



BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 27, T25-S, R33-E

Rojo 7811 27 Fed Com #35H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

15 November, 2019



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 27 Fed Com #35H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3369.0usft (Patterson #566)
Site:	Sec 27, T25-S, R33-E	MD Reference:	WELL @ 3369.0usft (Patterson #566)
Well:	Rojo 7811 27 Fed Com #35H	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 27, T25-S, R33-E		
Site Position:		Northing:	403,958.90 usft
From:	Map	Easting:	782,026.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 6' 29.435 N
		Longitude:	103° 33' 21.547 W
		Grid Convergence:	0.41 °

Well	Rojo 7811 27 Fed Com #35H		
Well Position	+N/-S	0.0 usft	Northing: 403,759.30 usft
	+E/-W	0.0 usft	Easting: 782,087.50 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 6' 27.456 N
		Longitude:	103° 33' 20.849 W
		Ground Level:	3,344.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	11/4/2019	6.60	59.70	47,725.50000000

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	176.10	

Survey Program	Date	11/15/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
160.0	17,730.0	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	403,759.30	782,087.50	32° 6' 27.456 N	103° 33' 20.849 W
160.0	1.80	135.90	160.0	-1.8	1.7	403,757.49	782,089.25	32° 6' 27.438 N	103° 33' 20.829 W
First MWD Survey @ 160.0' MD / 160.0' TVD									
258.0	1.60	144.50	257.9	-4.0	3.6	403,755.28	782,091.11	32° 6' 27.416 N	103° 33' 20.807 W
319.0	1.20	150.90	318.9	-5.3	4.4	403,754.02	782,091.92	32° 6' 27.403 N	103° 33' 20.798 W
443.0	0.80	145.80	442.9	-7.1	5.5	403,752.17	782,093.04	32° 6' 27.385 N	103° 33' 20.785 W
504.0	0.90	129.80	503.9	-7.8	6.1	403,751.51	782,093.64	32° 6' 27.379 N	103° 33' 20.778 W
566.0	0.50	110.10	565.9	-8.2	6.8	403,751.11	782,094.27	32° 6' 27.374 N	103° 33' 20.771 W
627.0	0.50	93.40	626.9	-8.3	7.3	403,751.00	782,094.79	32° 6' 27.373 N	103° 33' 20.765 W
689.0	0.40	61.90	688.9	-8.2	7.7	403,751.09	782,095.25	32° 6' 27.374 N	103° 33' 20.759 W
813.0	0.50	19.20	812.9	-7.5	8.3	403,751.80	782,095.81	32° 6' 27.381 N	103° 33' 20.753 W
906.0	0.40	5.70	905.9	-6.8	8.5	403,752.51	782,095.97	32° 6' 27.388 N	103° 33' 20.751 W



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Site:	Sec 27, T25-S, R33-E	MD Reference:	WELL @ 3369.0usft (Patterson #566)
Well:	Rojo 7811 27 Fed Com #35H	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
982.0	0.40	352.70	981.9	-6.3	8.5	403,753.04	782,095.97	32° 6' 27.393 N	103° 33' 20.751 W
1,071.0	0.40	11.50	1,070.9	-5.6	8.5	403,753.65	782,095.99	32° 6' 27.399 N	103° 33' 20.751 W
1,164.0	0.40	355.50	1,163.9	-5.0	8.5	403,754.29	782,096.03	32° 6' 27.406 N	103° 33' 20.750 W
1,258.0	0.60	337.90	1,257.9	-4.2	8.3	403,755.07	782,095.82	32° 6' 27.414 N	103° 33' 20.753 W
1,351.0	3.20	33.30	1,350.8	-1.6	9.6	403,757.70	782,097.06	32° 6' 27.439 N	103° 33' 20.738 W
1,444.0	5.40	37.10	1,443.5	4.1	13.6	403,763.36	782,101.12	32° 6' 27.495 N	103° 33' 20.690 W
1,538.0	5.80	37.50	1,537.1	11.4	19.2	403,770.65	782,106.68	32° 6' 27.567 N	103° 33' 20.625 W
1,631.0	5.80	37.30	1,629.6	18.8	24.9	403,778.12	782,112.39	32° 6' 27.640 N	103° 33' 20.558 W
1,724.0	5.80	35.70	1,722.1	26.4	30.5	403,785.67	782,117.98	32° 6' 27.715 N	103° 33' 20.492 W
1,818.0	5.90	31.90	1,815.6	34.3	35.8	403,793.63	782,123.31	32° 6' 27.793 N	103° 33' 20.430 W
1,911.0	5.90	32.40	1,908.2	42.4	40.9	403,801.72	782,128.39	32° 6' 27.873 N	103° 33' 20.370 W
2,004.0	5.90	32.40	2,000.7	50.5	46.0	403,809.80	782,133.52	32° 6' 27.952 N	103° 33' 20.310 W
2,097.0	6.20	47.70	2,093.2	57.9	52.3	403,817.21	782,139.79	32° 6' 28.025 N	103° 33' 20.236 W
2,191.0	6.50	52.60	2,186.6	64.6	60.3	403,823.86	782,147.77	32° 6' 28.091 N	103° 33' 20.143 W
2,284.0	6.60	52.60	2,279.0	71.0	68.7	403,830.30	782,156.20	32° 6' 28.154 N	103° 33' 20.044 W
2,378.0	7.00	52.40	2,372.3	77.8	77.5	403,837.08	782,165.03	32° 6' 28.220 N	103° 33' 19.941 W
2,471.0	7.30	53.80	2,464.6	84.7	86.8	403,844.03	782,174.29	32° 6' 28.288 N	103° 33' 19.833 W
2,564.0	7.50	53.10	2,556.8	91.9	96.4	403,851.16	782,183.91	32° 6' 28.358 N	103° 33' 19.720 W
2,658.0	7.60	55.80	2,650.0	99.0	106.5	403,858.34	782,193.96	32° 6' 28.428 N	103° 33' 19.603 W
2,751.0	7.70	55.90	2,742.2	106.0	116.7	403,865.29	782,204.20	32° 6' 28.496 N	103° 33' 19.483 W
2,844.0	6.80	52.60	2,834.4	112.8	126.2	403,872.12	782,213.73	32° 6' 28.563 N	103° 33' 19.372 W
2,937.0	6.70	51.90	2,926.8	119.5	134.9	403,878.82	782,222.38	32° 6' 28.629 N	103° 33' 19.271 W
3,031.0	7.00	52.60	3,020.1	126.4	143.7	403,885.68	782,231.24	32° 6' 28.696 N	103° 33' 19.167 W
3,124.0	5.30	46.50	3,112.6	132.8	151.4	403,892.08	782,238.86	32° 6' 28.759 N	103° 33' 19.078 W
3,217.0	5.30	47.90	3,205.2	138.6	157.7	403,897.91	782,245.16	32° 6' 28.816 N	103° 33' 19.004 W
3,310.0	5.70	50.50	3,297.7	144.4	164.4	403,903.73	782,251.91	32° 6' 28.873 N	103° 33' 18.925 W
3,404.0	6.10	50.50	3,391.2	150.6	171.9	403,909.88	782,259.37	32° 6' 28.934 N	103° 33' 18.838 W
3,497.0	4.40	43.30	3,483.9	156.3	178.1	403,915.62	782,265.63	32° 6' 28.990 N	103° 33' 18.765 W
3,590.0	3.90	38.70	3,576.6	161.4	182.6	403,920.68	782,270.05	32° 6' 29.040 N	103° 33' 18.713 W
3,684.0	3.30	37.00	3,670.4	166.0	186.2	403,925.34	782,273.68	32° 6' 29.086 N	103° 33' 18.670 W
3,777.0	4.70	37.50	3,763.2	171.2	190.1	403,930.50	782,277.61	32° 6' 29.136 N	103° 33' 18.624 W
3,870.0	5.50	43.10	3,855.8	177.5	195.5	403,936.78	782,282.98	32° 6' 29.198 N	103° 33' 18.561 W
3,963.0	5.20	44.90	3,948.4	183.7	201.5	403,943.01	782,289.00	32° 6' 29.260 N	103° 33' 18.491 W
4,057.0	4.70	45.90	4,042.1	189.4	207.3	403,948.71	782,294.77	32° 6' 29.315 N	103° 33' 18.423 W
4,150.0	4.30	46.50	4,134.8	194.5	212.5	403,953.76	782,300.03	32° 6' 29.365 N	103° 33' 18.362 W
4,243.0	4.20	40.80	4,227.5	199.4	217.3	403,958.74	782,304.79	32° 6' 29.414 N	103° 33' 18.306 W
4,336.0	4.20	44.70	4,320.3	204.4	221.9	403,963.74	782,309.41	32° 6' 29.463 N	103° 33' 18.252 W
4,430.0	4.40	46.10	4,414.0	209.4	226.9	403,968.69	782,314.43	32° 6' 29.512 N	103° 33' 18.193 W
4,523.0	5.10	41.50	4,506.7	215.0	232.2	403,974.26	782,319.74	32° 6' 29.566 N	103° 33' 18.131 W
4,616.0	5.80	50.30	4,599.3	221.1	238.6	403,980.35	782,326.09	32° 6' 29.626 N	103° 33' 18.056 W
4,710.0	5.50	61.70	4,692.8	226.2	246.2	403,985.52	782,333.71	32° 6' 29.677 N	103° 33' 17.967 W
4,803.0	5.00	46.50	4,785.4	231.1	253.1	403,990.43	782,340.58	32° 6' 29.725 N	103° 33' 17.887 W
4,896.0	4.70	42.40	4,878.1	236.7	258.6	403,996.03	782,346.09	32° 6' 29.780 N	103° 33' 17.823 W
4,989.0	4.50	41.50	4,970.8	242.3	263.6	404,001.58	782,351.07	32° 6' 29.835 N	103° 33' 17.764 W
5,083.0	4.40	42.10	5,064.5	247.7	268.4	404,007.01	782,355.94	32° 6' 29.888 N	103° 33' 17.707 W
5,176.0	4.70	41.00	5,157.2	253.2	273.3	404,012.54	782,360.83	32° 6' 29.942 N	103° 33' 17.650 W
5,269.0	4.60	41.40	5,249.9	258.9	278.3	404,018.21	782,365.79	32° 6' 29.998 N	103° 33' 17.592 W
5,362.0	4.60	40.10	5,342.6	264.6	283.2	404,023.86	782,370.66	32° 6' 30.054 N	103° 33' 17.535 W
5,455.0	4.50	38.40	5,435.3	270.3	287.8	404,029.57	782,375.33	32° 6' 30.110 N	103° 33' 17.480 W
5,549.0	4.30	41.40	5,529.1	275.8	292.5	404,035.10	782,379.95	32° 6' 30.164 N	103° 33' 17.426 W
5,642.0	4.00	37.50	5,621.8	281.0	296.7	404,040.29	782,384.23	32° 6' 30.215 N	103° 33' 17.375 W
5,735.0	5.90	36.80	5,714.5	287.4	301.6	404,046.69	782,389.07	32° 6' 30.278 N	103° 33' 17.319 W
5,829.0	8.40	34.10	5,807.7	297.0	308.3	404,056.25	782,395.81	32° 6' 30.372 N	103° 33' 17.239 W
5,922.0	8.50	45.20	5,899.7	307.4	317.0	404,066.72	782,404.50	32° 6' 30.475 N	103° 33' 17.138 W
6,015.0	8.70	48.20	5,991.7	317.0	327.1	404,076.25	782,414.62	32° 6' 30.569 N	103° 33' 17.019 W



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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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,109.0	7.70	48.20	6,084.7	325.9	337.1	404,085.19	782,424.61	32° 6' 30.657 N	103° 33' 16.902 W
6,202.0	7.60	47.50	6,176.9	334.2	346.3	404,093.49	782,433.79	32° 6' 30.738 N	103° 33' 16.795 W
6,295.0	7.70	44.30	6,269.1	342.8	355.2	404,102.11	782,442.68	32° 6' 30.823 N	103° 33' 16.691 W
6,388.0	7.40	42.20	6,361.2	351.7	363.6	404,111.00	782,451.05	32° 6' 30.910 N	103° 33' 16.593 W
6,482.0	7.40	40.70	6,454.5	360.8	371.6	404,120.08	782,459.07	32° 6' 30.999 N	103° 33' 16.499 W
6,575.0	7.30	41.40	6,546.7	369.8	379.4	404,129.05	782,466.88	32° 6' 31.088 N	103° 33' 16.407 W
6,668.0	7.30	39.80	6,638.9	378.7	387.1	404,138.02	782,474.57	32° 6' 31.176 N	103° 33' 16.317 W
6,761.0	7.30	40.10	6,731.2	387.8	394.7	404,147.08	782,482.16	32° 6' 31.265 N	103° 33' 16.228 W
6,854.0	7.20	40.30	6,823.4	396.7	402.2	404,156.04	782,489.73	32° 6' 31.353 N	103° 33' 16.139 W
6,948.0	6.90	38.50	6,916.7	405.7	409.6	404,164.96	782,497.06	32° 6' 31.441 N	103° 33' 16.053 W
7,041.0	6.70	37.00	7,009.1	414.4	416.3	404,173.66	782,503.80	32° 6' 31.526 N	103° 33' 15.974 W
7,132.6	6.31	34.05	7,100.1	422.8	422.3	404,182.10	782,509.83	32° 6' 31.610 N	103° 33' 15.903 W
LL Crossed @ 7132.6' MD / 7100.1' TVD									
7,134.0	6.30	34.00	7,101.5	422.9	422.4	404,182.22	782,509.92	32° 6' 31.611 N	103° 33' 15.902 W
7,228.0	4.40	44.30	7,195.1	429.8	427.8	404,189.08	782,515.32	32° 6' 31.678 N	103° 33' 15.839 W
7,321.0	3.00	167.90	7,288.0	430.0	430.8	404,189.25	782,518.33	32° 6' 31.680 N	103° 33' 15.804 W
7,414.0	3.40	170.00	7,380.8	424.9	431.8	404,184.16	782,519.31	32° 6' 31.629 N	103° 33' 15.793 W
7,447.1	3.45	178.07	7,413.9	422.9	432.0	404,182.20	782,519.52	32° 6' 31.610 N	103° 33' 15.791 W
LL Crossed @ 7447.1' MD / 7413.9' TVD									
7,508.0	3.70	191.80	7,474.7	419.1	431.7	404,178.44	782,519.18	32° 6' 31.573 N	103° 33' 15.795 W
7,601.0	4.00	190.20	7,567.4	413.0	430.5	404,172.32	782,517.99	32° 6' 31.512 N	103° 33' 15.809 W
7,694.0	2.40	220.50	7,660.3	408.3	428.7	404,167.64	782,516.15	32° 6' 31.466 N	103° 33' 15.831 W
7,787.0	2.30	223.10	7,753.2	405.5	426.1	404,164.80	782,513.61	32° 6' 31.438 N	103° 33' 15.861 W
7,880.0	2.20	219.20	7,846.2	402.8	423.7	404,162.05	782,511.21	32° 6' 31.411 N	103° 33' 15.889 W
7,974.0	0.60	237.90	7,940.1	401.1	422.2	404,160.39	782,509.65	32° 6' 31.395 N	103° 33' 15.907 W
8,067.0	0.40	230.10	8,033.1	400.6	421.5	404,159.93	782,508.99	32° 6' 31.390 N	103° 33' 15.915 W
8,160.0	0.40	224.70	8,126.1	400.2	421.0	404,159.49	782,508.51	32° 6' 31.386 N	103° 33' 15.921 W
8,254.0	0.30	230.80	8,220.1	399.8	420.6	404,159.10	782,508.09	32° 6' 31.382 N	103° 33' 15.926 W
8,347.0	0.40	257.90	8,313.1	399.6	420.1	404,158.88	782,507.58	32° 6' 31.380 N	103° 33' 15.931 W
8,440.0	0.40	242.80	8,406.1	399.4	419.5	404,158.66	782,506.98	32° 6' 31.378 N	103° 33' 15.938 W
8,534.0	0.50	240.50	8,500.1	399.0	418.8	404,158.31	782,506.33	32° 6' 31.374 N	103° 33' 15.946 W
8,627.0	0.70	239.60	8,593.1	398.5	418.0	404,157.82	782,505.49	32° 6' 31.370 N	103° 33' 15.956 W
8,720.0	0.60	235.10	8,686.1	398.0	417.1	404,157.25	782,504.60	32° 6' 31.364 N	103° 33' 15.966 W
8,814.0	0.90	235.60	8,780.1	397.3	416.1	404,156.56	782,503.58	32° 6' 31.357 N	103° 33' 15.978 W
8,907.0	1.10	239.30	8,873.1	396.4	414.7	404,155.69	782,502.21	32° 6' 31.349 N	103° 33' 15.994 W
9,000.0	1.10	245.40	8,966.1	395.6	413.1	404,154.86	782,500.63	32° 6' 31.341 N	103° 33' 16.013 W
9,093.0	0.80	326.60	9,059.0	395.7	412.0	404,155.03	782,499.47	32° 6' 31.342 N	103° 33' 16.026 W
9,186.0	1.10	331.00	9,152.0	397.1	411.2	404,156.35	782,498.68	32° 6' 31.356 N	103° 33' 16.035 W
9,280.0	1.10	305.90	9,246.0	398.4	410.0	404,157.67	782,497.51	32° 6' 31.369 N	103° 33' 16.049 W
9,373.0	1.10	287.30	9,339.0	399.2	408.4	404,158.46	782,495.93	32° 6' 31.377 N	103° 33' 16.067 W
9,460.0	1.10	280.80	9,426.0	399.6	406.8	404,158.86	782,494.31	32° 6' 31.381 N	103° 33' 16.086 W
9,554.0	0.40	220.80	9,520.0	399.5	405.7	404,158.79	782,493.21	32° 6' 31.380 N	103° 33' 16.099 W
9,647.0	0.40	205.00	9,613.0	398.9	405.4	404,158.25	782,492.86	32° 6' 31.375 N	103° 33' 16.103 W
9,740.0	1.00	277.30	9,706.0	398.8	404.4	404,158.05	782,491.92	32° 6' 31.373 N	103° 33' 16.114 W
9,834.0	0.80	359.30	9,800.0	399.5	403.6	404,158.81	782,491.10	32° 6' 31.380 N	103° 33' 16.123 W
9,927.0	0.60	356.50	9,893.0	400.7	403.6	404,159.95	782,491.06	32° 6' 31.392 N	103° 33' 16.123 W
10,020.0	1.10	274.10	9,985.9	401.2	402.6	404,160.50	782,490.14	32° 6' 31.397 N	103° 33' 16.134 W
10,113.0	0.50	288.30	10,078.9	401.4	401.4	404,160.69	782,488.87	32° 6' 31.399 N	103° 33' 16.149 W
10,207.0	1.00	161.10	10,172.9	400.7	401.2	404,160.04	782,488.74	32° 6' 31.393 N	103° 33' 16.150 W
10,300.0	1.60	89.20	10,265.9	400.0	402.8	404,159.29	782,490.30	32° 6' 31.385 N	103° 33' 16.132 W
10,394.0	1.10	50.50	10,359.9	400.6	404.8	404,159.89	782,492.31	32° 6' 31.391 N	103° 33' 16.109 W
10,487.0	1.10	49.40	10,452.9	401.7	406.2	404,161.04	782,493.68	32° 6' 31.402 N	103° 33' 16.093 W
10,580.0	0.80	44.20	10,545.9	402.8	407.3	404,162.08	782,494.81	32° 6' 31.413 N	103° 33' 16.080 W
10,674.0	0.50	60.20	10,639.8	403.5	408.1	404,162.76	782,495.62	32° 6' 31.419 N	103° 33' 16.070 W
10,767.0	0.40	105.50	10,732.8	403.6	408.8	404,162.87	782,496.29	32° 6' 31.420 N	103° 33' 16.062 W



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 27 Fed Com #35H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3369.0usft (Patterson #566)
Site:	Sec 27, T25-S, R33-E	MD Reference:	WELL @ 3369.0usft (Patterson #566)
Well:	Rojo 7811 27 Fed Com #35H	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,860.0	0.20	205.90	10,825.8	403.3	409.0	404,162.64	782,496.53	32° 6' 31.418 N	103° 33' 16.060 W
10,953.0	0.80	282.90	10,918.8	403.3	408.3	404,162.64	782,495.83	32° 6' 31.418 N	103° 33' 16.068 W
11,047.0	1.30	269.20	11,012.8	403.5	406.6	404,162.77	782,494.12	32° 6' 31.419 N	103° 33' 16.088 W
11,140.0	1.00	108.50	11,105.8	403.2	406.3	404,162.50	782,493.84	32° 6' 31.417 N	103° 33' 16.091 W
11,233.0	1.10	101.30	11,198.8	402.8	408.0	404,162.06	782,495.48	32° 6' 31.412 N	103° 33' 16.072 W
11,327.0	0.30	179.90	11,292.8	402.3	408.9	404,161.64	782,496.37	32° 6' 31.408 N	103° 33' 16.062 W
11,420.0	1.10	233.10	11,385.8	401.6	408.2	404,160.86	782,495.65	32° 6' 31.400 N	103° 33' 16.070 W
11,513.0	1.70	244.70	11,478.8	400.4	406.2	404,159.74	782,493.69	32° 6' 31.389 N	103° 33' 16.093 W
11,607.0	0.40	254.10	11,572.7	399.8	404.6	404,159.05	782,492.11	32° 6' 31.383 N	103° 33' 16.111 W
11,700.0	0.30	193.40	11,665.7	399.4	404.2	404,158.72	782,491.75	32° 6' 31.380 N	103° 33' 16.116 W
11,793.0	0.60	226.50	11,758.7	398.9	403.8	404,158.15	782,491.34	32° 6' 31.374 N	103° 33' 16.120 W
11,887.0	1.00	246.70	11,852.7	398.2	402.7	404,157.49	782,490.23	32° 6' 31.367 N	103° 33' 16.133 W
11,980.0	0.20	233.50	11,945.7	397.8	401.9	404,157.07	782,489.35	32° 6' 31.363 N	103° 33' 16.144 W
12,073.0	0.30	164.10	12,038.7	397.4	401.8	404,156.74	782,489.29	32° 6' 31.360 N	103° 33' 16.144 W
12,142.0	0.40	192.40	12,107.7	397.0	401.8	404,156.33	782,489.28	32° 6' 31.356 N	103° 33' 16.144 W
12,205.0	0.40	186.90	12,170.7	396.6	401.7	404,155.90	782,489.21	32° 6' 31.352 N	103° 33' 16.145 W
12,285.0	4.70	183.60	12,250.6	393.0	401.5	404,152.35	782,488.97	32° 6' 31.317 N	103° 33' 16.148 W
12,380.0	18.90	192.00	12,343.4	374.0	398.0	404,133.32	782,485.51	32° 6' 31.129 N	103° 33' 16.190 W
12,475.0	31.20	192.00	12,429.3	334.7	389.7	404,094.05	782,477.16	32° 6' 30.741 N	103° 33' 16.291 W
12,570.0	41.90	188.80	12,505.5	279.2	379.7	404,038.46	782,467.16	32° 6' 30.191 N	103° 33' 16.411 W
12,665.0	53.80	187.40	12,569.1	209.6	369.8	403,968.85	782,457.34	32° 6' 29.503 N	103° 33' 16.532 W
12,761.0	65.00	186.90	12,617.9	127.7	359.6	403,886.99	782,447.09	32° 6' 28.694 N	103° 33' 16.658 W
12,799.9	67.98	188.29	12,633.4	92.3	354.9	403,851.64	782,442.37	32° 6' 28.344 N	103° 33' 16.715 W
330' FNLCrossed @ 12799.9' MD / 12633.4' TVD									
12,856.0	72.30	190.20	12,652.5	40.3	346.4	403,799.58	782,433.88	32° 6' 27.830 N	103° 33' 16.818 W
12,951.0	80.70	189.20	12,674.7	-50.7	330.9	403,708.60	782,418.35	32° 6' 26.931 N	103° 33' 17.007 W
13,046.0	89.40	186.50	12,682.8	-144.4	318.0	403,614.94	782,405.45	32° 6' 26.005 N	103° 33' 17.165 W
13,165.0	90.00	187.60	12,683.5	-262.5	303.3	403,496.84	782,390.84	32° 6' 24.837 N	103° 33' 17.344 W
13,261.0	87.70	186.00	12,685.4	-357.8	292.0	403,401.55	782,379.48	32° 6' 23.895 N	103° 33' 17.484 W
13,354.0	88.60	184.30	12,688.4	-450.3	283.6	403,308.98	782,371.14	32° 6' 22.980 N	103° 33' 17.589 W
13,451.0	91.40	181.40	12,688.4	-547.2	278.8	403,212.12	782,366.32	32° 6' 22.022 N	103° 33' 17.653 W
13,546.0	92.60	178.10	12,685.1	-642.1	279.2	403,117.19	782,366.73	32° 6' 21.082 N	103° 33' 17.656 W
13,640.0	92.40	176.90	12,681.0	-735.9	283.3	403,023.37	782,370.83	32° 6' 20.153 N	103° 33' 17.617 W
13,736.0	89.90	176.30	12,679.1	-831.7	289.0	402,927.57	782,376.52	32° 6' 19.205 N	103° 33' 17.559 W
13,830.0	90.80	176.50	12,678.5	-925.5	294.9	402,833.76	782,382.42	32° 6' 18.276 N	103° 33' 17.498 W
13,926.0	89.30	178.10	12,678.4	-1,021.4	299.4	402,737.87	782,386.94	32° 6' 17.327 N	103° 33' 17.453 W
14,021.0	87.50	176.70	12,681.0	-1,116.3	303.8	402,643.01	782,391.25	32° 6' 16.388 N	103° 33' 17.411 W
14,116.0	88.50	180.20	12,684.4	-1,211.2	306.3	402,548.12	782,393.82	32° 6' 15.449 N	103° 33' 17.389 W
14,211.0	92.40	182.70	12,683.6	-1,306.1	303.9	402,453.18	782,391.41	32° 6' 14.510 N	103° 33' 17.425 W
14,305.0	88.30	179.90	12,683.0	-1,400.1	301.8	402,359.23	782,389.28	32° 6' 13.580 N	103° 33' 17.458 W
14,400.0	87.30	179.00	12,686.7	-1,495.0	302.7	402,264.31	782,390.19	32° 6' 12.641 N	103° 33' 17.455 W
14,495.0	88.30	178.60	12,690.3	-1,589.9	304.7	402,169.40	782,392.18	32° 6' 11.702 N	103° 33' 17.440 W
14,591.0	89.70	178.30	12,692.0	-1,685.8	307.3	402,073.45	782,394.78	32° 6' 10.752 N	103° 33' 17.418 W
14,686.0	89.10	178.10	12,693.0	-1,780.8	310.3	401,978.51	782,397.76	32° 6' 9.812 N	103° 33' 17.391 W
14,780.0	90.70	180.70	12,693.2	-1,874.8	311.2	401,884.52	782,398.74	32° 6' 8.882 N	103° 33' 17.388 W
14,875.0	91.10	181.80	12,691.7	-1,969.7	309.2	401,789.56	782,396.67	32° 6' 7.943 N	103° 33' 17.420 W
14,970.0	92.50	181.80	12,688.7	-2,064.6	306.2	401,694.65	782,393.69	32° 6' 7.004 N	103° 33' 17.462 W
15,064.0	91.80	181.10	12,685.2	-2,158.5	303.8	401,600.75	782,391.31	32° 6' 6.075 N	103° 33' 17.498 W
15,160.0	91.90	180.70	12,682.1	-2,254.5	302.3	401,504.81	782,389.81	32° 6' 5.125 N	103° 33' 17.524 W
15,255.0	92.80	180.40	12,678.2	-2,349.4	301.4	401,409.90	782,388.90	32° 6' 4.186 N	103° 33' 17.542 W
15,350.0	88.60	179.30	12,677.0	-2,444.4	301.6	401,314.93	782,389.14	32° 6' 3.247 N	103° 33' 17.547 W
15,446.0	86.60	178.80	12,681.0	-2,540.3	303.2	401,219.03	782,390.73	32° 6' 2.298 N	103° 33' 17.537 W
15,541.0	88.10	178.50	12,685.4	-2,635.1	305.5	401,124.16	782,392.97	32° 6' 1.359 N	103° 33' 17.519 W
15,637.0	88.40	178.60	12,688.4	-2,731.1	307.9	401,028.24	782,395.40	32° 6' 0.409 N	103° 33' 17.499 W
15,732.0	88.50	178.50	12,690.9	-2,826.0	310.3	400,933.30	782,397.80	32° 5' 59.470 N	103° 33' 17.479 W



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 27 Fed Com #35H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3369.0usft (Patterson #566)
Site:	Sec 27, T25-S, R33-E	MD Reference:	WELL @ 3369.0usft (Patterson #566)
Well:	Rojo 7811 27 Fed Com #35H	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,827.0	88.10	178.10	12,693.7	-2,920.9	313.1	400,838.39	782,400.62	32° 5' 58.530 N	103° 33' 17.454 W
15,921.0	87.80	177.40	12,697.1	-3,014.8	316.8	400,744.52	782,404.31	32° 5' 57.601 N	103° 33' 17.419 W
16,016.0	90.10	179.20	12,698.9	-3,109.7	319.6	400,649.59	782,407.12	32° 5' 56.662 N	103° 33' 17.394 W
16,111.0	90.70	178.30	12,698.2	-3,204.7	321.7	400,554.61	782,409.20	32° 5' 55.722 N	103° 33' 17.378 W
16,205.0	90.10	177.20	12,697.5	-3,298.6	325.4	400,460.69	782,412.89	32° 5' 54.792 N	103° 33' 17.343 W
16,301.0	91.20	179.30	12,696.4	-3,394.5	328.3	400,364.75	782,415.82	32° 5' 53.842 N	103° 33' 17.317 W
16,395.0	91.80	178.80	12,694.0	-3,488.5	329.9	400,270.80	782,417.37	32° 5' 52.912 N	103° 33' 17.307 W
16,490.0	88.90	179.70	12,693.4	-3,583.5	331.1	400,175.82	782,418.62	32° 5' 51.973 N	103° 33' 17.300 W
16,584.0	88.90	179.90	12,695.2	-3,677.5	331.4	400,081.83	782,418.95	32° 5' 51.043 N	103° 33' 17.304 W
16,679.0	87.30	179.30	12,698.4	-3,772.4	332.1	399,986.89	782,419.61	32° 5' 50.103 N	103° 33' 17.304 W
16,776.0	86.30	178.30	12,703.8	-3,869.2	334.1	399,890.07	782,421.64	32° 5' 49.145 N	103° 33' 17.289 W
16,870.0	88.40	179.90	12,708.1	-3,963.1	335.6	399,796.19	782,423.11	32° 5' 48.216 N	103° 33' 17.280 W
16,965.0	89.80	180.70	12,709.6	-4,058.1	335.1	399,701.20	782,422.61	32° 5' 47.276 N	103° 33' 17.294 W
17,060.0	90.90	180.00	12,709.0	-4,153.1	334.5	399,606.21	782,422.03	32° 5' 46.336 N	103° 33' 17.308 W
17,155.0	90.70	179.00	12,707.7	-4,248.1	335.4	399,511.22	782,422.86	32° 5' 45.396 N	103° 33' 17.307 W
17,250.0	90.80	178.80	12,706.5	-4,343.0	337.2	399,416.25	782,424.69	32° 5' 44.456 N	103° 33' 17.293 W
17,345.0	91.50	179.70	12,704.6	-4,438.0	338.4	399,321.28	782,425.93	32° 5' 43.516 N	103° 33' 17.287 W
17,436.5	92.56	179.31	12,701.3	-4,529.5	339.2	399,229.84	782,426.71	32° 5' 42.611 N	103° 33' 17.285 W
330' FSL Crossed @ 17436.5' MD / 12701.3' TVD									
17,440.0	92.60	179.30	12,701.2	-4,533.0	339.3	399,226.34	782,426.76	32° 5' 42.577 N	103° 33' 17.285 W
17,535.0	91.80	178.60	12,697.5	-4,627.9	341.0	399,131.43	782,428.50	32° 5' 41.637 N	103° 33' 17.273 W
17,630.0	93.10	178.10	12,693.4	-4,722.7	343.7	399,036.56	782,431.23	32° 5' 40.698 N	103° 33' 17.249 W
17,675.0	93.30	177.80	12,690.9	-4,767.6	345.3	398,991.66	782,432.84	32° 5' 40.254 N	103° 33' 17.234 W
17,730.0	93.30	177.80	12,687.8	-4,822.5	347.4	398,936.79	782,434.94	32° 5' 39.711 N	103° 33' 17.214 W
TD @ 17730.0' MD / 12687.8' TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
160.0	160.0	-1.8	1.7	First MWD Survey @ 160.0' MD / 160.0' TVD
7,132.6	7,100.1	422.8	422.3	LL Crossed @ 7132.6' MD / 7100.1' TVD
7,447.1	7,413.9	422.9	432.0	LL Crossed @ 7447.1' MD / 7413.9' TVD
12,799.9	12,633.4	92.3	354.9	330' FNL Crossed @ 12799.9' MD / 12633.4' TVD
17,436.5	12,701.3	-4,529.5	339.2	330' FSL Crossed @ 17436.5' MD / 12701.3' TVD
17,730.0	12,687.8	-4,822.5	347.4	TD @ 17730.0' MD / 12687.8' TVD

Checked By: _____	Approved By: _____	Date: _____
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