

HOBBS OCD
JUN 20 2019
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Gem 36 State Com

#501H

OH

Design: OH

Final PVA Report

08 May, 2019



Final PVA Report

Company:	EOG Resources - Midland			Local Co-ordinate Reference:	Well #501H
Project:	Lea County, NM (NAD 83 NME)			TVD Reference:	KB = 25 @ 3451.0usft
Site:	Gem 36 State Com			MD Reference:	KB = 25 @ 3451.0usft
Well:	#501H			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 Gem 36 State Com					
Site Position:		Northing:	393,686.00 usft	Latitude:	32° 4' 49.331 N
From:	Map	Easting:	759,213.00 usft	Longitude:	103° 37' 47.552 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 "

Well #501H						
Well Position	+N-S	0.0 usft	Northing:	398,126.00 usft	Latitude:	32° 5' 33.144 N
	+E-W	0.0 usft	Easting:	761,111.00 usft	Longitude:	103° 37' 25.153 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,426.0 usft	

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/14/2019	6.80	59.91	47,692.53012734

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	169.18	

Survey Program Date 5/8/2019					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
251.0	15,852.0	Leam MWD #1 (OH)	MWD	OWSG MWD - Standard	



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Survey											
MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLog ("/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
251.0	0.30	329.70	251.0	0.6	-0.3	0.12	0.12	0.00	0.0	0.0	0.0
439.0	1.20	258.70	439.0	0.6	-2.5	0.61	0.48	-37.77	0.0	0.0	0.0
628.0	1.70	259.60	627.9	-0.3	-7.2	0.28	0.28	0.48	0.0	0.0	0.0
972.0	1.10	227.80	971.8	-3.4	-14.7	0.28	-0.17	-8.24	0.0	0.0	0.0
1,069.0	1.40	236.10	1,068.8	-4.7	-16.3	0.36	0.31	8.56	-1.6	0.1	0.1
1,258.0	3.40	53.80	1,257.7	-2.7	-13.7	2.54	1.08	94.02	-1.7	0.1	0.1
1,446.0	3.10	48.30	1,445.4	4.0	-5.4	0.23	-0.16	-2.93	-12.3	-0.6	-0.6
1,636.0	2.00	47.40	1,635.2	8.6	0.8	0.58	-0.58	-0.47	-20.8	-0.9	-0.9
1,824.0	1.50	49.20	1,823.1	13.5	5.1	0.27	-0.27	0.98	-26.5	-0.1	-0.1
2,013.0	1.10	47.80	2,012.1	16.3	8.3	0.21	-0.21	-0.74	-30.8	-0.8	-0.8
2,202.0	4.70	54.80	2,200.8	22.0	16.0	1.91	1.90	3.70	-40.2	3.2	3.2
2,392.0	3.80	56.10	2,390.3	30.0	27.6	0.48	-0.47	0.68	-48.5	3.7	3.7
2,582.0	5.10	39.00	2,579.7	40.1	38.1	0.97	0.68	-9.00	-43.7	-8.8	-8.8
2,770.0	8.10	47.80	2,768.5	55.5	53.2	1.68	1.60	4.68	-35.2	0.6	0.6
2,959.0	12.30	54.30	2,952.4	76.2	79.4	2.30	2.22	3.44	-32.3	3.6	3.6
3,149.0	11.80	53.20	3,138.2	89.6	111.4	0.29	-0.26	-0.58	-35.9	0.9	0.9
3,337.0	10.80	50.80	3,322.6	122.3	140.5	0.59	-0.53	-1.28	-36.9	-1.6	-1.6
3,524.0	13.30	49.00	3,505.5	147.4	170.3	1.35	1.34	-0.96	-40.2	-2.4	-2.4
3,712.0	12.00	48.10	3,688.9	174.7	201.1	0.70	-0.69	-0.48	-45.6	-1.9	-1.9
3,902.0	9.30	48.50	3,875.6	198.1	227.3	1.42	-1.42	0.21	-44.5	-0.2	-0.2
4,090.0	11.80	51.30	4,080.4	220.1	253.7	1.36	1.33	1.49	-43.0	2.2	2.2
4,279.0	10.10	56.80	4,246.0	241.3	282.7	1.05	-0.80	2.91	-42.6	4.1	4.1
4,467.0	13.30	56.80	4,430.0	262.2	314.6	1.70	1.70	0.00	-45.1	0.1	0.1
4,655.0	11.80	67.10	4,613.6	281.5	350.4	1.43	-0.80	5.48	-50.6	1.6	1.6
4,749.0	10.30	66.40	4,705.8	288.6	366.9	1.60	-1.60	-0.74	-51.4	-4.0	-4.0
4,936.0	9.50	62.60	4,890.0	302.4	398.0	0.55	-0.43	-2.03	-48.2	-16.0	-16.0



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

Survey											
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5,125.0	12.60	46.60	5,075.6	323.8	424.8	2.29	1.84	-8.47	-41.7	-30.3	
5,314.0	12.80	45.30	5,259.9	352.6	454.7	0.18	0.11	-0.69	-46.8	-28.5	
5,503.0	12.00	43.60	5,444.5	381.6	483.1	0.47	-0.42	-0.90	-50.8	-26.1	
5,692.0	11.80	40.20	5,629.5	410.6	509.1	0.39	-0.11	-1.80	-52.7	-23.8	
5,880.0	10.90	42.20	5,813.8	438.4	533.5	0.52	-0.48	1.06	-55.0	-18.1	
6,068.0	12.60	50.30	5,997.9	464.7	561.2	1.26	0.90	4.31	-59.0	-5.8	
6,255.0	12.30	47.40	6,180.5	491.2	591.5	0.37	-0.16	-1.55	-63.4	-7.8	
6,442.0	12.10	44.10	6,363.2	518.8	619.8	0.39	-0.11	-1.76	-66.9	-8.6	
6,631.0	11.90	42.00	6,548.1	547.5	646.7	0.25	-0.11	-1.11	-70.2	-8.4	
6,817.0	10.90	41.50	6,730.4	574.9	671.2	0.54	-0.54	-0.27	-71.9	-1.7	
7,006.0	9.30	40.60	6,916.5	599.9	692.9	0.85	-0.85	-0.48	-69.4	3.1	
7,194.0	3.30	75.70	7,103.3	612.8	708.1	3.65	-3.19	18.67	-40.6	35.7	
7,383.0	2.40	163.10	7,292.2	610.3	714.5	2.11	-0.48	46.24	18.7	21.5	
7,571.0	1.80	173.80	7,480.0	603.6	716.0	0.38	-0.32	5.69	6.7	4.9	
7,758.0	1.40	184.20	7,667.0	598.4	716.1	0.26	-0.21	5.56	-0.5	1.2	
7,947.0	1.40	270.90	7,855.9	596.2	713.6	1.02	0.00	45.87	-1.3	2.9	
8,135.0	1.20	271.40	8,043.9	596.2	708.4	0.11	-0.11	0.27	-5.6	2.9	
8,321.0	1.10	249.80	8,229.8	595.7	705.8	0.24	-0.05	-11.61	-8.8	-0.1	
8,510.0	1.10	233.40	8,418.8	594.0	702.6	0.17	0.00	-8.68	-13.0	-3.4	
8,698.0	1.10	227.10	8,606.8	591.7	699.8	0.06	0.00	-3.35	-16.1	-5.0	
8,886.0	1.10	228.50	8,794.7	589.2	697.2	0.01	0.00	0.74	-19.8	-4.5	
9,075.0	0.80	196.30	8,983.7	586.8	695.4	0.32	-0.16	-17.04	-17.2	-15.4	
9,263.0	0.60	278.20	9,171.7	585.7	694.1	0.49	-0.11	43.56	-18.8	16.2	
9,452.0	1.10	234.50	9,360.7	584.7	691.6	0.42	0.26	-23.12	-27.3	-2.0	
9,640.0	1.80	302.90	9,548.6	585.3	687.7	0.92	0.37	36.38	-15.5	26.4	
9,829.0	2.20	192.80	9,737.6	583.4	684.4	1.74	0.21	-58.25	-22.0	-26.4	
10,018.0	1.60	221.50	9,926.5	577.9	681.8	0.59	-0.32	15.19	-37.8	-10.8	



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10,206.0	2.20	248.70	10,114.4	574.6	676.7	0.57	0.32	14.47	-44.5	8.9	
10,301.0	1.80	242.20	10,209.3	573.2	673.7	0.48	-0.42	-6.84	-48.6	3.5	
10,407.0	2.70	172.10	10,315.3	570.0	672.6	2.53	0.85	-66.13	-22.9	-46.0	
10,412.1	3.10	169.84	10,320.4	569.7	672.6	8.15	7.87	-42.03	-21.4	-46.9	
KOP (Gem 36 State Com #501H)											
10,500.0	10.20	160.10	10,407.6	560.0	675.7	8.15	8.08	-11.20	-16.8	-49.0	
10,562.7	15.93	157.20	10,468.7	546.9	680.9	9.20	9.14	-4.63	-15.8	-46.9	
HL Crossing, MD:10562.7, TVD:10468.7, N/S:546.9, E/W:680.9, INC:15.93											
10,594.0	18.80	156.40	10,498.5	538.3	684.6	9.20	9.17	-2.55	-15.8	-44.9	
10,687.0	27.80	153.10	10,583.9	505.2	700.4	9.78	9.68	-3.55	-15.1	-35.1	
10,782.0	35.30	161.70	10,664.8	459.3	719.1	9.19	7.89	9.05	-17.1	-21.4	
10,876.0	43.10	166.30	10,737.6	402.2	735.3	8.85	8.30	4.89	-12.3	-13.4	
10,897.4	46.20	165.43	10,752.8	387.6	739.0	14.73	14.45	-4.07	-10.6	-12.2	
FTP (Gem 36 State Com #501H)											
10,923.0	49.90	164.50	10,769.9	369.2	743.9	14.73	14.48	-3.63	-9.1	-10.3	
10,970.0	54.50	163.80	10,798.7	333.5	754.0	9.88	9.79	-1.49	-6.9	-6.1	
11,065.0	65.20	167.00	10,846.4	254.1	774.6	11.63	11.26	3.37	-3.3	1.3	
11,158.0	79.90	172.20	10,874.2	167.1	790.4	16.68	15.81	5.59	-4.7	2.5	
11,253.0	87.10	174.50	10,885.0	-73.4	801.3	7.95	7.58	2.42	-8.7	-2.3	
11,347.0	87.10	173.80	10,889.7	-20.0	810.9	0.74	0.00	-0.74	-6.0	-7.2	
11,441.0	89.00	177.50	10,892.9	-113.7	818.0	4.42	2.02	3.94	-3.8	-8.8	
11,536.0	88.80	177.30	10,894.7	-208.5	822.3	0.24	-0.11	-0.21	-3.1	-7.1	
11,630.0	87.90	176.60	10,897.3	-302.4	827.3	1.30	-1.06	-0.74	-1.5	-2.9	
11,723.0	87.70	176.30	10,900.9	-395.1	833.1	0.39	-0.22	-0.32	1.0	2.1	
11,817.0	86.70	180.70	10,905.4	-489.0	835.5	4.79	-1.06	4.68	4.6	3.8	
11,910.0	86.20	180.50	10,911.2	-581.8	834.6	0.58	-0.54	-0.22	9.3	2.1	
12,004.0	89.20	180.30	10,915.0	-675.7	833.9	3.20	3.19	-0.21	12.0	0.6	



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12,097.0	89.80	179.50	10,915.8	-768.7	834.1	1.08	0.65	-0.88	11.8	0.0
12,188.0	89.32	178.82	10,916.5	-859.7	835.4	0.92	-0.53	-0.74	11.5	0.6
TGT 1 (Gem 36 State Com #501H)										
12,191.0	89.30	178.80	10,916.5	-862.7	835.5	0.92	-0.53	-0.74	11.5	0.6
12,284.0	89.10	178.00	10,917.8	-955.6	838.1	0.89	-0.22	-0.86	11.9	2.5
12,379.0	88.30	177.00	10,920.0	-1,050.5	842.2	1.35	-0.84	-1.05	13.1	5.9
12,474.0	88.30	177.50	10,922.8	-1,145.3	846.7	0.53	0.00	0.53	15.0	9.7
12,568.0	86.50	180.20	10,927.1	-1,239.2	848.6	3.45	-1.91	2.87	18.3	10.9
12,663.0	87.10	180.00	10,932.4	-1,334.1	848.5	0.67	0.63	-0.21	22.7	10.0
12,757.0	87.30	179.80	10,937.0	-1,428.0	848.6	0.30	0.21	-0.21	26.4	9.4
12,850.0	88.10	178.90	10,940.7	-1,520.9	849.7	1.29	0.88	-0.97	29.2	9.7
12,944.0	88.80	181.60	10,943.2	-1,614.8	849.3	2.97	0.74	2.87	30.8	8.5
13,038.0	89.30	182.30	10,944.8	-1,708.8	846.1	0.92	0.53	0.74	31.4	4.6
13,132.0	89.40	181.60	10,945.9	-1,802.7	842.9	0.75	0.11	-0.74	31.6	0.7
13,205.1	89.87	181.06	10,946.3	-1,875.8	841.2	0.98	0.64	-0.74	31.3	-1.6
TGT 2 (Gem 36 State Com #501H)										
13,226.0	90.00	180.90	10,946.4	-1,898.7	840.8	0.98	0.64	-0.74	31.1	-2.1
13,320.0	87.40	180.50	10,948.5	-1,990.6	839.7	2.80	-2.77	-0.43	32.4	-4.0
13,414.0	85.60	180.00	10,954.2	-2,084.5	839.3	1.99	-1.91	-0.53	37.2	-5.2
13,509.0	87.40	180.70	10,960.0	-2,179.3	838.7	2.03	1.89	0.74	42.0	-6.5
13,603.0	87.30	179.60	10,964.4	-2,273.2	838.4	1.17	-0.11	-1.17	45.5	-7.5
13,696.0	87.20	179.10	10,968.8	-2,368.1	839.5	0.55	-0.11	-0.54	49.0	-7.2
13,790.0	87.20	178.90	10,973.4	-2,459.9	841.1	0.21	0.00	-0.21	52.7	-6.3
13,885.0	86.40	178.60	10,978.7	-2,554.8	843.2	0.90	-0.84	-0.32	57.0	-5.0
13,978.0	88.40	177.30	10,982.9	-2,647.6	846.5	2.58	2.15	-1.40	60.4	-2.4
14,072.0	89.90	181.60	10,984.3	-2,741.6	847.4	4.84	1.60	4.57	60.8	-2.3
14,166.0	89.40	181.70	10,984.9	-2,835.5	844.7	0.54	-0.53	0.11	60.5	-5.7



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14,221.3	88.75	180.99	10,985.8	-2,890.8	843.4	1.73	-1.17	-1.28	60.8	-7.5
TGT 3 (Gem 36 State Com #501H)										
14,260.0	88.30	180.50	10,986.8	-2,929.5	842.9	1.73	-1.17	-1.28	61.6	-8.3
14,354.0	87.60	180.90	10,990.2	-3,023.4	841.8	0.86	-0.74	0.43	64.5	-10.2
14,448.0	87.60	180.00	10,994.1	-3,117.3	841.0	0.96	0.00	-0.96	68.0	-11.7
14,541.0	88.50	179.50	10,997.3	-3,210.3	841.4	1.11	0.97	-0.54	70.7	-12.0
14,635.0	90.60	178.60	10,998.0	-3,304.2	843.0	2.43	2.23	-0.96	71.0	-11.2
14,729.0	89.20	178.90	10,998.2	-3,398.2	845.1	1.52	-1.49	0.32	70.7	-9.8
14,823.0	87.90	177.70	11,000.5	-3,492.1	847.8	1.88	-1.38	-1.28	72.6	-7.8
14,917.0	88.50	178.00	11,003.5	-3,588.0	851.4	0.71	0.64	0.32	75.1	-5.1
15,012.0	88.60	179.10	11,005.9	-3,681.0	853.8	1.16	0.11	1.16	77.0	-3.4
15,106.0	89.00	178.80	11,007.9	-3,774.9	855.5	0.53	0.43	-0.32	78.5	-2.5
15,199.0	88.00	177.70	11,010.3	-3,867.9	858.3	1.60	-1.08	-1.18	80.5	-0.4
15,236.8	88.08	177.42	11,011.6	-3,905.6	859.9	0.78	0.21	-0.75	81.6	1.0
TGT 4 (Gem 36 State Com #501H)										
15,292.0	88.20	177.00	11,013.4	-3,960.7	862.6	0.78	0.22	-0.75	83.0	3.2
15,387.0	90.60	178.90	11,014.4	-4,055.6	866.0	3.22	2.53	2.00	83.2	5.8
15,481.0	90.60	179.30	11,013.4	-4,149.6	867.5	0.43	0.00	0.43	81.4	6.6
15,576.0	90.00	180.00	11,012.9	-4,244.6	868.1	0.97	-0.63	0.74	80.2	6.4
15,671.0	89.20	179.50	11,013.6	-4,339.6	868.5	0.99	-0.84	-0.53	80.0	6.0
15,765.0	87.60	179.10	11,016.2	-4,433.6	869.6	1.75	-1.70	-0.43	81.9	6.4
15,797.0	87.20	179.10	11,017.6	-4,465.5	870.1	1.25	-1.25	0.00	83.1	6.7
Final MWD Survey (MD=15797.0)										
15,848.3	87.20	179.10	11,020.1	-4,516.7	870.9	0.00	0.00	0.00	85.2	7.1
PBHL (Gem 36 State Com #501H)										
15,852.0	87.20	179.10	11,020.3	-4,520.4	871.0	0.00	0.00	0.00	85.3	7.1
Final Projection to Bit (MD=15852.0)										



Final PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Gem 36 State Corn
Well: #501H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #501H
TVD Reference: KB = 25 @ 3451.0usft
MD Reference: KB = 25 @ 3451.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
10,562.7	10,468.7	546.9	680.9	HL Crossing, MD:10562.7', TVD:10468.7', N/S:546.9', E/W:680.9', INC:15.93
15,797.0	11,017.6	-4,465.5	870.1	Final MWD Survey (MD=15797.0')
15,852.0	11,020.3	-4,520.4	871.0	Final Projection to Bit (MD=15852.0')

Checked By: _____ Approved By: _____ Date: _____

