



HOBBS OCD

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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Cobalt 32 State

#707H

OH

Design: OH

Final PVA

02 November, 2018



Final PVA

Company: EOG Resources - Midland		Local Co-ordinate Reference: Well #707H	
Project: Lea County, NM (NAD 83 NME)		TVD Reference: KB = 25 @ 3449.0usft	
Site: Cobalt 32 State		MD Reference: KB = 25 @ 3449.0usft	
Well: #707H		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	Latitude: 32° 10' 2.406 N	
From: Map	Easting: 803,691.00 usft	Longitude: 103° 29' 7.689 W	
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.45 °	

Well #707H			
Well Position +N-S 0.0 usft	Northing: 425,616.00 usft	Latitude: 32° 10' 2.425 N	
+E-W 0.0 usft	Easting: 799,745.00 usft	Longitude: 103° 29' 53.596 W	
Position Uncertainty 0.0 usft	Wellhead Elevation: usft	Ground Level: 3,424.0 usft	

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2015	8/21/2018	6.79	60.01	47,791.03531754

Design OH				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	13.00

Survey Program Date 11/2/2018				
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
200.0	17,382.0	Total MWD #1 (OH)	MWD	OWSG MWD - Standard



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Well:	#707H	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	0.0
200.0	1.00	48.90	200.0	1.1	1.3	0.50	0.50	0.00	-1.7	0.0	0.0
353.0	1.00	42.90	353.0	3.0	3.2	0.07	0.00	-3.92	-4.4	-0.3	
537.0	1.10	50.90	536.9	5.3	5.7	0.10	0.05	4.35	-7.8	0.5	
693.0	1.10	60.70	692.9	7.0	8.2	0.12	0.00	6.28	-10.5	2.1	
890.0	2.10	58.50	889.8	9.8	12.9	0.51	0.51	-1.12	-16.1	1.6	
1,068.0	1.00	300.20	1,067.8	12.3	14.3	1.53	-0.62	-66.46	6.2	-17.8	
1,133.0	1.20	289.00	1,132.8	12.8	13.2	0.45	0.31	-17.23	8.3	-16.4	
1,260.0	1.00	269.60	1,259.8	13.2	10.8	0.33	-0.16	-15.28	10.9	-13.1	
1,449.0	1.40	252.00	1,448.7	12.5	7.0	0.29	0.21	-9.31	10.5	-9.7	
1,542.0	2.50	191.40	1,541.7	10.1	5.5	2.35	1.18	-65.16	11.0	3.3	
1,636.0	4.80	149.60	1,635.5	4.7	7.1	3.59	2.45	-44.47	1.9	6.7	
1,730.0	7.00	127.70	1,729.0	-2.2	13.6	3.31	2.34	-23.30	-5.5	2.7	
1,823.0	8.40	112.30	1,821.2	-8.2	24.4	2.67	1.51	-16.56	-10.3	-2.6	
1,917.0	11.20	103.50	1,913.8	-12.9	39.6	3.37	2.98	-9.36	-14.4	-6.6	
2,011.0	12.60	91.30	2,005.8	-15.3	58.7	3.05	1.49	-12.98	-17.5	-10.0	
2,104.0	11.90	88.50	2,096.7	-15.3	78.5	0.99	-0.75	-3.01	-19.6	-8.8	
2,198.0	11.60	89.30	2,188.7	-14.9	97.6	0.36	-0.32	0.85	-19.5	-5.9	
2,292.0	11.60	89.30	2,280.8	-14.7	116.5	0.00	0.00	0.00	-19.0	-3.4	
2,385.0	12.40	89.50	2,371.7	-14.5	135.8	0.86	0.86	0.22	-19.2	-0.8	
2,478.0	12.60	90.20	2,462.5	-14.4	156.0	0.27	0.22	0.75	-20.1	1.7	
2,573.0	11.90	101.90	2,555.4	-16.5	175.9	2.71	-0.74	12.32	-19.6	6.0	
2,667.0	11.80	100.00	2,647.4	-20.2	194.9	0.43	-0.11	-2.02	-19.6	3.9	
2,761.0	12.20	99.70	2,739.3	-23.5	214.1	0.43	0.43	-0.32	-19.6	2.8	
2,854.0	12.40	99.90	2,830.2	-26.9	233.6	0.22	0.22	0.22	-20.1	1.8	
2,947.0	12.50	99.10	2,921.0	-30.2	253.4	0.21	0.11	-0.86	-20.9	0.6	
3,041.0	12.30	98.70	3,012.8	-33.3	273.4	0.23	-0.21	-0.43	-21.5	-0.3	



Final PVA

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 Site: Cobalt 32 State
 Well: #707H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #707H
 TVD Reference: KB = 25 @ 3449.0usft
 MD Reference: KB = 25 @ 3449.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)
3,135.0	12.80	97.80	3,104.6	-36.2	293.6	0.57	0.53	-0.96	-22.4	-1.2
3,228.0	13.00	96.40	3,195.2	-38.8	314.2	0.40	0.22	-1.51	-23.8	-1.8
3,321.0	11.70	99.90	3,286.1	-41.6	333.9	1.61	-1.40	3.76	-24.5	-0.8
3,415.0	12.30	99.30	3,378.0	-44.8	353.1	0.65	0.64	-0.64	-24.5	-2.1
3,509.0	12.90	99.30	3,469.7	-48.2	373.4	0.64	0.64	0.00	-25.5	-2.9
3,603.0	11.30	100.20	3,561.7	-51.5	392.8	1.71	-1.70	0.96	-25.7	-3.6
3,697.0	10.60	99.70	3,653.9	-54.6	410.4	0.75	-0.74	-0.53	-24.0	-4.9
3,790.0	10.00	99.30	3,745.4	-57.3	426.8	0.65	-0.65	-0.43	-21.2	-6.0
3,885.0	9.90	101.30	3,839.0	-60.3	442.9	0.38	-0.11	2.11	-18.0	-6.5
3,978.0	10.70	95.60	3,930.5	-62.7	459.4	1.39	0.86	-6.13	-14.5	-8.7
4,071.0	10.90	95.90	4,021.9	-64.4	476.7	0.22	0.22	0.32	-12.6	-8.3
4,166.0	10.70	96.80	4,115.2	-66.4	494.4	0.28	-0.21	0.95	-10.7	-8.0
4,259.0	10.90	99.30	4,206.5	-68.8	511.6	0.55	0.22	2.69	-9.1	-8.0
4,353.0	10.40	102.10	4,298.9	-72.0	528.7	0.77	-0.53	2.98	-7.3	-8.9
4,447.0	12.10	93.30	4,391.1	-74.4	546.8	2.57	1.81	-9.36	-4.6	-10.0
4,540.0	12.90	95.50	4,481.9	-75.9	566.9	1.00	0.86	2.37	-5.8	-9.1
4,634.0	12.40	96.20	4,573.6	-78.0	587.4	0.56	-0.53	0.74	-7.0	-8.7
4,729.0	12.40	94.10	4,666.4	-79.9	607.7	0.47	0.00	-2.21	-7.3	-8.4
4,823.0	13.20	96.40	4,758.1	-81.8	628.4	1.01	0.85	2.45	-8.9	-7.6
4,917.0	14.10	99.40	4,849.4	-84.8	650.4	1.22	0.96	3.19	-12.0	-7.5
5,011.0	13.20	95.60	4,940.8	-87.8	672.4	1.35	-0.96	-4.04	-14.2	-8.6
5,105.0	12.80	93.30	5,032.4	-89.4	693.4	0.70	-0.43	-2.45	-15.5	-8.4
5,199.0	10.20	94.10	5,124.5	-90.6	712.1	2.77	-2.77	0.85	-14.8	-7.2
5,292.0	8.80	91.80	5,216.2	-91.4	727.5	1.56	-1.51	-2.47	-10.5	-6.4
5,386.0	9.00	94.20	5,309.1	-92.2	742.0	0.45	0.21	2.55	-5.7	-4.8
5,480.0	9.40	90.60	5,401.9	-92.8	757.0	0.75	0.43	-3.83	-0.9	-3.5
5,574.0	10.80	92.60	5,494.4	-93.3	773.6	1.64	1.60	2.13	2.0	-1.8



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

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5,667.0	11.20	94.00	5,585.7	-94.3	781.4	0.43	0.32	1.51	3.5	-0.7	
5,762.0	11.60	91.80	5,678.8	-95.3	810.1	0.62	0.42	-2.32	4.5	0.7	
5,855.0	11.30	90.10	5,769.9	-95.6	828.6	0.49	-0.32	-1.83	5.2	2.8	
5,949.0	10.80	89.80	5,862.2	-95.6	846.6	0.54	-0.53	-0.32	6.6	5.2	
6,043.0	11.60	89.40	5,954.4	-95.4	864.8	0.86	0.85	-0.43	7.8	7.6	
6,136.0	14.10	95.00	6,045.1	-96.3	885.5	3.00	2.69	6.02	7.1	8.4	
6,230.0	13.60	94.30	6,136.3	-98.1	907.9	0.56	-0.53	-0.74	4.0	9.1	
6,323.0	13.60	92.80	6,226.7	-99.5	929.7	0.38	0.00	-1.61	1.1	10.3	
6,417.0	13.30	92.40	6,318.1	-100.5	951.6	0.33	-0.32	-0.43	-1.4	11.7	
6,511.0	12.80	93.00	6,409.7	-101.5	972.8	0.55	-0.53	0.64	-3.0	13.1	
6,605.0	12.70	96.40	6,501.4	-103.2	993.4	0.81	-0.11	3.62	-3.5	14.0	
6,699.0	12.70	96.70	6,593.1	-105.5	1,014.0	0.07	0.00	0.32	-4.5	14.1	
6,793.0	12.80	96.20	6,684.8	-107.9	1,034.6	0.16	0.11	-0.53	-5.9	14.1	
6,887.0	13.10	95.50	6,776.4	-110.0	1,055.5	0.36	0.32	-0.74	-7.6	14.3	
6,981.0	13.20	94.90	6,867.9	-111.9	1,076.8	0.18	0.11	-0.64	-8.8	14.8	
7,075.0	13.10	94.10	6,959.5	-113.6	1,098.1	0.22	-0.11	-0.85	-11.7	15.4	
7,169.0	12.40	93.90	7,051.1	-115.1	1,118.8	0.75	-0.74	-0.21	-13.0	16.3	
7,263.0	11.60	93.30	7,143.1	-116.3	1,138.3	0.86	-0.85	-0.64	-13.2	17.2	
7,357.0	10.90	88.60	7,235.3	-116.6	1,156.7	1.23	-0.74	-5.00	-13.5	18.1	
7,450.0	8.10	93.40	7,327.0	-116.8	1,172.0	3.13	-3.01	5.16	-9.9	20.9	
7,545.0	6.20	100.20	7,421.3	-118.1	1,183.7	2.19	-2.00	7.16	-4.5	21.8	
7,638.0	5.40	101.70	7,513.8	-119.9	1,193.0	0.88	-0.86	1.61	-1.9	21.0	
7,732.0	3.60	94.00	7,607.5	-121.0	1,200.2	2.02	-1.91	-8.19	-3.6	20.4	
7,826.0	2.10	115.40	7,701.4	-121.9	1,204.7	1.93	-1.60	22.77	4.7	19.6	
7,920.0	2.70	192.70	7,795.3	-124.8	1,205.8	3.23	0.64	82.23	17.4	-0.9	
8,013.0	1.00	197.00	7,888.3	-127.7	1,205.1	1.83	-1.83	4.62	14.2	-2.2	
8,107.0	0.60	214.10	7,982.2	-128.9	1,204.6	0.49	-0.43	18.19	11.7	-6.0	



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8,201.0	0.50	214.50	8,076.2	-129.7	1,204.1	0.11	-0.11	0.43	10.8	-6.1	
8,295.0	0.50	218.00	8,170.2	-130.3	1,203.6	0.03	0.00	3.72	9.5	-6.7	
8,389.0	0.50	207.60	8,264.2	-131.0	1,203.1	0.10	0.00	-11.06	9.8	-5.0	
8,483.0	0.50	209.90	8,358.2	-131.8	1,202.7	0.02	0.00	2.45	8.8	-5.3	
8,577.0	0.50	215.50	8,452.2	-132.4	1,202.3	0.05	0.00	5.96	7.4	-6.1	
8,670.0	0.70	205.70	8,545.2	-133.3	1,201.8	0.24	0.22	-10.54	7.3	-4.8	
8,763.0	0.60	187.20	8,638.2	-134.3	1,201.5	0.25	-0.11	-19.89	7.5	-2.4	
8,857.0	0.60	193.10	8,732.2	-135.2	1,201.3	0.07	0.00	6.28	6.2	-3.2	
8,951.0	0.50	197.20	8,826.2	-136.1	1,201.1	0.11	-0.11	4.36	5.1	-3.6	
9,045.0	0.60	198.10	8,920.2	-137.0	1,200.8	0.11	0.11	0.96	4.1	-3.6	
9,139.0	0.70	199.90	9,014.2	-138.0	1,200.5	0.11	0.11	1.91	2.9	-3.7	
9,233.0	0.80	191.40	9,108.2	-139.2	1,200.2	0.16	0.00	-9.04	2.2	-3.3	
9,327.0	0.80	193.00	9,202.2	-140.5	1,199.9	0.02	0.11	1.70	0.8	-3.4	
9,421.0	0.80	184.70	9,296.2	-141.7	1,199.7	0.12	0.00	-8.83	0.0	-3.3	
9,515.0	1.00	180.80	9,390.2	-143.2	1,199.6	0.22	0.21	-4.15	-1.3	-3.4	
9,609.0	0.90	172.00	9,484.1	-144.8	1,199.7	0.19	-0.11	-9.36	-2.3	-3.7	
9,702.0	1.10	135.00	9,577.1	-146.1	1,200.4	0.71	0.22	-39.78	-1.1	-4.7	
9,796.0	1.30	109.00	9,671.1	-147.1	1,202.1	0.61	0.21	-27.66	-0.8	-5.1	
9,891.0	1.10	104.30	9,766.1	-147.7	1,204.0	0.23	-0.21	-4.95	-2.4	-5.3	
9,984.0	1.50	120.80	9,859.1	-148.5	1,205.9	0.58	0.43	17.74	-5.8	-4.1	
10,079.0	1.30	103.10	9,954.0	-149.4	1,208.0	0.50	-0.21	-18.63	-6.6	-6.1	
10,173.0	1.00	94.70	10,048.0	-149.7	1,209.9	0.37	-0.32	-8.94	-7.5	-7.1	
10,267.0	1.10	115.50	10,142.0	-150.2	1,211.5	0.42	0.11	22.13	-11.2	-3.7	
10,361.0	1.20	133.00	10,236.0	-151.2	1,213.0	0.39	0.11	18.62	-13.6	0.1	
10,455.0	1.00	209.80	10,330.0	-152.6	1,213.3	1.46	-0.21	81.70	-4.1	14.3	
10,550.0	1.70	230.70	10,425.0	-154.2	1,211.8	0.89	0.74	22.00	-0.9	15.1	
10,644.0	1.80	238.60	10,518.9	-155.9	1,209.5	0.28	0.11	8.40	-1.7	15.2	



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10,739.0	1.60	236.10	10,613.9	-157.4	1,207.1	0.22	-0.21	-2.63	-5.2	15.1	
10,833.0	0.80	213.90	10,707.8	-158.7	1,205.7	0.97	-0.85	-23.62	-12.3	11.5	
10,927.0	0.40	129.60	10,801.8	-159.4	1,205.6	0.91	-0.43	-89.68	-13.1	-11.8	
11,021.0	0.60	151.90	10,895.8	-160.1	1,206.0	0.29	0.21	23.72	-17.4	-5.8	
11,116.0	0.70	152.10	10,990.8	-161.0	1,206.6	0.11	0.11	0.21	-18.5	-5.8	
11,210.0	0.90	133.50	11,084.8	-162.0	1,207.4	0.35	0.21	-19.79	-17.0	-11.5	
11,303.0	1.40	128.50	11,177.8	-163.3	1,208.8	0.55	0.54	-5.38	-17.7	-13.0	
11,396.0	1.20	136.10	11,270.8	-164.7	1,210.3	0.28	-0.22	8.17	-21.4	-10.4	
11,490.0	0.80	144.80	11,364.8	-165.9	1,211.4	0.45	-0.43	9.26	-24.4	-6.9	
11,584.0	0.10	135.60	11,458.8	-166.5	1,211.8	0.75	-0.74	-9.79	-23.7	-10.8	
11,679.0	0.20	3.20	11,553.8	-166.4	1,211.9	0.29	0.11	-139.37	23.9	-10.3	
11,773.0	0.10	307.40	11,647.8	-166.2	1,211.8	0.18	-0.11	-59.36	21.7	13.8	
11,836.0	0.30	276.60	11,710.8	-166.1	1,211.6	0.35	0.32	-48.89	11.4	23.0	
11,971.0	1.80	359.70	11,845.7	-164.0	1,211.3	1.33	1.11	61.56	22.0	-8.2	
12,018.0	7.90	9.00	11,892.5	-160.0	1,211.8	13.04	12.98	19.79	16.4	-11.6	
12,025.1	8.93	9.62	11,899.6	-159.0	1,211.9	14.50	14.45	8.71	15.2	-11.7	
KOP (Cobalt 32 State #707H)											
12,065.0	14.70	11.50	11,938.6	-151.0	1,213.5	14.50	14.47	4.71	8.4	-12.5	
12,112.0	22.00	9.50	11,983.2	-136.4	1,216.1	15.59	15.53	-4.26	0.2	-13.4	
12,159.0	28.60	3.10	12,025.7	-116.5	1,218.2	15.18	14.04	-13.62	-8.0	-15.1	
12,205.2	33.81	359.06	12,065.2	-92.6	1,218.6	12.15	11.27	-8.74	-17.0	-16.4	
HL Crossing, MD:12205.2, TVD:12065.2, N/S:-92.6, E/W:1218.6, INC:33.81											
12,206.0	33.90	359.00	12,065.8	-92.1	1,218.6	12.15	11.40	-7.51	-17.1	-16.4	
12,253.0	37.70	358.70	12,103.9	-64.7	1,218.0	8.09	8.09	-0.64	-26.4	-16.3	
12,300.0	42.00	359.80	12,140.0	-34.6	1,217.6	9.27	9.15	2.34	-34.4	-15.7	
12,346.0	46.20	358.40	12,173.1	-2.6	1,217.1	9.37	9.13	-3.04	-40.4	-16.2	
12,393.0	48.90	356.10	12,204.8	32.1	1,215.4	6.78	5.74	-4.89	-44.3	-16.1	



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3449.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3449.0usft
Well:	#707H	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)	
12,403.5	49.86	356.52	12,211.6	40.1	1,214.9	9.62	9.13	4.01	-45.0	-15.4	
FTP (Cobalt 32 State #707H)											
12,440.0	53.20	357.90	12,234.3	68.6	1,213.5	9.62	9.16	3.78	-46.7	-13.6	
12,488.0	57.60	358.90	12,261.6	108.0	1,212.4	9.33	9.17	2.08	-47.3	-12.3	
12,535.0	61.60	1.30	12,285.3	148.6	1,212.5	9.58	8.51	5.11	-46.3	-12.0	
12,582.0	64.00	1.70	12,306.8	190.4	1,213.6	5.16	5.11	0.85	-42.5	-13.7	
12,628.0	66.20	0.90	12,326.2	232.1	1,214.6	5.04	4.78	-1.74	-35.6	-15.5	
12,675.0	72.60	359.40	12,342.7	276.0	1,214.7	13.94	13.62	-3.19	-27.3	-16.3	
12,722.0	80.00	359.80	12,353.8	321.7	1,214.4	15.77	15.74	0.85	-19.9	-16.4	
12,784.0	86.70	0.60	12,361.0	383.2	1,214.6	10.88	10.81	1.29	-12.3	-17.2	
12,815.0	87.00	0.40	12,362.7	414.2	1,214.8	1.16	0.97	-0.65	-10.2	-17.8	
12,909.0	90.20	358.30	12,365.0	508.1	1,213.8	4.07	3.40	-2.23	-6.4	-17.8	
13,003.0	90.20	358.10	12,364.7	602.1	1,210.8	0.21	0.00	-0.21	-5.2	-15.8	
13,097.0	90.20	359.30	12,364.4	696.0	1,208.7	1.28	0.00	1.28	-4.1	-14.7	
13,190.0	88.80	358.00	12,365.2	789.0	1,206.5	2.05	-1.51	-1.40	-1.8	-13.5	
13,284.0	88.90	358.50	12,367.1	882.9	1,203.6	0.54	0.11	0.53	1.6	-11.6	
13,379.0	91.50	359.20	12,366.7	977.9	1,201.7	2.83	2.74	0.74	2.7	-10.7	
13,472.0	91.50	358.40	12,364.3	1,070.9	1,199.8	0.86	0.00	-0.86	1.8	-9.8	
13,565.0	91.90	358.10	12,361.5	1,163.8	1,196.9	0.54	0.43	-0.32	0.5	-8.0	
13,659.0	90.90	357.10	12,359.2	1,257.7	1,193.0	1.50	-1.06	-1.06	-0.3	-5.0	
13,752.0	90.40	357.10	12,358.2	1,350.5	1,188.3	0.54	-0.54	0.00	0.1	-1.3	
13,821.5	92.17	357.91	12,358.6	1,420.0	1,185.3	2.81	2.55	1.17	-0.4	1.0	
TGT 1 (Cobalt 32 State #707H)											
13,846.0	92.80	358.20	12,355.6	1,444.4	1,184.4	2.81	2.55	1.17	-1.2	1.5	
13,940.0	92.80	2.60	12,351.0	1,538.3	1,185.1	4.68	0.00	4.68	-5.0	-0.1	
14,033.0	91.40	0.80	12,347.6	1,631.2	1,187.9	2.45	-1.51	-1.94	-7.6	-3.9	
14,127.0	92.70	6.60	12,344.2	1,724.9	1,193.9	6.32	1.38	6.17	-10.2	-10.9	



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3449.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3449.0usft
Well:	#707H	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)	Buid (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
14,220.0	91.50	8.00	12,340.8	1,817.1	1,205.7	1.98	-1.29	1.51	-12.9	-23.7	
14,312.0	90.10	1.10	12,339.5	1,908.7	1,213.0	7.65	-1.52	-7.50	-13.4	-32.0	
14,405.0	88.80	359.20	12,340.4	2,001.7	1,213.3	2.48	-1.40	-2.04	-11.7	-33.3	
14,498.0	92.10	356.90	12,339.7	2,094.6	1,210.1	4.32	3.55	-2.47	-11.7	-31.1	
14,592.0	90.30	356.90	12,337.7	2,188.4	1,205.0	1.91	-1.91	0.00	-12.9	-27.0	
14,686.0	91.00	356.20	12,336.6	2,282.3	1,199.4	1.05	0.74	-0.74	-13.2	-22.3	
14,779.0	96.00	356.10	12,331.0	2,374.9	1,193.1	5.38	5.38	-0.11	-18.1	-17.1	
14,872.0	96.00	355.70	12,321.2	2,467.1	1,186.5	0.43	0.00	-0.43	-27.0	-11.5	
14,966.0	92.90	358.30	12,313.9	2,560.7	1,181.6	4.30	-3.30	2.77	-33.5	-7.6	
15,059.0	90.40	359.20	12,311.3	2,653.6	1,179.6	2.86	-2.69	0.97	-35.4	-6.6	
15,154.0	89.80	359.20	12,311.1	2,748.6	1,178.3	0.63	-0.63	0.00	-34.8	-6.3	
15,247.0	90.10	359.80	12,311.2	2,841.6	1,177.5	0.72	0.32	0.65	-34.0	-6.5	
15,341.0	90.00	0.30	12,311.1	2,935.6	1,177.5	0.54	-0.11	0.53	-33.3	-7.6	
15,435.0	89.70	0.60	12,311.3	3,029.6	1,178.3	0.45	-0.32	0.32	-32.2	-9.3	
15,529.0	89.90	0.70	12,311.7	3,123.6	1,179.3	0.24	0.21	0.11	-31.1	-11.4	
15,623.0	90.60	0.90	12,311.3	3,217.6	1,180.7	0.77	0.74	0.21	-30.8	-13.7	
15,625.0	90.61	0.90	12,311.2	3,219.6	1,180.7	0.65	0.64	0.11	-30.8	-13.7	
TGT 2 (Cobalt 32 State #707H)											
15,717.0	91.20	1.00	12,309.8	3,311.6	1,182.2	0.65	0.64	0.11	-31.6	-16.3	
15,810.0	91.90	0.20	12,307.3	3,404.5	1,183.2	1.14	0.75	-0.86	-33.6	-18.2	
15,903.0	91.60	0.10	12,304.4	3,497.5	1,183.4	0.34	-0.32	-0.11	-35.8	-19.5	
15,997.0	89.10	358.50	12,303.9	3,591.4	1,182.3	3.16	-2.66	-1.70	-35.8	-19.3	
16,091.0	89.50	358.90	12,305.0	3,685.4	1,180.1	0.60	0.43	0.43	-34.1	-18.2	
16,184.0	90.80	358.90	12,304.8	3,778.4	1,178.4	1.40	1.40	0.00	-33.7	-17.4	
16,278.0	90.60	0.10	12,303.6	3,872.4	1,177.5	1.29	-0.21	1.28	-34.3	-17.6	
16,371.0	92.00	1.50	12,301.5	3,965.3	1,178.8	2.13	1.51	1.51	-35.8	-19.9	
16,464.0	90.80	1.90	12,299.2	4,058.3	1,181.6	1.36	-1.29	0.43	-37.5	-23.7	



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3448.0usft
Site:	Cobalt 32 State	MD Reference:	KB = 25 @ 3449.0usft
Well:	#707H	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)	Bulk (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
16,558.0	90.50	1.00	12,298.2	4,152.2	1,184.0	1.01	-0.32	-0.96	-38.0	-27.0
16,652.0	87.10	359.00	12,300.1	4,246.2	1,184.0	4.20	-3.62	-2.13	-35.4	-28.1
16,746.0	85.10	357.10	12,306.5	4,339.9	1,180.8	2.93	-2.13	-2.02	-28.4	-26.0
16,839.0	89.40	357.40	12,311.0	4,432.7	1,176.3	4.63	4.62	0.32	-23.4	-22.4
16,933.0	91.50	358.60	12,310.2	4,526.6	1,173.1	2.57	2.23	1.28	-23.6	-20.1
17,027.0	94.00	358.80	12,305.7	4,620.5	1,170.9	2.67	2.66	0.21	-27.5	-19.0
17,121.0	93.80	358.70	12,299.3	4,714.2	1,168.9	0.24	-0.21	-0.11	-33.3	-18.0
17,215.0	92.90	359.30	12,293.8	4,808.1	1,167.2	1.15	-0.96	0.64	-38.2	-17.4
17,308.0	93.10	359.90	12,289.0	4,900.9	1,166.6	0.68	0.22	0.65	-42.5	-17.7
17,326.0	93.90	0.20	12,287.9	4,918.9	1,166.6	4.75	4.44	1.67	-43.5	-17.9
Final MWD Survey (MD=17326.0')										
17,379.0	93.90	0.20	12,284.3	4,971.7	1,166.8	0.00	0.00	0.00	-46.7	-18.7
PBHL (Cobalt 32 State #707H)										
17,382.0	93.90	0.20	12,284.1	4,974.8	1,166.8	0.00	0.00	0.00	-46.9	-18.7
Final Projection to Bit (MD=17382.0')										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
12,205.2	12,065.2	-92.6	1,218.6	HL Crossing, MD:12205.2', TVD:12065.2', N/S:-92.6', E/W:1218.6', INC:33.81
17,326.0	12,287.9	4,918.9	1,166.6	Final MWD Survey (MD=17326.0')
17,382.0	12,284.1	4,974.8	1,166.8	Final Projection to Bit (MD=17382.0')

Checked By: _____ Approved By: _____ Date: _____



Lea County, NM (NAD 83 NME)

Cobalt 32 State #707H

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: #707H

KB = 25 @ 3449.0usft
Northing 425616.00 Easting 799745.00 Latitude 32° 10' 2.423 N Longitude 103° 29' 53.596 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSeet	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1520.0	0.00	0.00	1520.0	0.0	0.0	0.00	0.00	0.0	
3	2120.2	12.00	96.73	2115.9	-7.3	62.2	2.00	96.73	6.8	
4	7341.7	12.00	96.73	7223.1	-134.7	1140.8	0.00	0.00	125.3	
5	7942.0	0.00	0.00	7819.0	-142.0	1203.0	0.00	180.00	132.2	KOP (Cobalt 32 State #707H)
6	12019.6	0.00	0.00	11896.6	-142.0	1203.0	0.00	0.00	132.2	
7	12777.1	90.90	359.39	12374.0	343.0	1197.8	12.00	359.39	603.5	TGT 1 (Cobalt 32 State #707H)
8	13854.3	90.90	359.39	12357.0	1420.0	1186.2	0.00	0.00	1650.4	
9	13875.8	90.47	359.39	12356.7	1441.5	1188.0	2.00	-180.00	1671.3	
10	15654.8	90.47	359.39	12342.0	3220.3	1166.9	0.00	0.00	3400.2	TGT 2 (Cobalt 32 State #707H)
11	15660.6	90.36	359.39	12342.0	3220.1	1166.9	2.00	179.96	3405.9	
12	17409.6	90.36	359.39	12331.0	4975.0	1148.1	0.00	0.00	5105.7	PBHL (Cobalt 32 State #707H)

CASINO DETAILS

No casing data is available

WELLBONE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP (Cobalt 32 State #707H)	11896.6	-142.0	1203.0	425474.00	800944.00
Inter @ 12311.2 (#707H OH Plan #0.1)	12311.2	4884.9	1149.7	430500.90	800894.72
PBHL (Cobalt 32 State #707H)	12331.0	4975.0	1148.1	430590.88	800893.11
TGT 1 (Cobalt 32 State #707H)	12342.0	3220.3	1166.9	429636.30	800911.93
TGT 2 (Cobalt 32 State #707H)	12357.0	1420.0	1186.2	427036.00	800931.24
FTP (Cobalt 32 State #707H)	12374.0	-82.0	1203.0	425524.00	800948.00

