



Lea County, NM (NAD 83 NME)

Grendel 2 State Com #301H

Plan #0.2



Azimuths to Grid North
True North: -0.83°
Magnetic North: 6.24°

Magnetic Field
Strength: 47891.5 nT
Dip Angle: 60.10°
Date: 3/27/2016
Model: IGRF 2015

To convert a Magnetic Direction to a Grid Direction, Add 6.24°
To convert a Magnetic Direction to a True Direction, Add 6.76° East
To convert a True Direction to a Grid Direction, Subtract 6.53°

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

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

WELL DETAILS: #301H

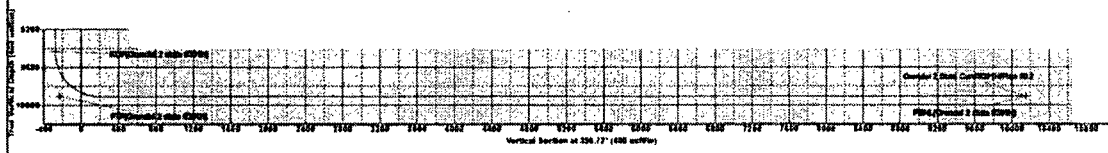
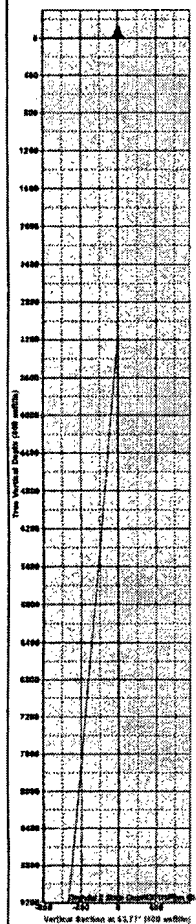
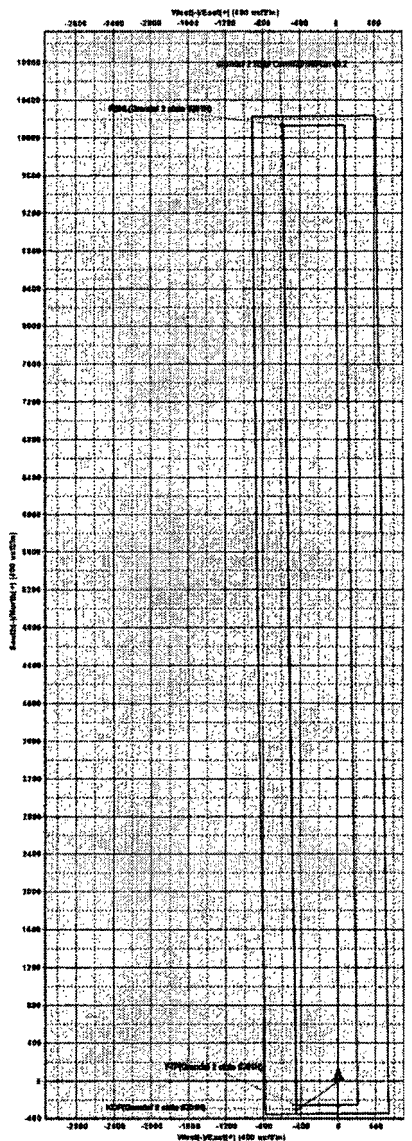
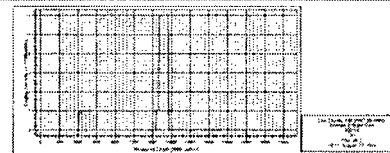
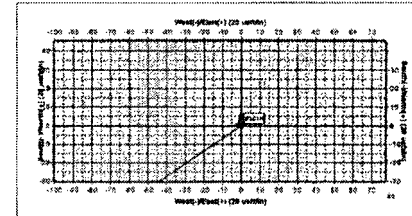
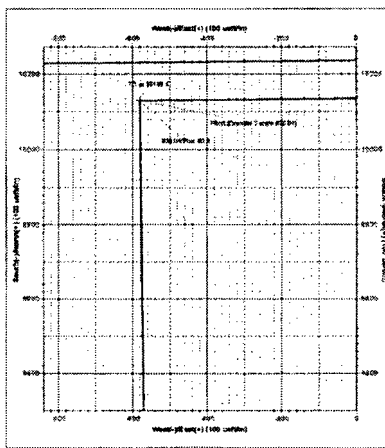
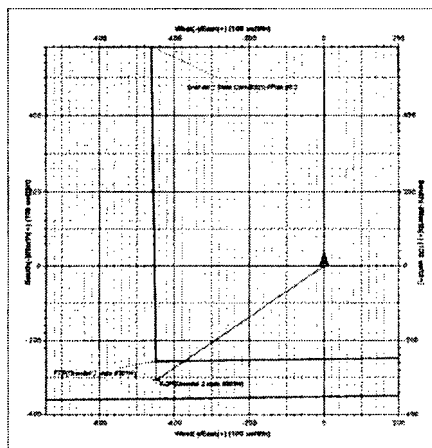
Northing 452549.00
Kb = 25 @ 3479.0 m/s
Easting 847134.00
Latitude 32° 14' 24.944 N
Longitude 103° 20' 39.438 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dlog	TFace	V Sect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0
3251.1	5.02	235.58	3250.8	-6.2	-9.1	2.00	235.58	-5.7
9203.8	5.02	235.58	9180.7	-300.8	-438.9	0.00	0.00	-275.2
9455.0	0.00	0.00	9431.5	-307.0	-448.0	2.00	180.00	-280.8
10205.0	90.00	359.28	9909.0	170.4	-454.0	12.00	359.28	198.1
20165.4	90.00	359.28	9909.0	10130.0	-580.0	0.00	0.00	10146.6

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
Alpine					
KOP (Grendel 2 state #301H)	9411.5	-307.0	-448.0	482342.00	846638.00
PTP (Grendel 2 state #301H)	8908.0	-287.0	-448.0	482792.00	846688.00
PEHL (Grendel 2 state #301H)	9909.0	10130.0	-480.0	482679.00	846554.00





EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Grendel 2 State Com

#301H

OH

Plan: Plan #0.2

Standard Planning Report

22 August, 2018

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #301H
Company:	EOG Resources - Midland	TVD Reference:	Kb = 25 @ 3479.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	Kb = 25 @ 3479.0usft
Site:	Grendel 2 State Com	North Reference:	Grid
Well:	#301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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:		Ground Level:	3,454.0 usft	

Wellbore	OH					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength	
			(°)	(°)	(nT)	
	IGRF2015	3/27/2018	6.76	60.10	47,891.49083376	

Design	Plan #0.2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	356.72	

Plan Survey Tool Program	Date 8/21/2018				
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks	
(usft)	(usft)				
1	0.0	20,165.4 Plan #0.2 (OH)	MWD		
			OWSG MWD - Standard		

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,251.1	5.02	235.58	3,250.8	-6.2	-9.1	2.00	2.00	0.00	235.58	
9,203.9	5.02	235.58	9,180.7	-300.8	-438.9	0.00	0.00	0.00	0.00	
9,455.0	0.00	0.00	9,431.5	-307.0	-448.0	2.00	-2.00	0.00	180.00	KOP(Grendel 2 state
10,205.0	90.00	359.28	9,909.0	170.4	-454.0	12.00	12.00	-0.10	359.28	
20,165.4	90.00	359.28	9,909.0	10,130.0	-580.0	0.00	0.00	0.00	0.00	PBHL(Grendel 2 state

Database: EDM 5000.14
Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Grendel 2 State Com
Well: #301H
Wellbore: OH
Design: Plan #0.2

Local Co-ordinate Reference: Well #301H
TVD Reference: Kb = 25 @ 3479.0usft
MD Reference: Kb = 25 @ 3479.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	2.00	235.58	3,100.0	-1.0	-1.4	-0.9	2.00	2.00	0.00
3,200.0	4.00	235.58	3,199.8	-3.9	-5.8	-3.6	2.00	2.00	0.00
3,251.1	5.02	235.58	3,250.8	-6.2	-9.1	-5.7	2.00	2.00	0.00
3,300.0	5.02	235.58	3,299.5	-8.6	-12.6	-7.9	0.00	0.00	0.00
3,400.0	5.02	235.58	3,399.1	-13.6	-19.8	-12.4	0.00	0.00	0.00
3,500.0	5.02	235.58	3,498.7	-18.5	-27.0	-17.0	0.00	0.00	0.00
3,600.0	5.02	235.58	3,598.3	-23.5	-34.3	-21.5	0.00	0.00	0.00
3,700.0	5.02	235.58	3,698.0	-28.4	-41.5	-26.0	0.00	0.00	0.00
3,800.0	5.02	235.58	3,797.6	-33.4	-48.7	-30.5	0.00	0.00	0.00
3,900.0	5.02	235.58	3,897.2	-38.3	-55.9	-35.1	0.00	0.00	0.00
4,000.0	5.02	235.58	3,996.8	-43.3	-63.2	-39.6	0.00	0.00	0.00
4,100.0	5.02	235.58	4,096.4	-48.2	-70.4	-44.1	0.00	0.00	0.00
4,200.0	5.02	235.58	4,196.0	-53.2	-77.6	-48.6	0.00	0.00	0.00
4,300.0	5.02	235.58	4,295.7	-58.1	-84.8	-53.2	0.00	0.00	0.00
4,400.0	5.02	235.58	4,395.3	-63.1	-92.0	-57.7	0.00	0.00	0.00
4,500.0	5.02	235.58	4,494.9	-68.0	-99.3	-62.2	0.00	0.00	0.00
4,600.0	5.02	235.58	4,594.5	-73.0	-106.5	-66.8	0.00	0.00	0.00
4,700.0	5.02	235.58	4,694.1	-77.9	-113.7	-71.3	0.00	0.00	0.00
4,800.0	5.02	235.58	4,793.7	-82.9	-120.9	-75.8	0.00	0.00	0.00
4,900.0	5.02	235.58	4,893.3	-87.8	-128.1	-80.3	0.00	0.00	0.00
5,000.0	5.02	235.58	4,993.0	-92.8	-135.4	-84.9	0.00	0.00	0.00
5,100.0	5.02	235.58	5,092.6	-97.7	-142.6	-89.4	0.00	0.00	0.00
5,200.0	5.02	235.58	5,192.2	-102.7	-149.8	-93.9	0.00	0.00	0.00

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Local Co-ordinate Reference: Well #301H
TVD Reference: Kb = 25 @ 3479.0usft
MD Reference: Kb = 25 @ 3479.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned 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)
5,300.0	5.02	235.58	5,291.8	-107.6	-157.0	-98.5	0.00	0.00	0.00
5,400.0	5.02	235.58	5,391.4	-112.6	-164.2	-103.0	0.00	0.00	0.00
5,500.0	5.02	235.58	5,491.0	-117.5	-171.5	-107.5	0.00	0.00	0.00
5,600.0	5.02	235.58	5,590.7	-122.4	-178.7	-112.0	0.00	0.00	0.00
5,700.0	5.02	235.58	5,690.3	-127.4	-185.9	-116.6	0.00	0.00	0.00
5,800.0	5.02	235.58	5,789.9	-132.3	-193.1	-121.1	0.00	0.00	0.00
5,900.0	5.02	235.58	5,889.5	-137.3	-200.4	-125.6	0.00	0.00	0.00
6,000.0	5.02	235.58	5,989.1	-142.2	-207.6	-130.1	0.00	0.00	0.00
6,100.0	5.02	235.58	6,088.7	-147.2	-214.8	-134.7	0.00	0.00	0.00
6,200.0	5.02	235.58	6,188.4	-152.1	-222.0	-139.2	0.00	0.00	0.00
6,300.0	5.02	235.58	6,288.0	-157.1	-229.2	-143.7	0.00	0.00	0.00
6,400.0	5.02	235.58	6,387.6	-162.0	-236.5	-148.3	0.00	0.00	0.00
6,500.0	5.02	235.58	6,487.2	-167.0	-243.7	-152.8	0.00	0.00	0.00
6,600.0	5.02	235.58	6,586.8	-171.9	-250.9	-157.3	0.00	0.00	0.00
6,700.0	5.02	235.58	6,686.4	-176.9	-258.1	-161.8	0.00	0.00	0.00
6,800.0	5.02	235.58	6,786.1	-181.8	-265.3	-166.4	0.00	0.00	0.00
6,900.0	5.02	235.58	6,885.7	-186.8	-272.6	-170.9	0.00	0.00	0.00
7,000.0	5.02	235.58	6,985.3	-191.7	-279.8	-175.4	0.00	0.00	0.00
7,100.0	5.02	235.58	7,084.9	-196.7	-287.0	-179.9	0.00	0.00	0.00
7,200.0	5.02	235.58	7,184.5	-201.6	-294.2	-184.5	0.00	0.00	0.00
7,300.0	5.02	235.58	7,284.1	-206.6	-301.4	-189.0	0.00	0.00	0.00
7,400.0	5.02	235.58	7,383.8	-211.5	-308.7	-193.5	0.00	0.00	0.00
7,500.0	5.02	235.58	7,483.4	-216.5	-315.9	-198.1	0.00	0.00	0.00
7,600.0	5.02	235.58	7,583.0	-221.4	-323.1	-202.6	0.00	0.00	0.00
7,700.0	5.02	235.58	7,682.6	-226.4	-330.3	-207.1	0.00	0.00	0.00
7,800.0	5.02	235.58	7,782.2	-231.3	-337.6	-211.6	0.00	0.00	0.00
7,900.0	5.02	235.58	7,881.8	-236.3	-344.8	-216.2	0.00	0.00	0.00
8,000.0	5.02	235.58	7,981.4	-241.2	-352.0	-220.7	0.00	0.00	0.00
8,100.0	5.02	235.58	8,081.1	-246.2	-359.2	-225.2	0.00	0.00	0.00
8,200.0	5.02	235.58	8,180.7	-251.1	-366.4	-229.8	0.00	0.00	0.00
8,300.0	5.02	235.58	8,280.3	-256.1	-373.7	-234.3	0.00	0.00	0.00
8,400.0	5.02	235.58	8,379.9	-261.0	-380.9	-238.8	0.00	0.00	0.00
8,500.0	5.02	235.58	8,479.5	-266.0	-388.1	-243.3	0.00	0.00	0.00
8,600.0	5.02	235.58	8,579.1	-270.9	-395.3	-247.9	0.00	0.00	0.00
8,700.0	5.02	235.58	8,678.8	-275.8	-402.5	-252.4	0.00	0.00	0.00
8,800.0	5.02	235.58	8,778.4	-280.8	-409.8	-256.9	0.00	0.00	0.00
8,900.0	5.02	235.58	8,878.0	-285.7	-417.0	-261.4	0.00	0.00	0.00
9,000.0	5.02	235.58	8,977.6	-290.7	-424.2	-266.0	0.00	0.00	0.00
9,100.0	5.02	235.58	9,077.2	-295.6	-431.4	-270.5	0.00	0.00	0.00
9,203.9	5.02	235.58	9,180.7	-300.8	-438.9	-275.2	0.00	0.00	0.00
9,300.0	3.10	235.58	9,276.6	-304.6	-444.5	-278.7	2.00	-2.00	0.00
9,400.0	1.10	235.58	9,376.5	-306.7	-447.6	-280.6	2.00	-2.00	0.00
9,455.0	0.00	0.00	9,431.5	-307.0	-448.0	-280.9	2.00	-2.00	0.00
KOP(Grendel 2 state #301H)									
9,475.0	2.40	359.28	9,451.5	-306.6	-448.0	-280.5	12.00	12.00	0.00
9,500.0	5.40	359.28	9,476.4	-304.9	-448.0	-278.8	12.00	12.00	0.00
9,525.0	8.40	359.28	9,501.3	-301.9	-448.1	-275.8	12.00	12.00	0.00
9,550.0	11.40	359.28	9,525.9	-297.6	-448.1	-271.5	12.00	12.00	0.00
9,575.0	14.40	359.28	9,550.2	-292.0	-448.2	-265.9	12.00	12.00	0.00
9,600.0	17.40	359.28	9,574.3	-285.2	-448.3	-259.1	12.00	12.00	0.00
9,625.0	20.40	359.28	9,597.9	-277.1	-448.4	-251.0	12.00	12.00	0.00
9,650.0	23.40	359.28	9,621.1	-267.7	-448.5	-241.7	12.00	12.00	0.00
9,675.0	26.40	359.28	9,643.8	-257.2	-448.6	-231.1	12.00	12.00	0.00

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Project: Lea County, NM (NAD 83 NME)
Site: Grendel 2 State Com
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Wellbore: OH
Design: Plan #0.2

Local Co-ordinate Reference: Well #301H
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Survey Calculation Method: Minimum Curvature

Planned 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)
9,700.0	29.40	359.28	9,665.9	-245.5	-448.8	-219.5	12.00	12.00	0.00
9,725.0	32.40	359.28	9,687.3	-232.7	-448.9	-206.6	12.00	12.00	0.00
9,750.0	35.40	359.28	9,708.1	-218.7	-449.1	-192.7	12.00	12.00	0.00
9,775.0	38.40	359.28	9,728.1	-203.7	-449.3	-177.7	12.00	12.00	0.00
9,800.0	41.40	359.28	9,747.3	-187.7	-449.5	-161.7	12.00	12.00	0.00
9,825.0	44.40	359.28	9,765.6	-170.7	-449.7	-144.7	12.00	12.00	0.00
9,850.0	47.40	359.28	9,783.0	-152.7	-450.0	-126.8	12.00	12.00	0.00
9,854.3	47.91	359.28	9,785.8	-149.6	-450.0	-123.6	12.00	12.00	0.00
FTP(Grendel 2 state #301H)									
9,875.0	50.40	359.28	9,799.4	-133.9	-450.2	-107.9	12.00	12.00	0.00
9,900.0	53.40	359.28	9,814.8	-114.2	-450.4	-88.3	12.00	12.00	0.00
9,925.0	56.40	359.28	9,829.2	-93.8	-450.7	-67.9	12.00	12.00	0.00
9,950.0	59.40	359.28	9,842.5	-72.6	-451.0	-46.7	12.00	12.00	0.00
9,975.0	62.40	359.28	9,854.6	-50.8	-451.2	-24.9	12.00	12.00	0.00
10,000.0	65.40	359.28	9,865.6	-28.3	-451.5	-2.5	12.00	12.00	0.00
10,025.0	68.40	359.28	9,875.4	-5.3	-451.8	20.5	12.00	12.00	0.00
10,050.0	71.40	359.28	9,884.0	18.2	-452.1	44.0	12.00	12.00	0.00
10,075.0	74.40	359.28	9,891.4	42.0	-452.4	67.8	12.00	12.00	0.00
10,100.0	77.40	359.28	9,897.5	66.3	-452.7	92.1	12.00	12.00	0.00
10,125.0	80.40	359.28	9,902.3	90.8	-453.0	116.6	12.00	12.00	0.00
10,150.0	83.40	359.28	9,905.8	115.6	-453.3	141.3	12.00	12.00	0.00
10,175.0	86.40	359.28	9,908.0	140.5	-453.7	166.2	12.00	12.00	0.00
10,200.0	89.40	359.28	9,908.9	165.4	-454.0	191.1	12.00	12.00	0.00
10,205.0	90.00	359.28	9,909.0	170.4	-454.0	196.1	12.00	12.00	0.00
10,300.0	90.00	359.28	9,909.0	265.4	-455.2	291.0	0.00	0.00	0.00
10,400.0	90.00	359.28	9,909.0	365.4	-456.5	390.9	0.00	0.00	0.00
10,500.0	90.00	359.28	9,909.0	465.4	-457.8	490.8	0.00	0.00	0.00
10,600.0	90.00	359.28	9,909.0	565.4	-459.0	590.7	0.00	0.00	0.00
10,700.0	90.00	359.28	9,909.0	665.4	-460.3	690.6	0.00	0.00	0.00
10,800.0	90.00	359.28	9,909.0	765.4	-461.6	790.5	0.00	0.00	0.00
10,900.0	90.00	359.28	9,909.0	865.4	-462.8	890.4	0.00	0.00	0.00
11,000.0	90.00	359.28	9,909.0	965.4	-464.1	990.3	0.00	0.00	0.00
11,100.0	90.00	359.28	9,909.0	1,065.4	-465.4	1,090.2	0.00	0.00	0.00
11,200.0	90.00	359.28	9,909.0	1,165.4	-466.6	1,190.1	0.00	0.00	0.00
11,300.0	90.00	359.28	9,909.0	1,265.3	-467.9	1,290.0	0.00	0.00	0.00
11,400.0	90.00	359.28	9,909.0	1,365.3	-469.2	1,389.9	0.00	0.00	0.00
11,500.0	90.00	359.28	9,909.0	1,465.3	-470.4	1,489.8	0.00	0.00	0.00
11,600.0	90.00	359.28	9,909.0	1,565.3	-471.7	1,589.7	0.00	0.00	0.00
11,700.0	90.00	359.28	9,909.0	1,665.3	-472.9	1,689.6	0.00	0.00	0.00
11,800.0	90.00	359.28	9,909.0	1,765.3	-474.2	1,789.5	0.00	0.00	0.00
11,900.0	90.00	359.28	9,909.0	1,865.3	-475.5	1,889.4	0.00	0.00	0.00
12,000.0	90.00	359.28	9,909.0	1,965.3	-476.7	1,989.3	0.00	0.00	0.00
12,100.0	90.00	359.28	9,909.0	2,065.3	-478.0	2,089.2	0.00	0.00	0.00
12,200.0	90.00	359.28	9,909.0	2,165.3	-479.3	2,189.1	0.00	0.00	0.00
12,300.0	90.00	359.28	9,909.0	2,265.3	-480.5	2,289.0	0.00	0.00	0.00
12,400.0	90.00	359.28	9,909.0	2,365.3	-481.8	2,388.9	0.00	0.00	0.00
12,500.0	90.00	359.28	9,909.0	2,465.2	-483.1	2,488.8	0.00	0.00	0.00
12,600.0	90.00	359.28	9,909.0	2,565.2	-484.3	2,588.7	0.00	0.00	0.00
12,700.0	90.00	359.28	9,909.0	2,665.2	-485.6	2,688.6	0.00	0.00	0.00
12,800.0	90.00	359.28	9,909.0	2,765.2	-486.9	2,788.5	0.00	0.00	0.00
12,900.0	90.00	359.28	9,909.0	2,865.2	-488.1	2,888.4	0.00	0.00	0.00
13,000.0	90.00	359.28	9,909.0	2,965.2	-489.4	2,988.3	0.00	0.00	0.00
13,100.0	90.00	359.28	9,909.0	3,065.2	-490.6	3,088.2	0.00	0.00	0.00
13,200.0	90.00	359.28	9,909.0	3,165.2	-491.9	3,188.1	0.00	0.00	0.00

Database: EDM 5000.14
Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Grendel 2 State Com
Well: #301H
Wellbore: OH
Design: Plan #0.2

Local Co-ordinate Reference: Well #301H
TVD Reference: Kb = 25 @ 3479.0usft
MD Reference: Kb = 25 @ 3479.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned 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)
13,300.0	90.00	359.28	9,909.0	3,265.2	-493.2	3,288.0	0.00	0.00	0.00
13,400.0	90.00	359.28	9,909.0	3,365.2	-494.4	3,387.9	0.00	0.00	0.00
13,500.0	90.00	359.28	9,909.0	3,465.2	-495.7	3,487.8	0.00	0.00	0.00
13,600.0	90.00	359.28	9,909.0	3,565.2	-497.0	3,587.7	0.00	0.00	0.00
13,700.0	90.00	359.28	9,909.0	3,665.2	-498.2	3,687.6	0.00	0.00	0.00
13,800.0	90.00	359.28	9,909.0	3,765.1	-499.5	3,787.5	0.00	0.00	0.00
13,900.0	90.00	359.28	9,909.0	3,865.1	-500.8	3,887.4	0.00	0.00	0.00
14,000.0	90.00	359.28	9,909.0	3,965.1	-502.0	3,987.3	0.00	0.00	0.00
14,100.0	90.00	359.28	9,909.0	4,065.1	-503.3	4,087.2	0.00	0.00	0.00
14,200.0	90.00	359.28	9,909.0	4,165.1	-504.6	4,187.1	0.00	0.00	0.00
14,300.0	90.00	359.28	9,909.0	4,265.1	-505.8	4,287.0	0.00	0.00	0.00
14,400.0	90.00	359.28	9,909.0	4,365.1	-507.1	4,386.9	0.00	0.00	0.00
14,500.0	90.00	359.28	9,909.0	4,465.1	-508.4	4,486.8	0.00	0.00	0.00
14,600.0	90.00	359.28	9,909.0	4,565.1	-509.6	4,586.7	0.00	0.00	0.00
14,700.0	90.00	359.28	9,909.0	4,665.1	-510.9	4,686.6	0.00	0.00	0.00
14,800.0	90.00	359.28	9,909.0	4,765.1	-512.1	4,786.5	0.00	0.00	0.00
14,900.0	90.00	359.28	9,909.0	4,865.1	-513.4	4,886.4	0.00	0.00	0.00
15,000.0	90.00	359.28	9,909.0	4,965.0	-514.7	4,986.3	0.00	0.00	0.00
15,100.0	90.00	359.28	9,909.0	5,065.0	-515.9	5,086.3	0.00	0.00	0.00
15,200.0	90.00	359.28	9,909.0	5,165.0	-517.2	5,186.2	0.00	0.00	0.00
15,300.0	90.00	359.28	9,909.0	5,265.0	-518.5	5,286.1	0.00	0.00	0.00
15,400.0	90.00	359.28	9,909.0	5,365.0	-519.7	5,386.0	0.00	0.00	0.00
15,500.0	90.00	359.28	9,909.0	5,465.0	-521.0	5,485.9	0.00	0.00	0.00
15,600.0	90.00	359.28	9,909.0	5,565.0	-522.3	5,585.8	0.00	0.00	0.00
15,700.0	90.00	359.28	9,909.0	5,665.0	-523.5	5,685.7	0.00	0.00	0.00
15,800.0	90.00	359.28	9,909.0	5,765.0	-524.8	5,785.6	0.00	0.00	0.00
15,900.0	90.00	359.28	9,909.0	5,865.0	-526.1	5,885.5	0.00	0.00	0.00
16,000.0	90.00	359.28	9,909.0	5,965.0	-527.3	5,985.4	0.00	0.00	0.00
16,100.0	90.00	359.28	9,909.0	6,065.0	-528.6	6,085.3	0.00	0.00	0.00
16,200.0	90.00	359.28	9,909.0	6,165.0	-529.9	6,185.2	0.00	0.00	0.00
16,300.0	90.00	359.28	9,909.0	6,264.9	-531.1	6,285.1	0.00	0.00	0.00
16,400.0	90.00	359.28	9,909.0	6,364.9	-532.4	6,385.0	0.00	0.00	0.00
16,500.0	90.00	359.28	9,909.0	6,464.9	-533.6	6,484.9	0.00	0.00	0.00
16,600.0	90.00	359.28	9,909.0	6,564.9	-534.9	6,584.8	0.00	0.00	0.00
16,700.0	90.00	359.28	9,909.0	6,664.9	-536.2	6,684.7	0.00	0.00	0.00
16,800.0	90.00	359.28	9,909.0	6,764.9	-537.4	6,784.6	0.00	0.00	0.00
16,900.0	90.00	359.28	9,909.0	6,864.9	-538.7	6,884.5	0.00	0.00	0.00
17,000.0	90.00	359.28	9,909.0	6,964.9	-540.0	6,984.4	0.00	0.00	0.00
17,100.0	90.00	359.28	9,909.0	7,064.9	-541.2	7,084.3	0.00	0.00	0.00
17,200.0	90.00	359.28	9,909.0	7,164.9	-542.5	7,184.2	0.00	0.00	0.00
17,300.0	90.00	359.28	9,909.0	7,264.9	-543.8	7,284.1	0.00	0.00	0.00
17,400.0	90.00	359.28	9,909.0	7,364.9	-545.0	7,384.0	0.00	0.00	0.00
17,500.0	90.00	359.28	9,909.0	7,464.8	-546.3	7,483.9	0.00	0.00	0.00
17,600.0	90.00	359.28	9,909.0	7,564.8	-547.6	7,583.8	0.00	0.00	0.00
17,700.0	90.00	359.28	9,909.0	7,664.8	-548.8	7,683.7	0.00	0.00	0.00
17,800.0	90.00	359.28	9,909.0	7,764.8	-550.1	7,783.6	0.00	0.00	0.00
17,900.0	90.00	359.28	9,909.0	7,864.8	-551.4	7,883.5	0.00	0.00	0.00
18,000.0	90.00	359.28	9,909.0	7,964.8	-552.6	7,983.4	0.00	0.00	0.00
18,100.0	90.00	359.28	9,909.0	8,064.8	-553.9	8,083.3	0.00	0.00	0.00
18,200.0	90.00	359.28	9,909.0	8,164.8	-555.1	8,183.2	0.00	0.00	0.00
18,300.0	90.00	359.28	9,909.0	8,264.8	-556.4	8,283.1	0.00	0.00	0.00
18,400.0	90.00	359.28	9,909.0	8,364.8	-557.7	8,383.0	0.00	0.00	0.00
18,500.0	90.00	359.28	9,909.0	8,464.8	-558.9	8,482.9	0.00	0.00	0.00
18,600.0	90.00	359.28	9,909.0	8,564.8	-560.2	8,582.8	0.00	0.00	0.00

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Survey Calculation Method: Minimum Curvature

Planned 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)
18,700.0	90.00	359.28	9,909.0	8,664.8	-561.5	8,682.7	0.00	0.00	0.00
18,800.0	90.00	359.28	9,909.0	8,764.7	-562.7	8,782.6	0.00	0.00	0.00
18,900.0	90.00	359.28	9,909.0	8,864.7	-564.0	8,882.5	0.00	0.00	0.00
19,000.0	90.00	359.28	9,909.0	8,964.7	-565.3	8,982.4	0.00	0.00	0.00
19,100.0	90.00	359.28	9,909.0	9,064.7	-566.5	9,082.3	0.00	0.00	0.00
19,200.0	90.00	359.28	9,909.0	9,164.7	-567.8	9,182.2	0.00	0.00	0.00
19,300.0	90.00	359.28	9,909.0	9,264.7	-569.1	9,282.1	0.00	0.00	0.00
19,400.0	90.00	359.28	9,909.0	9,364.7	-570.3	9,382.0	0.00	0.00	0.00
19,500.0	90.00	359.28	9,909.0	9,464.7	-571.6	9,481.9	0.00	0.00	0.00
19,600.0	90.00	359.28	9,909.0	9,564.7	-572.9	9,581.8	0.00	0.00	0.00
19,700.0	90.00	359.28	9,909.0	9,664.7	-574.1	9,681.7	0.00	0.00	0.00
19,800.0	90.00	359.28	9,909.0	9,764.7	-575.4	9,781.6	0.00	0.00	0.00
19,900.0	90.00	359.28	9,909.0	9,864.7	-576.6	9,881.5	0.00	0.00	0.00
20,000.0	90.00	359.28	9,909.0	9,964.6	-577.9	9,981.4	0.00	0.00	0.00
20,100.0	90.00	359.28	9,909.0	10,064.6	-579.2	10,081.3	0.00	0.00	0.00
20,165.4	90.00	359.28	9,909.0	10,130.0	-580.0	10,146.6	0.00	0.00	0.00

PBHL(Grendel 2 state #301H)
Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
KOP(Grendel 2 state #301H)	0.00	0.00	9,431.5	-307.0	-448.0	452,242.00	846,686.00	32° 14' 21.947 N	103° 20' 44.687 W
- plan hits target center									
- Point									
PBHL(Grendel 2 state #301H)	0.00	0.00	9,909.0	10,130.0	-580.0	462,679.00	846,554.00	32° 16' 5.228 N	103° 20' 45.106 W
- plan hits target center									
- Point									
FTP(Grendel 2 state #301H)	0.00	0.00	9,909.0	-257.0	-448.0	452,292.00	846,686.00	32° 14' 22.442 N	103° 20' 44.682 W
- plan misses target center by 163.4usft at 9854.3usft MD (9785.8 TVD, -149.6 N, -450.0 E)									
- Point									