

OCD - HOBBS
03/07/2017
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BTA Oil Producers, LLC

Lea County, NM
Sec 1, T26S, R32E
Mesa 8105 JV-P 16H

Wellbore #1

Design: Wellbore #1

QES Survey Report

08 December, 2016





Survey Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Mesa 8105 JV-P 16H
Project:	Lea County, NM	TVD Reference:	WELL @ 3349.0usft (Nomac #94)
Site:	Sec 1, T26S, R32E	MD Reference:	WELL @ 3349.0usft (Nomac #94)
Well:	Mesa 8105 JV-P 16H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

Project	Lea County, NM		
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	Sec 1, T26S, R32E				
Site Position:		Northing:	388,292.70 usft	Latitude:	32° 3' 56.206 N
From:	Map	Easting:	716,059.40 usft	Longitude:	103° 38' 9.118 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 °

Well	Mesa 8105 JV-P 16H					
Well Position	+N/-S	0.0 usft	Northing:	388,357.80 usft	Latitude:	32° 3' 56.723 N
	+E/-W	0.0 usft	Easting:	718,031.00 usft	Longitude:	103° 37' 46.202 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,324.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/12/2016	7.07	59.92	47,934

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	355.61	

Survey Program	Date	12/8/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	795.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro	
889.0	14,848.0	MWD Surveys (Wellbore #1)	MWD default	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	
100.0	0.29	307.69	100.0	0.2	-0.2	0.2	0.29	0.29	0.00	
200.0	0.57	332.15	200.0	0.7	-0.6	0.8	0.33	0.28	24.46	
300.0	0.46	343.42	300.0	1.6	-1.0	1.6	0.15	-0.11	11.27	
400.0	0.25	279.15	400.0	2.0	-1.3	2.1	0.42	-0.21	-64.27	
500.0	0.30	231.54	500.0	1.9	-1.7	2.0	0.23	0.05	-47.61	
600.0	0.11	224.25	600.0	1.6	-2.0	1.8	0.19	-0.19	-7.29	
700.0	0.22	357.06	700.0	1.8	-2.1	1.9	0.31	0.11	132.81	
Tie Into Gyro @ 795' MD / 795' TVD										
795.0	0.61	315.73	795.0	2.3	-2.4	2.5	0.49	0.41	-43.51	



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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)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
889.0	0.90	324.30	889.0	3.3	-3.2	3.5	0.33	0.31	9.12
984.0	1.20	319.90	984.0	4.6	-4.3	4.9	0.33	0.32	-4.63
1,079.0	1.60	313.10	1,078.9	6.3	-5.9	6.7	0.46	0.42	-7.16
1,174.0	1.50	323.80	1,173.9	8.2	-7.6	8.8	0.32	-0.11	11.26
1,269.0	1.60	321.50	1,268.9	10.2	-9.2	10.9	0.12	0.11	-2.42
1,364.0	0.20	276.30	1,363.9	11.3	-10.2	12.0	1.54	-1.47	-47.58
1,459.0	0.30	188.60	1,458.9	11.1	-10.4	11.8	0.37	0.11	-92.32
1,554.0	3.20	196.40	1,553.8	8.3	-11.1	9.1	3.06	3.05	8.21
1,649.0	4.00	199.40	1,648.6	2.6	-13.0	3.6	0.86	0.84	3.16
1,744.0	4.50	203.40	1,743.3	-3.9	-15.6	-2.7	0.61	0.53	4.21
1,839.0	4.60	203.90	1,838.0	-10.8	-18.6	-9.4	0.11	0.11	0.53
1,934.0	4.90	203.00	1,932.7	-18.1	-21.7	-16.3	0.33	0.32	-0.95
2,029.0	4.10	189.90	2,027.4	-25.1	-23.9	-23.2	1.37	-0.84	-13.79
2,124.0	4.50	189.50	2,122.2	-32.2	-25.1	-30.1	0.42	0.42	-0.42
2,219.0	4.90	193.90	2,216.8	-39.8	-26.7	-37.6	0.57	0.42	4.63
2,314.0	3.70	198.50	2,311.6	-46.6	-28.6	-44.3	1.31	-1.26	4.84
2,409.0	3.80	203.70	2,406.4	-52.3	-30.8	-49.7	0.36	-0.11	5.47
2,504.0	3.90	205.70	2,501.2	-57.9	-33.4	-55.2	0.34	0.32	2.11
2,599.0	4.20	187.40	2,595.9	-64.3	-35.3	-61.4	1.39	0.32	-19.26
2,694.0	4.80	186.90	2,690.7	-71.7	-36.2	-68.7	0.63	0.63	-0.53
2,789.0	4.90	191.10	2,785.3	-79.6	-37.4	-76.5	0.39	0.11	4.42
2,884.0	5.50	195.30	2,879.9	-88.0	-39.4	-84.7	0.75	0.63	4.42
2,979.0	4.80	197.60	2,974.5	-96.1	-41.8	-92.6	0.77	-0.74	2.42
3,074.0	3.20	199.90	3,069.3	-102.4	-43.9	-98.8	1.69	-1.68	2.42
3,169.0	3.20	209.50	3,164.2	-107.2	-46.1	-103.4	0.56	0.00	10.11
3,264.0	3.30	186.20	3,259.0	-112.2	-47.7	-108.3	1.38	0.11	-24.53
3,359.0	3.90	173.00	3,353.8	-118.2	-47.6	-114.2	1.07	0.63	-13.89
3,454.0	3.70	173.10	3,448.6	-124.4	-46.9	-120.5	0.21	-0.21	0.11
3,549.0	3.90	179.30	3,543.4	-130.7	-46.5	-126.8	0.48	0.21	6.53
3,644.0	4.00	179.30	3,638.2	-137.2	-46.4	-133.3	0.11	0.11	0.00
3,739.0	4.40	195.30	3,732.9	-144.1	-47.3	-140.0	1.30	0.42	16.84
3,834.0	4.70	201.50	3,827.6	-151.2	-49.7	-147.0	0.61	0.32	6.53
3,929.0	4.80	204.40	3,922.3	-158.4	-52.8	-153.9	0.27	0.11	3.05
4,024.0	4.80	204.10	4,017.0	-165.7	-56.0	-160.9	0.03	0.00	-0.32
4,119.0	5.30	202.00	4,111.6	-173.4	-59.3	-168.3	0.56	0.53	-2.21
4,214.0	4.90	205.50	4,206.2	-181.1	-62.7	-175.8	0.53	-0.42	3.68
4,308.0	4.60	214.80	4,299.9	-187.8	-66.6	-182.2	0.88	-0.32	9.89
4,403.0	5.10	212.00	4,394.6	-194.5	-71.0	-188.5	0.58	0.53	-2.95
4,498.0	4.80	215.90	4,489.2	-201.3	-75.6	-195.0	0.47	-0.32	4.11
4,593.0	4.50	218.50	4,583.9	-207.5	-80.2	-200.7	0.39	-0.32	2.74
4,688.0	4.60	206.00	4,678.6	-213.8	-84.2	-206.7	1.05	0.11	-13.16
4,721.0	4.80	203.60	4,711.5	-216.3	-85.3	-209.1	0.85	0.61	-7.27
4,783.0	4.80	202.70	4,773.3	-221.0	-87.4	-213.7	0.12	0.00	-1.45



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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)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
4,878.0	4.80	198.50	4,867.9	-228.5	-90.2	-220.9	0.37	0.00	-4.42
4,972.0	4.60	199.00	4,961.6	-235.8	-92.6	-228.0	0.22	-0.21	0.53
5,067.0	4.30	197.60	5,056.3	-242.8	-95.0	-234.8	0.34	-0.32	-1.47
5,162.0	5.20	212.40	5,151.0	-249.8	-98.3	-241.5	1.59	0.95	15.58
5,257.0	5.40	216.10	5,245.6	-257.0	-103.3	-248.4	0.42	0.21	3.89
5,352.0	5.40	216.20	5,340.2	-264.3	-108.5	-255.2	0.01	0.00	0.11
5,447.0	5.50	217.10	5,434.8	-271.5	-113.9	-262.0	0.14	0.11	0.95
5,542.0	5.80	208.10	5,529.3	-279.4	-118.9	-269.4	0.98	0.32	-9.47
5,637.0	5.40	204.30	5,623.8	-287.7	-123.0	-277.4	0.57	-0.42	-4.00
5,732.0	4.00	206.70	5,718.5	-294.7	-126.4	-284.2	1.49	-1.47	2.53
5,827.0	4.00	205.10	5,813.3	-300.7	-129.3	-289.9	0.12	0.00	-1.68
5,922.0	4.00	206.40	5,908.1	-306.6	-132.1	-295.6	0.10	0.00	1.37
Crossed Lease Line @ 5994' MD / 5980' TVD									
5,994.4	4.08	206.94	5,980.3	-311.2	-134.4	-300.0	0.12	0.11	0.74
6,017.0	4.10	207.10	6,002.8	-312.6	-135.2	-301.4	0.12	0.11	0.72
6,112.0	4.30	208.80	6,097.6	-318.8	-138.4	-307.2	0.25	0.21	1.79
6,207.0	4.40	208.00	6,192.3	-325.1	-141.9	-313.3	0.12	0.11	-0.84
6,302.0	4.60	209.40	6,287.0	-331.7	-145.4	-319.5	0.24	0.21	1.47
6,397.0	4.60	209.70	6,381.7	-338.3	-149.2	-325.9	0.03	0.00	0.32
6,492.0	4.60	209.50	6,476.4	-344.9	-153.0	-332.2	0.02	0.00	-0.21
6,587.0	4.60	210.20	6,571.1	-351.5	-156.7	-338.5	0.06	0.00	0.74
6,682.0	4.60	209.00	6,665.8	-358.1	-160.5	-344.8	0.10	0.00	-1.26
6,777.0	4.80	209.90	6,760.5	-364.9	-164.3	-351.3	0.22	0.21	0.95
6,873.0	4.70	210.10	6,856.1	-371.8	-168.3	-357.8	0.11	-0.10	0.21
6,967.0	4.50	212.00	6,949.8	-378.3	-172.2	-364.0	0.27	-0.21	2.02
7,062.0	4.50	196.50	7,044.5	-385.0	-175.2	-370.5	1.28	0.00	-16.32
7,157.0	4.70	194.80	7,139.2	-392.3	-177.3	-377.6	0.25	0.21	-1.79
7,252.0	4.60	196.90	7,233.9	-399.7	-179.4	-384.8	0.21	-0.11	2.21
7,347.0	4.60	197.90	7,328.6	-407.0	-181.7	-391.9	0.08	0.00	1.05
7,442.0	4.70	201.50	7,423.3	-414.3	-184.3	-398.9	0.32	0.11	3.79
7,537.0	4.80	200.80	7,518.0	-421.6	-187.1	-406.0	0.12	0.11	-0.74
7,632.0	5.00	200.20	7,612.6	-429.2	-189.9	-413.4	0.22	0.21	-0.63
7,727.0	4.90	200.40	7,707.3	-436.9	-192.8	-420.8	0.11	-0.11	0.21
7,822.0	4.90	201.30	7,801.9	-444.5	-195.7	-428.2	0.08	0.00	0.95
7,917.0	5.10	201.50	7,896.6	-452.2	-198.7	-435.6	0.21	0.21	0.21
8,012.0	5.20	202.00	7,991.2	-460.1	-201.9	-443.3	0.12	0.11	0.53
8,107.0	5.20	201.10	8,085.8	-468.1	-205.0	-451.0	0.09	0.00	-0.95
8,202.0	5.10	201.10	8,180.4	-476.1	-208.1	-458.7	0.11	-0.11	0.00
8,297.0	5.10	199.70	8,275.0	-484.0	-211.0	-466.4	0.13	0.00	-1.47
8,392.0	4.00	195.30	8,369.7	-491.1	-213.3	-473.4	1.21	-1.16	-4.63
8,487.0	4.00	193.00	8,464.5	-497.6	-214.9	-479.7	0.17	0.00	-2.42
8,583.0	4.00	193.70	8,560.3	-504.1	-216.5	-486.0	0.05	0.00	0.73
8,683.0	3.90	194.80	8,660.0	-510.8	-218.2	-492.6	0.13	-0.10	1.10
8,778.0	4.00	193.90	8,754.8	-517.1	-219.8	-498.8	0.12	0.11	-0.95



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Survey

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8,873.0	4.00	193.20	8,849.6	-523.5	-221.4	-505.1	0.05	0.00	-0.74
8,968.0	2.50	195.30	8,944.4	-528.8	-222.7	-510.2	1.58	-1.58	2.21
9,063.0	1.00	345.40	9,039.4	-530.0	-223.4	-511.3	3.58	-1.58	158.00
9,158.0	2.10	347.20	9,134.3	-527.5	-224.0	-508.8	1.16	1.16	1.89
9,221.0	10.00	349.10	9,196.9	-521.0	-225.3	-502.2	12.54	12.54	3.02
9,253.0	13.60	349.80	9,228.3	-514.5	-226.5	-495.7	11.26	11.25	2.19
9,285.0	16.90	350.30	9,259.1	-506.2	-228.0	-487.3	10.32	10.31	1.56
9,316.0	19.70	353.00	9,288.6	-496.6	-229.3	-477.6	9.43	9.03	8.71
9,348.0	21.60	356.10	9,318.5	-485.4	-230.4	-466.3	6.85	5.94	9.69
9,380.0	22.20	1.60	9,348.2	-473.5	-230.6	-454.4	6.68	1.88	17.19
9,411.0	24.30	1.80	9,376.7	-461.2	-230.3	-442.2	6.78	6.77	0.65
9,443.0	27.00	359.80	9,405.5	-447.4	-230.1	-428.4	8.86	8.44	-6.25
9,475.0	30.30	359.30	9,433.6	-432.0	-230.2	-413.1	10.34	10.31	-1.56
9,538.0	36.80	358.80	9,486.1	-397.2	-230.8	-378.4	10.33	10.32	-0.79
9,570.0	40.00	359.80	9,511.2	-377.4	-231.0	-358.6	10.19	10.00	3.13
9,601.0	43.30	358.80	9,534.3	-356.8	-231.3	-338.0	10.86	10.65	-3.23
9,633.0	47.00	359.00	9,556.9	-334.1	-231.7	-315.4	11.57	11.56	0.63
Crossed Lease Line @ 9662' MD / 9576' TVD									
9,662.2	50.01	359.46	9,576.2	-312.2	-232.0	-293.5	10.38	10.31	1.57
9,665.0	50.30	359.50	9,578.0	-310.1	-232.0	-291.4	10.38	10.32	1.49
9,696.0	53.50	358.30	9,597.1	-285.7	-232.5	-267.1	10.76	10.32	-3.87
9,728.0	56.90	357.70	9,615.4	-259.4	-233.4	-240.8	10.74	10.63	-1.88
9,760.0	59.10	358.60	9,632.4	-232.3	-234.3	-213.7	7.28	6.88	2.81
9,791.0	61.60	359.50	9,647.7	-205.4	-234.8	-186.8	8.45	8.06	2.90
9,823.0	65.30	359.80	9,662.0	-176.8	-234.9	-158.3	11.59	11.56	0.94
9,855.0	66.90	359.80	9,675.0	-147.5	-235.0	-129.1	5.00	5.00	0.00
9,886.0	69.80	359.80	9,686.4	-118.7	-235.1	-100.3	9.35	9.35	0.00
9,918.0	73.50	359.70	9,696.5	-88.3	-235.3	-70.1	11.57	11.56	-0.31
9,950.0	75.40	359.80	9,705.0	-57.5	-235.4	-39.3	5.95	5.94	0.31
9,988.0	78.70	0.40	9,713.6	-20.5	-235.3	-2.4	8.82	8.68	1.58
10,019.0	81.80	0.20	9,718.8	10.1	-235.2	28.1	10.02	10.00	-0.65
Crossed Hard Line @ 10027' MD / 9720' TVD									
10,026.8	82.34	359.86	9,719.9	17.8	-235.2	35.8	8.13	6.87	-4.39
10,051.0	84.00	358.80	9,722.8	41.8	-235.5	59.7	8.13	6.88	-4.37
10,083.0	85.80	357.40	9,725.6	73.7	-236.5	91.6	7.12	5.63	-4.38
10,114.0	88.10	357.00	9,727.3	104.6	-238.0	122.5	7.53	7.42	-1.29
10,146.0	90.60	357.20	9,727.6	136.6	-239.6	154.5	7.84	7.81	0.63
10,209.0	90.50	357.90	9,727.0	199.5	-242.3	217.5	1.12	-0.16	1.11
10,304.0	91.40	358.30	9,725.4	294.4	-245.5	312.4	1.04	0.95	0.42
10,400.0	90.40	359.50	9,723.9	390.4	-247.3	408.2	1.63	-1.04	1.25
10,495.0	89.60	359.30	9,723.9	485.4	-248.3	503.0	0.87	-0.84	-0.21
10,590.0	89.00	358.80	9,725.1	580.4	-249.9	597.8	0.82	-0.63	-0.53
10,684.0	89.70	359.00	9,726.2	674.3	-251.7	691.6	0.77	0.74	0.21



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM
Site: Sec 1, T26S, R32E
Well: Mesa 8105 JV-P 16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Mesa 8105 JV-P 16H
TVD Reference: WELL @ 3349.0usft (Nomac #94)
MD Reference: WELL @ 3349.0usft (Nomac #94)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
10,779.0	89.30	359.10	9,727.0	769.3	-253.3	786.5	0.43	-0.42	0.11
10,874.0	87.40	359.70	9,729.7	864.3	-254.3	881.2	2.10	-2.00	0.63
10,969.0	87.60	359.10	9,733.9	959.2	-255.3	975.9	0.67	0.21	-0.63
11,064.0	89.70	358.30	9,736.1	1,054.1	-257.4	1,070.7	2.37	2.21	-0.84
11,159.0	89.60	357.00	9,736.7	1,149.0	-261.3	1,165.7	1.37	-0.11	-1.37
11,254.0	90.80	356.10	9,736.4	1,243.9	-267.0	1,260.7	1.58	1.26	-0.95
11,347.0	90.20	358.10	9,735.5	1,336.7	-271.7	1,353.6	2.25	-0.65	2.15
11,442.0	89.20	358.30	9,736.0	1,431.7	-274.7	1,448.5	1.07	-1.05	0.21
11,537.0	89.20	357.70	9,737.4	1,526.6	-278.0	1,543.4	0.63	0.00	-0.63
11,632.0	88.40	358.60	9,739.4	1,621.5	-281.1	1,638.3	1.27	-0.84	0.95
11,727.0	89.40	357.50	9,741.2	1,716.5	-284.3	1,733.2	1.56	1.05	-1.16
11,822.0	91.00	356.70	9,740.9	1,811.3	-289.1	1,828.2	1.88	1.68	-0.84
11,917.0	90.10	357.20	9,739.9	1,906.2	-294.2	1,923.1	1.08	-0.95	0.53
12,012.0	88.80	357.20	9,740.9	2,001.1	-298.8	2,018.1	1.37	-1.37	0.00
12,107.0	86.30	358.60	9,744.9	2,095.9	-302.3	2,112.9	3.02	-2.63	1.47
12,202.0	87.80	357.70	9,749.8	2,190.7	-305.4	2,207.7	1.84	1.58	-0.95
12,297.0	89.30	0.70	9,752.2	2,285.7	-306.7	2,302.5	3.53	1.58	3.16
12,392.0	91.10	0.90	9,751.9	2,380.7	-305.4	2,397.1	1.91	1.89	0.21
12,487.0	91.00	0.90	9,750.1	2,475.7	-303.9	2,491.7	0.11	-0.11	0.00
12,582.0	89.80	1.20	9,749.5	2,570.6	-302.1	2,586.2	1.30	-1.26	0.32
12,677.0	91.00	0.50	9,748.8	2,665.6	-300.7	2,680.8	1.46	1.26	-0.74
12,772.0	90.00	0.40	9,748.0	2,760.6	-300.0	2,775.5	1.06	-1.05	-0.11
12,867.0	92.30	0.20	9,746.1	2,855.6	-299.5	2,870.1	2.43	2.42	-0.21
12,962.0	92.60	359.70	9,742.0	2,950.5	-299.6	2,964.8	0.61	0.32	-0.53
13,057.0	90.20	358.60	9,739.7	3,045.4	-301.0	3,059.6	2.78	-2.53	-1.16
13,152.0	88.60	356.10	9,740.7	3,140.3	-305.4	3,154.5	3.12	-1.68	-2.63
13,247.0	87.20	354.90	9,744.2	3,235.0	-312.8	3,249.4	1.94	-1.47	-1.26
13,342.0	87.50	354.40	9,748.6	3,329.5	-321.7	3,344.3	0.61	0.32	-0.53
13,437.0	87.80	355.40	9,752.5	3,424.0	-330.1	3,439.2	1.10	0.32	1.05
13,532.0	89.00	355.60	9,755.1	3,518.7	-337.6	3,534.2	1.28	1.26	0.21
13,627.0	87.30	356.90	9,758.2	3,613.4	-343.8	3,629.1	2.25	-1.79	1.37
13,721.0	86.40	356.70	9,763.3	3,707.1	-349.0	3,723.0	0.98	-0.96	-0.21
13,816.0	87.80	356.00	9,768.1	3,801.8	-355.0	3,817.8	1.65	1.47	-0.74
13,911.0	88.60	358.30	9,771.1	3,896.6	-359.8	3,912.7	2.56	0.84	2.42
14,006.0	90.80	359.80	9,771.6	3,991.6	-361.3	4,007.6	2.80	2.32	1.58
14,101.0	92.20	359.70	9,769.1	4,086.6	-361.8	4,102.3	1.48	1.47	-0.11
14,196.0	92.80	359.70	9,765.0	4,181.5	-362.3	4,196.9	0.63	0.63	0.00
14,291.0	91.40	359.80	9,761.5	4,276.4	-362.7	4,291.6	1.48	-1.47	0.11
14,386.0	90.40	0.01	9,760.0	4,371.4	-362.8	4,386.3	1.07	-1.05	0.22
14,481.0	91.00	359.50	9,758.9	4,466.4	-363.2	4,481.1	0.83	0.63	-0.53
14,577.0	91.40	359.10	9,756.9	4,562.4	-364.4	4,576.9	0.59	0.42	-0.42
14,672.0	91.10	358.40	9,754.8	4,657.3	-366.5	4,671.7	0.80	-0.32	-0.74
Crossed Hard Line @ 14730' MD / 9753' TVD									
14,730.4	92.07	358.40	9,753.2	4,715.7	-368.1	4,730.0	1.65	1.65	0.00



Survey Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Mesa 8105 JV-P 16H
Project:	Lea County, NM	TVD Reference:	WELL @ 3349.0usft (Nomac #94)
Site:	Sec 1, T26S, R32E	MD Reference:	WELL @ 3349.0usft (Nomac #94)
Well:	Mesa 8105 JV-P 16H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

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)
14,793.0	93.10	358.40	9,750.3	4,778.2	-369.9	4,792.5	1.65	1.65	0.00
TD @ 14848' MD / 9747' TVD									
14,848.0	93.10	358.50	9,747.4	4,833.1	-371.4	4,847.3	0.18	0.00	0.18

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
795.0	795.0	2.3	-2.4	Tie into Gyro @ 795' MD / 795' TVD
5,994.4	5,980.3	-311.2	-134.4	Crossed Lease Line @ 5994' MD / 5980' TVD
9,662.2	9,576.2	-312.2	-232.0	Crossed Lease Line @ 9662' MD / 9576' TVD
10,026.8	9,719.9	17.8	-235.2	Crossed Hard Line @ 10027' MD / 9720' TVD
14,730.4	9,753.2	4,715.7	-368.1	Crossed Hard Line @ 14730' MD / 9753' TVD
14,848.0	9,747.4	4,833.1	-371.4	TD @ 14848' MD / 9747' TVD

Checked By: _____	Approved By: _____	Date: _____
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Azimuths to Grid North

Correction: 6.70°
Magnetic Field
Strength: 47934.0snT
Dip Angle: 59.92°
Date: 7/12/2016
Model: IGRF2015

PROJECT DETAILS: Lea County, NM

Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

WELL DETAILS: Mesa 8106 JV-P 16H

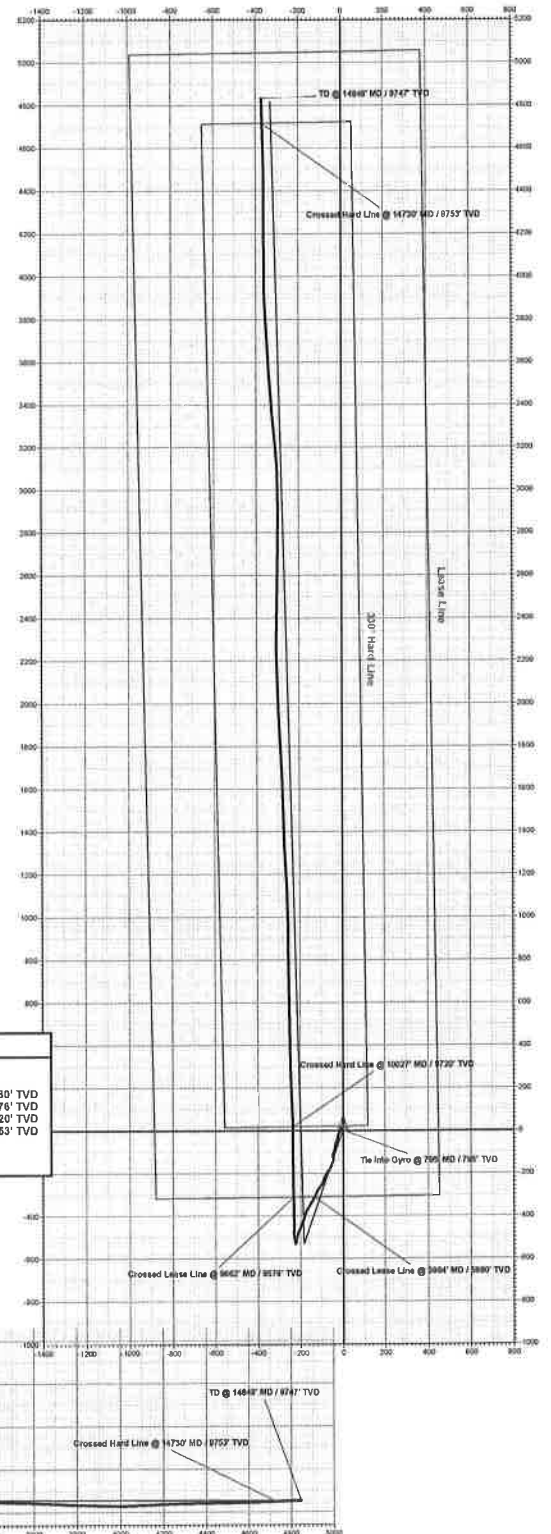
		Ground Level:	3324.0	
+N-5	+E-W	Northing	Eastings	Longitude
0.0	0.0	388357.50	718031.00 52° 3' 58.723 N	105° 37' 46.202 W

ANNOTATIONS

MD	Inc	Azi	TVD	+N-5	+E-W	Vsect	Departure	Annotation
795.0	0.01	315.73	795.0	2.3	-2.4	2.5	4.5	Tie Into Gyro @ 795' MD / 795' TVD
5994.4	4.95	208.94	5980.3	-311.2	-134.4	-300.0	368.1	Crossed Lease Line @ 5994' MD / 5980' TVD
9862.2	60.01	359.46	9578.2	-312.2	-232.0	-293.5	825.5	Crossed Lease Line @ 9862' MD / 9578' TVD
10026.8	82.34	358.86	9716.9	17.8	-235.2	35.8	1165.6	Crossed Hard Line @ 10027' MD / 9720' TVD
14730.4	82.07	358.40	9753.2	4715.7	-368.1	4730.0	5857.1	Crossed Hard Line @ 14730' MD / 9753' TVD
14848.0	93.10	358.50	9747.4	4833.1	-371.4	4847.3	5974.6	TD @ 14848' MD / 9747' TVD

Company Name: BTA Oil Producers, LLC
Mesa 8105 JV-P 16H
Lea County, NM
Rig: Normac #64
Created By: Shane Robbins
Date: 12/8/2018

Mesa 8105 JV-P 16H
Lea County, NM
Q160434 & WT-160278
Design #1



Vertical Section at 356.08° (200 usf/in)