



HOBBS OCD
JUN 11 2018
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ruby 2 State Com

#709H

OH

Survey: Intrepid MWD

Midland PVA

28 March, 2018



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #709H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3322.0usft (H&P 647)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3322.0usft (H&P 647)
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	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	#709H		
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/29/2017	6.82	59.94	47,812.27371989

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
		Direction (°)	181.50

Survey Program	Date	3/28/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
146.0	17,725.0	Intrepid MWD (OH)	MWD	OWSG MWD - Standard



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Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Bulld (°/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		
146.0	0.40	350.30	146.0	0.5	-0.1	0.27	0.27	0.00	-0.5	0.0		
239.0	0.60	97.60	239.0	0.8	0.3	0.88	0.22	115.38	-0.2	0.8		
332.0	0.60	85.30	332.0	0.7	1.3	0.14	0.00	-13.23	-1.4	0.6		
425.0	0.50	66.40	425.0	0.9	2.2	0.22	-0.11	-20.32	-2.4	0.0		
517.0	0.50	43.50	517.0	1.4	2.8	0.22	0.00	-24.89	-2.9	-1.1		
613.0	0.60	28.50	613.0	2.1	3.3	0.18	0.10	-15.62	-3.5	-1.9		
699.0	0.70	15.10	699.0	3.0	3.7	0.21	0.12	-15.58	-3.9	-2.8		
792.0	1.00	7.90	792.0	4.4	4.0	0.34	0.32	-7.74	-4.9	-3.3		
885.0	1.10	12.10	884.9	6.1	4.2	0.14	0.11	4.52	-6.8	-2.9		
978.0	1.30	5.20	977.9	8.0	4.5	0.26	0.22	-7.42	-8.4	-3.8		
1,022.0	1.40	5.60	1,021.9	9.0	4.6	0.23	0.23	0.91	-9.4	-3.7		
1,079.0	1.10	7.80	1,078.9	10.3	4.8	0.53	-0.53	3.86	-10.8	-3.3		
1,264.0	2.20	346.40	1,263.8	15.5	4.2	0.67	0.59	-11.57	-14.0	-7.7		
1,450.0	2.20	337.50	1,449.7	22.2	2.0	0.18	0.00	-4.78	-19.8	-10.3		
1,543.0	2.10	339.30	1,542.6	25.5	0.7	0.13	-0.11	1.94	-23.6	-9.7		
1,730.0	2.30	333.20	1,729.5	32.0	-2.2	0.16	0.11	-3.26	-29.6	-12.5		
1,918.0	2.70	340.20	1,917.3	39.6	-5.4	0.27	0.21	3.72	-39.1	-8.3		
2,105.0	2.80	345.80	2,104.1	48.1	-8.0	0.15	0.05	2.99	-48.6	-4.0		
2,293.0	3.30	326.60	2,291.8	57.1	-12.1	0.60	0.27	-10.21	-54.3	-21.3		
2,481.0	3.30	320.30	2,479.5	65.8	-18.6	0.19	0.00	-3.35	-62.5	-27.8		
2,669.0	3.30	328.20	2,667.2	74.5	-24.9	0.24	0.00	4.20	-76.5	-18.2		
2,856.0	3.50	335.10	2,853.9	84.3	-30.1	0.24	0.11	3.69	-89.1	-8.2		
3,045.0	4.10	340.70	3,042.5	95.9	-34.8	0.37	0.32	2.96	-102.0	1.1		
3,232.0	4.40	323.50	3,229.0	108.0	-41.3	0.70	0.16	-9.20	-111.3	-31.2		
3,420.0	4.50	337.40	3,416.4	120.6	-48.4	0.57	0.05	7.39	-129.9	-1.7		
3,607.0	4.80	334.90	3,602.8	134.5	-54.5	0.19	0.16	-1.34	-144.9	-7.7		



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

Survey											
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3,794.0	4.70	326.20	3,789.1	147.9	-62.1	0.39	-0.05	-4.65	-157.4	-30.8	
3,982.0	4.70	337.70	3,976.5	161.4	-69.3	0.50	0.00	6.12	-175.7	2.9	
4,170.0	4.50	329.10	4,163.9	174.9	-76.0	0.38	-0.11	-4.57	-189.1	-24.7	
4,358.0	3.60	316.10	4,351.4	185.5	-83.9	0.68	-0.48	-6.91	-191.8	-68.3	
4,545.0	2.00	342.40	4,538.2	192.8	-89.0	1.08	-0.86	14.06	-210.7	26.5	
4,733.0	1.90	356.80	4,726.1	199.0	-90.1	0.27	-0.05	7.66	-203.8	78.9	
4,826.0	2.50	5.60	4,819.0	202.6	-90.0	0.74	0.65	9.46	-192.8	109.4	
5,014.0	3.00	52.20	5,006.8	209.7	-85.7	1.18	0.27	24.79	-60.7	218.3	
5,107.0	2.70	72.80	5,099.7	211.8	-81.7	1.14	-0.32	22.15	15.4	226.5	
5,229.0	2.60	81.80	5,221.6	213.1	-76.2	0.35	-0.08	7.38	44.9	221.7	
5,287.0	2.50	83.40	5,279.5	213.4	-73.7	0.21	-0.17	2.76	47.8	219.5	
5,474.0	1.10	3.20	5,466.5	215.7	-69.5	1.37	-0.75	-42.89	-201.0	72.9	
5,661.0	5.90	292.70	5,653.1	221.2	-78.3	3.01	2.57	-37.70	-126.6	-152.4	
5,848.0	6.40	281.60	5,839.0	227.0	-97.4	0.69	0.27	-5.94	-95.4	-156.4	
6,035.0	4.90	285.50	6,025.1	231.2	-115.3	0.83	-0.80	2.09	-102.7	-131.3	
6,223.0	4.50	287.70	6,212.5	235.6	-130.0	0.23	-0.21	1.17	-101.1	-110.0	
6,411.0	3.90	285.60	6,400.0	239.6	-143.2	0.33	-0.32	-1.12	-89.5	-96.1	
6,600.0	4.10	310.10	6,588.5	245.7	-154.6	0.90	0.11	12.96	-106.9	-40.5	
6,788.0	4.60	317.90	6,776.0	255.6	-164.8	0.41	0.27	4.15	-98.1	-21.1	
6,975.0	0.90	12.40	6,962.8	262.6	-169.5	2.22	-1.98	29.14	-61.2	53.5	
7,163.0	1.00	40.00	7,150.7	265.3	-168.1	0.25	0.05	14.68	-24.9	49.8	
7,350.0	1.10	44.20	7,337.7	267.8	-165.8	0.07	0.05	2.25	-19.1	24.9	
7,538.0	0.90	43.80	7,525.7	270.2	-163.5	0.11	-0.11	-0.21	-18.3	5.6	
7,725.0	0.90	57.60	7,712.7	272.0	-161.3	0.12	0.00	7.38	-19.6	2.9	
7,913.0	1.00	58.30	7,900.6	273.7	-158.6	0.05	0.05	0.37	-22.7	3.1	
8,100.0	0.80	76.40	8,087.6	274.8	-156.0	0.18	-0.11	9.68	-23.4	10.5	
8,288.0	1.20	113.30	8,275.6	274.4	-152.9	0.39	0.21	19.63	-15.5	23.2	



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8,476.0	1.60	118.80	8,463.5	272.3	-148.8	0.22	0.21	2.93	-17.8	24.8	
8,663.0	1.80	120.90	8,650.4	269.6	-144.0	0.11	0.11	1.12	-22.4	25.5	
8,851.0	2.00	112.70	8,838.3	266.8	-138.4	0.18	0.11	-4.36	-32.0	21.7	
9,038.0	1.80	104.20	9,025.2	264.8	-132.6	0.18	-0.11	-4.55	-41.0	16.2	
9,226.0	1.30	254.00	9,213.2	263.5	-131.7	1.59	-0.27	79.68	44.0	8.1	
9,413.0	0.70	285.50	9,400.2	263.2	-134.9	0.42	-0.32	16.84	38.8	-15.0	
9,599.0	0.30	133.90	9,586.2	263.2	-135.6	0.52	-0.22	-81.51	-26.5	31.1	
9,787.0	1.10	351.40	9,774.2	264.6	-135.5	0.72	0.43	-75.80	0.7	-41.1	
9,974.0	3.00	311.20	9,961.1	269.6	-139.5	1.22	1.02	-21.50	20.8	-32.1	
10,161.0	5.10	331.90	10,147.6	280.2	-147.1	1.35	1.12	11.07	-4.8	-35.7	
10,348.0	4.00	331.20	10,334.0	293.2	-154.2	0.59	-0.59	-0.37	-19.1	-35.8	
10,535.0	3.80	314.90	10,520.6	303.3	-161.7	0.60	-0.11	-8.72	-20.8	-41.6	
10,722.0	3.80	266.10	10,707.2	307.3	-172.3	1.68	0.00	-26.10	7.3	-47.7	
10,910.0	1.80	208.60	10,895.0	304.2	-179.9	1.71	-1.06	-30.59	37.9	-24.7	
11,095.0	1.40	209.30	11,079.9	299.7	-182.4	0.22	-0.22	0.38	32.4	-25.2	
11,283.0	2.20	189.70	11,267.8	294.2	-184.1	0.53	0.43	-10.43	33.2	-13.6	
11,470.0	3.70	193.90	11,454.6	284.8	-186.2	0.81	0.80	2.25	22.5	-15.8	
11,657.0	1.00	142.80	11,641.4	277.6	-186.6	1.69	-1.44	-27.33	20.9	2.9	
11,845.0	0.40	283.50	11,829.4	276.5	-186.3	0.71	-0.32	74.84	-13.7	-14.5	
11,903.0	0.30	266.50	11,887.4	276.5	-186.6	0.25	-0.17	-29.31	-9.3	-17.9	
11,946.0	0.50	321.40	11,930.4	276.6	-186.9	0.95	0.47	127.67	-20.2	-2.6	
12,040.0	1.10	335.80	12,024.4	277.8	-187.5	0.67	0.64	15.32	-21.6	2.6	
12,133.0	1.20	340.20	12,117.4	279.5	-188.2	0.14	0.11	4.73	-23.2	4.3	
12,227.0	0.80	343.90	12,211.4	281.1	-188.7	0.43	-0.43	3.94	-24.5	5.8	
12,321.0	1.00	333.80	12,305.4	282.4	-189.2	0.27	0.21	-10.74	-26.6	1.3	
12,413.0	0.80	295.80	12,397.3	283.4	-190.2	0.67	-0.22	-41.30	-23.4	-16.4	
12,459.0	4.00	210.00	12,443.3	282.2	-191.3	8.74	6.96	-186.52	17.0	-27.1	



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12,504.0	9.40	193.00	12,488.0	277.2	-192.9	12.66	12.00	-37.78	27.3	-23.3
12,550.0	12.00	187.20	12,533.2	268.8	-194.3	6.11	5.65	-12.61	33.6	-22.6
12,595.0	14.10	192.50	12,577.0	258.8	-196.1	5.37	4.67	11.78	37.3	-28.6
12,641.0	17.40	195.80	12,621.3	246.7	-199.2	7.43	7.17	7.17	43.2	-35.6
12,689.0	21.90	195.50	12,666.5	231.2	-203.5	9.38	9.37	-0.62	52.2	-41.7
12,735.0	30.50	194.20	12,707.7	211.6	-208.7	18.74	18.70	-2.83	60.8	-46.5
12,780.0	41.10	196.30	12,744.2	186.2	-215.7	23.71	23.56	4.67	63.5	-54.6
12,826.0	54.80	193.50	12,774.9	153.3	-224.3	30.12	29.78	-6.09	63.7	-59.6
12,871.0	63.60	188.20	12,797.9	115.4	-231.5	22.01	19.56	-11.78	59.8	-62.3
12,915.0	68.40	179.00	12,815.9	75.3	-234.0	21.99	10.91	-20.91	55.8	-60.0
12,960.0	73.90	180.00	12,830.4	32.8	-233.6	12.40	12.22	2.22	45.8	-60.4
13,006.0	78.20	182.80	12,841.5	-11.9	-234.7	11.06	9.35	6.09	35.4	-62.1
13,013.8	79.32	182.84	12,843.0	-19.5	-235.1	14.33	14.32	0.46	33.9	-62.5
HL Crossing 13013.8 MD: 12843.0 TVD: -19.5° -235.1° 79.32										
13,050.0	84.50	183.00	12,848.1	-55.3	-236.9	14.33	14.32	0.45	28.2	-64.4
13,096.0	89.80	182.30	12,850.4	-101.2	-239.0	11.62	11.52	-1.52	16.1	-66.6
13,141.0	93.50	179.30	12,849.1	-146.1	-239.7	10.58	8.22	-6.67	6.4	-67.6
13,187.0	94.40	178.40	12,845.9	-192.0	-238.8	2.76	1.96	-1.96	-1.5	-67.2
13,232.0	93.00	176.50	12,843.0	-236.9	-236.8	5.24	-3.11	-4.22	-5.5	-65.6
13,277.0	93.10	175.70	12,840.6	-281.7	-233.7	1.79	0.22	-1.78	-8.6	-63.0
13,324.0	89.20	173.60	12,839.7	-328.5	-229.3	9.42	-8.30	-4.47	-9.9	-59.2
13,418.0	86.80	172.50	12,843.0	-421.7	-217.9	2.81	-2.55	-1.17	-7.6	-48.8
13,511.0	85.20	171.50	12,849.4	-513.6	-205.0	2.03	-1.72	-1.08	-2.2	-36.9
13,605.0	87.60	174.00	12,855.3	-606.6	-193.2	3.68	2.55	2.66	2.1	-26.0
13,650.0	90.30	173.30	12,856.2	-651.3	-188.2	6.20	6.00	-1.56	2.2	-21.5
13,699.0	87.70	174.90	12,857.0	-700.1	-183.2	6.23	-5.31	3.27	2.5	-16.9
13,744.0	88.00	175.60	12,858.7	-744.9	-179.5	1.69	0.67	1.56	3.6	-13.7



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13,793.0	90.10	176.50	12,859.5	-793.8	-176.1	4.66	4.29	1.84	3.7	-10.8
13,839.0	89.20	176.40	12,859.8	-839.7	-173.2	1.97	-1.96	-0.22	3.3	-8.5
13,887.0	90.20	177.30	12,860.1	-887.6	-170.6	2.80	2.08	1.87	2.9	-6.3
13,933.0	87.00	178.10	12,861.2	-933.5	-168.8	7.17	-6.96	1.74	3.4	-5.0
13,981.0	87.20	178.40	12,863.6	-981.5	-167.3	0.75	0.42	0.62	5.2	-4.0
14,027.0	88.50	179.00	12,865.3	-1,027.4	-166.3	3.11	2.83	1.30	6.3	-3.4
14,074.0	89.30	178.80	12,866.2	-1,074.4	-165.4	1.75	1.70	-0.43	6.6	-3.0
14,120.0	89.20	178.60	12,866.8	-1,120.4	-164.3	0.49	-0.22	-0.43	6.6	-2.5
14,168.0	88.90	177.70	12,867.6	-1,168.3	-162.8	1.98	-0.62	-1.87	6.7	-1.4
14,214.0	90.50	177.80	12,867.9	-1,214.3	-161.0	3.49	3.48	0.22	6.4	-0.1
14,262.0	90.90	178.80	12,867.3	-1,262.3	-159.5	2.24	0.83	2.08	5.1	0.8
14,308.0	92.20	180.40	12,866.0	-1,308.3	-159.2	4.48	2.83	3.48	3.3	0.6
14,355.0	92.80	180.60	12,864.0	-1,355.2	-159.6	1.35	1.28	0.43	0.6	-0.3
14,401.0	91.60	179.60	12,862.2	-1,401.2	-159.7	3.39	-2.61	-2.17	-1.8	-0.8
14,450.0	90.20	178.40	12,861.5	-1,450.2	-158.8	3.76	-2.86	-2.45	-3.2	-0.5
14,543.0	90.50	177.60	12,860.9	-1,543.1	-155.6	0.92	0.32	-0.86	-5.0	1.8
14,637.0	91.40	178.40	12,859.3	-1,637.0	-152.3	1.28	0.96	0.85	-7.9	4.1
14,731.0	89.10	179.00	12,858.9	-1,731.0	-150.2	2.53	-2.45	0.64	-9.6	5.2
14,825.0	87.60	179.60	12,861.6	-1,824.9	-149.0	1.72	-1.60	0.64	-8.3	5.4
14,856.0	86.10	179.30	12,863.3	-1,855.9	-148.7	4.93	-4.84	-0.97	-7.0	5.4
14,919.0	86.70	179.70	12,867.3	-1,918.8	-148.2	1.14	0.95	0.63	-4.0	5.3
14,950.0	88.30	180.20	12,868.6	-1,949.7	-148.2	5.41	5.16	1.61	-3.1	5.0
15,013.0	86.80	179.70	12,871.3	-2,012.7	-148.1	2.51	-2.38	-0.79	-1.3	4.4
15,107.0	89.90	179.60	12,874.0	-2,106.6	-147.5	3.30	3.30	-0.11	0.0	4.0
15,200.0	87.20	178.30	12,876.4	-2,199.6	-145.8	3.22	-2.90	-1.40	1.0	4.7
15,294.0	88.00	178.50	12,880.3	-2,293.5	-143.2	0.88	0.85	0.21	3.6	6.3
15,388.0	88.10	177.70	12,883.5	-2,387.3	-140.1	0.86	0.11	-0.85	5.4	8.5



Midland PVA

Company:	EOG Resources - Midland			Local Co-ordinate Reference:			Well #709H				
Project:	Lea County, NM (NAD 83 NME)			TVD Reference:			KB = 25' @ 3322.0usft (H&P 647)				
Site:	Ruby 2 State Corn			MD Reference:			KB = 25' @ 3322.0usft (H&P 647)				
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)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
15,481.0	89.50	178.20	12,885.5	-2,480.3	-136.8	1.60	1.51	0.54	6.0	10.8	
15,575.0	91.60	178.70	12,884.6	-2,574.2	-134.2	2.30	2.23	0.53	3.7	12.4	
15,669.0	88.70	176.70	12,884.3	-2,668.1	-130.5	3.75	-3.09	-2.13	2.1	15.2	
15,763.0	88.50	178.80	12,886.6	-2,762.0	-126.8	2.24	-0.21	2.23	3.0	17.9	
15,858.0	90.60	180.70	12,887.4	-2,857.0	-126.4	2.98	2.21	2.00	2.3	17.3	
15,951.0	89.00	179.00	12,887.7	-2,950.0	-126.1	2.51	-1.72	-1.83	1.3	16.5	
16,046.0	87.50	178.80	12,890.6	-3,044.9	-124.3	1.59	-1.58	-0.21	2.8	17.4	
16,140.0	90.30	179.50	12,892.4	-3,138.9	-122.9	3.07	2.98	0.74	3.3	17.8	
16,233.0	90.40	179.60	12,891.8	-3,231.9	-122.2	0.15	0.11	0.11	1.4	17.5	
16,327.0	89.50	181.20	12,891.9	-3,325.9	-122.8	1.95	-0.96	1.70	0.6	15.9	
16,421.0	88.20	180.60	12,893.8	-3,419.9	-124.3	1.52	-1.38	-0.64	1.5	13.4	
16,515.0	89.10	179.70	12,896.0	-3,513.8	-124.5	1.35	0.96	-0.96	2.7	12.2	
16,609.0	89.00	183.30	12,897.6	-3,607.8	-127.0	3.83	-0.11	3.83	3.3	8.8	
16,703.0	85.40	183.10	12,902.2	-3,701.5	-132.2	3.84	-3.83	-0.21	6.9	2.5	
16,797.0	89.30	182.40	12,906.5	-3,795.3	-136.7	4.22	4.15	-0.74	10.3	-2.9	
16,891.0	92.40	182.70	12,905.1	-3,889.2	-140.9	3.31	3.30	0.32	7.9	-8.1	
16,985.0	93.10	182.20	12,900.6	-3,983.0	-144.9	0.91	0.74	-0.53	2.4	-13.1	
17,077.0	90.30	183.70	12,897.9	-4,074.8	-149.7	3.45	-3.04	1.63	-1.3	-18.8	
17,171.0	88.80	183.60	12,898.6	-4,168.6	-155.7	1.60	-1.60	-0.11	-1.6	-25.8	
17,265.0	86.50	180.20	12,902.5	-4,262.4	-158.8	4.36	-2.45	-3.62	1.3	-29.9	
17,359.0	88.50	179.80	12,906.6	-4,356.3	-158.8	2.17	2.13	-0.43	4.5	-30.8	
17,453.0	88.80	178.80	12,908.8	-4,450.3	-157.6	1.11	0.32	-1.06	5.7	-30.7	
17,547.0	87.60	178.20	12,911.7	-4,544.2	-155.2	1.43	-1.28	-0.64	7.7	-29.2	
17,578.0	85.80	178.80	12,913.5	-4,575.2	-154.4	6.12	-5.81	1.94	9.2	-28.7	
17,635.4	86.16	178.62	12,917.5	-4,632.4	-153.1	0.71	0.63	-0.32	12.6	-28.0	
HL Crossing 17635.4 MD; 12917.5 TVD; -4632.4; -153.1; 86.16											
17,641.0	86.20	178.60	12,917.9	-4,638.0	-152.9	0.71	0.63	-0.32	12.9	-27.9	



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #709H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3322.0usft (H&P 647)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3322.0usft (H&P 647)
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)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
17,667.0	84.80	178.50	12,920.0	-4,663.9	-152.3	5.40	-5.38	-0.38	14.7	-27.6
Last MWD Survey (MD = 17667.0)										
17,725.0	84.80	178.50	12,925.2	-4,721.6	-150.8	0.00	0.00	0.00	19.3	-26.7
Projection to Bit (MD = 17725.0)										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
13,013.8	12,843.0	-19.5	-235.1	HL Crossing 13013.8' MD; 12843.0' TVD; -19.5'; -235.1'; 79.32
17,635.4	12,917.5	-4,632.4	-153.1	HL Crossing 17635.4' MD; 12917.5' TVD; -4632.4'; -153.1'; 66.16
17,667.0	12,920.0	-4,663.9	-152.3	Last MWD Survey (MD = 17667.0)
17,725.0	12,925.2	-4,721.6	-150.8	Projection to Bit (MD = 17725.0)

Checked By: _____	Approved By: _____	Date: _____
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Lea County, NM (NAD 83 NME)

Ruby 2 State Com #709H

H&P 647

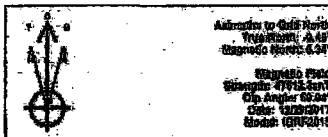
Plan #1

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

3297.0
KB = 25' @ 3322.0usft (H&P 647)
Northing 393572.00 Easting 819954.00 Latitude 32° 4' 43.73' N Longitude 103° 26' 1.614' W



To convert a Magnetic Direction to a Grid Direction, Add 5.34°
To convert a Magnetic Direction to a True Direction, Add 6.62° East
To convert a True Direction to a Grid Direction, Subtract 0.48°

SECTION DETAILS

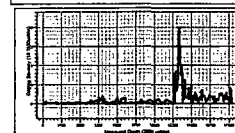
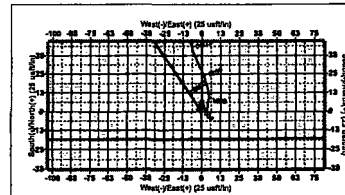
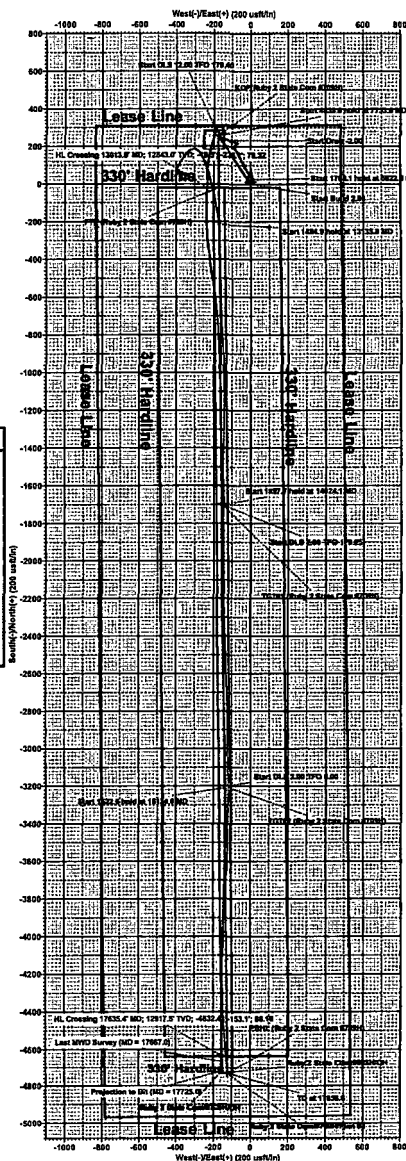
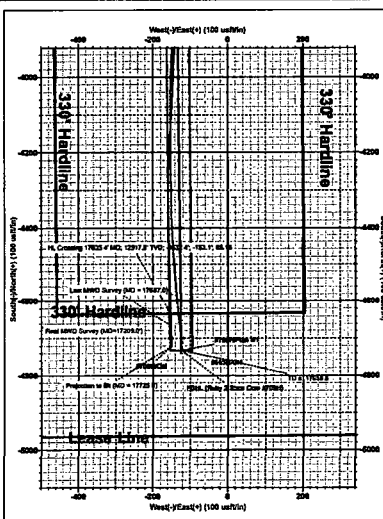
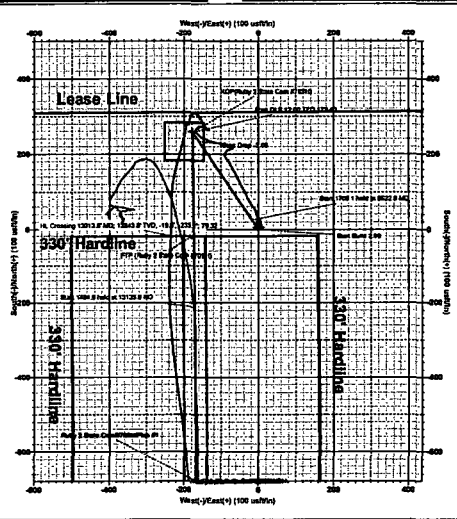
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5200.0	0.00	0.00	5200.0	0.0	0.0	0.00	0.00	0.0	
3	5622.8	8.46	325.77	5621.2	25.7	-17.5	2.00	325.77	-25.3	
4	7330.9	8.46	325.77	7310.8	233.4	-158.8	0.00	0.00	-229.2	
5	7753.6	0.00	0.00	7732.0	259.2	-176.3	2.00	180.00	-254.5	
6	12392.2	0.00	0.00	12370.6	259.2	-176.3	0.00	0.00	-254.5	
7	13135.8	89.23	179.40	12848.0	-211.9	-171.4	12.00	179.40	216.3	TGT#1 (Ruby 2 State Com #709H)
8	14620.7	89.23	179.40	12868.0	-1696.5	-155.8	0.00	0.00	1700.0	
9	14624.1	89.16	179.40	12868.0	-1699.9	-155.8	2.00	179.25	1703.4	TGT#2 (Ruby 2 State Com #709H)
10	16121.8	89.16	179.40	12890.0	-3197.4	-140.1	0.00	0.00	3200.0	
11	16134.0	89.40	179.40	12890.2	-3209.6	-139.9	2.00	0.00	3212.1	PBHL (Ruby 2 State Com #709H)
12	17656.6	89.40	179.40	12906.0	-4732.0	-124.0	0.00	0.00	4733.6	

CASING DETAILS

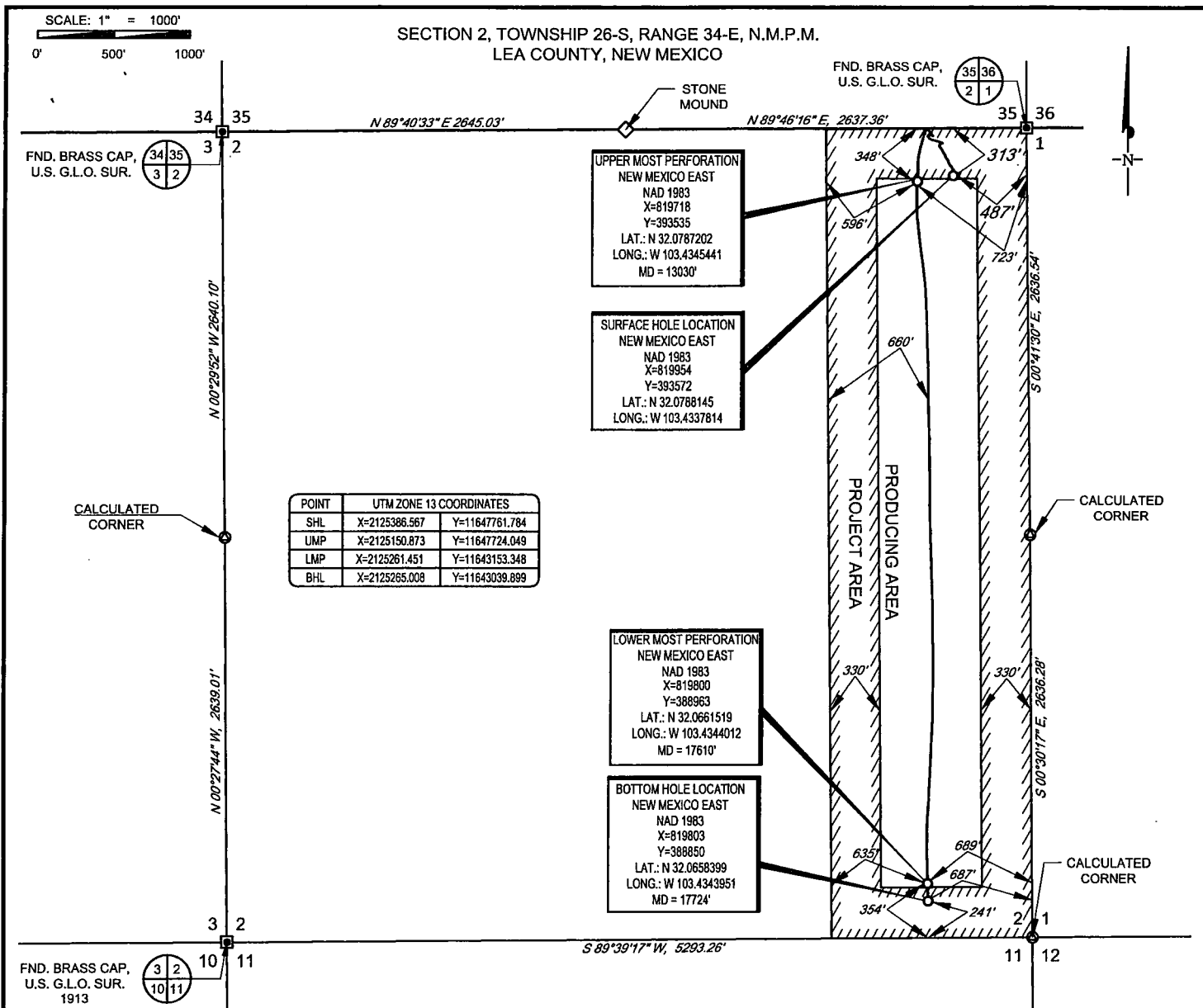
No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TGT#1 (Ruby 2 State Com #709H)	12868.0	-1696.5	-155.8	391875.50	819798.21
TGT#2 (Ruby 2 State Com #709H)	12890.0	-3197.4	-140.1	393374.60	819811.53
PBHL (Ruby 2 State Com #709H)	12906.0	-4732.0	-124.0	398840.00	819830.00
FTP (Ruby 2 State Com #709H)	12848.0	-19.6	-173.0	393553.00	819781.00
KOP (Ruby 2 State Com #709H)	12370.6	259.2	-176.3	393521.16	819777.70



Lea County, NM (NAD 83 NME)

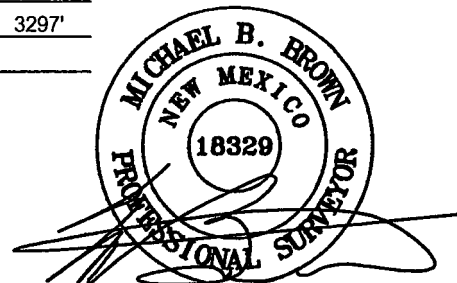


LEASE NAME & WELL NO.: RUBY 2 STATE COM #709H

SECTION 2 TWP 26-S RGE 34-E SURVEY N.M.P.M.

COUNTY LEA STATE NM ELEVATION 3297'

DESCRIPTION 313' FNL & 487' FEL



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

RUBY 2 STATE COM #709H AS-COMPLETE	REVISION:	NOTES:
		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, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1983.
		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.
DATE: 6/1/2018		
FILE:AD_RUBY2STATECOM_709H		
DRAWN BY: IMU		
SHEET: 1 OF 1		