.00	900.00	900.00	3.00	3.00	-90.00	0.00	-30.00	30.00	23.29	6.71	4.471 CC, ES			
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	-90.00	0.00	-30.00	30.00	24.29	7.41	4.276 SF			
1,100.00	1,100.00	1,098.94	1,098.92	3.71	3.70	-90.54	-0.30	-31.68	31.70	28.71	8.11	4.540			
1,200.00	1,200.00	1,197.64	1,197.49	4.07	4.04	-91.85	-1.18	-36.71	36.82	28.71	8.11	4.540			
1,300.00	1,300.00	1,296.28	1,295.76	4.43	4.38	-93.36	-2.64	-44.96	45.24	28.71	8.11	4.540			
1,400.00	1,400.00	1,395.83	1,394.87	4.79	4.73	-94.50	-4.27	-54.21	54.62	28.71	8.11	4.540			
1,500.00	1,500.00	1,495.39	1,493.99	5.15	5.09	-95.31	-5.90	-63.45	64.01	28.71	8.11	4.540			
1,600.00	1,600.00	1,594.94	1,593.10	5.51	5.45	-95.91	-7.53	-72.69	73.41	28.71	8.11	4.540			
1,700.00	1,700.00	1,594.50	1,592.21	5.86	5.81	-96.38	-9.16	-81.94	82.82	28.71	8.11	4.540			
1,800.00	1,800.00	1,594.05	1,591.32	6.22	6.18	-96.75	-10.79	-91.18	92.23	28.71	8.11	4.540			
1,900.00	1,900.00	1,593.61	1,590.43	6.58	6.54	-97.05	-12.42	-100.43	101.64	28.71	8.11	4.540			
2,000.00	2,000.00	1,593.16	1,589.54	6.94	6.91	-97.30	-14.05	-109.67	111.06	28.71	8.11	4.540			
2,100.00	2,100.00	2,092.72	2,088.65	7.30	7.28	-97.51	-15.68	-118.91	120.48	28.71	8.11	4.540			
2,200.00	2,200.00	2,192.27	2,187.76	7.66	7.65	-97.69	-17.31	-128.16	129.90	28.71	8.11	4.540			
2,300.00	2,300.00	2,291.83	2,286.87	8.02	8.02	-97.85	-18.94	-137.40	139.32	28.71	8.11	4.540			
2,400.00	2,400.00	2,391.38	2,385.99	8.37	8.39	-97.98	-20.57	-146.64	148.74	28.71	8.11	4.540			
2,500.00	2,500.00	2,490.93	2,485.10	8.73	8.76	-98.10	-22.20	-155.89	158.16	28.71	8.11	4.540			
2,600.00	2,600.00	2,590.49	2,584.21	9.09	9.14	-98.21	-23.83	-165.13	167.59	28.71	8.11	4.540			
2,700.00	2,700.00	2,690.04	2,683.32	9.45	9.51	-98.31	-25.46	-174.37	177.01	28.71	8.11	4.540			
2,800.00	2,800.00	2,789.60	2,782.43	9.81	9.89	-98.39	-27.09	-183.62	186.43	28.71	8.11	4.540			
2,900.00	2,900.00	2,889.15	2,881.54	10.17	10.26	-98.47	-28.72	-192.86	195.86	28.71	8.11	4.540			
3,000.00	3,000.00	2,988.71	2,980.65	10.52	10.64	-98.54	-30.35	-202.10	205.28	28.71	8.11	4.540			
3,100.00	3,100.00	3,088.26	3,079.76	10.88	11.01	-98.60	-31.98	-211.35	214.71	28.71	8.11	4.540			
3,200.00	3,200.00	3,187.82	3,178.87	11.24	11.39	-98.66	-33.61	-220.59	224.14	28.71	8.11	4.540			
3,300.00	3,300.00	3,287.37	3,277.98	11.60	11.76	-98.72	-35.24	-229.84	233.56	28.71	8.11	4.540			
3,400.00	3,400.00	3,386.93	3,377.10	11.96	12.14	-98.77	-36.87	-239.08	242.99	28.71	8.11	4.540			
3,500.00	3,500.00	3,486.47	3,476.20	12.31	12.52	-98.81	-38.50	-248.32	252.50	28.71	8.11	4.540			
3,600.00	3,599.96	3,585.76	3,575.05	12.65	12.89	-98.84	-40.12	-257.54	264.32	28.71	8.11	4.540			
3,700.00	3,699.78	3,684.60	3,673.44	12.99	13.27	-98.87	-41.74	-266.72	274.44	28.71	8.11	4.540			
3,800.00	3,799.32	3,783.85	3,771.26	13.34	13.64	-98.89	-43.35	-275.84	287.86	28.71	8.11	4.540			
3,900.00	3,898.47	3,883.40	3,869.38	13.68	14.01	-98.91	-44.95	-284.90	319.57	28.71	8.11	4.540			
4,000.00	3,997.12	3,977.16	3,964.70	14.03	14.38	-98.93	-46.53	-293.88	344.49	28.71	8.11	4.540			
4,100.00	4,095.60	4,073.66	4,060.77	14.39	14.74	-98.95	-48.11	-302.84	370.44	28.71	8.11	4.540			
4,200.00	4,194.09	4,170.15	4,156.83	14.75	15.11	-98.97	-49.69	-311.80	396.43	28.71	8.11	4.540			
4,300.00	4,292.57	4,266.64	4,252.90	15.11	15.48	-98.99	-51.27	-320.76	422.44	28.71	8.11	4.540			
4,400.00	4,391.05	4,363.14	4,348.96	15.48	15.84	-99.01	-52.85	-329.72	448.49	28.71	8.11	4.540			
4,500.00	4,489.53	4,459.63	4,445.02	15.85	16.21	-99.03	-54.43	-338.68	474.56	28.71	8.11	4.540			
4,600.00	4,588.01	4,556.13	4,541.09	16.23	16.58	-99.05	-56.01	-347.64	500.64	28.71	8.11	4.540			
4,700.00	4,686.49	4,652.62	4,637.15	16.60	16.94	-99.07	-57.59	-356.60	526.74	28.71	8.11	4.540			
4,800.00	4,784.97	4,749.11	4,733.22	16.98	17.31	-99.09	-59.17	-365.56	552.86	28.71	8.11	4.540			
4,900.00	4,883.45	4,845.61	4,829.28	17.37	17.68	-99.11	-60.75	-374.52	578.99	28.71	8.11	4.540			
5,000.00	4,981.93	4,942.10	4,925.35	17.75	18.04	-99.13	-62.33	-383.48	605.12	28.71	8.11	4.540			
5,100.00	5,080.41	5,038.60	5,021.41	18.14	18.41	-99.15	-63.91	-392.44	631.27	28.71	8.11	4.540			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Mariner Fee - 23-28-20 WXY #11H - OH - Plan #1														Offset Site Error	0.00 usft
Survey Program: DMWD-HDDGM														Offset Well Error	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Twelvem (C)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Separation Distance (usft)	Separation Distance (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,200.00	5,178.89	5,135.09	5,117.47	18.53	18.78	168.41	-65.49	-401.40	657.43	621.70	35.72	18.403			
5,300.00	5,277.37	5,231.58	5,213.54	18.92	19.15	168.60	-67.07	-410.36	683.59	647.16	36.42	18.767			
5,400.00	5,375.85	5,328.08	5,309.60	19.32	19.51	168.77	-68.65	-419.31	709.75	672.63	37.12	19.118			
5,500.00	5,474.34	5,424.57	5,405.67	19.71	19.88	168.93	-70.23	-428.27	735.93	698.10	37.83	19.456			
5,600.00	5,572.82	5,521.07	5,501.73	20.11	20.25	169.08	-71.81	-437.23	762.11	723.58	38.53	19.780			
5,700.00	5,671.30	5,617.56	5,597.80	20.51	20.61	169.22	-73.39	-446.19	788.29	749.06	39.23	20.093			
5,800.00	5,769.78	5,714.05	5,693.86	20.91	20.98	169.35	-74.97	-455.15	814.48	774.54	39.94	20.395			
5,900.00	5,868.26	5,810.55	5,789.92	21.31	21.35	169.47	-76.55	-464.11	840.67	800.03	40.64	20.686			
6,000.00	5,966.74	5,907.04	5,885.99	21.71	21.72	169.59	-78.13	-473.07	866.86	825.52	41.35	20.966			
6,100.00	6,065.22	6,003.54	5,982.05	22.12	22.09	169.70	-79.70	-482.03	893.06	851.01	42.05	21.237			
6,200.00	6,163.70	6,100.03	6,078.12	22.52	22.45	169.80	-81.28	-490.99	919.26	876.50	42.76	21.499			
6,300.00	6,262.18	6,196.53	6,174.18	22.93	22.82	169.90	-82.86	-499.95	945.46	902.00	43.47	21.752			
6,400.00	6,360.66	6,293.02	6,270.24	23.34	23.19	169.99	-84.44	-508.91	971.67	927.49	44.17	21.996			
6,500.00	6,459.14	6,389.51	6,366.31	23.75	23.56	170.08	-86.02	-517.87	997.88	952.99	44.88	22.233			
6,600.00	6,557.62	6,486.01	6,462.37	24.16	23.92	170.16	-87.60	-526.83	1,024.08	978.49	45.59	22.462			
6,700.00	6,656.10	6,582.50	6,558.44	24.57	24.29	170.24	-89.18	-535.79	1,050.30	1,003.99	46.30	22.684			
6,800.00	6,754.59	6,679.00	6,654.50	24.98	24.66	170.31	-90.76	-544.75	1,076.51	1,029.50	47.01	22.899			
6,900.00	6,853.07	6,775.49	6,750.57	25.39	25.03	170.38	-92.34	-553.71	1,102.72	1,055.00	47.72	23.107			
7,000.00	6,951.55	6,871.98	6,846.63	25.80	25.40	170.45	-93.92	-562.67	1,128.94	1,080.51	48.43	23.309			
7,100.00	7,050.03	6,968.48	6,942.69	26.22	25.76	170.51	-95.50	-571.63	1,155.16	1,106.01	49.15	23.505			
7,200.00	7,148.51	7,064.97	7,038.76	26.63	26.13	170.57	-97.08	-580.58	1,181.38	1,131.52	49.86	23.695			
7,300.00	7,246.99	7,161.47	7,134.82	27.05	26.50	170.63	-98.66	-589.54	1,207.60	1,157.03	50.57	23.880			
7,400.00	7,345.47	7,257.96	7,230.89	27.46	26.87	170.69	-100.24	-598.50	1,233.82	1,182.53	51.28	24.059			
7,500.00	7,443.95	7,354.45	7,326.95	27.88	27.24	170.74	-101.82	-607.46	1,260.04	1,208.04	52.00	24.233			
7,600.00	7,542.43	7,450.95	7,423.02	28.30	27.60	170.80	-103.40	-616.42	1,286.26	1,233.55	52.71	24.403			
7,700.00	7,640.91	7,547.44	7,519.08	28.71	27.97	170.84	-104.98	-625.38	1,312.49	1,259.06	53.42	24.567			
7,800.00	7,739.39	7,643.94	7,615.14	29.13	28.34	170.89	-106.56	-634.34	1,338.71	1,284.57	54.14	24.728			
7,900.00	7,837.87	7,740.43	7,711.21	29.55	28.71	170.94	-108.14	-643.30	1,364.94	1,310.08	54.85	24.884			
8,000.00	7,936.35	7,836.93	7,807.27	29.97	29.08	170.98	-109.72	-652.26	1,391.16	1,335.60	55.57	25.035			
8,100.00	8,034.84	7,933.42	7,903.34	30.39	29.44	171.03	-111.30	-661.22	1,417.39	1,361.11	56.28	25.183			
8,200.00	8,133.32	8,029.91	7,999.40	30.81	29.81	171.07	-112.88	-670.18	1,443.62	1,386.62	57.00	25.327			
8,300.00	8,231.80	8,126.41	8,095.47	31.23	30.18	171.11	-114.46	-679.14	1,469.85	1,412.13	57.72	25.467			
8,400.00	8,330.28	8,222.90	8,191.53	31.65	30.55	171.14	-116.04	-688.10	1,496.08	1,437.65	58.43	25.604			
8,500.00	8,428.76	8,319.40	8,287.59	32.07	30.92	171.18	-117.62	-697.06	1,522.31	1,463.16	59.15	25.737			
8,600.00	8,527.24	8,415.89	8,383.66	32.50	31.29	171.22	-119.20	-706.02	1,548.54	1,488.67	59.86	25.867			
8,700.00	8,625.72	8,512.38	8,478.72	32.92	31.65	171.25	-120.78	-714.98	1,574.77	1,514.19	60.58	25.994			
8,800.00	8,724.20	8,608.88	8,575.79	33.34	32.02	171.28	-122.36	-723.94	1,601.00	1,539.70	61.30	26.117			
8,900.00	8,822.77	8,704.80	8,671.28	33.75	32.39	171.32	-123.93	-732.89	1,627.27	1,564.91	62.02	26.204			
9,000.00	8,921.25	8,797.62	8,763.69	34.17	32.74	171.35	-125.51	-741.85	1,653.57	1,589.44	62.74	26.257			
9,100.00	9,019.73	8,896.06	8,863.73	34.59	33.09	171.38	-127.09	-750.81	1,679.80	1,613.33	63.46	26.310			
9,200.00	9,118.21	8,994.49	8,963.68	35.01	33.45	171.41	-128.67	-759.77	1,706.03	1,637.23	64.18	26.363			
9,300.00	9,216.69	9,092.91	9,060.87	35.43	33.80	171.44	-130.25	-768.73	1,732.26	1,661.16	64.90	26.416			
9,400.00	9,315.17	9,191.33	9,157.00	35.85	34.14	171.47	-131.83	-777.69	1,758.49	1,685.11	65.62	26.469			
9,500.00	9,413.65	9,289.75	9,254.34	36.27	34.48	171.50	-133.41	-786.65	1,784.72	1,709.06	66.34	26.522			
9,600.00	9,512.13	9,388.17	9,352.62	36.69	34.82	171.53	-134.99	-795.61	1,810.95	1,733.01	67.06	26.575			
9,700.00	9,610.61	9,486.59	9,450.54	37.11	35.16	171.56	-136.57	-804.57	1,837.18	1,756.96	67.78	26.628			
9,800.00	9,709.09	9,585.01	9,548.50	37.53	35.50	171.59	-138.15	-813.53	1,863.41	1,780.91	68.50	26.681			
9,900.00	9,807.57	9,683.43	9,646.92	37.95	35.84	171.62	-139.73	-822.49	1,889.64	1,804.86	69.22	26.734			
10,000.00	9,906.05	9,781.85	9,745.34	38.37	36.18	171.65	-141.31	-831.45	1,915.87	1,828.81	69.94	26.787			
10,100.00	10,004.53	9,880.27	9,843.82	38.79	36.52	171.68	-142.89	-840.41	1,942.10	1,852.76	70.66	26.840			
10,200.00	10,103.01	9,978.69	9,942.30	39.21	36.86	171.71	-144.47	-849.37	1,968.33	1,876.71	71.38	26.893			
10,300.00	10,201.49	10,077.11	10,040.78	39.63	37.20	171.74	-146.05	-858.33	1,994.56	1,900.66	72.10	26.946			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	ND Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: Mariner Fee - 23-28-20 WXY #11H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: CAMD HDOG														Offset Well Error:	0.00 usft
Reference		Offset		Semi-Major Axis		Highside Footcuse (ft)	Offset Wellbore Center		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		OH-S (usft)	OH-N (usft)	Between Centers (usft)	Between Ellipses (usft)					
10,400.00	9,292.08	10,451.33	9,402.00	38.22	38.30	-93.56	1,132.04	-801.11	1,768.36	1,693.71	74.66	23.687			
10,500.00	9,292.08	10,551.33	9,402.00	38.85	38.97	-93.56	1,232.04	-801.12	1,767.97	1,691.97	76.00	23.263			
10,600.00	9,292.08	10,651.33	9,402.00	39.53	39.68	-93.57	1,332.04	-801.13	1,767.58	1,690.15	77.43	22.829			
10,700.00	9,292.08	10,751.33	9,402.00	40.25	40.44	-93.57	1,432.04	-801.14	1,767.19	1,688.25	78.94	22.388			
10,800.00	9,292.08	10,851.32	9,402.00	41.02	41.23	-93.57	1,532.04	-801.14	1,766.80	1,686.28	80.52	21.942			
10,900.00	9,292.08	10,951.32	9,402.00	41.82	42.05	-93.57	1,632.04	-801.15	1,766.41	1,684.23	82.18	21.494			
11,000.00	9,292.08	11,051.32	9,402.00	42.66	42.91	-93.57	1,732.04	-801.16	1,766.02	1,682.11	83.91	21.046			
11,100.00	9,292.08	11,151.32	9,402.00	43.53	43.80	-93.57	1,832.03	-801.17	1,765.63	1,679.92	85.70	20.602			
11,200.00	9,292.08	11,251.32	9,402.00	44.44	44.72	-93.57	1,932.03	-801.18	1,765.24	1,677.68	87.56	20.161			
11,300.00	9,292.07	11,351.32	9,402.00	45.37	45.66	-93.57	2,032.03	-801.19	1,764.85	1,675.38	89.47	19.727			
11,400.00	9,292.07	11,451.32	9,402.00	46.33	46.64	-93.57	2,132.03	-801.20	1,764.46	1,673.03	91.43	19.299			
11,500.00	9,292.07	11,551.32	9,402.00	47.32	47.64	-93.57	2,232.03	-801.21	1,764.06	1,670.63	93.44	18.879			
11,600.00	9,292.07	11,651.32	9,402.00	48.33	48.66	-93.57	2,332.03	-801.22	1,763.67	1,668.18	95.50	18.468			
11,700.00	9,292.07	11,751.32	9,402.00	49.36	49.70	-93.57	2,432.03	-801.23	1,763.28	1,665.68	97.60	18.066			
11,800.00	9,292.07	11,851.32	9,402.00	50.42	50.76	-93.58	2,532.03	-801.23	1,762.89	1,663.15	99.74	17.674			
11,900.00	9,292.06	11,951.32	9,402.00	51.49	51.84	-93.58	2,632.03	-801.24	1,762.50	1,660.58	101.92	17.292			
12,000.00	9,292.06	12,051.32	9,402.00	52.59	52.94	-93.58	2,732.03	-801.25	1,762.11	1,657.97	104.14	16.920			
12,100.00	9,292.06	12,151.31	9,402.00	53.70	54.06	-93.58	2,832.03	-801.26	1,761.72	1,655.33	106.39	16.559			
12,200.00	9,292.06	12,251.31	9,402.00	54.83	55.19	-93.58	2,932.03	-801.27	1,761.33	1,652.66	108.67	16.207			
12,300.00	9,292.05	12,351.31	9,402.00	55.97	56.34	-93.58	3,032.03	-801.28	1,760.94	1,649.96	110.99	15.866			
12,400.00	9,292.05	12,451.31	9,402.00	57.13	57.50	-93.58	3,132.02	-801.29	1,760.55	1,647.23	113.33	15.535			
12,500.00	9,292.05	12,551.31	9,402.00	58.30	58.67	-93.58	3,232.02	-801.30	1,760.16	1,644.47	115.69	15.214			
12,600.00	9,292.05	12,651.31	9,402.00	59.48	59.86	-93.58	3,332.02	-801.31	1,759.77	1,641.69	118.08	14.903			
12,700.00	9,292.04	12,751.31	9,402.00	60.68	61.06	-93.58	3,432.02	-801.32	1,759.38	1,638.89	120.50	14.601			
12,800.00	9,292.04	12,851.31	9,402.00	61.88	62.27	-93.58	3,532.02	-801.33	1,759.00	1,636.07	122.93	14.309			
12,900.00	9,292.04	12,951.31	9,402.00	63.10	63.49	-93.58	3,632.02	-801.33	1,758.61	1,633.22	125.39	14.026			
13,000.00	9,292.04	13,051.31	9,402.00	64.33	64.72	-93.59	3,732.02	-801.34	1,758.22	1,630.36	127.86	13.751			
13,100.00	9,292.03	13,151.31	9,402.00	65.57	65.96	-93.59	3,832.02	-801.35	1,757.83	1,627.47	130.35	13.485			
13,200.00	9,292.03	13,251.31	9,402.00	66.82	67.20	-93.59	3,932.02	-801.36	1,757.44	1,624.57	132.86	13.227			
13,300.00	9,292.03	13,351.31	9,402.00	68.07	68.46	-93.59	4,032.02	-801.37	1,757.05	1,621.66	135.39	12.978			
13,400.00	9,292.02	13,451.30	9,402.00	69.33	69.72	-93.59	4,132.02	-801.38	1,756.66	1,618.73	137.93	12.736			
13,500.00	9,292.02	13,551.30	9,402.00	70.60	70.99	-93.59	4,232.02	-801.39	1,756.27	1,615.78	140.49	12.501			
13,600.00	9,292.02	13,651.30	9,402.00	71.88	72.27	-93.59	4,332.02	-801.40	1,755.88	1,612.82	143.06	12.274			
13,700.00	9,292.01	13,751.30	9,402.00	73.17	73.56	-93.59	4,432.02	-801.41	1,755.49	1,609.85	145.64	12.054			
13,800.00	9,292.01	13,851.30	9,402.00	74.46	74.85	-93.59	4,532.01	-801.42	1,755.10	1,606.87	148.23	11.840			
13,900.00	9,292.01	13,951.30	9,402.00	75.75	76.15	-93.59	4,632.01	-801.42	1,754.71	1,603.87	150.84	11.633			
14,000.00	9,292.00	14,051.30	9,402.00	77.06	77.45	-93.59	4,732.01	-801.43	1,754.33	1,600.87	153.46	11.432			
14,045.25	9,292.00	14,096.55	9,402.00	77.69	78.04	-93.60	4,777.26	-801.44	1,754.15	1,599.51	154.64	11.343			

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Mariner Fee - 23-28-20 WXY #18H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 04WDDHDCM														Offset Well Error:	0.00 usft
Reference		Offset		Swell Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footcandle (°)	Offset Wellbore (usft)	Center (usft)	Between (usft)	Between (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	60.01	60.01						
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	60.01	60.01	59.75	0.26	232.488			
200.00	200.00	200.00	200.00	0.49	0.49	90.00	0.00	60.01	60.01	59.03	0.98	61.541			
300.00	300.00	300.00	300.00	0.85	0.85	90.00	0.00	60.01	60.01	58.31	1.69	35.464			
400.00	400.00	400.00	400.00	1.20	1.20	90.00	0.00	60.01	60.01	57.60	2.41	24.909			
500.00	500.00	500.00	500.00	1.56	1.56	90.00	0.00	60.01	60.01	56.88	3.13	19.196			
600.00	600.00	600.00	600.00	1.92	1.92	90.00	0.00	60.01	60.01	56.16	3.84	15.615			
700.00	700.00	700.00	700.00	2.28	2.28	90.00	0.00	60.01	60.01	55.45	4.56	13.160			
800.00	800.00	800.00	800.00	2.64	2.64	90.00	0.00	60.01	60.01	54.73	5.28	11.372			
900.00	900.00	900.00	900.00	3.00	3.00	90.00	0.00	60.01	60.01	54.01	5.99	10.011			
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	90.00	0.00	60.01	60.01	53.29	6.71	8.942			
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	90.00	0.00	60.01	60.01	52.58	7.43	8.079			
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	90.00	0.00	60.01	60.01	51.86	8.14	7.368			
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	90.00	0.00	60.01	60.01	51.14	8.86	6.772			
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	90.00	0.00	60.01	60.01	50.43	9.58	6.265			
1,500.00	1,500.00	1,500.00	1,500.00	5.15	5.15	90.00	0.00	60.01	60.01	49.71	10.30	5.828			
1,600.00	1,600.00	1,600.00	1,600.00	5.51	5.51	90.00	0.00	60.01	60.01	48.99	11.01	5.449			
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	90.00	0.00	60.01	60.01	48.28	11.73	5.116			
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	90.00	0.00	60.01	60.01	47.56	12.45	4.821			
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	90.00	0.00	60.01	60.01	46.84	13.16	4.559			
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	90.00	0.00	60.01	60.01	46.13	13.88	4.323			
2,100.00	2,100.00	2,100.00	2,100.00	7.30	7.30	90.00	0.00	60.01	60.01	45.41	14.60	4.111			
2,200.00	2,200.00	2,200.00	2,200.00	7.66	7.66	90.00	0.00	60.01	60.01	44.69	15.31	3.918			
2,300.00	2,300.00	2,300.00	2,300.00	8.02	8.02	90.00	0.00	60.01	60.01	43.97	16.03	3.743			
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	90.00	0.00	60.01	60.01	43.26	16.75	3.583			
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	90.00	0.00	60.01	60.01	42.54	17.46	3.436			
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	90.00	0.00	60.01	60.01	41.82	18.18	3.300			
2,665.19	2,665.19	2,665.19	2,665.19	9.32	9.32	90.00	0.00	60.01	60.01	41.36	18.65	3.218			
2,700.00	2,700.00	2,699.91	2,699.91	9.45	9.45	90.00	0.00	60.01	60.01	41.11	18.90	3.175			
2,800.00	2,800.00	2,797.83	2,797.81	9.81	9.78	90.18	-0.19	61.85	61.85	42.26	19.59	3.158			
2,900.00	2,900.00	2,895.51	2,895.35	10.17	10.11	90.62	-0.73	66.93	67.09	46.81	20.28	3.308			
3,000.00	3,000.00	2,992.72	2,992.19	10.52	10.45	91.22	-1.61	75.30	75.72	54.75	20.97	3.610			
3,100.00	3,100.00	3,089.26	3,088.02	10.88	10.78	91.86	-2.82	86.84	87.71	66.04	21.67	4.048			
3,200.00	3,200.00	3,188.17	3,185.99	11.24	11.13	92.42	-4.25	100.44	101.50	79.13	22.37	4.537			
3,300.00	3,300.00	3,287.21	3,284.07	11.60	11.49	92.85	-5.68	114.07	115.31	92.23	23.08	4.995			
3,400.00	3,400.00	3,386.25	3,382.16	11.96	11.84	93.19	-7.11	127.69	129.12	105.33	23.80	5.426			
3,500.00	3,500.00	3,485.30	3,480.26	12.31	12.20	-5.54	-8.55	141.31	142.85	118.41	24.44	5.844			
3,600.00	3,599.96	3,584.85	3,578.66	12.65	12.56	-5.38	-9.98	154.98	154.17	129.06	25.11	6.139			
3,700.00	3,699.78	3,684.34	3,677.39	12.99	12.93	-5.36	-11.42	168.69	162.03	136.27	25.76	6.291			
3,800.00	3,799.32	3,784.24	3,776.32	13.34	13.30	-5.46	-12.87	182.43	166.42	140.05	26.38	6.309			
3,900.00	3,898.47	3,884.23	3,875.35	13.68	13.67	-5.68	-14.31	196.19	167.34	140.38	26.97	6.205			
4,000.00	3,997.12	3,984.19	3,974.35	14.03	14.04	-6.02	-15.76	209.94	164.88	137.32	27.56	5.982			
4,100.00	4,095.60	4,084.12	4,073.32	14.39	14.42	-6.41	-17.20	223.68	161.39	133.13	28.26	5.711			
4,200.00	4,194.09	4,184.05	4,172.30	14.75	14.79	-6.81	-18.65	237.43	157.90	128.94	28.96	5.453			
4,300.00	4,292.57	4,283.99	4,271.27	15.11	15.17	-7.24	-20.09	251.17	154.42	124.76	29.66	5.206			
4,400.00	4,391.05	4,383.92	4,370.24	15.48	15.55	-7.68	-21.54	264.92	150.95	120.58	30.37	4.971			
4,500.00	4,489.53	4,483.85	4,469.21	15.85	15.94	-8.15	-22.98	278.66	147.48	116.41	31.07	4.746			
4,600.00	4,588.01	4,583.78	4,568.18	16.23	16.32	-8.64	-24.43	292.41	144.03	112.25	31.79	4.531			
4,700.00	4,686.49	4,683.72	4,667.16	16.60	16.70	-9.15	-25.87	306.16	140.59	108.09	32.50	4.326			
4,800.00	4,784.97	4,783.65	4,766.13	16.98	17.09	-9.69	-27.32	319.90	137.16	103.95	33.21	4.130			
4,900.00	4,883.45	4,883.58	4,865.10	17.37	17.47	-10.25	-28.76	333.65	133.74	99.81	33.93	3.941			
5,000.00	4,981.93	4,983.51	4,964.07	17.75	17.86	-10.85	-30.21	347.39	130.34	95.69	34.65	3.761			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Mariner Fee - 23-28-20 WXY #18H - OH - Plan #1													Offset Site Error
Survey Program: 04WDDHDDGM													0.00 usft
Reference													Offset Well Error
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Horizontal Distance (ft)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Slopes (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,100.00	5,080.41	5,083.45	5,063.05	18.14	18.25	-11.47	-31.65	361.14	126.95	91.58	35.38	3.589	
5,200.00	5,178.89	5,183.38	5,162.02	18.53	18.64	-12.13	-33.10	374.89	123.58	87.48	36.10	3.423	
5,300.00	5,277.37	5,283.31	5,260.99	18.92	19.03	-12.83	-34.54	388.63	120.23	83.40	36.83	3.264	
5,400.00	5,375.85	5,383.25	5,359.96	19.32	19.42	-13.57	-35.98	402.38	116.89	79.33	37.56	3.112	
5,500.00	5,474.34	5,483.18	5,458.94	19.71	19.81	-14.35	-37.43	416.12	113.57	75.28	38.30	2.966	
5,600.00	5,572.82	5,583.11	5,557.91	20.11	20.20	-15.17	-38.87	429.87	110.28	71.25	39.03	2.825	
5,700.00	5,671.30	5,683.04	5,656.88	20.51	20.59	-16.05	-40.32	443.62	107.01	67.24	39.78	2.690	
5,800.00	5,769.78	5,782.98	5,755.85	20.91	20.98	-16.98	-41.76	457.36	103.77	63.25	40.52	2.561	
5,900.00	5,868.26	5,882.91	5,854.82	21.31	21.38	-17.98	-43.21	471.11	100.56	59.29	41.27	2.437	
6,000.00	5,966.74	5,982.84	5,953.80	21.71	21.77	-19.04	-44.65	484.85	97.38	55.35	42.02	2.317	
6,100.00	6,065.22	6,082.77	6,052.77	22.12	22.16	-20.16	-46.10	498.60	94.23	51.45	42.78	2.203	
6,200.00	6,163.70	6,182.71	6,151.74	22.52	22.56	-21.37	-47.54	512.34	91.13	47.58	43.55	2.093	
6,300.00	6,262.18	6,282.64	6,250.71	22.93	22.95	-22.66	-48.99	526.09	88.06	43.74	44.32	1.987	
6,400.00	6,360.66	6,382.57	6,349.69	23.34	23.35	-24.05	-50.43	539.84	85.05	39.95	45.10	1.886	
6,500.00	6,459.14	6,482.51	6,448.66	23.75	23.75	-25.53	-51.88	553.58	82.08	36.20	45.88	1.789	
6,600.00	6,557.62	6,582.44	6,547.63	24.16	24.14	-27.12	-53.32	567.33	79.18	32.51	46.68	1.696	
6,700.00	6,656.10	6,682.37	6,646.60	24.57	24.54	-28.84	-54.77	581.07	76.34	28.86	47.48	1.608	
6,800.00	6,754.59	6,782.30	6,745.57	24.98	24.94	-30.68	-56.21	594.82	73.58	25.28	48.30	1.523	
6,900.00	6,853.07	6,882.24	6,844.55	25.39	25.33	-32.67	-57.66	608.57	70.90	21.77	49.13	1.443 Level 3	
7,000.00	6,951.55	6,982.17	6,943.52	25.80	25.73	-34.80	-59.10	622.31	68.31	18.34	49.97	1.367 Level 3	
7,100.00	7,050.03	7,082.10	7,042.49	26.22	26.13	-37.11	-60.55	636.06	65.82	14.99	50.83	1.295 Level 3	
7,200.00	7,148.51	7,182.03	7,141.46	26.63	26.53	-39.59	-61.99	649.80	63.45	11.75	51.71	1.227 Level 2	
7,300.00	7,246.99	7,281.97	7,240.44	27.05	26.93	-42.26	-63.44	663.55	61.21	8.61	52.60	1.164 Level 2	
7,400.00	7,345.47	7,381.90	7,339.41	27.46	27.33	-45.12	-64.88	677.29	59.10	5.60	53.51	1.105 Level 2	
7,500.00	7,443.95	7,481.83	7,438.38	27.88	27.72	-48.18	-66.32	691.04	57.16	2.73	54.44	1.050 Level 2	
7,600.00	7,542.43	7,581.77	7,537.35	28.30	28.12	-51.46	-67.77	704.79	55.39	0.01	55.38	1.000 Level 2	
7,700.00	7,640.91	7,681.70	7,636.33	28.71	28.52	-54.93	-69.21	718.53	53.82	-2.52	56.34	0.955 Level 1	
7,800.00	7,739.39	7,781.63	7,735.30	29.13	28.92	-58.60	-70.66	732.28	52.45	-4.86	57.30	0.915 Level 1	
7,900.00	7,837.87	7,881.56	7,834.27	29.55	29.32	-62.45	-72.10	746.02	51.31	-6.97	58.28	0.880 Level 1	
8,000.00	7,936.35	7,981.50	7,933.24	29.97	29.72	-66.45	-73.55	759.77	50.41	-8.84	59.25	0.851 Level 1	
8,100.00	8,034.84	8,081.43	8,032.21	30.39	30.12	-70.58	-74.99	773.52	49.77	-10.44	60.21	0.827 Level 1	
8,200.00	8,133.32	8,181.36	8,131.19	30.81	30.52	-74.80	-76.44	787.26	49.39	-11.76	61.15	0.808 Level 1	
8,289.78	8,221.73	8,271.08	8,220.04	31.19	30.88	-78.62	-77.73	799.60	49.28	-12.69	61.97	0.795 Level 1	
8,300.00	8,231.80	8,281.29	8,230.16	31.23	30.93	-79.05	-77.88	801.01	49.28	-12.79	62.06	0.794 Level 1	
8,400.00	8,330.28	8,381.23	8,329.13	31.65	31.33	-83.31	-79.33	814.75	49.44	-13.51	62.95	0.785 Level 1	
8,500.00	8,428.76	8,481.16	8,428.10	32.07	31.73	-87.51	-80.77	828.50	49.88	-13.92	63.80	0.782 Level 1	
8,600.00	8,527.24	8,581.09	8,527.08	32.50	32.13	-91.61	-82.22	842.25	50.57	-14.04	64.62	0.783 Level 1	
8,700.00	8,625.72	8,681.03	8,626.05	32.92	32.53	-95.59	-83.66	855.99	51.52	-13.87	65.39	0.788 Level 1	
8,800.00	8,724.20	8,780.96	8,725.02	33.34	32.93	-99.30	-85.11	869.74	52.57	-13.57	66.15	0.795 Level 1	
8,900.00	8,822.27	8,880.31	8,823.42	33.75	33.33	-103.06	-86.54	883.40	53.74	-12.78	66.92	0.804 Level 1	
9,000.00	8,917.47	8,974.88	8,917.04	34.12	33.71	-106.38	-87.99	896.40	55.03	-11.44	67.67	0.811 Level 1	
9,065.78	8,977.11	9,037.15	8,978.17	34.33	33.95	-109.36	-89.52	909.27	56.44	-10.30	68.44	0.812 Level 1, CC, ES, SF	
9,100.00	9,006.89	9,070.27	9,010.24	34.44	34.07	-112.67	-91.05	922.13	57.91	-9.31	69.21	0.819 Level 1	
9,200.00	9,087.83	9,170.27	9,103.86	34.71	34.41	-116.67	-92.61	935.00	59.44	-8.31	70.00	0.826 Level 1	
9,300.00	9,157.82	9,275.61	9,194.89	34.92	34.72	-120.36	-94.16	947.87	61.01	-7.31	70.79	0.833 Level 1	
9,400.00	9,214.75	9,386.95	9,279.32	35.09	34.99	-124.42	-95.71	960.74	62.62	-6.31	71.58	0.840 Level 1	
9,500.00	9,256.87	9,504.79	9,352.01	35.22	35.21	-128.94	-97.26	973.61	64.17	-5.31	72.37	0.847 Level 1	
9,600.00	9,292.08	9,629.18	9,406.86	35.35	35.40	-133.99	-98.81	986.48	65.72	-4.31	73.16	0.854 Level 1	
9,700.00	9,292.08	9,759.56	9,437.49	35.49	35.61	-139.04	-100.36	999.35	67.27	-3.31	73.95	0.861 Level 1	
9,800.00	9,292.09	9,878.02	9,442.00	35.68	35.85	-144.09	-101.91	1012.22	68.82	-2.31	74.74	0.868 Level 1	
9,900.00	9,292.09	9,978.02	9,442.00	35.93	36.13	-149.14	-103.46	1025.09	70.37	-1.31	75.53	0.875 Level 1	
10,000.00	9,292.08	10,078.02	9,442.00	36.26	36.48	-154.19	-105.01	1037.96	71.92	-0.31	76.32	0.882 Level 1	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Onset Design Mariner Fee - 23-28-20 WXY #18H - OH - Plan #1													Offset Site Error:
Survey Program: CMWDHDDM													0.00 usft
Reference		Offset		Back Sighting		Distances		Minimum Separation		Separation Factor		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footwall (ft)	Offset Wellbore Centre (usft)	ES (usft)	ES (usft)	Minimum Separation (usft)	Separation Factor		
10,100.00	9,292.08	10,178.02	9,442.00	36.66	36.89	179.85	832.20	965.43	149.92	121.97	27.95	5.364	
10,200.00	9,292.08	10,278.02	9,442.00	37.12	37.36	179.86	932.20	965.01	149.92	121.09	28.83	5.201	
10,300.00	9,292.08	10,378.02	9,442.00	37.64	37.89	179.86	1,032.20	964.60	149.92	120.15	29.76	5.037	
10,400.00	9,292.08	10,478.02	9,442.00	38.22	38.47	179.87	1,132.20	964.18	149.92	119.17	30.75	4.875	
10,500.00	9,292.08	10,578.02	9,442.00	38.85	39.10	179.87	1,232.20	963.76	149.92	118.13	31.79	4.716	
10,600.00	9,292.08	10,678.02	9,442.00	39.53	39.78	179.88	1,332.20	963.35	149.92	117.05	32.87	4.561	
10,700.00	9,292.08	10,778.02	9,442.00	40.25	40.50	179.89	1,432.20	962.93	149.92	115.94	33.98	4.411	
10,800.00	9,292.08	10,878.02	9,442.00	41.02	41.26	179.89	1,532.20	962.52	149.92	114.79	35.14	4.267	
10,900.00	9,292.08	10,978.02	9,442.00	41.82	42.06	179.90	1,632.20	962.10	149.92	113.60	36.32	4.128	
11,000.00	9,292.08	11,078.02	9,442.00	42.66	42.89	179.90	1,732.20	961.69	149.92	112.39	37.53	3.995	
11,100.00	9,292.08	11,178.02	9,442.00	43.53	43.76	179.91	1,832.20	961.28	149.93	111.16	38.77	3.867	
11,200.00	9,292.08	11,278.02	9,442.00	44.44	44.65	179.91	1,932.19	960.86	149.93	109.90	40.03	3.746	
11,300.00	9,292.07	11,378.02	9,442.00	45.37	45.58	179.92	2,032.19	960.45	149.93	108.62	41.31	3.629	
11,400.00	9,292.07	11,478.02	9,442.00	46.33	46.53	179.92	2,132.19	960.04	149.93	107.32	42.61	3.519	
11,500.00	9,292.07	11,578.02	9,442.00	47.32	47.51	179.93	2,232.19	959.62	149.93	106.00	43.93	3.413	
11,600.00	9,292.07	11,678.02	9,442.00	48.33	48.52	179.93	2,332.19	959.21	149.93	104.67	45.26	3.312	
11,700.00	9,292.07	11,778.02	9,442.00	49.36	49.54	179.93	2,432.19	958.80	149.93	103.32	46.61	3.217	
11,800.00	9,292.07	11,878.02	9,442.00	50.42	50.59	179.94	2,532.19	958.39	149.94	101.96	47.98	3.125	
11,900.00	9,292.06	11,978.02	9,442.00	51.49	51.66	179.94	2,632.19	957.98	149.94	100.59	49.35	3.038	
12,000.00	9,292.06	12,078.02	9,442.00	52.59	52.74	179.95	2,732.19	957.57	149.94	99.20	50.74	2.955	
12,100.00	9,292.06	12,178.02	9,442.00	53.70	53.85	179.95	2,832.19	957.16	149.94	97.81	52.13	2.876	
12,200.00	9,292.06	12,278.02	9,442.00	54.83	54.97	179.95	2,932.19	956.75	149.94	96.40	53.54	2.801	
12,300.00	9,292.05	12,378.02	9,442.00	55.97	56.11	179.96	3,032.19	956.34	149.95	94.99	54.96	2.729	
12,400.00	9,292.05	12,478.02	9,442.00	57.13	57.26	179.96	3,132.18	955.93	149.95	93.57	56.38	2.660	
12,500.00	9,292.05	12,578.02	9,442.00	58.30	58.42	179.96	3,232.18	955.52	149.95	92.14	57.81	2.594	
12,600.00	9,292.05	12,678.02	9,442.00	59.48	59.60	179.97	3,332.18	955.11	149.95	90.71	59.25	2.531	
12,700.00	9,292.04	12,778.02	9,442.00	60.68	60.79	179.97	3,432.18	954.71	149.96	89.26	60.69	2.471	
12,800.00	9,292.04	12,878.02	9,442.00	61.88	61.99	179.97	3,532.18	954.30	149.96	87.82	62.14	2.413	
12,900.00	9,292.04	12,978.02	9,442.00	63.10	63.21	179.98	3,632.18	953.89	149.96	86.36	63.60	2.358	
13,000.00	9,292.04	13,078.02	9,442.00	64.33	64.43	179.98	3,732.18	953.49	149.96	84.90	65.06	2.305	
13,100.00	9,292.03	13,178.02	9,442.00	65.57	65.66	179.98	3,832.18	953.08	149.97	83.44	66.53	2.254	
13,200.00	9,292.03	13,278.02	9,442.00	66.82	66.90	179.98	3,932.18	952.67	149.97	81.97	68.00	2.206	
13,300.00	9,292.03	13,378.02	9,442.00	68.07	68.15	179.99	4,032.18	952.27	149.97	80.50	69.47	2.159	
13,400.00	9,292.02	13,478.02	9,442.00	69.33	69.41	179.99	4,132.18	951.86	149.98	79.02	70.95	2.114	
13,500.00	9,292.02	13,578.02	9,442.00	70.60	70.68	179.99	4,232.18	951.46	149.98	77.54	72.44	2.071	
13,600.00	9,292.02	13,678.02	9,442.00	71.88	71.95	179.99	4,332.17	951.05	149.98	76.06	73.92	2.029	
13,700.00	9,292.01	13,778.02	9,442.00	73.17	73.23	179.99	4,432.17	950.65	149.99	74.57	75.41	1.989	
13,800.00	9,292.01	13,878.02	9,442.00	74.46	74.52	180.00	4,532.17	950.25	149.99	73.08	76.91	1.950	
13,900.00	9,292.01	13,978.02	9,442.00	75.75	75.81	180.00	4,632.17	949.84	149.99	71.59	78.40	1.913	
14,000.00	9,292.00	14,078.02	9,442.00	77.06	77.11	180.00	4,732.17	949.44	150.00	70.10	79.90	1.877	
14,024.17	9,292.00	14,102.20	9,442.00	77.40	77.43	180.00	4,756.35	949.34	150.00	69.74	80.26	1.869	
14,045.25	9,292.00	14,122.77	9,442.00	77.69	77.69	-180.00	4,776.92	949.26	150.00	69.43	80.57	1.862	

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: Mariner Offsets - Cronos Fee #1 - OH - As-Drilled												Offset Site Error:	0.00 usft
Survey Program: 35-INO-ONLY												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface °	Offset Wellbore Centre NH-S (usft)	Offset Wellbore Centre G-M (usft)	Between Centres (usft)	Between Skinned (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,200.00	9,292.08	9,264.35	9,263.08	44.44	231.52	-90.00	3,142.83	-714.79	2,067.05	1,792.04	275.00	7.516	
11,300.00	9,292.07	9,264.35	9,263.07	45.37	231.52	-90.00	3,142.83	-714.79	2,009.78	1,733.82	275.96	7.283	
11,400.00	9,292.07	9,264.34	9,263.07	46.33	231.52	-90.00	3,142.83	-714.79	1,955.95	1,679.01	276.94	7.063	
11,500.00	9,292.07	9,264.34	9,263.07	47.32	231.52	-90.00	3,142.83	-714.79	1,905.85	1,627.91	277.95	6.857	
11,600.00	9,292.07	9,264.34	9,263.07	48.33	231.52	-90.00	3,142.83	-714.79	1,859.79	1,580.81	278.98	6.666	
11,700.00	9,292.07	9,264.34	9,263.07	49.36	231.52	-90.00	3,142.83	-714.79	1,818.06	1,538.03	280.03	6.492	
11,800.00	9,292.07	9,264.34	9,263.07	50.42	231.52	-90.00	3,142.83	-714.79	1,780.98	1,499.87	281.10	6.336	
11,900.00	9,292.06	9,264.34	9,263.06	51.49	231.52	-90.00	3,142.83	-714.79	1,748.83	1,466.63	282.20	6.197	
12,000.00	9,292.06	9,264.33	9,263.06	52.59	231.52	-90.00	3,142.83	-714.79	1,721.90	1,438.59	283.31	6.078	
12,100.00	9,292.06	9,264.33	9,263.06	53.70	231.52	-90.00	3,142.83	-714.79	1,700.43	1,416.00	284.44	5.978	
12,200.00	9,292.06	9,264.33	9,263.06	54.83	231.52	-90.00	3,142.83	-714.79	1,684.64	1,399.06	285.58	5.899	
12,300.00	9,292.05	9,264.33	9,263.05	55.97	231.52	-90.00	3,142.83	-714.79	1,674.68	1,387.94	286.74	5.840	
12,400.00	9,292.05	9,264.32	9,263.05	57.13	231.52	-90.00	3,142.83	-714.79	1,670.65	1,382.74	287.91	5.803	
12,417.32	9,292.05	9,264.32	9,263.05	57.33	231.52	-90.00	3,142.83	-714.79	1,670.56	1,382.45	288.12	5.798 CC, ES	
12,500.00	9,292.05	9,264.32	9,263.05	58.30	231.52	-90.00	3,142.83	-714.79	1,672.61	1,383.51	289.10	5.786 SF	
12,600.00	9,292.05	9,264.32	9,263.05	59.48	231.52	-90.00	3,142.83	-714.79	1,680.52	1,390.23	290.29	5.789	
12,700.00	9,292.04	9,264.32	9,263.04	60.68	231.52	-90.00	3,142.83	-714.79	1,694.31	1,402.81	291.50	5.812	
12,800.00	9,292.04	9,264.31	9,263.04	61.88	231.52	-90.00	3,142.83	-714.79	1,713.83	1,421.11	292.72	5.855	
12,900.00	9,292.04	9,264.31	9,263.04	63.10	231.52	-90.00	3,142.83	-714.79	1,738.90	1,444.94	293.95	5.916	
13,000.00	9,292.04	9,264.31	9,263.04	64.33	231.52	-90.00	3,142.83	-714.79	1,769.27	1,474.07	295.20	5.994	
13,100.00	9,292.03	9,264.31	9,263.03	65.57	231.52	-90.00	3,142.83	-714.79	1,804.67	1,508.23	296.44	6.088	
13,200.00	9,292.03	9,264.30	9,263.03	66.82	231.52	-90.00	3,142.83	-714.79	1,844.82	1,547.12	297.70	6.197	
13,300.00	9,292.03	9,264.30	9,263.03	68.07	231.52	-90.00	3,142.83	-714.79	1,889.42	1,590.45	298.97	6.320	
13,400.00	9,292.02	9,264.30	9,263.02	69.33	231.52	-90.00	3,142.83	-714.79	1,938.16	1,637.91	300.24	6.455	
13,500.00	9,292.02	9,264.29	9,263.02	70.60	231.52	-90.00	3,142.83	-714.79	1,990.72	1,689.20	301.52	6.602	
13,600.00	9,292.02	9,264.29	9,263.02	71.88	231.52	-90.00	3,142.83	-714.79	2,046.83	1,744.02	302.81	6.759	

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:
Mariner Offsets - Lackey #1 SWD - OH - As-Drilled													0.00 usft
Survey Program: 730-INOONLY													Offset Well Error:
Reference													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Inclination (°)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.00	9,292.08	9,265.80	9,264.08	36.66	252.70	-90.00	2,049.21	-717.30	2,076.39	1,788.36	288.03	7.209	
10,200.00	9,292.08	9,265.80	9,264.08	37.12	252.70	-90.00	2,049.21	-717.30	2,019.07	1,730.52	288.55	6.997	
10,300.00	9,292.08	9,265.80	9,264.08	37.64	252.70	-90.00	2,049.21	-717.30	1,965.17	1,676.04	289.12	6.797	
10,400.00	9,292.08	9,265.80	9,264.08	38.22	252.70	-90.00	2,049.21	-717.30	1,914.97	1,625.23	289.74	6.609	
10,500.00	9,292.08	9,265.80	9,264.08	38.85	252.70	-90.00	2,049.21	-717.30	1,868.79	1,578.38	290.41	6.435	
10,600.00	9,292.08	9,265.80	9,264.08	39.53	252.70	-90.00	2,049.21	-717.30	1,826.92	1,535.80	291.12	6.275	
10,700.00	9,292.08	9,265.80	9,264.08	40.25	252.70	-90.00	2,049.21	-717.30	1,789.66	1,497.79	291.87	6.132	
10,800.00	9,292.08	9,265.80	9,264.08	41.02	252.70	-90.00	2,049.21	-717.30	1,757.31	1,464.64	292.66	6.005	
10,900.00	9,292.08	9,265.80	9,264.08	41.82	252.70	-90.00	2,049.21	-717.30	1,730.14	1,436.65	293.49	5.895	
11,000.00	9,292.08	9,265.80	9,264.08	42.66	252.70	-90.00	2,049.21	-717.30	1,708.40	1,414.05	294.36	5.804	
11,100.00	9,292.08	9,265.80	9,264.08	43.53	252.70	-90.00	2,049.21	-717.30	1,692.30	1,397.05	295.25	5.732	
11,200.00	9,292.08	9,265.80	9,264.08	44.44	252.70	-90.00	2,049.21	-717.30	1,682.00	1,385.83	296.18	5.679	
11,300.00	9,292.07	9,265.79	9,264.07	45.37	252.70	-90.00	2,049.21	-717.30	1,677.61	1,380.48	297.13	5.646	
11,323.74	9,292.07	9,265.79	9,264.07	45.60	252.70	-90.00	2,049.21	-717.30	1,677.45	1,380.08	297.37	5.641 CC, ES	
11,400.00	9,292.07	9,265.79	9,264.07	46.33	252.70	-90.00	2,049.21	-717.30	1,679.18	1,381.07	298.11	5.633 SF	
11,500.00	9,292.07	9,265.79	9,264.07	47.32	252.70	-90.00	2,049.21	-717.30	1,686.68	1,387.56	299.12	5.639	
11,600.00	9,292.07	9,265.79	9,264.07	48.33	252.70	-90.00	2,049.21	-717.30	1,700.04	1,399.89	300.15	5.664	
11,700.00	9,292.07	9,265.79	9,264.07	49.36	252.70	-90.00	2,049.21	-717.30	1,719.13	1,417.92	301.20	5.708	
11,800.00	9,292.07	9,265.79	9,264.07	50.42	252.70	-90.00	2,049.21	-717.30	1,743.75	1,441.47	302.28	5.769	
11,900.00	9,292.06	9,265.78	9,264.06	51.49	252.70	-90.00	2,049.21	-717.30	1,773.67	1,470.30	303.37	5.847	
12,000.00	9,292.06	9,265.78	9,264.06	52.59	252.70	-90.00	2,049.21	-717.30	1,808.64	1,504.16	304.48	5.940	
12,100.00	9,292.06	9,265.78	9,264.06	53.70	252.70	-90.00	2,049.21	-717.30	1,848.36	1,542.75	305.61	6.048	
12,200.00	9,292.06	9,265.78	9,264.06	54.83	252.70	-90.00	2,049.21	-717.30	1,892.53	1,585.78	306.75	6.170	
12,300.00	9,292.05	9,265.78	9,264.05	55.97	252.70	-90.00	2,049.21	-717.30	1,940.86	1,632.95	307.91	6.303	
12,400.00	9,292.05	9,265.77	9,264.05	57.13	252.70	-90.00	2,049.21	-717.30	1,993.03	1,683.95	309.08	6.448	
12,500.00	9,292.05	9,265.77	9,264.05	58.30	252.70	-90.00	2,049.21	-717.30	2,048.76	1,738.50	310.27	6.603	

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Coordinate Reference:	Well 23-28-20 TB #15H
Project:	Eddy County, NM (NAD27)	TVD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Reference Site:	Mariner Fee	MD Reference:	KB = 28' @ 3103.00usft (Patterson 244)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	23-28-20 TB #15H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	Midland District
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB = 28' @ 3103.00usft (Patterson 24)

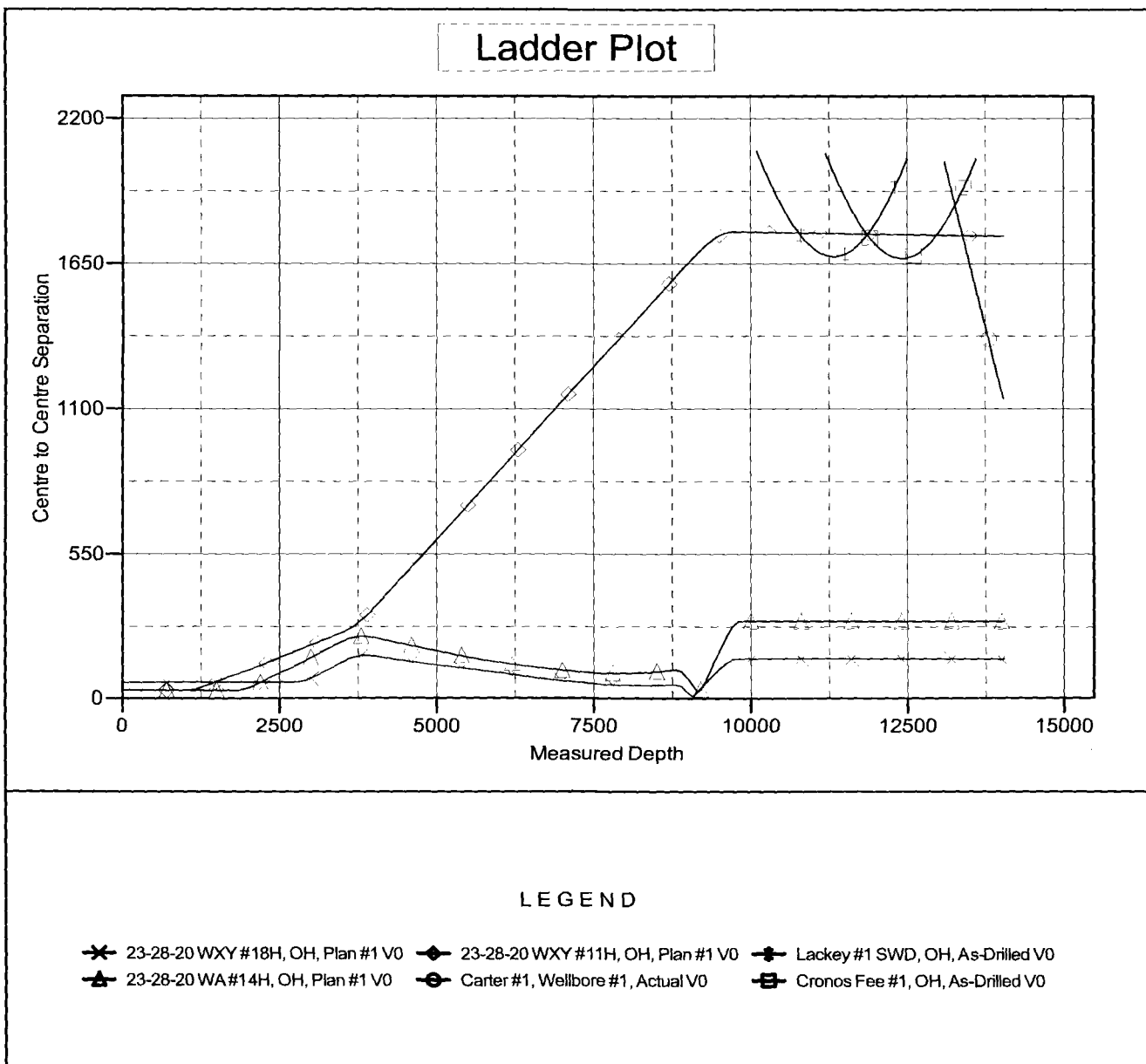
Offset Depths are relative to Offset Datum

Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 23-28-20 TB #15H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.12°



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Offset Depths are relative to Offset Datum

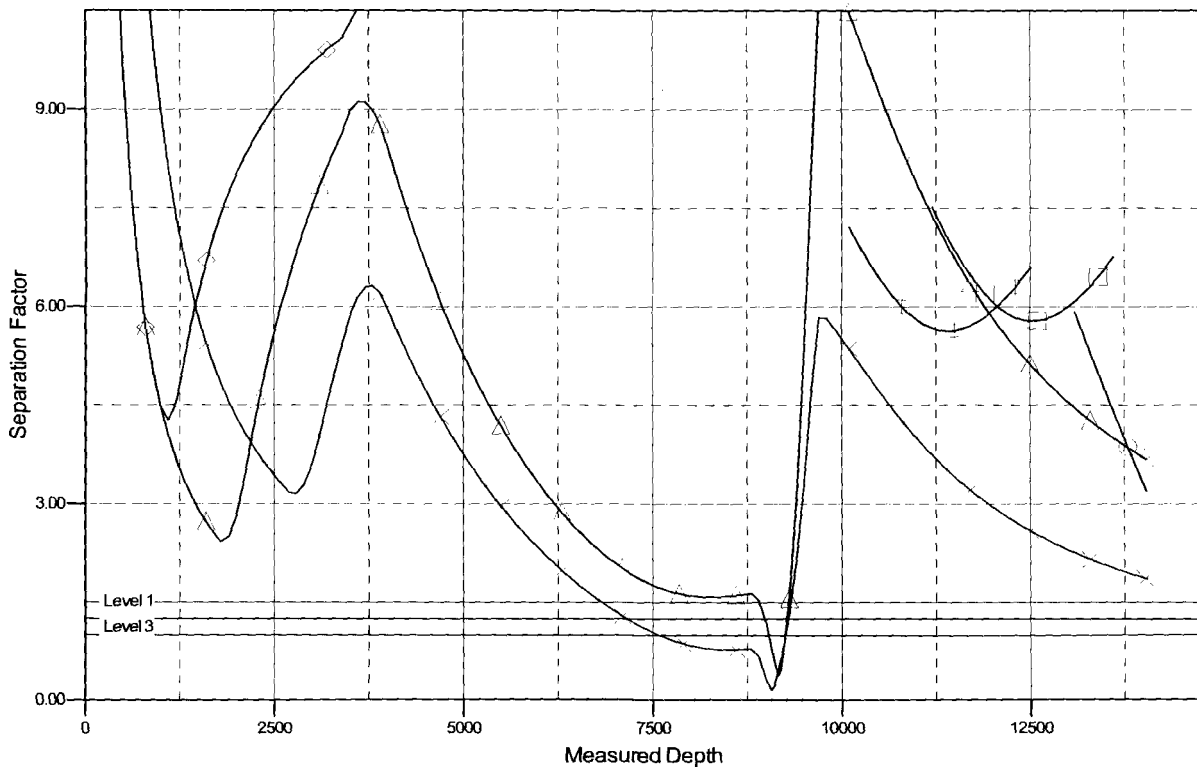
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Separation Factor Plot



LEGEND

- ✕ 23-28-20 WXY #18H, OH, Plan #1 V0 ◆ 23-28-20 WXY #11H, OH, Plan #1 V0 ⬤ Lackey #1 SWD, OH, As-Drilled V0
- ▲ 23-28-20 WA #14H, OH, Plan #1 V0 ○ Carter #1, Wellbore #1, Actual V0 ▣ Cronos Fee #1, OH, As-Drilled V0