

HOBBS OCD
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Cobalt 32 State

#702H

OH

Design: OH

PVA Report

26 February, 2018

PVA Report

Company:	EOG Resources - Midland			Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)			TVD Reference:	KB= 25' @ 3441.0usft (HP 653)
Site:	Cobalt 32 State			MD Reference:	KB= 25' @ 3441.0usft (HP 653)
Well:	#702H			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	#702H					
Well Position	+N/-S	0.0 usft	Northing:	425,895.00 usft	Latitude:	32° 10' 4.884 N
	+E/-W	0.0 usft	Easting:	803,638.00 usft	Longitude:	103° 29' 8.283 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,416.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/7/2017	6.86	60.02	47,865.22843719

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	357.82	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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Survey Program		Date	2/26/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
204.0	1,180.0	Olebrook MWD (OH)	MWD	OWSG MWD - Standard	
1,289.0	17,173.0	Drillech MWD (OH)	MWD	OWSG MWD - Standard	

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	
204.0	1.23	67.05	204.0	0.9	2.0	0.60	0.60	0.00	-2.2	0.0	
265.0	0.53	330.63	265.0	1.4	2.5	2.28	-1.15	-158.07	0.0	-2.8	
389.0	0.62	134.81	389.0	1.4	2.7	0.92	0.07	132.40	-0.9	2.9	
485.0	0.97	18.18	485.0	1.8	3.3	1.42	0.36	-121.49	-2.7	-2.6	
578.0	0.88	49.74	578.0	3.0	4.1	0.55	-0.10	33.94	-5.1	-0.4	
672.0	0.88	332.58	672.0	4.1	4.3	1.17	0.00	-82.09	-1.7	-5.7	
799.0	1.06	8.87	798.9	6.1	4.0	0.49	0.14	28.57	-6.7	-3.0	
894.0	1.06	353.75	893.9	7.9	4.1	0.29	0.00	-15.92	-7.4	-4.9	
1,020.0	0.62	298.29	1,019.9	9.4	3.4	0.69	-0.35	-44.02	-1.5	-9.8	
1,083.0	0.44	30.75	1,082.9	9.7	3.2	1.23	-0.29	146.76	-10.0	2.2	
1,146.0	1.06	7.64	1,145.9	10.5	3.4	1.08	0.98	-36.68	-10.9	-1.9	
1,180.0	1.06	325.36	1,179.9	11.1	3.2	2.25	0.00	-124.35	-7.3	-9.0	
1,289.0	1.06	344.44	1,288.9	12.9	2.4	0.32	0.00	17.51	-11.8	-5.8	
1,475.0	0.79	220.34	1,474.9	13.6	1.1	0.88	-0.15	-66.72	11.1	-7.9	
1,632.0	0.62	206.89	1,631.9	12.0	0.0	0.15	-0.11	-8.57	10.7	-5.4	
1,821.0	0.70	207.15	1,820.8	10.0	-1.0	0.04	0.04	0.14	8.5	-5.4	
1,916.0	0.79	190.10	1,915.8	8.9	-1.4	0.25	0.09	-17.95	8.5	-2.9	
2,106.0	0.70	200.91	2,105.8	6.5	-2.0	0.09	-0.05	5.69	5.4	-4.2	
2,296.0	0.70	197.13	2,295.8	4.3	-2.8	0.02	0.00	-1.99	3.3	-3.9	
2,486.0	0.88	185.18	2,485.8	1.7	-3.2	0.13	0.09	-6.29	1.5	-3.4	

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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)	
2,581.0	0.88	179.20	2,580.8	0.3	-3.3	0.10	0.00	-6.29	0.3	-3.3	
2,771.0	1.23	153.01	2,770.7	-3.0	-2.3	0.31	0.18	-13.78	-1.6	-3.4	
2,866.0	2.20	143.70	2,865.7	-5.4	-0.8	1.06	1.02	-9.80	-3.9	-3.8	
3,056.0	3.25	139.92	3,055.5	-12.4	4.8	0.56	0.55	-1.99	-12.1	-3.5	
3,246.0	3.43	148.27	3,245.2	-21.4	11.3	0.27	0.09	4.39	-19.2	4.0	
3,435.0	3.61	147.74	3,433.8	-31.2	17.4	0.10	0.10	-0.28	-26.5	8.8	
3,626.0	4.84	168.83	3,624.3	-44.2	22.2	1.03	0.64	11.04	-29.4	23.1	
3,815.0	4.22	202.76	3,812.7	-58.4	21.1	1.43	-0.33	17.95	-18.5	39.3	
4,005.0	4.31	201.35	4,002.2	-71.5	15.8	0.07	0.05	-0.74	-27.0	38.2	
4,195.0	4.13	195.02	4,191.7	-84.8	11.4	0.26	-0.09	-3.33	-38.4	34.5	
4,385.0	3.61	185.97	4,381.3	-97.4	9.0	0.42	-0.27	-4.76	-49.6	28.2	
4,480.0	3.52	205.39	4,476.1	-103.0	7.4	1.27	-0.09	20.44	-39.8	43.6	
4,670.0	3.78	188.70	4,665.7	-114.4	4.0	0.57	0.14	-8.78	-56.0	29.6	
4,765.0	3.87	218.05	4,760.5	-120.0	1.5	2.04	0.09	30.89	-37.1	53.6	
4,960.0	4.57	186.15	4,955.0	-133.0	-3.4	1.24	0.36	-16.36	-66.5	23.7	
5,055.0	5.01	192.39	5,049.7	-140.8	-4.6	0.72	0.46	6.57	-68.1	31.5	
5,182.0	4.31	190.98	5,176.2	-150.9	-6.7	0.56	-0.55	-1.11	-74.7	30.1	
5,316.0	3.52	193.62	5,309.9	-159.8	-8.7	0.60	-0.59	1.97	-73.1	34.3	
5,506.0	3.43	188.78	5,499.6	-171.1	-10.9	0.16	-0.05	-2.55	-63.3	31.2	
5,696.0	8.09	200.82	5,688.6	-189.2	-16.5	2.52	2.45	6.34	-44.8	42.8	
5,886.0	7.39	203.90	5,876.8	-212.9	-26.2	0.43	-0.37	1.62	-38.4	42.3	
6,076.0	6.86	203.64	6,065.4	-234.5	-35.7	0.28	-0.28	-0.14	-32.6	38.7	
6,266.0	6.60	206.45	6,254.1	-254.6	-45.2	0.22	-0.14	1.48	-23.5	35.9	
6,456.0	6.95	213.66	6,442.7	-274.0	-56.4	0.48	0.18	3.79	-12.6	31.5	
6,646.0	7.56	216.20	6,631.2	-293.6	-70.1	0.36	0.32	1.34	-7.1	22.8	
6,836.0	9.41	209.88	6,819.1	-317.2	-85.3	1.09	0.97	-3.33	-8.5	13.9	
7,026.0	8.88	210.05	7,006.7	-343.3	-100.3	0.28	-0.28	0.09	-9.7	7.3	

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7,216.0	8.09	211.46	7,194.6	-367.4	-114.7	0.43	-0.42	0.74	-8.7	0.5	
7,406.0	4.48	200.82	7,383.5	-385.8	-124.3	1.99	-1.90	-5.60	0.5	-5.5	
7,596.0	4.31	199.51	7,572.9	-399.5	-129.3	0.10	-0.09	-0.69	11.7	-6.7	
7,786.0	1.49	150.46	7,762.7	-408.3	-130.5	1.85	-1.48	-25.82	14.6	8.6	
7,976.0	1.67	148.27	7,952.6	-412.8	-127.8	0.10	0.09	-1.15	10.2	10.4	
8,166.0	1.93	156.00	8,142.5	-418.1	-125.0	0.19	0.14	4.07	5.6	9.3	
8,356.0	1.85	159.25	8,332.4	-423.9	-122.7	0.07	-0.04	1.71	-0.2	9.2	
8,546.0	1.49	170.24	8,522.3	-429.2	-121.2	0.25	-0.19	5.78	-3.9	9.6	
8,736.0	1.49	322.03	8,712.3	-429.7	-122.3	1.52	0.00	79.89	7.7	-5.5	
8,926.0	1.32	303.66	8,902.2	-426.5	-125.6	0.25	-0.09	-9.67	4.5	-3.5	
9,116.0	1.32	288.63	9,092.2	-424.6	-129.5	0.18	0.00	-7.91	1.0	-2.8	
9,306.0	1.67	280.45	9,282.1	-423.4	-134.3	0.22	0.18	-4.31	-3.6	-3.0	
9,496.0	2.29	280.28	9,472.0	-422.2	-140.7	0.33	0.33	-0.09	-10.1	-3.0	
9,686.0	2.20	261.29	9,661.9	-422.1	-148.1	0.39	-0.05	-9.99	-15.8	-7.4	
9,876.0	0.70	305.59	9,851.8	-422.0	-152.6	0.93	-0.79	23.32	-20.3	8.3	
10,065.0	0.70	59.58	10,040.8	-420.7	-152.6	0.62	0.00	60.31	15.2	16.2	
10,255.0	0.97	125.94	10,230.8	-421.1	-150.3	0.50	0.14	34.93	18.8	-6.4	
10,445.0	0.53	155.56	10,420.8	-422.8	-148.6	0.30	-0.23	15.59	10.9	-14.0	
10,635.0	0.97	158.46	10,610.8	-425.1	-147.7	0.23	0.23	1.53	7.7	-14.5	
10,825.0	0.79	296.01	10,800.7	-426.1	-148.2	0.86	-0.09	72.39	-15.6	6.6	
11,015.0	0.18	124.89	10,990.7	-425.7	-149.2	0.51	-0.32	-90.06	15.4	-9.1	
11,204.0	1.32	65.21	11,179.7	-424.9	-147.0	0.66	0.60	-31.58	13.3	8.5	
11,394.0	2.29	68.81	11,369.6	-422.6	-141.4	0.51	0.51	1.89	7.9	7.7	
11,584.0	1.76	44.20	11,559.5	-419.2	-135.9	0.53	-0.28	-12.95	-2.4	8.7	
11,676.0	1.67	32.07	11,651.5	-417.0	-134.2	0.41	-0.10	-13.18	-6.9	7.7	
11,804.0	1.14	34.27	11,779.4	-414.4	-132.4	0.42	-0.41	1.72	-9.8	8.1	
11,899.0	2.46	27.59	11,874.4	-411.8	-131.0	1.40	1.39	-7.03	-13.6	6.8	

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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)	
11,901.0	2.69	25.14	11,876.3	-411.7	-130.9	13.10	11.82	-125.62	-14.0	6.2	
KOP(Cobalt 32 State #702H)											
11,994.0	14.68	5.09	11,968.2	-397.9	-129.0	13.10	12.89	-21.55	-20.3	-0.7	
12,042.0	20.75	2.54	12,013.9	-383.4	-128.0	12.75	12.65	-5.31	-23.2	-2.5	
12,089.0	23.04	3.95	12,057.5	-365.9	-127.0	5.00	4.87	3.00	-24.6	-3.1	
12,137.0	28.14	6.94	12,100.7	-345.3	-125.0	10.96	10.62	6.23	-24.3	-4.3	
12,184.0	32.62	8.43	12,141.3	-321.7	-121.8	9.67	9.53	3.17	-23.0	-7.5	
12,231.0	37.90	7.55	12,179.6	-294.8	-118.1	11.29	11.23	-1.87	-20.7	-12.2	
12,280.0	44.58	6.50	12,216.5	-262.8	-114.1	13.71	13.63	-2.14	-18.2	-17.1	
12,375.0	57.60	4.04	12,276.0	-189.3	-107.5	13.85	13.71	-2.59	-14.3	-25.3	
12,421.0	65.60	1.84	12,297.9	-149.0	-105.5	17.89	17.39	-4.78	-13.6	-28.0	
12,450.6	69.80	0.76	12,309.1	-121.6	-104.8	14.57	14.18	-3.66	-14.0	-29.0	
HL Crossing, MD:12450.6', TVD:12309.1', N/S:-121.6', E/W:-104.8', INC:69.80											
12,465.2	71.86	0.25	12,313.9	-107.9	-104.7	14.57	14.19	-3.51	-14.3	-29.3	
FTP(Cobalt 32 State #702H)											
12,470.0	72.55	0.08	12,315.4	-103.2	-104.7	14.57	14.20	-3.45	-14.4	-29.4	
12,517.0	80.55	358.94	12,326.3	-57.6	-105.1	17.18	17.02	-2.43	-16.8	-29.5	
12,592.0	89.16	0.08	12,333.0	17.1	-105.7	11.58	11.48	1.52	-21.8	-29.4	
12,687.0	89.69	356.30	12,334.0	112.0	-108.7	4.02	0.56	-3.98	-21.3	-27.2	
12,782.0	89.43	353.75	12,334.7	206.6	-117.0	2.70	-0.27	-2.68	-19.1	-19.8	
12,877.0	89.08	351.03	12,335.9	300.8	-129.6	2.89	-0.37	-2.86	-16.5	-8.0	
12,972.0	92.77	353.84	12,334.4	394.9	-142.1	4.88	3.88	2.96	-16.6	3.6	
13,003.0	93.74	356.48	12,332.6	425.7	-144.7	9.06	3.13	8.52	-17.9	5.9	
13,035.0	94.44	357.01	12,330.4	457.6	-146.5	2.74	2.19	1.66	-19.7	7.5	
13,067.0	94.97	357.88	12,327.7	489.5	-147.9	3.18	1.66	2.72	-21.8	8.6	
13,130.0	93.47	358.76	12,323.1	552.3	-149.7	2.76	-2.38	1.40	-25.5	9.9	
13,162.0	93.03	359.55	12,321.3	584.2	-150.2	2.82	-1.37	2.47	-26.9	10.1	
13,193.0	93.21	359.99	12,319.6	615.2	-150.3	1.53	0.58	1.42	-28.1	10.0	

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13,257.0	94.26	0.79	12,315.4	679.0	-149.9	2.06	1.64	1.25	-31.3	9.0	
13,320.0	91.98	2.19	12,312.0	741.9	-148.3	4.25	-3.62	2.22	-33.8	6.7	
13,352.0	90.84	2.10	12,311.2	773.9	-147.1	3.57	-3.56	-0.28	-34.1	5.3	
13,367.0	90.13	2.10	12,311.1	788.9	-146.5	4.73	-4.73	0.00	-34.0	4.6	
13,383.0	89.34	1.93	12,311.2	804.8	-146.0	5.05	-4.94	-1.06	-33.7	3.9	
13,401.0	87.58	1.49	12,311.6	822.8	-145.4	10.08	-9.78	-2.44	-32.9	3.2	
13,415.0	87.23	1.66	12,312.3	836.8	-145.0	2.78	-2.50	1.21	-32.1	2.7	
13,447.0	85.30	1.14	12,314.4	868.7	-144.3	6.25	-6.03	-1.62	-29.5	1.6	
13,478.0	85.12	1.31	12,316.9	899.6	-143.6	0.80	-0.58	0.55	-26.5	0.7	
13,510.0	85.56	1.40	12,319.5	931.5	-142.8	1.40	1.37	0.28	-23.4	-0.3	
13,542.0	88.02	1.05	12,321.3	963.4	-142.2	7.76	7.69	-1.09	-21.1	-1.3	
13,574.0	89.43	0.79	12,322.0	995.4	-141.6	4.48	4.41	-0.81	-20.0	-2.1	
13,574.7	89.43	0.79	12,322.1	996.1	-141.6	0.00	0.00	0.00	-19.9	-2.1	
TGT 1(Cobalt 32 State #702H)											
13,605.0	89.60	0.87	12,322.3	1,026.4	-141.2	0.62	0.56	0.26	-19.4	-2.8	
13,637.0	89.96	0.79	12,322.4	1,058.4	-140.7	1.15	1.12	-0.25	-18.9	-3.5	
13,732.0	90.31	1.31	12,322.2	1,153.4	-139.0	0.66	0.37	0.55	-18.2	-6.1	
13,827.0	89.52	0.61	12,322.3	1,248.4	-137.4	1.11	-0.83	-0.74	-17.1	-8.5	
13,922.0	89.52	0.70	12,323.1	1,343.4	-136.3	0.09	0.00	0.09	-15.4	-10.4	
14,017.0	88.64	1.22	12,324.7	1,438.4	-134.7	1.08	-0.93	0.55	-12.9	-12.8	
14,112.0	87.67	0.43	12,327.7	1,533.3	-133.4	1.32	-1.02	-0.83	-8.9	-15.0	
14,207.0	91.63	359.55	12,328.3	1,628.3	-133.4	4.27	4.17	-0.93	-7.4	-15.8	
14,227.0	91.89	359.38	12,327.7	1,648.3	-133.6	1.55	1.30	-0.85	-7.8	-15.8	
14,302.0	91.45	359.82	12,325.5	1,723.2	-134.1	0.83	-0.59	0.59	-9.2	-16.0	
14,333.0	90.57	359.29	12,325.0	1,754.2	-134.3	3.31	-2.84	-1.71	-9.4	-16.0	
14,397.0	91.19	358.59	12,324.0	1,818.2	-135.5	1.46	0.97	-1.09	-9.8	-15.3	
14,428.0	92.33	358.15	12,323.0	1,849.2	-136.4	3.94	3.68	-1.42	-10.4	-14.7	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25' @ 3441.0usft (HP 653)
Site:	Cobalt 32 State	MD Reference:	KB= 25' @ 3441.0usft (HP 653)
Well:	#702H	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)	
14,491.0	93.30	357.80	12,319.9	1,912.1	-138.6	1.64	1.54	-0.56	-12.9	-13.1	
14,574.6	92.29	358.80	12,315.9	1,995.6	-141.1	1.70	-1.21	1.20	-16.1	-11.3	
TGT 2(Cobalt 32 State #702H)											
14,586.0	92.15	358.94	12,315.4	2,006.9	-141.3	1.70	-1.21	1.20	-16.5	-11.2	
14,681.0	91.36	359.47	12,312.5	2,101.9	-142.6	1.00	-0.83	0.56	-18.2	-10.7	
14,776.0	91.63	359.38	12,310.0	2,196.8	-143.6	0.30	0.28	-0.09	-19.6	-10.6	
14,871.0	89.25	0.79	12,309.3	2,291.8	-143.4	2.91	-2.51	1.48	-19.2	-11.5	
14,966.0	89.16	0.43	12,310.6	2,386.8	-142.4	0.39	-0.09	-0.38	-16.7	-13.4	
14,997.0	89.60	0.17	12,311.0	2,417.8	-142.3	1.65	1.42	-0.84	-16.0	-13.8	
15,061.0	90.57	359.99	12,310.9	2,481.8	-142.2	1.54	1.52	-0.28	-15.3	-14.4	
15,156.0	90.13	358.15	12,310.3	2,576.8	-143.7	1.99	-0.46	-1.94	-14.8	-13.7	
15,251.0	92.86	1.22	12,307.8	2,671.7	-144.2	4.32	2.87	3.23	-16.1	-14.0	
15,346.0	90.66	359.91	12,304.9	2,766.7	-143.3	2.69	-2.32	-1.38	-17.9	-15.8	
15,440.0	91.19	359.47	12,303.4	2,860.6	-143.8	0.73	0.56	-0.47	-18.3	-16.1	
15,472.0	91.63	359.20	12,302.6	2,892.6	-144.2	1.61	1.37	-0.84	-18.7	-16.0	
15,536.0	91.01	359.20	12,301.1	2,956.6	-145.1	0.97	-0.97	0.00	-19.4	-15.7	
15,575.3	90.83	359.27	12,300.5	2,995.9	-145.6	0.50	-0.46	0.19	-19.5	-15.5	
TGT 3(Cobalt 32 State #702H)											
15,631.0	90.57	359.38	12,299.8	3,051.6	-146.3	0.50	-0.46	0.19	-19.2	-15.3	
15,726.0	90.31	359.20	12,299.1	3,146.6	-147.4	0.33	-0.27	-0.19	-18.0	-15.0	
15,821.0	91.36	358.85	12,297.7	3,241.6	-149.1	1.17	1.11	-0.37	-17.5	-14.2	
15,916.0	88.29	359.03	12,298.0	3,336.5	-150.8	3.24	-3.23	0.19	-15.3	-13.3	
15,943.0	84.33	357.62	12,299.7	3,363.5	-151.6	15.56	-14.67	-5.22	-12.9	-12.8	
15,979.0	83.80	358.06	12,303.4	3,399.2	-152.9	1.91	-1.47	1.22	-8.5	-11.7	
16,011.0	83.80	358.24	12,306.9	3,431.0	-154.0	0.56	0.00	0.56	-4.4	-10.9	
16,026.0	85.30	358.59	12,308.3	3,446.0	-154.4	10.27	10.00	2.33	-2.7	-10.6	
16,042.0	87.49	358.76	12,309.3	3,461.9	-154.8	13.73	13.69	1.06	-1.4	-10.4	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25' @ 3441.0usft (HP 653)
Site:	Cobalt 32 State	MD Reference:	KB= 25' @ 3441.0usft (HP 653)
Well:	#702H	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)	
16,074.0	91.80	358.94	12,309.5	3,493.9	-155.4	13.48	13.47	0.56	-0.6	-10.0	
16,105.0	94.00	358.85	12,307.9	3,524.9	-156.0	7.10	7.10	-0.29	-1.5	-9.7	
16,137.0	93.91	358.59	12,305.7	3,556.8	-156.7	0.86	-0.28	-0.81	-3.1	-9.3	
16,169.0	91.98	358.06	12,304.1	3,588.7	-157.6	6.25	-6.03	-1.66	-4.1	-8.6	
16,200.0	91.98	357.71	12,303.0	3,619.7	-158.8	1.13	0.00	-1.13	-4.6	-7.7	
16,232.0	92.07	358.24	12,301.9	3,651.6	-159.9	1.68	0.28	1.66	-5.0	-6.9	
16,263.0	92.51	357.80	12,300.7	3,682.6	-161.0	2.01	1.42	-1.42	-5.7	-6.1	
16,295.0	91.80	358.32	12,299.4	3,714.6	-162.1	2.75	-2.22	1.62	-6.2	-5.3	
16,327.0	91.10	359.55	12,298.6	3,746.5	-162.7	4.42	-2.19	3.84	-6.4	-5.0	
16,390.0	90.31	1.14	12,297.9	3,809.5	-162.3	2.82	-1.25	2.52	-5.9	-5.9	
16,422.0	89.34	1.93	12,298.0	3,841.5	-161.4	3.91	-3.03	2.47	-5.2	-7.0	
16,453.0	89.16	1.93	12,298.4	3,872.5	-160.4	0.58	-0.58	0.00	-4.1	-8.3	
16,485.0	88.55	1.40	12,299.0	3,904.5	-159.5	2.53	-1.91	-1.66	-2.8	-9.5	
16,516.0	87.49	1.31	12,300.1	3,935.4	-158.7	3.43	-3.42	-0.29	-1.2	-10.5	
16,548.0	88.37	1.05	12,301.2	3,967.4	-158.1	2.87	2.75	-0.81	0.6	-11.5	
16,576.8	88.85	0.82	12,301.9	3,996.2	-157.6	1.84	1.66	-0.81	1.9	-12.2	
TGT 4(Cobalt 32 State #702H)											
16,580.0	88.90	0.79	12,302.0	3,999.4	-157.5	1.84	1.66	-0.81	2.1	-12.3	
16,617.0	89.16	0.35	12,302.6	4,036.4	-157.2	1.38	0.70	-1.19	3.7	-13.0	
16,675.0	88.99	1.14	12,303.6	4,094.4	-156.4	1.39	-0.29	1.36	6.6	-14.2	
16,770.0	91.01	359.99	12,303.6	4,189.4	-155.5	2.45	2.13	-1.21	9.8	-16.0	
16,864.0	90.84	358.59	12,302.0	4,283.4	-156.7	1.50	-0.18	-1.49	11.5	-15.6	
16,959.0	90.04	356.21	12,301.3	4,378.2	-161.0	2.64	-0.84	-2.51	13.9	-12.2	
16,996.0	93.30	356.74	12,300.2	4,415.2	-163.2	8.93	8.81	1.43	14.1	-10.2	
17,054.0	92.24	350.50	12,297.4	4,472.7	-169.7	10.90	-1.83	-10.76	13.2	-4.3	
17,078.4	92.54	350.00	12,296.4	4,496.7	-173.8	2.39	1.22	-2.06	13.0	-0.4	
HL Crossing, MD:17078.4', TVD:12296.4', N/S:4496.7', E/W:-173.8', INC:92.54											

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25' @ 3441.0usft (HP 653)
Site:	Cobalt 32 State	MD Reference:	KB= 25' @ 3441.0usft (HP 653)
Well:	#702H	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)
17,105.0	92.86	349.45	12,295.2	4,522.9	-178.5	2.39	1.22	-2.06	12.7	4.0
Final MWD Survey (MD=17105.0')										
17,173.0	92.86	349.45	12,291.8	4,589.6	-191.0	0.00	0.00	0.00	11.8	15.9
Final Projection to Bit (MD=17173.0') - PBHL(Cobalt 32 State #702H)										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
12,450.6	12,309.1	-121.6	-104.8	HL Crossing, MD:12450.6', TVD:12309.1', N/S:-121.6', E/W:-104.8', INC:69.80	
17,078.4	12,296.4	4,496.7	-173.8	HL Crossing, MD:17078.4', TVD:12296.4', N/S:4496.7', E/W:-173.8', INC:92.54	
17,105.0	12,295.2	4,522.9	-178.5	Final MWD Survey (MD=17105.0')	
17,173.0	12,291.8	4,589.6	-191.0	Final Projection to Bit (MD=17173.0')	

Checked By: _____ Approved By: _____ Date: _____



Lea County, NM (NAD 83 NME)

Cobalt 32 State #702H

HP 653

Plan #1

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: #702H

KB= 25' @ 3441.0usft (HP 653)
Northing 425895.00 Easting 803638.00 Latitude 32° 10' 4.884 N Longitude 103° 29' 8.283 W

SECTION DETAILS

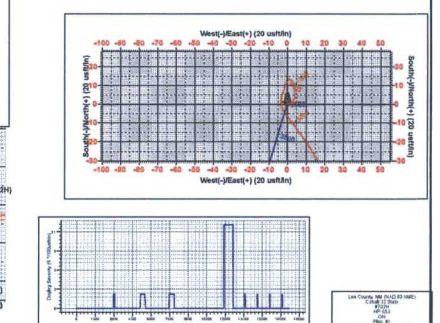
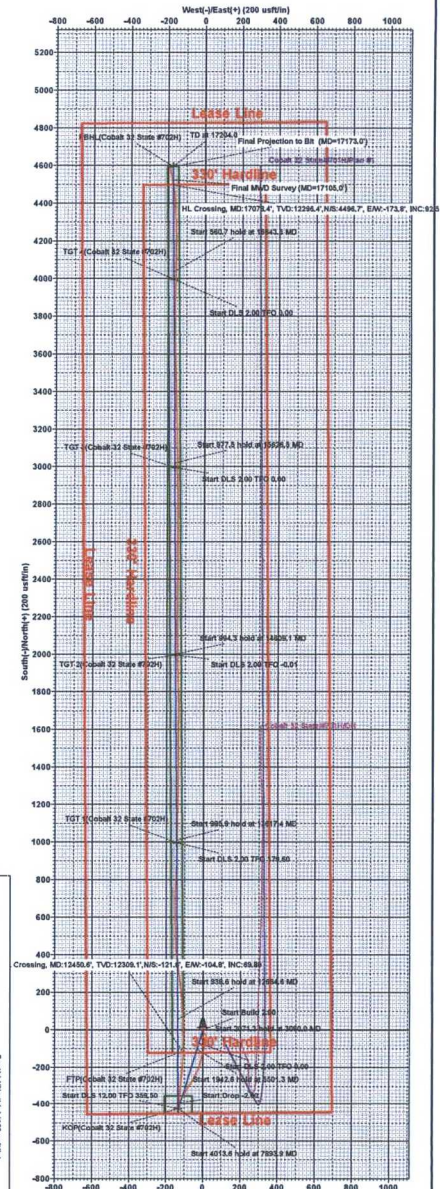
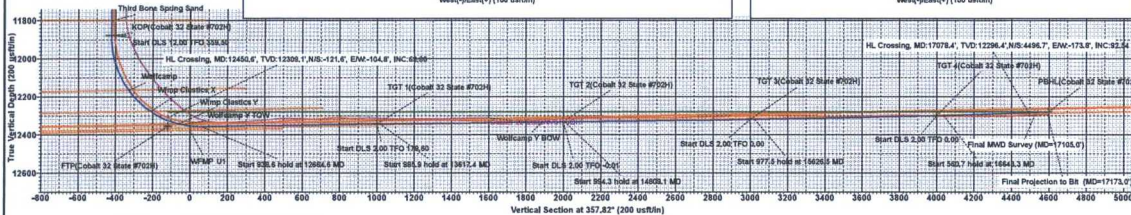
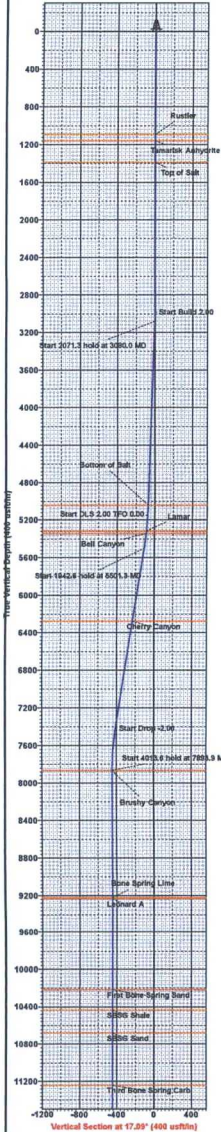
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2980.0	0.00	0.00	2980.0	0.0	0.0	0.00	0.00	0.0	
3	3080.0	2.00	197.09	3080.0	-1.7	-0.5	2.00	197.09	-1.6	
4	5151.3	2.00	197.09	5150.0	-70.8	-21.8	0.00	0.00	-69.9	
5	5501.3	9.00	197.09	5498.2	-102.8	-31.6	2.00	0.00	-101.5	
6	7443.9	9.00	197.09	7416.8	-393.3	-120.9	0.00	0.00	-388.4	
7	7893.9	0.00	0.00	7865.0	-427.0	-131.3	2.00	180.00	-421.7	
8	11907.5	0.00	0.00	11878.6	-427.0	-131.3	0.00	0.00	-421.7	
9	12664.6	90.86	359.50	12356.0	57.6	-135.5	12.00	359.50	62.7	
10	13603.2	90.86	359.50	12342.0	996.0	-143.7	0.00	0.00	1000.7	TGT 1(Cobalt 32 State #702H)
11	13617.4	90.57	359.50	12341.8	1010.2	-143.8	2.00	179.60	1015.0	
12	14603.3	90.57	359.50	12332.0	1996.0	-152.4	0.00	0.00	2000.4	TGT 2(Cobalt 32 State #702H)
13	14609.1	90.69	359.50	12331.9	2001.8	-152.5	2.00	-0.01	2006.2	
14	15603.4	90.69	359.50	12320.0	2996.0	-161.1	0.00	0.00	3000.0	TGT 3(Cobalt 32 State #702H)
15	15626.5	91.15	359.50	12319.6	3019.1	-161.3	2.00	0.00	3023.1	
16	16604.0	91.15	359.50	12300.0	3996.4	-169.8	0.00	0.00	4000.0	TGT 4(Cobalt 32 State #702H)
17	16643.3	91.94	359.50	12298.9	4035.7	-170.1	2.00	0.00	4039.2	
18	17204.0	91.94	359.50	12280.0	4596.0	-175.0	0.00	0.00	4599.3	PBHL(Cobalt 32 State #702H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
KOP(Cobalt 32 State #702H)	11878.6	-427.0	-131.3	425895.00	803638.00
PBHL(Cobalt 32 State #702H)	12280.0	4596.0	-175.0	430481.00	803463.00
TGT 1(Cobalt 32 State #702H)	12300.0	3996.4	-169.8	429891.00	803466.21
TGT 2(Cobalt 32 State #702H)	12320.0	2996.0	-161.1	429891.00	803476.90
TGT 3(Cobalt 32 State #702H)	12332.0	1996.0	-152.4	427881.00	803485.59
TGT 4(Cobalt 32 State #702H)	12342.0	996.0	-143.7	426891.00	803494.28
FTP(Cobalt 32 State #702H)	12356.0	-122.0	-134.0	425773.00	803504.00



Lea County, NM (NAD 83 NME)
Cobalt 32 State #702H
HP 653
Plan #1
10/10/2010