



30-025-44458

BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 27, T25-S, R33-E

Rojo 7811 27 Fed Com #10H

Wellbore #1

DEC 05 2018

RECEIVED

Design: Wellbore #1

QES Survey Report

30 May, 2018





Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 27, T25-S, R33-E
Well: Rojo 7811 27 Fed Com #10H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 27 Fed Com #10H
TVD Reference: WELL @ 3369.0usft
MD Reference: WELL @ 3369.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project Lea County, NM (NAD 83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Sec 27, T25-S, R33-E

Site Position: Northing: 403,958.90 usft Latitude: 32° 6' 29.435 N
From: Map Easting: 782,026.00 usft Longitude: 103° 33' 21.547 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.41 °

Well Rojo 7811 27 Fed Com #10H

Well Position +N-S 0.0 usft Northing: 403,959.40 usft Latitude: 32° 6' 29.434 N
 +E-W 0.0 usft Easting: 782,116.00 usft Longitude: 103° 33' 20.501 W
Position Uncertainty 0.0 usft Wellhead Elevation: usft Ground Level: 3,344.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/29/2018	6.84	59.95	47,782.60258322

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)	Direction (°)
	0.0	0.0	0.0	169.74

Survey Program Date 5/24/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
145.0	17,449.0	QES MWD Surveys (Wellbore #1)	OWSG (Rev2) MWD	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 @ 145.0' MD / 145.0' TVD									
145.0	0.10	186.10	145.0	-0.1	0.0	0.1	0.07	0.07	0.00
233.0	0.00	53.90	233.0	-0.2	0.0	0.2	0.11	-0.11	0.00
322.0	0.30	126.10	322.0	-0.3	0.2	0.4	0.34	0.34	0.00
411.0	0.40	112.90	411.0	-0.6	0.6	0.7	0.14	0.11	-14.83
499.0	0.60	126.70	499.0	-1.0	1.3	1.2	0.26	0.23	15.68
588.0	0.40	105.00	588.0	-1.4	2.0	1.7	0.31	-0.22	-24.38
682.0	0.30	75.70	682.0	-1.4	2.5	1.8	0.21	-0.11	-31.17
776.0	0.30	54.60	776.0	-1.2	3.0	1.7	0.12	0.00	-22.45
870.0	0.30	47.40	870.0	-0.9	3.3	1.4	0.04	0.00	-7.66



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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)
965.0	0.30	63.70	965.0	-0.6	3.7	1.2	0.09	0.00	17.16
1,062.0	0.30	33.50	1,062.0	-0.3	4.1	1.0	0.16	0.00	-31.13
1,168.0	0.30	9.10	1,168.0	0.2	4.3	0.5	0.12	0.00	-23.02
1,262.0	0.30	52.50	1,262.0	0.6	4.5	0.2	0.24	0.00	46.17
1,357.0	0.40	11.70	1,357.0	1.1	4.8	-0.2	0.28	0.11	-42.95
1,452.0	0.30	7.10	1,452.0	1.7	4.9	-0.8	0.11	-0.11	-4.84
1,547.0	0.30	6.10	1,547.0	2.2	5.0	-1.3	0.01	0.00	-1.05
1,642.0	1.60	82.50	1,642.0	2.6	6.3	-1.4	1.64	1.37	80.42
1,737.0	6.00	91.30	1,736.7	2.7	12.6	-0.4	4.66	4.63	9.26
1,832.0	5.30	89.60	1,831.3	2.6	21.9	1.4	0.76	-0.74	-1.79
1,927.0	5.00	90.80	1,925.9	2.6	30.5	2.9	0.34	-0.32	1.26
2,023.0	4.90	93.40	2,021.5	2.2	38.7	4.7	0.26	-0.10	2.71
2,118.0	4.70	92.20	2,116.2	1.9	46.7	6.5	0.24	-0.21	-1.26
2,213.0	4.40	94.00	2,210.9	1.5	54.2	8.2	0.35	-0.32	1.89
2,308.0	5.20	80.60	2,305.6	1.9	62.1	9.2	1.44	0.84	-14.11
2,403.0	5.80	69.70	2,400.1	4.3	70.8	8.4	1.27	0.63	-11.47
2,498.0	5.80	68.70	2,494.6	7.7	79.8	6.7	0.11	0.00	-1.05
2,593.0	5.60	69.00	2,589.2	11.1	88.6	4.9	0.21	-0.21	0.32
2,687.0	5.60	68.10	2,682.7	14.4	97.2	3.1	0.09	0.00	-0.96
2,782.0	5.40	66.90	2,777.3	17.9	105.6	1.2	0.24	-0.21	-1.26
2,877.0	5.50	65.80	2,871.9	21.5	113.8	-0.9	0.15	0.11	-1.16
2,972.0	5.60	65.80	2,966.4	25.3	122.2	-3.1	0.11	0.11	0.00
3,067.0	5.80	63.90	3,060.9	29.3	130.7	-5.6	0.29	0.21	-2.00
3,162.0	6.00	64.30	3,155.4	33.6	139.5	-8.2	0.21	0.21	0.42
3,256.0	6.20	64.30	3,248.9	37.9	148.5	-10.9	0.21	0.21	0.00
3,351.0	6.20	64.10	3,343.4	42.4	157.8	-13.6	0.02	0.00	-0.21
3,445.0	6.00	64.40	3,436.8	46.7	166.8	-16.3	0.22	-0.21	0.32
3,539.0	5.70	65.10	3,530.3	50.8	175.4	-18.8	0.33	-0.32	0.74
3,634.0	5.40	65.70	3,624.9	54.6	183.8	-21.0	0.32	-0.32	0.63
3,729.0	5.10	63.70	3,719.5	58.3	191.6	-23.3	0.37	-0.32	-2.11
3,824.0	4.80	64.30	3,814.1	61.9	199.0	-25.5	0.32	-0.32	0.63
3,919.0	5.20	78.00	3,908.8	64.6	206.8	-26.7	1.32	0.42	14.42
4,014.0	5.00	82.40	4,003.4	66.0	215.1	-26.6	0.46	-0.21	4.63
4,109.0	4.60	81.50	4,098.1	67.1	223.0	-26.3	0.43	-0.42	-0.95
4,204.0	4.20	81.80	4,192.8	68.2	230.2	-26.1	0.42	-0.42	0.32
4,298.0	3.90	82.90	4,286.5	69.1	236.8	-25.8	0.33	-0.32	1.17
4,393.0	4.00	86.60	4,381.3	69.7	243.3	-25.2	0.29	0.11	3.89
4,489.0	3.80	86.90	4,477.1	70.0	249.8	-24.4	0.21	-0.21	0.31
4,583.0	4.00	83.40	4,570.9	70.6	256.2	-23.8	0.33	0.21	-3.72
4,678.0	4.20	88.50	4,665.6	71.0	263.0	-23.1	0.44	0.21	5.37
4,772.0	4.20	95.70	4,759.4	70.8	269.8	-21.6	0.56	0.00	7.66
4,904.0	3.90	94.00	4,891.1	70.0	279.1	-19.2	0.24	-0.23	-1.29
5,036.0	5.20	75.90	5,022.6	71.1	289.4	-18.5	1.46	0.98	-13.71



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5,131.0	5.40	73.20	5,117.2	73.5	297.8	-19.3	0.34	0.21	-2.84
5,226.0	5.40	74.30	5,211.8	76.0	306.4	-20.2	0.11	0.00	1.16
5,321.0	5.20	74.30	5,306.4	78.4	314.9	-21.0	0.21	-0.21	0.00
5,416.0	5.00	73.60	5,401.0	80.7	323.0	-21.9	0.22	-0.21	-0.74
5,511.0	4.60	72.90	5,495.7	83.0	330.6	-22.8	0.43	-0.42	-0.74
5,605.0	5.90	83.40	5,589.3	84.6	339.0	-22.9	1.71	1.38	11.17
5,700.0	6.10	82.50	5,683.8	85.9	348.9	-22.4	0.23	0.21	-0.95
5,795.0	5.80	82.00	5,778.3	87.2	358.6	-21.9	0.32	-0.32	-0.53
5,891.0	5.60	82.50	5,873.8	88.5	368.1	-21.5	0.21	-0.21	0.52
5,984.0	5.20	84.50	5,966.4	89.5	376.8	-20.9	0.48	-0.43	2.15
6,079.0	4.90	82.40	6,061.0	90.4	385.1	-20.4	0.37	-0.32	-2.21
6,174.0	4.10	82.90	6,155.7	91.4	392.5	-20.0	0.84	-0.84	0.53
6,269.0	4.80	81.80	6,250.4	92.4	399.8	-19.7	0.74	0.74	-1.16
6,364.0	5.00	73.60	6,345.1	94.1	407.7	-20.0	0.77	0.21	-8.63
6,458.0	4.90	73.90	6,438.7	96.4	415.5	-20.8	0.11	-0.11	0.32
6,553.0	4.80	76.00	6,533.4	98.5	423.2	-21.5	0.21	-0.11	2.21
6,648.0	4.80	78.80	6,628.1	100.2	431.0	-21.8	0.25	0.00	2.95
6,744.0	4.90	78.80	6,723.7	101.8	438.9	-22.0	0.10	0.10	0.00
6,839.0	5.70	74.10	6,818.3	103.9	447.4	-22.5	0.96	0.84	-4.95
6,934.0	6.60	69.90	6,912.8	107.0	457.1	-23.9	1.06	0.95	-4.42
7,029.0	6.40	73.40	7,007.2	110.4	467.3	-25.4	0.47	-0.21	3.68
7,124.0	6.00	75.00	7,101.6	113.2	477.2	-26.4	0.46	-0.42	1.68
7,219.0	5.40	77.40	7,196.1	115.5	486.3	-27.0	0.68	-0.63	2.53
7,314.0	8.10	72.50	7,290.5	118.5	497.1	-28.0	2.90	2.84	-5.16
7,409.0	7.80	73.60	7,384.6	122.3	509.6	-29.6	0.35	-0.32	1.16
7,504.0	7.40	75.00	7,478.7	125.7	521.7	-30.8	0.46	-0.42	1.47
7,599.0	7.00	74.60	7,573.0	128.8	533.2	-31.8	0.42	-0.42	-0.42
7,694.0	6.50	78.70	7,667.3	131.4	544.1	-32.4	0.73	-0.53	4.32
7,789.0	6.10	80.10	7,761.7	133.3	554.3	-32.5	0.45	-0.42	1.47
7,884.0	5.40	82.50	7,856.3	134.8	563.7	-32.2	0.78	-0.74	2.53
7,979.0	5.30	83.60	7,950.8	135.8	572.5	-31.7	0.15	-0.11	1.16
8,072.0	6.00	84.70	8,043.4	136.8	581.6	-31.0	0.76	0.75	1.18
8,168.0	6.30	85.20	8,138.8	137.7	591.9	-30.1	0.32	0.31	0.52
8,262.0	6.10	86.60	8,232.3	138.4	602.0	-29.0	0.27	-0.21	1.49
8,356.0	5.40	87.80	8,325.8	138.9	611.4	-27.8	0.76	-0.74	1.28
8,451.0	4.70	91.20	8,420.5	139.0	619.8	-26.4	0.80	-0.74	3.58
8,546.0	6.20	81.80	8,515.0	139.6	628.7	-25.4	1.83	1.58	-9.89
8,640.0	7.60	81.30	8,608.3	141.3	639.9	-25.0	1.49	1.49	-0.53
8,735.0	6.80	84.10	8,702.6	142.8	651.7	-24.4	0.92	-0.84	2.95
8,830.0	6.40	86.10	8,797.0	143.7	662.6	-23.4	0.49	-0.42	2.11
8,924.0	5.60	90.40	8,890.4	144.1	672.4	-22.0	0.98	-0.85	4.57
9,020.0	4.80	91.30	8,986.0	143.9	681.1	-20.3	0.84	-0.83	0.94
9,115.0	3.90	92.00	9,080.8	143.7	688.3	-18.8	0.95	-0.95	0.74



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9,210.0	5.20	76.20	9,175.5	144.7	695.7	-18.4	1.89	1.37	-16.63
9,240.0	5.60	73.80	9,205.3	145.4	698.4	-18.7	1.53	1.33	-8.00
9,335.0	4.40	71.80	9,300.0	147.8	706.4	-19.6	1.28	-1.26	-2.11
9,429.0	3.10	64.40	9,393.8	150.0	712.1	-20.8	1.47	-1.38	-7.87
9,523.0	2.80	60.00	9,487.7	152.3	716.4	-22.3	0.40	-0.32	-4.68
9,618.0	3.70	68.70	9,582.5	154.6	721.2	-23.6	1.08	0.95	9.16
9,714.0	4.40	69.50	9,678.3	157.0	727.6	-24.9	0.73	0.73	0.83
9,809.0	5.60	66.70	9,772.9	160.1	735.2	-26.6	1.29	1.26	-2.95
9,904.0	5.90	70.20	9,867.4	163.6	744.1	-28.4	0.49	0.32	3.68
9,999.0	3.80	58.80	9,962.1	166.9	751.4	-30.4	2.42	-2.21	-12.00
10,094.0	4.20	56.30	10,056.8	170.4	757.0	-32.9	0.46	0.42	-2.63
10,190.0	4.00	76.90	10,152.6	173.1	763.1	-34.4	1.54	-0.21	21.46
10,284.0	3.70	82.50	10,246.4	174.3	769.3	-34.5	0.51	-0.32	5.96
10,379.0	2.90	80.60	10,341.2	175.1	774.7	-34.3	0.85	-0.84	-2.00
10,474.0	3.60	82.20	10,436.1	175.9	780.1	-34.1	0.74	0.74	1.68
10,568.0	3.00	81.50	10,529.9	176.6	785.4	-33.9	0.64	-0.64	-0.74
10,663.0	2.30	58.80	10,624.8	178.0	789.5	-34.5	1.31	-0.74	-23.89
10,759.0	2.80	40.90	10,720.7	180.8	792.7	-36.7	0.97	0.52	-18.65
10,853.0	4.80	36.30	10,814.5	185.7	796.5	-40.8	2.15	2.13	-4.89
10,947.0	4.50	42.10	10,908.2	191.6	801.3	-45.8	0.59	-0.32	6.17
11,042.0	5.00	58.80	11,002.9	196.5	807.4	-49.5	1.54	0.53	17.58
11,137.0	4.70	67.80	11,097.5	200.1	814.5	-51.8	0.86	-0.32	9.47
11,232.0	5.10	86.40	11,192.2	201.8	822.3	-52.1	1.72	0.42	19.58
11,327.0	4.00	88.30	11,286.9	202.2	829.9	-51.1	1.17	-1.16	2.00
11,422.0	3.10	110.70	11,381.7	201.4	835.6	-49.3	1.72	-0.95	23.58
11,517.0	3.80	129.30	11,476.6	198.5	840.4	-45.6	1.38	0.74	19.58
11,613.0	3.10	149.90	11,572.4	194.2	844.2	-40.7	1.47	-0.73	21.46
11,707.0	2.40	177.60	11,666.3	190.1	845.5	-36.4	1.58	-0.74	29.47
11,802.0	2.20	184.50	11,761.2	186.2	845.5	-32.7	0.36	-0.21	7.26
11,897.0	1.70	184.10	11,856.1	183.0	845.2	-29.5	0.53	-0.53	-0.42
11,992.0	9.70	172.00	11,950.6	173.7	846.3	-20.2	8.47	8.42	-12.74
12,088.0	20.20	175.20	12,043.2	149.1	848.8	4.5	10.97	10.94	3.33
12,183.0	29.40	178.00	12,129.4	109.3	851.0	44.0	9.76	9.68	2.95
12,278.0	37.20	174.50	12,208.7	57.4	854.5	95.8	8.45	8.21	-3.68
12,373.0	47.00	178.30	12,279.1	-6.1	858.3	158.9	10.65	10.32	4.00
12,480.0	57.00	180.80	12,344.9	-90.3	858.9	241.8	9.52	9.35	2.34
330' HL Crossed @ 12499.7' MD / 12355.5' TVD									
12,499.7	57.86	180.58	12,355.5	-106.9	858.7	258.1	4.47	4.37	-1.12
12,592.0	61.90	179.60	12,401.8	-186.7	858.6	336.7	4.47	4.38	-1.06
12,686.0	68.40	177.60	12,441.3	-271.9	860.7	420.9	7.18	6.91	-2.13
12,781.0	76.20	179.10	12,470.2	-362.3	863.3	510.3	8.35	8.21	1.58
12,875.0	83.10	182.60	12,487.1	-454.7	861.9	601.0	8.20	7.34	3.72
12,969.0	87.80	182.00	12,494.5	-548.3	858.1	692.4	5.04	5.00	-0.64
13,063.0	88.20	182.00	12,497.8	-642.2	854.8	784.2	0.43	0.43	0.00



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Project: Lea County, NM (NAD 83)
Site: Sec 27, T25-S, R33-E
Well: Rojo 7811 27 Fed Com #10H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 27 Fed Com #10H
TVD Reference: WELL @ 3369.0usft
MD Reference: WELL @ 3369.0usft
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)
13,157.0	90.50	182.60	12,498.9	-736.1	851.0	875.9	2.53	2.45	0.64
13,251.0	90.70	181.20	12,497.9	-830.1	847.9	967.8	1.50	0.21	-1.49
13,345.0	90.10	179.20	12,497.2	-924.1	847.6	1,060.2	2.22	-0.64	-2.13
13,439.0	90.10	179.10	12,497.1	-1,018.0	849.0	1,153.0	0.11	0.00	-0.11
13,533.0	89.90	179.20	12,497.1	-1,112.0	850.4	1,245.7	0.24	-0.21	0.11
13,627.0	89.00	178.30	12,498.0	-1,206.0	852.4	1,338.6	1.35	-0.96	-0.96
13,721.0	90.10	178.90	12,498.7	-1,300.0	854.7	1,431.4	1.33	1.17	0.64
13,816.0	92.30	180.80	12,496.7	-1,394.9	855.0	1,524.9	3.06	2.32	2.00
13,910.0	90.10	181.30	12,494.8	-1,488.9	853.3	1,617.1	2.40	-2.34	0.53
14,004.0	88.00	178.50	12,496.3	-1,582.9	853.4	1,709.6	3.72	-2.23	-2.98
14,098.0	89.80	179.80	12,498.1	-1,676.8	854.8	1,802.3	2.36	1.91	1.38
14,192.0	87.70	178.70	12,500.2	-1,770.8	856.0	1,895.0	2.52	-2.23	-1.17
14,286.0	90.80	181.90	12,501.4	-1,864.8	855.6	1,987.3	4.74	3.30	3.40
14,380.0	88.30	178.50	12,502.1	-1,958.7	855.2	2,079.7	4.49	-2.66	-3.62
14,474.0	90.10	179.60	12,503.5	-2,052.7	856.8	2,172.5	2.24	1.91	1.17
14,568.0	92.00	181.70	12,501.7	-2,146.7	855.7	2,264.8	3.01	2.02	2.23
14,662.0	89.60	176.90	12,500.4	-2,240.6	856.9	2,357.4	5.71	-2.55	-5.11
14,756.0	89.20	175.40	12,501.4	-2,334.4	863.2	2,450.8	1.65	-0.43	-1.60
14,850.0	88.60	171.50	12,503.2	-2,427.8	873.9	2,544.6	4.20	-0.64	-4.15
14,944.0	90.60	170.30	12,503.9	-2,520.6	888.8	2,638.6	2.48	2.13	-1.28
15,038.0	91.30	172.50	12,502.3	-2,613.5	902.8	2,732.5	2.46	0.74	2.34
15,133.0	90.50	176.20	12,500.8	-2,708.0	912.2	2,827.2	3.98	-0.84	3.89
15,226.0	90.00	179.60	12,500.4	-2,800.9	915.6	2,919.2	3.70	-0.54	3.66
15,321.0	92.50	186.60	12,498.3	-2,895.7	910.4	3,011.6	7.82	2.63	7.37
15,415.0	91.30	192.20	12,495.2	-2,988.3	895.1	3,100.0	6.09	-1.28	5.96
15,508.0	92.60	190.60	12,492.0	-3,079.5	876.7	3,186.4	2.22	1.40	-1.72
15,603.0	89.70	188.20	12,490.1	-3,173.1	861.2	3,275.8	3.96	-3.05	-2.53
15,697.0	87.80	185.00	12,492.2	-3,266.5	850.4	3,365.7	3.96	-2.02	-3.40
15,791.0	87.00	181.00	12,496.5	-3,360.2	845.5	3,457.1	4.34	-0.85	-4.26
15,886.0	86.50	179.90	12,501.8	-3,455.1	844.8	3,550.3	1.27	-0.53	-1.16
15,980.0	86.30	179.90	12,507.7	-3,548.9	844.9	3,642.6	0.21	-0.21	0.00
16,074.0	86.80	178.90	12,513.4	-3,642.7	845.9	3,735.1	1.19	0.53	-1.06
16,168.0	91.40	180.10	12,514.9	-3,736.7	846.7	3,827.7	5.06	4.89	1.28
16,261.0	90.30	177.50	12,513.5	-3,829.6	848.7	3,919.6	3.04	-1.18	-2.80
16,355.0	89.40	175.20	12,513.7	-3,923.4	854.7	4,012.9	2.63	-0.96	-2.45
16,450.0	88.90	172.00	12,515.2	-4,017.8	865.2	4,107.7	3.41	-0.53	-3.37
16,543.0	90.00	176.60	12,516.0	-4,110.3	874.5	4,200.4	5.09	1.18	4.95
16,637.0	90.10	179.80	12,516.0	-4,204.3	877.4	4,293.3	3.41	0.11	3.40
16,731.0	86.70	176.10	12,518.6	-4,298.1	880.8	4,386.3	5.34	-3.62	-3.94
16,825.0	89.50	179.60	12,521.7	-4,392.0	884.3	4,479.3	4.77	2.98	3.72
16,919.0	90.20	177.60	12,522.0	-4,486.0	886.6	4,572.2	2.25	0.74	-2.13
17,013.0	88.60	172.50	12,522.9	-4,579.6	894.7	4,665.7	5.69	-1.70	-5.43
17,107.0	86.40	172.70	12,527.0	-4,672.7	906.8	4,759.5	2.35	-2.34	0.21



Survey Report



Company: BTA Oil Producers, LLC
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Design: Wellbore #1

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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)
330' HL Crossed @ 17160.3' MD / 12529.6' TVD									
17,160.3	88.10	173.89	12,529.6	-4,725.6	913.0	4,812.6	3.89	3.19	2.24
17,201.0	89.40	174.80	12,530.5	-4,766.1	917.0	4,853.2	3.89	3.19	2.23
17,295.0	91.30	175.90	12,529.9	-4,859.7	924.7	4,946.7	2.34	2.02	1.17
17,394.0	92.90	176.60	12,526.3	-4,958.5	931.1	5,045.0	1.76	1.62	0.71
TD @ 17449.0' MD / 12523.5' TVD									
17,449.0	92.90	176.60	12,523.5	-5,013.3	934.4	5,099.6	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
145.0	145.0	-0.1	0.0	First MWD Survey @ 145.0' MD / 145.0' TVD
12,499.7	12,355.5	-106.9	858.7	330' HL Crossed @ 12499.7' MD / 12355.5' TVD
17,160.3	12,529.6	-4,725.6	913.0	330' HL Crossed @ 17160.3' MD / 12529.6' TVD
17,449.0	12,523.5	-5,013.3	934.4	TD @ 17449.0' MD / 12523.5' TVD

Checked By: _____ Approved By: _____ Date: _____