



Lea County, NM (NAD 83 NME)

Ares 4 State #704H

HP 424

Plan #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: #704H

Ground Level: 3586.0
KB = 25' @ 3611.0usft (HP 424)
Northing 452629.00 Easting 776557.00 Latitude 32° 14' 31.425 N Longitude 103° 34' 21.128 W



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.53°
Magnetic Field
Strength: 47931.0nT
Dip Angle: 60.08°
Date: 8/15/2017
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.53°
To convert a Magnetic Direction to a True Direction, Add 6.94° East
To convert a True Direction to a Grid Direction, Subtract 0.41°

SECTION DETAILS

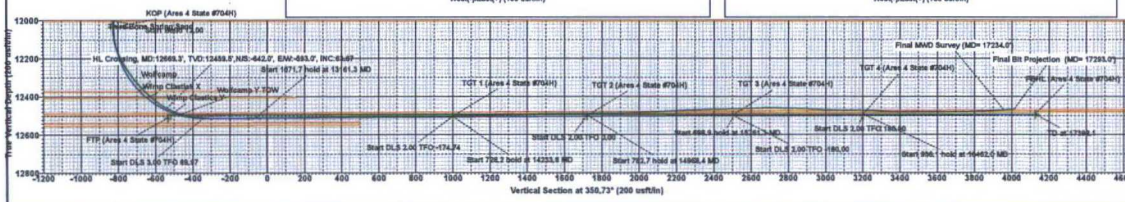
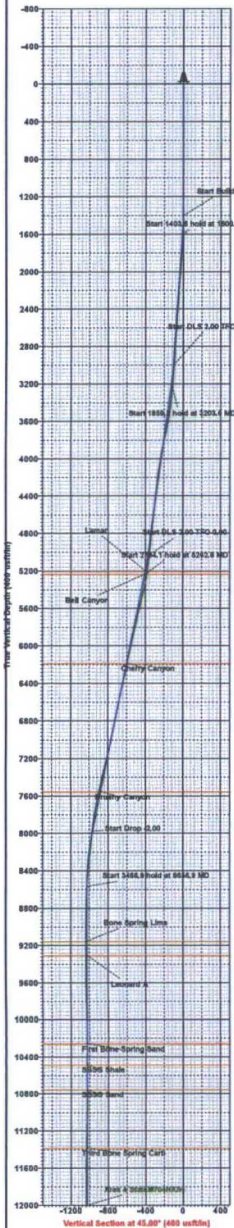
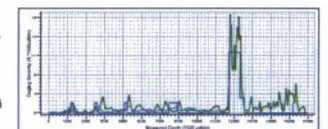
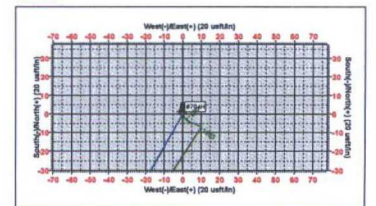
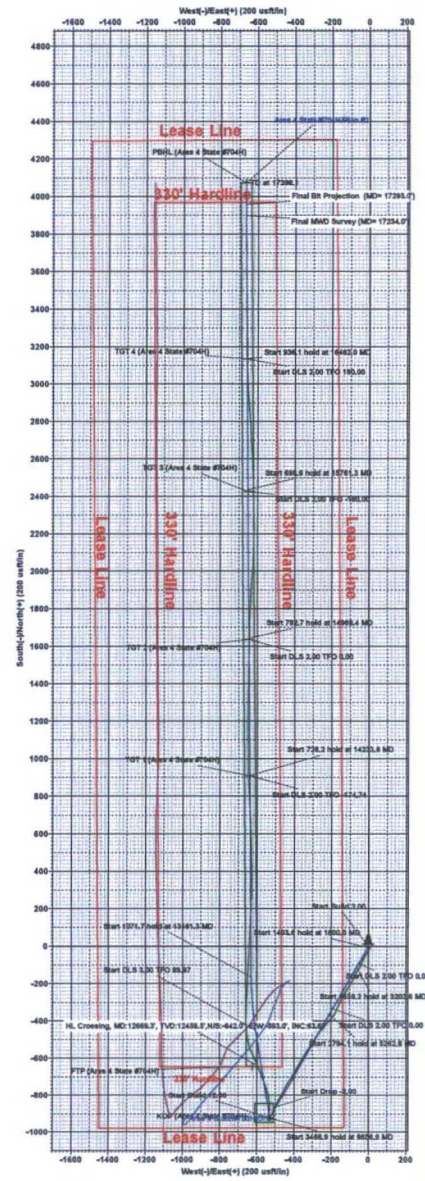
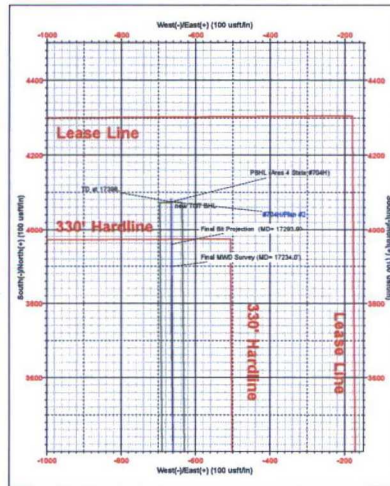
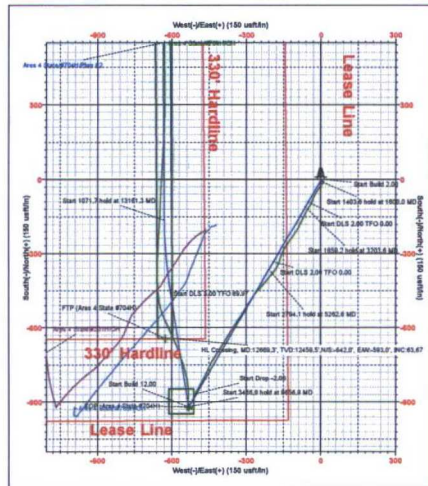
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	V/Sect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0		
3	1600.0	4.00	210.00	1589.8	-8.0	-3.5	2.00	210.00	-5.4		
4	3003.8	4.00	210.00	3000.0	-60.8	-52.4	0.00	0.00	-81.2		
5	3203.8	8.00	210.00	3188.9	-108.8	-82.8	2.00	0.00	-97.4		
6	5062.8	8.00	210.00	5040.0	-333.0	-192.3	0.00	0.00	-297.7		
7	8362.8	12.00	210.00	8236.9	-383.1	-209.8	2.00	0.00	-334.8		
8	8056.9	12.00	210.00	7970.0	-866.2	-500.1	0.00	0.00	-774.3		
9	8656.9	0.00	0.00	8656.9	-920.4	-531.4	2.00	180.00	-822.8		
10	12123.9	0.00	0.00	12023.2	-920.4	-531.4	0.00	0.00	-822.8		
11	12875.9	90.25	350.97	12510.0	-448.8	-606.7	12.00	350.97	-343.2		
12	13161.3	90.25	359.53	12508.7	-162.7	-930.3	3.00	89.97	-89.0	TGT 1 (Ares 4 State #704H)	
13	14233.0	90.25	359.53	12504.0	909.8	-639.0	0.00	0.00	1000.1		
14	14233.8	90.24	359.53	12504.0	909.8	-639.0	2.00	-174.74	1000.9		
15	14862.0	90.24	359.53	12501.0	1638.0	-645.0	0.00	0.00	1720.5		
16	14969.4	90.26	359.53	12501.0	1644.4	-645.1	2.00	0.00	1726.8		
17	16751.1	90.36	359.53	12486.0	2427.0	-651.5	0.00	0.00	2900.3		
18	16761.3	90.16	359.53	12486.0	2437.2	-651.8	2.00	-180.00	2810.3		
19	16460.1	90.16	359.53	12484.0	2136.0	-657.3	0.00	0.00	3200.9		
20	16462.0	90.12	359.53	12484.0	2137.9	-657.3	2.00	180.00	3202.8		
21	17398.1	90.12	359.53	12482.0	4074.0	-665.0	0.00	0.00	4127.8		

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TGT 1 (Ares 4 State #704H)	12504.0	909.8	-638.0	453538.00	778917.96
TGT 2 (Ares 4 State #704H)	12501.0	1638.0	-645.0	454287.00	778911.88
TGT 3 (Ares 4 State #704H)	12486.0	2427.0	-651.5	455056.00	778905.51
TGT 4 (Ares 4 State #704H)	12484.0	2136.0	-657.3	455765.00	778899.89
PBHL (Ares 4 State #704H)	12482.0	4074.0	-665.0	456703.00	778892.00
KOP (Ares 4 State #704H)	12510.0	-642.0	-531.4	451708.59	778832.00
	12032.5	-820.4	-531.4	451708.59	778825.60



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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ares 4 State

#704H

OH

Design: OH

PVA Report

15 February, 2018



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3611.0usft (HP 424)
Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	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	Ares 4 State		
Site Position:		Northing:	451,993.00 usft
From:	Map	Easting:	777,413.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 14' 25.072 N
		Longitude:	103° 34' 11.215 W
		Grid Convergence:	0.41 °

Well	#704H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	8/15/2017	6.94
			Dip Angle
			(°)
			Field Strength
			(nT)
			47,930.98255997

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			350.73

Survey Program	Date 2/15/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
154.0	17,293.0	NEWSCO MWD (OH)	MWD
			Description
			OWSG MWD - Standard



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Well:	#704H	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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	
154.0	0.35	162.63	154.0	-0.4	0.1	0.23	0.23	0.00	-0.5	0.0	
342.0	0.57	141.89	342.0	-1.7	0.9	0.14	0.12	-11.03	-1.9	-0.4	
526.0	0.66	129.94	526.0	-3.1	2.3	0.08	0.05	-6.49	-3.7	-0.9	
712.0	0.66	113.15	712.0	-4.2	4.1	0.10	0.00	-9.03	-5.4	-2.3	
903.0	0.97	98.12	903.0	-4.9	6.7	0.20	0.16	-7.87	-7.3	-3.9	
1,090.0	0.57	154.63	1,089.9	-6.0	8.7	0.43	-0.21	30.22	-9.1	5.3	
1,276.0	0.48	39.41	1,275.9	-6.2	9.5	0.48	-0.05	-61.95	-1.3	-11.3	
1,328.0	0.26	129.94	1,327.9	-6.1	9.8	1.05	-0.42	174.10	-11.4	1.6	
1,412.0	0.31	156.66	1,411.9	-6.4	10.0	0.17	0.06	31.81	-9.9	6.7	
1,458.0	0.40	185.00	1,457.9	-6.7	10.0	0.42	0.20	61.61	-5.3	10.8	
1,505.0	0.80	214.00	1,504.9	-7.1	9.8	1.04	0.85	61.70	1.5	12.0	
1,552.0	1.70	216.07	1,551.9	-8.0	9.2	1.92	1.91	4.40	3.0	11.8	
1,599.0	2.60	212.60	1,598.9	-9.4	8.3	1.93	1.91	-7.38	3.4	11.7	
1,740.0	4.20	212.60	1,739.6	-16.5	3.8	1.13	1.13	0.00	4.9	11.3	
1,928.0	4.00	214.30	1,927.1	-27.7	-3.6	0.12	-0.11	0.90	4.8	10.4	
2,117.0	3.60	214.00	2,115.7	-38.1	-10.7	0.21	-0.21	-0.16	5.4	9.4	
2,305.0	3.60	211.10	2,303.4	-48.0	-17.0	0.10	0.00	-1.54	6.2	9.1	
2,431.0	4.40	209.10	2,429.1	-55.6	-21.4	0.64	0.63	-1.59	5.9	9.4	
2,588.0	4.20	207.20	2,585.6	-66.0	-27.0	0.16	-0.13	-1.21	4.8	9.9	
2,682.0	4.20	207.20	2,679.4	-72.1	-30.1	0.00	0.00	0.00	4.4	10.2	
2,869.0	3.90	198.00	2,865.9	-84.3	-35.2	0.38	-0.16	-4.92	2.4	12.4	
3,058.0	4.30	207.50	3,054.4	-96.7	-40.5	0.42	0.21	5.03	4.7	13.5	
3,153.0	5.40	208.50	3,149.1	-103.8	-44.3	1.16	1.16	1.05	6.8	13.7	
3,247.0	5.50	212.00	3,242.6	-111.5	-48.8	0.37	0.11	3.72	11.4	13.1	
3,341.0	5.80	212.60	3,336.2	-119.3	-53.7	0.33	0.32	0.64	15.4	12.5	
3,435.0	6.70	209.60	3,429.6	-128.1	-59.0	1.02	0.96	-3.19	17.6	13.1	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3611.0usft (HP 424)
Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	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)	
3,624.0	12.80	205.40	3,615.8	-156.6	-73.4	3.25	3.23	-2.22	10.7	15.6	
3,810.0	11.20	209.20	3,797.7	-191.0	-91.1	0.96	-0.86	2.04	-1.2	16.6	
3,997.0	9.80	211.90	3,981.6	-220.3	-108.3	0.79	-0.75	1.44	-8.5	16.6	
4,185.0	7.80	214.30	4,167.4	-244.5	-124.0	1.08	-1.06	1.28	-10.5	15.7	
4,371.0	6.90	214.00	4,351.9	-264.1	-137.3	0.48	-0.48	-0.16	-8.6	13.8	
4,557.0	6.00	206.20	4,536.7	-282.1	-147.9	0.67	-0.48	-4.19	-5.3	12.7	
4,746.0	6.50	205.00	4,724.6	-300.7	-156.8	0.27	0.26	-0.63	0.1	14.7	
4,933.0	7.20	197.80	4,910.2	-321.4	-164.8	0.59	0.37	-3.85	1.6	18.7	
5,093.0	7.70	202.40	5,068.9	-340.9	-172.0	0.49	0.31	2.87	4.6	22.3	
5,208.0	6.80	206.80	5,183.0	-354.1	-178.0	0.92	-0.78	3.83	11.2	23.6	
5,395.0	13.00	219.50	5,367.1	-380.2	-196.4	3.50	3.32	6.79	22.0	16.7	
5,583.0	13.70	221.10	5,550.0	-413.3	-224.4	0.42	0.37	0.85	17.3	9.2	
5,773.0	12.60	221.70	5,735.0	-445.8	-253.0	0.58	-0.58	0.32	12.8	1.2	
5,961.0	14.30	212.00	5,917.9	-480.8	-279.0	1.50	0.90	-5.16	7.9	-1.5	
6,149.0	11.40	212.80	6,101.2	-516.1	-301.3	1.55	-1.54	0.43	5.1	-3.2	
6,337.0	12.90	211.90	6,285.0	-549.5	-322.5	0.80	0.80	-0.48	4.6	-4.7	
6,524.0	11.90	213.10	6,467.6	-583.4	-344.1	0.55	-0.53	0.64	3.2	-6.4	
6,713.0	11.50	212.00	6,652.7	-615.7	-364.7	0.24	-0.21	-0.58	4.3	-8.1	
6,900.0	12.30	210.00	6,835.6	-648.7	-384.5	0.48	0.43	-1.07	4.9	-8.6	
7,089.0	11.90	212.50	7,020.4	-682.6	-405.1	0.35	-0.21	1.32	4.2	-9.7	
7,277.0	15.20	212.40	7,203.2	-719.8	-428.7	1.76	1.76	-0.05	-0.9	-11.3	
7,465.0	14.30	205.30	7,385.0	-761.6	-451.8	1.07	-0.48	-3.78	-8.5	-11.2	
7,654.0	13.90	205.90	7,568.3	-803.1	-471.7	0.23	-0.21	0.32	-15.7	-8.1	
7,843.0	9.60	209.60	7,753.3	-837.3	-489.4	2.31	-2.28	1.96	-15.3	-5.3	
8,032.0	7.50	206.40	7,940.2	-862.0	-502.7	1.14	-1.11	-1.69	-3.6	-4.6	
8,219.0	6.40	203.80	8,125.8	-882.5	-512.3	0.61	-0.59	-1.39	8.5	-1.5	
8,408.0	5.90	205.00	8,313.7	-900.9	-520.7	0.27	-0.26	0.63	11.1	0.5	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3611.0usft (HP 424)
Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	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)	
8,596.0	5.10	207.90	8,500.9	-917.1	-528.7	0.45	-0.43	1.54	3.5	0.8	
8,785.0	1.00	256.50	8,689.6	-924.9	-534.2	2.38	-2.17	25.71	-3.8	3.7	
8,972.0	1.40	220.50	8,876.5	-927.0	-537.3	0.45	0.21	-19.25	-8.8	-0.2	
9,158.0	0.20	344.20	9,062.5	-928.4	-538.8	0.82	-0.65	66.51	5.7	9.3	
9,347.0	0.50	192.40	9,251.5	-928.9	-539.1	0.36	0.16	-80.32	-9.9	-5.7	
9,533.0	1.50	21.60	9,437.5	-927.4	-538.4	1.07	0.54	-91.83	9.1	3.9	
9,719.0	1.40	60.30	9,623.4	-924.0	-535.5	0.52	-0.05	20.81	5.4	-1.1	
9,907.0	1.50	101.50	9,811.4	-923.4	-531.1	0.54	0.05	21.91	-0.9	-2.9	
10,095.0	1.00	133.50	9,999.3	-925.0	-527.5	0.45	-0.27	17.02	-6.0	-0.7	
10,283.0	1.00	136.20	10,187.3	-927.3	-525.2	0.03	0.00	1.44	-9.3	-0.3	
10,472.0	0.40	23.80	10,376.3	-927.9	-523.8	0.64	-0.32	-59.47	3.8	-10.0	
10,657.0	1.00	61.60	10,561.3	-926.5	-522.1	0.39	0.32	20.43	-5.3	-9.8	
10,844.0	0.80	96.50	10,748.3	-925.9	-519.4	0.31	-0.11	18.66	-12.6	-4.1	
11,031.0	1.00	276.40	10,935.3	-925.9	-519.7	0.96	0.11	96.20	12.2	4.1	
11,218.0	3.60	274.90	11,122.1	-925.2	-527.2	1.39	1.39	-0.80	4.6	4.4	
11,406.0	0.90	247.40	11,309.9	-925.3	-534.4	1.51	-1.44	-14.63	-4.6	3.3	
11,593.0	0.60	251.40	11,496.9	-926.1	-536.7	0.16	-0.16	2.14	-6.8	3.7	
11,781.0	0.80	150.30	11,684.9	-927.6	-537.0	0.58	0.11	-53.78	-3.5	-8.4	
11,970.0	0.40	264.00	11,873.9	-928.8	-537.0	0.54	-0.21	60.16	-6.4	7.8	
11,988.0	0.60	263.10	11,891.9	-928.8	-537.1	1.11	1.11	-5.00	-6.7	7.7	
12,067.0	0.90	225.20	11,970.9	-929.3	-538.0	0.71	0.38	-47.97	-10.9	1.7	
12,128.9	3.38	358.61	12,032.8	-927.8	-538.4	6.55	4.01	215.46	7.2	7.2	
KOP (Ares 4 State #704H)											
12,160.0	5.40	2.10	12,063.8	-925.5	-538.3	6.55	6.49	11.23	6.3	6.6	
12,207.0	14.40	12.10	12,110.0	-917.5	-537.0	19.42	19.15	21.28	4.2	3.9	
12,254.0	21.60	8.90	12,154.7	-903.2	-534.5	15.46	15.32	-6.81	-1.3	0.8	
12,301.0	28.70	3.30	12,197.2	-883.4	-532.5	15.92	15.11	-11.91	-7.8	-3.3	



PVA Report

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Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	North Reference:	Grid
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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)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
12,348.0	32.60	359.10	12,237.7	-859.5	-532.0	9.46	8.30	-8.94	-13.6	-7.3	
12,395.0	35.10	353.40	12,276.7	-833.4	-533.8	8.59	5.32	-12.13	-16.8	-10.7	
12,442.0	38.30	348.70	12,314.4	-805.6	-538.2	9.06	6.81	-10.00	-17.5	-11.9	
12,489.0	44.10	345.00	12,349.7	-775.5	-545.3	13.38	12.34	-7.87	-17.4	-10.4	
12,536.0	47.60	341.80	12,382.5	-743.2	-554.9	8.90	7.45	-6.81	-16.7	-6.3	
12,583.0	51.60	341.00	12,412.9	-709.3	-566.4	8.61	8.51	-1.70	-14.8	-0.1	
12,630.0	57.40	338.40	12,440.2	-673.5	-579.7	13.13	12.34	-5.53	-12.3	7.5	
12,669.3	63.67	335.86	12,459.5	-642.0	-593.0	16.91	15.95	-6.45	-11.0	15.8	
HL Crossing, MD:12669.3', TVD:12459.5', N/S:-642.0', E/W:-593.0', INC:63.67											
12,677.0	64.90	335.40	12,462.9	-635.6	-595.8	16.91	16.01	-6.02	-10.9	17.7	
12,699.6	68.27	334.97	12,471.9	-616.8	-604.5	15.02	14.92	-1.92	-10.5	23.5	
FTP (Ares 4 State #704H)											
12,742.0	74.60	334.20	12,485.4	-580.5	-621.8	15.02	14.93	-1.80	-10.1	35.2	
12,789.0	79.60	341.80	12,495.9	-538.1	-638.9	19.01	10.64	16.17	-8.2	45.9	
12,835.0	82.20	348.00	12,503.1	-494.3	-650.7	14.46	5.65	13.48	-5.7	50.9	
12,926.0	88.50	0.50	12,510.5	-404.3	-659.7	15.34	6.92	13.74	1.0	46.4	
13,018.0	92.40	2.70	12,509.8	-312.3	-657.2	4.87	4.24	2.39	0.3	33.9	
13,112.0	89.80	2.80	12,508.0	-218.4	-652.7	2.77	-2.77	0.11	-0.9	23.6	
13,206.0	90.30	3.10	12,507.9	-124.6	-647.8	0.62	0.53	0.32	-0.6	17.2	
13,300.0	90.60	2.60	12,507.2	-30.7	-643.1	0.62	0.32	-0.53	-0.9	11.8	
13,394.0	90.70	2.90	12,506.1	63.2	-638.6	0.34	0.11	0.32	-1.6	6.5	
13,488.0	90.90	3.30	12,504.8	157.0	-633.5	0.48	0.21	0.43	-2.5	0.7	
13,583.0	92.20	1.90	12,502.2	251.9	-629.2	2.01	1.37	-1.47	-4.6	-4.4	
13,677.0	90.10	359.70	12,500.4	345.9	-627.9	3.24	-2.23	-2.34	-6.1	-6.5	
13,770.0	90.00	359.40	12,500.3	438.9	-628.7	0.34	-0.11	-0.32	-5.8	-6.5	
13,864.0	89.50	358.50	12,500.7	532.8	-630.4	1.10	-0.53	-0.96	-5.0	-5.6	
13,958.0	89.90	357.50	12,501.2	626.8	-633.7	1.15	0.43	-1.06	-4.1	-3.1	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3611.0usft (HP 424)
Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	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)	
14,052.0	90.50	357.30	12,500.9	720.7	-637.9	0.67	0.64	-0.21	-4.0	0.4	
14,145.0	91.00	356.50	12,499.6	813.5	-643.0	1.01	0.54	-0.86	-4.8	4.7	
14,239.0	90.60	358.60	12,498.3	907.4	-647.0	2.27	-0.43	2.23	-5.7	7.9	
14,240.3	90.60	358.60	12,498.3	908.8	-647.0	0.00	0.00	0.00	-5.7	8.0	
TGT 1 (Ares 4 State #704H)											
14,333.0	90.50	358.90	12,497.4	1,001.4	-649.0	0.34	-0.11	0.32	-6.2	9.2	
14,426.0	90.80	359.80	12,496.4	1,094.4	-650.1	1.02	0.32	0.97	-6.9	9.5	
14,520.0	92.00	359.80	12,494.1	1,188.4	-650.4	1.28	1.28	0.00	-8.8	9.1	
14,614.0	91.00	0.70	12,491.6	1,282.3	-650.0	1.43	-1.06	0.96	-10.9	7.9	
14,708.0	92.10	0.80	12,489.1	1,376.3	-648.8	1.18	1.17	0.11	-13.0	5.9	
14,802.0	90.20	1.30	12,487.2	1,470.3	-647.0	2.09	-2.02	0.53	-14.5	3.4	
14,895.0	91.00	1.40	12,486.2	1,563.2	-644.9	0.87	0.86	0.11	-15.1	0.4	
14,969.6	90.53	1.09	12,485.2	1,637.8	-643.2	0.76	-0.63	-0.42	-15.8	-1.8	
TGT 2 (Ares 4 State #704H)											
14,990.0	90.40	1.00	12,485.0	1,658.2	-642.9	0.76	-0.63	-0.42	-15.8	-2.3	
15,084.0	90.00	2.00	12,484.7	1,752.2	-640.4	1.15	-0.43	1.06	-15.6	-5.5	
15,176.0	91.80	3.20	12,483.3	1,844.0	-636.2	2.35	1.96	1.30	-16.4	-10.5	
15,269.0	91.50	4.20	12,480.6	1,936.8	-630.2	1.12	-0.32	1.08	-18.5	-17.2	
15,363.0	93.00	2.80	12,476.9	2,030.6	-624.5	2.18	1.60	-1.49	-21.6	-23.8	
15,457.0	94.10	2.30	12,471.1	2,124.3	-620.3	1.29	1.17	-0.53	-26.8	-28.7	
15,549.0	91.10	0.00	12,466.9	2,216.2	-618.5	4.11	-3.26	-2.50	-30.4	-31.3	
15,642.0	91.80	358.40	12,464.6	2,309.1	-619.8	1.88	0.75	-1.72	-32.2	-30.7	
15,735.0	91.10	358.70	12,462.2	2,402.1	-622.1	0.82	-0.75	0.32	-34.0	-29.1	
15,760.1	91.02	358.62	12,461.7	2,427.2	-622.7	0.45	-0.32	-0.32	-34.3	-28.8	
TGT 3 (Ares 4 State #704H)											
15,829.0	90.80	358.40	12,460.6	2,496.0	-624.5	0.45	-0.32	-0.32	-35.2	-27.5	
15,923.0	92.40	357.80	12,458.0	2,589.9	-627.6	1.82	1.70	-0.64	-37.5	-25.2	
16,017.0	87.90	356.80	12,457.8	2,683.8	-632.1	4.90	-4.79	-1.06	-37.5	-21.6	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3611.0usft (HP 424)
Site:	Ares 4 State	MD Reference:	KB = 25' @ 3611.0usft (HP 424)
Well:	#704H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

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)
16,111.0	89.40	357.00	12,460.0	2,777.6	-637.1	1.61	1.60	0.21	-35.0	-17.2
16,204.0	86.20	354.20	12,463.6	2,870.3	-644.3	4.57	-3.44	-3.01	-31.2	-10.9
16,297.0	88.00	357.10	12,468.3	2,962.9	-651.3	3.67	1.94	3.12	-26.2	-4.6
16,390.0	91.20	359.00	12,468.9	3,055.8	-654.5	4.00	3.44	2.04	-25.3	-2.2
16,470.5	88.26	359.17	12,469.3	3,136.2	-655.7	3.66	-3.66	0.22	-24.7	-1.6
TGT 4 (Ares 4 State #704H)										
16,483.0	87.80	359.20	12,469.7	3,148.8	-655.9	3.66	-3.66	0.22	-24.2	-1.5
16,578.0	85.90	359.60	12,474.9	3,243.6	-656.9	2.04	-2.00	0.42	-18.8	-1.3
16,673.0	91.30	358.80	12,477.3	3,338.5	-658.2	5.75	5.68	-0.84	-16.3	-0.7
16,766.0	89.40	359.20	12,476.7	3,431.5	-659.9	2.09	-2.04	0.43	-16.7	0.1
16,861.0	89.70	359.30	12,477.4	3,526.5	-661.1	0.33	0.32	0.11	-15.7	0.6
16,954.0	90.40	359.00	12,477.4	3,619.5	-662.5	0.82	0.75	-0.32	-15.6	1.2
17,047.0	91.30	359.40	12,476.0	3,712.5	-663.8	1.06	0.97	0.43	-16.8	1.8
17,140.0	92.50	359.80	12,472.9	3,805.4	-664.4	1.36	1.29	0.43	-19.7	1.6
17,234.0	93.30	0.60	12,468.1	3,899.3	-664.1	1.20	0.85	0.85	-24.2	0.5
Final MWD Survey (MD= 17234.0')										
17,293.0	93.30	0.60	12,464.7	3,958.2	-663.5	0.00	0.00	0.00	-27.5	-0.6
Final Bit Projection (MD= 17293.0') - PBHL (Ares 4 State #704H)										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,669.3	12,459.5	-642.0	-593.0	HL Crossing, MD:12669.3', TVD:12459.5', N/S:-642.0', E/W:-593.0', INC:63.67
17,234.0	12,468.1	3,899.3	-664.1	Final MWD Survey (MD= 17234.0')
17,293.0	12,464.7	3,958.2	-663.5	Final Bit Projection (MD= 17293.0')

Checked By: _____ Approved By: _____ Date: _____