



Lea County, NM (NAD 83 NME)

Thor 21 #709H

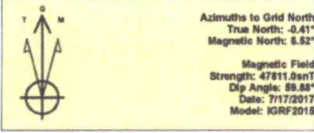
Plan #0.2

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: #709H

KB = 25' @ 3278.0ust 3253.0
 Northing 372648.00 Easting 777866.00 Latitude 32° 1' 19.875 N Longitude 103° 34' 12.486 W



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 6.52°
 Magnetic Field Strength: 47811.99nT
 Dip Angle: 59.55°
 Date: 7/17/2017
 Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.52°
 To convert a Magnetic Direction to a True Direction, Add 6.93° East
 To convert a True Direction to a Grid Direction, Subtract 0.40°

SECTION DETAILS

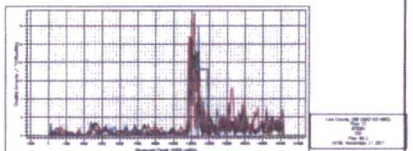
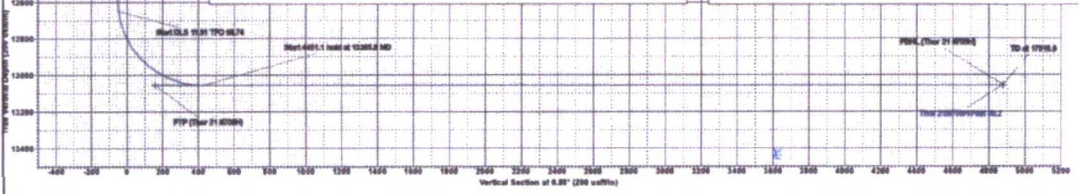
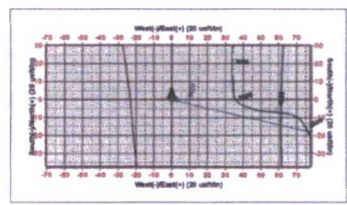
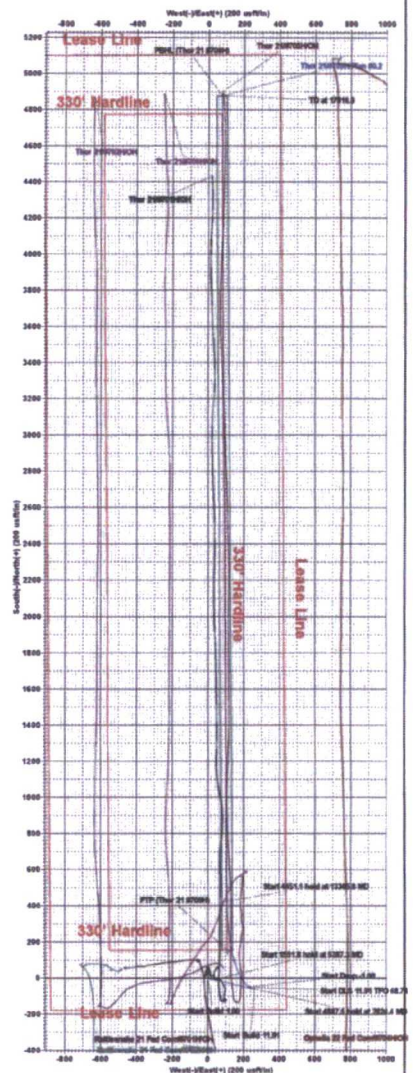
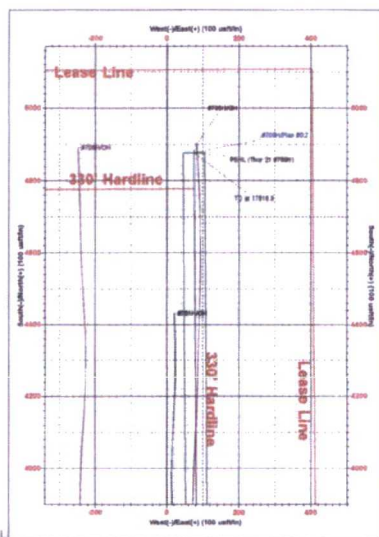
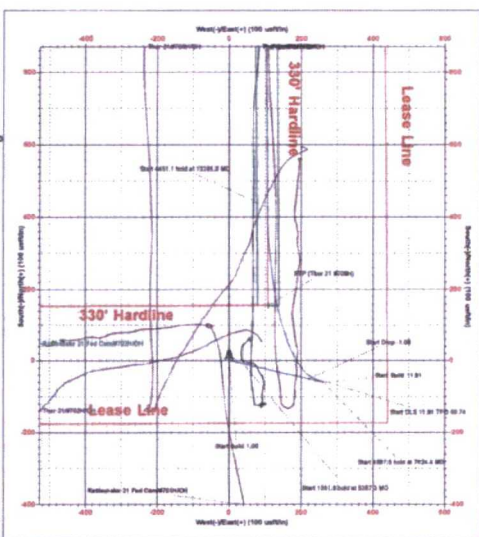
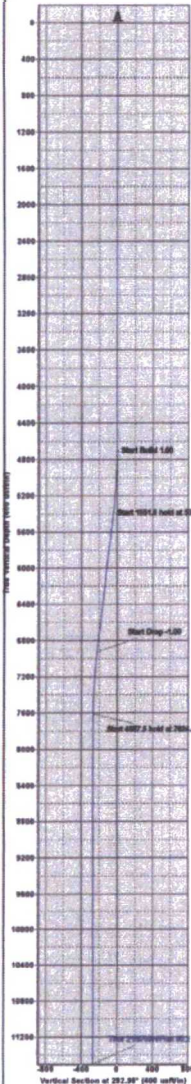
Sec	MD	Inc	Az	TVD	+N-S	+E-W	Deg	TFace	VSec	Target	Annotation
1	0.0	0.00	0.0	0.0	0.0	0.00	0.00	0.0	0.0		
2	4702.0	0.00	0.00	4702.0	0.0	0.00	0.00	0.0	0.0		
3	8337.3	8.85	102.88	8385.7	-9.2	39.9	1.00	102.88	-8.8		
4	6928.1	6.85	102.88	6926.3	-40.8	226.3	0.00	0.00	-47.4		
5	7634.4	0.00	0.00	7610.0	-40.0	380.2	1.00	190.00	-66.0		
6	12811.9	0.00	0.00	12487.6	-40.0	380.2	0.00	0.00	-66.0		
7	12668.7	18.00	291.91	12851.8	-40.5	238.7	11.91	291.91	-65.9		
8	13568.9	90.00	389.89	13096.0	428.0	107.1	11.91	88.74	427.8		
9	17818.9	90.00	389.89	13096.0	4877.0	76.0	0.00	0.00	4877.8		PBHL (Thor 21 #709H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
PBHL (Thor 21 #709H)	13068.0	4877.0	76.0	372823.00	777841.00
FTP (Thor 21 #709H)	13065.0	166.0	109.0	372802.00	777876.00





EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Thor 21

#709H

OH

Plan: Plan #0.2

Standard Planning Report

21 November, 2017



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #709H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25' @ 3278.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3278.0usft
Site:	Thor 21	North Reference:	Grid
Well:	#709H	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	Thor 21				
Site Position:		Northing:	372,646.00 usft	Latitude:	32° 1' 19.875 N
From:	Map	Easting:	777,866.00 usft	Longitude:	103° 34' 12.486 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#709H					
Well Position	+N/-S	0.0 usft	Northing:	372,646.00 usft	Latitude:	32° 1' 19.875 N
	+E/-W	0.0 usft	Easting:	777,866.00 usft	Longitude:	103° 34' 12.486 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,253.0 usft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/17/2017	6.93	59.88	47,811.00403003

Design	Plan #0.2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.88

Plan Survey Tool Program	Date 11/21/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	17,816.9 Plan #0.2 (OH)	MWD	MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
4,702.0	0.00	0.00	4,702.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
5,387.3	6.85	102.98	5,385.7	-9.2	39.9	1.00	1.00	0.00	102.98	0.00
6,939.1	6.85	102.98	6,926.3	-50.8	220.3	0.00	0.00	0.00	0.00	0.00
7,624.4	0.00	0.00	7,610.0	-60.0	260.2	1.00	-1.00	0.00	180.00	0.00
12,511.9	0.00	0.00	12,497.5	-60.0	260.2	0.00	0.00	0.00	0.00	0.00
12,668.7	18.68	291.91	12,651.6	-50.5	236.7	11.91	11.91	0.00	291.91	0.00
13,365.8	90.00	359.59	13,055.0	426.0	107.1	11.91	10.23	9.71	68.74	0.00
17,816.9	90.00	359.59	13,055.0	4,877.0	75.0	0.00	0.00	0.00	0.00	PBHL (Thor 21 #709H)



Planning Report

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Company:	EOG Resources - Midland	TVD Reference:	KB = 25' @ 3278.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3278.0usft
Site:	Thor 21	North Reference:	Grid
Well:	#709H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,702.0	0.00	0.00	4,702.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,800.0	0.98	102.98	4,800.0	-0.2	0.8	-0.2	1.00	1.00	0.00	
4,900.0	1.98	102.98	4,900.0	-0.8	3.3	-0.7	1.00	1.00	0.00	
5,000.0	2.98	102.98	4,999.9	-1.7	7.5	-1.6	1.00	1.00	0.00	
5,100.0	3.98	102.98	5,099.7	-3.1	13.5	-2.9	1.00	1.00	0.00	
5,200.0	4.98	102.98	5,199.4	-4.9	21.1	-4.5	1.00	1.00	0.00	
5,300.0	5.98	102.98	5,298.9	-7.0	30.4	-6.5	1.00	1.00	0.00	



Planning Report

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Site:	Thor 21	North Reference:	Grid
Well:	#709H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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)
5,387.3	6.85	102.98	5,385.7	-9.2	39.9	-8.6	1.00	1.00	0.00
5,400.0	6.85	102.98	5,398.3	-9.5	41.4	-8.9	0.00	0.00	0.00
5,500.0	6.85	102.98	5,497.6	-12.2	53.0	-11.4	0.00	0.00	0.00
5,600.0	6.85	102.98	5,596.8	-14.9	64.6	-13.9	0.00	0.00	0.00
5,700.0	6.85	102.98	5,696.1	-17.6	76.2	-16.4	0.00	0.00	0.00
5,800.0	6.85	102.98	5,795.4	-20.3	87.9	-18.9	0.00	0.00	0.00
5,900.0	6.85	102.98	5,894.7	-22.9	99.5	-21.4	0.00	0.00	0.00
6,000.0	6.85	102.98	5,994.0	-25.6	111.1	-23.9	0.00	0.00	0.00
6,100.0	6.85	102.98	6,093.3	-28.3	122.8	-26.4	0.00	0.00	0.00
6,200.0	6.85	102.98	6,192.6	-31.0	134.4	-28.9	0.00	0.00	0.00
6,300.0	6.85	102.98	6,291.8	-33.7	146.0	-31.4	0.00	0.00	0.00
6,400.0	6.85	102.98	6,391.1	-36.3	157.6	-33.9	0.00	0.00	0.00
6,500.0	6.85	102.98	6,490.4	-39.0	169.3	-36.4	0.00	0.00	0.00
6,600.0	6.85	102.98	6,589.7	-41.7	180.9	-38.9	0.00	0.00	0.00
6,700.0	6.85	102.98	6,689.0	-44.4	192.5	-41.4	0.00	0.00	0.00
6,800.0	6.85	102.98	6,788.3	-47.1	204.1	-43.9	0.00	0.00	0.00
6,900.0	6.85	102.98	6,887.6	-49.8	215.8	-46.4	0.00	0.00	0.00
6,939.1	6.85	102.98	6,926.3	-50.8	220.3	-47.4	0.00	0.00	0.00
7,000.0	6.24	102.98	6,986.9	-52.4	227.1	-48.9	1.00	-1.00	0.00
7,100.0	5.24	102.98	7,086.4	-54.6	236.8	-51.0	1.00	-1.00	0.00
7,200.0	4.24	102.98	7,186.0	-56.5	244.9	-52.7	1.00	-1.00	0.00
7,300.0	3.24	102.98	7,285.8	-57.9	251.3	-54.1	1.00	-1.00	0.00
7,400.0	2.24	102.98	7,385.7	-59.0	255.9	-55.1	1.00	-1.00	0.00
7,500.0	1.24	102.98	7,485.7	-59.7	258.9	-55.7	1.00	-1.00	0.00
7,600.0	0.24	102.98	7,585.6	-60.0	260.1	-56.0	1.00	-1.00	0.00
7,624.4	0.00	0.00	7,610.0	-60.0	260.2	-56.0	1.00	-1.00	0.00
7,700.0	0.00	0.00	7,685.6	-60.0	260.2	-56.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,785.6	-60.0	260.2	-56.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,885.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,985.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,085.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,185.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,285.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,385.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,485.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,585.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,685.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,785.6	-60.0	260.2	-56.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,885.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,000.0	0.00	0.00	8,985.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,085.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,185.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,285.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,385.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,485.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,585.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,685.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,785.6	-60.0	260.2	-56.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,885.6	-60.0	260.2	-56.0	0.00	0.00	0.00
10,000.0	0.00	0.00	9,985.6	-60.0	260.2	-56.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,085.6	-60.0	260.2	-56.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,185.6	-60.0	260.2	-56.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,285.6	-60.0	260.2	-56.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,385.6	-60.0	260.2	-56.0	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #709H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25' @ 3278.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3278.0usft
Site:	Thor 21	North Reference:	Grid
Well:	#709H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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)	
10,500.0	0.00	0.00	10,485.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
10,600.0	0.00	0.00	10,585.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
10,700.0	0.00	0.00	10,685.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
10,800.0	0.00	0.00	10,785.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
10,900.0	0.00	0.00	10,885.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,000.0	0.00	0.00	10,985.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,100.0	0.00	0.00	11,085.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,200.0	0.00	0.00	11,185.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,300.0	0.00	0.00	11,285.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,400.0	0.00	0.00	11,385.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,500.0	0.00	0.00	11,485.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,600.0	0.00	0.00	11,585.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,700.0	0.00	0.00	11,685.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,800.0	0.00	0.00	11,785.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
11,900.0	0.00	0.00	11,885.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,000.0	0.00	0.00	11,985.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,100.0	0.00	0.00	12,085.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,200.0	0.00	0.00	12,185.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,300.0	0.00	0.00	12,285.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,400.0	0.00	0.00	12,385.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,500.0	0.00	0.00	12,485.6	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,511.9	0.00	0.00	12,497.5	-60.0	260.2	-56.0	0.00	0.00	0.00	
12,525.0	1.57	291.91	12,510.6	-59.9	260.0	-55.9	11.91	11.91	0.00	
12,550.0	4.54	291.91	12,535.6	-59.4	258.8	-55.4	11.91	11.91	0.00	
12,575.0	7.52	291.91	12,560.5	-58.5	256.4	-54.5	11.91	11.91	0.00	
12,600.0	10.50	291.91	12,585.2	-57.0	252.7	-53.1	11.91	11.91	0.00	
12,625.0	13.48	291.91	12,609.6	-55.1	247.9	-51.2	11.91	11.91	0.00	
12,650.0	16.45	291.91	12,633.8	-52.6	241.9	-48.9	11.91	11.91	0.00	
12,668.7	18.68	291.91	12,651.6	-50.5	236.7	-46.9	11.91	11.91	0.00	
12,675.0	18.97	294.06	12,657.5	-49.7	234.8	-46.1	11.91	4.51	34.15	
12,700.0	20.32	301.96	12,681.1	-45.8	227.4	-42.3	11.91	5.42	31.58	
12,725.0	21.99	308.80	12,704.4	-40.6	220.1	-37.2	11.91	6.66	27.39	
12,750.0	23.90	314.67	12,727.4	-34.1	212.8	-30.8	11.91	7.63	23.47	
12,775.0	25.99	319.68	12,750.1	-26.3	205.7	-23.2	11.91	8.40	20.04	
12,800.0	28.24	323.97	12,772.4	-17.4	198.7	-14.3	11.91	8.99	17.15	
12,825.0	30.60	327.66	12,794.1	-7.2	191.8	-4.3	11.91	9.45	14.76	
12,850.0	33.06	330.86	12,815.4	4.1	185.1	7.0	11.91	9.81	12.80	
12,875.0	35.58	333.66	12,836.0	16.6	178.5	19.4	11.91	10.10	11.20	
12,900.0	38.16	336.13	12,856.0	30.2	172.2	32.8	11.91	10.33	9.89	
12,925.0	40.79	338.33	12,875.3	44.9	166.0	47.4	11.91	10.51	8.80	
12,950.0	43.46	340.31	12,893.9	60.5	160.1	63.0	11.91	10.66	7.91	
12,975.0	46.15	342.10	12,911.6	77.2	154.4	79.6	11.91	10.79	7.16	
13,000.0	48.88	343.74	12,928.5	94.8	149.0	97.1	11.91	10.89	6.54	
13,025.0	51.62	345.24	12,944.5	113.4	143.9	115.6	11.91	10.97	6.02	
13,050.0	54.38	346.64	12,959.5	132.7	139.0	134.8	11.91	11.04	5.58	
13,075.0	57.16	347.94	12,973.6	152.9	134.5	154.9	11.91	11.10	5.20	
13,100.0	59.94	349.16	12,986.6	173.8	130.3	175.8	11.91	11.15	4.89	
13,120.8	62.27	350.12	12,996.6	191.7	127.0	193.6	11.91	11.19	4.64	
FTP (Thor 21 #709H)										
13,125.0	62.74	350.31	12,998.6	195.4	126.4	197.3	11.91	11.21	4.52	
13,150.0	65.55	351.41	13,009.5	217.6	122.8	219.4	11.91	11.23	4.39	
13,175.0	68.37	352.46	13,019.3	240.4	119.6	242.2	11.91	11.26	4.20	
13,200.0	71.19	353.47	13,027.9	263.6	116.7	265.4	11.91	11.29	4.04	



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #709H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25' @ 3278.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3278.0usft
Site:	Thor 21	North Reference:	Grid
Well:	#709H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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)
13,225.0	74.02	354.45	13,035.4	287.4	114.2	289.1	11.91	11.31	3.91
13,250.0	76.85	355.40	13,041.7	311.5	112.0	313.1	11.91	11.33	3.80
13,275.0	79.68	356.32	13,046.8	335.9	110.3	337.5	11.91	11.34	3.71
13,300.0	82.52	357.23	13,050.6	360.5	108.9	362.2	11.91	11.35	3.64
13,325.0	85.36	358.13	13,053.3	385.4	107.9	387.0	11.91	11.36	3.60
13,350.0	88.20	359.02	13,054.7	410.3	107.3	411.9	11.91	11.36	3.57
13,365.8	90.00	359.59	13,055.0	426.0	107.1	427.6	11.91	11.36	3.56
13,400.0	90.00	359.59	13,055.0	460.2	106.8	461.8	0.00	0.00	0.00
13,500.0	90.00	359.59	13,055.0	560.2	106.1	561.8	0.00	0.00	0.00
13,600.0	90.00	359.59	13,055.0	660.2	105.4	661.7	0.00	0.00	0.00
13,700.0	90.00	359.59	13,055.0	760.2	104.6	761.7	0.00	0.00	0.00
13,800.0	90.00	359.59	13,055.0	860.2	103.9	861.7	0.00	0.00	0.00
13,900.0	90.00	359.59	13,055.0	960.2	103.2	961.7	0.00	0.00	0.00
14,000.0	90.00	359.59	13,055.0	1,060.2	102.5	1,061.6	0.00	0.00	0.00
14,100.0	90.00	359.59	13,055.0	1,160.2	101.8	1,161.6	0.00	0.00	0.00
14,200.0	90.00	359.59	13,055.0	1,260.2	101.0	1,261.6	0.00	0.00	0.00
14,300.0	90.00	359.59	13,055.0	1,360.2	100.3	1,361.6	0.00	0.00	0.00
14,400.0	90.00	359.59	13,055.0	1,460.2	99.6	1,461.5	0.00	0.00	0.00
14,500.0	90.00	359.59	13,055.0	1,560.2	98.9	1,561.5	0.00	0.00	0.00
14,600.0	90.00	359.59	13,055.0	1,660.2	98.2	1,661.5	0.00	0.00	0.00
14,700.0	90.00	359.59	13,055.0	1,760.2	97.4	1,761.5	0.00	0.00	0.00
14,800.0	90.00	359.59	13,055.0	1,860.2	96.7	1,861.4	0.00	0.00	0.00
14,900.0	90.00	359.59	13,055.0	1,960.2	96.0	1,961.4	0.00	0.00	0.00
15,000.0	90.00	359.59	13,055.0	2,060.2	95.3	2,061.4	0.00	0.00	0.00
15,100.0	90.00	359.59	13,055.0	2,160.2	94.6	2,161.4	0.00	0.00	0.00
15,200.0	90.00	359.59	13,055.0	2,260.1	93.8	2,261.3	0.00	0.00	0.00
15,300.0	90.00	359.59	13,055.0	2,360.1	93.1	2,361.3	0.00	0.00	0.00
15,400.0	90.00	359.59	13,055.0	2,460.1	92.4	2,461.3	0.00	0.00	0.00
15,500.0	90.00	359.59	13,055.0	2,560.1	91.7	2,561.2	0.00	0.00	0.00
15,600.0	90.00	359.59	13,055.0	2,660.1	91.0	2,661.2	0.00	0.00	0.00
15,700.0	90.00	359.59	13,055.0	2,760.1	90.2	2,761.2	0.00	0.00	0.00
15,800.0	90.00	359.59	13,055.0	2,860.1	89.5	2,861.2	0.00	0.00	0.00
15,900.0	90.00	359.59	13,055.0	2,960.1	88.8	2,961.1	0.00	0.00	0.00
16,000.0	90.00	359.59	13,055.0	3,060.1	88.1	3,061.1	0.00	0.00	0.00
16,100.0	90.00	359.59	13,055.0	3,160.1	87.4	3,161.1	0.00	0.00	0.00
16,200.0	90.00	359.59	13,055.0	3,260.1	86.6	3,261.1	0.00	0.00	0.00
16,300.0	90.00	359.59	13,055.0	3,360.1	85.9	3,361.0	0.00	0.00	0.00
16,400.0	90.00	359.59	13,055.0	3,460.1	85.2	3,461.0	0.00	0.00	0.00
16,500.0	90.00	359.59	13,055.0	3,560.1	84.5	3,561.0	0.00	0.00	0.00
16,600.0	90.00	359.59	13,055.0	3,660.1	83.8	3,661.0	0.00	0.00	0.00
16,700.0	90.00	359.59	13,055.0	3,760.1	83.0	3,760.9	0.00	0.00	0.00
16,800.0	90.00	359.59	13,055.0	3,860.1	82.3	3,860.9	0.00	0.00	0.00
16,900.0	90.00	359.59	13,055.0	3,960.1	81.6	3,960.9	0.00	0.00	0.00
17,000.0	90.00	359.59	13,055.0	4,060.1	80.9	4,060.9	0.00	0.00	0.00
17,100.0	90.00	359.59	13,055.0	4,160.1	80.2	4,160.8	0.00	0.00	0.00
17,200.0	90.00	359.59	13,055.0	4,260.1	79.4	4,260.8	0.00	0.00	0.00
17,300.0	90.00	359.59	13,055.0	4,360.1	78.7	4,360.8	0.00	0.00	0.00
17,400.0	90.00	359.59	13,055.0	4,460.1	78.0	4,460.8	0.00	0.00	0.00
17,500.0	90.00	359.59	13,055.0	4,560.1	77.3	4,560.7	0.00	0.00	0.00
17,600.0	90.00	359.59	13,055.0	4,660.1	76.6	4,660.7	0.00	0.00	0.00
17,700.0	90.00	359.59	13,055.0	4,760.1	75.8	4,760.7	0.00	0.00	0.00
17,800.0	90.00	359.59	13,055.0	4,860.1	75.1	4,860.7	0.00	0.00	0.00
17,816.9	90.00	359.59	13,055.0	4,877.0	75.0	4,877.6	0.00	0.00	0.00

PBHL (Thor 21 #709H)



Planning Report

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well #709H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25' @ 3278.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3278.0usft
Site:	Thor 21	North Reference:	Grid
Well:	#709H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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)

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Thor 21 #709H) - plan misses target center by 70.7usft at 13120.8usft MD (12996.6 TVD, 191.7 N, 127.0 E) - Point	0.00	0.00	13,055.0	156.0	109.0	372,802.00	777,975.00	32° 1' 21.411 N	103° 34' 11.207 W
PBHL (Thor 21 #709H) - plan hits target center - Rectangle (sides W60.0 H0.0 D4,722.0)	90.00	359.59	13,055.0	4,877.0	75.0	377,523.00	777,941.00	32° 2' 8.130 N	103° 34' 11.214 W