



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ruby 2 State Com

#707H

OH

Design: OH

PVA Report

21 March, 2018

HOBBS CO

JUN 21 2018

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PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3317.0usft (HP 621)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3317.0usft (HP 621)
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	Ruby 2 State Com		
Site Position:		Northing:	393,589.99 usft
From:	Map	Easting:	775,148.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 4' 47.315 N
		Longitude:	103° 34' 42.355 W
		Grid Convergence:	0.40 °

Well	#707H		
Well Position	+N-S	0.0 usft	Northing: 393,552.00 usft
	+E-W	0.0 usft	Easting: 819,254.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 4' 43.597 N
		Longitude:	103° 26' 9.751 W
		Ground Level:	3,292.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/29/2017	6.82
			(°)
			59.94
			47,812.05186651

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			180.09



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Survey Program		Date	3/21/2018	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
108.0	963.0	Invictus MWD (OH)	MWD	OWSG MWD - Standard
1,052.0	17,691.0	Speny MWD (OH)	MWD	OWSG 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
108.0	0.10	81.35	108.0	0.0	0.1	0.09	0.09	0.00	-0.1	0.0
125.0	0.40	274.35	125.0	0.0	0.0	2.93	1.76	-982.35	0.0	0.0
154.0	0.70	85.35	154.0	0.0	0.1	3.78	1.03	589.66	-0.1	0.0
242.0	0.70	123.35	242.0	-0.2	1.1	0.52	0.00	43.18	-1.0	0.4
304.0	0.30	59.35	304.0	-0.3	1.6	1.01	-0.65	-103.23	-1.2	-1.1
335.0	0.50	94.35	335.0	-0.3	1.8	0.99	0.65	112.90	-1.8	-0.2
398.0	1.20	71.35	398.0	-0.1	2.7	1.21	1.11	-36.51	-2.5	-1.0
430.0	1.10	48.35	430.0	0.2	3.2	1.47	-0.31	-71.87	-2.5	-2.0
492.0	1.30	47.35	492.0	1.1	4.2	0.32	0.32	-1.61	-3.8	-2.0
524.0	1.60	56.35	524.0	1.6	4.8	1.17	0.94	28.12	-4.9	-1.4
555.0	1.20	54.35	554.9	2.0	5.4	1.30	-1.29	-6.45	-5.6	-1.6
617.0	1.60	71.35	616.9	2.6	6.8	0.92	0.65	27.42	-7.3	0.3
649.0	1.80	55.35	648.9	3.1	7.6	1.60	0.62	-50.00	-8.0	-1.8
679.0	2.20	60.35	678.9	3.6	8.5	1.45	1.33	16.67	-9.2	-1.1
711.0	2.30	61.35	710.9	4.2	9.6	0.34	0.31	3.12	-10.5	-0.9
742.0	2.80	51.35	741.8	5.0	10.7	2.15	1.61	-32.26	-11.5	-2.8
773.0	2.50	74.35	772.8	5.7	12.0	3.54	-0.97	74.19	-13.1	2.2
804.0	2.50	73.35	803.8	6.0	13.3	0.14	0.00	-3.23	-14.5	2.0
836.0	2.70	65.35	835.7	6.6	14.6	1.29	0.62	-25.00	-16.0	-0.1
867.0	2.90	63.35	866.7	7.2	16.0	0.72	0.65	-6.45	-17.5	-0.7



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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)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
899.0	3.20	72.35	898.7	7.8	17.6	1.76	0.94	28.12	-19.1	2.2
931.0	3.30	71.35	930.6	8.4	19.3	0.36	0.31	-3.12	-21.0	1.8
963.0	3.10	64.35	962.6	9.1	21.0	1.37	-0.62	-21.87	-22.8	-0.9
1,052.0	4.26	69.26	1,051.4	11.3	26.2	1.35	1.30	5.51	-28.5	1.3
1,237.0	1.54	54.50	1,236.1	15.2	34.7	1.51	-1.47	-7.98	-37.0	-7.8
1,423.0	1.27	281.87	1,422.1	17.0	34.7	1.38	-0.15	-71.31	30.4	-23.8
1,609.0	1.36	274.84	1,608.0	17.7	30.5	0.10	0.05	-3.78	28.9	-20.2
1,797.0	1.49	270.88	1,796.0	17.9	25.8	0.09	0.07	-2.11	25.5	-18.3
1,985.0	1.32	275.63	1,983.9	18.1	21.2	0.11	-0.09	2.53	19.3	-20.1
2,173.0	1.45	265.17	2,171.9	18.1	16.7	0.15	0.07	-5.56	18.1	-16.7
2,360.0	1.49	259.28	2,358.8	17.5	11.9	0.08	0.02	-3.15	15.0	-15.0
2,547.0	1.05	262.01	2,545.8	16.8	7.8	0.24	-0.24	1.46	10.1	-15.5
2,735.0	0.70	209.71	2,733.8	15.6	5.6	0.44	-0.19	-27.82	16.3	-2.9
2,922.0	0.75	164.10	2,920.7	13.4	5.3	0.30	0.03	-24.39	11.4	8.8
3,110.0	1.05	121.73	3,108.7	11.3	7.1	0.38	0.16	-22.54	-0.1	13.4
3,298.0	1.27	89.83	3,296.7	10.4	10.7	0.36	0.12	-16.97	-10.7	10.4
3,485.0	1.54	3.52	3,483.6	12.9	12.9	1.03	0.14	-46.16	-13.7	-12.1
3,673.0	2.90	335.39	3,671.5	19.8	11.1	0.91	0.72	-14.96	-13.3	-18.3
3,860.0	2.81	336.10	3,858.3	28.3	7.3	0.05	-0.05	0.38	-22.9	-18.1
4,046.0	2.99	15.12	4,044.0	37.1	6.7	1.05	0.10	20.98	-37.6	3.2
4,233.0	2.37	32.35	4,230.8	45.1	10.0	0.54	-0.33	9.21	-43.5	15.7
4,420.0	2.15	342.34	4,417.7	51.7	11.0	1.03	-0.12	-26.74	-45.9	-26.2
4,607.0	1.76	69.09	4,604.6	56.1	12.7	1.44	-0.21	46.39	-31.8	47.9
4,794.0	3.12	81.74	4,791.5	57.8	20.4	0.78	0.73	6.76	-28.4	54.3
4,982.0	5.01	97.12	4,979.0	57.5	33.6	1.15	1.01	8.18	-26.1	61.3
5,075.0	5.89	102.66	5,071.6	56.0	42.3	1.10	0.95	5.96	-28.8	63.9
5,256.0	5.05	104.86	5,251.7	51.9	59.0	0.48	-0.46	1.22	-43.6	65.4



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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)	Bulid (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
5,343.0	4.84	105.74	5,338.4	49.9	66.3	0.26	-0.24	1.01	-50.1	66.1
5,530.0	2.46	87.10	5,525.0	48.0	77.9	1.41	-1.27	-9.97	-80.3	43.0
5,718.0	3.21	357.89	5,712.9	53.5	81.7	2.14	0.40	-47.45	-38.3	-85.6
5,905.0	5.45	334.34	5,899.3	66.7	77.7	1.51	1.20	-12.59	7.8	-90.1
6,093.0	9.58	339.96	6,085.7	89.5	68.4	2.23	2.20	2.99	1.9	-85.3
6,280.0	8.79	342.16	6,270.3	117.7	58.7	0.46	-0.42	1.18	-3.7	-81.5
6,467.0	9.32	332.14	6,455.0	144.7	47.3	0.89	0.28	-5.36	7.7	-75.5
6,654.0	9.32	333.90	6,639.5	171.7	33.5	0.15	0.00	0.94	1.9	-68.1
6,842.0	9.63	334.69	6,824.9	199.5	20.1	0.18	0.16	0.42	-3.0	-61.2
7,029.0	10.02	333.55	7,009.2	228.2	6.2	0.23	0.21	-0.61	-7.0	-54.3
7,216.0	7.56	327.22	7,194.0	253.2	-7.7	1.41	-1.32	-3.39	-3.7	-46.3
7,404.0	4.97	313.77	7,380.9	269.2	-20.3	1.57	-1.38	-7.15	9.6	-33.1
7,591.0	2.73	308.15	7,567.4	277.5	-29.7	1.21	-1.20	-3.01	14.4	-20.7
7,778.0	1.54	309.82	7,754.3	281.9	-35.1	0.64	-0.64	0.89	11.7	-17.0
7,964.0	1.32	280.38	7,940.2	283.9	-39.1	0.41	-0.12	-15.83	14.3	-10.2
8,152.0	0.84	268.16	8,128.2	284.2	-42.6	0.28	-0.26	-6.50	12.6	-7.5
8,339.0	0.66	178.51	8,315.2	283.1	-44.0	0.57	-0.10	-47.94	6.4	11.2
8,527.0	1.05	152.85	8,503.2	280.5	-43.2	0.29	0.21	-13.65	-1.7	12.4
8,714.0	1.10	144.85	8,690.1	277.5	-41.3	0.08	0.03	-4.28	-6.9	11.8
8,901.0	1.27	129.55	8,877.1	274.7	-38.7	0.19	0.09	-8.18	-13.6	9.1
9,089.0	1.41	119.45	9,065.1	272.3	-35.1	0.15	0.07	-5.37	-19.4	6.2
9,276.0	1.36	125.25	9,252.0	269.8	-31.3	0.08	-0.03	3.10	-23.1	8.4
9,463.0	1.14	111.19	9,439.0	267.9	-27.7	0.20	-0.12	-7.52	-28.5	1.9
9,650.0	1.41	91.67	9,625.9	267.2	-23.7	0.27	0.14	-10.44	-31.6	-8.3
9,838.0	1.63	82.01	9,813.8	267.5	-18.7	0.18	0.12	-5.14	-34.7	-13.9
10,026.0	2.86	336.36	10,001.8	272.1	-18.0	1.94	0.65	-56.20	18.7	-32.2
10,213.0	4.57	318.96	10,188.4	282.0	-24.7	1.09	0.91	-9.30	15.6	-26.6



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)	
10,401.0	5.54	304.55	10,375.6	292.8	-37.1	0.85	0.52	-7.66	5.4	-23.7	
10,495.0	4.84	315.71	10,469.2	298.2	-43.6	1.30	-0.74	11.87	-7.7	-23.4	
10,589.0	4.22	325.81	10,563.0	303.9	-48.3	1.07	-0.66	10.74	-19.0	-21.0	
10,683.0	2.42	318.70	10,656.8	308.3	-51.6	1.96	-1.91	-7.56	-21.7	-23.6	
10,776.0	1.58	313.60	10,749.7	310.6	-53.8	0.92	-0.90	-5.48	-22.8	-25.6	
10,872.0	1.63	313.77	10,845.7	312.5	-55.8	0.05	0.05	0.18	-25.5	-25.6	
10,964.0	0.88	307.80	10,937.7	313.8	-57.3	0.83	-0.82	-6.49	-24.7	-28.2	
11,056.0	0.79	176.49	11,029.7	313.6	-57.8	1.65	-0.10	-142.73	37.4	-0.5	
11,244.0	0.62	205.40	11,217.7	311.4	-58.1	0.21	-0.09	15.38	30.3	-17.9	
11,432.0	0.53	102.13	11,405.7	310.3	-57.7	0.48	-0.05	-54.93	9.8	32.6	
11,619.0	0.66	283.98	11,592.7	310.4	-57.9	0.64	0.07	-95.27	-11.1	-32.3	
11,806.0	1.76	279.23	11,779.6	311.1	-61.8	0.59	0.59	-2.54	-12.3	-33.2	
11,900.0	1.85	280.29	11,873.6	311.6	-64.7	0.10	0.10	1.13	-15.9	-32.9	
12,024.0	2.24	301.73	11,997.5	313.3	-68.8	0.69	0.31	17.29	-31.1	-24.1	
12,212.0	2.77	290.22	12,185.3	316.8	-76.1	0.39	0.28	-6.12	-33.8	-30.6	
12,306.0	3.52	274.75	12,279.2	317.8	-81.2	1.20	0.80	-16.46	-29.5	-39.1	
12,399.0	4.66	231.51	12,371.9	315.7	-87.0	3.43	1.23	-46.49	-0.6	-50.6	
12,426.7	7.84	209.32	12,399.5	313.3	-88.8	14.22	11.49	-80.09	15.6	-47.6	
KOP (Ruby 2 State Com #707H)											
12,446.0	10.37	202.50	12,418.5	310.6	-90.1	14.22	13.10	-35.35	18.5	-45.7	
12,493.0	16.65	187.65	12,464.2	300.0	-92.6	15.16	13.36	-31.60	22.6	-41.1	
12,540.0	26.37	180.88	12,507.9	282.8	-93.7	21.31	20.68	-14.40	17.9	-39.2	
12,586.0	30.77	181.32	12,548.3	260.8	-94.1	9.58	9.57	0.96	7.4	-39.5	
12,633.0	30.24	182.64	12,588.8	237.0	-94.9	1.82	-1.13	2.81	-1.1	-40.3	
12,680.0	31.96	180.00	12,629.0	212.7	-95.4	4.67	3.66	-5.82	-3.4	-41.0	
12,727.0	38.77	179.65	12,667.3	185.5	-95.4	14.50	14.49	-0.74	-5.9	-41.2	
12,773.0	44.57	180.09	12,701.7	155.0	-95.3	12.62	12.61	0.96	-9.3	-41.4	



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MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg ("/100usft)	Buila ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)
12,820.0	53.71	174.29	12,732.4	119.5	-93.4	21.56	19.45	-12.34	-11.4	-40.7
12,867.0	59.16	170.34	12,758.4	80.8	-88.2	13.54	11.60	-8.40	-16.5	-36.6
12,914.0	66.51	167.26	12,779.8	39.8	-80.0	16.69	15.64	-6.55	-22.9	-29.6
12,960.0	68.26	167.08	12,797.5	-1.6	-70.6	3.82	3.80	-0.39	-28.9	-20.8
FTP Crossing, MD:12960.0, TVD:12797.5, N/S:-1.6, E/W:-70.6, INC:68.26										
12,991.5	68.32	168.91	12,809.2	-30.3	-64.5	5.40	0.18	5.81	-31.0	-14.5
FTP (Ruby 2 State Com #707H)										
13,007.0	68.35	169.81	12,814.9	-44.4	-61.8	5.40	0.22	5.81	-31.2	-11.7
13,054.0	68.70	170.86	12,832.1	-87.5	-54.5	2.21	0.74	2.23	-28.3	-4.1
13,101.0	72.13	174.99	12,847.9	-131.4	-49.0	11.03	7.30	8.79	-22.0	1.8
13,147.0	81.05	177.02	12,858.5	-176.0	-46.0	19.86	19.39	4.41	-16.0	4.6
13,194.0	90.90	181.15	12,861.8	-222.8	-45.2	22.71	20.96	8.79	-14.1	5.0
13,241.0	93.41	181.67	12,860.1	-269.8	-46.4	5.45	5.34	1.11	-17.1	3.4
13,335.0	91.30	178.77	12,856.2	-363.7	-46.7	3.81	-2.24	-3.09	-23.4	2.1
13,429.0	89.98	177.10	12,855.2	-457.6	-43.3	2.26	-1.40	-1.78	-27.0	4.5
13,459.0	89.85	177.02	12,855.2	-487.6	-41.8	0.51	-0.43	-0.27	-27.8	5.8
13,552.0	89.85	177.10	12,855.4	-580.5	-37.0	0.09	0.00	0.09	-30.0	9.6
13,611.3	89.74	178.27	12,855.7	-639.7	-34.6	1.98	-0.19	1.97	-31.3	11.5
TGT 1 (Ruby 2 State Com #707H)										
13,646.0	89.67	178.95	12,855.8	-674.4	-33.8	1.98	-0.19	1.97	-31.9	12.0
13,676.0	88.88	178.42	12,856.2	-704.4	-33.1	3.17	-2.63	-1.77	-32.0	12.4
13,709.0	88.31	177.81	12,857.0	-737.4	-32.0	2.53	-1.73	-1.85	-31.8	13.2
13,741.0	87.43	176.93	12,858.2	-769.3	-30.6	3.89	-2.75	-2.75	-31.1	14.3
13,772.0	87.34	177.37	12,859.6	-800.2	-29.0	1.45	-0.29	1.42	-30.2	15.5
13,803.0	86.46	178.16	12,861.3	-831.2	-27.8	3.81	-2.84	2.55	-29.0	16.5
13,834.0	88.35	180.18	12,862.7	-862.1	-27.4	8.92	6.10	6.52	-28.1	16.6
13,881.0	89.58	183.17	12,863.6	-909.1	-28.7	6.88	2.62	6.36	-28.1	14.8



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3317.0usft (HP 621)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3317.0usft (HP 621)
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)	
13,927.0	87.82	182.64	12,864.6	-955.0	-31.1	4.00	-3.83	-1.15	-27.8	12.1	
13,974.0	86.86	182.29	12,866.8	-1,001.9	-33.1	2.17	-2.04	-0.74	-26.4	9.6	
14,021.0	86.02	182.55	12,869.7	-1,048.8	-35.1	1.87	-1.79	0.55	-24.3	7.2	
14,068.0	85.98	182.29	12,873.0	-1,095.6	-37.0	0.56	-0.09	-0.55	-21.8	4.7	
14,115.0	87.12	181.59	12,875.8	-1,142.5	-38.6	2.84	2.43	-1.49	-19.7	2.7	
14,160.0	87.34	180.97	12,878.0	-1,187.5	-39.6	1.46	0.49	-1.38	-18.3	1.2	
14,203.1	88.89	181.67	12,879.4	-1,230.5	-40.6	3.94	3.59	1.61	-17.6	-0.2	
TGT 2 (Ruby 2 State Com #707H)											
14,209.0	89.10	181.76	12,879.5	-1,236.4	-40.8	3.94	3.59	1.61	-17.6	-0.4	
14,303.0	89.41	181.06	12,880.7	-1,330.4	-43.1	0.81	0.33	-0.74	-18.0	-3.6	
14,397.0	91.52	179.39	12,880.0	-1,424.4	-43.5	2.86	2.24	-1.78	-20.3	-4.9	
14,491.0	90.95	179.74	12,877.9	-1,518.4	-42.8	0.71	-0.61	0.37	-23.9	-5.1	
14,585.0	90.29	178.25	12,876.9	-1,612.3	-41.1	1.73	-0.70	-1.59	-26.5	-4.3	
14,678.0	89.63	179.13	12,877.0	-1,705.3	-39.0	1.18	-0.71	0.95	-27.9	-3.1	
14,772.0	89.67	178.16	12,877.6	-1,799.3	-36.8	1.03	0.04	-1.03	-28.9	-1.8	
14,866.0	89.89	177.02	12,877.9	-1,893.2	-32.8	1.24	0.23	-1.21	-30.1	1.3	
14,960.0	91.21	177.98	12,877.0	-1,987.1	-28.7	1.74	1.40	1.02	-32.6	4.5	
15,007.0	87.96	177.10	12,877.4	-2,034.0	-26.7	7.16	-6.91	-1.87	-33.1	6.0	
15,053.0	90.20	178.33	12,878.1	-2,080.0	-24.9	5.56	4.87	2.67	-33.1	7.4	
15,146.0	90.42	178.07	12,877.6	-2,172.9	-21.9	0.37	0.24	-0.28	-35.1	9.5	
15,193.0	89.05	178.33	12,877.8	-2,219.9	-20.5	2.97	-2.91	0.55	-35.7	10.5	
15,240.0	87.03	178.51	12,879.4	-2,266.9	-19.2	4.31	-4.30	0.38	-34.9	11.3	
15,271.0	86.95	178.77	12,881.0	-2,297.8	-18.4	0.88	-0.26	0.84	-33.8	11.8	
15,333.0	87.65	178.33	12,884.0	-2,359.7	-16.9	1.33	1.13	-0.71	-31.9	12.7	
15,404.6	86.48	178.33	12,887.6	-2,431.2	-14.8	1.64	-1.64	0.00	-29.4	14.1	
TGT 3 (Ruby 2 State Com #707H)											
15,427.0	86.11	178.33	12,889.1	-2,453.6	-14.1	1.64	-1.64	0.00	-28.3	14.6	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3317.0usft (HP 621)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3317.0usft (HP 621)
Well:	#707H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

MD (usft)	Inc (°)	Asd (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)
15,521.0	87.69	181.32	12,894.2	-2,547.4	-13.9	3.59	1.68	3.18	-24.7	14.0
15,614.0	88.22	181.23	12,897.5	-2,640.3	-15.9	0.58	0.57	-0.10	-22.9	11.0
15,708.0	88.04	180.18	12,900.6	-2,734.3	-17.1	1.13	-0.19	-1.12	-21.4	9.0
15,802.0	92.26	180.97	12,900.3	-2,828.2	-18.0	4.57	4.49	0.84	-23.1	7.1
15,896.0	90.73	179.48	12,897.9	-2,922.2	-18.4	2.27	-1.63	-1.59	-27.1	5.8
15,990.0	87.65	177.10	12,899.2	-3,016.1	-15.6	4.14	-3.28	-2.53	-27.3	7.7
16,024.4	87.81	176.68	12,900.5	-3,050.4	-13.7	1.30	0.47	-1.21	-26.5	9.2
TOT 4 (Ruby 2 State Com #707H)										
16,084.0	88.09	175.96	12,902.7	-3,109.9	-9.9	1.30	0.47	-1.21	-25.3	12.5
16,177.0	87.78	177.10	12,906.0	-3,202.7	-4.3	1.27	-0.33	1.23	-23.4	17.2
16,270.0	86.90	176.84	12,910.3	-3,295.4	0.6	0.99	-0.95	-0.28	-20.5	21.2
16,364.0	87.74	178.77	12,914.7	-3,389.2	4.2	2.24	0.89	2.05	-17.5	24.0
16,457.0	89.49	178.42	12,917.0	-3,482.2	6.5	1.92	1.88	-0.38	-16.7	25.4
16,551.0	90.24	177.10	12,917.2	-3,576.1	10.2	1.62	0.80	-1.40	-18.0	28.1
16,644.0	89.85	178.25	12,917.1	-3,669.0	14.0	1.31	-0.42	1.24	-19.5	31.0
16,738.0	90.90	181.06	12,916.5	-3,763.0	14.5	3.19	1.12	2.99	-21.5	30.7
16,831.0	89.98	180.00	12,915.8	-3,856.0	13.7	1.51	-0.99	-1.14	-23.7	28.9
16,925.0	91.16	182.11	12,914.9	-3,950.0	11.9	2.57	1.26	2.24	-26.1	26.3
17,018.0	89.98	182.20	12,913.9	-4,042.9	8.4	1.27	-1.27	0.10	-28.4	21.9
17,112.0	88.26	182.90	12,915.4	-4,136.8	4.3	1.98	-1.83	0.74	-28.5	16.8
17,162.0	89.10	182.29	12,916.5	-4,186.7	2.0	2.08	1.68	-1.22	-28.1	14.1
17,253.0	90.42	181.94	12,916.9	-4,277.7	-1.4	1.50	1.45	-0.38	-29.1	9.9
17,316.0	88.38	180.17	12,917.6	-4,340.7	-2.5	4.28	-3.23	-2.81	-29.4	8.1
TOT 5 (Ruby 2 State Com #707H)										
17,347.0	87.38	179.30	12,918.7	-4,371.6	-2.4	4.28	-3.23	-2.81	-28.9	7.9
17,393.0	86.86	178.60	12,921.0	-4,417.6	-1.5	1.89	-1.13	-1.52	-27.9	8.3
17,485.0	86.99	181.15	12,926.0	-4,509.4	-1.3	2.77	0.14	2.77	-25.4	7.7



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #707H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3317.0usft (HP 621)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3317.0usft (HP 621)
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)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)
17,579.0	87.03	181.41	12,930.9	-4,603.3	-3.4	0.28	0.04	0.28	-23.1	4.7
17,590.3	86.85	181.13	12,931.5	-4,614.6	-3.7	2.98	-1.61	-2.51	-22.8	4.3
LTP Crossing, MD:17590.3, TVD:12931.5, N/S:-4614.6, E/W:-3.7, INC:86.85										
17,628.0	86.24	180.18	12,933.8	-4,652.2	-4.1	2.98	-1.61	-2.51	-21.5	3.5
Final MWD Survey (MD= 17628.0)										
17,691.0	86.24	180.18	12,937.9	-4,715.0	-4.3	0.00	0.00	0.00	-19.1	2.7
Final Bit Projection (MD= 17691.0) - PBHL (Ruby 2 State Com #707H)										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
12,960.0	12,797.5	-1.6	-70.6	FTP Crossing, MD:12960.0, TVD:12797.5, N/S:-1.6, E/W-70.6, INC:68.26
17,590.3	12,931.5	-4,614.6	-3.7	LTP Crossing, MD:17590.3, TVD:12931.5, N/S:-4614.6, E/W:-3.7, INC:86.85
17,628.0	12,933.8	-4,652.2	-4.1	Final MWD Survey (MD= 17628.0)
17,691.0	12,937.9	-4,715.0	-4.3	Final Bit Projection (MD= 17691.0)

Checked By: _____ Approved By: _____ Date: _____



Lea County, NM (NAD 83 NME)

Ruby 2 State Com #707H

HP 621

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: #707H

3292.0
Northing KB = 25' @ 3317.0usft (HP 621)
393552.00 Easting 819254.00
Latitude 32° 4' 43.597' N
Longitude 103° 26' 9.751' W



Azimuth to Grid North
True North: 0.0°
Magnetic North: 0.34°

Magnetic Field
Strength: 47812.15nT
Dir Angle: 0.00°
Date: 12/28/2017
Model: 12000010

To convert a Magnetic Direction to a Grid Direction, Add 0.35°
To convert a Magnetic Direction to a True Direction, Add 0.00° East
To convert a True Direction to a Grid Direction, Subtract 0.48°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5450.0	0.00	0.00	5450.0	0.0	0.0	0.00	0.00	0.0	
3	5876.0	8.52	348.75	5874.4	31.0	-6.2	2.00	348.75	-31.0	
4	7351.5	8.52	348.75	7333.6	245.4	-48.8	0.00	0.00	-245.3	
5	7777.4	0.00	0.00	7758.0	276.4	-55.0	2.00	180.00	-276.3	
6	12417.1	0.00	0.00	12397.7	276.4	-55.0	0.00	0.00	-276.3	
7	13154.4	88.48	179.45	12875.0	-188.4	-50.5	12.00	179.45	188.5	TGT 1 (Ruby 2 State Com #707H)
8	13604.2	88.48	179.45	12887.0	-640.0	-46.1	0.00	0.00	640.1	TGT 2 (Ruby 2 State Com #707H)
9	13634.5	89.04	179.45	12887.6	-658.2	-45.9	2.00	0.49	658.3	TGT 3 (Ruby 2 State Com #707H)
10	14196.3	89.04	179.45	12897.0	-1230.0	-40.5	0.00	0.00	1230.1	
11	15396.6	89.05	179.45	12917.0	-2430.0	-28.9	0.00	-2.48	2430.0	TGT 4 (Ruby 2 State Com #707H)
12	15398.0	89.08	179.45	12917.0	-2431.4	-28.9	2.00	0.23	2431.4	TGT 5 (Ruby 2 State Com #707H)
13	16016.7	89.08	179.45	12927.0	-3050.0	-23.0	0.00	0.00	3050.0	
14	16018.5	89.11	179.45	12927.0	-3051.8	-23.0	2.00	0.00	3051.8	
15	17306.9	89.11	179.45	12947.0	-4340.0	-10.6	0.00	0.00	4340.0	
16	17340.1	88.45	179.45	12947.7	-4373.2	-10.3	2.00	180.00	4373.2	
17	17683.0	88.45	179.45	12957.0	-4716.0	-7.0	0.00	0.00	4716.0	PBHL (Ruby 2 State Com #707H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Eastng
TGT 1 (Ruby 2 State Com #707H)	12887.0	-440.0	-46.1	392812.00	818007.87
TGT 2 (Ruby 2 State Com #707H)	12887.0	-1230.0	-46.1	392522.00	818213.54
TGT 3 (Ruby 2 State Com #707H)	12917.0	-2430.0	-28.9	391122.00	819225.08
TGT 4 (Ruby 2 State Com #707H)	12927.0	-3050.0	-23.0	390502.00	819231.01
TGT 5 (Ruby 2 State Com #707H)	12947.0	-4340.0	-10.6	389512.00	819243.39
PBHL (Ruby 2 State Com #707H)	12857.0	-4716.0	-7.0	388838.00	819247.00
FTP (Ruby 2 State Com #707H)	12875.0	-11.0	-62.0	393551.00	819202.00
KOP (Ruby 2 State Com #707H)	12877.0	276.4	-55.0	393528.38	819199.00

