



PHOENIX
TECHNOLOGY SERVICES

Matador Resources

Eddy County, NM (NAD27 NME)
General Kehoe 02-24S-28E RB
228H

OH / 64505

RECEIVED

SEP 19 2019

DISTRICT 7 - ARTESIA O.C.D.

Survey: Phoenix MWD Surveys

Standard Survey Report

17 April, 2019





Survey Report



Company:	Matador Resources	Local Co-ordinate Reference:	Well 228H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3009.50usft (Patterson 297)
Site:	General Kehoe 02-24S-28E RB	MD Reference:	RKB @ 3009.50usft (Patterson 297)
Well:	228H	North Reference:	Grid
Wellbore:	OH / 64505	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 297)	Database:	USA Compass

Project:	Eddy County, NM (NAD27 NME)		
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		

Site:	General Kehoe 02-24S-28E RB		
-------	-----------------------------	--	--

Site Position:		Northing:	455,986.00 usft	Latitude:	32° 15' 11.9366 N
From:	Map	Easting:	586,067.00 usft	Longitude:	104° 3' 17.7316 W
Position Uncertainty:	1.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well:	228H					
Well Position	+N/-S	0.00 usft	Northing:	456,078.00 usft	Latitude:	32° 15' 12.8091 N
	+E/-W	0.00 usft	Easting:	587,533.00 usft	Longitude:	104° 3' 0.6571 W
Position Uncertainty	1.00 usft		Wellhead Elevation:	usft	Ground Level:	2,981.00 usft

Wellbore:	OH / 64505				
-----------	------------	--	--	--	--

Magnetics:	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	5/1/2019	7.08	60.00	47,911.63656523

Design:	Surveys (Patterson 297)				
---------	-------------------------	--	--	--	--

Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.12

Survey Program	Date: 4/17/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
124.83	402.00	VES Gyros (OH / 64505)	NS-GYRO-MS	North sensing gyrocompassing m/s	
434.00	10,471.00	Phoenix MWD Surveys (OH / 64505)	MWD+HRGM	OWSG MWD + HRGM	
10,486.00	10,865.00	Pro Directional MWD (OH / 64505)	MWD+HRGM	OWSG MWD + HRGM	

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth (usft)	(°)	(°)	Depth (usft)	(usft)	(usft)	Section (usft)	Rate (°/100usft)	Rate (°/100usft)	Rate (°/100usft)	
402.00	2.25	147.96	401.89	-4.90	5.61	4.88	0.00	0.00	0.00	
Tie In										
434.00	2.51	153.23	433.86	-6.06	6.26	6.04	1.06	0.81	16.47	
First Phoenix MWD Survey										
524.00	1.87	165.33	523.79	-9.23	7.51	9.22	0.87	-0.71	13.44	
619.00	0.70	235.27	618.77	-11.06	7.43	11.05	1.85	-1.23	73.62	
710.00	1.61	297.86	709.76	-10.78	5.84	10.77	1.57	1.00	68.78	
800.00	3.30	312.34	799.67	-8.45	2.81	8.44	1.99	1.88	16.09	

Company:	Matador Resources	Local Co-ordinate Reference:	Well 228H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3009.50usft (Patterson 297)
Site:	General Kehoe 02-24S-28E RB	MD Reference:	RKB @ 3009.50usft (Patterson 297)
Well:	228H	North Reference:	Grid
Wellbore:	OH / 64505	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 297)	Database:	USA Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
891.00	2.83	304.24	890.54	-5.42	-0.98	5.42	0.70	-0.52	-8.90
982.00	2.85	311.02	981.43	-2.67	-4.55	2.68	0.37	0.02	7.45
1,072.00	2.50	316.90	1,071.33	0.23	-7.58	-0.21	0.49	-0.39	6.53
1,163.00	2.12	308.01	1,162.26	2.72	-10.26	-2.69	0.57	-0.42	-9.77
1,253.00	1.99	308.27	1,252.20	4.71	-12.80	-4.68	0.14	-0.14	0.29
1,344.00	1.97	307.63	1,343.15	6.64	-15.28	-6.61	0.03	-0.02	-0.70
1,434.00	1.87	305.59	1,433.10	8.44	-17.70	-8.40	0.13	-0.11	-2.27
1,528.00	1.87	306.49	1,527.05	10.25	-20.18	-10.20	0.03	0.00	0.96
1,621.00	1.41	313.02	1,620.01	11.93	-22.23	-11.88	0.53	-0.49	7.02
1,715.00	1.27	310.70	1,713.98	13.40	-23.87	-13.35	0.16	-0.15	-2.47
1,808.00	1.18	321.00	1,806.96	14.81	-25.25	-14.76	0.26	-0.10	11.08
1,902.00	0.48	305.01	1,900.95	15.79	-26.18	-15.74	0.78	-0.74	-17.01
1,995.00	0.25	237.56	1,993.95	15.91	-26.67	-15.85	0.48	-0.25	-72.53
2,088.00	0.05	166.66	2,086.95	15.76	-26.83	-15.70	0.26	-0.22	-76.24
2,182.00	0.29	108.95	2,180.95	15.64	-26.60	-15.59	0.28	0.26	-61.39
2,275.00	1.02	112.24	2,273.94	15.25	-25.61	-15.20	0.79	0.78	3.54
2,369.00	0.51	125.65	2,367.93	14.69	-24.50	-14.64	0.57	-0.54	14.27
2,462.00	1.15	323.32	2,460.93	15.20	-24.72	-15.15	1.77	0.69	-174.55
2,555.00	2.67	315.35	2,553.87	17.49	-26.80	-17.43	1.66	1.63	-8.57
2,649.00	2.68	313.10	2,647.77	20.55	-29.94	-20.48	0.11	0.01	-2.39
2,705.00	2.16	311.11	2,703.72	22.14	-31.69	-22.07	0.94	-0.93	-3.55
2,837.00	1.99	321.23	2,835.63	25.56	-35.00	-25.48	0.31	-0.13	7.67
2,930.00	3.58	321.24	2,928.52	29.08	-37.83	-29.00	1.71	1.71	0.01
3,023.00	4.46	326.68	3,021.29	34.37	-41.64	-34.28	1.03	0.95	5.85
3,117.00	4.42	326.86	3,115.01	40.45	-45.62	-40.36	0.05	-0.04	0.19
3,210.00	4.54	322.38	3,207.73	46.37	-49.83	-46.27	0.40	0.13	-4.82
3,303.00	4.67	322.22	3,300.43	52.28	-54.40	-52.16	0.14	0.14	-0.17
3,397.00	4.99	324.98	3,394.09	58.65	-59.09	-58.53	0.42	0.34	2.94
3,490.00	4.74	321.02	3,486.76	64.95	-63.82	-64.82	0.45	-0.27	-4.26
3,583.00	4.69	319.13	3,579.44	70.81	-68.73	-70.67	0.18	-0.05	-2.03
3,676.00	4.72	318.79	3,672.13	76.57	-73.74	-76.41	0.04	0.03	-0.37
3,769.00	4.93	316.14	3,764.80	82.33	-79.03	-82.16	0.33	0.23	-2.85
3,863.00	5.08	314.50	3,858.44	88.15	-84.79	-87.98	0.22	0.16	-1.74
3,956.00	5.26	314.56	3,951.06	94.03	-90.77	-93.84	0.19	0.19	0.06
4,050.00	5.03	311.05	4,044.68	99.76	-96.95	-99.56	0.41	-0.24	-3.73
4,143.00	5.80	316.70	4,137.27	105.86	-103.24	-105.64	1.01	0.83	6.08
4,236.00	6.10	321.27	4,229.77	113.13	-109.56	-112.90	0.60	0.32	4.91
4,330.00	6.13	319.71	4,323.23	120.86	-115.93	-120.61	0.18	0.03	-1.66
4,423.00	5.79	332.21	4,415.73	128.80	-121.33	-128.54	1.44	-0.37	13.44
4,516.00	6.07	342.42	4,508.24	137.63	-125.00	-137.37	1.17	0.30	10.98
4,610.00	6.08	342.13	4,601.71	147.11	-128.03	-146.84	0.03	0.01	-0.31
4,703.00	4.57	340.89	4,694.31	155.30	-130.75	-155.02	1.63	-1.62	-1.33
4,796.00	3.61	341.49	4,787.07	161.58	-132.89	-161.30	1.03	-1.03	0.65
4,890.00	2.55	351.09	4,880.93	166.45	-134.16	-166.17	1.25	-1.13	10.21

Company:	Matador Resources	Local Co-ordinate Reference:	Well 228H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3009.50usft (Patterson 297)
Site:	General Kehoe 02-24S-28E RB	MD Reference:	RKB @ 3009.50usft (Patterson 297)
Well:	228H	North Reference:	Grid
Wellbore:	OH / 64505	Survey/Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 297)	Database:	USA Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,983.00	2.02	351.77	4,973.86	170.11	-134.71	-169.83	0.57	-0.57	0.73
5,076.00	2.08	1.42	5,066.80	173.42	-134.91	-173.14	0.38	0.06	10.38
5,170.00	1.82	0.88	5,160.75	176.62	-134.84	-176.34	0.28	-0.28	-0.57
5,263.00	1.62	8.09	5,253.70	179.40	-134.63	-179.12	0.32	-0.22	7.75
5,357.00	1.66	1.17	5,347.67	182.08	-134.42	-181.79	0.21	0.04	-7.36
5,450.00	1.17	357.51	5,440.64	184.37	-134.43	-184.09	0.54	-0.53	-3.94
5,544.00	1.17	349.05	5,534.62	186.27	-134.66	-185.99	0.18	0.00	-9.00
5,637.00	0.89	357.05	5,627.60	187.93	-134.87	-187.64	0.34	-0.30	8.60
5,731.00	0.91	349.93	5,721.59	189.39	-135.04	-189.11	0.12	0.02	-7.57
5,824.00	0.72	2.32	5,814.58	190.70	-135.15	-190.42	0.28	-0.20	13.32
5,918.00	0.41	339.69	5,908.58	191.61	-135.24	-191.32	0.40	-0.33	-24.07
6,011.00	0.92	218.00	6,001.57	191.33	-135.81	-191.04	1.28	0.55	-130.85
6,105.00	1.04	209.79	6,095.56	189.99	-136.70	-189.71	0.20	0.13	-8.73
6,199.00	1.06	211.26	6,189.54	188.51	-137.58	-188.22	0.04	0.02	1.56
6,293.00	1.42	209.80	6,283.52	186.76	-138.61	-186.47	0.38	0.38	-1.55
6,386.00	1.67	215.40	6,376.49	184.65	-139.97	-184.36	0.31	0.27	6.02
6,480.00	1.60	215.20	6,470.45	182.46	-141.52	-182.17	0.07	-0.07	-0.21
6,573.00	1.53	204.78	6,563.41	180.28	-142.78	-179.98	0.31	-0.08	-11.20
6,667.00	1.36	206.10	6,657.38	178.13	-143.80	-177.83	0.18	-0.18	1.40
6,761.00	1.13	224.52	6,751.36	176.47	-144.94	-176.17	0.49	-0.24	19.60
6,854.00	1.07	249.15	6,844.35	175.51	-146.40	-175.20	0.51	-0.06	26.48
6,947.00	1.58	298.17	6,937.32	175.80	-148.34	-175.49	1.28	0.55	52.71
7,041.00	2.58	312.77	7,031.26	177.85	-151.03	-177.54	1.20	1.06	15.53
7,135.00	2.72	319.92	7,125.16	181.00	-154.02	-180.67	0.38	0.15	7.61
7,228.00	1.29	319.50	7,218.10	183.48	-156.12	-183.15	1.54	-1.54	-0.45
7,322.00	0.21	85.84	7,312.09	184.30	-156.64	-183.97	1.52	-1.15	134.40
7,415.00	0.16	120.08	7,405.09	184.25	-156.36	-183.92	0.13	-0.05	36.82
7,509.00	0.26	121.30	7,499.09	184.07	-156.06	-183.74	0.11	0.11	1.30
7,603.00	0.25	272.82	7,593.09	183.97	-156.08	-183.64	0.53	-0.01	161.19
7,696.00	0.90	264.07	7,686.09	183.90	-157.01	-183.57	0.70	0.70	-9.41
7,784.00	0.99	211.50	7,774.07	182.37	-159.33	-182.03	0.45	0.05	-27.96
7,877.00	1.81	188.18	7,867.04	180.23	-159.96	-179.89	1.06	0.88	-25.08
7,971.00	2.26	184.74	7,960.98	176.91	-160.32	-176.57	0.50	0.48	-3.66
8,064.00	2.81	188.32	8,053.89	172.33	-160.82	-172.49	0.62	0.59	4.17
8,158.00	2.61	185.73	8,147.78	168.42	-161.38	-168.08	0.26	-0.21	-3.07
8,251.00	2.65	182.76	8,240.68	164.17	-161.69	-163.83	0.15	0.04	-3.19
8,345.00	2.68	182.23	8,334.58	159.80	-161.88	-159.46	0.04	0.03	-0.56
8,439.00	2.57	189.00	8,428.48	155.52	-162.30	-155.18	0.35	-0.12	7.20
8,532.00	2.59	186.48	8,521.39	151.38	-162.86	-151.03	0.12	0.02	-2.71
8,626.00	3.55	171.15	8,615.25	146.39	-162.65	-146.05	1.34	1.02	-16.31
8,719.00	3.49	183.66	8,708.08	140.72	-162.39	-140.38	0.83	-0.06	13.45
8,813.00	2.63	192.67	8,801.95	135.76	-163.04	-135.42	1.05	-0.91	9.59
8,906.00	1.55	188.82	8,894.88	132.44	-163.71	-132.09	1.17	-1.16	-4.14

Company:	Matador Resources	Local Co-ordinate Reference:	Well 228H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3009.50usft (Patterson 297)
Site:	General Kehoe 02-24S-28E RB	MD Reference:	RKB @ 3009.50usft (Patterson 297)
Well:	228H	North Reference:	Grid
Wellbore:	OH / 64505	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 297)	Database:	USA Compass

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,100.00	0.92	206.97	9,088.86	130.51	-164.24	-130.16	0.78	-0.67	19.31	
9,193.00	0.62	220.55	9,181.85	129.46	-164.91	-129.11	0.38	-0.32	14.60	
9,287.00	0.21	224.61	9,275.85	128.95	-165.36	-128.60	0.44	-0.44	4.32	
9,381.00	0.35	221.00	9,369.85	128.61	-165.67	-128.26	0.15	0.15	-3.84	
9,474.00	0.54	222.21	9,462.85	128.07	-166.15	-127.72	0.20	0.20	1.30	
9,568.00	0.98	214.96	9,556.84	127.08	-166.91	-126.73	0.48	0.47	-7.71	
9,662.00	1.03	215.78	9,650.82	125.74	-167.86	-125.39	0.06	0.05	0.87	
9,755.00	0.90	224.98	9,743.81	124.55	-168.87	-124.19	0.22	-0.14	9.89	
9,849.00	1.32	341.75	9,837.80	125.05	-169.73	-124.70	2.02	0.45	124.22	
9,943.00	2.39	343.78	9,931.75	127.96	-170.62	-127.60	1.14	1.14	2.16	
10,036.00	2.41	342.43	10,024.67	131.69	-171.75	-131.33	0.06	0.02	-1.45	
10,118.00	1.91	308.07	10,106.61	134.17	-173.34	-133.81	1.66	-0.61	-41.90	
10,190.00	2.99	255.82	10,178.55	134.45	-176.11	-134.09	3.28	1.50	-72.57	
10,237.00	6.47	212.60	10,225.40	131.92	-178.73	-131.55	10.11	7.40	-91.96	
10,284.00	10.40	197.98	10,271.89	125.65	-181.46	-125.27	9.46	8.36	-31.11	
10,330.00	14.57	191.52	10,316.79	116.03	-183.90	-115.64	9.55	9.07	-14.04	
10,424.00	24.08	183.38	10,405.41	85.22	-187.40	-84.83	10.49	10.12	-8.66	
10,471.00	27.77	181.81	10,447.67	64.77	-188.31	-64.31	7.99	7.85	-3.34	
Final Phoenix MWD Survey										
10,523.00	31.92	181.12	10,492.77	38.83	-188.96	-38.44	8.01	7.98	-1.33	
Projection to TD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
402.00	401.89	-4.90	5.61	Tie In	
434.00	433.86	-6.06	6.26	First Phoenix MWD Survey	
10,471.00	10,447.67	64.70	-188.31	Final Phoenix MWD Survey	
10,523.00	10,492.77	38.83	-188.96	Projection to TD	