

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 16 2018

RECEIVED

Marathon Oil Permian, LLC

Eddy County, NM (NAD27)
Gravel Grinder Fee 23-28-18
WA #5H

OH

Plan: Plan #1

Standard Planning Report

08 January, 2018



www.scientificdrilling.com

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well WA #5H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 26.5' @ 3106.50usft (H&P 441)
Project:	Eddy County, NM (NAD27)	MD Reference:	KB = 26.5' @ 3106.50usft (H&P 441)
Site:	Gravel Grinder Fee 23-28-18	North Reference:	Grid
Well:	WA #5H	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		Gravel Grinder Fee 23-28-18			
Site Position:		Northing:	472,497.59 usft	Latitude:	32° 17' 55.858 N
From:	Map	Easting:	562,658.22 usft	Longitude:	104° 7' 49.967 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	WA #5H					
Well Position	+N/-S	0.00 usft	Northing:	472,497.59 usft	Latitude:	32° 17' 55.858 N
	+E/-W	0.00 usft	Easting:	562,658.22 usft	Longitude:	104° 7' 49.967 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,080.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	1/8/2018	7.32	60.08	48,046

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(bearing)
	0.00	0.00	0.00	359.87

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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,125.00	2.50	175.40	2,124.96	-2.72	0.22	2.00	2.00	0.00	175.40	
3,125.00	2.50	175.40	3,124.01	-46.20	3.72	0.00	0.00	0.00	0.00	
8,821.12	2.50	175.40	8,814.71	-293.86	23.64	0.00	0.00	0.00	0.00	
9,742.06	89.60	359.58	9,412.58	274.56	21.40	10.00	9.46	-19.09	-175.81	
14,100.14	89.60	359.58	9,443.00	4,632.42	-10.26	0.00	0.00	0.00	0.00	BHL[GGF/WA#5H]

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Gravel Grinder Fee 23-28-18
Well: WA #5H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well WA #5H
TVD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
MD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
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
Rustler									
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
425.00	0.00	0.00	425.00	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
806.00	0.00	0.00	806.00	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
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 2.0° / 100									
2,100.00	2.00	175.40	2,099.98	-1.74	0.14	-1.74	2.00	2.00	0.00
2,125.00	2.50	175.40	2,124.96	-2.72	0.22	-2.72	2.00	2.00	0.00
EOB - HOLD									
2,180.09	2.50	175.40	2,180.00	-5.11	0.41	-5.11	0.00	0.00	0.00
Base of Salt									
2,200.00	2.50	175.40	2,199.89	-5.98	0.48	-5.98	0.00	0.00	0.00
2,300.00	2.50	175.40	2,299.79	-10.33	0.83	-10.33	0.00	0.00	0.00
2,400.00	2.50	175.40	2,399.70	-14.67	1.18	-14.68	0.00	0.00	0.00
2,406.31	2.50	175.40	2,406.00	-14.95	1.20	-14.95	0.00	0.00	0.00
Lamar									
2,437.34	2.50	175.40	2,437.00	-16.30	1.31	-16.30	0.00	0.00	0.00
Bell Canyon									
2,500.00	2.50	175.40	2,499.60	-19.02	1.53	-19.03	0.00	0.00	0.00
2,600.00	2.50	175.40	2,599.51	-23.37	1.88	-23.37	0.00	0.00	0.00
2,700.00	2.50	175.40	2,699.41	-27.72	2.23	-27.72	0.00	0.00	0.00
2,800.00	2.50	175.40	2,799.32	-32.07	2.58	-32.07	0.00	0.00	0.00
2,900.00	2.50	175.40	2,899.22	-36.41	2.93	-36.42	0.00	0.00	0.00
3,000.00	2.50	175.40	2,999.13	-40.76	3.28	-40.77	0.00	0.00	0.00
3,100.00	2.50	175.40	3,099.03	-45.11	3.63	-45.12	0.00	0.00	0.00
3,125.00	2.50	175.40	3,124.01	-46.20	3.72	-46.20	0.00	0.00	0.00
3,163.03	2.50	175.40	3,162.00	-47.85	3.85	-47.86	0.00	0.00	0.00
Cherry Canyon									
3,200.00	2.50	175.40	3,198.94	-49.46	3.98	-49.47	0.00	0.00	0.00
3,300.00	2.50	175.40	3,298.84	-53.81	4.33	-53.82	0.00	0.00	0.00
3,400.00	2.50	175.40	3,398.75	-58.15	4.68	-58.16	0.00	0.00	0.00
3,500.00	2.50	175.40	3,498.65	-62.50	5.03	-62.51	0.00	0.00	0.00

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Gravel Grinder Fee 23-28-18
Well: WA #5H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well WA #5H
TVD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
MD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
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)
3,600.00	2.50	175.40	3,598.56	-66.85	5.38	-66.86	0.00	0.00	0.00
3,700.00	2.50	175.40	3,698.46	-71.20	5.73	-71.21	0.00	0.00	0.00
3,800.00	2.50	175.40	3,798.37	-75.54	6.08	-75.56	0.00	0.00	0.00
3,900.00	2.50	175.40	3,898.27	-79.89	6.43	-79.91	0.00	0.00	0.00
4,000.00	2.50	175.40	3,998.18	-84.24	6.78	-84.26	0.00	0.00	0.00
4,100.00	2.50	175.40	4,098.08	-88.59	7.13	-88.60	0.00	0.00	0.00
4,200.00	2.50	175.40	4,197.99	-92.94	7.48	-92.95	0.00	0.00	0.00
4,300.00	2.50	175.40	4,297.89	-97.28	7.83	-97.30	0.00	0.00	0.00
4,390.20	2.50	175.40	4,388.00	-101.21	8.14	-101.22	0.00	0.00	0.00
Brushy Canyon									
4,400.00	2.50	175.40	4,397.80	-101.63	8.18	-101.65	0.00	0.00	0.00
4,500.00	2.50	175.40	4,497.70	-105.98	8.53	-106.00	0.00	0.00	0.00
4,600.00	2.50	175.40	4,597.60	-110.33	8.88	-110.35	0.00	0.00	0.00
4,700.00	2.50	175.40	4,697.51	-114.68	9.23	-114.70	0.00	0.00	0.00
4,800.00	2.50	175.40	4,797.41	-119.02	9.58	-119.04	0.00	0.00	0.00
4,900.00	2.50	175.40	4,897.32	-123.37	9.93	-123.39	0.00	0.00	0.00
5,000.00	2.50	175.40	4,997.22	-127.72	10.28	-127.74	0.00	0.00	0.00
5,100.00	2.50	175.40	5,097.13	-132.07	10.63	-132.09	0.00	0.00	0.00
5,200.00	2.50	175.40	5,197.03	-136.42	10.98	-136.44	0.00	0.00	0.00
5,300.00	2.50	175.40	5,296.94	-140.76	11.33	-140.79	0.00	0.00	0.00
5,400.00	2.50	175.40	5,396.84	-145.11	11.68	-145.14	0.00	0.00	0.00
5,500.00	2.50	175.40	5,496.75	-149.46	12.03	-149.49	0.00	0.00	0.00
5,600.00	2.50	175.40	5,596.65	-153.81	12.38	-153.83	0.00	0.00	0.00
5,700.00	2.50	175.40	5,696.56	-158.15	12.72	-158.18	0.00	0.00	0.00
5,800.00	2.50	175.40	5,796.46	-162.50	13.07	-162.53	0.00	0.00	0.00
5,900.00	2.50	175.40	5,896.37	-166.85	13.42	-166.88	0.00	0.00	0.00
5,906.64	2.50	175.40	5,903.00	-167.14	13.45	-167.17	0.00	0.00	0.00
Bone Spring									
6,000.00	2.50	175.40	5,996.27	-171.20	13.77	-171.23	0.00	0.00	0.00
6,100.00	2.50	175.40	6,096.18	-175.55	14.12	-175.58	0.00	0.00	0.00
6,200.00	2.50	175.40	6,196.08	-179.89	14.47	-179.93	0.00	0.00	0.00
6,300.00	2.50	175.40	6,295.99	-184.24	14.82	-184.27	0.00	0.00	0.00
6,400.00	2.50	175.40	6,395.89	-188.59	15.17	-188.62	0.00	0.00	0.00
6,500.00	2.50	175.40	6,495.80	-192.94	15.52	-192.97	0.00	0.00	0.00
6,600.00	2.50	175.40	6,595.70	-197.29	15.87	-197.32	0.00	0.00	0.00
6,700.00	2.50	175.40	6,695.61	-201.63	16.22	-201.67	0.00	0.00	0.00
6,800.00	2.50	175.40	6,795.51	-205.98	16.57	-206.02	0.00	0.00	0.00
6,840.53	2.50	175.40	6,836.00	-207.74	16.71	-207.78	0.00	0.00	0.00
1st Bone Spring Sand									
6,900.00	2.50	175.40	6,895.42	-210.33	16.92	-210.37	0.00	0.00	0.00
7,000.00	2.50	175.40	6,995.32	-214.68	17.27	-214.72	0.00	0.00	0.00
7,100.00	2.50	175.40	7,095.23	-219.03	17.62	-219.06	0.00	0.00	0.00
7,200.00	2.50	175.40	7,195.13	-223.37	17.97	-223.41	0.00	0.00	0.00
7,300.00	2.50	175.40	7,295.04	-227.72	18.32	-227.76	0.00	0.00	0.00
7,400.00	2.50	175.40	7,394.94	-232.07	18.67	-232.11	0.00	0.00	0.00
7,500.00	2.50	175.40	7,494.84	-236.42	19.02	-236.46	0.00	0.00	0.00
7,600.00	2.50	175.40	7,594.75	-240.76	19.37	-240.81	0.00	0.00	0.00
7,612.26	2.50	175.40	7,607.00	-241.30	19.41	-241.34	0.00	0.00	0.00
2nd Bone Spring Sand									
7,700.00	2.50	175.40	7,694.65	-245.11	19.72	-245.16	0.00	0.00	0.00
7,800.00	2.50	175.40	7,794.56	-249.46	20.07	-249.50	0.00	0.00	0.00
7,900.00	2.50	175.40	7,894.46	-253.81	20.42	-253.85	0.00	0.00	0.00
8,000.00	2.50	175.40	7,994.37	-258.16	20.77	-258.20	0.00	0.00	0.00

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Gravel Grinder Fee 23-28-18
Well: WA #5H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well WA #5H
TVD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
MD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
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)
8,100.00	2.50	175.40	8,094.27	-262.50	21.12	-262.55	0.00	0.00	0.00
8,200.00	2.50	175.40	8,194.18	-266.85	21.47	-266.90	0.00	0.00	0.00
8,300.00	2.50	175.40	8,294.08	-271.20	21.82	-271.25	0.00	0.00	0.00
8,400.00	2.50	175.40	8,393.99	-275.55	22.17	-275.60	0.00	0.00	0.00
8,500.00	2.50	175.40	8,493.89	-279.90	22.52	-279.94	0.00	0.00	0.00
8,600.00	2.50	175.40	8,593.80	-284.24	22.87	-284.29	0.00	0.00	0.00
8,700.00	2.50	175.40	8,693.70	-288.59	23.22	-288.64	0.00	0.00	0.00
8,800.00	2.50	175.40	8,793.61	-292.94	23.57	-292.99	0.00	0.00	0.00
8,821.12	2.50	175.40	8,814.71	-293.86	23.64	-293.91	0.00	0.00	0.00
Curve KOP - Build 10.0° / 100									
8,850.00	0.43	24.40	8,843.58	-294.39	23.74	-294.44	10.00	-7.15	-522.85
8,900.00	5.40	1.51	8,893.50	-291.86	23.88	-291.91	10.00	9.93	-45.78
8,922.65	7.66	0.94	8,916.00	-289.29	23.93	-289.34	10.00	10.00	-2.54
3rd Bone Spring Sand									
8,950.00	10.40	0.58	8,943.01	-284.99	23.99	-285.05	10.00	10.00	-1.32
9,000.00	15.40	0.24	8,991.73	-273.84	24.06	-273.89	10.00	10.00	-0.66
9,050.00	20.40	0.07	9,039.30	-258.48	24.10	-258.53	10.00	10.00	-0.34
9,100.00	25.40	359.97	9,085.35	-239.03	24.11	-239.09	10.00	10.00	-0.21
9,150.00	30.39	359.89	9,129.52	-215.65	24.08	-215.70	10.00	10.00	-0.15
9,200.00	35.39	359.84	9,171.49	-188.50	24.01	-188.56	10.00	10.00	-0.11
9,250.00	40.39	359.80	9,210.94	-157.80	23.91	-157.85	10.00	10.00	-0.08
9,299.21	45.32	359.76	9,247.00	-124.34	23.78	-124.39	10.00	10.00	-0.07
Wolfcamp									
9,300.00	45.39	359.76	9,247.55	-123.78	23.78	-123.83	10.00	10.00	-0.06
9,345.21	49.92	359.74	9,278.00	-90.37	23.64	-90.43	10.00	10.00	-0.06
Wolfcamp X Sand									
9,350.00	50.39	359.73	9,281.07	-86.70	23.62	-86.75	10.00	10.00	-0.05
9,400.00	55.39	359.71	9,311.22	-46.83	23.42	-46.88	10.00	10.00	-0.05
9,450.00	60.39	359.69	9,337.79	-4.49	23.20	-4.54	10.00	10.00	-0.04
9,469.22	62.32	359.68	9,347.00	12.37	23.11	12.32	10.00	10.00	-0.04
Wolfcamp Y Sand									
9,479.52	63.35	359.67	9,351.71	21.54	23.05	21.49	10.00	10.00	-0.04
FTP[GGF/WA#5H]									
9,500.00	65.39	359.67	9,360.56	40.00	22.95	39.95	10.00	10.00	-0.04
9,550.00	70.39	359.65	9,379.37	86.31	22.67	86.26	10.00	10.00	-0.04
9,600.00	75.39	359.63	9,394.07	134.08	22.37	134.03	10.00	10.00	-0.03
9,621.02	77.50	359.62	9,399.00	154.51	22.24	154.46	10.00	10.00	-0.03
Wolfcamp A									
9,650.00	80.39	359.61	9,404.56	182.95	22.05	182.90	10.00	10.00	-0.03
9,700.00	85.39	359.60	9,410.74	232.55	21.70	232.50	10.00	10.00	-0.03
9,742.06	89.60	359.58	9,412.58	274.56	21.40	274.51	10.00	10.00	-0.03
EOC - HOLD									
9,800.00	89.60	359.58	9,412.98	332.50	20.98	332.45	0.00	0.00	0.00
9,900.00	89.60	359.58	9,413.68	432.49	20.26	432.45	0.00	0.00	0.00
10,000.00	89.60	359.58	9,414.38	532.49	19.53	532.44	0.00	0.00	0.00
10,100.00	89.60	359.58	9,415.07	632.48	18.80	632.44	0.00	0.00	0.00
10,200.00	89.60	359.58	9,415.77	732.48	18.08	732.44	0.00	0.00	0.00
10,300.00	89.60	359.58	9,416.47	832.47	17.35	832.43	0.00	0.00	0.00
10,400.00	89.60	359.58	9,417.17	932.47	16.62	932.43	0.00	0.00	0.00
10,500.00	89.60	359.58	9,417.87	1,032.46	15.90	1,032.43	0.00	0.00	0.00
10,600.00	89.60	359.58	9,418.56	1,132.46	15.17	1,132.42	0.00	0.00	0.00
10,700.00	89.60	359.58	9,419.26	1,232.45	14.44	1,232.42	0.00	0.00	0.00
10,800.00	89.60	359.58	9,419.96	1,332.45	13.72	1,332.41	0.00	0.00	0.00

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Gravel Grinder Fee 23-28-18
Well: WA #5H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well WA #5H
TVD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
MD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
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)
10,900.00	89.60	359.58	9,420.66	1,432.44	12.99	1,432.41	0.00	0.00	0.00
11,000.00	89.60	359.58	9,421.36	1,532.44	12.26	1,532.41	0.00	0.00	0.00
11,100.00	89.60	359.58	9,422.06	1,632.43	11.54	1,632.40	0.00	0.00	0.00
11,200.00	89.60	359.58	9,422.75	1,732.43	10.81	1,732.40	0.00	0.00	0.00
11,300.00	89.60	359.58	9,423.45	1,832.42	10.08	1,832.40	0.00	0.00	0.00
11,400.00	89.60	359.58	9,424.15	1,932.42	9.36	1,932.39	0.00	0.00	0.00
11,500.00	89.60	359.58	9,424.85	2,032.41	8.63	2,032.39	0.00	0.00	0.00
11,600.00	89.60	359.58	9,425.55	2,132.41	7.90	2,132.38	0.00	0.00	0.00
11,700.00	89.60	359.58	9,426.24	2,232.40	7.18	2,232.38	0.00	0.00	0.00
11,800.00	89.60	359.58	9,426.94	2,332.40	6.45	2,332.38	0.00	0.00	0.00
11,900.00	89.60	359.58	9,427.64	2,432.39	5.72	2,432.37	0.00	0.00	0.00
12,000.00	89.60	359.58	9,428.34	2,532.39	5.00	2,532.37	0.00	0.00	0.00
12,100.00	89.60	359.58	9,429.04	2,632.38	4.27	2,632.37	0.00	0.00	0.00
12,200.00	89.60	359.58	9,429.73	2,732.38	3.55	2,732.36	0.00	0.00	0.00
12,300.00	89.60	359.58	9,430.43	2,832.37	2.82	2,832.36	0.00	0.00	0.00
12,400.00	89.60	359.58	9,431.13	2,932.37	2.09	2,932.35	0.00	0.00	0.00
12,500.00	89.60	359.58	9,431.83	3,032.36	1.37	3,032.35	0.00	0.00	0.00
12,600.00	89.60	359.58	9,432.53	3,132.36	0.64	3,132.35	0.00	0.00	0.00
12,700.00	89.60	359.58	9,433.23	3,232.35	-0.09	3,232.34	0.00	0.00	0.00
12,800.00	89.60	359.58	9,433.92	3,332.35	-0.81	3,332.34	0.00	0.00	0.00
12,900.00	89.60	359.58	9,434.62	3,432.34	-1.54	3,432.34	0.00	0.00	0.00
13,000.00	89.60	359.58	9,435.32	3,532.34	-2.27	3,532.33	0.00	0.00	0.00
13,100.00	89.60	359.58	9,436.02	3,632.33	-2.99	3,632.33	0.00	0.00	0.00
13,200.00	89.60	359.58	9,436.72	3,732.33	-3.72	3,732.33	0.00	0.00	0.00
13,300.00	89.60	359.58	9,437.41	3,832.32	-4.45	3,832.32	0.00	0.00	0.00
13,400.00	89.60	359.58	9,438.11	3,932.32	-5.17	3,932.32	0.00	0.00	0.00
13,500.00	89.60	359.58	9,438.81	4,032.31	-5.90	4,032.31	0.00	0.00	0.00
13,600.00	89.60	359.58	9,439.51	4,132.31	-6.63	4,132.31	0.00	0.00	0.00
13,700.00	89.60	359.58	9,440.21	4,232.30	-7.35	4,232.31	0.00	0.00	0.00
13,800.00	89.60	359.58	9,440.90	4,332.30	-8.08	4,332.30	0.00	0.00	0.00
13,900.00	89.60	359.58	9,441.60	4,432.29	-8.81	4,432.30	0.00	0.00	0.00
14,000.00	89.60	359.58	9,442.30	4,532.29	-9.53	4,532.30	0.00	0.00	0.00
14,100.14	89.60	359.58	9,443.00	4,632.42	-10.26	4,632.43	0.00	0.00	0.00

TD at 14100.14 - BHL[GGF/WA#5H]

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP[GGF/WA#5H] - plan misses target center by 101.70usft at 9479.52usft MD (9351.71 TVD, 21.54 N, 23.05 E) - Point	0.00	0.00	9,443.00	-23.27	23.53	472,474.32	562,681.75	32° 17' 55.628 N	104° 7' 49.693 W
BHL[GGF/WA#5H] - plan hits target center - Point	0.00	0.00	9,443.00	4,632.42	-10.26	477,129.61	562,647.96	32° 18' 41.698 N	104° 7' 49.984 W

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Eddy County, NM (NAD27)
Site: Gravel Grinder Fee 23-28-18
Well: WA #5H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well WA #5H
TVD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
MD Reference: KB = 26.5' @ 3106.50usft (H&P 441)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
0.00	0.00	Rustler			
425.00	425.00	Salado			
806.00	806.00	Castile			
2,180.09	2,180.00	Base of Salt			
2,406.31	2,406.00	Lamar			
2,437.34	2,437.00	Bell Canyon			
3,163.03	3,162.00	Cherry Canyon			
4,390.20	4,388.00	Brushy Canyon			
5,906.64	5,903.00	Bone Spring			
6,840.53	6,836.00	1st Bone Spring Sand			
7,612.26	7,607.00	2nd Bone Spring Sand			
8,922.65	8,916.00	3rd Bone Spring Sand			
9,299.21	9,247.00	Wolfcamp			
9,345.21	9,278.00	Wolfcamp X Sand			
9,469.22	9,347.00	Wolfcamp Y Sand			
9,621.02	9,399.00	Wolfcamp A			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.00	2,000.00	0.00	0.00	KOP - Build 2.0° / 100
2,125.00	2,124.96	-2.72	0.22	EOB - HOLD
8,821.12	8,814.71	-46.20	3.72	Curve KOP - Build 10.0° / 100
9,742.06	9,412.58	-293.86	23.64	EOC - HOLD
14,100.14	9,443.00	274.56	21.40	TD at 14100.14