

HOBBS OCD
AUG 29 2018
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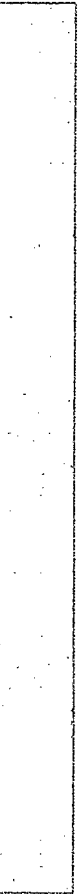
EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Caballo 23 Fed
#703H
OH

Design: OH

Midland PVA

28 June, 2018





Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	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:	Caballo 23 Fed		
Site Position:		Northing:	404,499.00 usft
From:	Map	Easting:	785,117.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 6' 34.558 N
		Longitude:	103° 32' 45.566 W
		Grid Convergence:	0.42 °

Well:	#703H			
Well Position	+N-S	0.0 usft	Northing:	404,499.00 usft
	+E-W	0.0 usft	Easting:	785,117.00 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft
			Latitude:	32° 6' 34.558 N
			Longitude:	103° 32' 45.566 W
			Ground Level:	3,342.0 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/16/2018	6.84	59.95	47,788.13646065

Design:	OH				
Audit Notes:		Phase:	ACTUAL	Tie On Depth:	0.0
Version:	1.0				
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	355.60	



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From (usft)	To (usft)	Survey (Wellbore)	Toof Name	Description
133.0	1,096.0	Cartel MWD 8' KB + 17' (OH)	MWD	OWSG MWD - Standard
1,188.0	4,897.0	Cartel 18 22' KB + 3' (OH)	MWD	OWSG MWD - Standard
4,926.0	19,939.0	Total Directional (OH)	MWD	OWSG MWD - Standard

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	N/S (usft)	EM (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
133.0	0.09	139.64	133.0	-0.1	0.1	0.07	0.07	0.00	0.0	0.0
282.0	0.31	101.34	282.0	-0.2	0.5	0.16	0.15	-25.70	0.0	0.0
409.0	0.09	80.94	409.0	-0.3	1.0	0.18	-0.17	-16.06	0.0	0.0
536.0	0.22	80.15	536.0	-0.2	1.3	0.10	0.10	-0.62	0.0	0.0
663.0	0.09	292.82	663.0	-0.2	1.5	0.24	-0.10	-116.01	0.0	0.0
790.0	0.62	230.72	790.0	-0.6	0.8	0.46	0.42	-48.90	0.0	0.0
917.0	0.22	282.94	917.0	-0.9	0.1	0.41	-0.31	41.12	0.0	0.0
1,045.0	0.00	6.72	1,045.0	-0.9	-0.2	0.17	-0.17	0.00	0.0	0.0
1,096.0	0.09	206.15	1,096.0	-0.9	-0.2	0.18	0.18	0.00	0.0	0.0
1,188.0	0.50	321.00	1,188.0	-0.7	-0.5	0.59	0.45	124.84	0.0	0.0
1,278.0	1.10	232.00	1,278.0	-0.9	-1.4	1.33	0.67	-98.89	0.0	0.0
1,319.0	1.90	239.70	1,319.0	-1.5	-2.3	2.01	1.85	18.78	0.0	0.0
1,362.0	2.50	242.70	1,361.9	-2.3	-3.7	1.42	1.40	6.98	0.0	0.0
1,406.0	3.60	250.10	1,405.9	-3.2	-5.9	2.65	2.50	16.82	0.0	0.0
1,448.0	4.80	252.20	1,448.8	-4.2	-8.9	2.81	2.79	4.88	0.0	0.0
1,493.0	6.20	253.60	1,492.6	-5.4	-12.9	3.20	3.18	3.18	0.0	0.0
1,580.0	7.30	248.80	1,579.0	-8.8	-22.6	1.42	1.26	-5.52	0.0	0.0
1,624.0	6.80	248.90	1,622.6	-10.7	-27.6	1.14	-1.14	0.23	0.0	0.0
1,668.0	6.70	248.20	1,666.3	-12.6	-32.4	0.29	-0.23	-1.59	0.0	0.0



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Well:	#703H	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)	
1,711.0	7.20	254.70	1,709.0	-14.2	-37.4	2.17	1.16	15.12	0.0	0.0	
1,755.0	7.70	256.50	1,752.6	-15.7	-42.9	1.25	1.14	4.09	0.0	0.0	
1,799.0	8.10	260.00	1,796.2	-16.9	-48.8	1.42	0.91	7.95	0.0	0.0	
1,851.0	8.70	263.10	1,847.7	-18.0	-56.3	1.45	1.15	5.96	0.0	0.0	
2,017.0	8.00	265.30	2,011.9	-20.4	-80.3	0.46	-0.42	1.33	0.0	0.0	
2,191.0	7.30	257.90	2,184.3	-23.8	-103.2	0.69	-0.40	-4.25	0.0	0.0	
2,323.0	7.20	260.30	2,315.3	-26.9	-119.5	0.24	-0.08	1.82	0.0	0.0	
2,409.0	6.50	257.00	2,400.7	-28.9	-129.6	0.93	-0.81	-3.84	0.0	0.0	
2,452.0	6.10	256.00	2,443.4	-30.0	-134.2	0.96	-0.93	-2.33	0.0	0.0	
2,496.0	6.20	252.00	2,487.2	-31.3	-138.7	1.00	0.23	-9.09	0.0	0.0	
2,540.0	6.70	251.00	2,530.9	-32.9	-143.4	1.16	1.14	-2.27	0.0	0.0	
2,583.0	7.50	243.00	2,573.6	-35.0	-148.2	2.95	1.86	-18.60	0.0	0.0	
2,671.0	8.40	239.80	2,660.7	-40.8	-158.9	1.14	1.02	-3.64	0.0	0.0	
2,714.0	8.00	238.70	2,703.3	-43.9	-164.2	1.00	-0.93	-2.56	0.0	0.0	
2,758.0	7.80	241.40	2,746.9	-47.0	-169.4	0.96	-0.45	6.14	0.0	0.0	
2,845.0	7.20	238.80	2,833.1	-52.6	-179.3	0.79	-0.69	-2.99	0.0	0.0	
2,932.0	7.10	243.00	2,919.4	-57.9	-188.7	0.61	-0.11	4.83	0.0	0.0	
3,020.0	6.70	244.00	3,006.8	-62.6	-198.2	0.47	-0.45	1.14	0.0	0.0	
3,107.0	6.50	243.00	3,093.2	-67.1	-207.1	0.27	-0.23	-1.15	0.0	0.0	
3,151.0	6.90	244.00	3,136.9	-69.3	-211.7	0.95	0.91	2.27	0.0	0.0	
3,194.0	6.90	246.50	3,179.6	-71.5	-216.4	0.70	0.00	5.81	0.0	0.0	
3,238.0	7.40	248.00	3,223.3	-73.6	-221.5	1.21	1.14	3.41	0.0	0.0	
3,325.0	7.10	251.50	3,309.6	-77.4	-231.8	0.61	-0.34	4.02	0.0	0.0	
3,411.0	6.70	253.20	3,394.9	-80.6	-241.6	0.52	-0.47	1.98	0.0	0.0	
3,499.0	6.90	253.00	3,482.3	-83.6	-251.6	0.23	0.23	-0.23	0.0	0.0	
3,594.0	7.70	255.00	3,576.6	-86.9	-263.2	0.88	0.84	2.11	0.0	0.0	
3,739.0	7.40	256.80	3,720.3	-91.6	-281.7	0.26	-0.21	1.24	0.0	0.0	



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Well:	#703H	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)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)		
3,806.0	7.60	256.70	3,786.7	-93.6	-290.2	0.30	0.30	-0.15	0.0	0.0		
3,937.0	8.10	260.70	3,916.5	-97.0	-307.7	0.57	0.38	3.05	0.0	0.0		
4,079.0	8.60	262.30	4,057.0	-100.1	-328.1	0.39	0.35	1.13	0.0	0.0		
4,252.0	8.70	263.20	4,228.0	-103.4	-353.9	0.10	0.06	0.52	0.0	0.0		
4,351.0	8.00	262.90	4,326.0	-105.1	-368.2	0.71	-0.71	-0.30	0.0	0.0		
4,460.0	7.40	262.90	4,434.0	-106.9	-382.7	0.55	-0.55	0.00	0.0	0.0		
4,599.0	6.90	262.50	4,571.9	-109.1	-399.8	0.36	-0.36	-0.29	0.0	0.0		
4,635.0	6.90	262.50	4,607.6	-109.7	-404.1	0.00	0.00	0.00	0.0	0.0		
4,766.0	6.70	256.30	4,737.7	-112.5	-419.4	0.58	-0.15	-4.73	0.0	0.0		
4,897.0	8.00	251.80	4,867.7	-117.2	-435.4	1.08	0.99	-3.44	0.0	0.0		
4,926.0	8.30	253.50	4,896.4	-118.4	-439.4	1.33	1.03	5.86	0.0	0.0		
5,004.0	9.10	254.90	4,973.5	-121.6	-450.7	1.06	1.03	1.79	0.0	-0.2		
5,098.0	8.60	241.20	5,066.4	-126.9	-464.1	2.30	-0.53	-14.57	0.0	1.0		
5,192.0	9.50	229.70	5,159.2	-135.3	-476.1	2.14	0.96	-12.23	-2.0	3.2		
5,286.0	8.90	216.80	5,252.0	-146.2	-486.4	2.28	-0.64	-13.72	-5.8	4.3		
5,381.0	6.20	216.40	5,346.2	-156.2	-493.9	2.84	-2.84	-0.42	-6.6	4.5		
5,475.0	6.20	199.70	5,439.6	-165.0	-498.6	1.91	0.00	-17.77	-5.6	1.7		
5,568.0	7.10	193.00	5,532.0	-175.4	-501.6	1.28	0.97	-7.20	-3.7	-0.1		
5,663.0	7.20	192.00	5,626.3	-186.9	-504.1	0.17	0.11	-1.05	-2.3	-1.1		
5,757.0	7.30	192.00	5,719.5	-198.5	-506.6	0.11	0.11	0.00	-1.1	-1.8		
5,851.0	7.50	191.40	5,812.7	-210.4	-509.0	0.23	0.21	-0.64	-0.1	-2.5		
5,945.0	7.60	190.40	5,905.9	-222.5	-511.4	0.18	0.11	-1.06	0.7	-3.0		
6,040.0	5.90	187.30	6,000.2	-233.5	-513.1	1.83	-1.79	-3.26	1.7	-3.1		
6,134.0	3.70	178.10	6,093.9	-241.4	-513.6	2.47	-2.34	-9.79	3.1	-1.9		
6,228.0	3.20	172.70	6,187.7	-247.0	-513.2	0.63	-0.53	-5.74	3.2	-0.3		
6,322.0	2.10	191.20	6,281.6	-251.3	-513.2	1.47	-1.17	19.68	1.4	-0.6		
6,416.0	1.50	201.40	6,375.6	-254.1	-514.0	0.72	-0.64	10.85	-1.4	-0.6		



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6,510.0	1.60	196.20	6,469.6	-256.5	-514.8	0.18	0.11	-5.53	-3.9	-0.8	
6,604.0	0.60	239.40	6,563.5	-258.0	-515.6	1.31	-1.06	45.96	-4.8	3.0	
6,698.0	0.50	300.90	6,657.5	-258.1	-516.4	0.61	-0.11	65.43	-0.3	6.1	
6,792.0	0.50	286.40	6,751.5	-257.7	-517.1	0.13	0.00	-15.43	-2.7	5.7	
6,886.0	0.60	301.60	6,845.5	-257.4	-517.9	0.19	0.11	16.17	-1.9	6.3	
6,980.0	0.60	305.20	6,939.5	-256.8	-518.8	0.04	0.00	3.83	-2.5	6.5	
7,074.0	0.70	319.80	7,033.5	-256.1	-519.5	0.20	0.11	15.53	-1.9	7.0	
7,168.0	0.80	310.50	7,127.5	-255.2	-520.4	0.17	0.11	-9.89	-4.2	6.5	
7,262.0	0.80	304.40	7,221.5	-254.4	-521.4	0.09	0.00	-6.49	-6.2	6.0	
7,356.0	0.80	303.70	7,315.5	-253.7	-522.5	0.01	0.00	-0.74	-7.6	5.9	
7,450.0	0.70	292.70	7,409.5	-253.1	-523.6	0.19	-0.11	-11.70	-9.8	4.2	
7,544.0	0.80	284.10	7,503.5	-252.7	-524.8	0.16	0.11	-9.15	-11.5	2.6	
7,638.0	0.80	286.10	7,597.5	-252.4	-526.0	0.03	0.00	2.13	-12.7	3.1	
7,732.0	1.00	267.10	7,691.5	-252.3	-527.5	0.38	0.21	-20.21	-14.5	-1.5	
7,825.0	1.00	262.40	7,784.4	-252.4	-529.1	0.09	0.00	-5.05	-15.9	-2.7	
7,920.0	1.00	245.00	7,879.4	-252.9	-530.7	0.32	0.00	-18.32	-16.0	-7.6	
8,013.0	1.20	247.20	7,972.4	-253.6	-532.3	0.22	0.22	2.37	-18.1	-7.0	
8,107.0	0.70	205.20	8,066.4	-254.5	-533.5	0.88	-0.53	-44.68	-10.1	-17.9	
8,201.0	0.50	155.80	8,160.4	-255.4	-533.5	0.57	-0.21	-52.55	6.3	-19.8	
8,295.0	0.60	175.90	8,254.4	-256.2	-533.3	0.23	0.11	21.38	-1.8	-20.6	
8,390.0	0.70	170.50	8,349.4	-257.3	-533.2	0.12	0.11	-5.68	-0.9	-20.7	
8,484.0	0.70	171.60	8,443.4	-258.4	-533.0	0.01	0.00	1.17	-2.5	-20.6	
8,577.0	0.80	183.20	8,536.4	-259.7	-533.0	0.19	0.11	12.47	-7.8	-19.6	
8,671.0	0.80	190.40	8,630.4	-261.0	-533.1	0.11	0.00	7.66	-11.5	-18.4	
8,766.0	1.20	186.70	8,725.3	-262.6	-533.4	0.43	0.42	-3.89	-11.9	-19.2	
8,861.0	0.20	118.70	8,820.3	-263.7	-533.3	1.20	-1.05	-71.58	12.8	-19.2	
8,955.0	0.20	71.10	8,914.3	-263.7	-533.0	0.17	0.00	-50.64	22.5	-3.6	



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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9,048.0	0.10	35.10	9,007.3	-263.6	-532.8	0.14	-0.11	-38.71	20.1	10.2
9,143.0	0.30	338.50	9,102.3	-263.3	-532.9	0.27	0.21	-59.58	2.3	22.3
9,237.0	0.20	338.70	9,196.3	-262.9	-533.0	0.11	-0.11	0.21	1.9	22.3
9,330.0	0.50	312.20	9,289.3	-262.5	-533.4	0.36	0.32	-28.49	-8.8	20.7
9,424.0	0.70	311.00	9,383.3	-261.8	-534.1	0.21	0.21	-1.28	-10.2	20.6
9,518.0	0.30	303.40	9,477.3	-261.3	-534.8	0.43	-0.43	-8.09	-13.6	18.9
9,612.0	0.40	222.60	9,571.3	-261.4	-535.2	0.49	0.11	-85.96	-21.3	-10.7
9,706.0	0.30	238.00	9,665.3	-261.8	-535.6	0.15	-0.11	16.38	-23.9	-4.6
9,801.0	0.30	49.10	9,760.3	-261.8	-535.6	0.63	0.00	180.11	22.9	8.2
9,895.0	0.70	48.20	9,854.3	-261.2	-535.0	0.43	0.43	-0.96	21.9	8.6
9,990.0	1.00	312.70	9,949.3	-260.3	-535.2	1.34	0.32	-100.53	-11.4	20.4
10,084.0	2.70	284.50	10,043.3	-259.1	-538.0	2.00	1.81	-30.00	-22.7	12.2
10,178.0	2.70	276.50	10,137.1	-258.3	-542.3	0.40	0.00	-8.51	-28.5	8.6
10,272.0	0.80	263.40	10,231.1	-258.2	-545.1	2.05	-2.02	-13.94	-32.6	1.4
10,366.0	1.20	114.20	10,325.1	-258.6	-544.9	2.05	0.43	-158.72	26.8	-18.3
10,461.0	1.60	118.70	10,420.1	-259.7	-542.8	0.44	0.42	4.74	23.0	-20.2
10,554.0	1.50	137.90	10,513.0	-261.2	-540.9	0.57	-0.11	20.65	12.6	-26.2
10,648.0	1.40	127.70	10,607.0	-262.8	-539.1	0.29	-0.11	-10.85	14.7	-23.8
10,742.0	1.60	122.80	10,701.0	-264.2	-537.1	0.25	0.21	-5.21	14.2	-22.6
10,836.0	1.50	115.40	10,794.9	-265.5	-534.9	0.24	-0.11	-7.87	14.5	-20.7
10,930.0	1.20	132.50	10,888.9	-266.7	-533.1	0.53	-0.32	18.19	5.6	-23.7
11,024.0	0.70	173.60	10,982.9	-267.9	-532.3	0.87	-0.53	43.72	-12.7	-20.9
11,118.0	0.60	242.40	11,076.9	-268.7	-532.7	0.79	-0.11	73.19	-24.8	4.8
11,212.0	0.80	239.20	11,170.9	-269.3	-533.7	0.22	0.21	-3.40	-26.1	3.4
11,306.0	0.50	230.60	11,264.9	-269.9	-534.5	0.33	-0.32	-9.15	-27.4	-0.7
11,400.0	1.10	245.60	11,358.9	-270.5	-535.7	0.67	0.64	15.96	-27.9	6.6
11,494.0	1.90	252.60	11,452.8	-271.3	-538.0	0.87	0.85	7.45	-29.4	10.0



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	NS (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
11,588.0	2.20	263.00	11,546.8	-272.0	-541.3	0.51	0.32	11.06	-30.4	15.5
11,683.0	1.90	261.10	11,641.7	-272.5	-544.6	0.32	-0.32	-2.00	-34.3	14.4
11,743.0	2.00	250.70	11,701.7	-273.0	-546.6	0.61	0.17	-17.33	-38.4	7.8
11,804.0	2.20	242.10	11,762.6	-273.9	-548.6	0.61	0.33	-14.10	-41.3	1.8
11,898.0	2.40	235.30	11,856.6	-275.9	-551.9	0.36	0.21	-7.23	-45.0	-3.3
11,992.0	2.80	312.90	11,950.5	-275.4	-555.2	3.48	0.43	82.55	-15.6	45.2
12,039.0	7.10	353.70	11,997.3	-271.7	-556.3	11.29	9.15	86.81	15.4	45.3
12,086.0	9.50	1.60	12,043.8	-285.0	-556.5	5.64	5.11	16.81	20.6	43.0
12,133.0	14.40	7.30	12,089.8	-255.3	-555.7	10.71	10.43	12.13	25.2	39.8
12,180.0	17.60	9.10	12,135.0	-242.5	-553.8	6.89	6.81	3.83	27.7	36.9
12,227.0	21.00	10.80	12,179.3	-227.2	-551.1	7.34	7.23	3.83	31.7	32.8
12,273.0	26.00	4.20	12,221.5	-209.0	-548.8	12.31	10.87	-14.57	32.0	33.4
12,320.0	33.40	0.30	12,262.3	-185.8	-548.0	16.27	15.74	-8.30	33.4	34.2
12,367.0	40.80	1.90	12,299.8	-157.5	-547.4	15.88	15.74	3.40	35.8	32.7
12,414.0	45.50	2.40	12,334.0	-125.4	-546.2	10.03	10.00	1.06	37.0	31.1
12,461.0	54.30	359.50	12,364.3	-89.4	-545.6	19.31	18.72	-6.17	35.7	31.5
12,508.0	64.30	357.80	12,388.3	-49.1	-546.6	21.50	21.28	-3.62	31.6	32.8
12,555.0	71.50	358.60	12,405.9	-5.6	-548.0	15.40	15.32	1.70	25.5	33.5
12,588.0	74.10	359.59	12,415.7	25.9	-548.5	8.37	7.87	3.00	21.1	33.6
FTP Crossing 12588.0' MD; 12415.7' TVD; 25.9°; -548.5'; 74.10										
12,602.0	75.20	0.00	12,419.4	39.4	-548.5	8.37	7.88	2.94	19.4	33.5
12,651.0	83.10	2.10	12,428.6	87.5	-547.6	16.66	16.12	4.29	12.6	32.2
12,745.0	90.50	3.30	12,433.9	181.2	-543.2	7.97	7.87	1.28	0.2	27.1
12,839.0	90.80	3.60	12,432.7	275.0	-537.6	0.53	0.43	0.32	-2.8	20.7
12,933.0	88.70	2.80	12,433.0	368.8	-532.3	2.49	-2.34	-0.85	-2.2	14.8
13,028.0	89.60	1.90	12,434.4	463.7	-528.4	1.34	0.95	-0.95	-0.6	10.2
13,121.0	86.70	359.10	12,437.4	556.7	-527.6	4.33	-3.12	-3.01	2.6	8.7



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

MD (usft)	Ino (")	Azi (azimuth) (")	TVD (usft)	N/S (usft)	E/W (usft)	D Leg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)
13,216.0	89.80	358.40	12,440.3	651.6	-529.7	3.35	3.26	-0.74	5.7	10.1
13,310.0	90.60	358.70	12,440.0	745.6	-532.1	0.91	0.85	0.32	5.6	11.8
13,405.0	89.00	359.10	12,440.4	840.5	-533.9	1.74	-1.68	0.42	6.1	12.9
13,499.0	89.50	358.70	12,441.6	934.5	-535.7	0.68	0.53	-0.43	7.5	14.0
13,594.0	90.30	359.10	12,441.7	1,029.5	-537.5	0.94	0.84	0.42	8.0	15.1
13,688.0	90.20	359.20	12,441.3	1,123.5	-538.9	0.15	-0.11	0.11	8.0	15.9
13,783.0	90.10	358.80	12,441.1	1,218.5	-540.6	0.43	-0.11	-0.42	8.1	16.8
13,877.0	92.60	359.10	12,438.9	1,312.4	-542.3	2.68	2.66	0.32	6.3	17.8
13,971.0	89.80	0.60	12,436.9	1,406.4	-542.5	3.38	-2.98	1.60	4.7	17.4
14,065.0	87.60	359.70	12,439.0	1,500.4	-542.3	2.53	-2.34	-0.96	7.2	16.5
14,159.0	87.90	359.10	12,442.7	1,594.3	-543.3	0.71	0.32	-0.64	11.2	16.8
14,254.0	88.00	359.50	12,446.1	1,689.2	-544.4	0.43	0.11	0.42	15.0	17.2
14,348.0	91.40	0.90	12,446.6	1,783.2	-544.1	3.91	3.62	1.49	15.9	16.2
14,442.0	89.20	1.80	12,446.1	1,877.2	-541.9	2.53	-2.34	0.96	15.8	13.3
14,536.0	90.00	2.90	12,446.8	1,971.1	-538.0	1.45	0.85	1.17	16.8	8.8
14,631.0	90.00	4.00	12,446.8	2,065.9	-532.3	1.16	0.00	1.16	17.2	2.4
14,724.0	90.10	5.40	12,446.7	2,158.6	-524.7	1.51	0.11	1.51	17.5	-5.9
14,818.0	89.40	2.20	12,447.1	2,252.4	-518.5	3.48	-0.74	-3.40	18.3	-12.9
14,913.0	85.40	356.90	12,451.4	2,347.2	-519.2	6.98	-4.21	-5.58	22.9	-12.8
15,007.0	90.10	356.30	12,455.1	2,441.0	-524.8	5.04	5.00	-0.64	27.0	-7.9
15,101.0	92.70	356.10	12,452.8	2,534.7	-531.0	2.77	2.77	-0.21	25.2	-2.4
15,196.0	92.10	357.00	12,448.8	2,629.5	-536.7	1.14	-0.63	0.95	21.7	2.6
15,291.0	91.70	357.60	12,445.7	2,724.3	-541.2	0.76	-0.42	0.63	19.1	6.4
15,385.0	91.40	359.40	12,443.1	2,818.2	-543.6	1.94	-0.32	1.91	17.0	8.2
15,479.0	91.10	1.50	12,441.1	2,912.2	-542.9	2.26	-0.32	2.23	15.5	6.7
15,573.0	87.50	1.30	12,442.2	3,006.1	-540.6	3.84	-3.83	-0.21	17.1	3.8
15,668.0	90.50	1.70	12,443.9	3,101.1	-538.1	3.19	3.16	0.42	19.3	0.6



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	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)	
15,762.0	89.00	359.80	12,444.3	3,195.1	-536.9	2.58	-1.60	-2.02	20.2	-1.4	
15,856.0	90.20	0.20	12,445.0	3,289.1	-536.9	1.35	1.28	0.43	21.3	-2.0	
15,950.0	90.00	0.90	12,444.8	3,383.1	-536.0	0.77	-0.21	0.74	21.7	-3.6	
16,044.0	91.30	1.30	12,443.7	3,477.0	-534.2	1.45	1.38	0.43	21.1	-6.1	
16,138.0	89.20	359.70	12,443.3	3,571.0	-533.4	2.81	-2.23	-1.70	21.2	-7.6	
16,232.0	92.20	0.30	12,442.2	3,665.0	-533.4	3.25	3.19	0.64	20.6	-8.3	
16,326.0	89.30	358.90	12,440.9	3,759.0	-534.0	3.43	-3.09	-1.49	19.8	-8.4	
16,464.0	90.90	359.20	12,440.7	3,897.0	-536.3	1.18	1.16	0.22	20.3	-7.1	
16,558.0	90.80	358.50	12,439.3	3,990.9	-538.2	0.75	-0.11	-0.74	19.4	-5.9	
16,652.0	92.80	358.20	12,436.4	4,084.8	-540.9	2.15	2.13	-0.32	17.1	-3.9	
16,746.0	92.70	357.00	12,431.8	4,178.6	-544.8	1.28	-0.11	-1.28	13.2	-0.6	
16,840.0	93.80	354.90	12,426.5	4,272.3	-551.5	2.52	1.17	-2.23	8.5	5.3	
16,934.0	90.90	355.90	12,422.7	4,365.9	-559.0	3.26	-3.09	1.06	5.3	12.2	
17,028.0	89.50	358.20	12,422.3	4,460.7	-563.9	2.83	-1.47	2.42	5.6	16.4	
17,123.0	88.80	0.80	12,423.7	4,554.7	-564.7	2.86	-0.74	2.77	7.6	16.5	
17,217.0	89.40	1.80	12,425.2	4,648.7	-562.6	1.24	0.64	1.06	9.7	13.7	
17,312.0	88.50	0.70	12,426.9	4,743.6	-560.5	1.50	-0.95	-1.16	12.1	10.9	
17,406.0	89.50	1.70	12,428.6	4,837.6	-558.5	1.50	1.06	1.06	14.4	8.2	
17,499.0	89.70	0.80	12,429.2	4,930.6	-556.5	0.99	0.22	-0.97	15.6	5.5	
17,594.0	86.90	359.50	12,432.1	5,025.5	-556.2	3.25	-2.95	-1.37	19.1	4.6	
17,688.0	87.80	1.30	12,436.4	5,119.4	-555.6	2.14	0.96	1.91	24.0	3.2	
17,782.0	90.20	359.20	12,438.0	5,213.4	-555.2	3.39	2.55	-2.23	26.3	2.1	
17,877.0	92.80	359.20	12,435.6	5,308.3	-556.5	2.74	2.74	0.00	24.5	2.8	
17,971.0	86.20	358.50	12,436.4	5,402.2	-558.4	7.06	-7.02	-0.74	25.9	4.0	
18,066.0	89.70	1.10	12,439.8	5,497.2	-558.7	4.59	3.68	2.74	29.9	3.6	
18,160.0	90.50	1.20	12,439.6	5,591.1	-556.8	0.86	0.85	0.11	30.3	1.0	
18,255.0	92.00	1.40	12,437.5	5,686.1	-554.7	1.59	1.58	0.21	28.8	-1.8	



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	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)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
18,349.0	94.30	2.00	12,432.4	5,779.9	-551.9	2.53	2.45	0.64	24.1	-5.3	
18,444.0	91.90	0.10	12,427.2	5,874.7	-550.2	3.22	-2.53	-2.00	19.5	-7.7	
18,539.0	85.90	1.10	12,429.1	5,969.7	-549.2	6.40	-6.32	1.05	21.9	-9.4	
18,633.0	87.80	0.40	12,434.2	6,063.5	-547.9	2.15	2.02	-0.74	27.6	-11.3	
18,728.0	92.80	1.40	12,433.7	6,158.5	-546.4	5.37	5.26	1.05	27.7	-13.5	
18,823.0	92.90	1.00	12,429.0	6,253.3	-544.5	0.43	0.11	-0.42	23.5	-16.2	
18,917.0	93.20	359.00	12,424.0	6,347.2	-544.5	2.15	0.32	-2.13	19.0	-16.9	
19,012.0	91.50	357.30	12,420.1	6,442.1	-547.5	2.53	-1.79	-1.79	15.7	-14.5	
19,107.0	88.80	355.70	12,419.9	6,536.9	-553.3	3.30	-2.84	-1.68	16.0	-9.4	
19,202.0	91.80	356.10	12,419.4	6,631.6	-560.1	3.19	3.16	0.42	16.0	-3.3	
19,297.0	87.40	357.30	12,420.0	6,726.4	-565.6	4.80	-4.63	1.26	17.2	1.4	
19,391.0	90.80	357.50	12,421.5	6,820.3	-569.8	3.62	3.62	0.21	19.2	5.0	
19,485.0	88.00	354.40	12,422.5	6,914.0	-576.5	4.44	-2.98	-3.30	20.8	10.9	
19,580.0	89.20	355.80	12,424.8	7,008.7	-584.6	1.94	1.26	1.47	23.6	18.4	
19,674.0	89.00	358.60	12,426.3	7,102.5	-589.2	2.99	-0.21	2.98	25.6	22.3	
19,769.0	90.40	357.90	12,426.8	7,197.5	-592.1	1.65	1.47	-0.74	26.7	24.5	
19,860.5	91.56	357.13	12,425.2	7,288.9	-596.1	1.52	1.26	-0.84	25.7	27.8	
LTP Crossing 19960.5 MD; 12425.2 TVD; 7288.9; -596.1; 91.56											
19,864.0	91.60	357.10	12,425.1	7,292.4	-596.2	1.52	1.26	-0.84	25.6	27.9	
19,882.0	92.00	356.60	12,424.6	7,310.3	-597.2	3.56	2.22	-2.78	25.1	28.8	
Last MWD Survey (MD = 19882.0)											
19,939.0	92.00	356.60	12,422.6	7,367.2	-600.6	0.00	0.00	0.00	23.5	31.7	
Projection to Bit (MD = 19939.0)											



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3367.0usft.
Site:	Caballo 23 Fed	MD Reference:	KB = 25' @ 3367.0usft
Well:	#703H	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)	
12,588.0	12,415.7	25.9	-548.5	FTP Crossing 12588.0' MD; 12415.7' TVD; 25.9'; -548.5'; 74.10
19,860.5	12,425.2	7,288.9	-596.1	LTP Crossing 19860.5' MD; 12425.2' TVD; 7288.9'; -596.1'; 91.56
19,882.0	12,424.6	7,310.3	-597.2	Last MWD Survey (MD = 19882.0)
19,939.0	12,422.6	7,367.2	-600.6	Projection to Bit (MD = 19939.0)

Checked By: _____ Approved By: _____ Date: _____



Lea County, NM (NAD 83 NME)

Caballo 23 Fed #703H

Plan #2

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: #703H

Ground Level: 3342.0
 KB = 25' @ 3357.0usth
 Northing: 404499.00 Easting: 785117.00 Latitude: 32° 6' 34.558 N Longitude: 103° 32' 45.566 W



To convert a Magnetic Direction to a Grid Direction, Add 6.42°
 To convert a Magnetic Direction to a True Direction, Add 6.44° East
 To convert a True Direction to a Grid Direction, Subtract 0.42°

SECTION DETAILS

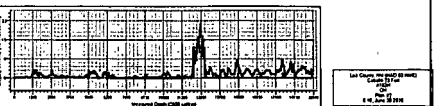
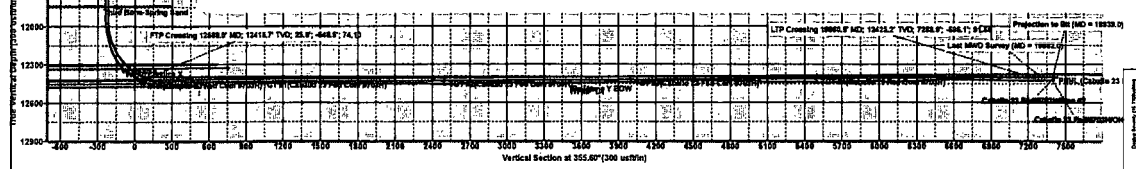
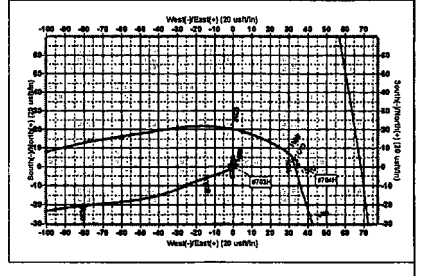
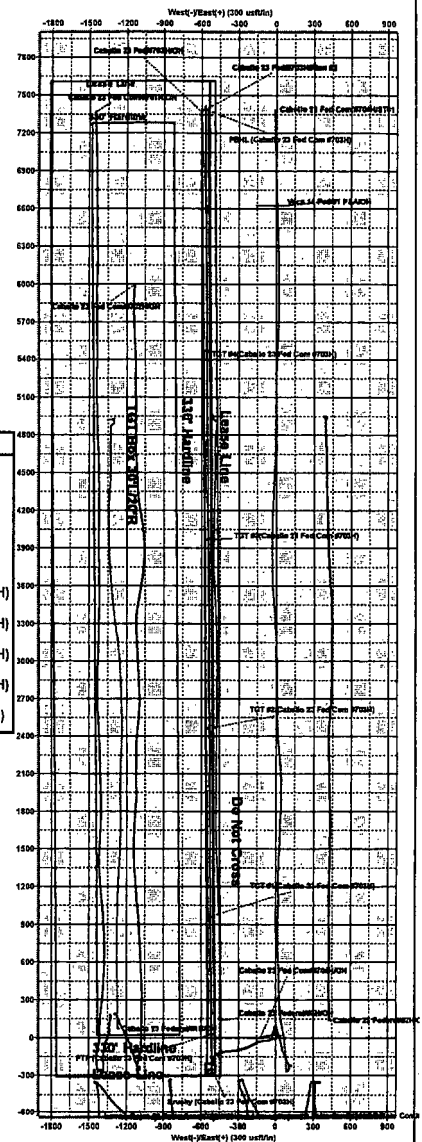
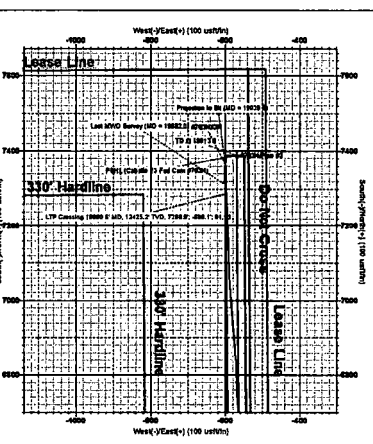
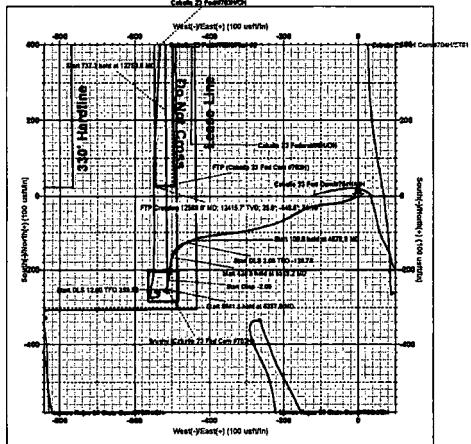
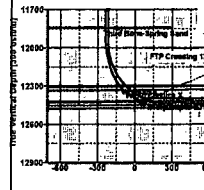
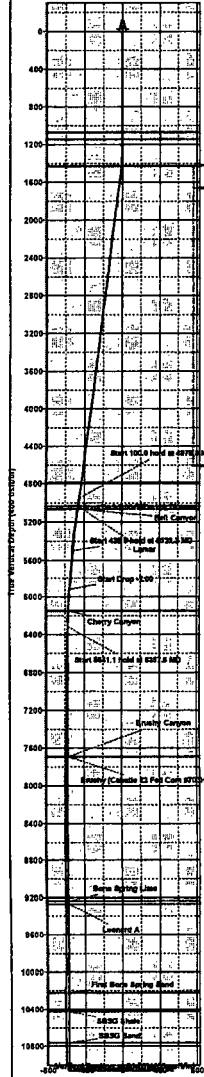
Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	VSect	Target
1	4978.0	8.90	253.10	4947.8	-120.6	-448.8	0.00	0.00	-36.0	
2	5078.0	8.90	253.10	5046.6	-125.1	-461.6	0.00	0.00	-99.3	
3	5529.2	8.00	188.63	5493.8	-166.4	-499.8	2.00	-126.78	-127.5	
4	5957.7	8.00	188.63	5918.1	-225.4	-508.8	0.00	0.00	-185.7	
5	6357.9	0.00	0.00	6317.0	-253.0	-512.9	2.00	180.00	-212.9	
6	11999.0	0.00	0.00	11958.1	-253.0	-512.9	0.00	0.00	-212.9	
7	12750.0	90.12	359.58	12435.6	225.5	-516.5	12.00	359.58	264.5	
8	13487.4	90.12	359.58	12434.0	962.8	-521.9	0.00	0.00	1000.0	TGT #1(Caballo 23 Fed Com #703H)
9	13492.7	90.23	359.58	12434.0	968.2	-521.9	2.00	0.00	1005.4	TGT #2(Caballo 23 Fed Com #703H)
10	14991.0	90.23	359.58	12428.0	2466.4	-532.9	0.00	0.00	2500.0	TGT #3(Caballo 23 Fed Com #703H)
11	14994.8	90.30	359.58	12428.0	2470.2	-532.9	2.00	0.00	2503.8	TGT #4(Caballo 23 Fed Com #703H)
12	16494.7	90.30	359.58	12420.0	3970.0	-543.9	0.00	0.00	4000.0	
13	16498.5	90.38	359.58	12420.0	3973.8	-544.0	2.00	0.00	4003.8	
14	17998.2	90.38	359.58	12410.0	5473.5	-555.0	0.00	0.00	5500.0	
15	18000.9	90.33	359.58	12410.0	5476.1	-555.0	2.00	-180.00	5502.6	
16	19913.8	90.33	359.58	12399.0	7389.0	-569.0	0.00	0.00	7410.9	PBHL (Caballo 23 Fed Com #703H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP COORDINATES)

Name	TVD	+N/S	+E/W	Northing	Easting
Brushy (Caballo 23 Fed Com #703H)	7639.0	-253.0	-512.9	404246.01	794664.05
PBHL (Caballo 23 Fed Com #703H)	12399.0	7389.0	-569.0	411888.00	794548.00
TGT #4(Caballo 23 Fed Com #703H)	12410.0	5473.5	-555.0	409972.50	794662.05
TGT #3(Caballo 23 Fed Com #703H)	12420.0	3970.0	-543.9	408469.00	794573.06
TGT #2(Caballo 23 Fed Com #703H)	12428.0	2466.4	-532.9	405955.40	794584.10
TGT #1(Caballo 23 Fed Com #703H)	12434.0	962.8	-521.9	405481.80	794685.13
FTP (Caballo 23 Fed Com #703H)	12436.0	27.0	-516.0	404626.00	794662.00



SCALE: 1" = 2000'

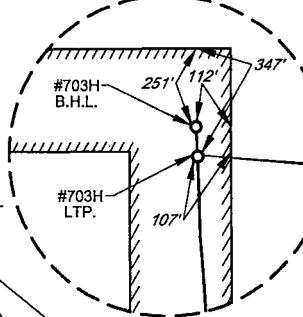
0' 1000' 2000'

SECTION 14 & 23, TOWNSHIP 25-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

FND. BRASS CAP. U.S. G.L.O. SUR. 1913
 10 11 15 14
 11 14
 N 89°41'13" E, 2636.64'
 N 89°30'17" E, 2639.62'
 11 12 14 13
 FND. BRASS CAP. U.S. G.L.O. SUR. 1913

FND. BRASS CAP. U.S. G.L.O. SUR. 1913
 15 14

BOTTOM HOLE LOCATION
 NEW MEXICO EAST
 NAD 1983
 X=784516
 Y=411867
 LAT.: N 32.1298626
 LONG.: W 103.5477566
 MD = 19938'



LAST TAKE POINT
 NAD 1983
 X=784522
 Y=411770
 LAT.: N 32.1295969
 LONG.: W 103.5477416
 MD = 19841'

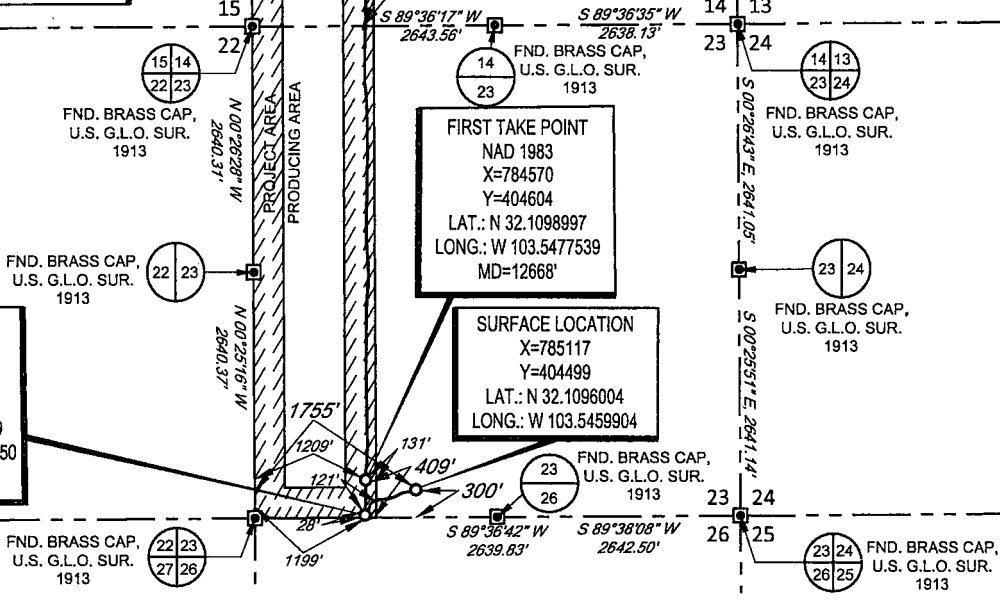
POINT	UTM ZONE 13 COORDINATES
SHL	X=2090487.317 Y=11658472.497
KOP	X=2089935.423 Y=11658193.501
FTP	X=2089939.939 Y=11658573.989
LTP	X=2089847.174 Y=11655738.181
BHL	X=2089841.242 Y=11665834.770

N 00°24'18" W 2640.01'
 N 00°22'09" W 2640.97'
 N 00°26'28" W 2640.31'
 N 00°25'16" W 2640.37'

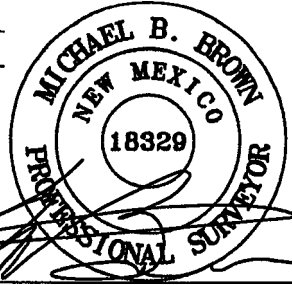
FIRST TAKE POINT
 NAD 1983
 X=784570
 Y=404604
 LAT.: N 32.1098997
 LONG.: W 103.5477539
 MD=12668'

SURFACE LOCATION
 X=785117
 Y=404499
 LAT.: N 32.1096004
 LONG.: W 103.5459904

KICK OFF POINT
 NAD 1983
 X=784563
 Y=404224
 LAT.: N 32.1088539
 LONG.: W 103.5477850
 MD = 11950'



LEASE NAME & WELL NO.: CABALLO 23 FED COM #703H
 SECTION 14 & 23 TWP. 25-S RGE. 33-E SURVEY N.M.P.M.
 COUNTY LEA STATE NM ELEVATION 3342'
 DESCRIPTION 300' FSL & 1755' FWL



Michael Blake Brown, P.S. No. 18329
 AUGUST 7, 2018

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CABALLO 23 FED COM #703H AS-COMPLETED DATE: 08/7/2018 FILE: AD_CABALLO_23_FED_COM_703H DRAWN BY: J.D.R. SHEET: 1 OF 1	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 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.