

30-025-43894

EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ruby 2 State Com

#704H

OH

Design: OH

PVA Report

16 October, 2017



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3319.0usft (HP 620)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3319.0usft (HP 620)
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	Ruby 2 State Com				
Site Position:		Northing:	393,589.99 usft	Latitude:	32° 4' 47.315 N
From:	Map	Easting:	775,148.00 usft	Longitude:	103° 34' 42.355 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#704H					
Well Position	+N/-S	0.0 usft	Northing:	393,653.00 usft	Latitude:	32° 4' 44.756 N
	+E/-W	0.0 usft	Easting:	817,307.00 usft	Longitude:	103° 26' 32.369 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,294.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/23/2017	6.93	59.96	47,907.30577821

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	177.54	

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Survey Program		Date				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description		
162.0	963.0	Surface MWD (OH)	MWD	MWD - Standard		
1,053.0	17,438.0	Intrepid MWD (OH)	MWD	MWD - Standard		

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
162.0	0.50	109.41	162.0	-0.2	0.7	0.31	0.31	0.00	-0.7	0.0
195.0	0.60	150.41	195.0	-0.4	0.9	1.20	0.30	124.24	-0.8	0.6
223.0	0.80	102.41	223.0	-0.6	1.2	2.14	0.71	-171.43	-1.3	-0.3
252.0	0.10	156.41	252.0	-0.7	1.4	2.57	-2.41	186.21	-1.2	1.0
280.0	0.70	113.41	280.0	-0.8	1.5	2.25	2.14	-153.57	-1.7	-0.1
309.0	0.60	111.41	309.0	-0.9	1.8	0.35	-0.34	-6.90	-2.0	-0.2
340.0	0.20	317.41	340.0	-0.9	1.9	2.53	-1.29	-496.77	2.0	-0.8
372.0	0.30	316.41	372.0	-0.8	1.8	0.31	0.31	-3.12	1.9	-0.8
403.0	0.40	56.41	403.0	-0.7	1.9	1.74	0.32	322.58	-1.2	-1.6
434.0	0.50	129.41	434.0	-0.7	2.1	1.75	0.32	235.48	-2.1	0.8
466.0	0.40	359.41	466.0	-0.7	2.2	2.55	-0.31	-406.25	0.7	-2.2
497.0	0.40	61.41	497.0	-0.5	2.3	1.33	0.00	200.00	-1.7	-1.6
529.0	0.40	174.41	529.0	-0.6	2.4	2.08	0.00	353.12	-0.8	2.3
565.0	0.40	15.41	565.0	-0.6	2.4	2.19	0.00	-441.67	-0.1	-2.5
592.0	0.20	251.41	592.0	-0.5	2.4	1.99	-0.74	-459.26	2.1	1.3
623.0	0.50	10.41	623.0	-0.4	2.4	2.01	0.97	383.87	0.0	-2.4
655.0	0.40	31.41	655.0	-0.2	2.5	0.60	-0.31	65.62	-1.1	-2.2
686.0	0.40	24.41	686.0	0.0	2.6	0.16	0.00	-22.58	-1.1	-2.3
717.0	0.40	55.41	717.0	0.2	2.7	0.69	0.00	100.00	-2.3	-1.4
749.0	0.50	357.41	749.0	0.4	2.8	1.39	0.31	-181.25	-0.3	-2.8

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 Well: #704H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #704H
 TVD Reference: KB = 25' @ 3319.0usft (HP 620)
 MD Reference: KB = 25' @ 3319.0usft (HP 620)
 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)		
780.0	0.20	225.41	780.0	0.5	2.7	2.10	-0.97	-425.81	2.3	1.6		
812.0	0.20	153.41	812.0	0.4	2.7	0.73	0.00	-225.00	-0.9	2.6		
844.0	0.40	245.41	844.0	0.3	2.7	1.42	0.62	287.50	2.5	0.8		
874.0	0.40	203.41	874.0	0.2	2.5	0.96	0.00	-140.00	1.1	2.2		
905.0	0.50	317.41	905.0	0.2	2.4	2.44	0.32	367.74	1.5	-1.9		
936.0	0.30	125.41	936.0	0.2	2.4	2.57	-0.65	541.94	-1.8	1.5		
963.0	0.40	277.41	963.0	0.2	2.3	2.52	0.37	562.96	2.3	-0.5		
1,053.0	0.31	13.24	1,053.0	0.5	2.1	0.59	-0.10	106.48	-0.9	-1.9		
1,248.0	0.26	197.37	1,248.0	0.6	2.1	0.29	-0.03	-90.19	1.1	1.8		
1,433.0	0.22	256.43	1,433.0	0.1	1.6	0.13	-0.02	31.92	1.6	0.3		
1,620.0	0.31	17.98	1,620.0	0.5	1.4	0.25	0.05	65.00	-0.9	-1.2		
1,808.0	0.35	19.12	1,808.0	1.5	1.7	0.02	0.02	0.61	-2.0	-1.2		
1,995.0	0.48	352.93	1,995.0	2.8	1.8	0.12	0.07	-14.01	-2.6	-2.2		
2,182.0	0.70	20.27	2,182.0	4.7	2.1	0.19	0.12	14.62	-5.1	-0.4		
2,370.0	1.36	55.86	2,369.9	7.0	4.4	0.47	0.35	18.93	-7.5	3.3		
2,557.0	1.63	49.45	2,556.9	10.0	8.2	0.17	0.14	-3.43	-12.7	2.2		
2,744.0	2.24	60.61	2,743.8	13.5	13.4	0.38	0.33	5.97	-18.3	5.2		
2,932.0	2.68	58.94	2,931.6	17.6	20.4	0.24	0.23	-0.89	-26.5	4.5		
3,120.0	3.34	56.57	3,119.3	22.8	28.7	0.36	0.35	-1.26	-36.6	3.2		
3,307.0	4.92	55.95	3,305.8	30.3	39.9	0.85	0.84	-0.33	-50.1	2.8		
3,495.0	3.96	74.14	3,493.3	36.6	52.9	0.90	-0.51	9.68	-60.8	20.8		
3,682.0	3.03	50.68	3,679.9	41.5	62.9	0.90	-0.50	-12.55	-75.0	-7.7		
3,870.0	2.95	39.78	3,867.7	48.4	69.8	0.30	-0.04	-5.80	-81.9	-22.7		
4,058.0	3.12	30.20	4,055.4	56.5	75.5	0.28	0.09	-5.10	-86.8	-36.9		
4,246.0	2.20	30.73	4,243.2	64.0	79.9	0.49	-0.49	0.28	-95.9	-36.0		
4,433.0	2.02	13.59	4,430.1	70.3	82.5	0.35	-0.10	-9.17	-87.7	-63.7		
4,621.0	3.16	20.88	4,617.9	78.4	85.1	0.63	0.61	3.88	-98.4	-49.3		

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 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)		
4,809.0	2.29	60.26	4,805.7	85.1	90.3	1.07	-0.46	20.95	-102.5	23.8		
4,997.0	4.84	99.81	4,993.3	85.6	101.3	1.81	1.36	21.04	-67.5	75.0		
5,185.0	3.56	50.59	5,180.9	88.0	113.7	1.96	-0.68	-26.18	-98.9	-9.4		
5,373.0	2.95	56.65	5,368.6	94.3	122.2	0.37	-0.32	3.22	-97.2	-1.2		
5,561.0	2.81	57.01	5,556.3	99.5	130.1	0.08	-0.07	0.19	-93.9	-3.5		
5,748.0	2.20	36.35	5,743.2	104.9	136.1	0.58	-0.33	-11.05	-81.6	-36.2		
5,936.0	2.81	27.39	5,931.0	111.9	140.4	0.38	0.32	-4.77	-70.5	-45.2		
6,123.0	2.81	24.57	6,117.8	120.1	144.4	0.07	0.00	-1.51	-65.1	-44.5		
6,311.0	2.42	25.28	6,305.6	127.9	148.0	0.21	-0.21	0.38	-61.8	-39.5		
6,499.0	1.89	22.73	6,493.4	134.4	150.9	0.29	-0.28	-1.36	-54.8	-37.6		
6,686.0	2.33	30.81	6,680.3	140.5	154.0	0.28	0.24	4.32	-53.7	-26.1		
6,874.0	2.55	31.96	6,868.1	147.3	158.2	0.12	0.12	0.61	-49.4	-22.2		
7,061.0	2.55	27.74	7,055.0	154.5	162.3	0.10	0.00	-2.26	-43.4	-22.5		
7,249.0	2.59	42.15	7,242.8	161.4	167.1	0.34	0.02	7.66	-42.8	-9.5		
7,437.0	1.85	30.90	7,430.6	167.1	171.5	0.45	-0.39	-5.98	-34.5	-15.5		
7,624.0	0.84	35.12	7,617.6	170.8	173.9	0.54	-0.54	2.26	-27.1	-10.7		
7,812.0	0.35	78.71	7,805.6	172.1	175.2	0.34	-0.26	23.19	-17.8	4.4		
7,999.0	0.22	84.43	7,992.6	172.2	176.1	0.07	-0.07	3.06	-13.2	1.9		
8,187.0	0.44	141.29	8,180.6	171.7	176.9	0.20	0.12	30.24	-6.5	12.4		
8,375.0	0.97	156.85	8,368.5	169.7	178.0	0.30	0.28	8.28	-5.2	13.9		
8,563.0	1.05	149.82	8,556.5	166.7	179.5	0.08	0.04	-3.74	-10.2	12.9		
8,751.0	0.57	115.01	8,744.5	164.8	181.2	0.35	-0.26	-18.52	-18.1	3.8		
8,938.0	1.05	173.28	8,931.5	162.7	182.3	0.48	0.26	31.16	-8.5	18.2		
9,125.0	1.23	139.53	9,118.4	159.5	183.8	0.37	0.10	-18.05	-20.6	9.5		
9,312.0	1.01	107.89	9,305.4	157.5	186.6	0.35	-0.12	-16.92	-25.9	-3.8		
9,500.0	0.57	103.85	9,493.4	156.7	189.1	0.24	-0.23	-2.15	-28.1	-5.7		
9,688.0	0.18	294.49	9,681.4	156.6	189.8	0.40	-0.21	-90.09	29.3	0.2		

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Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3319.0usft (HP 620)
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)
9,875.0	0.75	265.83	265.83	9,868.4	156.7	188.3	0.32	0.30	-15.33	24.1	14.1
10,063.0	2.64	242.19	242.19	10,056.3	154.5	183.2	1.05	1.01	-12.57	11.0	22.1
10,250.0	1.58	247.90	247.90	10,243.2	151.6	177.0	0.58	-0.57	3.05	6.3	21.4
10,438.0	0.70	124.77	124.77	10,431.1	149.9	175.6	1.09	-0.47	-65.49	-21.0	-8.6
10,626.0	1.76	107.45	107.45	10,619.1	148.4	179.3	0.59	0.56	-9.21	-21.5	-14.8
10,814.0	1.14	98.75	98.75	10,807.0	147.3	183.9	0.35	-0.33	-4.63	-23.7	-18.3
11,001.0	0.48	269.35	269.35	10,994.0	147.0	184.9	0.86	-0.35	91.23	21.5	22.3
11,188.0	0.22	287.10	287.10	11,181.0	147.1	183.8	0.15	-0.14	9.49	26.1	14.9
11,376.0	0.53	279.54	279.54	11,369.0	147.3	182.6	0.17	0.16	-4.02	22.7	18.2
11,562.0	1.14	159.49	159.49	11,555.0	145.7	182.4	0.79	0.33	-64.54	-28.5	9.8
11,749.0	1.01	139.80	139.80	11,742.0	142.7	184.1	0.21	-0.07	-10.53	-33.6	-1.0
11,938.0	0.31	161.42	161.42	11,931.0	141.0	185.4	0.39	-0.37	11.44	-33.6	12.1
12,042.0	0.26	82.32	82.32	12,035.0	140.7	185.7	0.35	-0.05	-76.06	-18.5	-31.0
12,181.0	2.68	160.36	160.36	12,173.9	137.7	187.1	1.90	1.74	56.14	-37.5	12.0
12,229.0	8.31	183.92	183.92	12,221.7	133.2	187.2	12.40	11.73	49.08	-32.0	26.2
12,275.0	11.16	196.66	196.66	12,267.0	125.6	185.7	7.73	6.20	27.70	-26.8	31.2
12,323.0	15.16	196.40	196.40	12,313.7	115.1	182.6	8.33	8.33	-0.54	-26.4	27.4
12,354.0	18.07	190.69	190.69	12,343.4	106.5	180.6	10.75	9.39	-18.42	-27.5	22.2
12,385.0	21.71	187.79	187.79	12,372.6	96.1	178.9	12.16	11.74	-9.35	-26.7	18.7
12,417.0	24.92	186.20	186.20	12,402.0	83.5	177.4	10.22	10.03	-4.97	-24.9	16.1
12,448.0	29.49	185.68	185.68	12,429.5	69.5	175.9	14.76	14.74	-1.68	-22.7	14.0
12,479.0	33.01	186.03	186.03	12,456.0	53.5	174.3	11.37	11.35	1.13	-20.5	12.0
12,509.0	37.01	184.71	184.71	12,480.6	36.3	172.7	13.57	13.33	-4.40	-18.5	9.6
12,542.0	41.58	183.74	183.74	12,506.1	15.5	171.1	13.97	13.85	-2.94	-16.5	7.5
12,575.0	44.40	184.97	184.97	12,530.3	-6.9	169.4	8.92	8.55	3.73	-13.9	5.6
12,607.0	49.10	185.68	185.68	12,552.2	-30.1	167.3	14.78	14.69	2.22	-11.4	3.0
12,638.0	54.42	184.62	184.62	12,571.4	-54.4	165.1	17.37	17.16	-3.42	-9.7	0.4

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Design:	OH	Database:	EDM 5000.14

Survey											
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12,670.0	59.38	182.07	12,588.8	-81.1	163.5	16.87	15.50	-7.97	-8.5	-1.7	
12,701.0	64.66	178.47	12,603.4	-108.5	163.4	19.88	17.03	-11.61	-7.9	-2.3	
12,702.3	64.88	178.26	12,603.9	-109.7	163.5	22.33	17.06	-15.92	-7.9	-2.3	
HL Crossing, MD:12702.3', TVD:12603.9',N/S:-109.7', E/W:163.5', INC:64.88											
12,732.0	70.02	173.72	12,615.3	-137.0	165.4	22.33	17.30	-15.30	-8.3	-0.8	
12,763.0	76.79	172.05	12,624.2	-166.5	169.1	22.44	21.84	-5.39	-9.9	2.5	
12,799.0	83.43	166.38	12,630.4	-201.3	175.7	24.10	18.44	-15.75	-13.7	8.5	
12,893.0	85.41	169.98	12,639.5	-292.8	194.9	4.35	2.11	3.83	-16.8	27.3	
12,987.0	88.20	175.25	12,644.7	-385.9	206.9	6.34	2.97	5.61	-12.1	38.8	
13,080.0	88.04	183.25	12,647.8	-478.7	208.1	8.60	-0.17	8.60	-9.6	39.3	
13,174.0	88.84	182.99	12,650.4	-572.6	203.0	0.89	0.85	-0.28	-7.9	33.3	
13,267.0	92.22	184.04	12,649.5	-665.4	197.3	3.81	3.63	1.13	-9.6	26.8	
13,361.0	91.82	182.99	12,646.2	-759.1	191.6	1.19	-0.43	-1.12	-13.7	20.2	
13,455.0	91.38	182.64	12,643.6	-853.0	187.0	0.60	-0.47	-0.37	-17.1	14.8	
13,548.0	91.38	181.67	12,641.3	-945.9	183.5	1.04	0.00	-1.04	-20.1	10.5	
13,643.0	90.73	180.18	12,639.6	-1,040.8	181.9	1.71	-0.68	-1.57	-22.6	8.1	
13,736.0	88.75	178.59	12,640.0	-1,133.8	182.9	2.73	-2.13	-1.71	-23.0	8.3	
13,830.0	86.86	177.71	12,643.6	-1,227.7	186.0	2.22	-2.01	-0.94	-20.2	10.5	
13,924.0	87.12	178.07	12,648.5	-1,321.5	189.4	0.47	0.28	0.38	-16.0	13.1	
14,018.0	86.77	177.10	12,653.5	-1,415.3	193.4	1.10	-0.37	-1.03	-11.8	16.2	
14,112.0	87.16	176.31	12,658.5	-1,509.0	198.8	0.94	0.41	-0.84	-7.6	20.8	
14,206.0	86.46	177.80	12,663.8	-1,602.7	203.6	1.75	-0.74	1.59	-3.2	24.8	
14,300.0	89.93	178.07	12,666.7	-1,696.6	207.0	3.70	3.69	0.29	-1.0	27.4	
14,393.0	91.60	180.79	12,665.5	-1,789.6	207.9	3.43	1.80	2.92	-3.0	27.5	
14,487.0	91.47	180.88	12,663.0	-1,883.5	206.5	0.17	-0.14	0.10	-6.3	25.3	
14,581.0	91.03	180.18	12,660.9	-1,977.5	205.7	0.88	-0.47	-0.74	-9.1	23.6	
14,675.0	90.64	180.35	12,659.5	-2,071.5	205.2	0.45	-0.41	0.18	-11.3	22.3	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3319.0usft (HP 620)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3319.0usft (HP 620)
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)		
14,769.0	91.87	180.62	12,657.5	-2,165.5	204.4	1.34	1.31	0.29	-14.1	20.7		
14,862.0	90.77	180.35	12,655.3	-2,258.4	203.6	1.22	-1.18	-0.29	-17.0	19.1		
14,957.0	87.87	178.95	12,656.5	-2,353.4	204.2	3.39	-3.05	-1.47	-16.7	18.8		
15,050.0	87.82	179.38	12,660.0	-2,446.4	205.6	0.47	-0.05	0.46	-14.0	19.4		
15,144.0	87.21	179.38	12,664.0	-2,540.3	206.6	0.65	-0.65	0.00	-10.7	19.6		
15,238.0	87.38	179.91	12,668.5	-2,634.2	207.2	0.59	0.18	0.56	-7.0	19.3		
15,332.0	87.38	181.93	12,672.8	-2,728.0	205.7	2.15	0.00	2.15	-3.5	17.0		
15,425.0	87.96	184.57	12,676.5	-2,820.8	200.4	2.90	0.62	2.84	-0.7	10.9		
15,519.0	89.23	184.48	12,678.9	-2,914.5	193.0	1.35	1.35	-0.10	0.7	2.7		
15,612.0	92.40	184.75	12,677.5	-3,007.2	185.5	3.42	3.41	0.29	-1.5	-5.6		
15,706.0	92.53	184.92	12,673.5	-3,100.7	177.6	0.23	0.14	0.18	-6.5	-14.4		
15,800.0	92.44	183.43	12,669.4	-3,194.4	170.8	1.59	-0.10	-1.59	-11.5	-22.0		
15,894.0	92.09	180.00	12,665.7	-3,288.3	167.9	3.67	-0.37	-3.65	-16.1	-25.6		
15,988.0	88.04	177.36	12,665.6	-3,382.2	170.1	5.14	-4.31	-2.81	-17.2	-24.3		
16,082.0	88.44	177.10	12,668.5	-3,476.1	174.6	0.51	0.43	-0.28	-15.2	-20.6		
16,176.0	86.86	176.75	12,672.3	-3,569.8	179.7	1.72	-1.68	-0.37	-12.3	-16.4		
16,270.0	87.21	176.75	12,677.2	-3,663.6	185.0	0.37	0.37	0.00	-8.3	-11.9		
16,364.0	88.70	175.87	12,680.5	-3,757.3	191.1	1.84	1.59	-0.94	-5.9	-6.6		
16,458.0	86.90	174.81	12,684.2	-3,850.9	198.7	2.22	-1.91	-1.13	-3.2	0.2		
16,552.0	85.58	174.11	12,690.3	-3,944.3	207.7	1.59	-1.40	-0.74	2.0	8.5		
16,646.0	83.38	172.88	12,699.4	-4,037.2	218.3	2.68	-2.34	-1.31	10.0	18.3		
16,740.0	85.19	174.02	12,708.7	-4,130.1	229.0	2.27	1.93	1.21	18.4	28.2		
16,834.0	88.31	177.36	12,714.1	-4,223.7	236.1	4.86	3.32	3.55	23.0	34.3		
16,928.0	89.41	179.03	12,715.9	-4,317.6	239.0	2.13	1.17	1.78	23.9	36.5		
17,022.0	90.20	180.09	12,716.2	-4,411.6	239.7	1.41	0.84	1.13	23.3	36.4		
17,116.0	91.65	180.62	12,714.7	-4,505.6	239.1	1.64	1.54	0.56	20.9	35.0		
17,209.0	91.03	180.53	12,712.5	-4,598.6	238.2	0.67	-0.67	-0.10	17.8	33.2		

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
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Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3319.0usft (HP 620)
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)
17,303.0	90.29	181.23	12,711.5	-4,692.6	236.8	1.08	-0.79	0.74	15.8	30.9
17,339.4	90.35	181.27	12,711.3	-4,729.0	236.0	0.21	0.18	0.12	15.2	29.8
HL Crossing, MD:17339.4', TVD:12711.3', N/S:-4729.0', E/W:236.0', INC:90.35										
17,377.0	90.42	181.32	12,711.0	-4,766.5	235.1	0.21	0.18	0.12	14.6	28.7
Final MWD Survey (MD=17377.0')										
17,438.0	90.42	181.32	12,710.6	-4,827.5	233.7	0.00	0.00	0.00	13.6	26.7
Final Projection to Bit (MD=17438.0')										

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,702.3	12,603.9	-109.7	163.5	HL Crossing, MD:12702.3', TVD:12603.9', N/S:-109.7', E/W:163.5', INC:64.88
17,339.4	12,711.3	-4,729.0	236.0	HL Crossing, MD:17339.4', TVD:12711.3', N/S:-4729.0', E/W:236.0', INC:90.35
17,377.0	12,711.0	-4,766.5	235.1	Final MWD Survey (MD=17377.0')
17,438.0	12,710.6	-4,827.5	233.7	Final Projection to Bit (MD=17438.0')

Checked By: _____ Approved By: _____ Date: _____