



BTA Oil Producers, LLC

Lea County, NM (NAD 83)
Sec 22, T25-S, R33-E
Rojo 7811 22 Fed Com #16H

Wellbore #1

Design: Wellbore #1

QES Survey Report

05 March, 2019

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Survey Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 22 Fed Com #16H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3370.0usft (Patterson #566)
Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3370.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #16H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 22, T25-S, R33-E		
Site Position:		Northing:	409,243.40 usft
From:	Map	Easting:	781,148.30 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 21.790 N
		Longitude:	103° 33' 21.310 W
		Grid Convergence:	0.41 °

Well	Rojo 7811 22 Fed Com #16H		
Well Position	+N/-S	0.0 usft	Northing: 404,399.00 usft
	+E/-W	0.0 usft	Easting: 782,052.80 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 6' 33.788 N
		Longitude:	103° 33' 21.199 W
		Ground Level:	3,345.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2/12/2019	6.76
			Dip Angle (°)
			59.94
			Field Strength (nT)
			47,702.01304384

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			355.61

Survey Program	Date 3/5/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
159.0	17,380.0	QES MWD Surveys (Wellbore #1)	OWSG (Rev2) MWD
			Description
			OWSG MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
First MWD Survey @ 159.0' MD / 159.0' TVD									
159.0	0.70	193.80	159.0	-0.9	-0.2	-0.9	0.44	0.44	0.00
253.0	0.40	174.40	253.0	-1.8	-0.3	-1.8	0.37	-0.32	-20.64
438.0	0.30	171.60	438.0	-2.9	-0.2	-2.9	0.05	-0.05	-1.51
532.0	0.40	105.50	532.0	-3.3	0.1	-3.3	0.42	0.11	-70.32
626.0	0.60	83.90	626.0	-3.3	1.0	-3.4	0.29	0.21	-22.98
720.0	0.60	86.00	720.0	-3.2	1.9	-3.4	0.02	0.00	2.23
814.0	0.60	86.40	814.0	-3.2	2.9	-3.4	0.00	0.00	0.43
909.0	0.40	63.30	909.0	-3.0	3.7	-3.3	0.29	-0.21	-24.32
1,035.0	0.30	81.40	1,035.0	-2.7	4.4	-3.1	0.12	-0.08	14.37



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,097.0	0.60	66.50	1,097.0	-2.6	4.9	-2.9	0.52	0.48	-24.03
1,193.0	0.50	67.70	1,193.0	-2.2	5.7	-2.7	0.10	-0.10	1.25
1,288.0	0.50	63.10	1,288.0	-1.9	6.5	-2.4	0.04	0.00	-4.84
1,383.0	0.50	78.60	1,383.0	-1.6	7.3	-2.2	0.14	0.00	16.32
1,478.0	0.40	107.60	1,478.0	-1.6	8.0	-2.2	0.26	-0.11	30.53
1,573.0	0.30	98.00	1,572.9	-1.8	8.5	-2.4	0.12	-0.11	-10.11
1,669.0	0.40	121.00	1,668.9	-2.0	9.1	-2.7	0.18	0.10	23.96
1,764.0	0.50	114.30	1,763.9	-2.3	9.7	-3.1	0.12	0.11	-7.05
1,859.0	0.40	108.90	1,858.9	-2.6	10.4	-3.4	0.11	-0.11	-5.68
1,953.0	0.50	104.50	1,952.9	-2.8	11.1	-3.6	0.11	0.11	-4.68
2,048.0	0.60	130.10	2,047.9	-3.2	11.9	-4.1	0.28	0.11	26.95
2,144.0	0.70	135.40	2,143.9	-4.0	12.7	-4.9	0.12	0.10	5.52
2,239.0	0.80	142.40	2,238.9	-4.9	13.5	-5.9	0.14	0.11	7.37
2,335.0	0.90	136.60	2,334.9	-6.0	14.5	-7.1	0.14	0.10	-6.04
2,432.0	1.00	134.00	2,431.9	-7.1	15.6	-8.3	0.11	0.10	-2.68
2,527.0	0.50	174.60	2,526.9	-8.1	16.2	-9.3	0.74	-0.53	42.74
2,622.0	0.50	184.10	2,621.9	-8.9	16.2	-10.2	0.09	0.00	10.00
2,717.0	0.60	161.80	2,716.9	-9.8	16.4	-11.0	0.25	0.11	-23.47
2,811.0	0.70	160.00	2,810.9	-10.8	16.7	-12.1	0.11	0.11	-1.91
2,907.0	0.90	153.30	2,906.9	-12.1	17.3	-13.3	0.23	0.21	-6.98
3,003.0	0.70	301.50	3,002.9	-12.4	17.1	-13.7	1.60	-0.21	154.38
3,097.0	0.90	327.50	3,096.9	-11.5	16.2	-12.7	0.44	0.21	27.66
3,192.0	0.90	10.90	3,191.8	-10.1	15.9	-11.3	0.70	0.00	45.68
3,287.0	1.20	55.80	3,286.8	-8.8	16.9	-10.1	0.89	0.32	47.26
3,382.0	1.80	65.60	3,381.8	-7.7	19.1	-9.1	0.68	0.63	10.32
3,476.0	1.40	48.00	3,475.8	-6.3	21.3	-7.9	0.67	-0.43	-18.72
3,571.0	2.00	316.30	3,570.7	-4.3	21.0	-5.9	2.61	0.63	-96.53
3,666.0	2.60	306.60	3,665.7	-1.8	18.1	-3.2	0.75	0.63	-10.21
3,762.0	2.60	295.90	3,761.6	0.4	14.4	-0.7	0.50	0.00	-11.15
3,857.0	2.50	286.60	3,856.5	1.9	10.5	1.1	0.45	-0.11	-9.79
3,952.0	2.30	286.40	3,951.4	3.1	6.7	2.6	0.21	-0.21	-0.21
4,047.0	2.40	282.30	4,046.3	4.0	2.9	3.8	0.21	0.11	-4.32
4,142.0	2.50	276.20	4,141.2	4.7	-1.1	4.8	0.29	0.11	-6.42
4,238.0	2.80	274.10	4,237.1	5.1	-5.5	5.5	0.33	0.31	-2.19
4,333.0	2.50	264.90	4,332.0	5.1	-9.9	5.8	0.55	-0.32	-9.68
4,428.0	1.40	250.50	4,427.0	4.5	-13.0	5.5	1.26	-1.16	-15.16
4,524.0	0.80	251.40	4,522.9	3.9	-14.8	5.0	0.63	-0.63	0.94
LL Crossed @ 4616.1' MD / 4615.0' TVD									
4,616.1	1.86	227.61	4,615.0	2.7	-16.5	3.9	1.28	1.16	-25.83
4,619.0	1.90	227.30	4,617.9	2.6	-16.6	3.9	1.28	1.23	-10.57
4,714.0	2.70	209.90	4,712.8	-0.4	-18.8	1.0	1.11	0.84	-18.32
4,810.0	2.60	203.60	4,808.7	-4.4	-20.8	-2.7	0.32	-0.10	-6.56
4,905.0	2.40	203.90	4,903.6	-8.1	-22.5	-6.4	0.21	-0.21	0.32



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4,999.0	2.30	198.90	4,997.6	-11.7	-23.9	-9.9	0.24	-0.11	-5.32
5,079.0	2.60	200.30	5,077.5	-15.0	-25.1	-13.0	0.38	0.38	1.75
5,173.0	3.40	233.50	5,171.4	-18.6	-28.0	-16.4	2.00	0.85	35.32
5,268.0	3.60	234.80	5,266.2	-22.0	-32.7	-19.4	0.23	0.21	1.37
5,362.0	3.20	252.30	5,360.0	-24.5	-37.7	-21.6	1.18	-0.43	18.62
5,457.0	3.20	253.00	5,454.9	-26.1	-42.7	-22.7	0.04	0.00	0.74
5,553.0	3.20	250.20	5,550.7	-27.8	-47.8	-24.0	0.16	0.00	-2.92
5,647.0	3.20	250.10	5,644.6	-29.6	-52.7	-25.4	0.01	0.00	-0.11
5,742.0	3.20	246.70	5,739.4	-31.5	-57.7	-27.0	0.20	0.00	-3.58
5,837.0	3.10	246.00	5,834.3	-33.6	-62.5	-28.7	0.11	-0.11	-0.74
5,932.0	3.20	247.20	5,929.1	-35.7	-67.2	-30.4	0.13	0.11	1.26
6,028.0	2.90	247.60	6,025.0	-37.6	-72.0	-32.0	0.31	-0.31	0.42
6,123.0	3.00	249.00	6,119.9	-39.4	-76.5	-33.5	0.13	0.11	1.47
6,219.0	3.10	249.50	6,215.7	-41.3	-81.3	-34.9	0.11	0.10	0.52
6,313.0	2.90	250.40	6,309.6	-42.9	-85.9	-36.2	0.22	-0.21	0.96
6,409.0	3.10	246.00	6,405.5	-44.8	-90.6	-37.8	0.32	0.21	-4.58
6,504.0	3.20	248.30	6,500.3	-46.8	-95.4	-39.4	0.17	0.11	2.42
6,598.0	3.00	249.00	6,594.2	-48.7	-100.1	-40.9	0.22	-0.21	0.74
6,694.0	3.10	246.90	6,690.1	-50.6	-104.8	-42.4	0.16	0.10	-2.19
6,788.0	3.20	247.40	6,783.9	-52.6	-109.6	-44.1	0.11	0.11	0.53
6,883.0	3.20	247.10	6,878.8	-54.7	-114.5	-45.7	0.02	0.00	-0.32
6,979.0	3.20	249.00	6,974.6	-56.7	-119.5	-47.4	0.11	0.00	1.98
7,074.0	3.10	251.80	7,069.5	-58.4	-124.4	-48.7	0.19	-0.11	2.95
7,169.0	3.10	251.60	7,164.3	-60.0	-129.2	-50.0	0.01	0.00	-0.21
7,264.0	2.90	249.70	7,259.2	-61.7	-133.9	-51.2	0.24	-0.21	-2.00
7,358.0	2.90	246.50	7,353.1	-63.5	-138.4	-52.7	0.17	0.00	-3.40
7,454.0	2.80	246.00	7,449.0	-65.4	-142.7	-54.3	0.11	-0.10	-0.52
7,549.0	2.80	245.00	7,543.9	-67.3	-146.9	-55.9	0.05	0.00	-1.05
7,642.0	4.10	237.60	7,636.7	-70.0	-151.8	-58.2	1.47	1.40	-7.96
7,737.0	3.90	235.80	7,731.5	-73.7	-157.3	-61.4	0.25	-0.21	-1.89
7,832.0	3.90	236.40	7,826.2	-77.3	-162.7	-64.6	0.04	0.00	0.63
7,927.0	3.80	237.20	7,921.0	-80.8	-168.0	-67.7	0.12	-0.11	0.84
8,022.0	3.60	235.50	8,015.8	-84.2	-173.2	-70.7	0.24	-0.21	-1.79
8,116.0	3.60	235.10	8,109.6	-87.5	-178.0	-73.6	0.03	0.00	-0.43
8,211.0	3.80	234.80	8,204.4	-91.0	-183.0	-76.8	0.21	0.21	-0.32
8,306.0	3.60	232.70	8,299.2	-94.7	-188.0	-80.0	0.25	-0.21	-2.21
8,401.0	3.40	232.30	8,394.1	-98.2	-192.6	-83.2	0.21	-0.21	-0.42
8,495.0	3.30	232.80	8,487.9	-101.5	-196.9	-86.2	0.11	-0.11	0.53
8,590.0	3.30	233.00	8,582.8	-104.8	-201.3	-89.1	0.01	0.00	0.21
8,685.0	4.00	247.20	8,677.6	-107.8	-206.5	-91.6	1.20	0.74	14.95
8,780.0	4.00	247.40	8,772.3	-110.3	-212.6	-93.7	0.01	0.00	0.21
8,876.0	3.80	245.80	8,868.1	-112.9	-218.6	-95.9	0.24	-0.21	-1.67
8,971.0	3.80	246.70	8,962.9	-115.5	-224.4	-97.9	0.06	0.00	0.95



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9,067.0	3.50	247.40	9,058.7	-117.8	-230.0	-99.9	0.32	-0.31	0.73
9,162.0	3.40	251.10	9,153.5	-119.9	-235.4	-101.5	0.26	-0.11	3.89
9,257.0	3.20	252.20	9,248.4	-121.6	-240.6	-102.8	0.22	-0.21	1.16
9,353.0	3.20	253.60	9,344.2	-123.2	-245.7	-104.0	0.08	0.00	1.46
9,448.0	3.30	256.60	9,439.1	-124.5	-250.9	-105.0	0.21	0.11	3.16
9,544.0	3.20	256.60	9,534.9	-125.8	-256.2	-105.8	0.10	-0.10	0.00
9,639.0	3.30	251.50	9,629.8	-127.3	-261.3	-106.9	0.32	0.11	-5.37
9,735.0	3.40	256.90	9,725.6	-128.8	-266.7	-108.0	0.34	0.10	5.63
9,830.0	3.70	258.90	9,820.4	-130.0	-272.5	-108.8	0.34	0.32	2.11
9,926.0	3.20	262.70	9,916.2	-131.0	-278.2	-109.3	0.57	-0.52	3.96
10,021.0	2.90	239.00	10,011.1	-132.6	-282.9	-110.5	1.35	-0.32	-24.95
10,116.0	3.80	234.10	10,105.9	-135.6	-287.5	-113.2	0.99	0.95	-5.16
10,212.0	3.90	234.90	10,201.7	-139.4	-292.7	-116.6	0.12	0.10	0.83
10,307.0	4.00	233.90	10,296.5	-143.2	-298.1	-120.0	0.13	0.11	-1.05
10,402.0	3.80	233.90	10,391.3	-147.0	-303.3	-123.3	0.21	-0.21	0.00
10,498.0	3.90	235.60	10,487.1	-150.7	-308.5	-126.7	0.16	0.10	1.77
10,593.0	4.00	229.00	10,581.8	-154.7	-313.7	-130.2	0.49	0.11	-6.95
10,689.0	3.50	233.40	10,677.6	-158.7	-318.6	-133.8	0.60	-0.52	4.58
10,785.0	2.70	234.60	10,773.5	-161.7	-322.8	-136.5	0.84	-0.83	1.25
10,880.0	3.00	246.50	10,868.4	-164.0	-326.9	-138.5	0.70	0.32	12.53
10,974.0	1.90	271.70	10,962.3	-164.9	-330.7	-139.1	1.61	-1.17	26.81
11,070.0	2.20	265.20	11,058.2	-165.0	-334.1	-139.0	0.39	0.31	-6.77
11,165.0	1.80	239.50	11,153.2	-166.0	-337.2	-139.7	1.02	-0.42	-27.05
11,261.0	1.10	242.50	11,249.1	-167.1	-339.4	-140.7	0.73	-0.73	3.13
11,356.0	1.70	254.10	11,344.1	-167.9	-341.5	-141.3	0.70	0.63	12.21
11,451.0	2.10	262.50	11,439.1	-168.6	-344.6	-141.7	0.51	0.42	8.84
11,547.0	2.00	291.00	11,535.0	-168.2	-347.9	-141.1	1.06	-0.10	29.69
11,642.0	1.60	289.80	11,630.0	-167.1	-350.7	-139.8	0.42	-0.42	-1.26
11,738.0	1.20	271.90	11,725.9	-166.7	-353.0	-139.2	0.61	-0.42	-18.65
11,801.0	1.00	259.20	11,788.9	-166.7	-354.2	-139.1	0.50	-0.32	-20.16
11,842.0	0.70	265.70	11,829.9	-166.8	-354.8	-139.2	0.77	-0.73	15.85
11,937.0	11.70	351.00	11,924.3	-157.3	-356.9	-129.5	12.28	11.58	89.79
12,032.0	23.80	345.50	12,014.6	-129.1	-363.2	-101.0	12.84	12.74	-5.79
12,127.0	29.10	347.60	12,099.6	-88.0	-373.0	-59.2	5.66	5.58	2.21
12,222.0	36.40	353.60	12,179.5	-37.3	-381.1	-8.1	8.40	7.68	6.32
12,317.0	42.50	359.70	12,252.8	22.8	-384.4	52.2	7.60	6.42	6.42
12,412.0	51.00	2.00	12,317.8	92.0	-383.3	121.0	9.12	8.95	2.42
330' HL Crossed @ 12432.0' MD / 12330.3' TVD									
12,432.0	52.02	3.14	12,330.3	107.6	-382.6	136.6	6.77	5.09	5.69
12,453.0	53.10	4.30	12,343.1	124.2	-381.5	153.1	6.77	5.15	5.53
12,484.0	60.10	4.80	12,360.1	150.0	-379.4	178.6	22.62	22.58	1.61
12,516.0	64.70	3.20	12,374.9	178.3	-377.5	206.7	15.04	14.38	-5.00
12,547.0	66.70	1.70	12,387.7	206.5	-376.2	234.7	7.81	6.45	-4.84
12,641.0	75.00	2.70	12,418.5	295.2	-372.8	322.8	8.89	8.83	1.06



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 22, T25-S, R33-E
Well: Rojo 7811 22 Fed Com #16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #16H
TVD Reference: WELL @ 3370.0usft (Patterson #566)
MD Reference: WELL @ 3370.0usft (Patterson #566)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,735.0	79.80	3.60	12,439.0	386.7	-367.8	413.8	5.19	5.11	0.96
12,828.0	89.00	1.00	12,448.1	479.1	-364.1	505.6	10.28	9.89	-2.80
12,923.0	90.70	1.30	12,448.3	574.1	-362.2	600.1	1.82	1.79	0.32
13,017.0	89.30	358.80	12,448.3	668.1	-362.1	693.8	3.05	-1.49	-2.66
13,111.0	90.00	359.40	12,448.9	762.1	-363.6	787.7	0.98	0.74	0.64
13,205.0	87.10	356.00	12,451.3	855.9	-367.3	881.5	4.75	-3.09	-3.62
13,299.0	86.30	355.30	12,456.7	949.5	-374.5	975.4	1.13	-0.85	-0.74
13,393.0	86.00	354.80	12,463.0	1,042.9	-382.5	1,069.2	0.62	-0.32	-0.53
13,487.0	87.80	357.60	12,468.1	1,136.6	-388.8	1,163.0	3.54	1.91	2.98
13,581.0	91.80	1.70	12,468.4	1,230.6	-389.3	1,256.7	6.09	4.26	4.36
13,675.0	89.40	0.40	12,467.4	1,324.5	-387.6	1,350.3	2.90	-2.55	-1.38
13,769.0	86.30	359.90	12,471.0	1,418.4	-387.4	1,443.9	3.34	-3.30	-0.53
13,863.0	87.20	0.30	12,476.3	1,512.3	-387.2	1,537.5	1.05	0.96	0.43
13,957.0	87.20	0.10	12,480.9	1,606.2	-386.9	1,631.1	0.21	0.00	-0.21
14,050.0	88.70	359.60	12,484.2	1,699.1	-387.1	1,723.8	1.70	1.61	-0.54
14,144.0	90.40	1.70	12,484.9	1,793.1	-386.1	1,817.4	2.87	1.81	2.23
14,237.0	86.20	2.50	12,487.7	1,886.0	-382.7	1,909.7	4.60	-4.52	0.86
14,331.0	85.90	1.00	12,494.2	1,979.7	-379.8	2,003.0	1.62	-0.32	-1.60
14,425.0	85.60	1.10	12,501.1	2,073.4	-378.1	2,096.3	0.34	-0.32	0.11
14,519.0	85.20	0.60	12,508.7	2,167.1	-376.7	2,189.6	0.68	-0.43	-0.53
14,613.0	83.80	0.10	12,517.7	2,260.7	-376.1	2,282.8	1.58	-1.49	-0.53
14,706.0	88.60	1.80	12,523.8	2,353.4	-374.6	2,375.2	5.47	5.16	1.83
14,801.0	90.20	3.10	12,524.8	2,448.3	-370.5	2,469.5	2.17	1.68	1.37
14,894.0	85.90	357.80	12,528.0	2,541.2	-369.8	2,562.1	7.34	-4.62	-5.70
14,988.0	86.70	358.00	12,534.1	2,635.0	-373.2	2,655.8	0.88	0.85	0.21
15,082.0	86.40	357.80	12,539.7	2,728.7	-376.6	2,749.6	0.38	-0.32	-0.21
15,175.0	85.50	356.70	12,546.3	2,821.4	-381.1	2,842.3	1.53	-0.97	-1.18
15,269.0	86.40	357.80	12,552.9	2,915.0	-385.6	2,936.0	1.51	0.96	1.17
15,363.0	87.80	358.70	12,557.7	3,008.9	-388.5	3,029.8	1.77	1.49	0.98
15,458.0	91.80	1.70	12,558.0	3,103.8	-388.1	3,124.4	5.26	4.21	3.16
15,552.0	89.40	3.60	12,557.0	3,197.7	-383.8	3,217.7	3.26	-2.55	2.02
15,645.0	90.70	359.70	12,557.0	3,290.7	-381.1	3,310.2	4.42	1.40	-4.19
15,739.0	92.40	0.40	12,554.4	3,384.6	-381.0	3,403.9	1.96	1.81	0.74
15,833.0	90.70	1.60	12,551.9	3,478.6	-379.4	3,497.4	2.21	-1.81	1.28
15,927.0	90.70	0.40	12,550.7	3,572.6	-377.7	3,591.0	1.28	0.00	-1.28
16,021.0	91.00	0.20	12,549.3	3,666.5	-377.3	3,684.7	0.38	0.32	-0.21
16,115.0	91.40	359.50	12,547.4	3,760.5	-377.5	3,778.4	0.86	0.43	-0.74
16,209.0	93.10	1.20	12,543.7	3,854.4	-376.9	3,872.0	2.56	1.81	1.81
16,302.0	94.70	359.30	12,537.3	3,947.2	-376.5	3,964.5	2.67	1.72	-2.04
16,396.0	93.60	358.30	12,530.5	4,040.9	-378.5	4,058.1	1.58	-1.17	-1.06
16,489.0	91.20	357.20	12,526.6	4,133.8	-382.1	4,150.9	2.84	-2.58	-1.18
16,583.0	90.70	357.00	12,525.1	4,227.6	-386.9	4,244.9	0.57	-0.53	-0.21
16,677.0	90.70	356.30	12,523.9	4,321.5	-392.4	4,338.8	0.74	0.00	-0.74



Survey Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 22 Fed Com #16H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3370.0usft (Patterson #566)
Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3370.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #16H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,771.0	90.30	355.10	12,523.1	4,415.2	-399.4	4,432.8	1.35	-0.43	-1.28
16,865.0	90.90	355.80	12,522.1	4,508.9	-406.9	4,526.8	0.98	0.64	0.74
16,959.0	90.30	0.50	12,521.2	4,602.8	-409.9	4,620.7	5.04	-0.64	5.00
17,054.0	89.20	0.00	12,521.6	4,697.8	-409.5	4,715.4	1.27	-1.16	-0.53
330' HL Crossed @ 17084.0' MD / 12521.9' TVD									
17,084.0	89.68	1.31	12,521.9	4,727.8	-409.2	4,745.3	4.64	1.60	4.36
17,148.0	90.70	4.10	12,521.6	4,791.7	-406.1	4,808.8	4.64	1.60	4.36
17,243.0	88.40	3.40	12,522.4	4,886.5	-399.9	4,902.8	2.53	-2.42	-0.74
17,335.0	89.30	3.50	12,524.2	4,978.3	-394.4	4,993.9	0.98	0.98	0.11
TD @ 17380.0' MD / 12524.8' TVD									
17,380.0	89.30	3.50	12,524.8	5,023.3	-391.6	5,038.5	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
159.0	159.0	-0.9	-0.2	First MWD Survey @ 159.0' MD / 159.0' TVD
4,616.1	4,615.0	2.7	-16.5	LL Crossed @ 4616.1' MD / 4615.0' TVD
12,432.0	12,330.3	107.6	-382.6	330' HL Crossed @ 12432.0' MD / 12330.3' TVD
17,084.0	12,521.9	4,727.8	-409.2	330' HL Crossed @ 17084.0' MD / 12521.9' TVD
17,380.0	12,524.8	5,023.3	-391.6	TD @ 17380.0' MD / 12524.8' TVD

Checked By: _____	Approved By: _____	Date: _____
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