

HOBBS OCD

JAN 23 2019

RECEIVED



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Cobalt 32 State

#708H

OH

Design: OH

Final PVA Report

27 November, 2018



Final PVA Report

Company: EOG Resources - Midland		Local Co-ordinate Reference: Well #708H	
Project: Lea County, NM (NAD 83 NME)		TVD Reference: KB = 25 @ 3450.0usft	
Site: Cobalt 32 State		MD Reference: KB = 25 @ 3450.0usft	
Well: #708H		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 Cobalt 32 State			
Site Position:		Northing: 425,645.00 usft	
From: Map		Easting: 803,691.00 usft	
Position Uncertainty: 0.0 usft		Slot Radius: 13-3/16 "	
		Latitude: 32° 10' 2.406 N	
		Longitude: 103° 29' 7.689 W	
		Grid Convergence: 0.45 °	
Well #708H			
Well Position +N/-S 0.0 usft		Northing: 425,616.00 usft	
+E/-W 0.0 usft		Easting: 799,712.00 usft	
Position Uncertainty 0.0 usft		Wellhead Elevation: usft	
		Latitude: 32° 10' 2.427 N	
		Longitude: 103° 29' 53.980 W	
		Ground Level: 3,425.0 usft	
Wellbore OH			
Magnetics Model Name		Sample Date	
		Declination (°)	
		Dip Angle (°)	
		Field Strength (nT)	
IGRF2015		8/21/2018	
		6.79	
		60.01	
		47,791.01733183	
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	
		4.62	
Survey Program			
Date 11/27/2018			
From (usft)		To (usft)	
		Survey (Wellbore)	
		Tool Name	
		Description	
154.0		17,292.0	
		Total MWD #1 (OH)	
		MWD	
		OWSG MWD - Standard	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	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)	Buile (°/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	0.0
154.0	0.40	266.40	154.0	0.0	-0.5	0.26	0.26	0.00	-0.5	0.0	
337.0	0.50	280.60	337.0	0.1	-2.0	0.08	0.05	7.76	-1.9	0.3	
519.0	0.40	277.00	519.0	0.3	-3.4	0.06	-0.05	-1.98	-3.4	0.1	
704.0	0.20	265.50	704.0	0.3	-4.3	0.11	-0.11	-6.22	-4.3	-0.7	
891.0	0.10	107.20	891.0	0.3	-4.5	0.16	-0.05	-84.65	4.4	-1.1	
1,079.0	0.10	312.50	1,079.0	0.3	-4.5	0.10	0.00	-82.29	-3.5	2.8	
1,125.0	0.00	294.10	1,125.0	0.4	-4.5	0.22	-0.22	0.00	-0.4	4.5	
1,258.0	0.30	286.10	1,258.0	0.5	-4.8	0.23	0.23	0.00	-4.8	0.9	
1,353.0	0.60	229.60	1,353.0	0.2	-5.4	0.53	0.32	-59.47	-4.0	-3.7	
1,447.0	0.30	244.20	1,447.0	-0.2	-6.0	0.34	-0.32	15.53	-5.5	-2.4	
1,540.0	0.40	203.30	1,540.0	-0.6	-6.4	0.28	0.11	-43.98	-3.1	-5.6	
1,634.0	0.40	247.20	1,634.0	-1.1	-6.8	0.32	0.00	46.70	-6.7	-1.7	
1,728.0	0.10	213.40	1,728.0	-1.2	-7.2	0.34	-0.32	-35.96	-5.0	-5.3	
1,821.0	0.20	193.20	1,821.0	-1.5	-7.3	0.12	0.11	-21.72	-3.1	-6.7	
1,915.0	0.20	315.10	1,915.0	-1.5	-7.4	0.37	0.00	129.68	-4.2	6.3	
2,009.0	0.50	312.50	2,009.0	-1.1	-7.8	0.32	0.32	-2.77	-5.0	6.1	
2,102.0	0.40	356.90	2,102.0	-0.5	-8.1	0.38	-0.11	47.74	0.1	8.2	
2,290.0	0.20	226.10	2,290.0	-0.1	-8.4	0.29	-0.11	-69.57	-6.1	-5.8	
2,383.0	0.10	29.50	2,383.0	-0.1	-8.5	0.32	-0.11	175.70	4.3	7.3	
2,476.0	0.10	258.90	2,476.0	-0.1	-8.5	0.20	0.00	-140.43	-8.4	-1.6	
2,571.0	0.20	125.20	2,571.0	-0.2	-8.5	0.29	0.11	-140.74	6.8	-5.0	
2,665.0	0.30	90.20	2,665.0	-0.3	-8.1	0.19	0.11	-37.23	8.1	-0.3	
2,759.0	0.90	81.80	2,759.0	-0.2	-7.1	0.64	0.64	-8.94	7.1	0.8	
2,852.0	1.00	93.70	2,851.9	-0.1	-5.6	0.24	0.11	12.80	5.6	-0.5	
2,945.0	4.10	96.80	2,944.8	-0.6	-1.5	3.34	3.33	3.33	1.4	-0.8	
3,039.0	7.30	102.30	3,038.4	-2.2	7.7	3.45	3.40	5.85	-7.1	-0.5	



Final PVA Report

Company:	EOG Resources - Midland					Local Co-ordinate Reference:			Well #708H		
Project:	Lea County, NM (NAD 83 NME)					TVD Reference:			KB = 25 @ 3450.0usft		
Site:	Cobalt 32 State					MD Reference:			KB = 25 @ 3450.0usft		
Well:	#708H					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)	
3,133.0	8.00	102.00	3,131.5	-4.9	19.9	0.75	0.74	-0.32	-15.7	-0.1	
3,226.0	8.50	101.50	3,223.6	-7.6	33.0	0.54	0.54	-0.54	-22.1	0.5	
3,319.0	7.50	107.90	3,315.7	-10.8	45.5	1.44	-1.08	6.88	-25.4	3.7	
3,413.0	7.80	111.70	3,408.8	-15.1	57.3	0.63	0.32	4.04	-27.8	5.1	
3,507.0	6.90	114.40	3,502.1	-19.8	68.3	1.03	-0.96	2.87	-29.8	5.6	
3,601.0	6.60	114.70	3,595.4	-24.4	78.4	0.32	-0.32	0.32	-31.1	4.6	
3,695.0	6.60	115.80	3,688.8	-29.0	88.2	0.13	0.00	1.17	-32.1	3.9	
3,788.0	6.90	115.80	3,781.1	-33.7	98.0	0.32	0.32	0.00	-33.4	2.6	
3,883.0	7.30	116.60	3,875.4	-38.9	108.5	0.43	0.42	0.84	-35.3	1.6	
3,976.0	5.90	114.10	3,967.8	-43.5	118.2	1.54	-1.51	-2.69	-36.4	-1.2	
4,069.0	5.70	110.80	4,060.3	-47.1	126.9	0.42	-0.22	-3.55	-35.9	-4.1	
4,164.0	6.00	116.00	4,154.8	-51.0	135.7	0.64	0.32	5.47	-36.0	-1.8	
4,257.0	6.40	118.10	4,247.3	-55.5	144.7	0.49	0.43	2.26	-36.5	-2.0	
4,445.0	7.00	125.30	4,434.0	-67.1	163.3	0.55	0.32	3.83	-39.5	-2.1	
4,538.0	7.00	131.20	4,526.3	-74.1	172.2	0.77	0.00	6.34	-41.9	-1.3	
4,632.0	7.10	133.80	4,619.6	-81.9	180.7	0.36	0.11	2.77	-44.6	-3.4	
4,727.0	6.90	126.10	4,713.9	-89.3	189.5	1.01	-0.21	-8.11	-45.9	-13.2	
4,821.0	5.50	117.60	4,807.3	-94.7	198.1	1.78	-1.49	-9.04	-43.9	-22.3	
4,915.0	5.60	105.80	4,900.9	-98.1	206.5	1.22	0.11	-12.55	-37.6	-31.3	
5,009.0	6.50	113.70	4,994.4	-101.4	215.8	1.30	0.96	8.40	-41.6	-26.3	
5,103.0	5.10	94.10	5,087.9	-103.9	224.8	2.56	-1.49	-20.85	-30.1	-38.1	
5,197.0	4.70	89.10	5,181.6	-104.1	232.8	0.62	-0.43	-5.32	-25.3	-37.8	
5,290.0	4.00	85.80	5,274.3	-103.8	239.9	0.80	-0.75	-3.55	-21.2	-35.7	
5,384.0	4.00	91.00	5,368.1	-103.6	246.4	0.39	0.00	5.53	-21.4	-30.5	
5,478.0	4.30	92.00	5,461.8	-103.8	253.2	0.33	0.32	1.06	-19.3	-27.4	
5,571.0	4.30	89.30	5,554.6	-103.9	260.2	0.22	0.00	-2.90	-15.7	-25.4	
5,665.0	4.50	87.70	5,648.3	-103.7	267.4	0.25	0.21	-1.70	-13.0	-22.5	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	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)	
5,760.0	5.10	98.40	5,742.9	-104.0	275.3	0.99	0.63	9.16	-14.4	-17.7	
5,853.0	5.50	95.30	5,835.5	-104.9	283.9	0.44	0.43	-1.18	-13.1	-16.0	
5,947.0	5.70	93.50	5,929.1	-105.6	293.0	0.28	0.21	-1.91	-12.3	-14.1	
6,041.0	4.90	110.20	6,022.7	-107.3	301.4	1.84	-0.85	17.77	-14.5	-9.0	
6,134.0	4.90	115.60	6,115.4	-110.4	308.7	0.50	0.00	5.81	-13.5	-8.6	
6,228.0	4.90	113.00	6,209.0	-113.7	316.1	0.24	0.00	-2.77	-11.4	-10.2	
6,321.0	4.80	112.20	6,301.7	-116.7	323.3	0.13	-0.11	-0.86	-9.4	-11.2	
6,415.0	4.90	109.30	6,395.3	-119.5	330.7	0.28	0.11	-3.09	-6.9	-12.1	
6,509.0	4.60	109.30	6,489.0	-122.1	338.1	0.32	-0.32	0.00	-4.9	-12.3	
6,603.0	4.90	106.80	6,582.7	-124.5	345.5	0.39	0.32	-2.66	-2.3	-12.5	
6,697.0	4.80	106.00	6,676.4	-126.7	353.1	0.13	-0.11	-0.85	-0.2	-12.3	
6,791.0	4.90	108.60	6,770.0	-129.1	360.7	0.26	0.11	2.77	1.1	-12.2	
6,885.0	5.20	102.40	6,863.7	-131.3	368.7	0.66	0.32	-6.60	4.0	-11.5	
6,979.0	5.00	101.30	6,957.3	-133.0	376.8	0.24	-0.21	-1.17	5.6	-10.4	
7,073.0	5.00	101.30	7,050.9	-134.6	384.9	0.00	0.00	0.00	7.2	-9.3	
7,167.0	4.80	105.40	7,144.6	-136.5	392.7	0.43	-0.21	4.36	8.3	-9.0	
7,261.0	4.70	107.90	7,238.3	-138.7	400.1	0.24	-0.11	2.66	10.0	-9.2	
7,355.0	4.30	111.30	7,332.0	-141.1	407.1	0.51	-0.43	3.62	11.9	-10.2	
7,448.0	4.20	112.90	7,424.7	-143.7	413.5	0.17	-0.11	1.72	14.4	-11.2	
7,543.0	4.40	110.90	7,519.5	-146.4	420.1	0.26	0.21	-2.11	17.6	-11.4	
7,636.0	4.70	115.10	7,612.2	-149.3	426.9	0.48	0.32	4.52	17.7	-13.4	
7,730.0	5.10	105.00	7,705.8	-152.0	434.4	1.01	0.43	-10.74	17.2	-10.5	
7,824.0	3.80	103.20	7,799.5	-153.8	441.5	1.39	-1.38	-1.91	12.5	-9.9	
7,918.0	3.70	100.60	7,893.3	-155.1	447.5	0.21	-0.11	-2.77	6.9	-9.5	
8,011.0	2.50	106.90	7,986.2	-156.2	452.4	1.34	-1.29	6.77	0.8	-9.9	
8,105.0	2.50	114.10	8,080.1	-157.6	456.2	0.33	0.00	7.66	-4.5	-8.6	
8,199.0	2.00	116.30	8,174.0	-159.2	459.5	0.54	-0.53	2.34	-8.6	-9.4	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	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)	
8,293.0	2.00	117.80	8,268.0	-160.7	462.5	0.06	0.00	1.60	-12.1	-9.1	
8,387.0	1.70	113.60	8,361.9	-162.0	465.2	0.35	-0.32	-4.47	-14.4	-10.1	
8,481.0	1.60	126.20	8,455.9	-163.3	467.5	0.40	-0.11	13.40	-19.0	-6.4	
8,575.0	1.50	126.90	8,549.9	-164.9	469.6	0.11	-0.11	0.74	-21.6	-6.1	
8,668.0	1.50	129.60	8,642.8	-166.4	471.5	0.08	0.00	2.90	-24.3	-5.1	
8,761.0	1.30	137.80	8,735.8	-167.9	473.1	0.30	-0.22	8.82	-27.0	-1.4	
8,855.0	1.00	136.20	8,829.8	-169.3	474.4	0.32	-0.32	-1.70	-28.8	-2.2	
8,949.0	1.00	146.90	8,923.8	-170.6	475.4	0.20	0.00	11.38	-30.4	3.4	
9,043.0	0.80	132.80	9,017.7	-171.7	476.4	0.32	-0.21	-15.00	-31.7	-4.3	
9,137.0	1.00	152.30	9,111.7	-172.9	477.2	0.39	0.21	20.74	-32.8	6.8	
9,231.0	0.90	157.30	9,205.7	-174.3	477.9	0.14	-0.11	5.32	-33.6	9.7	
9,325.0	1.10	189.50	9,299.7	-175.9	478.0	0.62	0.21	34.26	-24.8	26.5	
9,419.0	0.90	194.90	9,393.7	-177.5	477.7	0.23	-0.21	5.74	-23.9	28.8	
9,513.0	0.50	181.30	9,487.7	-178.6	477.5	0.46	-0.43	-14.47	-31.1	22.2	
9,607.0	0.80	148.00	9,581.7	-179.6	477.8	0.50	0.32	-35.43	-39.2	1.3	
9,700.0	1.00	131.70	9,674.7	-180.6	478.8	0.35	0.22	-17.53	-39.4	-10.0	
9,794.0	0.80	2.60	9,768.7	-180.5	479.4	1.73	-0.21	-137.34	32.4	-24.9	
9,888.0	1.50	355.40	9,862.6	-178.7	479.3	0.76	0.74	-7.66	33.4	-20.7	
9,982.0	1.80	336.70	9,956.6	-176.1	478.7	0.65	0.32	-19.89	35.7	-9.3	
10,076.0	1.60	339.50	10,050.6	-173.5	477.6	0.23	-0.21	2.98	32.4	-11.0	
10,171.0	1.90	342.30	10,145.5	-170.7	476.7	0.33	0.32	2.95	28.9	-12.5	
10,265.0	1.40	334.20	10,239.5	-168.2	475.7	0.59	-0.53	-8.62	27.7	-8.5	
10,359.0	0.80	314.80	10,333.5	-166.7	474.7	0.74	-0.64	-20.64	27.2	0.8	
10,453.0	0.40	296.30	10,427.5	-166.1	474.0	0.47	-0.43	-19.68	24.6	9.2	
10,548.0	0.70	276.10	10,522.5	-165.9	473.1	0.37	0.32	-21.26	19.0	17.0	
10,642.0	1.10	269.60	10,616.4	-165.9	471.6	0.44	0.43	-6.91	15.5	19.0	
10,736.0	0.80	230.30	10,710.4	-166.3	470.2	0.74	-0.32	-41.81	-1.4	23.9	



Final PVA Report

Company:	EOG Resources - Midland					Local Co-ordinate Reference:			Well #708H		
Project:	Lea County, NM (NAD 83 NME)					TVD Reference:			KB = 25 @ 3450.0usft		
Site:	Cobalt 32 State					MD Reference:			KB = 25 @ 3450.0usft		
Well:	#708H					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)	
10,830.0	1.10	225.40	10,804.4	-167.3	469.1	0.33	0.32	-5.21	-5.0		23.7
10,925.0	1.80	217.50	10,899.4	-169.2	467.5	0.76	0.74	-8.32	-10.6		22.6
11,018.0	0.80	194.50	10,992.4	-171.0	466.5	1.19	-1.08	-24.73	-20.6		16.1
11,113.0	0.30	159.90	11,087.4	-171.8	466.4	0.61	-0.53	-36.42	-26.9		1.2
11,207.0	0.50	166.80	11,181.4	-172.5	466.6	0.22	0.21	7.34	-27.2		4.5
11,300.0	0.90	127.00	11,274.4	-173.3	467.2	0.65	0.43	-42.80	-24.8		-14.2
11,487.0	1.00	106.40	11,461.3	-174.6	470.0	0.19	0.05	-11.02	-21.2		-22.6
11,676.0	1.50	62.20	11,650.3	-173.9	473.7	0.55	0.26	-23.39	-3.1		-32.1
11,812.0	2.20	71.00	11,786.2	-172.3	477.8	0.55	0.51	6.47	-12.4		-31.0
11,878.0	2.70	67.90	11,852.2	-171.3	480.4	0.78	0.76	-4.70	-13.5		-31.7
11,925.9	7.33	19.60	11,899.9	-168.0	482.5	12.29	9.66	-100.87	10.8		-32.0
KOP (Cobalt 32 State #708H)											
11,972.0	12.80	10.80	11,945.2	-160.2	484.4	12.29	11.87	-19.07	9.8		-30.8
12,065.0	31.20	359.70	12,031.1	-125.7	486.3	20.20	19.78	-11.94	-2.2		-30.5
12,119.1	32.52	359.76	12,077.1	-97.1	486.1	2.45	2.45	0.11	-13.8		-30.7
HL Crossing, MD:12119.1', TVD:12077.1', N/S:-97.1', E/W:486.1', INC:32.52											
12,159.0	33.50	359.80	12,110.5	-75.4	486.0	2.45	2.45	0.10	-19.4		-30.7
12,206.0	38.00	358.50	12,148.7	-47.9	485.6	9.71	9.57	-2.77	-23.2		-31.0
12,253.0	42.20	357.50	12,184.6	-17.7	484.6	9.04	8.94	-2.13	-25.8		-30.6
12,300.0	47.20	356.10	12,218.0	15.3	482.7	10.84	10.64	-2.98	-27.3		-29.5
12,317.6	49.27	355.82	12,229.7	28.4	481.8	11.80	11.74	-1.60	-27.8		-28.8
FTP (Cobalt 32 State #708H)											
12,346.0	52.60	355.40	12,247.6	50.4	480.1	11.80	11.74	-1.47	-28.6		-27.4
12,393.0	57.10	355.70	12,274.7	88.7	477.1	9.59	9.57	0.64	-29.3		-24.6
12,440.0	61.90	356.30	12,298.5	129.1	474.3	10.27	10.21	1.28	-29.0		-21.9
12,487.0	68.40	356.20	12,318.3	171.6	471.5	13.83	13.83	-0.21	-28.2		-19.5
12,535.0	72.60	356.90	12,334.3	216.8	468.8	8.86	8.75	1.46	-26.8		-17.0



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	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)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
12,582.0	77.50	356.60	12,346.4	262.1	466.2	10.44	10.43	-0.64	-24.2	-14.8
12,628.0	80.60	356.70	12,355.2	307.2	463.6	6.74	6.74	0.22	-20.1	-12.6
12,675.0	83.80	356.50	12,361.5	353.7	460.8	6.82	6.81	-0.43	-14.1	-10.2
12,722.0	87.70	356.00	12,365.0	400.4	457.7	8.37	8.30	-1.06	-10.0	-7.6
12,798.0	92.80	355.60	12,364.7	476.2	452.2	6.73	6.71	-0.53	-9.2	-2.8
12,815.0	93.10	354.80	12,363.8	493.1	450.7	5.02	1.76	-4.71	-9.9	-1.6
12,909.0	93.20	355.40	12,358.6	586.6	442.7	0.65	0.11	0.64	-13.7	5.4
13,003.0	93.70	355.40	12,353.0	680.2	435.2	0.53	0.53	0.00	-17.9	11.9
13,096.0	93.50	357.50	12,347.1	772.8	429.5	2.26	-0.22	2.26	-22.4	16.7
13,190.0	93.00	359.40	12,341.8	866.6	426.9	2.09	-0.53	2.02	-26.4	18.2
13,284.0	91.50	359.60	12,338.1	960.5	426.1	1.61	-1.60	0.21	-28.8	18.0
13,378.0	92.50	0.40	12,334.8	1,054.5	426.1	1.36	1.06	0.85	-30.7	17.0
13,472.0	90.30	1.20	12,332.6	1,148.4	427.4	2.49	-2.34	0.85	-31.6	14.7
13,565.0	88.50	1.20	12,333.5	1,241.4	429.4	1.94	-1.94	0.00	-29.3	11.7
13,659.0	88.30	1.10	12,336.1	1,335.3	431.2	0.24	-0.21	-0.11	-25.3	8.8
13,693.5	88.63	1.06	12,337.1	1,389.8	431.9	0.97	0.97	-0.11	-23.9	7.8
TGT 1 (Cobalt 32 State #708H)										
13,752.0	89.20	1.00	12,338.2	1,428.3	432.9	0.97	0.97	-0.11	-22.5	6.1
13,847.0	89.80	1.10	12,339.0	1,523.3	434.7	0.64	0.63	0.11	-21.5	3.4
13,940.0	88.60	0.60	12,340.3	1,616.2	436.1	1.40	-1.29	-0.54	-20.0	1.0
14,034.0	88.80	0.60	12,342.4	1,710.2	437.1	0.21	0.21	0.00	-17.7	-1.0
14,127.0	88.50	0.30	12,344.6	1,803.2	437.8	0.46	-0.32	-0.32	-15.3	-2.7
14,220.0	91.70	0.90	12,344.5	1,896.2	438.8	3.50	3.44	0.65	-15.3	-4.7
14,312.0	90.90	0.30	12,342.4	1,988.1	439.7	1.09	-0.87	-0.65	-17.2	-6.6
14,405.0	91.80	0.40	12,340.2	2,081.1	440.3	0.97	0.97	0.11	-19.2	-8.2
14,499.0	91.70	359.60	12,337.3	2,175.1	440.3	0.86	-0.11	-0.85	-21.9	-9.2
14,592.0	90.40	0.20	12,335.6	2,268.1	440.1	1.54	-1.40	0.65	-23.4	-10.0



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Incl (°)	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)	
14,886.0	89.40	359.40	12,335.8	2,362.0	439.8	1.38	-1.06	-0.85	-23.0	-10.7	
14,779.0	90.10	359.50	12,336.2	2,455.0	438.9	0.76	0.75	0.11	-22.4	-10.8	
14,872.0	90.90	359.10	12,335.4	2,548.0	437.8	0.96	0.86	-0.43	-23.1	-10.7	
14,966.0	89.20	359.00	12,335.3	2,642.0	436.2	1.81	-1.81	-0.11	-23.0	-10.1	
15,059.0	90.00	359.40	12,335.9	2,735.0	434.9	0.96	0.86	0.43	-22.1	-9.8	
15,154.0	91.10	359.90	12,335.0	2,830.0	434.3	1.27	1.16	0.53	-22.9	-10.3	
15,247.0	88.70	359.00	12,335.2	2,923.0	433.4	2.76	-2.58	-0.97	-22.5	-10.4	
15,341.0	89.50	359.30	12,336.7	3,017.0	432.0	0.91	0.85	0.32	-20.8	-10.0	
15,435.0	90.50	359.20	12,336.7	3,111.0	430.8	1.07	1.06	-0.11	-20.7	-9.8	
15,529.0	91.80	358.70	12,334.8	3,204.9	429.1	1.48	1.38	-0.53	-22.4	-9.1	
15,600.8	90.27	359.31	12,333.5	3,276.7	427.8	2.29	-2.13	0.85	-23.5	-8.6	
TGT 2 (Cobalt 32 State #708H)											
15,623.0	89.80	359.50	12,333.5	3,298.9	427.6	2.29	-2.13	0.85	-23.5	-8.6	
15,717.0	90.50	359.60	12,333.2	3,392.9	426.9	0.75	0.74	0.11	-23.4	-8.9	
15,810.0	92.10	359.80	12,331.1	3,485.9	426.4	1.73	1.72	0.22	-25.3	-9.4	
15,903.0	89.90	0.30	12,329.5	3,578.8	426.5	2.43	-2.37	0.54	-26.6	-10.5	
15,997.0	90.90	0.30	12,328.8	3,672.8	427.0	1.06	1.06	0.00	-27.0	-12.0	
16,091.0	91.20	0.20	12,327.1	3,766.8	427.4	0.34	0.32	-0.11	-28.4	-13.4	
16,184.0	92.80	0.50	12,323.9	3,859.8	427.9	1.75	1.72	0.32	-31.4	-15.0	
16,278.0	89.80	0.10	12,321.7	3,953.7	428.4	3.22	-3.19	-0.43	-33.3	-16.4	
16,371.0	90.60	0.50	12,321.4	4,046.7	428.9	0.96	0.86	0.43	-33.3	-17.9	
16,464.0	87.30	359.20	12,323.1	4,139.7	428.7	3.81	-3.55	-1.40	-31.3	-18.7	
16,549.0	87.30	359.60	12,327.1	4,224.6	427.8	0.47	0.00	0.47	-27.1	-18.7	
16,652.0	90.80	358.70	12,328.8	4,327.5	426.3	3.51	3.40	-0.87	-25.1	-18.3	
16,746.0	92.50	359.00	12,326.1	4,421.5	424.4	1.84	1.81	0.32	-27.5	-17.4	
16,839.0	92.30	357.20	12,322.2	4,514.3	421.3	1.95	-0.22	-1.94	-31.1	-15.3	
16,933.0	88.30	356.20	12,321.7	4,608.2	415.9	4.39	-4.26	-1.06	-31.3	-10.9	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #708H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3450.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3450.0usft
Well:	#708H	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)
17,027.0	85.60	354.30	12,326.7	4,701.7	408.1	3.51	-2.87	-2.02	-26.1	-4.2
17,121.0	92.80	357.10	12,328.0	4,795.4	401.1	8.22	7.66	2.98	-24.5	1.9
17,215.0	95.20	358.40	12,321.5	4,889.0	397.4	2.90	2.55	1.38	-30.7	4.6
17,236.0	95.40	358.40	12,319.5	4,909.9	396.8	0.95	0.95	0.00	-32.6	4.9
Final MWD Survey (MD=17236.0')										
17,289.6	95.40	358.40	12,314.5	4,963.3	395.3	0.00	0.00	0.00	-37.5	5.9
PBHL (Cobalt 32 State #708H)										
17,292.0	95.40	358.40	12,314.3	4,965.7	395.3	0.00	0.00	0.00	-37.7	5.9
Final Projection to Bit (MD=17292.0')										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,119.1	12,077.1	-97.1	486.1	HL Crossing, MD:12119.1', TVD:12077.1', N/S:-97.1', E/W:486.1', INC:32.52
17,236.0	12,319.5	4,909.9	396.8	Final MWD Survey (MD=17236.0')
17,292.0	12,314.3	4,965.7	395.3	Final Projection to Bit (MD=17292.0')

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------



Lea County, NM (NAD 83 NME)

Cobalt 32 State #708H

Plan #1

Lease Line
100' Hardline

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: #708H

KB = 25 @ 3450.0usft 3425.0
Northing 425616.00 Easting 799712.00 Latitude 32° 10' 2.427 N Longitude 103° 29' 53.980 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2965.0	0.00	0.00	2965.0	0.0	0.0	0.00	0.00	0.0	
3	3265.0	6.00	107.87	3264.5	-4.8	14.9	2.00	107.87	-3.6	
4	7547.5	6.00	107.87	7523.5	-142.2	441.1	0.00	0.00	-108.2	
5	7847.6	0.00	0.00	7823.0	-147.0	456.0	2.00	180.00	-109.8	
6	11923.1	0.00	0.00	11898.5	-147.0	456.0	0.00	0.00	-109.8	KOP (Cobalt 32 State #708H)
7	12680.0	90.83	359.39	12375.9	337.3	450.8	12.00	359.39	372.5	
8	13711.9	90.83	359.39	12361.0	1369.1	439.7	0.00	0.00	1400.1	TGT 1 (Cobalt 32 State #708H)
9	13747.6	90.11	359.39	12360.7	1404.8	439.3	2.00	180.00	1435.6	
10	15619.8	90.11	359.39	12357.0	3278.9	419.2	0.00	0.00	3300.0	TGT 2 (Cobalt 32 State #708H)
11	15622.8	90.17	359.39	12357.0	3279.7	419.2	0.00	0.09	3302.8	
12	17310.0	90.17	359.39	12352.0	4967.0	401.1	0.00	0.00	4963.2	PBHL (Cobalt 32 State #708H)

CASINO DETAILS

No casing data is available

WELLSBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
KOP (Cobalt 32 State #708H)	11898.5	-147.0	456.0	425616.00	800168.00
PBHL (Cobalt 32 State #708H)	12352.0	4967.0	401.1	425592.99	800113.11
TGT 1 (Cobalt 32 State #708H)	12361.0	3276.9	419.2	425892.80	800131.25
TGT 2 (Cobalt 32 State #708H)	12357.0	3278.9	419.2	425892.80	800131.25
FTP (Cobalt 32 State #708H)	12352.0	4967.0	401.1	425592.99	800113.11

