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DISTRICT II-ARTESIA O.C.D.

Marathon Oil Permian, LLC

Eddy County, NM (NAD27)

Gravel Grinder Fee 23-28-18

WA #5H

30-015-44628

OH

Survey: SDI Survey #1

Standard Survey Report

04 June, 2018





Scientific Drilling, Intl Survey Report



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

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
Database: Midland District

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	4/2/2018	7.30	60.07	48,019

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)	
	0.00	0.00	0.00	0.00	

Survey Program	Date 6/4/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
74.58	390.50	Gyro Survey (OH)	Gyrodata Gyro	Gyrocompass Gyro	
503.00	14,218.00	SDI Survey #1 (OH)	MWD+IFR+MS	MWD + IFR + Multi Station	

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)
390.50	0.27	177.96	390.50	0.18	0.58	0.18	0.00	0.00	0.00
503.00	0.29	315.75	503.00	0.12	0.39	0.12	0.46	0.02	122.48
593.00	0.40	335.73	592.99	0.57	0.10	0.57	0.18	0.12	22.20
684.00	0.52	333.48	683.99	1.23	-0.21	1.23	0.13	0.13	-2.47
775.00	0.45	7.51	774.99	1.95	-0.35	1.95	0.32	-0.08	37.40
866.00	0.35	344.30	865.99	2.57	-0.38	2.57	0.21	-0.11	-25.51
958.00	0.34	349.29	957.98	3.11	-0.50	3.11	0.03	-0.01	5.42
1,048.00	0.18	17.85	1,047.98	3.51	-0.51	3.51	0.22	-0.18	31.73
1,139.00	0.07	252.29	1,138.98	3.63	-0.52	3.63	0.25	-0.12	-137.98
1,233.00	0.14	308.68	1,232.98	3.68	-0.66	3.68	0.12	0.07	59.99

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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)
1,328.00	0.05	49.36	1,327.98	3.78	-0.72	3.78	0.17	-0.09	105.98
1,422.00	0.26	213.68	1,421.98	3.63	-0.81	3.63	0.33	0.22	174.81
1,517.00	0.33	201.56	1,516.98	3.20	-1.03	3.20	0.10	0.07	-12.76
1,612.00	0.50	183.00	1,611.98	2.53	-1.15	2.53	0.23	0.18	-19.54
1,706.00	1.27	147.18	1,705.97	1.24	-0.61	1.24	0.97	0.82	-38.11
1,801.00	1.90	140.94	1,800.93	-0.86	0.95	-0.86	0.69	0.66	-6.57
1,896.00	1.84	142.00	1,895.88	-3.29	2.89	-3.29	0.07	-0.06	1.12
1,990.00	2.28	140.23	1,989.82	-5.92	5.01	-5.92	0.47	0.47	-1.88
2,084.00	2.41	135.06	2,083.74	-8.75	7.60	-8.75	0.26	0.14	-5.50
2,179.00	2.50	136.04	2,178.65	-11.66	10.45	-11.66	0.10	0.09	1.03
2,273.00	2.52	135.51	2,272.56	-14.61	13.32	-14.61	0.03	0.02	-0.56
2,368.00	2.33	152.97	2,367.48	-17.82	15.67	-17.82	0.80	-0.20	18.38
2,463.00	2.58	177.38	2,462.39	-21.67	16.64	-21.67	1.12	0.26	25.69
2,557.00	2.78	188.80	2,556.29	-26.04	16.39	-26.04	0.61	0.21	12.15
2,652.00	2.90	194.52	2,651.18	-30.64	15.43	-30.64	0.32	0.13	6.02
2,747.00	2.81	191.22	2,746.06	-35.25	14.38	-35.25	0.20	-0.09	-3.47
2,841.00	4.47	180.92	2,839.87	-41.18	13.87	-41.18	1.89	1.77	-10.98
2,936.00	4.43	181.14	2,934.58	-48.55	13.74	-48.55	0.05	-0.04	0.23
3,030.00	4.35	183.64	3,028.30	-55.73	13.44	-55.73	0.22	-0.09	2.66
3,124.00	4.26	182.15	3,122.04	-62.78	13.08	-62.78	0.15	-0.10	-1.59
3,219.00	3.88	184.14	3,216.80	-69.51	12.72	-69.51	0.43	-0.40	2.09
3,313.00	3.78	185.13	3,310.59	-75.77	12.21	-75.77	0.13	-0.11	1.05
3,408.00	3.81	185.08	3,405.38	-82.03	11.65	-82.03	0.03	0.03	-0.05
3,503.00	3.93	184.76	3,500.16	-88.42	11.10	-88.42	0.13	0.13	-0.34
3,597.00	3.76	187.93	3,593.95	-94.68	10.41	-94.68	0.29	-0.18	3.37
3,691.00	4.03	176.01	3,687.74	-101.03	10.21	-101.03	0.91	0.29	-12.68
3,786.00	4.51	170.44	3,782.47	-108.05	11.07	-108.05	0.67	0.51	-5.86
3,880.00	4.36	170.84	3,876.19	-115.22	12.25	-115.22	0.16	-0.16	0.43
3,975.00	4.29	173.60	3,970.92	-122.31	13.22	-122.31	0.23	-0.07	2.91
4,069.00	4.29	170.56	4,064.66	-129.28	14.19	-129.28	0.24	0.00	-3.23
4,164.00	4.24	171.01	4,159.40	-136.25	15.32	-136.25	0.06	-0.05	0.47
4,258.00	4.16	167.69	4,253.14	-143.01	16.59	-143.01	0.27	-0.09	-3.53
4,353.00	4.07	172.88	4,347.90	-149.72	17.74	-149.72	0.40	-0.09	5.46
4,447.00	3.77	168.66	4,441.68	-156.06	18.76	-156.06	0.44	-0.32	-4.49
4,542.00	3.75	169.46	4,536.47	-162.18	19.95	-162.18	0.06	-0.02	0.84
4,636.00	3.45	173.97	4,630.29	-168.02	20.81	-168.02	0.44	-0.32	4.80
4,731.00	3.17	173.00	4,725.13	-173.47	21.43	-173.47	0.30	-0.29	-1.02
4,826.00	2.93	168.24	4,820.00	-178.45	22.24	-178.45	0.37	-0.25	-5.01
4,920.00	2.97	170.85	4,913.87	-183.21	23.12	-183.21	0.15	0.04	2.78
5,015.00	2.79	171.05	5,008.75	-187.92	23.87	-187.92	0.19	-0.19	0.21
5,110.00	2.79	170.03	5,103.64	-192.48	24.63	-192.48	0.05	0.00	-1.07
5,204.00	2.48	173.51	5,197.54	-196.75	25.26	-196.75	0.37	-0.33	3.70
5,299.00	2.39	170.55	5,292.45	-200.75	25.81	-200.75	0.16	-0.09	-3.12



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5,393.00	2.33	179.22	5,386.37	-204.59	26.16	-204.59	0.38	-0.06	9.22
5,488.00	2.35	178.60	5,481.29	-208.47	26.23	-208.47	0.03	0.02	-0.65
5,583.00	2.21	184.53	5,576.22	-212.25	26.14	-212.25	0.29	-0.15	6.24
5,677.00	2.18	191.41	5,670.15	-215.81	25.64	-215.81	0.28	-0.03	7.32
5,772.00	2.28	191.34	5,765.08	-219.43	24.91	-219.43	0.11	0.11	-0.07
5,867.00	2.51	194.03	5,860.00	-223.30	24.04	-223.30	0.27	0.24	2.83
5,961.00	2.38	203.99	5,953.91	-227.08	22.74	-227.08	0.47	-0.14	10.60
6,056.00	0.91	240.94	6,048.87	-229.25	21.28	-229.25	1.83	-1.55	38.89
6,151.00	1.31	268.42	6,143.85	-229.65	19.54	-229.65	0.69	0.42	28.93
6,245.00	1.95	276.74	6,237.82	-229.49	16.87	-229.49	0.72	0.68	8.85
6,340.00	1.41	294.29	6,332.77	-228.82	14.20	-228.82	0.78	-0.57	18.47
6,435.00	0.29	134.63	6,427.77	-228.50	13.31	-228.50	1.77	-1.18	-168.06
6,529.00	0.91	221.49	6,521.76	-229.23	12.98	-229.23	1.00	0.66	92.40
6,625.00	0.95	284.39	6,617.75	-229.60	11.71	-229.60	1.01	0.04	65.52
6,720.00	1.11	257.71	6,712.74	-229.60	10.05	-229.60	0.53	0.17	-28.08
6,814.00	0.57	306.70	6,806.73	-229.52	8.78	-229.52	0.91	-0.57	52.12
6,909.00	0.45	30.22	6,901.72	-228.91	8.59	-228.91	0.72	-0.13	87.92
7,003.00	0.14	33.73	6,995.72	-228.50	8.84	-228.50	0.33	-0.33	3.73
7,098.00	0.72	209.26	7,090.72	-228.92	8.61	-228.92	0.90	0.61	184.77
7,192.00	0.63	169.39	7,184.72	-229.95	8.42	-229.95	0.50	-0.10	-42.41
7,287.00	1.23	146.45	7,279.70	-231.31	9.08	-231.31	0.73	0.63	-24.15
7,381.00	2.21	140.94	7,373.66	-233.56	10.78	-233.56	1.06	1.04	-5.86
7,476.00	0.80	147.24	7,468.62	-235.54	12.29	-235.54	1.49	-1.48	6.63
7,570.00	0.88	142.20	7,562.61	-236.66	13.09	-236.66	0.12	0.09	-5.36
7,665.00	1.39	136.36	7,657.59	-238.07	14.33	-238.07	0.55	0.54	-6.15
7,760.00	1.35	136.78	7,752.57	-239.72	15.89	-239.72	0.04	-0.04	0.44
7,854.00	1.24	134.79	7,846.54	-241.24	17.37	-241.24	0.13	-0.12	-2.12
7,948.00	1.14	150.04	7,940.52	-242.77	18.56	-242.77	0.35	-0.11	16.22
8,043.00	0.99	162.21	8,035.51	-244.37	19.28	-244.37	0.28	-0.16	12.81
8,137.00	0.38	337.13	8,129.50	-244.86	19.41	-244.86	1.46	-0.65	186.09
8,232.00	1.39	339.61	8,224.49	-243.49	18.89	-243.49	1.06	1.06	2.61
8,327.00	0.34	300.52	8,319.48	-242.26	18.24	-242.26	1.21	-1.11	-41.15
8,421.00	0.17	251.42	8,413.48	-242.17	17.87	-242.17	0.28	-0.18	-52.23
8,516.00	0.14	218.58	8,508.48	-242.30	17.67	-242.30	0.10	-0.03	-34.57
8,611.00	0.27	71.18	8,603.48	-242.32	17.80	-242.32	0.42	0.14	-155.16
8,705.00	0.17	317.09	8,697.48	-242.15	17.92	-242.15	0.40	-0.11	-121.37
8,800.00	0.60	277.01	8,792.48	-241.98	17.33	-241.98	0.51	0.45	-42.19
8,894.00	1.24	250.87	8,886.46	-242.26	15.88	-242.26	0.80	0.68	-27.81
8,989.00	1.01	255.90	8,981.44	-242.80	14.10	-242.80	0.26	-0.24	5.29
9,084.00	9.06	349.99	9,076.05	-235.62	11.98	-235.62	9.67	8.47	99.04
9,178.00	20.31	0.42	9,166.84	-211.94	10.81	-211.94	12.25	11.97	11.10
9,273.00	30.72	3.81	9,252.47	-171.13	12.55	-171.13	11.06	10.96	3.57
9,367.00	40.74	2.63	9,328.68	-116.39	15.56	-116.39	10.68	10.66	-1.26

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9,462.00	51.28	359.88	9,394.57	-48.16	16.91	-48.16	11.29	11.09	-2.89
9,549.09	61.17	358.62	9,442.93	24.13	15.91	24.13	11.42	11.36	-1.45
FTP[GGF/WA#5H]									
9,556.00	61.96	358.53	9,446.22	30.21	15.76	30.21	11.42	11.37	-1.29
9,651.00	70.02	359.80	9,484.84	116.91	14.53	116.91	8.57	8.48	1.34
9,746.00	82.65	3.66	9,507.25	208.97	17.39	208.97	13.87	13.29	4.06
9,869.00	88.96	5.19	9,516.24	331.20	26.86	331.20	5.28	5.13	1.24
9,963.00	90.81	3.29	9,516.43	424.94	33.81	424.94	2.82	1.97	-2.02
10,058.00	89.93	0.63	9,515.82	519.87	37.06	519.87	2.95	-0.93	-2.80
10,153.00	89.43	0.12	9,516.35	614.87	37.68	614.87	0.75	-0.53	-0.54
10,247.00	89.53	0.20	9,517.20	708.86	37.94	708.86	0.14	0.11	0.09
10,341.00	89.93	357.84	9,517.64	802.84	36.33	802.84	2.55	0.43	-2.51
10,436.00	90.30	356.56	9,517.45	897.73	31.69	897.73	1.40	0.39	-1.35
10,531.00	90.74	357.68	9,516.59	992.60	26.92	992.60	1.27	0.46	1.18
10,625.00	89.23	358.70	9,516.61	1,086.55	23.95	1,086.55	1.94	-1.61	1.09
10,720.00	88.26	358.52	9,518.69	1,181.50	21.65	1,181.50	1.04	-1.02	-0.19
10,815.00	88.59	359.31	9,521.31	1,276.44	19.85	1,276.44	0.90	0.35	0.83
10,910.00	88.19	358.11	9,523.97	1,371.38	17.71	1,371.38	1.33	-0.42	-1.26
11,005.00	88.22	357.89	9,526.95	1,466.28	14.40	1,466.28	0.23	0.03	-0.23
11,099.00	87.95	357.65	9,530.09	1,560.15	10.74	1,560.15	0.38	-0.29	-0.26
11,194.00	88.59	358.60	9,532.96	1,655.06	7.64	1,655.06	1.21	0.67	1.00
11,289.00	88.26	359.07	9,535.57	1,750.00	5.70	1,750.00	0.60	-0.35	0.49
11,383.00	89.36	359.10	9,537.52	1,843.97	4.20	1,843.97	1.17	1.17	0.03
11,478.00	91.07	359.18	9,537.17	1,938.95	2.78	1,938.95	1.80	1.80	0.08
11,573.00	91.58	358.51	9,534.97	2,033.91	0.86	2,033.91	0.89	0.54	-0.71
11,666.00	90.17	358.27	9,533.55	2,126.86	-1.75	2,126.86	1.54	-1.52	-0.26
11,760.00	90.10	356.72	9,533.33	2,220.76	-5.86	2,220.76	1.65	-0.07	-1.65
11,855.00	88.49	358.36	9,534.50	2,315.66	-9.93	2,315.66	2.42	-1.69	1.73
11,950.00	90.91	0.27	9,534.99	2,410.64	-11.07	2,410.64	3.25	2.55	2.01
12,044.00	88.99	1.27	9,535.08	2,504.63	-9.81	2,504.63	2.30	-2.04	1.06
12,139.00	88.86	0.80	9,536.86	2,599.60	-8.09	2,599.60	0.51	-0.14	-0.49
12,233.00	90.07	0.78	9,537.74	2,693.58	-6.79	2,693.58	1.29	1.29	-0.02
12,328.00	88.32	1.73	9,539.07	2,788.54	-4.71	2,788.54	2.10	-1.84	1.00
12,422.00	87.85	0.73	9,542.21	2,882.47	-2.70	2,882.47	1.17	-0.50	-1.06
12,517.00	88.22	359.90	9,545.47	2,977.41	-2.18	2,977.41	0.96	0.39	-0.87
12,611.00	88.76	359.49	9,547.95	3,071.38	-2.68	3,071.38	0.72	0.57	-0.44
12,706.00	89.80	359.63	9,549.14	3,166.36	-3.41	3,166.36	1.10	1.09	0.15
12,802.00	89.70	359.66	9,549.56	3,262.36	-4.00	3,262.36	0.11	-0.10	0.03
12,896.00	90.34	358.73	9,549.53	3,356.35	-5.32	3,356.35	1.20	0.68	-0.99
12,990.00	90.17	0.45	9,549.11	3,450.34	-5.99	3,450.34	1.84	-0.18	1.83
13,085.00	89.33	359.96	9,549.52	3,545.34	-5.65	3,545.34	1.02	-0.88	-0.52
13,180.00	88.56	358.60	9,551.27	3,640.31	-6.85	3,640.31	1.64	-0.81	-1.43
13,274.00	89.26	357.98	9,553.06	3,734.25	-9.65	3,734.25	0.99	0.74	-0.66
13,368.00	84.79	354.93	9,557.94	3,827.91	-15.45	3,827.91	5.75	-4.76	-3.24



Scientific Drilling, Intl
Survey Report



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

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
Database: Midland District

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)
13,463.00	87.86	356.98	9,564.03	3,922.47	-22.13	3,922.47	3.88	3.23	2.16
13,558.00	90.64	358.56	9,565.27	4,017.37	-25.83	4,017.37	3.37	2.93	1.66
13,652.00	91.74	0.21	9,563.32	4,111.34	-26.84	4,111.34	2.11	1.17	1.76
13,746.00	91.31	1.99	9,560.82	4,205.29	-25.03	4,205.29	1.95	-0.46	1.89
13,841.00	89.63	1.81	9,560.04	4,300.23	-21.88	4,300.23	1.78	-1.77	-0.19
13,936.00	90.84	1.86	9,559.65	4,395.18	-18.84	4,395.18	1.27	1.27	0.05
14,031.00	90.20	2.91	9,558.79	4,490.09	-14.89	4,490.09	1.29	-0.67	1.11
14,126.00	91.24	2.40	9,557.59	4,584.98	-10.49	4,584.98	1.22	1.09	-0.54
14,165.00	91.54	2.03	9,556.65	4,623.94	-8.98	4,623.94	1.22	0.77	-0.95
FINAL MWD Survey (14165.00' MD) - BHL[GGF/WA#5H]									
14,218.00	91.54	2.03	9,555.22	4,676.89	-7.10	4,676.89	0.00	0.00	0.00
FINAL Proj. to Bit (14218.00' MD)									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
14,165.00	9,556.65	4,623.94	-8.98	FINAL MWD Survey (14165.00' MD)
14,218.00	9,555.22	4,676.89	-7.10	FINAL Proj. to Bit (14218.00' MD)

Checked By: _____ Approved By: _____ Date: _____

EDDY COUNTY, NM (NAD27)
GRAVEL GRINDER FEE 23-28-18
WA #5H

PLAN #4
H&P 441

WELL DETAILS:

+N/-S	+E/-W	NORTHING	EASTING	LATITUDE	LONGITUDE
0.00	0.00	472497.59	562658.22	32° 17' 55.858 N 104° 7' 49.967 W	

SECTION DETAILS

NO	FB	AD	TD	+N/-S	+E/-W	FACE	SECT	"AGE"
1	0.00	0.00	0.10	0.00	0.00	0.01	1.0	0.01
25	1.00	1.00	200.00	0.00	0.00	0.00	2.0	0.00
27	1.00	4.00	24.00	2599.94	-5.94	0.73	2.0	7.00
29	1.00	4.11	24.00	194.92	-232.1	26.43	0.01	0.01
30	1.00	4.11	24.00	94.75	-236.35	26.4	2.0	6.01
31	1.00	4.11	24.00	3496.74	-239.35	25.6	1.0	0.00
32	1.00	89.51	150.18	95.760	277.37	2.40	1.0	359.78
33	1.00	89.51	150.18	624.1	-532.42	14.29	0.01	0.01
34	1.00	59.59	359.55	9563.3	-577.42	-3.54	0.01	0.00

BH-[GGF/VAWSH]

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
FTP[GGF/VAWSH]	9515.00	-23.27	23.53	472474.32	562681.75
BHL[GGF/VAWSH]	9548.00	4632.42	-10.26	477129.61	562647.96

DRILLING TARGET: 9515' TVD @ 0VS // 89.6° INC.

WINDOW: 10' UP // 10' DOWN
WINDOW: 30' LEFT // 30' RIGHT

SITE DETAILS: GRAVEL GRINDER FEE 23-28-18
SITE CENTRE NORTHING: 472497.59
EASTING: 562658.22

POSITIONAL UNCERTAINTY: 0.00
CONVERGENCE: 0.11
LOCAL NORTH: GRID

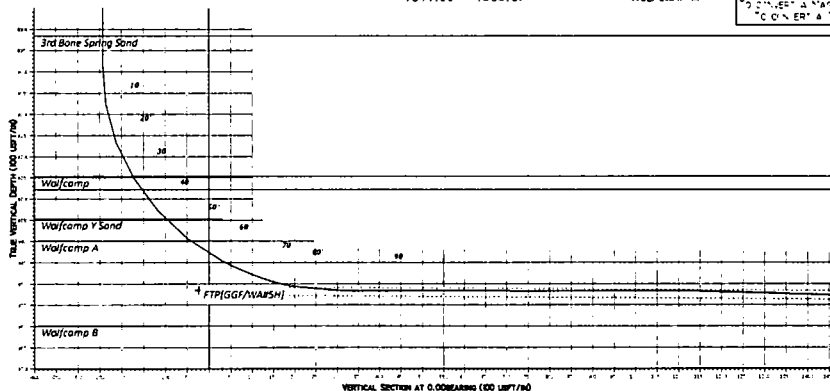
PROJECT DETAILS: EDDY COUNTY, NM (NAD27)
SECTION: SYSTEM: US STATE PLANE 927 (EARTH SOLUTION)
DATA: NAD 927 (NAD27 CONJUG)
ELLIPSOID: CLARKE 554
ZONE: NEW ZEALAND EAST 300
SYSTEM: CAN: MEAN SEA LEVEL

FORMATION TOP DETAILS

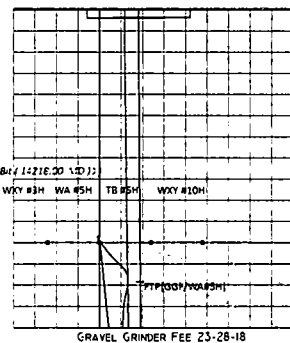
TVD PATH	MDP PATH	FORMATION
0.00	0.00	RUSTLER
425.00	425.00	CALADO
806.00	806.00	CASTLE
2180.00	2180.00	BASE OF GALT
2406.00	2406.00	LAMAR
2437.00	2437.00	BELL CANYON
3162.00	3162.00	CHERRY CANYON
4388.00	4392.28	BRUSHY CANYON
5903.00	5910.98	BONE SPRING
6836.00	6844.24	1ST BONE SPRING SAND
7607.00	7615.24	2ND BONE SPRING SAND
8916.00	8924.24	3RD BONE SPRING SAND
9267.00	9266.03	WOLF CAMP
9278.00	9302.09	WOLF CAMP X SAND
9367.00	9389.13	WOLF CAMP Y SAND
9399.00	9464.61	WOLF CAMP A

MAP SYSTEM: US STATE PLANE 927 (EARTH SOLUTION)
DATA: NAD 927 (NAD27 CONJUG)
ELLIPSOID: CLARKE 554
ZONE: NEW ZEALAND EAST 300
LOCAL ORIGIN: WELL #4 45H, GRID NORTH
LATITUDE: 32° 17' 55.858 N
LONGITUDE: 104° 7' 49.967 W
GRID EASTING: 562658.22
GRID NORTHING: 472497.59
SCALE FACTOR: 1.000
REFERENCE: 1: MODEL: HDGM
SAMPLE DATE: 02-APR-3
MAGNETIC DECLINATION: 1.30
1: SCALE: 1:1000
MAGNETIC FIELD STRENGTH: 48019

"TO CONVERT A MAGNETIC DIRECTION TO A GRID DIRECTION, ADD 7.19°
TO CONVERT A TRUE DIRECTION TO A GRID DIRECTION, ADD 7.19° EAST
CONVERSION: TRUE DIRECTION + GRID DIRECTION, SUBTRACT 7.19°"



FTP[GGF/VAWSH]
BHL[GGF/VAWSH]



GRAVEL GRINDER FEE 23-28-18



Azimuths to Grid North
True North: -0.11°
Magnetic North: 7.19°

Magnetic Field
Strength: 48018.9nT
Dip Angle: 60.07°
Date: 4/2/2018
Model: HDGM

To convert a Magnetic Direction to a Grid Direction, Add 7.19°
To convert a True Direction to a Grid Direction, Subtract 0.11°

