



30-025-42827

EOG Resources

Lea County, NM (NAD 27 NME)
Rattlesnake 21 Fed Com
#701H

HOBBS OCD

MAY 17 2016

OH

RECEIVED

Design: OH

Standard Survey Report

28 January, 2016



Survey Report

Company:	EOG Resources	Local Co-ordinate Reference:	Well #701H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Site:	Rattlesnake 21 Fed Com	MD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Well:	#701H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Rattlesnake 21 Fed Com		
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Site Position:		Northing:	372,643.00 usft	Latitude:	32° 1' 19.990 N
From:	Map	Easting:	736,218.00 usft	Longitude:	103° 34' 16.150 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.40 °

Well	#701H				
Well Position	+N/-S	0.00 ft	Northing:	372,643.00 usft	Latitude: 32° 1' 19.990 N
	+E/-W	0.00 ft	Easting:	736,218.00 usft	Longitude: 103° 34' 16.150 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level: 3,253.01 ft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/20/2015	7.10	59.90	47,972

Design	OH				
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Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	175.87

Survey Program		Date 1/26/2016			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
112.97	902.00	Vaughn Energy Gyro (OH)	NSG-CT_D/P	Continuous north-seeking gyro in drillpipe	
960.00	12,849.00	DriTech MWD (OH)	MWD	MWD - Standard	
12,966.00	15,866.00	Schlumberger Rotary Steerable (OH)	MWD	MWD - Standard	
15,966.00	19,992.00	DriTech MWD 2 (OH)	MWD	MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.97	0.95	272.92	112.96	0.05	-0.94	-0.11	0.84	0.84	0.00
200.64	0.84	273.82	200.62	0.13	-2.30	-0.29	0.13	-0.13	1.03
288.31	0.81	287.52	288.29	0.36	-3.53	-0.61	0.23	-0.03	15.63
375.98	0.67	283.11	375.95	0.66	-4.62	-0.99	0.17	-0.16	-5.03
463.65	0.66	290.19	463.61	0.95	-5.60	-1.35	0.09	-0.01	8.08
551.32	0.79	292.48	551.27	1.36	-6.63	-1.83	0.15	0.15	2.61
638.99	0.78	289.50	638.94	1.79	-7.75	-2.34	0.05	-0.01	-3.40



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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726.66	0.81	290.19	726.60	2.20	-8.90	-2.83	0.04	0.03	0.79
814.33	0.81	299.13	814.26	2.71	-10.02	-3.43	0.14	0.00	10.20
902.00	0.64	297.53	901.92	3.24	-10.99	-4.03	0.20	-0.19	-1.83
960.00	0.50	297.80	959.92	3.51	-11.50	-4.33	0.24	-0.24	0.47
960'MD: Begin DrilTech MWD									
1,149.00	0.70	96.30	1,148.92	3.77	-11.09	-4.56	0.62	0.11	83.86
1,243.00	0.70	84.70	1,242.91	3.76	-9.94	-4.46	0.15	0.00	-12.34
1,338.00	0.70	86.30	1,337.90	3.85	-8.79	-4.47	0.02	0.00	1.68
1,432.00	1.20	86.90	1,431.89	3.94	-7.23	-4.45	0.53	0.53	0.64
1,526.00	0.70	80.00	1,525.88	4.09	-5.68	-4.49	0.54	-0.53	-7.34
1,621.00	0.70	62.10	1,620.87	4.46	-4.60	-4.78	0.23	0.00	-18.84
1,715.00	0.50	58.60	1,714.86	4.95	-3.74	-5.20	0.22	-0.21	-3.72
1,810.00	0.40	84.70	1,809.86	5.19	-3.06	-5.40	0.24	-0.11	27.47
1,904.00	0.40	65.80	1,903.86	5.36	-2.43	-5.52	0.14	0.00	-20.11
1,999.00	0.00	211.00	1,998.86	5.49	-2.13	-5.63	0.42	-0.42	0.00
2,093.00	0.00	41.20	2,092.86	5.49	-2.13	-5.63	0.00	0.00	0.00
2,187.00	0.00	244.40	2,186.86	5.49	-2.13	-5.63	0.00	0.00	0.00
2,282.00	0.20	274.60	2,281.86	5.51	-2.29	-5.66	0.21	0.21	0.00
2,376.00	0.40	234.00	2,375.86	5.33	-2.72	-5.51	0.30	0.21	-43.19
2,471.00	0.40	239.60	2,470.85	4.97	-3.28	-5.19	0.04	0.00	5.89
2,565.00	0.50	266.00	2,564.85	4.77	-3.97	-5.04	0.24	0.11	28.09
2,660.00	0.40	275.80	2,659.85	4.78	-4.71	-5.10	0.13	-0.11	10.32
2,754.00	0.40	285.80	2,753.85	4.90	-5.35	-5.27	0.07	0.00	10.64
2,849.00	0.20	274.80	2,848.84	5.00	-5.84	-5.41	0.22	-0.21	-11.58
2,943.00	0.40	239.30	2,942.84	4.85	-6.28	-5.29	0.28	0.21	-37.77
3,038.00	0.40	118.00	3,037.84	4.52	-6.28	-4.96	0.73	0.00	-127.68
3,132.00	0.40	109.00	3,131.84	4.26	-5.68	-4.66	0.07	0.00	-9.57
3,226.00	1.20	94.60	3,225.83	4.08	-4.39	-4.38	0.87	0.85	-15.32
3,321.00	1.40	102.10	3,320.81	3.75	-2.26	-3.91	0.28	0.21	7.89
3,415.00	2.50	96.70	3,414.75	3.27	0.90	-3.20	1.19	1.17	-5.74
3,509.00	3.00	94.10	3,508.64	2.86	5.39	-2.46	0.55	0.53	-2.77
3,603.00	3.70	88.80	3,602.48	2.75	10.87	-1.96	0.81	0.74	-5.64
3,698.00	4.80	86.70	3,697.22	3.04	17.91	-1.74	1.17	1.16	-2.21
3,793.00	6.20	89.00	3,791.78	3.36	27.01	-1.40	1.49	1.47	2.42
3,887.00	6.00	79.80	3,885.25	4.32	36.92	-1.65	1.06	-0.21	-9.79
3,981.00	4.60	75.60	3,978.84	6.12	45.40	-2.84	1.54	-1.49	-4.47
4,075.00	3.90	72.30	4,072.58	8.03	52.10	-4.26	0.79	-0.74	-3.51
4,170.00	3.50	75.40	4,167.39	9.75	57.98	-5.54	0.47	-0.42	3.26
4,264.00	3.90	78.40	4,261.19	11.11	63.89	-6.48	0.47	0.43	3.19
4,359.00	4.60	87.00	4,355.93	11.96	70.86	-6.83	0.99	0.74	9.05
4,453.00	4.40	91.30	4,449.64	12.08	78.23	-6.41	0.42	-0.21	4.57
4,548.00	4.90	96.30	4,544.33	11.55	85.91	-5.33	0.68	0.53	5.26
4,643.00	4.80	99.20	4,638.99	10.47	93.86	-3.68	0.28	-0.11	3.05



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Well:	#701H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,737.00	4.60	81.20	4,732.68	10.42	101.47	-3.08	1.58	-0.21	-19.15
4,831.00	4.60	71.60	4,826.38	12.18	108.77	-4.32	0.82	0.00	-10.21
4,926.00	4.00	68.60	4,921.11	14.59	115.47	-6.24	0.67	-0.63	-3.16
5,020.00	3.90	67.70	5,014.88	17.00	121.48	-8.21	0.13	-0.11	-0.96
5,115.00	4.00	65.80	5,109.66	19.59	127.49	-10.35	0.17	0.11	-2.00
5,209.00	4.40	81.40	5,203.41	21.47	134.05	-11.76	1.28	0.43	16.60
5,303.00	4.40	86.00	5,297.13	22.26	141.21	-12.03	0.38	0.00	4.89
5,398.00	4.40	84.40	5,391.85	22.87	148.47	-12.12	0.13	0.00	-1.68
5,492.00	4.60	84.90	5,485.56	23.56	155.82	-12.28	0.22	0.21	0.53
5,586.00	4.20	85.80	5,579.29	24.15	163.00	-12.34	0.43	-0.43	0.96
5,680.00	4.60	86.70	5,673.01	24.61	170.20	-12.29	0.43	0.43	0.96
5,774.00	4.90	89.00	5,766.69	24.90	177.98	-12.02	0.38	0.32	2.45
5,868.00	4.20	78.90	5,860.39	25.63	185.37	-12.22	1.13	-0.74	-10.74
5,962.00	4.00	75.10	5,954.15	27.14	191.91	-13.25	0.36	-0.21	-4.04
6,056.00	4.00	73.10	6,047.92	28.94	198.22	-14.59	0.15	0.00	-2.13
6,151.00	3.90	70.20	6,142.69	30.99	204.43	-16.19	0.24	-0.11	-3.05
6,245.00	4.20	82.80	6,236.46	32.51	210.85	-17.24	1.00	0.32	13.40
6,339.00	4.00	85.80	6,330.22	33.18	217.54	-17.43	0.31	-0.21	3.19
6,434.00	4.00	86.30	6,424.99	33.64	224.15	-17.41	0.04	0.00	0.53
6,528.00	4.20	87.40	6,518.75	34.00	230.86	-17.29	0.23	0.21	1.17
6,622.00	4.20	88.40	6,612.50	34.26	237.74	-17.05	0.08	0.00	1.06
6,716.00	4.40	89.00	6,706.23	34.41	244.78	-16.70	0.22	0.21	0.64
6,811.00	4.20	87.20	6,800.96	34.65	251.90	-16.42	0.25	-0.21	-1.89
6,905.00	4.20	85.80	6,894.71	35.07	258.77	-16.34	0.11	0.00	-1.49
6,999.00	4.20	83.90	6,988.46	35.69	265.63	-16.46	0.15	0.00	-2.02
7,094.00	4.40	84.70	7,083.19	36.39	272.72	-16.66	0.22	0.21	0.84
7,188.00	4.20	84.60	7,176.93	37.05	279.73	-16.81	0.21	-0.21	-0.11
7,283.00	3.90	82.60	7,271.69	37.79	286.40	-17.07	0.35	-0.32	-2.11
7,377.00	3.90	82.30	7,365.47	38.63	292.74	-17.45	0.02	0.00	-0.32
7,472.00	3.90	80.90	7,460.25	39.58	299.13	-17.93	0.10	0.00	-1.47
7,566.00	3.90	79.80	7,554.04	40.65	305.43	-18.55	0.08	0.00	-1.17
7,661.00	3.70	78.40	7,648.83	41.84	311.62	-19.29	0.23	-0.21	-1.47
7,755.00	3.50	77.90	7,742.64	43.05	317.39	-20.08	0.22	-0.21	-0.53
7,850.00	4.00	82.50	7,837.44	44.09	323.51	-20.68	0.61	0.53	4.84
7,944.00	3.90	83.30	7,931.21	44.89	329.94	-21.01	0.12	-0.11	0.85
8,038.00	3.90	83.30	8,025.00	45.64	336.29	-21.30	0.00	0.00	0.00
8,133.00	3.70	83.90	8,119.79	46.34	342.55	-21.55	0.21	-0.21	0.63
8,227.00	3.70	84.40	8,213.59	46.96	348.58	-21.73	0.03	0.00	0.53
8,321.00	3.50	87.90	8,307.41	47.36	354.47	-21.71	0.32	-0.21	3.72
8,416.00	3.70	89.00	8,402.22	47.52	360.43	-21.44	0.22	0.21	1.16
8,510.00	3.50	86.70	8,496.03	47.74	366.33	-21.23	0.26	-0.21	-2.45
8,604.00	3.30	89.70	8,589.87	47.92	371.90	-21.01	0.28	-0.21	3.19
8,699.00	3.00	91.60	8,684.72	47.86	377.11	-20.58	0.33	-0.32	2.00
8,793.00	3.00	101.10	8,778.60	47.32	381.99	-19.68	0.53	0.00	10.11



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8,888.00	3.00	99.70	8,873.47	46.42	386.88	-18.44	0.08	0.00	-1.47	
8,982.00	3.00	99.30	8,967.34	45.61	391.73	-17.28	0.02	0.00	-0.43	
9,076.00	2.60	104.10	9,061.22	44.69	396.22	-16.04	0.49	-0.43	5.11	
9,170.00	2.50	100.90	9,155.13	43.78	400.31	-14.84	0.19	-0.11	-3.40	
9,265.00	2.10	100.00	9,250.06	43.09	404.05	-13.88	0.42	-0.42	-0.95	
9,359.00	1.90	102.30	9,344.00	42.46	407.27	-13.02	0.23	-0.21	2.45	
9,453.00	1.40	103.40	9,437.96	41.86	409.91	-12.23	0.53	-0.53	1.17	
9,547.00	1.10	116.70	9,531.94	41.19	411.84	-11.42	0.44	-0.32	14.15	
9,642.00	0.70	127.30	9,626.92	40.43	413.11	-10.57	0.45	-0.42	11.16	
9,737.00	0.50	118.70	9,721.92	39.88	413.94	-9.96	0.23	-0.21	-9.05	
9,830.00	0.40	84.20	9,814.92	39.72	414.62	-9.75	0.30	-0.11	-37.10	
9,925.00	0.40	1.30	9,909.91	40.08	414.95	-10.09	0.56	0.00	-87.26	
10,019.00	0.70	328.20	10,003.91	40.90	414.66	-10.93	0.45	0.32	-35.21	
10,113.00	0.70	333.70	10,097.90	41.90	414.10	-11.97	0.07	0.00	5.85	
10,207.00	0.70	327.00	10,191.90	42.90	413.53	-13.00	0.09	0.00	-7.13	
10,302.00	1.10	332.10	10,286.88	44.19	412.79	-14.34	0.43	0.42	5.37	
10,397.00	1.10	318.00	10,381.87	45.67	411.75	-15.90	0.28	0.00	-14.84	
10,491.00	1.10	292.20	10,475.85	46.68	410.32	-17.01	0.52	0.00	-27.45	
10,586.00	1.20	289.50	10,570.83	47.36	408.53	-17.81	0.12	0.11	-2.84	
10,680.00	1.40	288.50	10,664.81	48.05	406.52	-18.65	0.21	0.21	-1.06	
10,774.00	1.40	284.40	10,758.78	48.70	404.32	-19.46	0.11	0.00	-4.36	
10,869.00	1.40	288.50	10,853.75	49.36	402.09	-20.27	0.11	0.00	4.32	
10,978.00	1.40	284.60	10,962.72	50.12	399.54	-21.21	0.09	0.00	-3.58	
11,071.00	1.80	240.10	11,055.69	49.68	397.17	-20.94	1.36	0.43	-47.85	
11,165.00	2.10	154.40	11,149.65	47.39	396.64	-18.70	2.83	0.32	-91.17	
11,259.00	1.90	165.80	11,243.59	44.32	397.76	-15.56	0.47	-0.21	12.13	
11,353.00	1.80	172.30	11,337.54	41.35	398.34	-12.55	0.25	-0.11	6.91	
11,446.00	1.10	134.80	11,430.51	39.27	399.17	-10.42	1.23	-0.75	-40.32	
11,540.00	2.10	108.70	11,524.48	38.08	401.45	-9.07	1.29	1.06	-27.77	
11,633.00	1.80	89.50	11,617.42	37.55	404.52	-8.32	0.77	-0.32	-20.65	
11,727.00	2.10	84.70	11,711.37	37.72	407.71	-8.26	0.36	0.32	-5.11	
11,820.00	2.60	127.80	11,804.30	36.59	411.07	-6.89	1.92	0.54	46.34	
11,867.00	5.80	153.80	11,851.17	33.80	412.97	-3.97	7.76	6.81	55.32	
11,914.00	10.00	157.50	11,897.71	27.90	415.58	2.10	9.00	8.94	7.87	
11,961.00	14.40	158.00	11,943.64	18.71	419.33	11.54	9.36	9.36	1.06	
12,008.00	17.80	157.70	11,988.79	6.64	424.25	23.93	7.24	7.23	-0.64	
12,054.00	22.00	164.00	12,032.04	-8.16	429.29	39.06	10.24	9.13	13.70	
12,101.00	26.70	170.50	12,074.85	-27.05	433.47	58.20	11.50	10.00	13.83	
12,148.00	31.70	174.20	12,115.87	-49.77	436.46	81.07	11.31	10.64	7.87	
12,195.00	37.50	174.40	12,154.54	-76.31	439.10	107.74	12.34	12.34	0.43	
12,241.00	43.30	174.60	12,189.56	-105.97	441.96	137.53	12.61	12.61	0.43	
12,288.00	45.00	175.40	12,223.28	-138.59	444.81	170.26	3.81	3.62	1.70	
12,335.00	50.30	173.30	12,254.93	-173.13	448.25	204.97	11.75	11.28	-4.47	



Survey Report

Company:	EOG Resources	Local Co-ordinate Reference:	Well #701H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Site:	Rattlesnake 21 Fed Com	MD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Well:	#701H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,382.00	57.00	171.40	12,282.78	-210.62	453.31	242.72	14.62	14.26	-4.04
12,429.00	63.20	169.10	12,306.20	-250.75	460.24	283.25	13.86	13.19	-4.89
12,476.00	66.00	168.10	12,326.35	-292.36	468.63	325.36	6.26	5.96	-2.13
12,522.00	71.10	167.70	12,343.17	-334.21	477.60	367.74	11.12	11.09	-0.87
12,569.00	76.90	168.20	12,356.12	-378.38	487.03	412.47	12.38	12.34	1.06
12,615.00	81.60	168.90	12,364.70	-422.66	496.00	457.28	10.33	10.22	1.52
12,693.00	87.80	170.00	12,371.90	-498.98	510.21	534.42	8.07	7.95	1.41
12,756.00	94.50	169.10	12,370.64	-560.88	521.62	596.99	10.73	10.63	-1.43
12,849.00	92.40	171.80	12,365.04	-652.41	537.02	689.40	3.67	-2.26	2.90
12849' MD: Final DrilTech MWD (Section 1)									
12,966.00	88.97	172.63	12,363.64	-768.31	552.86	806.13	3.02	-2.93	0.71
12966' MD: Begin Schlumberger Rotary Steerable									
13,059.00	87.52	179.29	12,366.49	-860.98	559.41	899.03	7.33	-1.56	7.16
13,152.00	88.72	179.61	12,369.54	-953.92	560.30	991.80	1.34	1.29	0.34
13,246.00	88.35	181.85	12,371.95	-1,047.88	559.11	1,085.42	2.41	-0.39	2.38
13,341.00	88.86	180.79	12,374.26	-1,142.82	556.92	1,179.96	1.24	0.54	-1.12
13,435.00	89.38	181.04	12,375.70	-1,236.80	555.42	1,273.59	0.61	0.55	0.27
13,528.00	89.52	181.68	12,376.59	-1,329.77	553.21	1,366.16	0.70	0.15	0.69
13,621.00	89.86	180.74	12,377.10	-1,422.75	551.25	1,458.75	1.07	0.37	-1.01
13,715.00	89.76	180.99	12,377.41	-1,516.73	549.83	1,552.39	0.29	-0.11	0.27
13,809.00	89.76	180.31	12,377.80	-1,610.73	548.76	1,646.07	0.72	0.00	-0.72
13,902.00	89.66	181.34	12,378.27	-1,703.71	547.42	1,738.72	1.11	-0.11	1.11
13,996.00	89.83	181.08	12,378.69	-1,797.69	545.44	1,832.31	0.33	0.18	-0.28
14,090.00	89.86	181.20	12,378.95	-1,891.67	543.57	1,925.91	0.13	0.03	0.13
14,183.00	89.83	180.55	12,379.20	-1,984.66	542.15	2,018.55	0.70	-0.03	-0.70
14,277.00	90.48	179.68	12,378.94	-2,078.66	541.96	2,112.29	1.16	0.69	-0.93
14,370.00	90.66	181.18	12,378.02	-2,171.65	541.26	2,204.99	1.62	0.19	1.61
14,463.00	90.69	178.23	12,376.92	-2,264.63	541.74	2,297.77	3.17	0.03	-3.17
14,556.00	91.27	179.44	12,375.33	-2,357.60	543.63	2,390.63	1.44	0.62	1.30
14,650.00	91.82	178.53	12,372.80	-2,451.55	545.29	2,484.45	1.13	0.59	-0.97
14,744.00	90.86	180.36	12,370.60	-2,545.51	546.20	2,578.24	2.20	-1.02	1.95
14,839.00	91.03	178.79	12,369.03	-2,640.49	546.91	2,673.02	1.66	0.18	-1.65
14,932.00	90.93	179.15	12,367.44	-2,733.46	548.58	2,765.88	0.40	-0.11	0.39
15,023.00	91.07	179.11	12,365.85	-2,824.44	549.96	2,856.71	0.16	0.15	-0.04
15,116.00	90.76	180.31	12,364.37	-2,917.43	550.43	2,949.49	1.33	-0.33	1.29
15,210.00	89.76	180.49	12,363.94	-3,011.42	549.78	3,043.20	1.08	-1.06	0.19
15,304.00	89.93	181.39	12,364.20	-3,105.41	548.23	3,136.83	0.97	0.18	0.96
15,396.00	89.93	180.63	12,364.31	-3,197.39	546.61	3,228.46	0.83	0.00	-0.83
15,491.00	90.52	181.04	12,363.94	-3,292.38	545.23	3,323.10	0.76	0.62	0.43
15,585.00	89.28	180.28	12,364.10	-3,386.37	544.15	3,416.77	1.55	-1.32	-0.81
15,678.00	88.80	179.78	12,365.66	-3,479.36	544.10	3,509.51	0.75	-0.52	-0.54
15,772.00	88.38	180.70	12,367.97	-3,573.33	543.70	3,603.21	1.08	-0.45	0.98
15,866.00	88.80	180.50	12,370.28	-3,667.29	542.72	3,696.86	0.49	0.45	-0.21
15866' MD: Final Schlumberger Survey									



Survey Report

Company:	EOG Resources	Local Co-ordinate Reference:	Well #701H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Site:	Rattlesnake 21 Fed Com	MD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Well:	#701H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,966.00	89.90	181.80	12,371.42	-3,767.26	540.71	3,796.42	1.70	1.10	1.30
15966'MD: Begin DrilTech MWD Section 2									
16,061.00	89.60	182.10	12,371.83	-3,862.21	537.48	3,890.89	0.45	-0.32	0.32
16,155.00	90.60	180.40	12,371.67	-3,956.18	535.43	3,984.47	2.10	1.06	-1.81
16,247.00	91.30	180.20	12,370.14	-4,048.17	534.95	4,076.18	0.79	0.76	-0.22
16,341.00	91.70	179.30	12,367.68	-4,142.13	535.36	4,169.93	1.05	0.43	-0.96
16,434.00	90.80	180.50	12,365.65	-4,235.11	535.52	4,262.68	1.61	-0.97	1.29
16,527.00	91.30	181.40	12,363.95	-4,328.08	533.98	4,355.29	1.11	0.54	0.97
16,622.00	89.90	180.40	12,362.96	-4,423.06	532.49	4,449.92	1.81	-1.47	-1.05
16,716.00	89.00	180.00	12,363.86	-4,517.05	532.16	4,543.65	1.05	-0.96	-0.43
16,809.00	88.50	177.70	12,365.89	-4,610.00	534.02	4,636.49	2.53	-0.54	-2.47
16,902.00	87.30	175.80	12,369.29	-4,702.78	539.29	4,729.41	2.42	-1.29	-2.04
16,996.00	90.80	173.50	12,370.85	-4,796.34	548.05	4,823.36	4.46	3.72	-2.45
17,089.00	95.00	173.90	12,366.15	-4,888.64	558.24	4,916.15	4.54	4.52	0.43
17,183.00	94.70	180.20	12,358.19	-4,982.13	563.06	5,009.75	6.69	-0.32	6.70
17,276.00	91.30	182.10	12,353.33	-5,074.97	561.20	5,102.21	4.19	-3.66	2.04
17,370.00	90.10	180.90	12,352.18	-5,168.93	558.74	5,195.74	1.81	-1.28	-1.28
17,464.00	88.50	180.70	12,353.33	-5,262.91	557.42	5,289.38	1.72	-1.70	-0.21
17,558.00	90.40	180.00	12,354.23	-5,356.90	556.85	5,383.09	2.15	2.02	-0.74
17,651.00	91.70	180.00	12,352.52	-5,449.88	556.85	5,475.83	1.40	1.40	0.00
17,746.00	90.40	180.20	12,350.78	-5,544.86	556.68	5,570.55	1.38	-1.37	0.21
17,839.00	90.80	181.40	12,349.81	-5,637.84	555.38	5,663.20	1.36	0.43	1.29
17,933.00	91.70	183.20	12,347.76	-5,731.74	551.61	5,756.58	2.14	0.96	1.91
18,026.00	88.70	181.60	12,347.43	-5,824.64	547.72	5,848.97	3.66	-3.23	-1.72
18,121.00	90.60	180.00	12,348.01	-5,919.63	546.39	5,943.61	2.61	2.00	-1.68
18,213.00	90.10	177.90	12,347.45	-6,011.60	548.08	6,035.47	2.35	-0.54	-2.28
18,307.00	89.70	177.40	12,347.62	-6,105.52	551.93	6,129.42	0.68	-0.43	-0.53
18,400.00	90.10	177.40	12,347.78	-6,198.43	556.15	6,222.39	0.43	0.43	0.00
18,494.00	90.30	176.90	12,347.45	-6,292.31	560.83	6,316.36	0.57	0.21	-0.53
18,588.00	90.60	177.40	12,346.71	-6,386.19	565.50	6,410.33	0.62	0.32	0.53
18,681.00	91.10	178.30	12,345.33	-6,479.11	568.99	6,503.27	1.11	0.54	0.97
18,774.00	90.10	179.50	12,344.36	-6,572.09	570.77	6,596.13	1.68	-1.08	1.29
18,867.00	90.30	180.90	12,344.03	-6,665.09	570.45	6,688.86	1.52	0.22	1.51
18,961.00	89.90	182.50	12,343.87	-6,759.04	567.66	6,782.37	1.75	-0.43	1.70
19,055.00	89.40	182.10	12,344.44	-6,852.96	563.89	6,875.78	0.68	-0.53	-0.43
19,148.00	90.10	182.30	12,344.85	-6,945.89	560.32	6,968.21	0.78	0.75	0.22
19,241.00	91.80	181.40	12,343.31	-7,038.83	557.32	7,060.69	2.07	1.83	-0.97
19,334.00	90.80	180.90	12,341.20	-7,131.78	555.45	7,153.27	1.20	-1.08	-0.54
19,426.00	90.60	181.30	12,340.07	-7,223.76	553.68	7,244.88	0.49	-0.22	0.43
19,520.00	90.80	181.40	12,338.93	-7,317.73	551.47	7,338.44	0.24	0.21	0.11
19,613.00	91.30	181.80	12,337.22	-7,410.67	548.87	7,430.96	0.69	0.54	0.43
19,707.00	89.40	181.30	12,336.65	-7,504.63	546.33	7,524.49	2.09	-2.02	-0.53
19,799.00	91.10	180.40	12,336.25	-7,596.62	544.97	7,616.14	2.09	1.85	-0.98
19799'MD: Final MWD Survey									



Survey Report

Company:	EOG Resources	Local Co-ordinate Reference:	Well #701H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Site:	Rattlesnake 21 Fed Com	MD Reference:	KB = 25 @ 3278.01ft (H&P 415)
Well:	#701H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
19,992.00	91.10	180.40	12,332.54	-7,789.58	543.62	7,808.50	0.00	0.00	0.00
19992'MD: Projection to Bit									

Design Annotations

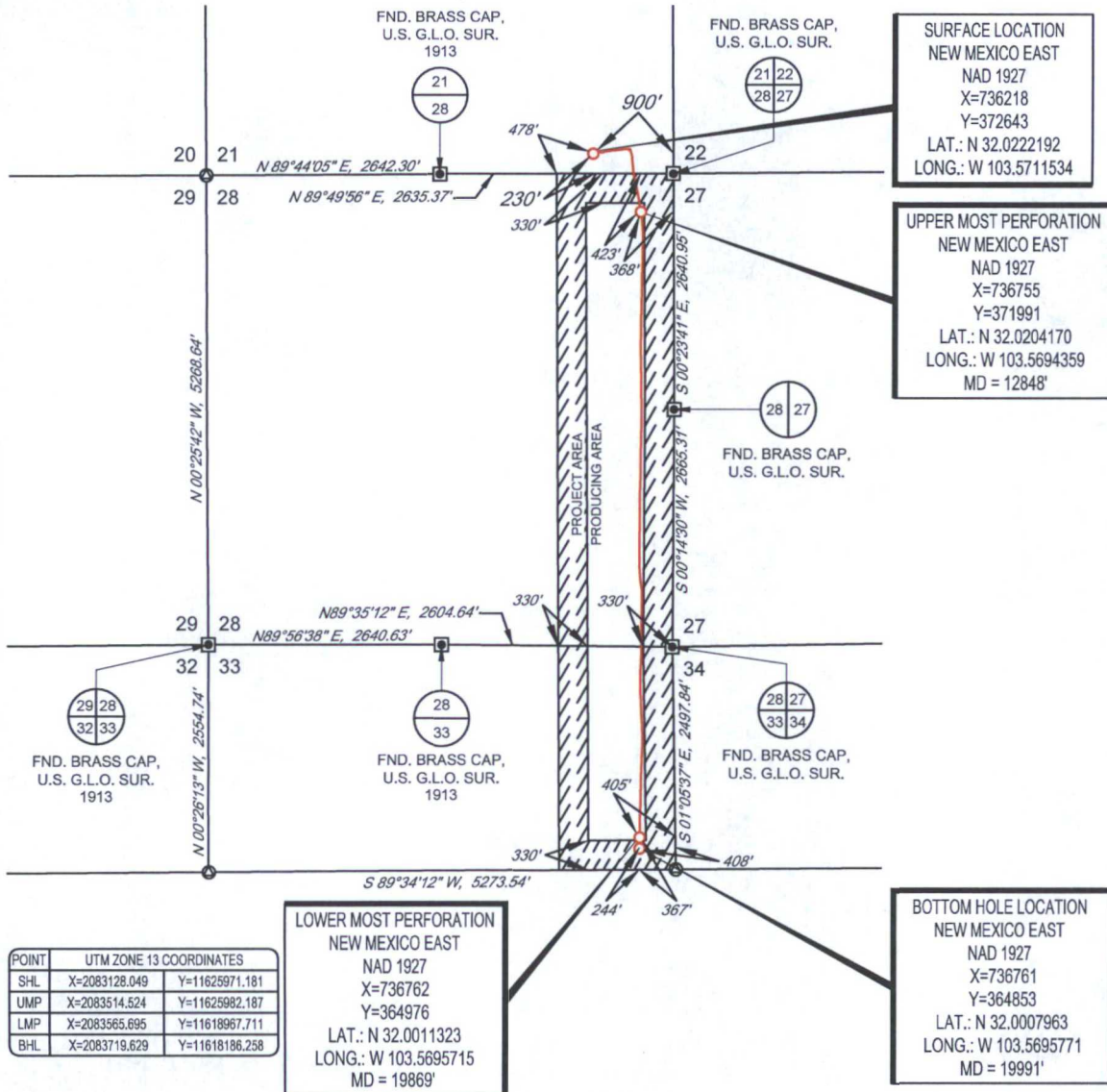
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
12,849.00	12,365.04	-652.41	537.02	12849'MD: Final DrilTech MWD (Section 1)
12,966.00	12,363.64	-768.31	552.86	12966'MD: Begin Schlumberger Rotary Steerable
15,866.00	12,370.28	-3,667.29	542.72	15866'MD: Final Schlumberger Survey
15,966.00	12,371.42	-3,767.26	540.71	15966'MD: Begin DrilTech MWD Section 2
19,799.00	12,336.25	-7,596.62	544.97	19799'MD: Final MWD Survey
19,992.00	12,332.54	-7,789.58	543.62	19992'MD: Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

SCALE: 1" = 2000'

0' 1000' 2000'

SECTION 21, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO



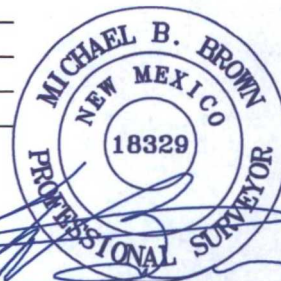
POINT	UTM ZONE 13 COORDINATES
SHL	X=2083128.049 Y=11625971.181
UMP	X=2083514.524 Y=11625982.187
LMP	X=2083565.695 Y=11618967.711
BHL	X=2083719.629 Y=11618186.258

LEASE NAME & WELL NO.: RATTLESNAKE 21 FED COM #701H
 SECTION 21 TWP 26-S RGE 33-E SURVEY N.M.P.M.
 COUNTY LEA STATE NM ELEVATION 3253'
 DESCRIPTION 230' FSL & 900' FEL



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

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Michael Blake Brown, P.S. No. 18329
 MAY 9, 2016



RATTLESNAKE 21 FED COM #701H AS-COMPLETED	REVISION:	
	INT	DATE
DATE: 05/09/16		
FILE: AD_RATTLESNAKE21FEDCOM_701H		
DRAWN BY: A.C.C.		
SHEET: 1 OF 1		

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 STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. CERTIFICATION IS MADE ONLY TO THE LOCATION OF THIS EASEMENT, IN RELATION TO THE EVIDENCE FOUND DURING A FIELD SURVEY, MADE ON THE GROUND, UNDER MY SUPERVISION, AND USING DOCUMENTATION PROVIDED BY EOG RESOURCES, INC. ONLY UTILITIES/EASEMENTS THAT WERE VISIBLE ON THE DATE OF THIS SURVEY, WITHIN/ADJOINING THIS EASEMENT, HAVE BEEN LOCATED AS SHOWN HEREON OF WHICH I HAVE KNOWLEDGE. THIS CERTIFICATION IS LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE, AND MADE FOR THIS TRANSACTION ONLY.