

Marathon Oil Permian, LLC

Eddy County, NM (NAD27)

Mariner Fee

23-28-20 WA #14H

OH

Plan: Plan#1

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 17 2017

RECEIVED

Standard Planning Report

10 November, 2017



Scientific Drilling

www.scientificdrilling.com

Planning Report

Database:	Midland District	Local Coordinate Reference:	Well 23-28-20 WA #14H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 28 @ 3103.00us(Patterson 244)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 28 @ 3103.00us(Patterson 244)
Site:	Mariner Fee	North Reference:	Grid
Well:	23-28-20 WA #14H	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
From:	Map	Easting:	567,982.27 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17'1.795 N
		Longitude:	104° 6'48.067 W
		Grid Convergence:	0.12 °

Well	23-28-20 WA #14H					
Well Position	+N-S	0.00 usft	Northing:	467,045.09 usft	Latitude:	32° 17'1.794 N
	+E-W	60.00 usft	Easting:	568,042.27 usft	Longitude:	104° 6'47.368 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,075.00 usft	

Wellbore:	OH
------------------	----

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 (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (bearing)
	0.00	0.00	0.00	10.89

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	
1,769.30	0.00	0.00	1,769.30	0.00	0.00	0.00	0.00	0.00	0.00	
2,119.30	7.00	92.00	2,118.43	-0.75	21.34	2.00	2.00	0.00	92.00	
9,068.30	7.00	92.00	9,015.63	-30.30	867.69	0.00	0.00	0.00	0.00	
9,971.01	90.00	359.78	9,587.01	542.92	935.60	10.00	9.19	-10.22	-92.20	
14,205.02	90.00	359.78	9,587.01	4,776.90	919.34	0.00	0.00	0.00	0.00	BHL(MF#14H)

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Mariner Fee
Well: 23-28-20 WA #14H
Wellbore: OH
Design: Plan #1

Local Coordinate Reference: Well 23-28-20 WA #14H
TVD Reference: KB = 28 @ 3103.00usf(Patterson 244)
MD Reference: KB = 28 @ 3103.00usf(Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
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
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,769.30	0.00	0.00	1,769.30	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 2.0 / 10									
1,800.00	0.61	92.00	1,800.00	-0.01	0.16	0.03	2.00	2.00	0.00
1,900.00	2.61	92.00	1,899.95	-0.10	2.98	0.46	2.00	2.00	0.00
2,000.00	4.61	92.00	1,999.75	-0.32	9.28	1.44	2.00	2.00	0.00
2,100.00	6.61	92.00	2,099.27	-0.67	19.05	2.95	2.00	2.00	0.00
2,119.30	7.00	92.00	2,118.43	-0.75	21.34	3.30	2.00	2.00	0.00
EOB - OLD									
2,200.00	7.00	92.00	2,198.53	-1.09	31.17	4.82	0.00	0.00	0.00
2,300.00	7.00	92.00	2,297.78	-1.51	43.35	6.71	0.00	0.00	0.00
2,345.56	7.00	92.00	2,343.00	-1.71	48.90	7.56	0.00	0.00	0.00
Base of Sat									
2,400.00	7.00	92.00	2,397.04	-1.94	55.53	8.59	0.00	0.00	0.00
2,500.00	7.00	92.00	2,496.29	-2.36	67.71	10.47	0.00	0.00	0.00
2,509.78	7.00	92.00	2,506.00	-2.41	68.90	10.66	0.00	0.00	0.00
Iamar									
2,535.98	7.00	92.00	2,532.00	-2.52	72.09	11.15	0.00	0.00	0.00
Bell Canyon									
2,600.00	7.00	92.00	2,595.55	-2.79	79.89	12.36	0.00	0.00	0.00
2,700.00	7.00	92.00	2,694.80	-3.22	92.07	14.24	0.00	0.00	0.00
2,800.00	7.00	92.00	2,794.06	-3.64	104.25	16.13	0.00	0.00	0.00
2,900.00	7.00	92.00	2,893.31	-4.07	116.43	18.01	0.00	0.00	0.00
3,000.00	7.00	92.00	2,992.57	-4.49	128.61	19.89	0.00	0.00	0.00
3,100.00	7.00	92.00	3,091.82	-4.92	140.79	21.78	0.00	0.00	0.00
3,200.00	7.00	92.00	3,191.07	-5.34	152.96	23.66	0.00	0.00	0.00
3,300.00	7.00	92.00	3,290.33	-5.77	165.14	25.55	0.00	0.00	0.00
3,381.28	7.00	92.00	3,371.00	-6.11	175.04	27.08	0.00	0.00	0.00
Cherry Canyon									
3,400.00	7.00	92.00	3,389.58	-6.19	177.32	27.43	0.00	0.00	0.00
3,500.00	7.00	92.00	3,488.84	-6.62	189.50	29.32	0.00	0.00	0.00
3,600.00	7.00	92.00	3,588.09	-7.04	201.68	31.20	0.00	0.00	0.00

Planning Report

Database: Midland District
 Company: Marathon Oil Permian, LLC
 Project: Eddy County, NM (NA27)
 Site: Mariner Fee
 Well: 23-28-20 WA #14H
 Wellbore: OH
 Design: Plan #1

Local Coordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well 23-28-20 WA #14H
 KB = 28 @ 3103.00us(Patterson 244)
 KB = 28 @ 3103.00us(Patterson 244)
 Grid
 Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buid Rate (°/100usft)	Turn Rate (°/100usft)
3,700.00	7.00	92.00	3,687.35	-7.47	213.86	33.08	0.00	0.00	0.00
3,800.00	7.00	92.00	3,786.60	-7.89	226.04	34.97	0.00	0.00	0.00
3,900.00	7.00	92.00	3,885.86	-8.32	238.22	36.85	0.00	0.00	0.00
4,000.00	7.00	92.00	3,985.11	-8.74	250.40	38.74	0.00	0.00	0.00
4,100.00	7.00	92.00	4,084.37	-9.17	262.58	40.62	0.00	0.00	0.00
4,200.00	7.00	92.00	4,183.62	-9.59	274.76	42.50	0.00	0.00	0.00
4,300.00	7.00	92.00	4,282.88	-10.02	286.94	44.39	0.00	0.00	0.00
4,400.00	7.00	92.00	4,382.13	-10.45	299.12	46.27	0.00	0.00	0.00
4,500.00	7.00	92.00	4,481.38	-10.87	311.30	48.16	0.00	0.00	0.00
4,522.79	7.00	92.00	4,504.00	-10.97	314.07	48.59	0.00	0.00	0.00
Brushy Canyon									
4,600.00	7.00	92.00	4,580.64	-11.30	323.48	50.04	0.00	0.00	0.00
4,700.00	7.00	92.00	4,679.89	-11.72	335.66	51.92	0.00	0.00	0.00
4,800.00	7.00	92.00	4,779.15	-12.15	347.84	53.81	0.00	0.00	0.00
4,900.00	7.00	92.00	4,878.40	-12.57	360.02	55.69	0.00	0.00	0.00
5,000.00	7.00	92.00	4,977.66	-13.00	372.20	57.58	0.00	0.00	0.00
5,100.00	7.00	92.00	5,076.91	-13.42	384.38	59.46	0.00	0.00	0.00
5,200.00	7.00	92.00	5,176.17	-13.85	396.55	61.35	0.00	0.00	0.00
5,300.00	7.00	92.00	5,275.42	-14.27	408.73	63.23	0.00	0.00	0.00
5,400.00	7.00	92.00	5,374.68	-14.70	420.91	65.11	0.00	0.00	0.00
5,500.00	7.00	92.00	5,473.93	-15.12	433.09	67.00	0.00	0.00	0.00
5,600.00	7.00	92.00	5,573.19	-15.55	445.27	68.88	0.00	0.00	0.00
5,700.00	7.00	92.00	5,672.44	-15.97	457.45	70.77	0.00	0.00	0.00
5,800.00	7.00	92.00	5,771.69	-16.40	469.63	72.65	0.00	0.00	0.00
5,900.00	7.00	92.00	5,870.95	-16.83	481.81	74.53	0.00	0.00	0.00
6,000.00	7.00	92.00	5,970.20	-17.25	493.99	76.42	0.00	0.00	0.00
6,100.00	7.00	92.00	6,069.46	-17.68	506.17	78.30	0.00	0.00	0.00
6,114.65	7.00	92.00	6,084.00	-17.74	507.95	78.58	0.00	0.00	0.00
Bone Spring									
6,200.00	7.00	92.00	6,168.71	-18.10	518.35	80.19	0.00	0.00	0.00
6,300.00	7.00	92.00	6,267.97	-18.53	530.53	82.07	0.00	0.00	0.00
6,400.00	7.00	92.00	6,367.22	-18.95	542.71	83.95	0.00	0.00	0.00
6,500.00	7.00	92.00	6,466.48	-19.38	554.89	85.84	0.00	0.00	0.00
6,600.00	7.00	92.00	6,565.73	-19.80	567.07	87.72	0.00	0.00	0.00
6,700.00	7.00	92.00	6,664.99	-20.23	579.25	89.61	0.00	0.00	0.00
6,800.00	7.00	92.00	6,764.24	-20.65	591.43	91.49	0.00	0.00	0.00
6,900.00	7.00	92.00	6,863.50	-21.08	603.61	93.38	0.00	0.00	0.00
7,000.00	7.00	92.00	6,962.75	-21.50	615.79	95.26	0.00	0.00	0.00
7,003.27	7.00	92.00	6,966.00	-21.52	616.18	95.32	0.00	0.00	0.00
1st Bone Spring Sand									
7,100.00	7.00	92.00	7,062.00	-21.93	627.97	97.14	0.00	0.00	0.00
7,200.00	7.00	92.00	7,161.26	-22.35	640.15	99.03	0.00	0.00	0.00
7,300.00	7.00	92.00	7,260.51	-22.78	652.32	100.91	0.00	0.00	0.00
7,400.00	7.00	92.00	7,359.77	-23.20	664.50	102.80	0.00	0.00	0.00
7,500.00	7.00	92.00	7,459.02	-23.63	676.68	104.68	0.00	0.00	0.00
7,600.00	7.00	92.00	7,558.28	-24.06	688.86	106.56	0.00	0.00	0.00
7,700.00	7.00	92.00	7,657.53	-24.48	701.04	108.45	0.00	0.00	0.00
7,800.00	7.00	92.00	7,756.79	-24.91	713.22	110.33	0.00	0.00	0.00
7,818.35	7.00	92.00	7,775.00	-24.98	715.46	110.68	0.00	0.00	0.00
2nd Bone Spring Sand									
7,900.00	7.00	92.00	7,856.04	-25.33	725.40	112.22	0.00	0.00	0.00
8,000.00	7.00	92.00	7,955.30	-25.76	737.58	114.10	0.00	0.00	0.00
8,100.00	7.00	92.00	8,054.55	-26.18	749.76	115.98	0.00	0.00	0.00
8,200.00	7.00	92.00	8,153.81	-26.61	761.94	117.87	0.00	0.00	0.00

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAI27)
Site: Mariner Fee
Well: 23-28-20 WA #14H
Wellbore: OH
Design: Plan #1

Local Coordinate Reference: Well 23-28-20 WA #14H
TVD Reference: KB = 28 @ 3103.00usf(Patterson 244)
MD Reference: KB = 28 @ 3103.00usf(Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usf)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usf)	+N/-S (usf)	+E/-W (usf)	Vertical Section (usf)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)
8,300.00	7.00	92.00	8,253.06	-27.03	774.12	119.75	0.00	0.00	0.00
8,400.00	7.00	92.00	8,352.31	-27.46	786.30	121.64	0.00	0.00	0.00
8,500.00	7.00	92.00	8,451.57	-27.88	798.48	123.52	0.00	0.00	0.00
8,600.00	7.00	92.00	8,550.82	-28.31	810.66	125.41	0.00	0.00	0.00
8,700.00	7.00	92.00	8,650.08	-28.73	822.84	127.29	0.00	0.00	0.00
8,800.00	7.00	92.00	8,749.33	-29.16	835.02	129.17	0.00	0.00	0.00
8,900.00	7.00	92.00	8,848.59	-29.58	847.20	131.06	0.00	0.00	0.00
9,000.00	7.00	92.00	8,947.84	-30.01	859.38	132.94	0.00	0.00	0.00
9,029.38	7.00	92.00	8,977.00	-30.14	862.95	133.50	0.00	0.00	0.00
3rd Bone Spring Sand									
9,068.30	7.00	92.00	9,015.63	-30.30	867.69	134.23	0.00	0.00	0.00
Curve KOP - Build 0.0° / 90									
9,100.00	7.57	67.20	9,047.09	-29.56	871.55	135.69	10.00	1.80	-78.24
9,150.00	10.54	41.05	9,096.48	-24.83	877.59	141.47	10.00	5.93	-52.29
9,200.00	14.65	27.78	9,145.27	-15.79	883.55	151.48	10.00	8.22	-26.54
9,250.00	19.18	20.44	9,193.11	-2.49	889.36	165.63	10.00	9.06	-14.68
9,300.00	23.89	15.86	9,239.61	14.95	895.00	183.83	10.00	9.43	-9.15
9,350.00	28.69	12.73	9,284.42	36.41	900.42	205.93	10.00	9.61	-6.26
9,385.46	32.14	11.04	9,315.00	53.98	904.10	223.87	10.00	9.71	-4.77
Wolfcamp									
9,400.00	33.55	10.44	9,327.21	61.73	905.57	231.76	10.00	9.74	-4.14
9,450.00	38.44	8.67	9,367.65	90.70	910.42	261.12	10.00	9.78	-3.54
9,500.00	43.36	7.25	9,405.44	123.11	914.93	293.81	10.00	9.82	-2.85
9,550.00	48.28	6.06	9,440.27	158.72	919.07	329.55	10.00	9.85	-2.37
9,598.61	53.08	5.07	9,471.06	196.14	922.70	366.98	10.00	9.88	-2.04
FTP(MF#14H)									
9,600.00	53.22	5.04	9,471.90	197.25	922.80	368.09	10.00	9.88	-1.90
9,650.00	58.17	4.15	9,500.07	238.40	926.10	409.13	10.00	9.89	-1.79
9,700.00	63.12	3.35	9,524.57	281.88	928.94	452.35	10.00	9.90	-1.61
9,750.00	68.07	2.61	9,545.23	327.33	931.30	497.44	10.00	9.91	-1.47
9,800.00	73.03	1.93	9,561.87	374.43	933.16	544.04	10.00	9.92	-1.37
9,850.00	77.99	1.28	9,574.38	422.80	934.51	591.79	10.00	9.92	-1.30
9,900.00	82.95	0.65	9,582.65	472.09	935.33	640.35	10.00	9.92	-1.25
9,950.00	87.92	0.04	9,586.63	521.92	935.63	689.33	10.00	9.93	-1.23
9,971.01	90.00	359.78	9,587.01	542.92	935.60	709.95	10.00	9.93	-1.22
EOC - MLD									
10,000.00	90.00	359.78	9,587.01	571.91	935.49	738.40	0.00	0.00	0.00
10,100.00	90.00	359.78	9,587.01	671.91	935.10	836.52	0.00	0.00	0.00
10,200.00	90.00	359.78	9,587.01	771.91	934.72	934.65	0.00	0.00	0.00
10,300.00	90.00	359.78	9,587.01	871.91	934.33	1,032.77	0.00	0.00	0.00
10,400.00	90.00	359.78	9,587.01	971.91	933.95	1,130.90	0.00	0.00	0.00
10,500.00	90.00	359.78	9,587.01	1,071.91	933.57	1,229.02	0.00	0.00	0.00
10,600.00	90.00	359.78	9,587.01	1,171.91	933.18	1,327.15	0.00	0.00	0.00
10,700.00	90.00	359.78	9,587.01	1,271.91	932.80	1,425.27	0.00	0.00	0.00
10,800.00	90.00	359.78	9,587.01	1,371.90	932.42	1,523.40	0.00	0.00	0.00
10,900.00	90.00	359.78	9,587.01	1,471.90	932.03	1,621.52	0.00	0.00	0.00
11,000.00	90.00	359.78	9,587.01	1,571.90	931.65	1,719.65	0.00	0.00	0.00
11,100.00	90.00	359.78	9,587.01	1,671.90	931.26	1,817.77	0.00	0.00	0.00
11,200.00	90.00	359.78	9,587.01	1,771.90	930.88	1,915.90	0.00	0.00	0.00
11,300.00	90.00	359.78	9,587.01	1,871.90	930.50	2,014.02	0.00	0.00	0.00
11,400.00	90.00	359.78	9,587.01	1,971.90	930.11	2,112.15	0.00	0.00	0.00
11,500.00	90.00	359.78	9,587.01	2,071.90	929.73	2,210.27	0.00	0.00	0.00
11,600.00	90.00	359.78	9,587.01	2,171.90	929.34	2,308.39	0.00	0.00	0.00

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Mariner Fee
Well: 23-28-20 WA #14H
Wellbore: OH
Design: Plan #1

Local Coordinate Reference: Well 23-28-20 WA #14H
TVD Reference: KB = 28 @ 3103.00usft(Patterson 244)
MD Reference: KB = 28 @ 3103.00usft(Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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	90.00	359.78	9,587.01	2,271.90	928.96	2,406.52	0.00	0.00	0.00
11,800.00	90.00	359.78	9,587.01	2,371.90	928.58	2,504.64	0.00	0.00	0.00
11,900.00	90.00	359.78	9,587.01	2,471.90	928.19	2,602.77	0.00	0.00	0.00
12,000.00	90.00	359.78	9,587.01	2,571.90	927.81	2,700.89	0.00	0.00	0.00
12,100.00	90.00	359.78	9,587.01	2,671.90	927.42	2,799.02	0.00	0.00	0.00
12,200.00	90.00	359.78	9,587.01	2,771.89	927.04	2,897.14	0.00	0.00	0.00
12,300.00	90.00	359.78	9,587.01	2,871.89	926.66	2,995.27	0.00	0.00	0.00
12,400.00	90.00	359.78	9,587.01	2,971.89	926.27	3,093.39	0.00	0.00	0.00
12,500.00	90.00	359.78	9,587.01	3,071.89	925.89	3,191.52	0.00	0.00	0.00
12,600.00	90.00	359.78	9,587.01	3,171.89	925.50	3,289.64	0.00	0.00	0.00
12,700.00	90.00	359.78	9,587.01	3,271.89	925.12	3,387.77	0.00	0.00	0.00
12,800.00	90.00	359.78	9,587.01	3,371.89	924.74	3,485.89	0.00	0.00	0.00
12,900.00	90.00	359.78	9,587.01	3,471.89	924.35	3,584.02	0.00	0.00	0.00
13,000.00	90.00	359.78	9,587.01	3,571.89	923.97	3,682.14	0.00	0.00	0.00
13,100.00	90.00	359.78	9,587.01	3,671.89	923.58	3,780.26	0.00	0.00	0.00
13,200.00	90.00	359.78	9,587.01	3,771.89	923.20	3,878.39	0.00	0.00	0.00
13,300.00	90.00	359.78	9,587.01	3,871.89	922.82	3,976.51	0.00	0.00	0.00
13,400.00	90.00	359.78	9,587.01	3,971.89	922.43	4,074.64	0.00	0.00	0.00
13,500.00	90.00	359.78	9,587.01	4,071.89	922.05	4,172.76	0.00	0.00	0.00
13,600.00	90.00	359.78	9,587.01	4,171.88	921.66	4,270.89	0.00	0.00	0.00
13,700.00	90.00	359.78	9,587.01	4,271.88	921.28	4,369.01	0.00	0.00	0.00
13,800.00	90.00	359.78	9,587.01	4,371.88	920.90	4,467.14	0.00	0.00	0.00
13,900.00	90.00	359.78	9,587.01	4,471.88	920.51	4,565.26	0.00	0.00	0.00
14,000.00	90.00	359.78	9,587.01	4,571.88	920.13	4,663.39	0.00	0.00	0.00
14,100.00	90.00	359.78	9,587.01	4,671.88	919.74	4,761.51	0.00	0.00	0.00
14,205.02	90.00	359.78	9,587.01	4,776.90	919.34	4,864.57	0.00	0.00	0.00
TD at 4205.02 -BHL[MF#14H]									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP[MF#14H] - 11/miss target - Bape	0.00	0.00	9,587.00	99.57	937.19	467,144.65	568,979.37	32° 17' 2.760 N	104° 6' 36.449 W
- plan misses target center by 151.58usft at 9598.61usft MD (9471.06 TVD, 196.14 N, 922.70 E)									
- Point									
BHL[MF#14H] - plan misses target center by 0.08usft at 14205.02usft MD (9587.01 TVD, 4776.90 N, 919.34 E)	0.00	0.00	9,587.00	4,776.92	919.26	471,821.60	568,961.45	32° 17' 49.045 N	104° 6' 36.544 W
- Point									

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Mariner Fee
Well: 23-28-20 WA #14H
Wellbore: OH
Design: Plan #1

Local Coordinate Reference: Well 23-28-20 WA #14H
TVD Reference: KB = 28 @ 3103.00us(Patterson 244)
MD Reference: KB = 28 @ 3103.00us(Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
460.00	460.00	Salado			
865.00	865.00	Castile			
2,345.56	2,343.00	Base of Salt			
2,509.78	2,506.00	Iamar			
2,535.98	2,532.00	Bell Canyon			
3,381.28	3,371.00	Cherry Canyon			
4,522.79	4,504.00	Brushy Canyon			
6,114.65	6,084.00	Bone Spring			
7,003.27	6,966.00	1st Bone Spring Sand			
7,818.35	7,775.00	2nd Bone Spring Sand			
9,029.38	8,977.00	3rd Bone Spring Sand			
9,385.46	9,315.00	Wolfcamp			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
1,769.30	1,769.30	0.00	0.00	KOP -Build 20° / 100
2,119.30	2,118.43	-0.75	21.34	EOB -HOLD
9,068.30	9,015.63	-30.30	867.69	Curve KOP - Build 10.0° /100
9,971.01	9,587.01	542.92	935.60	EOC -HOLD
14,205.02	9,587.01	4,776.90	919.34	TD at 14205.02



EDDY COUNTY, NM (NAD27)
MARINER FEE
23-28-20 WA #14H
OH
PLAN #1
PATTERSON 244

WELL DETAILS:

Ground Level		3075.00	
+N/S	+E/W	Northing	Easting
0.00	0.00	467045.09	568042.26
		Latitude	Longitude
		32° 17' 17.84" N	104° 6' 47.388" W

SPECIEN DETAILS

TVD	INC	AZI	TVD	+N/S	+E/W	DULC	TFACE	VDEPTH	TARGET
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2314.50	4.50	0.00	2314.50	0.00	0.00	0.00	0.00	0.00	
3346.50	8.00	80.00	3115.23	0.24	22.84	7.00	89.00	5.75	
6040.50	8.00	80.00	9021.14	10.94	854.74	0.00	9.00	1.60	
9079.41	50.00	100.00	140587.65	548.24	935.44	10.00	89.22	154.41	
14064.5	30.00	300.00	10581.71	1.71	57.57	0.00	0.00	0.00	

DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Easting
BHLMF#14H	9587.00	4775.92	910.28	471921.85	568881.45
FTPMF#14H	9587.00	90.57	937.19	487144.85	568979.37

SITE DETAILS: MARINER FEE
SITE EDDY COUNTY, NM (NAD27)
FACTORY: 567982.27
PRACTICAL UNCERTAINTY: 0.00
CONVERGENCE: 0.12
LOCAL NORTH: GRID

PROJECT DETAILS: EDDY COUNTY, NM (NAD27)
GEODETIC SYSTEM: US STATE PLANE 1927 (EXACT SOLUTION)
DATUM: NAD 83 (NAD83 CONUS)
ELLIPSOID: CLARK 1866
ZONE: NEW MEXICO EAST 3001
SWITH DATUM: MEAN SEA LEVEL

FORMATION TOP DETAILS

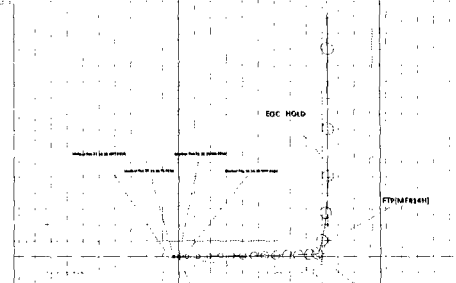
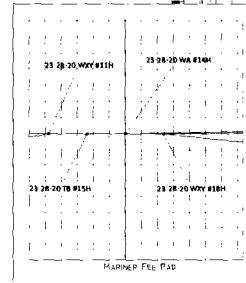
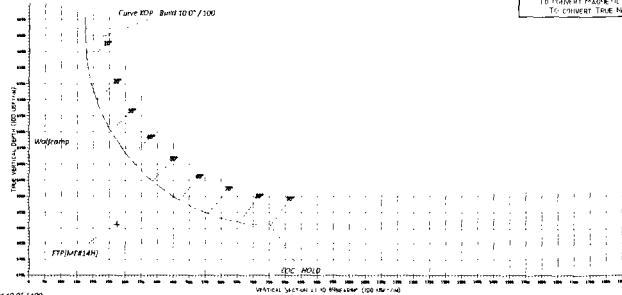
T (DEPTH)	MDPATH	FORMATION
460.00	455.00	SEALINE
845.00	845.00	CASTLE
2342.00	2342.00	BAY OF SALT
2506.00	2506.00	LYMAR
2532.00	2532.00	BEL CANYON
2532.00	2532.00	CHERRY CANYON
4506.00	4506.00	BROWN CANYON
4606.00	4606.00	ELK SPRING
6945.00	7075.00	1st BAY SPRING SAND
7175.00	7175.00	2nd BAY SPRING SAND
8472.00	9075.00	3rd BAY SPRING SAND
9145.00	9292.61	WILEY LAY

MAY SYSTEM (US STATE PLANE 1927 (EXACT SOLUTION))
DATUM: NAD 83 (NAD83 CONUS)
ELLIPSOID: CLARK 1866
ZONE: NEW MEXICO EAST 3001
LOCAL ORIGIN: WELL 23-28-20 WA #14H, GRID 1918H
LATITUDE: 32° 17' 17.84" N
LONGITUDE: 104° 6' 47.388" W
GRID EAST: 568042.26
GRID NORTH: 467045.09
SCALE FACTOR: 1.000
GEODETIC MODEL: NAD83
SAMPLE DATE: 03/10/12
MAGNETIC DECLINATION: 7.32°
DIP ANGLE FROM HORIZONTAL: 60.17°
MAGNETIC FIELD STRENGTH: 48073.8anT
TO CONVERT MAGNETIC NORTH TO GRID, ADD 7.32°
TO CONVERT MAGNETIC NORTH TO TRUE, ADD 7.32° EAST
TO CONVERT TRUE NORTH TO GRID, SUBTRACT 0.12°

GL ELEV: 3075.00
DEPTH RE: 14 = 28 @ 303.1025' (PATTERSON 244)

KCF - Build 2.0' / 100
KOB - MDH

CRUD DEBRIS
No string debris is present



Azimuths to Grid North
True North -0.12°
Magnetic North 7.30°
Magnetic Field
Strength: 48073.8anT

Marathon Oil Permian, LLC

Eddy County, NM (NAD27)

Mariner Fee

23-28-20 WA #14H

OH

Plan #1

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 17 2017

RECEIVED

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 WA #14H
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 WA #14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are in:	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	14,205.02	Plan #1 (OH)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Mariner Fee						
23-28-20 TB #15H - OH - Plan #1	2,700.00	2,700.00	30.00	11.10	1.587	CC
23-28-20 TB #15H - OH - Plan #1	9,185.51	9,243.55	36.09	-29.46	0.551	Level 1, ES, SF
23-28-20 WXY #11H - OH - Plan #1	1,000.00	1,000.00	60.00	53.29	8.941	CC, ES
23-28-20 WXY #11H - OH - Plan #1	1,200.00	1,195.65	66.74	58.64	8.236	SF
23-28-20 WXY #18H - OH - Plan #1	9,345.18	9,374.83	21.99	-44.65	0.330	Level 1, CC, ES, SF

Offset Design	Mariner Fee - 23-28-20 TB #15H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program:	OWSG MWD+HDGM												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Semi Minor Axis		Distance		Separation		Warning				
Measured Depth (usft)	Actual Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Horizontal (usft)	Offset (usft)	True Azimuth (Degrees)	Offset (usft)	Horizontal (usft)	Vertical (usft)	Minimum Separation (usft)	Separation Factor			
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		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.00	0.00	-30.00	30.00	17.55	12.45	2.410		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.00	0.00	-30.00	30.00	16.83	13.16	2.279		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.00	0.00	-30.00	30.00	16.12	13.88	2.161		
2,100.00	2,100.00	2,100.00	2,100.00	7.30	7.30	-90.00	0.00	-30.00	30.00	15.40	14.60	2.055		

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 WA #14H
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 WA #14H	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 TB #15H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: O-MWD-HOON														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Horizontal Distance (ft)	Offset Horizontal Distance (ft)	Curvature (1/ft)	Radius of Curvature (ft)	Borehole Curvature (1/ft)	Borehole Radius (ft)	Minimum Separation (usft)	Separation Factor	Warning	
2,200.00	2,200.00	2,200.00	2,200.00	7.66	7.66	-90.00	0.00	-30.00	30.00	14.68	15.31	1.959			
2,300.00	2,300.00	2,300.00	2,300.00	8.02	8.02	-90.00	0.00	-30.00	30.00	13.97	16.03	1.871			
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.00	0.00	-30.00	30.00	13.25	16.75	1.791			
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.00	0.00	-30.00	30.00	12.53	17.46	1.718			
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	-90.00	0.00	-30.00	30.00	11.82	18.18	1.650			
2,700.00	2,700.00	2,700.00	2,700.00	9.45	9.45	-90.00	0.00	-30.00	30.00	11.10	18.90	1.587 CC			
2,800.00	2,799.99	2,799.99	2,799.99	9.80	9.81	-179.04	0.00	-30.00	31.27	11.67	19.60	1.596			
2,900.00	2,899.87	2,899.87	2,899.87	10.14	10.17	-179.17	0.00	-30.00	36.00	15.73	20.27	1.776			
3,000.00	2,999.53	2,999.53	2,999.53	10.49	10.52	-179.32	0.00	-30.00	44.21	23.30	20.91	2.115			
3,100.00	3,098.84	3,098.84	3,098.84	10.84	10.88	-179.46	0.00	-30.00	55.89	34.37	21.52	2.597			
3,200.00	3,197.87	3,197.87	3,197.87	11.19	11.23	-179.57	0.00	-30.00	69.77	47.57	22.20	3.143			
3,300.00	3,296.90	3,296.90	3,296.90	11.55	11.59	-179.64	0.00	-30.00	83.69	60.79	22.90	3.655			
3,400.00	3,395.92	3,395.92	3,395.92	11.91	11.94	-179.69	0.00	-30.00	97.61	74.01	23.60	4.136			
3,500.00	3,494.95	3,495.65	3,495.65	12.27	12.30	-179.73	-0.01	-29.94	111.47	87.17	24.30	4.588			
3,600.00	3,593.98	3,599.16	3,599.12	12.63	12.65	-179.96	-0.40	-27.45	123.01	98.01	24.99	4.921			
3,700.00	3,693.00	3,703.39	3,703.15	13.00	13.01	-179.55	-1.39	-21.21	130.99	105.29	25.70	5.098			
3,800.00	3,792.03	3,808.06	3,807.33	13.37	13.36	178.82	-2.98	-11.18	135.41	109.01	26.40	5.129			
3,900.00	3,891.06	3,912.91	3,911.23	13.75	13.73	177.81	-5.17	2.62	136.27	109.16	27.11	5.026			
4,000.00	3,990.08	4,015.82	4,012.70	14.12	14.09	176.49	-7.85	19.56	133.88	106.06	27.82	4.812			
4,100.00	4,089.11	4,115.72	4,111.09	14.50	14.45	175.09	-10.56	36.70	130.87	102.36	28.52	4.589			
4,200.00	4,188.14	4,215.62	4,209.47	14.87	14.81	173.62	-13.28	53.83	127.96	98.73	29.22	4.378			
4,300.00	4,287.16	4,315.53	4,307.86	15.25	15.17	172.08	-15.99	70.96	125.13	95.19	29.93	4.180			
4,400.00	4,386.19	4,415.43	4,406.24	15.63	15.54	170.48	-18.70	88.10	122.39	91.74	30.65	3.994			
4,500.00	4,485.22	4,515.33	4,504.63	16.02	15.91	168.80	-21.42	105.23	119.75	88.39	31.37	3.818			
4,600.00	4,584.24	4,615.23	4,603.01	16.40	16.28	167.05	-24.13	122.37	117.23	85.14	32.09	3.653			
4,700.00	4,683.27	4,715.14	4,701.39	16.78	16.66	165.22	-26.85	139.50	114.81	81.99	32.82	3.498			
4,800.00	4,782.30	4,815.04	4,799.78	17.17	17.04	163.32	-29.56	156.64	112.52	78.96	33.56	3.353			
4,900.00	4,881.33	4,914.94	4,898.16	17.56	17.42	161.34	-32.27	173.77	110.36	76.06	34.30	3.217			
5,000.00	4,980.35	5,014.84	4,996.55	17.94	17.81	159.28	-34.99	190.90	108.33	73.28	35.05	3.091			
5,100.00	5,079.38	5,114.74	5,094.93	18.33	18.20	157.15	-37.70	208.04	106.45	70.64	35.81	2.973			
5,200.00	5,178.41	5,214.65	5,193.32	18.72	18.59	154.95	-40.41	225.17	104.72	68.14	36.58	2.863			
5,300.00	5,277.43	5,314.55	5,291.70	19.11	18.98	152.67	-43.13	242.31	103.15	65.80	37.35	2.761			
5,400.00	5,376.46	5,414.45	5,390.09	19.50	19.37	150.33	-45.84	259.44	101.75	63.61	38.14	2.668			
5,500.00	5,475.49	5,514.35	5,488.47	19.89	19.77	147.93	-48.56	276.58	100.53	61.59	38.93	2.582			
5,600.00	5,574.51	5,614.26	5,586.86	20.29	20.17	145.47	-51.27	293.71	99.48	59.75	39.74	2.503			
5,700.00	5,673.54	5,714.16	5,685.24	20.68	20.56	142.97	-53.98	310.84	98.63	58.08	40.55	2.432			
5,800.00	5,772.57	5,814.06	5,783.63	21.07	20.96	140.42	-56.70	327.98	97.96	56.59	41.37	2.368			
5,900.00	5,871.59	5,913.96	5,882.01	21.47	21.37	137.85	-59.41	345.11	97.49	55.29	42.20	2.310			
6,000.00	5,970.62	6,013.87	5,980.39	21.86	21.77	135.26	-62.13	362.25	97.22	54.18	43.04	2.259			
6,085.04	6,054.83	6,098.82	6,064.06	22.20	22.11	133.04	-64.43	376.82	97.15	53.39	43.75	2.220			
6,100.00	6,069.65	6,113.77	6,078.78	22.25	22.17	132.65	-64.84	379.38	97.15	53.27	43.88	2.214			
6,200.00	6,168.67	6,213.67	6,177.16	22.65	22.58	130.05	-67.55	396.52	97.28	52.55	44.73	2.175			
6,300.00	6,267.70	6,313.57	6,275.55	23.04	22.98	127.47	-70.27	413.65	97.61	52.03	45.58	2.142			
6,400.00	6,366.73	6,413.48	6,373.93	23.44	23.39	124.90	-72.98	430.78	98.14	51.71	46.43	2.114			
6,500.00	6,465.75	6,513.38	6,472.32	23.84	23.80	122.37	-75.69	447.92	98.86	51.57	47.29	2.091			
6,600.00	6,564.78	6,613.28	6,570.70	24.23	24.21	119.88	-78.41	465.05	99.78	51.63	48.15	2.072			
6,700.00	6,663.81	6,713.18	6,669.09	24.63	24.62	117.43	-81.12	482.19	100.88	51.87	49.00	2.059			
6,800.00	6,762.83	6,813.09	6,767.47	25.03	25.03	115.05	-83.84	499.32	102.15	52.30	49.86	2.049			
6,900.00	6,861.86	6,912.99	6,865.86	25.43	25.44	112.73	-86.55	516.46	103.61	52.90	50.71	2.043			
7,000.00	6,960.89	7,012.89	6,964.24	25.83	25.86	110.47	-89.26	533.59	105.22	53.67	51.55	2.041			
7,100.00	7,059.92	7,112.79	7,062.63	26.22	26.27	108.29	-91.98	550.72	107.00	54.60	52.40	2.042			
7,200.00	7,158.94	7,212.69	7,161.01	26.62	26.68	106.18	-94.69	567.86	108.92	55.69	53.24	2.046			

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 WA #14H
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 WA #14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are in:	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 TB #15H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: COMPASS 5000.1														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Horizontal	Offset	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Warning	
7,300.00	7,257.97	7,312.60	7,259.39	27.02	27.10	104.15	-97.40	584.99	110.99	56.92	54.07	2.053			
7,400.00	7,357.00	7,412.50	7,357.78	27.42	27.52	102.19	-100.12	602.13	113.19	58.29	54.90	2.062			
7,500.00	7,456.02	7,512.40	7,456.16	27.82	27.93	100.31	-102.83	619.26	115.52	59.79	55.73	2.073			
7,600.00	7,555.05	7,612.30	7,554.55	28.22	28.35	98.51	-105.55	636.40	117.97	61.42	56.55	2.086			
7,700.00	7,654.08	7,712.21	7,652.93	28.62	28.77	96.78	-108.26	653.53	120.53	63.17	57.37	2.101			
7,800.00	7,753.10	7,812.11	7,751.32	29.02	29.18	95.12	-110.97	670.66	123.20	65.02	58.18	2.118			
7,900.00	7,852.13	7,912.01	7,849.70	29.42	29.60	93.54	-113.69	687.80	125.96	66.98	58.99	2.135			
8,000.00	7,951.16	8,011.91	7,948.09	29.82	30.02	92.02	-116.40	704.93	128.82	69.03	59.79	2.155			
8,100.00	8,050.18	8,111.82	8,046.47	30.22	30.44	90.57	-119.12	722.07	131.76	71.17	60.59	2.175			
8,200.00	8,149.21	8,211.72	8,144.86	30.62	30.86	89.19	-121.83	739.20	134.79	73.40	61.39	2.196			
8,300.00	8,248.24	8,311.62	8,243.24	31.02	31.28	87.86	-124.54	756.34	137.89	75.70	62.18	2.217			
8,400.00	8,347.26	8,411.52	8,341.63	31.43	31.70	86.60	-127.26	773.47	141.06	78.08	62.98	2.240			
8,500.00	8,446.29	8,511.43	8,440.01	31.83	32.12	85.39	-129.97	790.60	144.29	80.53	63.76	2.263			
8,600.00	8,545.32	8,611.33	8,538.39	32.23	32.54	84.24	-132.68	807.74	147.59	83.04	64.55	2.286			
8,700.00	8,644.34	8,711.23	8,636.78	32.63	32.97	83.13	-135.40	824.87	150.94	85.61	65.34	2.310			
8,800.00	8,743.37	8,819.67	8,743.58	33.03	33.42	81.94	-137.44	843.47	153.69	87.54	66.15	2.323			
8,900.00	8,842.40	8,952.36	8,872.66	33.43	33.95	78.94	-118.34	865.86	140.20	73.21	66.99	2.093			
9,000.00	8,941.42	9,070.79	8,981.53	33.84	34.35	71.74	-76.26	884.64	106.42	38.90	67.52	1.576			
9,100.00	9,040.45	9,169.31	9,064.05	34.24	34.63	64.54	-24.56	898.79	59.97	-7.06	67.03	0.895 Level 1			
9,185.51	9,124.53	9,243.55	9,119.79	34.58	34.80	55.08	23.46	908.30	36.09	-29.46	65.55	0.561 Level 1, ES, SF			
9,200.00	9,138.60	9,255.62	9,128.25	34.83	34.83	48.01	31.94	909.74	36.96	-28.71	65.67	0.563 Level 1			
9,300.00	9,233.15	9,335.66	9,179.72	35.00	34.98	16.17	92.54	918.45	71.15	5.77	65.38	1.088 Level 2			
9,400.00	9,321.22	9,411.17	9,220.21	35.33	35.10	7.40	155.84	925.25	117.01	55.52	61.49	1.903			
9,500.00	9,400.15	9,483.33	9,250.93	35.62	35.20	4.21	220.88	930.33	161.34	105.63	55.71	2.896			
9,600.00	9,467.53	9,550.00	9,271.96	35.87	35.29	2.70	284.02	933.74	201.88	153.18	48.69	4.146			
9,700.00	9,521.31	9,620.73	9,286.21	36.08	35.37	1.64	353.22	935.94	237.63	196.64	41.00	5.796			
9,800.00	9,559.86	9,687.07	9,291.85	36.29	35.47	0.91	419.28	936.66	268.15	234.62	33.52	7.999			
9,900.00	9,582.01	9,776.87	9,292.09	36.51	35.63	0.27	509.08	936.34	289.93	262.05	27.87	10.402			
10,000.00	9,587.45	9,876.62	9,292.09	36.75	35.87	0.11	608.82	935.94	295.36	268.97	26.39	11.192			
10,100.00	9,587.45	9,976.62	9,292.08	37.06	36.18	0.11	708.82	935.54	295.36	268.29	27.08	10.909			
10,200.00	9,587.45	10,076.62	9,292.08	37.42	36.56	0.11	808.82	935.14	295.36	267.53	27.83	10.612			
10,300.00	9,587.45	10,176.62	9,292.08	37.85	37.01	0.10	908.82	934.73	295.36	266.71	28.65	10.308			
10,400.00	9,587.44	10,276.62	9,292.08	38.33	37.52	0.10	1,008.82	934.33	295.36	265.83	29.54	10.000			
10,500.00	9,587.44	10,376.62	9,292.08	38.86	38.08	0.10	1,108.82	933.93	295.36	264.89	30.47	9.693			
10,600.00	9,587.44	10,476.62	9,292.08	39.45	38.70	0.09	1,208.82	933.53	295.36	263.90	31.46	9.388			
10,700.00	9,587.44	10,576.62	9,292.08	40.08	39.37	0.09	1,308.82	933.13	295.35	262.86	32.49	9.090			
10,800.00	9,587.43	10,676.62	9,292.08	40.76	40.08	0.09	1,408.81	932.73	295.35	261.78	33.57	8.799			
10,900.00	9,587.43	10,776.62	9,292.08	41.48	40.84	0.08	1,508.81	932.33	295.35	260.67	34.68	8.516			
11,000.00	9,587.42	10,876.62	9,292.08	42.24	41.63	0.08	1,608.81	931.93	295.34	259.52	35.83	8.244			
11,100.00	9,587.42	10,976.62	9,292.08	43.04	42.46	0.08	1,708.81	931.53	295.34	258.33	37.00	7.981			
11,200.00	9,587.41	11,076.62	9,292.08	43.87	43.33	0.07	1,808.81	931.13	295.33	257.12	38.21	7.729			
11,300.00	9,587.40	11,176.62	9,292.08	44.73	44.22	0.07	1,908.81	930.73	295.33	255.89	39.44	7.488			
11,400.00	9,587.40	11,276.62	9,292.07	45.63	45.15	0.07	2,008.81	930.33	295.32	254.63	40.70	7.257			
11,500.00	9,587.39	11,376.61	9,292.07	46.55	46.11	0.07	2,108.81	929.93	295.32	253.35	41.97	7.036			
11,600.00	9,587.38	11,476.61	9,292.07	47.51	47.09	0.06	2,208.81	929.52	295.31	252.04	43.27	6.825			
11,700.00	9,587.37	11,576.61	9,292.07	48.48	48.09	0.06	2,308.80	929.12	295.30	250.72	44.58	6.624			
11,800.00	9,587.36	11,676.61	9,292.07	49.48	49.12	0.06	2,408.80	928.72	295.30	249.39	45.91	6.432			
11,900.00	9,587.35	11,776.61	9,292.07	50.51	50.17	0.05	2,508.80	928.32	295.29	248.04	47.25	6.249			
12,000.00	9,587.34	11,876.61	9,292.06	51.55	51.24	0.05	2,608.80	927.92	295.28	246.67	48.61	6.075			
12,100.00	9,587.33	11,976.61	9,292.06	52.61	52.33	0.05	2,708.80	927.52	295.27	245.29	49.98	5.908			
12,200.00	9,587.32	12,076.61	9,292.06	53.70	53.44	0.05	2,808.80	927.12	295.26	243.90	51.36	5.749			
12,300.00	9,587.31	12,176.61	9,292.06	54.80	54.56	0.04	2,908.80	926.72	295.25	242.50	52.75	5.597			

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 WA #14H
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 WA #14H	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 TB #15H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 3-MWD-HDDM														Offset Well Error:	0.00 usft
Reference	Offset	Semi-Major Axis		Semi-Minor Axis		Distance		Minimum Separation		Separation Factor		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Minimum Separation (usft)	Separation Factor
12,400.00	9,587.30	12,276.61	9,292.06	55.92	55.70	0.04	3,008.80	926.32	295.24	241.09	54.15	5.452			
12,500.00	9,587.29	12,376.61	9,292.05	57.05	56.86	0.04	3,108.80	925.92	295.23	239.67	55.56	5.314			
12,600.00	9,587.27	12,476.61	9,292.05	58.20	58.02	0.04	3,208.80	925.52	295.22	238.24	56.98	5.181			
12,700.00	9,587.26	12,576.61	9,292.05	59.36	59.20	0.03	3,308.79	925.12	295.21	236.80	58.41	5.054			
12,800.00	9,587.25	12,676.61	9,292.05	60.53	60.40	0.03	3,408.79	924.73	295.20	235.36	59.84	4.933			
12,900.00	9,587.23	12,776.61	9,292.04	61.72	61.60	0.03	3,508.79	924.33	295.19	233.91	61.28	4.817			
13,000.00	9,587.22	12,876.61	9,292.04	62.91	62.82	0.03	3,608.79	923.93	295.18	232.45	62.73	4.706			
13,100.00	9,587.20	12,976.61	9,292.04	64.12	64.04	0.02	3,708.79	923.53	295.16	230.98	64.18	4.599			
13,200.00	9,587.18	13,076.61	9,292.03	65.34	65.28	0.02	3,808.79	923.13	295.15	229.51	65.64	4.497			
13,300.00	9,587.17	13,176.61	9,292.03	66.57	66.52	0.02	3,908.79	922.73	295.14	228.04	67.10	4.399			
13,400.00	9,587.15	13,276.61	9,292.03	67.81	67.78	0.02	4,008.79	922.33	295.12	226.56	68.57	4.304			
13,500.00	9,587.13	13,376.61	9,292.02	69.05	69.04	0.01	4,108.79	921.93	295.11	225.07	70.04	4.214			
13,600.00	9,587.11	13,476.61	9,292.02	70.31	70.31	0.01	4,208.78	921.53	295.09	223.58	71.51	4.126			
13,700.00	9,587.09	13,576.61	9,292.02	71.57	71.58	0.01	4,308.78	921.13	295.08	222.08	72.99	4.043			
13,800.00	9,587.08	13,676.61	9,292.01	72.84	72.87	0.01	4,408.78	920.73	295.06	220.58	74.48	3.962			
13,900.00	9,587.06	13,776.61	9,292.01	74.12	74.16	0.01	4,508.78	920.33	295.05	219.08	75.96	3.884			
14,000.00	9,587.04	13,876.61	9,292.01	75.40	75.45	0.00	4,608.78	919.93	295.03	217.58	77.45	3.809			
14,100.00	9,587.01	13,976.61	9,292.00	76.69	76.75	0.00	4,708.78	919.54	295.01	216.06	78.95	3.737			
14,168.13	9,587.00	14,044.74	9,292.00	77.49	77.64	0.00	4,776.91	919.26	295.00	215.29	79.71	3.701			

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 WA #14H
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 WA #14H	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: 5-MVD-HOXA														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 Horizontal Distance (ft)	Offset Vertical Distance (ft)	Offset TVD (usft)	Offset MD (usft)	Offset TVD (usft)	Offset MD (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-60.00	60.00						
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-60.00	60.00	59.74	0.26	232.468			
200.00	200.00	200.00	200.00	0.49	0.49	-90.00	0.00	-60.00	60.00	59.02	0.98	61.536			
300.00	300.00	300.00	300.00	0.85	0.85	-90.00	0.00	-60.00	60.00	58.31	1.69	35.461			
400.00	400.00	400.00	400.00	1.20	1.20	-90.00	0.00	-60.00	60.00	57.59	2.41	24.907			
500.00	500.00	500.00	500.00	1.56	1.56	-90.00	0.00	-60.00	60.00	56.87	3.13	19.195			
600.00	600.00	600.00	600.00	1.92	1.92	-90.00	0.00	-60.00	60.00	56.16	3.84	15.614			
700.00	700.00	700.00	700.00	2.28	2.28	-90.00	0.00	-60.00	60.00	55.44	4.56	13.159			
800.00	800.00	800.00	800.00	2.64	2.64	-90.00	0.00	-60.00	60.00	54.72	5.28	11.371			
900.00	900.00	900.00	900.00	3.00	3.00	-90.00	0.00	-60.00	60.00	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	-60.00	60.00	53.29	6.71	8.941 CC, ES			
1,100.00	1,100.00	1,097.94	1,097.92	3.71	3.70	-90.27	-0.29	-61.65	61.68	54.27	7.41	8.324			
1,200.00	1,200.00	1,195.65	1,195.50	4.07	4.03	-91.00	-1.16	-66.58	66.74	58.64	8.10	8.236 SF			
1,300.00	1,300.00	1,293.49	1,292.99	4.43	4.37	-91.99	-2.59	-74.70	75.08	66.27	8.80	8.529			
1,400.00	1,400.00	1,393.05	1,392.10	4.79	4.72	-92.88	-4.22	-83.95	84.42	74.91	9.51	8.875			
1,500.00	1,500.00	1,492.60	1,491.21	5.15	5.08	-93.59	-5.85	-93.19	93.79	83.56	10.23	9.170			
1,600.00	1,600.00	1,592.16	1,590.32	5.51	5.44	-94.18	-7.48	-102.43	103.16	92.22	10.94	9.426			
1,700.00	1,700.00	1,691.71	1,689.43	5.86	5.80	-94.66	-9.11	-111.68	112.54	100.88	11.66	9.648			
1,800.00	1,800.00	1,791.27	1,788.55	6.22	6.17	-95.08	-10.74	-120.92	121.94	109.55	12.39	9.844			
1,900.00	1,900.00	1,890.82	1,887.66	6.58	6.53	-95.43	-12.37	-130.16	131.33	118.22	13.11	10.016			
2,000.00	2,000.00	1,990.38	1,986.77	6.94	6.90	-95.74	-14.00	-139.41	140.73	126.89	13.84	10.170			
2,100.00	2,100.00	2,089.93	2,085.88	7.30	7.27	-96.00	-15.63	-148.65	150.14	135.57	14.56	10.308			
2,200.00	2,200.00	2,189.49	2,184.99	7.66	7.64	-96.24	-17.26	-157.89	159.54	144.25	15.29	10.432			
2,300.00	2,300.00	2,289.04	2,284.10	8.02	8.01	-96.45	-18.89	-167.14	168.95	152.93	16.02	10.545			
2,400.00	2,400.00	2,388.59	2,383.21	8.37	8.38	-96.64	-20.52	-176.38	178.36	161.61	16.75	10.647			
2,500.00	2,500.00	2,488.15	2,482.32	8.73	8.75	-96.81	-22.15	-185.63	187.78	170.29	17.48	10.740			
2,600.00	2,600.00	2,587.70	2,581.43	9.09	9.13	-96.96	-23.78	-194.87	197.19	178.98	18.22	10.826			
2,700.00	2,700.00	2,687.26	2,680.55	9.45	9.50	-97.10	-25.41	-204.11	206.61	187.66	18.95	10.904			
2,800.00	2,799.99	2,786.88	2,779.53	9.80	9.87	-97.39	-27.04	-213.34	217.28	197.85	19.43	11.181			
2,900.00	2,899.87	2,885.68	2,878.08	10.14	10.25	-97.78	-28.66	-222.54	231.37	211.29	20.08	11.523			
3,000.00	2,999.53	2,984.13	2,976.09	10.49	10.62	-97.84	-30.27	-231.68	248.88	228.19	20.70	12.026			
3,100.00	3,098.84	3,081.91	3,073.44	10.84	10.99	-97.96	-31.87	-240.76	269.80	248.52	21.28	12.677			
3,200.00	3,197.87	3,179.21	3,170.30	11.19	11.35	-97.14	-33.47	-249.79	292.87	270.92	21.95	13.341			
3,300.00	3,296.90	3,276.50	3,267.16	11.55	11.72	-97.40	-35.06	-258.82	315.98	293.34	22.64	13.956			
3,400.00	3,395.92	3,373.79	3,364.01	11.91	12.09	-97.44	-36.65	-267.86	339.09	315.76	23.33	14.534			
3,500.00	3,494.95	3,471.07	3,460.87	12.27	12.46	-97.56	-38.24	-276.89	362.20	338.18	24.02	15.078			
3,600.00	3,593.98	3,568.36	3,557.73	12.63	12.83	-97.67	-39.84	-285.92	385.32	360.60	24.72	15.590			
3,700.00	3,693.00	3,665.65	3,654.58	13.00	13.20	-97.76	-41.43	-294.96	408.43	383.02	25.41	16.073			
3,800.00	3,792.03	3,762.94	3,751.44	13.37	13.56	-97.85	-43.02	-303.99	431.55	405.44	26.11	16.530			
3,900.00	3,891.06	3,860.23	3,848.30	13.75	13.93	-97.92	-44.61	-313.02	454.67	427.86	26.81	16.962			
4,000.00	3,990.08	3,957.52	3,945.15	14.12	14.30	-97.99	-46.21	-322.06	477.78	450.28	27.50	17.372			
4,100.00	4,089.11	4,054.81	4,042.01	14.50	14.67	-97.05	-47.80	-331.09	500.90	472.70	28.20	17.760			
4,200.00	4,188.14	4,152.10	4,138.86	14.87	15.04	-97.11	-49.39	-340.12	524.02	495.12	28.90	18.129			
4,300.00	4,287.16	4,249.39	4,235.72	15.25	15.41	-97.16	-50.99	-349.16	547.14	517.53	29.61	18.481			
4,400.00	4,386.19	4,346.68	4,332.58	15.63	15.78	-97.21	-52.58	-358.19	570.26	539.95	30.31	18.815			
4,500.00	4,485.22	4,443.97	4,429.43	16.02	16.15	-97.26	-54.17	-367.22	593.38	562.37	31.01	19.134			
4,600.00	4,584.24	4,541.26	4,526.29	16.40	16.52	-97.30	-55.76	-376.26	616.50	584.78	31.72	19.438			
4,700.00	4,683.27	4,638.55	4,623.15	16.78	16.89	-97.33	-57.36	-385.29	639.62	607.20	32.42	19.729			
4,800.00	4,782.30	4,735.84	4,720.00	17.17	17.26	-97.37	-58.95	-394.32	662.74	629.61	33.13	20.007			
4,900.00	4,881.33	4,833.13	4,816.86	17.56	17.63	-97.40	-60.54	-403.36	685.86	652.03	33.83	20.273			
5,000.00	4,980.35	4,930.42	4,913.72	17.94	18.00	-97.43	-62.14	-412.39	708.98	674.44	34.54	20.527			
5,100.00	5,079.38	5,027.71	5,010.57	18.33	18.37	-97.46	-63.73	-421.42	732.10	696.86	35.25	20.772			

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 WA #14H
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 WA #14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Dataverse:	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:
Survey Program: L-MWD-HO-M													Offset Well Error:
Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset Depth (usft)
5,200.00	5,178.41	5,125.00	5,107.43	18.72	18.74	175.49	-65.32	-430.46	755.22	719.27	35.95	21.006	
5,300.00	5,277.43	5,222.29	5,204.28	19.11	19.11	175.51	-66.91	-439.49	778.35	741.68	36.66	21.231	
5,400.00	5,376.46	5,319.58	5,301.14	19.50	19.48	175.54	-68.51	-448.52	801.47	764.10	37.37	21.447	
5,500.00	5,475.49	5,416.87	5,398.00	19.89	19.85	175.56	-70.10	-457.56	824.59	786.51	38.08	21.655	
5,600.00	5,574.51	5,514.16	5,494.85	20.29	20.22	175.58	-71.69	-466.59	847.71	808.92	38.79	21.855	
5,700.00	5,673.54	5,611.45	5,591.71	20.68	20.59	175.60	-73.29	-475.62	870.83	831.34	39.50	22.048	
5,800.00	5,772.57	5,708.74	5,688.57	21.07	20.96	175.62	-74.88	-484.66	893.96	853.75	40.21	22.233	
5,900.00	5,871.59	5,806.03	5,785.42	21.47	21.33	175.64	-76.47	-493.69	917.08	876.16	40.92	22.412	
6,000.00	5,970.62	5,903.32	5,882.28	21.86	21.70	175.66	-78.06	-502.72	940.20	898.57	41.63	22.585	
6,100.00	6,069.65	6,000.61	5,979.14	22.25	22.07	175.67	-79.66	-511.76	963.32	920.98	42.34	22.752	
6,200.00	6,168.67	6,097.90	6,075.99	22.65	22.44	175.69	-81.25	-520.79	986.44	943.39	43.05	22.913	
6,300.00	6,267.70	6,195.19	6,172.85	23.04	22.82	175.70	-82.84	-529.82	1,009.57	965.80	43.76	23.068	
6,400.00	6,366.73	6,292.48	6,269.70	23.44	23.19	175.72	-84.44	-538.86	1,032.69	988.21	44.48	23.219	
6,500.00	6,465.75	6,389.77	6,366.56	23.84	23.56	175.73	-86.03	-547.89	1,055.81	1,010.62	45.19	23.364	
6,600.00	6,564.78	6,487.06	6,463.42	24.23	23.93	175.74	-87.62	-556.92	1,078.93	1,033.03	45.90	23.505	
6,700.00	6,663.81	6,584.35	6,560.27	24.63	24.30	175.76	-89.21	-565.96	1,102.06	1,055.44	46.61	23.642	
6,800.00	6,762.83	6,681.63	6,657.13	25.03	24.67	175.77	-90.81	-574.99	1,125.18	1,077.85	47.33	23.774	
6,900.00	6,861.86	6,778.92	6,753.99	25.43	25.04	175.78	-92.40	-584.02	1,148.30	1,100.26	48.04	23.902	
7,000.00	6,960.89	6,876.21	6,850.84	25.83	25.41	175.79	-93.99	-593.06	1,171.43	1,122.67	48.75	24.027	
7,100.00	7,059.92	6,973.50	6,947.70	26.22	25.78	175.80	-95.59	-602.09	1,194.55	1,145.08	49.47	24.147	
7,200.00	7,158.94	7,070.79	7,044.55	26.62	26.15	175.81	-97.18	-611.12	1,217.67	1,167.49	50.18	24.265	
7,300.00	7,257.97	7,168.08	7,141.41	27.02	26.53	175.82	-98.77	-620.16	1,240.79	1,189.90	50.90	24.378	
7,400.00	7,357.00	7,265.37	7,238.27	27.42	26.90	175.83	-100.36	-629.19	1,263.92	1,212.31	51.61	24.489	
7,500.00	7,456.02	7,362.66	7,335.12	27.82	27.27	175.84	-101.96	-638.22	1,287.04	1,234.71	52.33	24.596	
7,600.00	7,555.05	7,459.95	7,431.98	28.22	27.64	175.85	-103.55	-647.26	1,310.16	1,257.12	53.04	24.701	
7,700.00	7,654.08	7,557.24	7,528.84	28.62	28.01	175.86	-105.14	-656.29	1,333.29	1,279.53	53.76	24.802	
7,800.00	7,753.10	7,654.53	7,625.69	29.02	28.38	175.87	-106.73	-665.32	1,356.41	1,301.94	54.47	24.901	
7,900.00	7,852.13	7,751.82	7,722.55	29.42	28.75	175.88	-108.33	-674.36	1,379.53	1,324.35	55.19	24.997	
8,000.00	7,951.16	7,849.11	7,819.41	29.82	29.12	175.88	-109.92	-683.39	1,402.66	1,346.75	55.90	25.091	
8,100.00	8,050.18	7,946.40	7,916.26	30.22	29.49	175.89	-111.51	-692.42	1,425.78	1,369.16	56.62	25.182	
8,200.00	8,149.21	8,043.69	8,013.12	30.62	29.87	175.90	-113.11	-701.46	1,448.90	1,391.57	57.34	25.271	
8,300.00	8,248.24	8,140.98	8,109.97	31.02	30.24	175.90	-114.70	-710.49	1,472.03	1,413.97	58.05	25.357	
8,400.00	8,347.26	8,238.27	8,206.83	31.43	30.61	175.91	-116.29	-719.52	1,495.15	1,436.38	58.77	25.441	
8,500.00	8,446.29	8,335.56	8,303.69	31.83	30.98	175.92	-117.88	-728.56	1,518.27	1,458.79	59.48	25.524	
8,600.00	8,545.32	8,432.85	8,400.54	32.23	31.35	175.92	-119.48	-737.59	1,541.40	1,481.19	60.20	25.604	
8,700.00	8,644.34	8,530.14	8,497.40	32.63	31.72	175.93	-121.07	-746.62	1,564.52	1,503.60	60.92	25.682	
8,800.00	8,743.37	8,627.43	8,594.26	33.03	32.09	175.94	-122.66	-755.66	1,587.64	1,526.01	61.64	25.758	
8,900.00	8,842.40	8,724.72	8,691.11	33.43	32.46	175.94	-124.26	-764.69	1,610.77	1,548.41	62.35	25.833	
9,000.00	8,941.42	8,822.01	8,787.97	33.84	32.84	175.95	-125.85	-773.72	1,633.89	1,570.82	63.07	25.906	
9,100.00	9,040.45	8,939.56	8,904.80	34.24	33.27	175.94	-127.44	-782.75	1,656.99	1,593.22	63.79	25.978	
9,200.00	9,139.48	9,065.55	9,026.45	34.63	33.69	175.95	-129.03	-791.78	1,679.51	1,615.93	64.51	26.049	
9,300.00	9,238.51	9,164.58	9,135.42	35.03	34.03	175.96	-130.62	-800.81	1,702.03	1,638.44	65.23	26.120	
9,400.00	9,337.54	9,263.61	9,234.27	35.43	34.37	175.97	-132.21	-809.84	1,724.55	1,660.95	65.95	26.191	
9,500.00	9,436.57	9,362.64	9,333.12	35.83	34.71	175.98	-133.80	-818.87	1,747.07	1,683.46	66.67	26.262	
9,600.00	9,535.60	9,461.67	9,432.07	36.23	35.05	175.99	-135.39	-827.90	1,769.59	1,705.97	67.39	26.333	
9,700.00	9,634.63	9,560.70	9,531.10	36.63	35.39	176.00	-136.98	-836.93	1,792.11	1,728.48	68.11	26.404	
9,800.00	9,733.66	9,659.73	9,630.03	37.03	35.73	176.01	-138.57	-845.96	1,814.63	1,750.99	68.83	26.475	
9,900.00	9,832.69	9,758.76	9,729.06	37.43	36.07	176.02	-140.16	-854.99	1,837.15	1,773.50	69.55	26.546	
10,000.00	9,931.72	9,857.79	9,828.09	37.83	36.41	176.03	-141.75	-864.02	1,859.67	1,796.01	70.27	26.617	
10,100.00	10,030.75	9,956.82	9,927.12	38.23	36.75	176.04	-143.34	-873.05	1,882.19	1,818.52	70.99	26.688	
10,200.00	10,129.78	10,055.85	10,026.15	38.63	37.09	176.05	-144.93	-882.08	1,904.71	1,841.03	71.71	26.759	
10,300.00	10,228.81	10,154.88	10,125.18	39.03	37.43	176.06	-146.52	-891.11	1,927.23	1,863.54	72.43	26.830	

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 WA #14H
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 WA #14H	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: O-MWD-HDCM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi-Major Axis			Declination			Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	High/Low (usft)	Offset Method (usft)	Center (usft)	Radius (usft)	Measured Distance (usft)	Surveyed Distance (usft)	Minimum Separation (usft)	Separation Factor	
10,400.00	9,587.44	10,327.95	9,402.00	38.33	37.53	-84.00	1,008.66	-831.09	1,774.63	1,701.04	73.59	24.116		
10,500.00	9,587.44	10,427.94	9,402.00	38.86	38.15	-84.00	1,108.66	-831.10	1,774.26	1,699.49	74.77	23.729		
10,600.00	9,587.44	10,527.94	9,402.00	39.45	38.81	-84.00	1,208.66	-831.11	1,773.88	1,697.84	76.05	23.326		
10,700.00	9,587.44	10,627.94	9,402.00	40.08	39.51	-84.00	1,308.66	-831.12	1,773.51	1,696.10	77.41	22.910		
10,800.00	9,587.43	10,727.94	9,402.00	40.76	40.26	-84.00	1,408.66	-831.13	1,773.14	1,694.28	78.86	22.485		
10,900.00	9,587.43	10,827.94	9,402.00	41.48	41.04	-84.00	1,508.65	-831.14	1,772.76	1,692.38	80.39	22.053		
11,000.00	9,587.42	10,927.94	9,402.00	42.24	41.85	-83.99	1,608.65	-831.15	1,772.39	1,690.40	81.99	21.618		
11,100.00	9,587.42	11,027.94	9,402.00	43.04	42.70	-83.99	1,708.65	-831.16	1,772.01	1,688.35	83.66	21.181		
11,200.00	9,587.41	11,127.94	9,402.00	43.87	43.59	-83.99	1,808.65	-831.17	1,771.64	1,686.24	85.40	20.745		
11,300.00	9,587.40	11,227.94	9,402.00	44.73	44.50	-83.99	1,908.65	-831.18	1,771.26	1,684.06	87.20	20.313		
11,400.00	9,587.40	11,327.94	9,402.00	45.63	45.44	-83.99	2,008.65	-831.18	1,770.89	1,681.83	89.06	19.885		
11,500.00	9,587.39	11,427.94	9,402.00	46.55	46.41	-83.99	2,108.65	-831.19	1,770.51	1,679.54	90.97	19.462		
11,600.00	9,587.38	11,527.94	9,402.00	47.51	47.40	-83.99	2,208.65	-831.20	1,770.14	1,677.20	92.94	19.047		
11,700.00	9,587.37	11,627.94	9,402.00	48.48	48.41	-83.99	2,308.65	-831.21	1,769.76	1,674.81	94.95	18.639		
11,800.00	9,587.36	11,727.94	9,402.00	49.48	49.45	-83.99	2,408.65	-831.22	1,769.39	1,672.38	97.01	18.239		
11,900.00	9,587.35	11,827.93	9,402.00	50.51	50.51	-83.99	2,508.65	-831.23	1,769.01	1,669.90	99.11	17.849		
12,000.00	9,587.34	11,927.93	9,402.00	51.55	51.59	-83.98	2,608.65	-831.24	1,768.64	1,667.38	101.25	17.467		
12,100.00	9,587.33	12,027.93	9,402.00	52.61	52.68	-83.98	2,708.65	-831.25	1,768.26	1,664.83	103.43	17.096		
12,200.00	9,587.32	12,127.93	9,402.00	53.70	53.80	-83.98	2,808.65	-831.26	1,767.88	1,662.24	105.65	16.734		
12,300.00	9,587.31	12,227.93	9,402.00	54.80	54.92	-83.98	2,908.64	-831.27	1,767.51	1,659.61	107.89	16.382		
12,400.00	9,587.30	12,327.93	9,402.00	55.92	56.07	-83.98	3,008.64	-831.28	1,767.13	1,656.96	110.17	16.040		
12,500.00	9,587.29	12,427.93	9,402.00	57.05	57.23	-83.98	3,108.64	-831.28	1,766.75	1,654.28	112.48	15.708		
12,600.00	9,587.27	12,527.93	9,402.00	58.20	58.40	-83.98	3,208.64	-831.29	1,766.38	1,651.57	114.81	15.385		
12,700.00	9,587.26	12,627.93	9,402.00	59.36	59.58	-83.98	3,308.64	-831.30	1,766.00	1,648.83	117.17	15.072		
12,800.00	9,587.25	12,727.93	9,402.00	60.53	60.78	-83.98	3,408.64	-831.31	1,765.62	1,646.07	119.55	14.769		
12,900.00	9,587.23	12,827.93	9,402.00	61.72	61.98	-83.98	3,508.64	-831.32	1,765.25	1,643.29	121.96	14.474		
13,000.00	9,587.22	12,927.93	9,402.00	62.91	63.20	-83.98	3,608.64	-831.33	1,764.87	1,640.48	124.39	14.189		
13,100.00	9,587.20	13,027.93	9,402.00	64.12	64.43	-83.98	3,708.64	-831.34	1,764.49	1,637.66	126.83	13.912		
13,200.00	9,587.18	13,127.93	9,402.00	65.34	65.67	-83.97	3,808.64	-831.35	1,764.11	1,634.81	129.30	13.644		
13,300.00	9,587.17	13,227.92	9,402.00	66.57	66.91	-83.97	3,908.64	-831.36	1,763.73	1,631.95	131.78	13.383		
13,400.00	9,587.15	13,327.92	9,402.00	67.81	68.17	-83.97	4,008.64	-831.37	1,763.36	1,629.07	134.29	13.131		
13,500.00	9,587.13	13,427.92	9,402.00	69.05	69.43	-83.97	4,108.64	-831.37	1,762.98	1,626.17	136.80	12.887		
13,600.00	9,587.11	13,527.92	9,402.00	70.31	70.70	-83.97	4,208.64	-831.38	1,762.60	1,623.26	139.34	12.650		
13,700.00	9,587.09	13,627.92	9,402.00	71.57	71.97	-83.97	4,308.63	-831.39	1,762.22	1,620.34	141.88	12.420		
13,800.00	9,587.08	13,727.92	9,402.00	72.84	73.26	-83.97	4,408.63	-831.40	1,761.84	1,617.40	144.44	12.197		
13,900.00	9,587.06	13,827.92	9,402.00	74.12	74.55	-83.97	4,508.63	-831.41	1,761.46	1,614.45	147.02	11.981		
14,000.00	9,587.04	13,927.92	9,402.00	75.40	75.84	-83.97	4,608.63	-831.42	1,761.08	1,611.48	149.60	11.772		
14,100.00	9,587.01	14,027.92	9,402.00	76.69	77.14	-83.97	4,708.63	-831.43	1,760.71	1,608.51	152.20	11.568		
14,168.13	9,587.00	14,096.05	9,402.00	77.49	78.03	-83.97	4,776.76	-831.44	1,760.45	1,606.61	153.84	11.443		

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 WA #14H
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 WA #14H	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: 0-MWD-HOOK													Offset Well Error:
Measured Depth (usft)	Vertical Offset (usft)	Measured Depth (usft)	Vertical Offset (usft)	Reference Depth (usft)	Offset (usft)	Horizontal Distance (ft)	Offset Distance (usft)	Offset Distance (usft)	Offset Distance (usft)	Offset Distance (usft)	Minimum Separation (ft)	Expansion Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	30.01	30.01				
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	30.01	30.01	29.75	0.26	116.264	
200.00	200.00	200.00	200.00	0.49	0.49	90.00	0.00	30.01	30.01	29.03	0.98	30.776	
300.00	300.00	300.00	300.00	0.85	0.85	90.00	0.00	30.01	30.01	28.32	1.69	17.735	
400.00	400.00	400.00	400.00	1.20	1.20	90.00	0.00	30.01	30.01	27.60	2.41	12.457	
500.00	500.00	500.00	500.00	1.56	1.56	90.00	0.00	30.01	30.01	26.88	3.13	9.600	
600.00	600.00	600.00	600.00	1.92	1.92	90.00	0.00	30.01	30.01	26.16	3.84	7.809	
700.00	700.00	700.00	700.00	2.28	2.28	90.00	0.00	30.01	30.01	25.45	4.56	6.581	
800.00	800.00	800.00	800.00	2.64	2.64	90.00	0.00	30.01	30.01	24.73	5.28	5.687	
900.00	900.00	900.00	900.00	3.00	3.00	90.00	0.00	30.01	30.01	24.01	5.99	5.007	
1,000.00	1,000.00	1,000.00	1,000.00	3.36	3.36	90.00	0.00	30.01	30.01	23.30	6.71	4.472	
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	90.00	0.00	30.01	30.01	22.58	7.43	4.040	
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	90.00	0.00	30.01	30.01	21.86	8.14	3.684	
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	90.00	0.00	30.01	30.01	21.15	8.86	3.386	
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	90.00	0.00	30.01	30.01	20.43	9.58	3.133	
1,500.00	1,500.00	1,500.00	1,500.00	5.15	5.15	90.00	0.00	30.01	30.01	19.71	10.30	2.915	
1,600.00	1,600.00	1,600.00	1,600.00	5.51	5.51	90.00	0.00	30.01	30.01	19.00	11.01	2.725	
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	90.00	0.00	30.01	30.01	18.28	11.73	2.558	
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	90.00	0.00	30.01	30.01	17.56	12.45	2.411	
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	90.00	0.00	30.01	30.01	16.84	13.16	2.280	
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	90.00	0.00	30.01	30.01	16.13	13.88	2.162	
2,100.00	2,100.00	2,100.00	2,100.00	7.30	7.30	90.00	0.00	30.01	30.01	15.41	14.60	2.056	
2,200.00	2,200.00	2,200.00	2,200.00	7.66	7.66	90.00	0.00	30.01	30.01	14.69	15.31	1.960	
2,300.00	2,300.00	2,300.00	2,300.00	8.02	8.02	90.00	0.00	30.01	30.01	13.98	16.03	1.872	
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	90.00	0.00	30.01	30.01	13.26	16.75	1.792	
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	90.00	0.00	30.01	30.01	12.54	17.46	1.718	
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	90.00	0.00	30.01	30.01	11.83	18.18	1.650	
2,664.46	2,664.46	2,664.46	2,664.46	9.32	9.32	90.00	0.00	30.01	30.01	11.36	18.84	1.610	
2,700.00	2,700.00	2,699.94	2,699.94	9.45	9.45	90.00	0.00	30.01	30.01	11.12	18.90	1.588	
2,800.00	2,799.99	2,798.89	2,798.87	9.80	9.78	1.42	-0.20	31.93	30.67	11.10	19.58	1.567	
2,900.00	2,899.87	2,897.82	2,897.65	10.14	10.12	2.58	-0.76	37.23	31.32	11.10	20.22	1.549	
3,000.00	2,999.53	2,996.72	2,996.16	10.49	10.46	4.44	-1.67	45.92	31.95	11.10	20.84	1.533	
3,100.00	3,098.84	3,095.65	3,094.33	10.84	10.81	6.97	-2.94	57.99	32.59	11.14	21.44	1.520	
3,200.00	3,197.87	3,195.63	3,193.36	11.19	11.16	9.93	-4.39	71.74	32.69	10.56	22.12	1.478 Level 3	
3,300.00	3,296.90	3,295.62	3,292.38	11.55	11.52	12.89	-5.83	85.50	32.83	10.02	22.81	1.439 Level 3	
3,400.00	3,395.92	3,395.60	3,391.40	11.91	11.87	15.81	-7.28	99.25	33.07	9.55	23.51	1.406 Level 3	
3,500.00	3,494.95	3,495.59	3,490.43	12.27	12.24	18.68	-8.72	113.00	33.39	9.17	24.22	1.379 Level 3	
3,600.00	3,593.98	3,595.57	3,589.45	12.63	12.60	21.49	-10.17	126.76	33.79	8.86	24.93	1.355 Level 3	
3,700.00	3,693.00	3,695.56	3,688.48	13.00	12.97	24.23	-11.61	140.51	34.27	8.63	25.64	1.336 Level 3	
3,800.00	3,792.03	3,795.55	3,787.50	13.37	13.34	26.89	-13.06	154.26	34.82	8.46	26.36	1.321 Level 3	
3,900.00	3,891.06	3,895.53	3,886.53	13.75	13.71	29.46	-14.51	168.02	35.45	8.37	27.09	1.309 Level 3	
4,000.00	3,990.08	3,995.52	3,985.55	14.12	14.09	31.93	-15.95	181.77	36.15	8.33	27.82	1.300 Level 3	
4,100.00	4,089.11	4,095.50	4,084.58	14.50	14.46	34.31	-17.40	195.52	36.91	8.36	28.55	1.293 Level 3	
4,200.00	4,188.14	4,195.49	4,183.60	14.87	14.84	36.58	-18.84	209.28	37.74	8.44	29.30	1.288 Level 3	
4,300.00	4,287.16	4,295.47	4,282.63	15.25	15.22	38.76	-20.29	223.03	38.62	8.58	30.04	1.286 Level 3	
4,400.00	4,386.19	4,395.46	4,381.65	15.63	15.60	40.84	-21.73	236.78	39.55	8.76	30.79	1.285 Level 3	
4,500.00	4,485.22	4,495.45	4,480.68	16.02	15.98	42.81	-23.18	250.53	40.54	8.99	31.55	1.285 Level 3	
4,600.00	4,584.24	4,595.43	4,579.70	16.40	16.36	44.70	-24.62	264.29	41.56	9.26	32.30	1.287 Level 3	
4,700.00	4,683.27	4,695.42	4,678.73	16.78	16.75	46.49	-26.07	278.04	42.64	9.57	33.07	1.289 Level 3	
4,800.00	4,782.30	4,795.40	4,777.75	17.17	17.13	48.19	-27.51	291.79	43.75	9.91	33.83	1.293 Level 3	
4,900.00	4,881.33	4,895.39	4,876.77	17.56	17.52	49.80	-28.96	305.55	44.90	10.29	34.60	1.297 Level 3	
5,000.00	4,980.35	4,995.37	4,975.80	17.94	17.91	51.33	-30.41	319.30	46.08	10.70	35.37	1.303 Level 3	

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 WA #14H
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 WA #14H	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 Bore Error:
Survey Program: 0-AMPH-DDM													0.00 usft
Reference													Offset Well Error:
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Height (usft)	Offset Wellbore (usft)	Survey (usft)	Survey (usft)	Survey (usft)	Survey (usft)	Survey (usft)	Warning
5,100.00	5,079.38	5,095.36	5,074.82	18.33	18.29	52.79	-31.85	333.05	47.29	11.14	36.15	1.308 Level 3	
5,200.00	5,178.41	5,195.34	5,173.85	18.72	18.68	54.17	-33.30	346.81	48.53	11.61	36.93	1.314 Level 3	
5,300.00	5,277.43	5,295.33	5,272.87	19.11	19.07	55.48	-34.74	360.56	49.80	12.09	37.71	1.321 Level 3	
5,400.00	5,376.46	5,395.32	5,371.90	19.50	19.46	56.73	-36.19	374.31	51.09	12.61	38.49	1.328 Level 3	
5,500.00	5,475.49	5,495.30	5,470.92	19.89	19.86	57.91	-37.63	388.07	52.41	13.14	39.27	1.335 Level 3	
5,600.00	5,574.51	5,595.29	5,569.95	20.29	20.25	59.04	-39.08	401.82	53.75	13.69	40.06	1.342 Level 3	
5,700.00	5,673.54	5,695.27	5,668.97	20.68	20.64	60.11	-40.52	415.57	55.11	14.26	40.85	1.349 Level 3	
5,800.00	5,772.57	5,795.26	5,768.00	21.07	21.03	61.13	-41.97	429.33	56.48	14.85	41.64	1.357 Level 3	
5,900.00	5,871.59	5,895.24	5,867.02	21.47	21.43	62.10	-43.42	443.08	57.88	15.45	42.43	1.364 Level 3	
6,000.00	5,970.62	5,995.23	5,966.05	21.86	21.82	63.02	-44.86	456.83	59.28	16.07	43.22	1.372 Level 3	
6,100.00	6,069.65	6,095.22	6,065.07	22.25	22.21	63.90	-46.31	470.58	60.71	16.70	44.01	1.379 Level 3	
6,200.00	6,168.67	6,195.20	6,164.10	22.65	22.61	64.74	-47.75	484.34	62.15	17.34	44.80	1.387 Level 3	
6,300.00	6,267.70	6,295.19	6,263.12	23.04	23.01	65.54	-49.20	498.09	63.60	18.00	45.60	1.395 Level 3	
6,400.00	6,366.73	6,395.17	6,362.14	23.44	23.40	66.31	-50.64	511.84	65.06	18.66	46.40	1.402 Level 3	
6,500.00	6,465.75	6,495.16	6,461.17	23.84	23.80	67.04	-52.09	525.60	66.53	19.34	47.19	1.410 Level 3	
6,600.00	6,564.78	6,595.14	6,560.19	24.23	24.19	67.74	-53.53	539.35	68.01	20.02	47.99	1.417 Level 3	
6,700.00	6,663.81	6,695.13	6,659.22	24.63	24.59	68.41	-54.98	553.10	69.51	20.72	48.79	1.425 Level 3	
6,800.00	6,762.83	6,795.11	6,758.24	25.03	24.99	69.06	-56.43	566.86	71.01	21.42	49.59	1.432 Level 3	
6,900.00	6,861.86	6,895.10	6,857.27	25.43	25.39	69.67	-57.87	580.61	72.52	22.13	50.39	1.439 Level 3	
7,000.00	6,960.89	6,995.09	6,956.29	25.83	25.78	70.26	-59.32	594.36	74.04	22.85	51.19	1.446 Level 3	
7,100.00	7,059.92	7,095.07	7,055.32	26.22	26.18	70.83	-60.76	608.12	75.56	23.57	51.99	1.453 Level 3	
7,200.00	7,158.94	7,195.06	7,154.34	26.62	26.58	71.37	-62.21	621.87	77.10	24.31	52.79	1.460 Level 3	
7,300.00	7,257.97	7,295.04	7,253.37	27.02	26.98	71.90	-63.65	635.62	78.64	25.04	53.59	1.467 Level 3	
7,400.00	7,357.00	7,395.03	7,352.39	27.42	27.38	72.40	-65.10	649.38	80.18	25.79	54.40	1.474 Level 3	
7,500.00	7,456.02	7,495.01	7,451.42	27.82	27.78	72.88	-66.54	663.13	81.74	26.54	55.20	1.481 Level 3	
7,600.00	7,555.05	7,595.00	7,550.44	28.22	28.18	73.35	-67.99	676.88	83.29	27.29	56.00	1.487 Level 3	
7,700.00	7,654.08	7,694.99	7,649.47	28.62	28.58	73.80	-69.43	690.64	84.86	28.05	56.81	1.494 Level 3	
7,800.00	7,753.10	7,794.97	7,748.49	29.02	28.98	74.23	-70.88	704.39	86.43	28.82	57.61	1.500	
7,900.00	7,852.13	7,894.96	7,847.51	29.42	29.38	74.65	-72.33	718.14	88.00	29.58	58.42	1.506	
8,000.00	7,951.16	7,994.94	7,946.54	29.82	29.78	75.05	-73.77	731.89	89.58	30.36	59.22	1.513	
8,100.00	8,050.18	8,094.93	8,045.56	30.22	30.18	75.44	-75.22	745.65	91.16	31.13	60.03	1.519	
8,200.00	8,149.21	8,194.91	8,144.59	30.62	30.58	75.81	-76.66	759.40	92.74	31.91	60.83	1.525	
8,300.00	8,248.24	8,294.90	8,243.61	31.02	30.98	76.17	-78.11	773.15	94.33	32.70	61.64	1.530	
8,400.00	8,347.26	8,394.88	8,342.64	31.43	31.38	76.53	-79.55	786.91	95.93	33.48	62.44	1.536	
8,500.00	8,446.29	8,494.87	8,441.66	31.83	31.78	76.86	-81.00	800.66	97.52	34.27	63.25	1.542	
8,600.00	8,545.32	8,594.86	8,540.69	32.23	32.19	77.19	-82.44	814.41	99.12	35.07	64.06	1.547	
8,700.00	8,644.34	8,694.84	8,639.71	32.63	32.59	77.51	-83.89	828.17	100.73	35.86	64.86	1.553	
8,800.00	8,743.37	8,794.83	8,738.74	33.03	32.99	77.82	-85.34	841.92	102.33	36.66	65.67	1.558	
8,900.00	8,842.40	8,894.81	8,837.76	33.43	33.39	78.12	-86.78	855.67	103.94	37.46	66.48	1.564	
9,000.00	8,941.42	9,009.83	8,951.44	33.84	33.85	77.64	-81.92	871.43	100.27	32.96	67.32	1.490 Level 3	
9,100.00	9,040.45	9,124.60	9,061.78	34.24	34.26	86.92	-55.04	886.64	77.98	10.00	67.98	1.147 Level 2	
9,200.00	9,138.60	9,231.03	9,157.51	34.63	34.59	118.39	-10.76	899.74	49.71	-17.71	67.43	0.737 Level 1	
9,300.00	9,233.15	9,331.30	9,238.83	35.00	34.86	100.09	46.62	910.79	25.97	-40.48	66.45	0.391 Level 1	
9,345.18	9,273.91	9,374.83	9,270.80	35.15	34.96	72.29	75.83	915.11	21.99	-44.65	66.64	0.330 Level 1, CC, ES, SF	
9,400.00	9,321.22	9,426.34	9,305.67	35.33	35.07	39.23	113.43	919.79	27.52	-36.82	64.33	0.428 Level 1	
9,500.00	9,400.15	9,517.04	9,358.45	35.62	35.23	14.54	186.74	926.81	50.72	-6.32	57.04	0.889 Level 1	
9,600.00	9,467.53	9,604.18	9,397.77	35.87	35.37	7.00	264.24	931.95	76.25	26.81	49.45	1.542	
9,700.00	9,521.31	9,688.43	9,424.30	36.08	35.49	3.76	344.05	935.29	100.33	58.81	41.53	2.416	
9,800.00	9,559.86	9,770.36	9,438.73	36.29	35.63	2.01	424.61	936.96	121.90	87.97	33.93	3.593	
9,900.00	9,582.01	9,854.95	9,442.00	36.51	35.80	0.86	509.08	937.06	140.02	111.90	28.12	4.979	
10,000.00	9,587.45	9,954.69	9,442.00	36.75	36.06	0.51	608.83	936.64	145.45	118.95	26.50	5.488	
10,100.00	9,587.45	10,054.69	9,442.00	37.06	36.39	0.49	708.83	936.22	145.45	118.31	27.15	5.358	

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 WA #14H
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 WA #14H	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

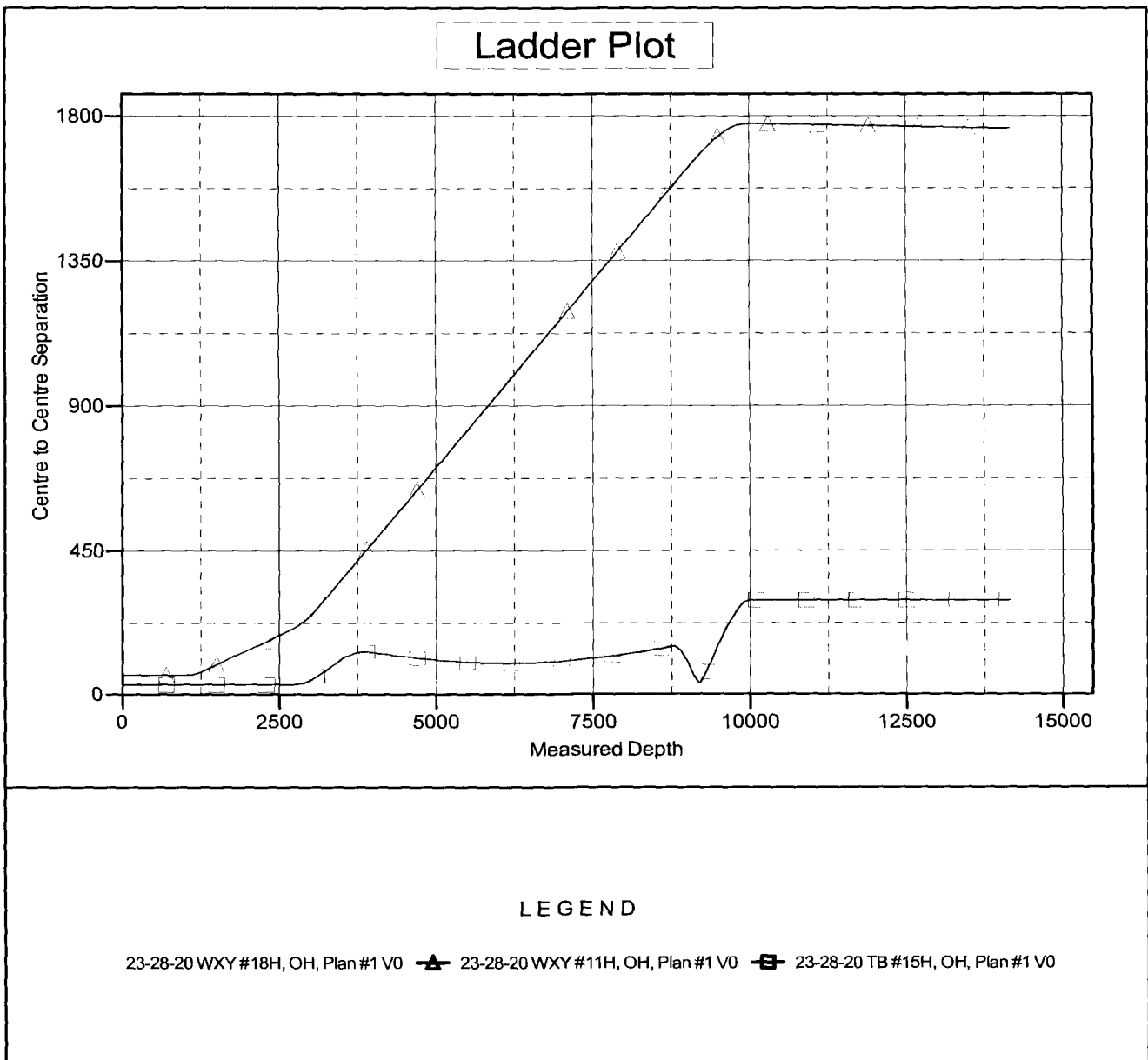
Offset Design: Mariner Fee - 23-28-20 WXY #18H - OH - Plan #1													Offset Site Error:
Survey Program: 3-MWD-HDCM													0.00 usft
Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset	Reference	Offset
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)
10,200.00	9,587.45	10,154.69	9,442.00	37.42	36.79	0.48	808.82	935.81	145.45	117.59	27.86	5.220	
10,300.00	9,587.45	10,254.69	9,442.00	37.85	37.25	0.47	908.82	935.39	145.45	116.80	28.64	5.078	
10,400.00	9,587.44	10,354.69	9,442.00	38.33	37.77	0.45	1,008.82	934.97	145.45	115.96	29.49	4.932	
10,500.00	9,587.44	10,454.69	9,442.00	38.86	38.34	0.44	1,108.82	934.55	145.44	115.05	30.39	4.785	
10,600.00	9,587.44	10,554.69	9,442.00	39.45	38.96	0.43	1,208.82	934.13	145.44	114.09	31.35	4.640	
10,700.00	9,587.44	10,654.69	9,442.00	40.08	39.62	0.41	1,308.82	933.71	145.44	113.09	32.35	4.496	
10,800.00	9,587.43	10,754.69	9,442.00	40.76	40.33	0.40	1,408.82	933.30	145.43	112.04	33.40	4.355	
10,900.00	9,587.43	10,854.69	9,442.00	41.48	41.08	0.39	1,508.82	932.88	145.43	110.95	34.48	4.217	
11,000.00	9,587.42	10,954.69	9,442.00	42.24	41.87	0.37	1,608.82	932.46	145.42	109.82	35.60	4.084	
11,100.00	9,587.42	11,054.69	9,442.00	43.04	42.69	0.36	1,708.82	932.04	145.42	108.66	36.76	3.956	
11,200.00	9,587.41	11,154.69	9,442.00	43.87	43.55	0.35	1,808.82	931.62	145.41	107.47	37.94	3.832	
11,300.00	9,587.40	11,254.69	9,442.00	44.73	44.44	0.33	1,908.81	931.21	145.40	106.25	39.15	3.714	
11,400.00	9,587.40	11,354.69	9,442.00	45.63	45.36	0.32	2,008.81	930.79	145.40	105.01	40.39	3.600	
11,500.00	9,587.39	11,454.69	9,442.00	46.55	46.31	0.31	2,108.81	930.37	145.39	103.74	41.65	3.491	
11,600.00	9,587.38	11,554.69	9,442.00	47.51	47.28	0.30	2,208.81	929.95	145.38	102.46	42.92	3.387	
11,700.00	9,587.37	11,654.69	9,442.00	48.48	48.28	0.28	2,308.81	929.54	145.37	101.15	44.22	3.287	
11,800.00	9,587.36	11,754.69	9,442.00	49.48	49.30	0.27	2,408.81	929.12	145.36	99.83	45.53	3.192	
11,900.00	9,587.35	11,854.69	9,442.00	50.51	50.35	0.26	2,508.81	928.70	145.35	98.49	46.86	3.102	
12,000.00	9,587.34	11,954.69	9,442.00	51.55	51.41	0.25	2,608.81	928.28	145.34	97.14	48.21	3.015	
12,100.00	9,587.33	12,054.69	9,442.00	52.61	52.49	0.23	2,708.81	927.87	145.33	95.77	49.56	2.932	
12,200.00	9,587.32	12,154.69	9,442.00	53.70	53.59	0.22	2,808.81	927.45	145.32	94.39	50.93	2.853	
12,300.00	9,587.31	12,254.69	9,442.00	54.80	54.71	0.21	2,908.81	927.03	145.31	93.00	52.31	2.778	
12,400.00	9,587.30	12,354.69	9,442.00	55.92	55.84	0.20	3,008.81	926.62	145.30	91.60	53.70	2.706	
12,500.00	9,587.29	12,454.69	9,442.00	57.05	56.99	0.19	3,108.80	926.20	145.29	90.19	55.10	2.637	
12,600.00	9,587.27	12,554.69	9,442.00	58.20	58.15	0.18	3,208.80	925.78	145.27	88.76	56.51	2.571	
12,700.00	9,587.26	12,654.69	9,442.00	59.36	59.33	0.16	3,308.80	925.37	145.26	87.33	57.93	2.508	
12,800.00	9,587.25	12,754.69	9,442.00	60.53	60.51	0.15	3,408.80	924.95	145.24	85.90	59.35	2.447	
12,900.00	9,587.23	12,854.69	9,442.00	61.72	61.71	0.14	3,508.80	924.54	145.23	84.45	60.78	2.389	
13,000.00	9,587.22	12,954.69	9,442.00	62.91	62.92	0.13	3,608.80	924.12	145.21	83.00	62.22	2.334	
13,100.00	9,587.20	13,054.69	9,442.00	64.12	64.14	0.12	3,708.80	923.70	145.20	81.54	63.66	2.281	
13,200.00	9,587.18	13,154.69	9,442.00	65.34	65.37	0.11	3,808.80	923.29	145.18	80.07	65.11	2.230	
13,300.00	9,587.17	13,254.69	9,442.00	66.57	66.61	0.09	3,908.80	922.87	145.17	78.60	66.57	2.181	
13,400.00	9,587.15	13,354.69	9,442.00	67.81	67.86	0.08	4,008.80	922.46	145.15	77.12	68.03	2.134	
13,500.00	9,587.13	13,454.69	9,442.00	69.05	69.12	0.07	4,108.80	922.04	145.13	75.64	69.49	2.089	
13,600.00	9,587.11	13,554.69	9,442.00	70.31	70.38	0.06	4,208.79	921.62	145.11	74.15	70.96	2.045	
13,700.00	9,587.09	13,654.69	9,442.00	71.57	71.65	0.05	4,308.79	921.21	145.09	72.66	72.43	2.003	
13,800.00	9,587.08	13,754.69	9,442.00	72.84	72.93	0.04	4,408.79	920.79	145.08	71.17	73.91	1.963	
13,900.00	9,587.06	13,854.69	9,442.00	74.12	74.22	0.03	4,508.79	920.38	145.06	69.67	75.39	1.924	
14,000.00	9,587.04	13,954.69	9,442.00	75.40	75.51	0.02	4,608.79	919.96	145.04	68.16	76.87	1.887	
14,100.00	9,587.01	14,054.69	9,442.00	76.69	76.81	0.01	4,708.79	919.55	145.01	66.65	78.36	1.851	
14,168.13	9,587.00	14,122.82	9,442.00	77.49	77.70	0.00	4,776.92	919.26	145.00	65.68	79.12	1.833	

Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 WA #14H
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 WA #14H	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 WA #14H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.12°



Anticollision Report

Company:	Marathon Oil Permian, LLC	Local Co-ordinate Reference:	Well 23-28-20 WA #14H
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 WA #14H	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

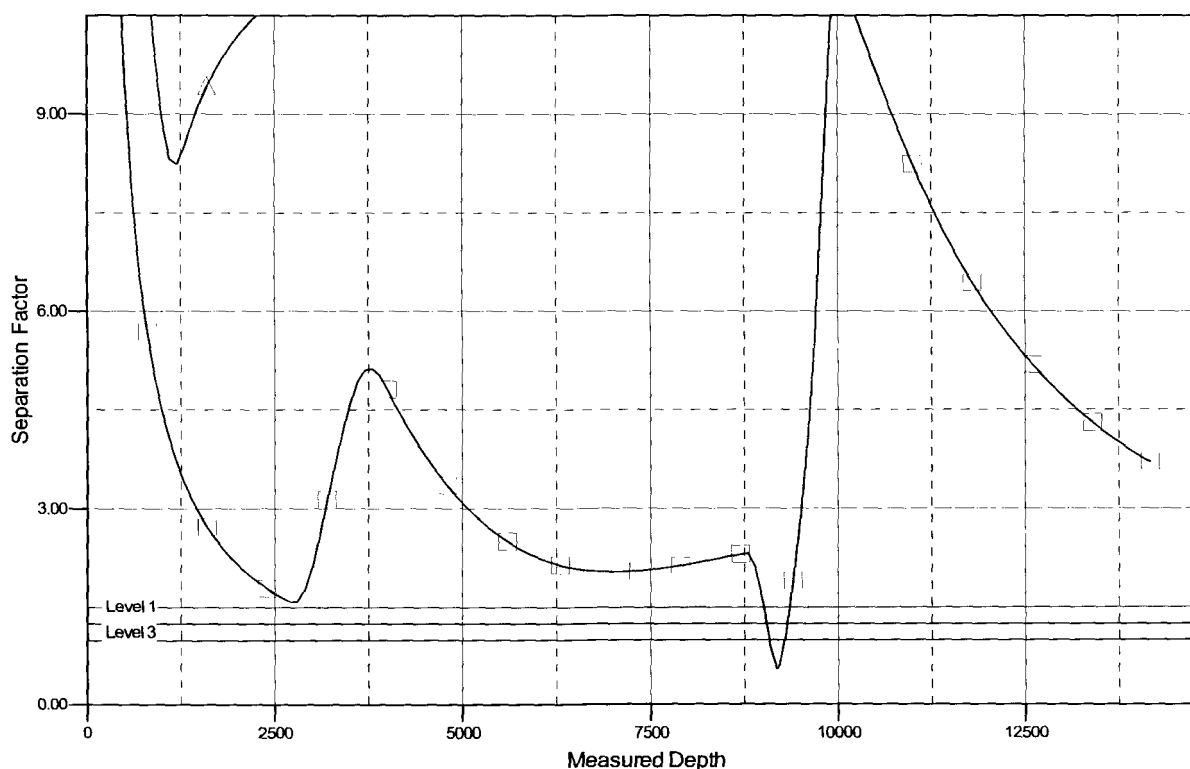
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 23-28-20 WA #14H

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

Grid Convergence at Surface is: 0.12°

Separation Factor Plot



LEGEND

23-28-20 WXY #18H, OH, Plan #1 V0 23-28-20 WXY #11H, OH, Plan #1 V0 23-28-20 TB #15H, OH, Plan #1 V0