



**HOBBS OCD
JUN 21 2018
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Gem 36 State Com

#709H

OH

Design: OH

Midland PVA

10 April, 2018



Midland PVA

Company:	EOG Resources - Midland			Local Co-ordinate Reference:	Well #709H
Project:	Lea County, NM (NAD 83 NME)			TVD Reference:	KB = 25 @ 3388.0usft
Site:	Gem 36 State Com			MD Reference:	KB = 25 @ 3388.0usft
Well:	#709H			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	#709H				
Well Position	+N/-S	0.0 usft	Northing:	393,670.00 usft	Latitude:
	+E/-W	0.0 usft	Easting:	758,097.00 usft	Longitude:
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:
					3,363.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/6/2017	6.92	59.91	47,798.23456463

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	350.81	



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

Survey Program	Date	4/10/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
202.0	888.0	Olebrook MWD (OH)	MWD	OWSG MWD - Standard	
961.0	17,069.0	MS MWD (OH)	MWD	OWSG MWD - Standard	

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	N/S (usft)	E/W (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
202.0	0.53	92.35	202.0	0.0	0.9	0.26	0.26	0.00	-0.9	0.0
294.0	0.53	68.62	294.0	0.1	1.8	0.24	0.00	-25.79	-1.7	-0.5
387.0	1.23	24.59	387.0	1.2	2.6	1.00	0.75	-47.34	-2.1	-1.9
482.0	0.88	32.94	482.0	2.7	3.4	0.40	-0.37	8.79	-4.1	-1.4
576.0	0.97	29.60	576.0	4.0	4.2	0.11	0.10	-3.55	-5.5	-1.7
670.0	0.18	258.29	670.0	4.7	4.4	1.17	-0.84	-139.69	5.3	-3.7
765.0	0.97	305.58	764.9	5.1	3.6	0.90	0.83	49.78	0.0	-6.3
888.0	0.97	325.26	887.9	6.6	2.2	0.27	0.00	16.00	-4.1	-5.5
961.0	0.40	349.40	960.9	7.3	1.8	0.86	-0.78	33.07	-6.9	-3.1
1,146.0	0.20	330.80	1,145.9	8.2	1.5	0.12	-0.11	-10.05	-6.5	-5.3
1,332.0	0.10	242.70	1,331.9	8.4	1.2	0.12	-0.05	-47.37	4.9	-7.0
1,517.0	1.50	293.20	1,516.9	9.3	-1.2	0.78	0.76	27.30	-4.7	-8.1
1,704.0	5.00	268.20	1,703.6	10.0	-11.6	1.98	1.87	-13.37	-4.1	-11.8
1,892.0	7.00	261.80	1,890.5	8.1	-31.1	1.12	1.06	-3.40	-4.4	-14.6
2,079.0	6.50	263.30	2,076.2	5.3	-52.9	0.28	-0.27	0.80	-7.3	-16.3
2,267.0	6.80	262.40	2,263.0	2.6	-74.5	0.17	0.16	-0.48	-9.3	-18.5
2,454.0	6.30	257.20	2,448.8	-1.2	-95.5	0.41	-0.27	-2.78	-9.4	-20.3
2,642.0	5.80	256.10	2,635.7	-5.7	-114.7	0.27	-0.27	-0.59	-9.1	-20.4
2,829.0	6.20	252.40	2,821.7	-11.1	-133.5	0.30	0.21	-1.98	-7.9	-20.0
3,017.0	3.90	265.40	3,008.9	-14.6	-149.6	1.36	-1.22	6.91	-9.0	-18.3



Midland PVA

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Site: Gem 36 State Com		MD Reference: KB = 25 @ 3388.0usft	
Well: #709H		North Reference: Grid	
Wellbore: OH		Survey Calculation Method: Minimum Curvature	
Design: OH		Database: EDM 5000.14	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	OLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
3,205.0	5.60	255.40	3,196.3	-17.5	-164.8	1.00	0.90	-5.32	-1.5	-20.1	
3,392.0	3.10	263.80	3,382.7	-20.3	-178.7	1.38	-1.34	4.49	1.0	-20.7	
3,580.0	5.30	273.20	3,570.2	-20.4	-192.4	1.22	1.17	5.00	2.8	-25.2	
3,768.0	6.10	266.10	3,757.3	-20.6	-211.1	0.57	0.43	-3.78	6.7	-28.8	
3,955.0	7.20	255.30	3,943.0	-24.2	-232.3	0.89	0.59	-5.78	10.0	-28.4	
4,143.0	4.10	225.50	4,130.2	-31.9	-248.5	2.22	-1.65	-15.85	22.5	-15.3	
4,331.0	6.00	235.70	4,317.4	-42.2	-261.4	1.11	1.01	5.43	21.4	-10.7	
4,518.0	7.10	221.10	4,503.2	-56.4	-277.1	1.06	0.59	-7.81	18.2	4.0	
4,706.0	6.30	249.90	4,690.0	-68.7	-294.4	1.82	-0.43	15.32	16.9	2.8	
4,893.0	9.00	264.60	4,875.3	-73.6	-318.6	1.77	1.44	7.86	17.0	-2.4	
5,081.0	9.70	266.80	5,060.8	-75.9	-349.1	0.42	0.37	1.17	20.0	-8.8	
5,269.0	10.40	262.80	5,245.9	-78.9	-381.7	0.53	0.37	-2.13	22.2	-12.6	
5,457.0	10.50	264.30	5,430.8	-82.7	-415.6	0.15	0.05	0.80	22.1	-17.7	
5,643.0	11.50	263.30	5,613.4	-86.6	-450.9	0.55	0.54	-0.54	20.9	-22.0	
5,831.0	10.80	259.00	5,797.8	-92.1	-486.8	0.58	-0.37	-2.29	20.8	-23.6	
6,018.0	10.40	253.20	5,981.7	-100.3	-520.1	0.61	-0.21	-3.10	23.1	-21.5	
6,205.0	10.10	249.90	6,165.7	-110.8	-551.7	0.35	-0.16	-1.76	25.4	-17.4	
6,394.0	11.60	251.70	6,351.3	-122.5	-585.3	0.81	0.79	0.95	24.0	-15.0	
6,582.0	10.50	252.80	6,535.8	-133.5	-619.6	0.60	-0.59	0.59	22.2	-13.2	
6,769.0	10.30	252.80	6,719.7	-143.5	-651.9	0.11	-0.11	0.00	22.9	-11.2	
6,957.0	8.60	253.90	6,905.2	-152.4	-681.4	0.91	-0.90	0.59	26.5	-10.0	
7,145.0	7.80	249.70	7,091.2	-160.7	-706.9	0.53	-0.43	-2.23	28.3	-6.0	
7,333.0	7.70	245.60	7,277.5	-170.3	-730.3	0.30	-0.05	-2.18	18.7	-2.0	
7,520.0	4.20	237.10	7,463.5	-179.2	-747.5	1.92	-1.87	-4.55	2.9	0.1	
7,707.0	1.90	232.60	7,650.2	-184.8	-755.7	1.24	-1.23	-2.41	-7.0	-0.2	
7,895.0	4.30	247.50	7,837.9	-189.4	-764.7	1.34	1.28	7.93	-16.9	2.4	
8,082.0	0.80	170.90	8,024.7	-193.4	-771.0	2.24	-1.87	-40.96	-9.2	-22.7	



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Well:	#709H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Solid (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
8,270.0	0.60	94.50	8,212.7	-194.7	-769.8	0.47	-0.11	-40.64	18.6	-15.5	
8,457.0	1.60	69.50	8,399.7	-193.9	-766.4	0.58	0.53	-13.37	19.9	-6.6	
8,645.0	1.70	71.50	8,587.6	-192.1	-761.3	0.06	0.05	1.06	14.3	-7.2	
8,832.0	1.60	47.20	8,774.5	-189.4	-756.7	0.38	-0.05	-12.99	10.9	-1.8	
9,020.0	2.20	65.10	8,962.4	-186.1	-751.5	0.45	0.32	9.52	3.7	-4.3	
9,208.0	0.70	7.10	9,150.4	-183.5	-748.1	1.02	-0.80	-30.85	2.5	-2.2	
9,396.0	0.60	340.10	9,338.4	-181.4	-748.3	0.17	-0.05	-14.36	1.2	-1.4	
9,583.0	0.60	309.10	9,525.4	-179.9	-749.4	0.17	0.00	-16.58	-0.1	-1.0	
9,771.0	0.90	309.10	9,713.3	-178.3	-751.3	0.16	0.16	0.00	-2.5	-1.0	
9,957.0	1.50	283.80	9,899.3	-176.8	-754.8	0.42	0.32	-13.60	-5.6	-2.6	
10,145.0	1.20	274.70	10,087.3	-176.1	-759.1	0.20	-0.16	-4.84	-9.5	-3.9	
10,333.0	1.30	19.00	10,275.2	-173.9	-760.4	1.05	0.05	55.48	-3.1	12.1	
10,521.0	1.30	46.70	10,463.2	-170.4	-758.2	0.33	0.00	14.73	-1.1	13.1	
10,707.0	1.30	38.40	10,649.1	-167.3	-755.3	0.10	0.00	-4.46	-7.2	12.5	
10,894.0	1.10	12.70	10,836.1	-163.9	-753.6	0.30	-0.11	-13.74	-15.6	7.2	
11,082.0	0.80	330.90	11,024.1	-161.0	-753.9	0.39	-0.16	-22.23	-19.1	-6.2	
11,270.0	1.20	288.20	11,212.0	-159.9	-756.5	0.58	0.21	-33.35	-5.8	-21.0	
11,457.0	1.40	253.10	11,399.0	-160.6	-760.6	0.21	0.11	-8.07	-4.3	-22.3	
11,572.0	1.80	233.20	11,514.0	-162.1	-763.4	0.59	0.35	-17.30	0.4	-22.9	
11,662.0	2.40	252.60	11,603.9	-163.5	-766.3	1.02	0.67	21.56	-10.4	-21.3	
11,756.0	2.20	263.80	11,697.8	-164.3	-770.0	0.52	-0.21	11.91	-18.1	-18.5	
11,850.0	3.10	312.20	11,791.7	-162.8	-773.7	2.47	0.96	51.49	-29.6	2.6	
11,895.0	7.60	335.20	11,836.5	-159.3	-775.8	10.88	10.00	51.11	-30.1	14.6	
11,943.0	14.40	332.90	11,883.6	-151.1	-779.9	14.19	14.17	-4.79	-36.1	14.7	
11,989.0	20.90	336.70	11,927.4	-138.4	-785.7	14.34	14.13	8.26	-40.9	20.2	
12,037.0	27.80	346.90	11,971.1	-119.6	-791.7	16.79	14.38	21.25	-43.1	30.2	
12,083.0	35.50	353.20	12,010.3	-95.9	-795.7	18.20	16.74	13.70	-46.7	35.9	



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

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLog (°/100usft)	Bulld (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
12,131.0	41.70	353.60	12,047.8	-66.2	-799.1	12.93	12.92	0.83	-54.7	36.2
12,179.0	47.30	354.50	12,082.0	-32.7	-802.6	11.74	11.67	1.88	-62.0	36.6
12,224.0	52.60	356.40	12,110.9	1.6	-805.3	12.21	11.78	4.22	-67.8	36.8
12,271.0	58.80	359.10	12,137.4	40.4	-806.8	14.02	13.19	5.74	-73.3	35.8
12,317.0	61.30	0.90	12,160.4	80.2	-806.8	6.41	5.43	3.91	-77.6	32.0
12,337.0	61.47	1.32	12,170.0	97.8	-806.4	2.01	0.83	2.09	-78.5	29.5
HL Crossing 12337.0' MD; 12170.0' TVD; 97.8°; -806.4'; 61.47										
12,365.0	61.70	1.90	12,183.3	122.4	-805.8	2.01	0.84	2.08	-78.1	25.7
12,412.0	64.20	1.90	12,204.7	164.2	-804.4	5.32	5.32	0.00	-74.4	18.3
12,459.0	67.20	0.50	12,224.0	207.1	-803.5	6.94	6.38	-2.98	-67.5	10.9
12,506.0	69.40	359.90	12,241.4	250.7	-803.3	4.83	4.68	-1.28	-57.4	4.6
12,553.0	70.80	359.80	12,257.4	294.9	-803.4	2.99	2.98	-0.21	-43.6	-1.2
12,600.0	76.30	358.40	12,270.7	340.0	-804.2	12.05	11.70	-2.98	-29.6	-5.3
12,647.0	78.70	355.80	12,280.8	385.8	-806.5	7.43	5.11	-5.53	-18.7	-6.7
12,694.0	84.00	354.40	12,287.9	432.1	-810.5	11.65	11.28	-2.98	-11.0	-5.3
12,788.0	93.40	0.30	12,290.0	525.8	-814.8	11.80	10.00	6.28	-7.4	-2.9
12,882.0	92.40	1.40	12,285.3	619.7	-813.4	1.58	-1.06	1.17	-10.7	-3.4
12,976.0	87.90	2.90	12,285.0	713.6	-809.9	5.05	-4.79	1.60	-9.5	-6.1
13,069.0	88.90	359.80	12,287.6	806.5	-807.7	3.50	1.08	-3.33	-5.5	-7.4
13,167.0	89.40	358.80	12,289.1	904.5	-808.9	1.14	0.51	-1.02	-2.6	-5.4
13,261.0	92.40	0.60	12,287.6	998.4	-809.4	3.72	3.19	1.91	-3.3	-4.0
13,355.0	89.70	1.30	12,285.9	1,092.4	-807.8	2.97	-2.87	0.74	-4.2	-4.7
13,450.0	86.80	1.30	12,288.8	1,187.3	-805.6	3.05	-3.05	0.00	-0.5	-6.0
13,543.0	88.40	359.80	12,292.7	1,280.2	-804.8	2.36	1.72	-1.61	4.3	-6.1
13,637.0	88.60	359.20	12,295.1	1,374.2	-805.6	0.67	0.21	-0.64	7.5	-4.4
13,731.0	90.10	0.10	12,296.2	1,468.2	-806.2	1.86	1.60	0.96	9.4	-3.0
13,825.0	92.20	0.10	12,294.3	1,562.2	-806.0	2.23	2.23	0.00	8.4	-2.3



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Well:	#709H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Ino (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	D Leg (°/100usft)	Bu'd (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
13,917.0	92.20	357.60	12,290.8	1,654.1	-807.8	2.72	0.00	-2.72	5.7	0.4	
14,011.0	92.30	0.30	12,287.1	1,748.0	-809.6	2.87	0.11	2.87	2.8	2.9	
14,104.0	90.20	358.50	12,285.1	1,840.9	-810.5	2.97	-2.26	-1.94	1.6	4.7	
14,198.0	97.10	7.10	12,279.1	1,934.5	-806.0	11.71	7.34	9.15	-3.4	1.0	
14,294.0	94.50	7.40	12,269.4	2,029.3	-793.9	2.73	-2.71	0.31	-11.9	-10.2	
14,388.0	91.00	6.30	12,264.9	2,122.5	-782.7	3.90	-3.72	-1.17	-15.3	-20.5	
14,482.0	90.30	2.30	12,263.8	2,216.2	-775.7	4.32	-0.74	-4.26	-15.1	-26.7	
14,576.0	91.50	0.50	12,262.3	2,310.1	-773.4	2.30	1.28	-1.91	-15.4	-28.2	
14,670.0	91.70	7.00	12,259.7	2,403.8	-767.2	6.92	0.21	6.91	-16.8	-33.5	
14,763.0	87.50	0.90	12,260.4	2,496.5	-760.8	7.98	-4.52	-6.56	-14.9	-39.1	
14,813.0	83.90	358.70	12,264.1	2,546.4	-761.0	8.43	-7.20	-4.40	-10.4	-38.5	
14,843.0	84.60	358.30	12,267.1	2,576.2	-761.8	2.68	2.33	-1.33	-7.0	-37.4	
14,857.0	86.40	357.70	12,268.2	2,590.2	-762.3	13.55	12.86	-4.29	-5.8	-36.8	
14,887.0	86.30	357.00	12,270.1	2,620.1	-763.7	2.35	-0.33	-2.33	-3.5	-35.1	
14,933.0	85.50	355.50	12,273.4	2,665.9	-766.7	3.69	-1.74	-3.26	0.5	-31.7	
14,951.0	86.20	355.00	12,274.7	2,683.8	-768.2	4.77	3.89	-2.78	2.0	-30.0	
15,046.0	92.00	355.60	12,276.2	2,778.4	-775.9	6.14	6.11	0.63	4.4	-21.4	
15,076.0	91.40	355.10	12,275.3	2,808.3	-778.4	2.60	-2.00	-1.67	4.0	-18.7	
15,108.0	91.70	357.20	12,274.4	2,840.2	-780.5	6.63	0.94	6.56	3.5	-16.3	
15,139.0	90.90	357.20	12,273.7	2,871.1	-782.0	2.58	-2.58	0.00	3.2	-14.5	
15,186.0	91.20	357.30	12,272.9	2,918.1	-784.3	0.87	0.64	0.21	3.0	-11.8	
15,233.0	93.80	358.50	12,270.8	2,965.0	-786.0	6.09	5.53	2.55	1.8	-9.7	
15,276.0	95.50	358.50	12,267.3	3,007.8	-787.1	3.95	3.95	0.00	-0.8	-8.2	
15,327.0	96.70	358.80	12,261.9	3,058.5	-788.3	2.42	2.35	0.59	-5.2	-6.5	
15,374.0	96.10	359.40	12,256.7	3,105.2	-789.1	1.80	-1.28	1.28	-9.5	-5.4	
15,421.0	94.80	359.40	12,252.2	3,152.0	-789.5	2.77	-2.77	0.00	-13.1	-4.4	
15,468.0	91.00	359.00	12,249.8	3,199.0	-790.2	8.13	-8.09	-0.85	-14.5	-3.4	



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #709H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3388.0usft
Site:	Gem 36 State Com	MD Reference:	KB = 25 @ 3388.0usft
Well:	#709H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Bulld (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
15,515.0	90.30	359.80	12,249.3	3,245.9	-790.7	2.26	-1.49	1.70	-14.1	-2.5
15,562.0	87.00	358.40	12,250.4	3,292.9	-791.4	7.63	-7.02	-2.98	-12.1	-1.3
15,609.0	86.90	358.30	12,252.9	3,339.8	-792.8	0.30	-0.21	-0.21	-8.7	0.5
15,656.0	90.30	357.40	12,254.1	3,386.8	-794.5	7.48	7.23	-1.91	-6.6	2.7
15,702.0	91.90	357.30	12,253.2	3,432.7	-796.7	3.49	3.48	-0.22	-6.6	5.2
15,749.0	92.00	357.30	12,251.6	3,479.6	-798.9	0.21	0.21	0.00	-7.2	7.8
15,796.0	93.00	358.00	12,249.5	3,526.6	-800.8	2.80	2.13	1.49	-8.3	10.2
15,843.0	94.00	359.20	12,246.7	3,573.5	-802.0	3.32	2.13	2.55	-10.3	11.8
15,890.0	95.50	0.70	12,242.8	3,620.3	-802.0	4.51	3.19	3.19	-13.2	12.2
15,937.0	93.30	1.00	12,239.2	3,667.1	-801.3	4.72	-4.68	0.64	-15.9	11.9
15,984.0	90.50	2.10	12,237.6	3,714.1	-800.0	6.40	-5.96	2.34	-16.6	11.1
16,078.0	93.70	5.00	12,234.2	3,807.8	-794.2	4.59	3.40	3.09	-18.2	8.1
16,172.0	90.40	3.80	12,230.8	3,901.5	-787.0	3.74	-3.51	-1.28	-19.7	-0.3
16,266.0	91.30	3.40	12,229.4	3,995.3	-781.1	1.05	0.96	-0.43	-19.0	-5.3
16,360.0	95.30	2.50	12,224.0	4,089.0	-776.3	4.36	4.26	-0.96	-22.3	-9.3
16,454.0	93.60	1.70	12,216.7	4,182.6	-772.8	2.00	-1.81	-0.85	-27.5	-11.9
16,548.0	91.20	2.80	12,212.8	4,276.5	-769.2	2.81	-2.55	1.17	-29.3	-14.7
16,641.0	89.50	2.50	12,212.2	4,369.4	-764.9	1.86	-1.83	-0.32	-27.8	-18.2
16,735.0	89.90	0.30	12,212.7	4,463.3	-762.6	2.38	0.43	-2.34	-25.2	-19.6
16,829.0	90.70	358.80	12,212.2	4,557.3	-763.3	1.81	0.85	-1.60	-23.6	-18.0
16,923.0	97.30	0.00	12,205.6	4,651.0	-764.3	7.14	7.02	1.28	-28.0	-16.3
16,990.4	98.28	0.08	12,196.5	4,717.8	-764.2	1.46	1.46	0.11	-35.7	-15.7
HL Crossing 16990.4' MD; 12196.5' TVD; 4717.8'; -764.2'; 98.28										
17,012.0	98.60	0.10	12,193.3	4,739.2	-764.2	1.46	1.46	0.11	-38.4	-15.6
Last MWD Survey (MD = 17012.0)										
17,069.0	98.60	0.10	12,184.8	4,795.5	-764.1	0.00	0.00	0.00	-45.6	-15.2
Projection to Bit (MD = 17069.0)										



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #709H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3388.0usft
Site:	Gem 38 State Com	MD Reference:	KB = 25 @ 3388.0usft
Well:	#709H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
12,337.0	12,170.0	97.8	-806.4	HL Crossing 12337.0' MD; 12170.0' TVD; 97.8'; -806.4'; 61.47
16,990.4	12,196.5	4,717.8	-764.2	HL Crossing 16990.4' MD; 12196.5' TVD; 4717.8'; -764.2'; 98.28
17,012.0	12,193.3	4,739.2	-764.2	Last MWD Survey (MD = 17012.0)
17,069.0	12,184.8	4,795.5	-764.1	Projection to Bit (MD = 17069.0)

Checked By: _____ Approved By: _____ Date: _____



Lea County, NM (NAD 83 NME)

Gem 36 State Com #709H

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: #709H

KB = 25 @ 3388.0usft 3363.0
Northing 393670.00 Easting 758097.00 Latitude 32° 4' 49.244 N Longitude 103° 38' 0.524 W

SECTION DETAILS

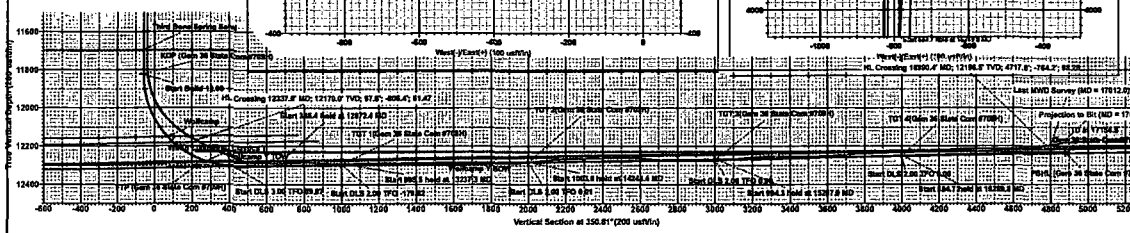
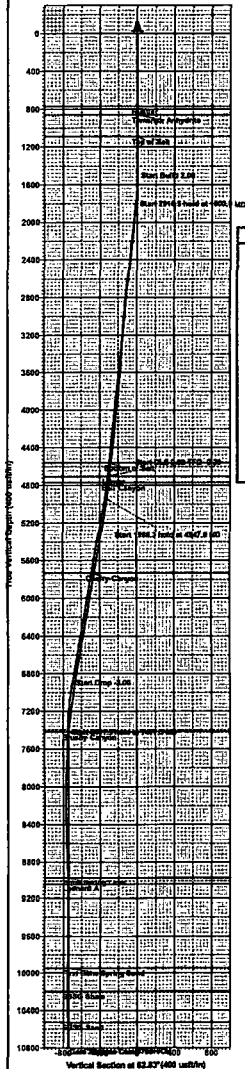
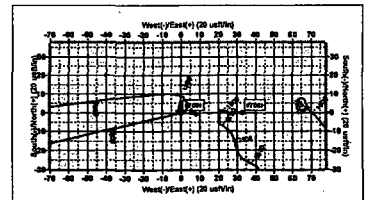
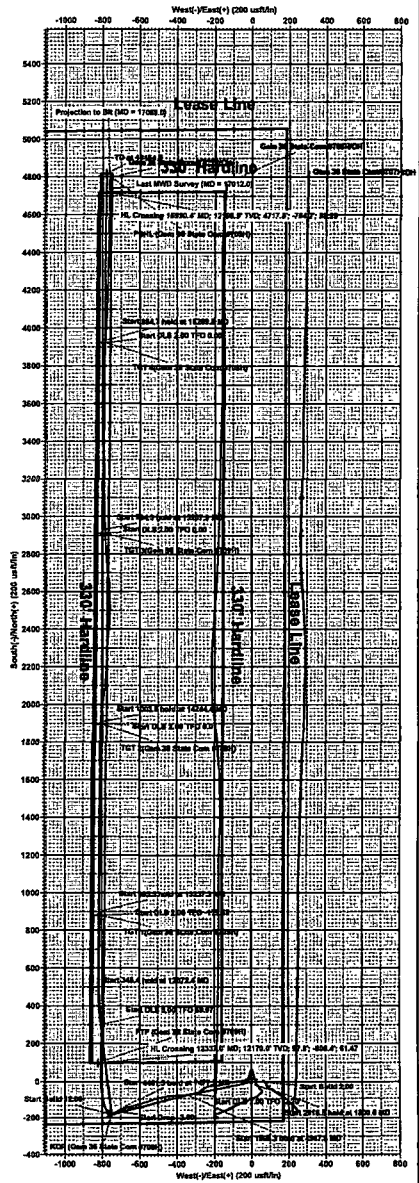
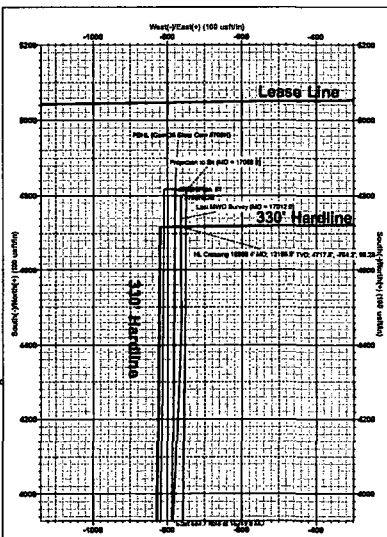
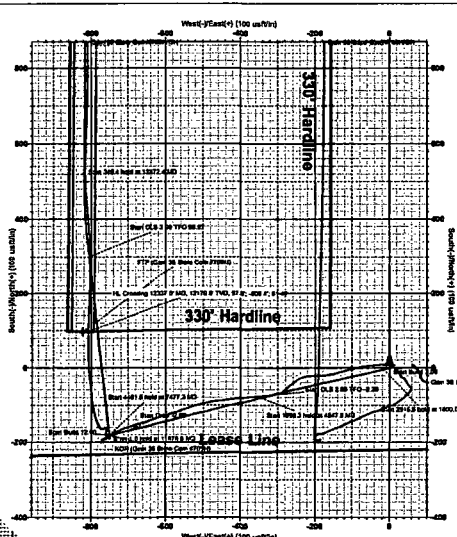
Sec	MD	Inc	Asl	TYD	+N-S	+E-W	Dleg	TFace	Vsect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0		
3	1600.0	6.00	257.00	1799.5	-3.5	-15.3	2.00	257.00	-1.0		
4	4716.5	6.00	257.00	4700.0	-72.1	-312.3	0.00	0.00	-21.3		
5	4847.8	10.62	256.04	4828.8	-80.0	-344.8	2.00	-2.20	-23.9		
6	6946.1	10.62	256.04	6892.9	-158.3	-702.3	0.00	0.00	-54.8		
7	7477.3	0.00	0.00	7421.0	-180.7	-750.0	2.00	180.00	-58.7		
8	11878.8	0.00	0.00	11822.5	-180.7	-750.0	0.00	0.00	-58.7		
9	11878.8	0.00	0.00	11823.5	-180.7	-750.0	0.00	0.00	-58.7		
10	12637.1	90.88	353.48	12300.9	300.9	-409.2	12.00	353.48	425.6		
11	12872.4	90.88	0.52	12297.3	535.7	-417.8	3.00	89.97	658.3		TGT 1 (Gem 36 State Com #709H)
12	13218.8	90.88	0.52	12292.0	882.0	-414.4	0.00	0.00	1000.7		TGT 2 (Gem 36 State Com #709H)
13	13237.3	90.51	0.52	12291.8	900.8	-414.3	2.00	-179.62	1019.0		TGT 3 (Gem 36 State Com #709H)
14	14232.9	90.51	0.52	12283.0	1888.0	-405.3	0.00	0.00	2006.2		TGT 4 (Gem 36 State Com #709H)
15	14344.4	90.74	0.52	12282.9	1907.5	-405.2	0.00	0.00	2011.8		
16	15248.0	90.74	0.52	12270.0	2911.0	-798.2	0.00	0.00	3008.8		
17	15287.9	91.13	0.52	12269.7	2930.9	-798.0	2.00	0.00	3026.4		
18	16282.2	91.13	0.52	12250.0	3925.0	-787.0	0.00	0.00	4006.3		
19	16288.8	91.29	0.52	12249.8	3932.6	-787.0	2.00	0.00	4007.8		
20	17154.5	91.29	0.52	12230.0	4817.0	-779.0	0.00	0.00	4878.6		PBHL (Gem 36 State Com #709H)

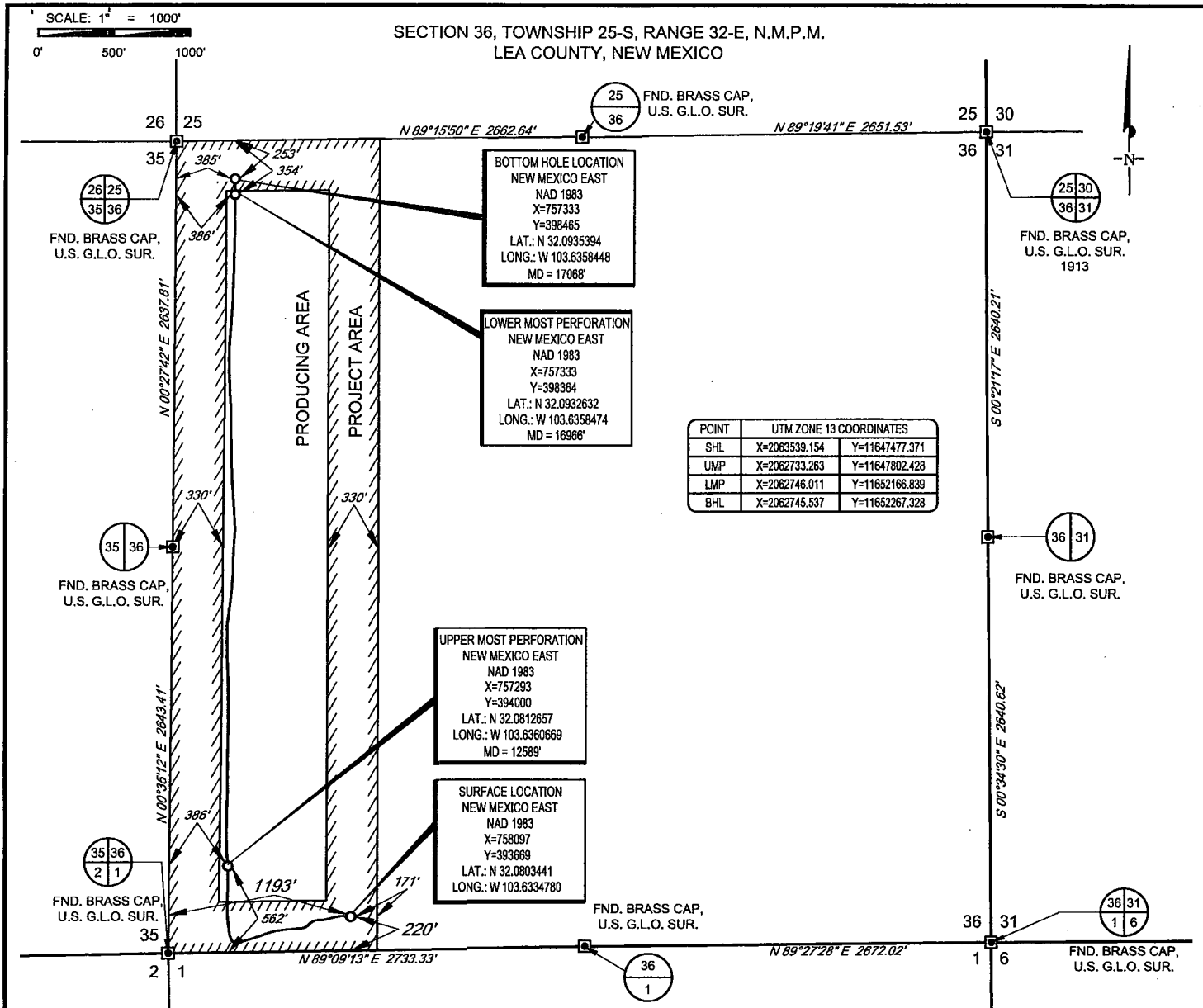
CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

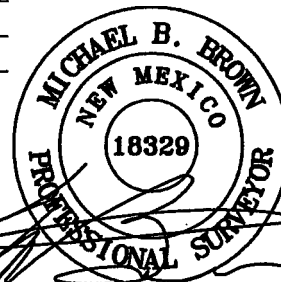
Name	TYD	+N-S	+E-W	Northing	Easting
TGT 1 (Gem 36 State Com #709H)	12292.0	882.0	-414.4	394552.00	757282.57
TGT 2 (Gem 36 State Com #709H)	12291.0	1898.0	-405.3	395568.00	757291.70
TGT 3 (Gem 36 State Com #709H)	12270.0	2911.0	-798.2	395581.00	757300.84
TGT 4 (Gem 36 State Com #709H)	12250.0	3925.0	-787.0	397985.00	757308.97
PBHL (Gem 36 State Com #709H)	12230.0	4817.0	-779.0	398487.00	757318.00
FTP (Gem 36 State Com #709H)	12300.0	97.0	-422.0	393767.00	757273.00
KOP (Gem 36 State Com #709H)	11822.5	-180.7	-750.0	393489.26	757347.00





TOPOGRAPHIC
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Michael Blake Brown, P.S. No. 18329
JUNE 1, 2018

eoog resources, inc.

GEM 36 STATE COM #709H AS-DRILLED	REVISION:		NOTES:
	INT	DATE	
DATE: 6/1/2018			1. ORIGINAL DOCUMENT SIZE: 8.5" X 11" 2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET. 3. THIS WELL LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY EOG RESOURCES, INC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
FILE:AD_GEM_36_STATE_COM_709H			
DRAWN BY: IMU			
SHEET: 1 OF 1			