eog resources

EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Grendel 2 State Com
#301H
OH

Design: OH

Midland PVA

31 October, 2018

Company:	EOG Resources - Midland	**Local Co-ordinate Reference:**	Well #301H
Project:	Lea County, NM (NAD 83 NME)	**TVD Reference:**	Kb = 25 @ 3479.0usft
Site:	Grendel 2 State Com	**MD Reference:**	Kb = 25 @ 3479.0usft
Well:	#301H	**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 Grendel 2 State Com

Site Position:		**Northing:**	452,549.00 usft	**Latitude:**	32° 14' 24.944 N
From:	Map	**Easting:**	847,134.00 usft	**Longitude:**	103° 20' 39.439 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.53 °

Well #301H

Well Position	**+N/-S**	0.0 usft	**Northing:**	452,549.00 usft	**Latitude:**	32° 14' 24.944 N
	+E/-W	0.0 usft	**Easting:**	847,134.00 usft	**Longitude:**	103° 20' 39.439 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,454.0 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	9/25/2018	6.76	60.10	47,691.49083376

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	356.72

Survey Program **Date** 10/31/2018

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
212.0	17,462.0	Total Directional MWD (OH)	MWD	OWSG MWD - Standard

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (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
212.0	0.50	323.40	212.0	0.7	-0.6	0.24	0.24	0.00	0.0	0.0
412.0	1.20	257.90	412.0	1.0	-3.1	0.55	0.35	-32.75	0.0	0.0
471.0	1.50	258.90	471.0	0.7	-4.5	0.51	0.51	1.69	0.0	0.0
629.0	1.20	259.40	628.9	0.0	-8.1	0.19	-0.19	0.32	0.0	0.0
718.0	1.50	258.00	717.9	-0.4	-10.2	0.34	0.34	-1.57	0.0	0.0
808.0	1.80	246.40	807.9	-1.2	-12.6	0.50	0.33	-12.89	0.0	0.0
900.0	2.10	246.10	899.8	-2.5	-15.5	0.33	0.33	-0.33	0.0	0.0
1,080.0	2.00	248.30	1,079.7	-5.0	-21.4	0.07	-0.06	1.22	0.0	0.0
1,261.0	2.40	248.60	1,260.6	-7.5	-27.9	0.22	0.22	0.17	0.0	0.0
1,352.0	2.60	254.50	1,351.5	-8.8	-31.7	0.36	0.22	6.48	0.0	0.0
1,413.0	2.40	252.10	1,412.4	-9.5	-34.2	0.37	-0.33	-3.93	0.0	0.0
1,507.0	2.50	249.10	1,506.3	-10.9	-38.0	0.17	0.11	-3.19	0.0	0.0
1,587.0	2.20	255.90	1,586.3	-11.9	-41.1	0.51	-0.37	8.50	0.0	0.0
1,698.0	0.30	238.40	1,695.2	-12.5	-43.4	1.76	-1.74	-16.06	0.0	0.0
1,791.0	0.00	283.80	1,790.2	-12.6	-43.6	0.32	-0.32	0.00	0.0	0.0
1,885.0	0.20	233.70	1,884.2	-12.7	-43.7	0.21	0.21	0.00	0.0	0.0
2,074.0	0.20	227.80	2,073.2	-13.2	-44.2	0.01	0.00	-3.12	0.0	0.0
2,168.0	1.10	223.10	2,167.2	-13.9	-45.0	0.96	0.96	-5.00	0.0	0.0
2,262.0	2.20	234.00	2,261.2	-15.6	-47.1	1.21	1.17	11.60	0.0	0.0
2,357.0	2.20	237.10	2,356.1	-17.7	-50.1	0.13	0.00	3.26	0.0	0.0
2,451.0	2.10	231.50	2,450.0	-19.8	-52.9	0.25	-0.11	-5.96	0.0	0.0
2,546.0	2.20	231.50	2,545.0	-22.0	-55.7	0.11	0.11	0.00	0.0	0.0
2,640.0	2.00	229.70	2,638.9	-24.2	-58.4	0.22	-0.21	-1.91	0.0	0.0
2,734.0	2.20	236.00	2,732.8	-26.2	-61.1	0.32	0.21	6.70	0.0	0.0
2,829.0	2.00	239.30	2,827.8	-28.1	-64.1	0.25	-0.21	3.47	0.0	0.0
2,923.0	1.80	231.70	2,921.7	-29.8	-66.6	0.34	-0.21	-8.09	0.0	0.0

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Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
3,017.0	1.70	229.10	3,015.7	-31.7	-68.8	0.14	-0.11	-2.77	0.0	0.0
3,112.0	1.50	219.70	3,110.7	-33.6	-70.7	0.35	-0.21	-9.89	0.0	0.0
3,208.0	2.90	245.50	3,204.6	-35.5	-73.7	1.79	1.49	27.45	0.0	0.0
3,300.0	3.00	250.00	3,296.5	-37.3	-78.1	0.27	0.11	4.79	0.0	0.0
3,394.0	2.50	246.00	3,392.3	-39.0	-82.3	0.57	-0.53	-4.26	0.0	0.0
3,489.0	2.10	248.30	3,487.3	-40.5	-85.8	0.43	-0.42	2.42	0.0	0.0
3,583.0	2.00	247.60	3,581.2	-41.7	-88.9	0.11	-0.11	-0.74	0.0	0.0
3,677.0	1.50	243.40	3,675.2	-42.9	-91.6	0.55	-0.53	-4.47	0.0	0.0
3,772.0	3.50	235.30	3,770.1	-45.1	-95.1	2.13	2.11	-8.53	0.0	0.0
3,866.0	4.30	235.80	3,863.9	-48.7	-100.3	0.85	0.85	0.53	0.0	0.0
3,961.0	4.20	238.80	3,958.6	-52.5	-106.3	0.26	-0.11	3.16	0.0	0.0
4,056.0	4.30	236.70	4,053.3	-56.3	-112.2	0.19	0.11	-2.21	0.0	0.0
4,151.0	6.00	226.00	4,147.9	-61.7	-118.8	2.05	1.79	-11.26	0.0	0.0
4,245.0	7.50	224.20	4,241.3	-69.5	-126.6	1.61	1.60	-1.91	0.0	0.0
4,434.0	6.70	227.00	4,428.8	-85.9	-143.2	0.46	-0.42	1.48	0.0	0.0
4,622.0	7.40	227.70	4,615.4	-101.5	-160.2	0.38	0.37	0.37	0.0	0.0
4,800.0	8.80	223.70	4,791.6	-119.1	-178.1	0.85	0.79	-2.25	0.0	0.0
4,894.0	9.60	223.80	4,884.4	-129.9	-188.5	0.85	0.85	0.11	0.0	0.0
4,988.0	11.10	227.00	4,976.9	-141.8	-200.5	1.71	1.60	3.40	0.0	0.0
5,177.0	15.00	229.30	5,161.0	-170.1	-232.4	2.08	2.06	1.22	0.0	0.0
5,272.0	17.00	231.30	5,252.3	-186.8	-252.5	2.18	2.11	2.11	0.0	0.0
5,366.0	18.90	231.90	5,341.7	-204.8	-275.3	2.03	2.02	0.64	0.0	0.0
5,460.0	21.80	233.50	5,429.8	-224.6	-301.3	3.14	3.09	1.70	0.0	0.0
5,587.0	24.80	233.30	5,546.5	-254.5	-341.6	2.36	2.36	-0.16	0.0	0.0
5,635.0	24.40	231.50	5,590.1	-266.7	-357.4	1.77	-0.83	-3.75	0.0	0.0
5,730.0	13.40	234.30	5,679.9	-285.4	-381.8	11.62	-11.58	2.95	8.0	-0.9
5,825.0	5.50	263.60	5,773.5	-292.4	-395.3	9.48	-8.32	30.84	18.9	-15.7

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
5,919.0	2.80	242.10	5,867.3	-293.9	-401.8	3.27	-2.87	-22.87	37.8	-13.5
6,014.0	2.30	236.50	5,962.2	-296.1	-405.4	0.59	-0.53	-5.89	46.8	-11.0
6,108.0	2.00	235.80	6,056.1	-298.0	-408.4	0.32	-0.32	-0.74	45.9	-10.7
6,203.0	2.20	231.10	6,151.1	-300.1	-411.2	0.28	0.21	-4.95	43.2	-7.0
6,297.0	1.00	256.30	6,245.0	-301.5	-413.4	1.45	-1.28	26.81	33.6	-24.0
6,392.0	0.90	278.30	6,340.0	-301.5	-414.9	0.40	-0.11	23.16	20.7	-34.5
6,581.0	0.90	275.90	6,529.0	-301.2	-417.8	0.02	0.00	-1.27	19.1	-33.7
6,675.0	0.80	279.10	6,623.0	-301.0	-419.2	0.12	-0.11	3.40	15.8	-34.6
6,769.0	1.00	300.60	6,717.0	-300.5	-420.6	0.41	0.21	22.87	0.6	-37.8
6,863.0	0.80	304.80	6,811.0	-299.7	-421.8	0.22	-0.21	4.47	-3.6	-37.7
6,958.0	0.70	313.50	6,906.0	-298.9	-422.8	0.16	-0.11	9.16	-10.5	-36.6
7,052.0	0.50	327.80	6,999.9	-298.2	-423.4	0.26	-0.21	15.21	-20.2	-32.7
7,147.0	0.50	356.10	7,094.9	-297.4	-423.7	0.26	0.00	29.79	-34.1	-19.0
7,241.0	0.40	353.00	7,188.9	-296.7	-423.7	0.11	-0.11	-3.30	-33.7	-20.9
7,335.0	0.40	46.40	7,282.9	-296.1	-423.5	0.38	0.00	56.81	-37.4	14.9
7,430.0	0.30	69.20	7,377.9	-295.8	-423.1	0.18	-0.11	24.00	-29.2	28.4
7,524.0	0.40	46.90	7,471.9	-295.5	-422.6	0.18	0.11	-23.72	-38.4	15.0
7,618.0	0.40	72.60	7,565.9	-295.2	-422.0	0.19	0.00	27.34	-28.7	30.3
7,712.0	0.80	90.80	7,659.9	-295.1	-421.1	0.47	0.43	19.36	-18.7	37.9
7,807.0	1.30	103.70	7,754.9	-295.3	-419.4	0.58	0.53	13.58	-11.5	41.3
7,901.0	1.40	94.80	7,848.9	-295.7	-417.2	0.25	0.11	-9.47	-20.0	38.8
7,995.0	1.10	100.00	7,942.9	-295.9	-415.2	0.34	-0.32	5.53	-18.4	40.6
8,090.0	1.20	98.20	8,037.8	-296.2	-413.3	0.13	0.11	-4.00	-23.0	39.2
8,184.0	0.40	332.90	8,131.8	-296.0	-412.4	1.55	-0.85	-131.17	-19.9	-41.5
8,278.0	0.60	321.00	8,225.8	-295.3	-412.9	0.24	0.21	-12.66	-11.8	-44.8
8,372.0	0.20	14.10	8,319.8	-294.8	-413.2	0.54	-0.43	56.49	-43.4	-17.1
8,467.0	0.60	39.20	8,414.8	-294.3	-412.8	0.45	0.42	26.42	-47.2	3.0

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8,562.0	0.80	73.80	8,509.8	-293.7	-411.9	0.46	0.21	36.42	-38.2	29.5
8,656.0	1.00	93.80	8,603.8	-293.6	-410.4	0.39	0.21	21.28	-27.3	41.0
8,750.0	1.00	106.70	8,697.8	-293.8	-408.8	0.24	0.00	13.72	-19.0	48.3
8,844.0	1.00	113.80	8,791.8	-294.4	-407.3	0.13	0.00	7.55	-14.8	48.4
8,939.0	0.90	133.90	8,886.8	-295.3	-406.0	0.36	-0.11	21.16	1.2	50.8
9,033.0	0.90	143.70	8,980.8	-296.4	-405.0	0.16	0.00	10.43	8.3	50.0
9,128.0	1.10	165.40	9,075.7	-297.9	-404.3	0.45	0.21	22.84	24.6	43.6
9,222.0	0.90	193.00	9,169.7	-299.4	-404.3	0.55	-0.21	29.36	40.5	27.7
9,309.0	1.00	199.00	9,256.7	-300.8	-404.7	0.16	0.11	6.90	41.7	23.3
9,366.0	2.30	344.68	9,313.7	-300.2	-405.1	5.57	2.28	255.57	-22.0	-42.5
KOP 9366.0' MD; 9313.7' TVD; -300.2'; -405.1'; 2.30										
9,395.0	3.90	348.90	9,342.7	-298.7	-405.5	5.57	5.52	14.56	-25.4	-40.5
9,442.0	10.60	342.20	9,389.3	-293.0	-407.1	14.34	14.26	-14.26	-21.5	-41.7
9,489.0	17.80	345.00	9,434.8	-281.9	-410.3	15.38	15.32	5.96	-26.1	-38.0
9,536.0	22.70	346.80	9,478.9	-266.1	-414.2	10.51	10.43	3.83	-30.8	-34.0
9,561.9	24.40	348.77	9,502.6	-256.0	-416.4	7.23	6.56	7.62	-33.6	-31.1
FTP Crossing 9561.9' MD; 9502.6' TVD; -256.0'; -416.4'; 24.40										
9,583.0	25.80	350.20	9,521.7	-247.2	-418.0	7.23	6.64	6.76	-35.2	-28.9
9,630.0	28.60	355.00	9,563.5	-225.9	-420.8	7.56	5.96	10.21	-37.9	-23.7
9,677.0	33.30	354.10	9,603.8	-201.9	-423.1	10.05	10.00	-1.91	-37.3	-22.1
9,724.0	38.60	351.30	9,641.9	-174.5	-426.6	11.80	11.28	-5.96	-36.2	-20.1
9,771.0	42.70	352.40	9,677.5	-144.2	-431.0	8.86	8.72	2.34	-36.0	-15.4
9,818.0	46.00	353.30	9,711.1	-111.6	-435.0	7.15	7.02	1.91	-34.5	-11.1
9,865.0	50.90	356.20	9,742.3	-76.6	-438.2	11.40	10.43	6.17	-32.3	-7.1
9,912.0	54.10	359.10	9,770.9	-39.4	-439.7	8.38	6.81	6.17	-29.1	-5.3
9,959.0	55.90	358.50	9,797.9	-0.9	-440.5	3.97	3.83	-1.28	-23.8	-5.2
10,007.0	60.90	356.80	9,823.0	40.0	-442.2	10.84	10.42	-3.54	-17.0	-4.3

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10,054.0	66.90	356.90	9,843.7	82.1	-444.5	12.77	12.77	0.21	-11.0	-2.5
10,101.0	71.20	359.50	9,860.5	125.9	-445.9	10.51	9.15	5.53	-5.4	-1.7
10,148.0	75.70	359.90	9,873.9	171.0	-446.1	9.61	9.57	0.85	0.6	-2.2
10,195.0	76.00	359.40	9,885.3	216.5	-446.4	1.21	0.64	-1.06	8.4	-2.7
10,242.0	76.80	359.10	9,896.4	262.2	-447.0	1.81	1.70	-0.64	19.3	-2.8
10,290.0	81.30	358.70	9,905.5	309.3	-447.9	9.41	9.37	-0.83	29.6	-2.6
10,384.0	89.30	358.40	9,913.2	402.9	-450.3	8.52	8.51	-0.32	39.6	-1.7
10,478.0	89.00	358.80	9,914.6	496.9	-452.6	0.53	-0.32	0.43	43.3	-0.9
10,571.0	87.30	359.20	9,917.6	589.8	-454.2	1.88	-1.83	0.43	48.5	-0.7
10,666.0	86.60	358.90	9,922.7	684.7	-455.8	0.80	-0.74	-0.32	55.9	-0.7
10,760.0	87.00	358.70	9,927.9	778.5	-457.7	0.48	0.43	-0.21	63.5	-0.2
10,854.0	86.30	358.10	9,933.4	872.3	-460.4	0.98	-0.74	-0.64	71.3	0.9
10,949.0	86.10	357.80	9,939.7	967.0	-463.8	0.38	-0.21	-0.32	79.9	2.8
11,043.0	88.80	359.10	9,943.9	1,060.9	-466.3	3.19	2.87	1.38	86.4	3.9
11,137.0	89.10	359.40	9,945.6	1,154.9	-467.5	0.45	0.32	0.32	90.4	3.6
11,232.0	88.80	359.10	9,947.3	1,249.8	-468.8	0.45	-0.32	-0.32	94.5	3.4
11,326.0	88.70	358.70	9,949.4	1,343.8	-470.6	0.44	-0.11	-0.43	98.8	3.7
11,420.0	88.80	358.30	9,951.4	1,437.7	-473.0	0.44	0.11	-0.43	103.2	4.6
11,514.0	89.70	359.90	9,952.7	1,531.7	-474.5	1.95	0.96	1.70	106.7	4.7
11,609.0	90.10	0.00	9,952.8	1,626.7	-474.6	0.43	0.42	0.11	109.2	3.3
11,703.0	91.00	359.50	9,951.9	1,720.7	-475.0	1.10	0.96	-0.53	110.6	2.2
11,797.0	89.70	359.50	9,951.4	1,814.7	-475.8	1.38	-1.38	0.00	112.4	1.5
11,891.0	89.50	359.40	9,952.0	1,908.7	-476.7	0.24	-0.21	-0.11	115.3	0.9
11,986.0	89.60	358.90	9,952.8	2,003.7	-478.1	0.54	0.11	-0.53	118.5	0.8
12,080.0	89.80	358.50	9,953.3	2,097.7	-480.3	0.48	0.21	-0.43	122.3	1.7
12,174.0	89.90	358.20	9,953.5	2,191.6	-483.0	0.34	0.11	-0.32	125.8	3.2
12,268.0	90.80	358.40	9,952.9	2,285.6	-485.8	0.98	0.96	0.21	128.5	4.8

Company:	EOG Resources - Midland	**Local Co-ordinate Reference:**	Well #301H
Project:	Lea County, NM (NAD 83 NME)	**TVD Reference:**	Kb = 25 @ 3479.0usft
Site:	Grendel 2 State Com	**MD Reference:**	Kb = 25 @ 3479.0usft
Well:	#301H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
12,363.0	89.90	1.90	9,952.4	2,380.6	-485.5	3.80	-0.95	3.68	131.3	3.7
12,457.0	90.80	2.90	9,951.8	2,474.5	-481.6	1.43	0.96	1.06	134.0	-1.4
12,551.0	89.80	0.40	9,951.3	2,568.4	-478.9	2.86	-1.06	-2.66	136.8	-5.5
12,646.0	89.80	359.90	9,951.6	2,663.4	-478.6	0.53	0.00	-0.53	140.5	-7.0
12,740.0	90.50	359.50	9,951.4	2,757.4	-479.1	0.86	0.74	-0.43	143.5	-7.7
12,834.0	89.60	0.30	9,951.3	2,851.4	-479.3	1.28	-0.96	0.85	146.7	-8.6
12,928.0	89.90	0.30	9,951.7	2,945.4	-478.8	0.32	0.32	0.00	150.4	-10.3
13,023.0	91.30	0.00	9,950.7	3,040.4	-478.5	1.51	1.47	-0.32	152.8	-11.8
13,117.0	87.50	359.80	9,951.7	3,134.4	-478.7	4.05	-4.04	-0.21	157.0	-12.9
13,211.0	87.60	359.30	9,955.7	3,228.3	-479.4	0.54	0.11	-0.53	164.3	-13.4
13,306.0	91.90	0.10	9,956.1	3,323.3	-479.9	4.60	4.53	0.84	168.1	-13.9
13,400.0	92.30	0.30	9,952.7	3,417.2	-479.6	0.48	0.43	0.21	167.9	-15.4
13,494.0	90.90	359.80	9,950.1	3,511.2	-479.5	1.58	-1.49	-0.53	168.6	-16.8
13,588.0	90.80	359.60	9,948.7	3,605.2	-480.0	0.24	-0.11	-0.21	170.5	-17.5
13,683.0	88.10	359.00	9,949.6	3,700.1	-481.2	2.91	-2.84	-0.63	174.7	-17.6
13,777.0	88.40	358.60	9,952.4	3,794.1	-483.1	0.53	0.32	-0.43	180.9	-16.9
13,871.0	89.00	358.30	9,954.6	3,888.0	-485.7	0.71	0.64	-0.32	186.3	-15.5
13,966.0	89.20	358.10	9,956.1	3,982.9	-488.7	0.30	0.21	-0.21	191.1	-13.8
14,060.0	89.60	358.30	9,957.0	4,076.9	-491.6	0.48	0.43	0.21	195.2	-12.0
14,154.0	89.50	356.50	9,957.8	4,170.8	-495.9	1.92	-0.11	-1.91	198.9	-9.1
14,249.0	93.10	0.20	9,955.6	4,265.7	-498.6	5.43	3.79	3.89	199.9	-7.2
14,343.0	91.10	359.50	9,952.2	4,359.6	-498.9	2.25	-2.13	-0.74	199.5	-8.2
14,438.0	91.30	359.50	9,950.2	4,454.6	-499.7	0.21	0.21	0.00	200.6	-8.6
14,532.0	90.40	359.00	9,948.8	4,548.6	-500.9	1.10	-0.96	-0.53	202.2	-8.6
14,626.0	90.90	358.90	9,947.7	4,642.6	-502.7	0.54	0.53	-0.11	204.2	-8.0
14,721.0	91.00	359.00	9,946.2	4,737.5	-504.4	0.15	0.11	0.11	205.7	-7.5
14,816.0	92.70	359.00	9,943.1	4,832.5	-506.1	1.79	1.79	0.00	205.7	-7.0

Company:	EOG Resources - Midland	**Local Co-ordinate Reference:**	Well #301H
Project:	Lea County, NM (NAD 83 NME)	**TVD Reference:**	Kb = 25 @ 3479.0usft
Site:	Grendel 2 State Com	**MD Reference:**	Kb = 25 @ 3479.0usft
Well:	#301H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
14,910.0	93.10	359.30	9,938.3	4,926.3	-507.4	0.53	0.43	0.32	204.0	-6.6
15,004.0	94.90	359.50	9,931.8	5,020.1	-508.4	1.93	1.91	0.21	200.5	-7.0
15,099.0	95.80	359.40	9,922.9	5,114.7	-509.3	0.95	0.95	-0.11	194.7	-7.3
15,193.0	95.30	358.90	9,913.8	5,208.2	-510.7	0.75	-0.53	-0.53	188.7	-7.1
15,287.0	95.60	359.00	9,904.9	5,301.8	-512.4	0.34	0.32	0.11	182.8	-6.6
15,407.0	93.50	0.70	9,895.4	5,421.4	-512.7	2.25	-1.75	1.42	177.2	-7.6
15,502.0	94.30	0.40	9,888.9	5,516.2	-511.8	0.90	0.84	-0.32	173.8	-9.8
15,596.0	94.20	0.60	9,882.0	5,609.9	-511.0	0.24	-0.11	0.21	169.9	-11.8
15,690.0	93.50	0.00	9,875.6	5,703.7	-510.5	0.98	-0.74	-0.64	166.6	-13.5
15,785.0	93.90	0.00	9,869.5	5,798.5	-510.5	0.42	0.42	0.00	163.5	-14.7
15,879.0	92.30	359.60	9,864.4	5,892.4	-510.9	1.75	-1.70	-0.43	161.5	-15.6
15,973.0	92.30	359.10	9,860.7	5,986.3	-511.9	0.53	0.00	-0.53	160.8	-15.8
16,067.0	92.70	359.40	9,856.6	6,080.2	-513.2	0.53	0.43	0.32	159.5	-15.7
16,162.0	92.80	359.30	9,852.0	6,175.1	-514.2	0.15	0.11	-0.11	157.8	-15.8
16,257.0	94.50	359.10	9,846.0	6,269.9	-515.6	1.80	1.79	-0.21	154.6	-15.7
16,351.0	94.30	358.90	9,838.7	6,363.6	-517.2	0.30	-0.21	-0.21	150.2	-15.3
16,446.0	94.20	358.50	9,831.7	6,458.3	-519.3	0.43	-0.11	-0.42	146.0	-14.4
16,540.0	93.20	359.40	9,825.6	6,552.1	-521.1	1.43	-1.06	0.96	142.7	-13.8
16,635.0	89.50	1.30	9,823.4	6,647.0	-520.5	4.38	-3.89	2.00	143.4	-15.4
16,729.0	89.00	0.80	9,824.6	6,741.0	-518.8	0.75	-0.53	-0.53	147.4	-18.4
16,823.0	87.60	0.40	9,827.3	6,834.9	-517.8	1.55	-1.28	-0.43	152.8	-20.6
16,918.0	86.10	359.50	9,832.3	6,929.8	-517.9	2.02	-1.79	-0.95	160.7	-21.8
17,012.0	85.60	358.40	9,839.1	7,023.5	-519.6	1.28	-0.53	-1.17	170.3	-21.4
17,106.0	83.90	358.40	9,847.7	7,117.1	-522.2	1.81	-1.81	0.00	181.7	-20.1
17,200.0	83.80	358.90	9,857.6	7,210.5	-524.4	0.54	-0.11	0.53	194.6	-19.0
17,295.0	84.00	358.80	9,867.9	7,305.0	-526.3	0.24	0.21	-0.11	207.5	-18.3

Company:	EOG Resources - Midland	**Local Co-ordinate Reference:**	Well #301H
Project:	Lea County, NM (NAD 83 NME)	**TVD Reference:**	Kb = 25 @ 3479.0usft
Site:	Grendel 2 State Com	**MD Reference:**	Kb = 25 @ 3479.0usft
Well:	#301H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
17,410.0	83.40	358.40	9,880.5	7,419.3	-529.1	0.63	-0.52	-0.35	223.5	-17.0
Last MWD Survey (MD = 17410.0)										
17,462.0	83.40	358.40	9,886.5	7,470.9	-530.5	0.00	0.00	0.00	231.0	-16.2
Projection to Bit (MD = 17462.0)										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
9,366.0	9,313.7	-300.2	-405.1	KOP 9366.0' MD; 9313.7' TVD; -300.2'; -405.1'; 2.30
9,561.9	9,502.6	-256.0	-416.4	FTP Crossing 9561.9' MD; 9502.6' TVD; -256.0'; -416.4'; 24.40
17,410.0	9,880.5	7,419.3	-529.1	Last MWD Survey (MD = 17410.0)
17,462.0	9,886.5	7,470.9	-530.5	Projection to Bit (MD = 17462.0)

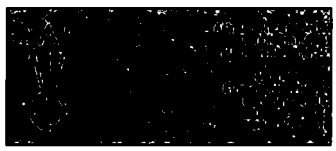
Checked By: _____ Approved By: _____ Date: _____

eog resources

Lea County, NM (NAD 83 NME)

Grendel 2 State Com #301H

Plan #2



To convert a Magnetic Direction to a Grid Direction, Add 8.24°
To convert a Magnetic Direction to a True Direction, Add 8.76° East
To convert a True Direction to a Grid Direction, Subtract 0.53°

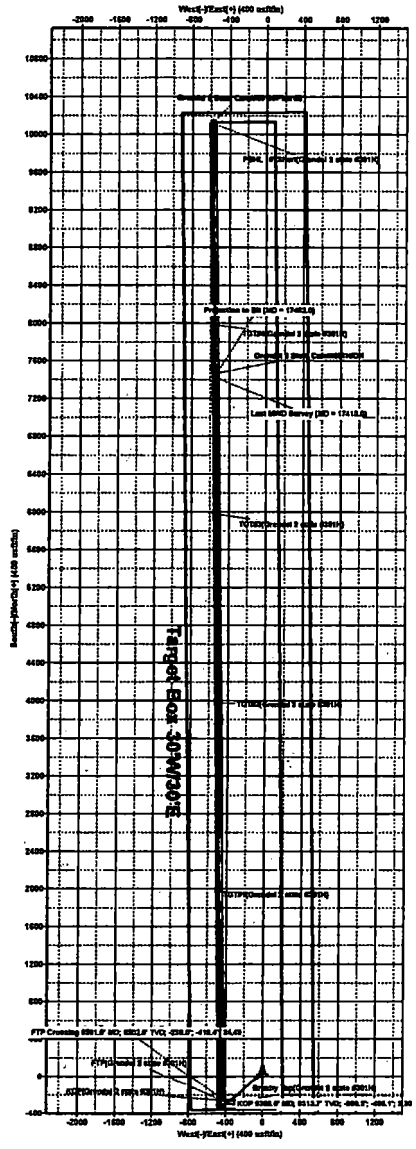
PROJECT DETAILS: Lea County, NM (NAD 83 NME)

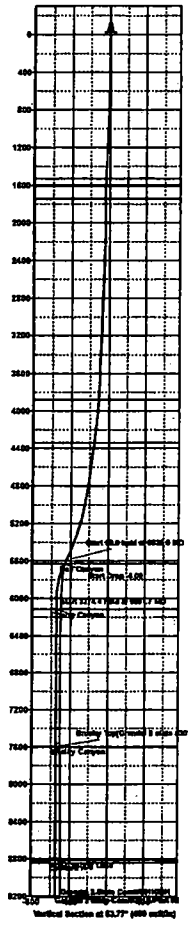
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: 6301H

3454.0
Kb = 25 @ 3479.0usft

Northing	Easting	Latitude	Longitude
452549.00	847134.00	32° 14' 24.944 N	103° 20' 39.439 W





SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
5635.0	24.40	231.50	5590.1	-266.7	-357.4	0.00	0.00	-245.8
5685.0	24.40	231.50	5635.7	-279.6	-373.6	0.00	0.00	-257.8
6091.7	0.00	0.00	6030.1	-332.7	-440.3	6.00	180.00	-306.9
9366.0	0.00	0.00	9304.5	-332.7	-440.3	0.00	0.00	-306.9
10280.1	91.41	359.09	9877.3	254.3	-449.6	10.00	359.09	279.6
12002.5	91.41	359.09	9835.0	1975.9	-476.9	0.00	0.00	1999.9
12033.9	92.01	359.28	9834.1	2007.3	-477.3	2.00	16.99	2031.3
14005.7	92.01	359.28	9765.0	3977.8	-502.2	0.00	0.00	4000.0
14013.1	91.86	359.27	9764.8	3985.2	-502.3	2.00	-179.44	4007.4
16008.8	91.86	359.27	9700.0	5979.6	-527.6	0.00	0.00	6000.0
16015.9	91.72	359.27	9699.8	5986.7	-527.7	2.00	180.00	6007.1
18011.6	91.72	359.27	9640.0	7981.4	-552.9	0.00	0.00	8000.0
18030.6	91.34	359.27	9639.5	8000.3	-553.2	2.00	-180.00	8018.9
20151.0	91.34	359.27	9590.0	10120.0	-580.0	0.00	0.00	10136.6

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
Brushy Top(Grendel 2 state #301H)	7590.0	-307.0	-448.0	452242.00	846888.00
KOP(Grendel 2 state #301H)	8317.0	-257.0	-448.0	452292.00	846888.00
PBHL 10' Short(Grendel 2 state #301H)	9690.0	10120.0	-580.0	462869.00	846554.00
TGT9e(Grendel 2 state #301H)	9640.0	7981.4	-552.9	460530.40	846581.07
TGT82(Grendel 2 state #301H)	9700.0	5979.6	-527.6	458528.60	846606.42
TGT82(Grendel 2 state #301H)	9765.0	3977.8	-502.2	456526.80	846831.78
TGT9f(Grendel 2 state #301H)	9835.0	1975.9	-476.9	454524.90	846657.10
FTP(Grendel 2 state #301H)	9890.0	-257.0	-448.0	452292.00	846888.00