



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Red Raider 25 State Com

#503H

OH

Design: OH

Final PVA Report

10 July, 2019

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Final PVA Report

Company:	EOG Resources - Midland			Local Co-ordinate Reference:	Well #503H
Project:	Lea County, NM (NAD 83 NME)			TVD Reference:	KB = 32' @ 3536.0usft
Site:	Red Raider 25 State Com			MD Reference:	KB = 32' @ 3536.0usft
Well:	#503H			North Reference:	Grid
Wellbore:	OH			Survey Calculation Method:	Minimum Curvature
Design:	OH			Database:	EDM 5000.14

Project	Lea County, NM (NAD 83 NME)				
Map System:	US State Plane 1983	System Datum:	Mean Sea Level		
Geo Datum:	North American Datum 1983				
Map Zone:	New Mexico Eastern Zone				

Site	Red Raider 25 State Com				
Site Position:		Northing:	430,868.00 usft	Latitude:	32° 10' 54.895 N
From:	Map	Easting:	792,872.00 usft	Longitude:	103° 31' 13.091 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.43 "

Well	#503H					
Well Position	+N-S	0.0 usft	Northing:	430,858.00 usft	Latitude:	32° 10' 54.821 N
	+E-W	0.0 usft	Easting:	792,806.00 usft	Longitude:	103° 31' 13.859 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,504.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/30/2019	6.75	60.01	47,751.12873780

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	195.39	



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Survey Program	Date	7/10/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
180.0	1,300.0	Olebrook MWD #1 (OH)	MWD	OWSG MWD - Standard	
1,440.0	21,355.0	Leam MWD #1 (OH)	MWD	OWSG MWD - Standard	

MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
180.0	1.23	160.14	180.0	-1.8	0.7	0.68	0.68	0.00	0.0	0.0
301.0	0.82	160.05	301.0	-3.7	1.3	0.50	-0.50	-0.07	0.0	0.0
394.0	0.88	168.84	394.0	-4.8	1.6	0.30	0.28	9.45	0.0	0.0
500.0	1.14	207.86	499.9	-6.6	1.3	0.68	0.25	36.81	0.0	0.0
615.0	0.70	180.70	614.9	-8.3	0.8	0.53	-0.38	-23.62	0.0	0.0
804.0	0.53	259.72	803.9	-9.6	-0.1	0.42	-0.09	41.81	0.0	0.0
898.0	0.53	271.85	897.9	-9.6	-1.0	0.12	0.00	12.90	0.0	0.0
993.0	0.18	52.29	992.9	-9.5	-1.3	0.71	-0.37	147.83	0.0	0.0
1,088.0	0.44	311.22	1,087.9	-9.2	-1.5	0.53	0.27	-106.39	0.0	0.0
1,213.0	0.26	348.75	1,212.9	-8.6	-1.9	0.23	-0.14	30.02	0.0	0.0
1,300.0	0.53	316.67	1,299.9	-8.1	-2.2	0.39	0.31	-36.87	0.0	0.0
1,440.0	1.50	185.90	1,439.9	-9.4	-3.1	1.31	0.69	-86.26	-1.9	0.5
1,627.0	4.00	182.30	1,626.7	-18.3	-4.1	1.37	1.34	-7.27	-3.4	-0.4
1,814.0	5.60	168.30	1,813.0	-33.7	-2.2	1.11	0.86	-8.56	-8.1	-1.8
2,002.0	5.80	113.80	2,000.2	-48.4	8.7	2.68	0.11	-27.93	-3.6	-9.8
2,190.0	6.80	97.80	2,187.1	-51.8	28.4	1.07	0.53	-8.51	0.8	-11.2
2,378.0	6.70	91.30	2,373.8	-53.5	50.4	0.41	-0.05	-3.46	2.8	-8.6
2,566.0	6.30	87.60	2,560.6	-53.4	71.7	0.30	-0.21	-1.86	4.5	-4.0
2,754.0	7.00	83.40	2,747.3	-51.7	93.4	0.46	0.37	-2.34	5.1	2.4
2,943.0	8.60	94.30	2,934.6	-51.4	118.9	1.15	0.85	5.77	3.0	6.2



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Well:	#503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLog (*100usft)	Build (*100usft)	Turn (*100usft)	High to Plan (usft)	Right to Plan (usft)	
3,131.0	8.90	95.50	3,120.4	-53.8	147.4	0.19	0.16	0.64	-2.5	8.4	
3,320.0	10.10	101.60	3,306.8	-58.6	178.2	0.83	0.63	3.23	-9.6	9.8	
3,508.0	10.00	99.90	3,491.9	-64.7	210.4	0.17	-0.05	-0.90	-19.8	9.3	
3,696.0	8.10	88.10	3,677.6	-67.1	239.7	1.41	-1.01	-6.28	-28.0	6.8	
3,885.0	9.80	107.10	3,864.3	-71.4	268.4	1.79	0.90	10.05	-30.1	17.2	
4,073.0	9.60	109.00	4,049.6	-81.2	288.5	0.20	-0.11	1.01	-38.4	15.4	
4,261.0	8.50	109.70	4,235.3	-81.0	328.4	0.59	-0.59	0.37	-45.1	12.4	
4,449.0	7.60	109.40	4,421.4	-99.8	351.3	0.48	-0.48	-0.16	-48.7	8.5	
4,637.0	8.30	108.90	4,607.6	-108.3	375.8	0.37	0.37	-0.27	-52.0	4.7	
4,825.0	7.90	111.70	4,793.7	-117.5	400.7	0.30	-0.21	1.49	-55.6	3.4	
5,013.0	8.60	115.00	4,979.8	-128.2	425.4	0.45	0.37	1.76	-60.0	1.8	
5,156.0	7.70	115.40	5,123.3	-136.9	444.0	0.62	-0.62	0.28	-63.3	-2.4	
5,294.0	8.20	113.40	5,258.3	-143.8	459.0	1.12	-1.10	-1.47	-63.4	-8.6	
5,482.0	6.00	113.40	5,445.3	-151.7	477.3	0.11	-0.11	0.00	-60.9	-13.7	
5,669.0	6.70	87.90	5,631.1	-155.2	497.2	1.54	0.37	-13.64	-46.5	-37.6	
5,856.0	6.90	84.80	5,818.8	-153.7	519.5	0.22	0.11	-1.64	-44.5	-34.3	
6,047.0	8.10	86.70	6,008.2	-152.0	544.1	0.65	0.63	1.01	-47.8	-26.9	
6,235.0	7.60	93.20	6,192.4	-151.9	569.7	0.54	-0.27	3.46	-53.2	-16.8	
6,422.0	6.90	86.50	6,377.9	-151.9	593.3	0.59	-0.37	-3.58	-52.2	-18.7	
6,610.0	6.60	81.30	6,564.6	-149.6	615.3	0.36	-0.16	-2.77	-50.6	-16.8	
6,799.0	6.50	77.70	6,752.4	-145.6	636.4	0.22	-0.05	-1.90	-49.6	-11.5	
6,987.0	6.40	94.10	6,939.2	-144.1	657.3	0.98	-0.05	8.72	-48.6	8.4	
7,175.0	5.80	91.60	7,126.2	-145.1	676.9	0.45	-0.43	-1.33	-45.8	9.5	
7,362.0	2.90	110.40	7,312.7	-147.0	690.5	1.61	-1.44	10.05	-31.2	22.8	
7,551.0	0.90	199.40	7,501.6	-150.1	694.5	1.60	-1.06	47.09	18.3	21.0	
7,739.0	0.40	171.40	7,689.6	-152.1	694.1	0.31	-0.27	-14.89	5.5	23.1	



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Design:	OH	Database:	EDM 5000.14

Survey												
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Buifd (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)		
7,824.4	0.52	155.11	7,775.0	-152.8	694.3	0.21	0.14	-19.08	-1.9	23.7		
Brushy Top(RR 25 St Com #503H)												
7,927.0	0.70	144.00	7,877.6	-153.7	694.8	0.21	0.17	-10.82	-7.5	22.8		
8,115.0	0.40	166.80	8,065.6	-155.3	695.7	0.19	-0.16	12.18	0.2	24.3		
8,303.0	0.60	161.20	8,253.6	-156.9	696.1	0.11	0.11	-3.03	-3.9	24.2		
8,492.0	0.70	154.00	8,442.5	-158.8	697.0	0.07	0.05	-3.81	-9.0	23.4		
8,681.0	0.50	132.90	8,631.5	-160.4	698.1	0.16	-0.11	-11.16	-18.7	18.2		
8,869.0	0.40	168.80	8,819.5	-161.6	698.8	0.16	-0.05	19.10	-5.8	26.2		
9,056.0	0.40	221.50	9,008.5	-162.8	698.5	0.19	0.00	28.18	16.2	21.0		
9,244.0	0.50	264.20	9,194.5	-163.3	697.2	0.18	0.05	22.71	24.9	4.9		
9,431.0	0.90	279.40	9,381.5	-163.2	695.0	0.23	0.21	8.13	23.0	-1.6		
9,619.0	1.90	308.50	9,569.4	-161.0	691.1	0.64	0.53	15.48	14.9	-11.9		
9,807.0	1.90	314.50	9,757.3	-156.9	686.4	0.11	0.00	3.19	7.4	-13.0		
9,995.0	1.00	297.80	9,945.3	-153.9	682.7	0.52	-0.48	-8.88	6.2	-11.3		
10,184.0	0.70	110.60	10,134.3	-153.6	682.4	0.90	-0.16	91.43	-7.1	10.6		
10,372.0	0.80	185.70	10,322.3	-155.3	683.3	0.49	0.05	39.95	6.8	10.7		
10,509.0	1.90	219.20	10,459.2	-158.0	681.8	0.96	0.80	24.45	8.5	5.7		
10,578.0	1.20	254.60	10,526.2	-159.0	680.4	1.72	-1.04	52.84	8.6	0.3		
10,670.0	2.50	357.90	10,620.2	-157.2	679.4	3.20	1.38	109.89	-1.6	-7.7		
10,717.0	8.20	349.00	10,666.9	-152.9	678.7	12.22	12.13	-18.94	0.9	-7.5		
10,764.0	13.40	340.20	10,713.1	-144.5	676.2	11.58	11.06	-18.72	2.4	-5.6		
10,857.0	21.50	345.80	10,801.8	-117.8	668.4	8.89	8.71	6.02	3.6	-0.8		
10,904.0	27.80	343.70	10,844.4	-98.9	663.2	13.53	13.40	-4.47	4.1	2.5		
10,951.0	33.90	347.70	10,884.8	-75.6	657.3	13.69	12.98	8.51	3.7	5.4		
10,998.0	39.30	353.50	10,922.5	-47.9	652.8	13.63	11.49	12.34	2.7	6.5		
11,019.3	42.28	354.81	10,938.6	-34.1	651.4	14.57	14.01	6.14	1.9	6.3		
HL Crossing, MD:11019.3', TVD:10938.6', N/S:-34.1', E/W:651.4', INC:42.28												



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MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
11,045.0	45.90	356.20	10,957.1	-16.3	650.0	14.57	14.07	5.42	0.4	5.7	
11,092.0	51.40	356.50	10,988.1	18.9	647.8	11.71	11.70	0.64	-3.2	4.2	
FTP(RR 25 St Com #503H)											
11,138.0	55.00	356.20	11,015.7	55.7	645.4	7.84	7.83	-0.65	-6.7	2.5	
11,185.0	59.40	353.90	11,041.1	95.0	642.0	10.22	9.36	-4.89	-9.7	1.3	
11,231.0	64.10	353.00	11,062.9	135.3	637.4	10.36	10.22	-1.96	-12.4	1.4	
11,278.0	69.50	352.50	11,081.4	178.1	631.9	11.53	11.49	-1.06	-15.5	2.0	
11,325.0	70.10	353.20	11,097.6	221.9	626.4	1.89	1.28	1.49	-17.1	2.6	
11,372.0	70.30	352.80	11,113.6	265.8	621.0	0.91	0.43	-0.85	-15.0	3.1	
11,419.0	71.40	352.70	11,129.0	309.8	615.4	2.35	2.34	-0.21	-9.5	3.8	
11,466.0	76.30	353.90	11,142.1	354.6	610.2	10.71	10.43	2.55	-2.7	4.1	
11,512.0	80.10	353.90	11,151.5	399.4	605.4	8.26	8.26	0.00	4.2	3.8	
11,559.0	83.50	353.40	11,159.2	445.6	600.2	7.31	7.23	-1.06	11.5	4.0	
11,607.0	87.30	353.50	11,162.0	493.1	594.8	7.92	7.92	0.21	16.2	5.4	
11,654.0	90.40	356.70	11,163.0	539.9	590.8	9.48	6.60	6.81	17.9	6.6	
11,703.0	91.40	355.80	11,162.2	588.8	587.6	2.75	2.04	-1.84	18.0	8.1	
11,787.0	90.50	356.20	11,160.6	682.6	581.0	1.05	-0.98	0.43	18.1	13.8	
11,892.0	91.40	357.60	11,159.0	777.4	575.9	1.75	0.95	1.47	18.2	18.2	
11,986.0	91.40	357.80	11,158.8	871.3	572.1	0.21	0.00	0.21	17.5	21.2	
12,081.0	92.30	0.20	11,153.7	966.3	570.5	2.70	0.95	2.53	18.1	22.2	
12,174.0	89.30	1.30	11,152.4	1,059.2	571.7	3.44	-3.23	1.18	16.4	20.2	
12,268.0	89.30	1.60	11,153.5	1,153.2	574.0	0.32	0.00	0.32	19.2	17.1	
12,361.0	88.90	1.60	11,155.0	1,248.1	576.6	0.43	-0.43	0.00	22.3	13.8	
12,455.0	88.50	1.50	11,157.1	1,340.1	579.2	0.44	-0.43	-0.11	26.1	10.6	
12,549.0	90.00	2.70	11,158.4	1,434.0	582.6	2.04	1.60	1.28	28.9	6.4	
12,643.0	89.10	3.20	11,159.1	1,527.9	587.5	1.10	-0.96	0.53	31.3	0.9	
12,738.0	92.60	1.30	11,157.7	1,622.8	591.2	4.19	3.68	-2.00	31.6	-3.6	



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Survey											
MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
12,832.0	93.60	0.40	11,152.8	1,716.6	592.6	1.43	1.06	-0.96	28.1	-5.7	
12,925.0	94.00	0.80	11,146.4	1,809.4	593.6	0.61	0.43	0.43	23.6	-7.4	
13,021.0	93.00	1.80	11,140.6	1,905.2	595.7	1.47	-1.04	1.04	19.4	-10.3	
13,088.9	91.76	2.09	11,137.8	1,973.0	598.0	1.88	-1.83	0.43	17.8	-13.1	
TGT#1(RR 25 St Com #503H)											
13,114.0	91.30	2.20	11,137.1	1,998.1	599.0	1.88	-1.83	0.43	17.5	-14.3	
13,208.0	91.10	2.30	11,135.1	2,092.0	602.7	0.24	-0.21	0.11	16.9	-18.7	
13,301.0	88.80	0.20	11,135.2	2,185.0	604.7	3.35	-2.47	-2.26	18.4	-21.4	
13,396.0	89.00	359.20	11,137.0	2,279.9	604.2	1.07	0.21	-1.05	21.6	-21.7	
13,480.0	88.90	358.10	11,138.7	2,373.9	602.0	1.17	-0.11	-1.17	24.8	-20.2	
13,584.0	90.90	358.80	11,138.9	2,467.9	599.4	2.25	2.13	0.74	26.3	-18.3	
13,678.0	92.40	359.00	11,136.2	2,561.8	597.6	1.61	1.60	0.21	25.0	-17.2	
13,772.0	92.20	358.30	11,132.4	2,655.7	595.4	0.77	-0.21	-0.74	22.7	-15.7	
13,865.0	91.70	359.00	11,129.3	2,748.6	593.2	0.92	-0.54	0.75	20.9	-14.3	
13,960.0	91.20	358.60	11,126.9	2,843.6	591.2	0.67	-0.53	-0.42	19.9	-13.0	
14,054.0	90.80	358.30	11,125.2	2,937.5	588.7	0.53	-0.43	-0.32	19.7	-11.2	
14,148.0	91.50	358.60	11,123.3	3,031.5	586.2	0.81	0.74	0.32	19.2	-9.3	
14,243.0	91.10	359.00	11,121.2	3,126.4	584.2	0.60	-0.42	0.42	18.5	-8.1	
14,337.0	90.60	359.20	11,119.8	3,220.4	582.7	0.57	-0.53	0.21	18.5	-7.3	
14,431.0	91.50	359.50	11,118.1	3,314.4	581.6	1.01	0.96	0.32	18.2	-7.0	
14,525.0	91.70	359.90	11,115.4	3,408.3	581.1	0.48	0.21	0.43	16.9	-7.2	
14,619.0	89.30	359.00	11,114.6	3,502.3	580.2	2.73	-2.55	-0.96	17.5	-7.0	
14,713.0	88.10	359.20	11,116.8	3,596.3	578.8	1.29	-1.28	0.21	21.1	-6.2	
14,808.0	90.00	359.50	11,118.3	3,691.3	577.7	2.02	2.00	0.32	24.1	-5.9	
14,902.0	90.00	359.70	11,118.3	3,785.3	577.0	0.21	0.00	0.21	25.5	-5.9	
14,997.0	90.00	359.30	11,118.3	3,880.3	576.2	0.42	0.00	-0.42	26.9	-5.8	
15,091.0	90.20	358.30	11,118.2	3,974.2	574.2	1.08	0.21	-1.06	28.1	-4.6	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #503H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 32' @ 3536.0usft
Site:	Red Raider 25 State Com	MD Reference:	KB = 32' @ 3538.0usft
Well:	#503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
15,093.3	90.22	358.30	11,118.2	3,976.5	574.2	0.85	0.85	0.00	28.2	-4.5
TGT#2(RR 25 St Com #503H)										
15,185.0	91.00	358.30	11,117.2	4,088.2	571.4	0.85	0.85	0.00	27.9	-2.5
15,279.0	91.60	358.50	11,115.0	4,162.1	568.8	0.87	0.84	0.21	26.5	-0.6
15,373.0	92.40	358.30	11,111.8	4,256.0	566.2	0.88	0.85	-0.21	23.9	1.3
15,468.0	92.80	358.30	11,107.5	4,348.9	563.4	0.54	0.54	0.00	20.3	3.4
15,561.0	92.20	358.10	11,103.2	4,443.7	560.5	0.77	-0.74	-0.21	16.6	5.6
15,655.0	92.00	358.10	11,099.8	4,537.6	557.3	0.21	-0.21	0.00	14.1	8.0
15,750.0	91.50	358.10	11,096.9	4,632.5	554.2	0.53	-0.53	0.00	11.9	10.4
15,844.0	91.10	359.90	11,094.8	4,728.5	552.6	1.96	-0.43	1.91	10.4	11.4
15,938.0	90.80	359.70	11,093.1	4,820.5	552.2	0.30	-0.21	-0.21	9.5	11.0
16,033.0	92.10	0.80	11,090.6	4,915.4	552.6	1.71	1.26	1.16	7.7	9.9
16,127.0	91.70	0.80	11,087.5	5,009.4	554.0	0.43	-0.43	0.00	5.3	7.8
16,219.0	91.70	1.10	11,084.8	5,101.3	555.5	0.33	0.00	0.33	3.2	5.6
16,313.0	91.10	1.10	11,082.5	5,195.3	557.3	0.64	-0.64	0.00	1.7	3.1
16,408.0	90.30	0.80	11,081.3	5,290.3	558.9	0.90	-0.84	-0.32	1.2	0.8
16,502.0	91.00	0.60	11,080.3	5,384.2	560.0	0.77	0.74	-0.21	0.8	-1.1
16,596.0	90.80	0.90	11,078.8	5,478.2	561.2	0.38	-0.21	0.32	0.1	-3.0
16,689.0	91.00	359.50	11,077.3	5,571.2	561.6	1.52	0.22	-1.51	-0.7	-4.1
16,783.0	91.00	359.00	11,075.7	5,665.2	560.3	0.53	0.00	-0.53	-1.7	-3.5
16,877.0	91.50	359.30	11,073.6	5,759.2	558.9	0.82	0.53	0.32	-3.0	-2.9
16,970.0	91.10	359.90	11,071.5	5,852.1	558.3	0.78	-0.43	0.65	-4.4	-2.9
17,062.0	92.30	0.10	11,068.8	5,944.1	558.3	1.32	1.30	0.22	-6.5	-3.6
17,097.1	92.30	0.06	11,067.4	5,979.2	558.3	0.11	0.00	-0.11	-7.6	-3.9
TGT#3(RR 25 St Com #503H)										
17,156.0	92.30	0.00	11,065.0	6,038.0	558.4	0.11	0.00	-0.11	-9.4	-4.4
17,250.0	92.10	0.40	11,061.4	6,131.9	558.7	0.48	-0.21	0.43	-12.1	-5.5



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #503H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 32' @ 3538.0usft
Site:	Red Raider 25 State Com	MD Reference:	KB = 32' @ 3538.0usft
Well:	#503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
17,344.0	90.90	1.10	11,059.0	6,225.9	559.9	1.48	-1.28	0.74	-13.6	-7.4	
17,439.0	90.20	1.50	11,058.0	6,320.9	582.1	0.85	-0.74	0.42	-13.6	-10.3	
17,532.0	90.50	0.00	11,057.5	6,413.9	583.3	1.84	0.32	-1.61	-13.2	-12.2	
17,627.0	89.80	358.10	11,057.2	6,508.8	581.7	2.13	-0.74	-2.00	-12.5	-11.4	
17,721.0	88.70	358.50	11,058.5	6,602.8	558.9	1.25	-1.17	0.43	-10.3	-9.3	
17,815.0	90.10	359.50	11,059.4	6,696.8	557.3	1.83	1.49	1.06	-8.4	-8.4	
17,909.0	89.60	359.90	11,059.7	6,790.8	556.8	0.88	-0.53	0.43	-7.2	-8.8	
18,003.0	91.60	359.30	11,058.7	6,884.7	556.1	2.22	2.13	-0.64	-7.3	-8.7	
18,097.0	92.40	359.00	11,055.4	6,978.7	554.8	0.91	0.85	-0.32	-9.6	-8.0	
18,191.0	91.30	358.60	11,052.4	7,072.6	552.8	1.25	-1.17	-0.43	-11.7	-6.7	
18,286.0	91.20	358.60	11,050.3	7,167.6	550.5	0.11	-0.11	0.00	-12.8	-5.1	
18,379.0	90.80	358.50	11,048.7	7,260.5	548.1	0.44	-0.43	-0.11	-13.5	-3.5	
18,474.0	89.80	358.80	11,048.2	7,355.5	545.9	1.10	-1.05	0.32	-13.1	-2.0	
18,568.0	90.50	0.20	11,048.0	7,449.5	545.1	1.87	0.74	1.49	-12.4	-1.9	
18,662.0	89.60	1.80	11,047.9	7,543.5	546.7	1.95	-0.96	1.70	-11.5	-4.2	
18,756.0	94.20	1.10	11,044.8	7,637.4	549.1	4.95	4.89	-0.74	-13.7	-7.3	
18,851.0	96.20	359.90	11,036.1	7,731.9	549.9	2.45	2.11	-1.26	-21.3	-8.9	
18,945.0	95.70	359.70	11,028.4	7,825.4	549.6	0.57	-0.53	-0.21	-30.2	-9.3	
19,038.0	93.80	359.00	11,018.7	7,918.1	548.5	2.18	-2.04	-0.75	-38.9	-8.9	
19,100.7	93.21	359.13	11,014.9	7,980.7	547.5	0.97	-0.95	0.21	-40.2	-8.4	
TOT#4(RR 25 St Com #503H)											
19,133.0	92.90	359.20	11,013.1	8,012.9	547.0	0.97	-0.95	0.21	-41.4	-8.1	
19,227.0	91.90	359.00	11,009.2	8,106.8	545.6	1.08	-1.06	-0.21	-43.7	-7.4	
19,321.0	90.10	359.70	11,007.6	8,200.8	544.5	2.05	-1.91	0.74	-43.6	-7.0	
19,415.0	89.90	0.20	11,007.6	8,294.8	544.4	0.57	-0.21	0.53	-42.0	-7.7	
19,509.0	89.20	0.60	11,008.3	8,388.8	545.1	0.88	-0.74	0.43	-39.5	-9.0	
19,603.0	90.00	1.10	11,009.0	8,482.8	546.5	1.00	0.85	0.53	-37.2	-11.1	



Final PVA Report

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Project:	Lea County, NM (NAD 83 NME)					TVD Reference:		KB = 32' @ 3536.0usft			
Site:	Red Raider 25 State Com					MD Reference:		KB = 32' @ 3536.0usft			
Well:	#503H					North Reference:		Grid			
Wellbore:	OH					Survey Calculation Method:		Minimum Curvature			
Design:	.OH					Database:		EDM 5000.14			
Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
19,697.0	89.70	2.00	11,009.2	8,576.8	549.0	1.01	-0.32	0.98	-35.3	-14.4	
19,791.0	91.00	0.60	11,008.6	8,670.7	551.1	2.03	1.38	-1.49	-34.2	-17.2	
19,886.0	90.80	1.50	11,007.1	8,765.7	552.9	0.97	-0.21	0.95	-34.0	-19.7	
19,980.0	92.60	359.20	11,004.4	8,859.6	553.4	3.11	1.91	-2.45	-35.1	-21.0	
20,074.0	92.50	358.30	11,000.2	8,953.5	551.4	0.96	-0.11	-0.96	-37.6	-19.6	
20,168.0	91.80	358.60	10,998.6	9,047.4	548.9	0.71	-0.64	0.32	-39.6	-17.8	
20,263.0	92.20	359.00	10,993.2	9,142.3	546.9	0.53	0.32	0.42	-41.3	-16.6	
20,357.0	92.30	359.30	10,989.5	9,236.3	545.5	0.34	0.11	0.32	-43.3	-15.9	
20,452.0	92.50	359.20	10,985.5	9,331.2	544.2	0.24	0.21	-0.11	-45.6	-15.4	
20,545.0	92.20	359.70	10,981.7	9,424.1	543.3	0.63	-0.32	0.54	-47.7	-15.2	
20,638.0	91.50	358.60	10,978.7	9,517.0	542.0	1.40	-0.75	-1.18	-49.1	-14.5	
20,733.0	90.60	358.60	10,976.9	9,612.0	539.6	0.95	-0.95	0.00	-49.1	-12.9	
20,825.0	89.60	358.80	10,976.8	9,704.0	537.6	1.11	-1.09	0.22	-47.7	-11.5	
20,920.0	89.20	359.00	10,977.8	9,798.9	535.7	0.47	-0.42	0.21	-45.0	-10.4	
21,013.0	92.20	358.80	10,976.6	9,891.9	533.9	3.23	3.23	-0.22	-44.4	-9.3	
21,108.0	91.10	358.60	10,973.9	9,986.8	531.8	1.18	-1.16	-0.21	-45.5	-7.9	
21,201.0	90.80	357.80	10,972.4	10,079.8	528.7	1.12	-0.32	-1.08	-45.4	-5.5	
21,299.0	90.90	357.10	10,970.9	10,177.7	524.2	0.52	0.10	-0.51	-45.1	-1.7	
Final MWD Survey (MD=21299.0')											
21,354.7	90.90	357.10	10,970.0	10,233.3	521.4	0.00	0.00	0.00	-45.0	0.7	
PBHL(RR 25 St Com #503H)											
21,355.0	90.90	357.10	10,970.0	10,233.6	521.3	0.00	0.00	0.00	-45.0	0.7	
Final Projection to Bit (MD=21355.0')											



Final PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Red Raider 25 State Com
Well: #503H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #503H
TVD Reference: KB = 32' @ 3536.0usft
MD Reference: KB = 32' @ 3536.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,019.3	10,938.6	-34.1	651.4	HL Crossing, MD:11019.3', TVD:10938.6', N/S:-34.1', E/W:651.4', INC:42.28
21,299.0	10,970.9	10,177.7	524.2	Final MWD Survey (MD=21299.0')
21,355.0	10,970.0	10,233.6	521.3	Final Projection to Bit (MD=21355.0')

Checked By: _____ Approved By: _____ Date: _____

I certify this survey to be true and correct to the best of my belief and knowledge.

Kay Maddux 01/06/2020
Signed Date



Lea County, NM (NAD 83 NME)
Red Raider 25 State Com #503H
Plan #1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #503H

KB = 32' @ 3536.0usft
Northing 430858.00 Easting 782806.00
3504.0
Latitude 32° 10' 54.821 N Longitude 103° 31' 13.859 W

To convert a Magnetic Direction to a Grid Direction, Add 8.32°
To convert a Magnetic Direction to a True Direction, Add 8.75° East
To convert a True Direction to a Grid Direction, Subtract 0.43°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	1300.0	0.53	316.67	1299.8	-8.1	-2.2	0.00	0.00	-8.2	
2	1400.0	0.53	316.67	1399.9	-7.5	-2.8	0.00	0.00	-7.6	
3	1820.0	4.00	180.00	1819.8	-14.4	-3.5	2.00	-141.40	-14.6	
4	1720.0	4.00	180.00	1719.5	-21.4	-3.5	0.00	0.00	-21.5	
5	2091.3	7.04	100.62	2089.5	-38.5	18.9	2.00	-111.18	-37.5	
6	7334.1	7.04	100.62	7292.7	-157.0	850.8	0.00	0.00	-123.7	
7	7686.3	0.00	0.00	7644.0	-181.0	872.0	2.00	180.00	-126.6	
8	10616.6	0.00	0.00	10574.3	-181.0	872.0	0.00	0.00	-126.6	
9	11526.6	91.00	353.61	11147.2	418.3	607.1	10.00	353.61	448.7	TGT#1(RR 25 St Com #503H)
10	11724.9	91.00	359.56	11143.7	818.2	595.3	3.00	89.84	845.7	TGT#2(RR 25 St Com #503H)
11	13081.8	91.00	359.56	11120.0	1972.6	584.9	0.00	0.00	2000.0	TGT#3(RR 25 St Com #503H)
12	13088.9	90.88	359.58	11119.9	1980.0	584.8	2.00	178.38	2007.2	TGT#4(RR 25 St Com #503H)
13	15085.4	90.88	359.58	11090.0	3976.1	569.6	0.00	0.00	4000.0	PBHL(RR 25 St Com #503H)
14	15106.9	90.43	359.58	11089.8	3997.6	569.5	2.00	-180.00	4021.5	
15	17088.9	90.43	359.58	11075.0	5976.5	554.4	0.00	0.00	6000.0	
16	17096.1	90.57	359.58	11074.9	5986.8	554.3	2.00	0.00	6007.2	
17	19092.4	90.57	359.58	11055.0	7982.9	539.1	0.00	0.00	8000.0	
18	19114.8	91.02	359.58	11054.7	8005.3	539.0	2.00	0.00	8022.4	
19	21343.9	91.02	359.58	11015.0	10234.0	522.0	0.00	0.00	10247.3	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
Brushy Top(RR 25 St Com #503H)	7778.0	-161.0	872.0	430857.00	783478.00
PBHL(RR 25 St Com #503H)	11018.0	10234.0	522.0	441082.00	783328.00
TGT#1(RR 25 St Com #503H)	11055.0	7982.9	539.1	438840.90	783345.14
TGT#2(RR 25 St Com #503H)	11075.0	5976.5	554.4	438877.60	783390.39
TGT#3(RR 25 St Com #503H)	11090.0	3976.1	569.6	434254.10	783376.64
TGT#4(RR 25 St Com #503H)	11120.0	1972.6	584.9	432840.90	783390.39
PTW(RR 25 St Com #503H)	11180.0	-111.0	872.0	430747.00	783408.00

