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BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 22, T25-S, R33-E

Rojo 7811 22 Fed Com #23H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

17 February, 2020





QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 22 Fed Com #23H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3372.0usft (Patterson #566)
Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3372.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #23H	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' 31.310 W
		Grid Convergence:	0.41 °

Well	Rojo 7811 22 Fed Com #23H		
Well Position	+N/-S	0.0 usft	Northing: 404,381.30 usft
	+E/-W	0.0 usft	Easting: 779,357.30 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 6' 33.805 N
		Longitude:	103° 33' 52.538 W
		Ground Level:	3,347.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM2020	2/4/2020	6.57
			Dip Angle (°) 59.72
			Field Strength (nT) 47,703.90000000

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 (°) 356.08

Survey Program	Date	2/17/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
180.0	17,452.0	QES MWD Surveys (Wellbore #1)	MWD default	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	404,381.30	779,357.30	32° 6' 33.805 N	103° 33' 52.538 W
180.0	0.40	153.10	180.0	-0.6	0.3	404,380.74	779,357.58	32° 6' 33.799 N	103° 33' 52.535 W
First MWD Survey @ 180.0' MD / 180.0' TVD									
234.0	0.60	144.70	234.0	-1.0	0.5	404,380.34	779,357.83	32° 6' 33.795 N	103° 33' 52.532 W
296.0	0.50	145.60	296.0	-1.4	0.9	404,379.85	779,358.17	32° 6' 33.790 N	103° 33' 52.528 W
357.0	0.60	164.90	357.0	-2.0	1.1	404,379.32	779,358.40	32° 6' 33.785 N	103° 33' 52.526 W
419.0	0.30	183.70	419.0	-2.5	1.2	404,378.85	779,358.48	32° 6' 33.780 N	103° 33' 52.525 W
480.0	0.30	86.20	480.0	-2.6	1.3	404,378.70	779,358.63	32° 6' 33.779 N	103° 33' 52.523 W
541.0	0.40	350.90	541.0	-2.4	1.5	404,378.92	779,358.75	32° 6' 33.781 N	103° 33' 52.522 W
603.0	0.30	5.50	603.0	-2.0	1.4	404,379.30	779,358.73	32° 6' 33.785 N	103° 33' 52.522 W
752.0	0.40	318.40	752.0	-1.2	1.1	404,380.07	779,358.43	32° 6' 33.792 N	103° 33' 52.525 W
848.0	0.90	314.00	848.0	-0.5	0.4	404,380.85	779,357.66	32° 6' 33.800 N	103° 33' 52.534 W



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Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3372.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #23H	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
939.0	1.20	322.90	939.0	0.8	-0.7	404,382.10	779,356.57	32° 6' 33.813 N	103° 33' 52.547 W
1,108.0	1.10	319.10	1,107.9	3.4	-2.9	404,384.74	779,354.44	32° 6' 33.839 N	103° 33' 52.571 W
1,157.0	1.30	321.50	1,156.9	4.2	-3.5	404,385.53	779,353.79	32° 6' 33.847 N	103° 33' 52.579 W
1,250.0	1.10	318.50	1,249.9	5.7	-4.8	404,387.03	779,352.54	32° 6' 33.862 N	103° 33' 52.593 W
1,343.0	3.30	266.50	1,342.8	6.2	-8.0	404,387.53	779,349.28	32° 6' 33.867 N	103° 33' 52.631 W
1,436.0	5.50	244.90	1,435.6	4.2	-14.7	404,385.48	779,342.57	32° 6' 33.847 N	103° 33' 52.709 W
1,529.0	6.40	222.20	1,528.1	-1.6	-22.2	404,379.75	779,335.05	32° 6' 33.791 N	103° 33' 52.797 W
1,622.0	4.90	218.30	1,620.6	-8.5	-28.2	404,372.79	779,329.11	32° 6' 33.722 N	103° 33' 52.867 W
1,715.0	4.20	232.80	1,713.3	-13.7	-33.4	404,367.61	779,323.93	32° 6' 33.672 N	103° 33' 52.927 W
1,808.0	4.20	239.30	1,806.1	-17.5	-39.0	404,363.81	779,318.29	32° 6' 33.634 N	103° 33' 52.993 W
1,901.0	4.30	237.80	1,898.8	-21.1	-44.9	404,360.22	779,312.41	32° 6' 33.599 N	103° 33' 53.062 W
1,994.0	4.20	235.70	1,991.6	-24.9	-50.6	404,356.44	779,306.65	32° 6' 33.562 N	103° 33' 53.129 W
2,087.0	4.70	232.90	2,084.3	-29.1	-56.5	404,352.22	779,300.80	32° 6' 33.521 N	103° 33' 53.198 W
2,180.0	4.60	232.80	2,177.0	-33.6	-62.5	404,347.67	779,294.79	32° 6' 33.476 N	103° 33' 53.268 W
2,273.0	4.50	234.50	2,269.7	-38.0	-68.5	404,343.30	779,288.85	32° 6' 33.433 N	103° 33' 53.337 W
2,367.0	4.00	234.20	2,363.4	-42.1	-74.1	404,339.24	779,283.18	32° 6' 33.394 N	103° 33' 53.403 W
2,460.0	3.80	238.90	2,456.2	-45.6	-79.4	404,335.75	779,277.91	32° 6' 33.360 N	103° 33' 53.465 W
2,553.0	3.50	242.40	2,549.0	-48.5	-84.5	404,332.84	779,272.76	32° 6' 33.331 N	103° 33' 53.525 W
2,646.0	3.20	245.60	2,641.9	-50.8	-89.4	404,330.45	779,267.88	32° 6' 33.308 N	103° 33' 53.582 W
2,739.0	5.10	243.30	2,734.6	-53.8	-95.5	404,327.52	779,261.82	32° 6' 33.279 N	103° 33' 53.653 W
2,832.0	5.30	248.00	2,827.2	-57.2	-103.1	404,324.06	779,254.15	32° 6' 33.246 N	103° 33' 53.742 W
2,925.0	5.00	251.20	2,919.9	-60.2	-111.0	404,321.14	779,246.33	32° 6' 33.217 N	103° 33' 53.833 W
3,018.0	5.60	233.80	3,012.5	-64.1	-118.5	404,317.16	779,238.83	32° 6' 33.178 N	103° 33' 53.921 W
3,111.0	5.50	234.30	3,105.0	-69.4	-125.7	404,311.88	779,231.55	32° 6' 33.127 N	103° 33' 54.006 W
3,204.0	3.60	235.40	3,197.7	-73.7	-131.8	404,307.62	779,225.53	32° 6' 33.085 N	103° 33' 54.076 W
3,298.0	3.00	235.40	3,291.6	-76.8	-136.2	404,304.54	779,221.07	32° 6' 33.055 N	103° 33' 54.128 W
3,391.0	2.60	231.30	3,384.5	-79.5	-139.9	404,301.84	779,217.42	32° 6' 33.028 N	103° 33' 54.171 W
3,484.0	3.80	234.90	3,477.3	-82.5	-144.0	404,298.75	779,213.25	32° 6' 32.998 N	103° 33' 54.220 W
3,577.0	4.70	233.30	3,570.1	-86.6	-149.6	404,294.70	779,207.68	32° 6' 32.958 N	103° 33' 54.285 W
3,670.0	5.30	233.80	3,662.7	-91.4	-156.1	404,289.89	779,201.16	32° 6' 32.911 N	103° 33' 54.361 W
3,764.0	5.20	232.80	3,756.3	-96.5	-163.0	404,284.75	779,194.26	32° 6' 32.861 N	103° 33' 54.442 W
3,857.0	4.80	231.70	3,849.0	-101.5	-169.4	404,279.79	779,187.85	32° 6' 32.812 N	103° 33' 54.517 W
3,950.0	4.40	225.00	3,941.7	-106.4	-175.0	404,274.86	779,182.27	32° 6' 32.764 N	103° 33' 54.582 W
4,044.0	4.70	238.00	4,035.4	-111.0	-180.8	404,270.27	779,176.46	32° 6' 32.719 N	103° 33' 54.650 W
4,137.0	4.20	237.70	4,128.1	-114.9	-186.9	404,266.43	779,170.35	32° 6' 32.681 N	103° 33' 54.721 W
4,230.0	3.80	230.80	4,220.9	-118.6	-192.2	404,262.66	779,165.08	32° 6' 32.644 N	103° 33' 54.783 W
4,323.0	3.30	210.40	4,313.7	-122.9	-196.0	404,258.40	779,161.34	32° 6' 32.602 N	103° 33' 54.827 W
4,416.0	4.50	241.00	4,406.5	-127.0	-200.5	404,254.32	779,156.79	32° 6' 32.562 N	103° 33' 54.880 W
4,509.0	4.30	237.00	4,499.2	-130.6	-206.6	404,250.66	779,150.68	32° 6' 32.526 N	103° 33' 54.951 W
4,602.0	4.00	224.10	4,592.0	-134.9	-211.8	404,246.43	779,145.50	32° 6' 32.485 N	103° 33' 55.012 W
4,696.0	4.00	234.30	4,685.7	-139.1	-216.7	404,242.16	779,140.55	32° 6' 32.443 N	103° 33' 55.070 W
4,789.0	4.70	261.60	4,778.5	-141.6	-223.1	404,239.71	779,134.15	32° 6' 32.419 N	103° 33' 55.144 W
4,882.0	4.50	262.60	4,871.2	-142.6	-230.5	404,238.68	779,126.76	32° 6' 32.410 N	103° 33' 55.230 W
4,975.0	4.00	260.30	4,963.9	-143.6	-237.4	404,237.67	779,119.95	32° 6' 32.400 N	103° 33' 55.310 W
5,068.0	4.30	243.80	5,056.7	-145.7	-243.7	404,235.58	779,113.62	32° 6' 32.380 N	103° 33' 55.383 W
5,161.0	4.60	242.80	5,149.4	-149.0	-250.1	404,232.34	779,107.17	32° 6' 32.348 N	103° 33' 55.459 W
5,254.0	4.40	244.00	5,242.1	-152.2	-256.6	404,229.07	779,100.65	32° 6' 32.316 N	103° 33' 55.535 W
5,347.0	4.70	227.80	5,334.8	-156.4	-262.7	404,224.95	779,094.62	32° 6' 32.276 N	103° 33' 55.605 W
5,441.0	4.80	226.20	5,428.5	-161.7	-268.4	404,219.64	779,088.93	32° 6' 32.224 N	103° 33' 55.672 W
5,534.0	4.70	226.20	5,521.2	-167.0	-273.9	404,214.31	779,083.37	32° 6' 32.172 N	103° 33' 55.737 W
5,627.0	4.50	228.40	5,613.9	-172.1	-279.4	404,209.25	779,077.89	32° 6' 32.122 N	103° 33' 55.801 W
5,720.0	4.40	228.40	5,706.6	-176.8	-284.8	404,204.46	779,072.50	32° 6' 32.075 N	103° 33' 55.864 W
5,813.0	4.30	228.50	5,799.3	-181.5	-290.1	404,199.78	779,067.22	32° 6' 32.029 N	103° 33' 55.926 W
5,906.0	3.00	228.40	5,892.1	-185.4	-294.5	404,195.85	779,062.79	32° 6' 31.990 N	103° 33' 55.978 W
5,999.0	2.80	227.80	5,985.0	-188.6	-298.0	404,192.71	779,059.29	32° 6' 31.960 N	103° 33' 56.019 W



QES
Survey Report - Geographic



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Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3372.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #23H	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
6,092.0	1.10	233.50	6,078.0	-190.6	-300.4	404,190.65	779,056.88	32° 6' 31.939 N	103° 33' 56.047 W
6,185.0	0.70	229.10	6,170.9	-191.5	-301.6	404,189.75	779,055.74	32° 6' 31.930 N	103° 33' 56.060 W
6,279.0	0.70	220.40	6,264.9	-192.4	-302.4	404,188.94	779,054.93	32° 6' 31.922 N	103° 33' 56.070 W
6,372.0	0.70	222.20	6,357.9	-193.2	-303.1	404,188.08	779,054.18	32° 6' 31.914 N	103° 33' 56.078 W
6,465.0	0.70	218.70	6,450.9	-194.1	-303.9	404,187.22	779,053.45	32° 6' 31.906 N	103° 33' 56.087 W
6,558.0	0.80	232.40	6,543.9	-194.9	-304.7	404,186.38	779,052.58	32° 6' 31.897 N	103° 33' 56.097 W
6,651.0	0.80	240.50	6,636.9	-195.6	-305.8	404,185.66	779,051.50	32° 6' 31.890 N	103° 33' 56.110 W
6,744.0	0.80	230.80	6,729.9	-196.4	-306.9	404,184.93	779,050.43	32° 6' 31.883 N	103° 33' 56.122 W
6,837.0	0.70	226.60	6,822.9	-197.2	-307.8	404,184.13	779,049.51	32° 6' 31.875 N	103° 33' 56.133 W
6,930.0	0.70	222.70	6,915.9	-198.0	-308.6	404,183.33	779,048.71	32° 6' 31.867 N	103° 33' 56.142 W
7,023.0	0.90	216.10	7,008.9	-199.0	-309.4	404,182.32	779,047.90	32° 6' 31.857 N	103° 33' 56.152 W
7,117.0	0.90	200.40	7,102.9	-200.3	-310.1	404,181.03	779,047.21	32° 6' 31.845 N	103° 33' 56.160 W
7,210.0	1.00	216.60	7,195.9	-201.6	-310.8	404,179.69	779,046.47	32° 6' 31.832 N	103° 33' 56.169 W
7,303.0	1.00	216.40	7,288.8	-202.9	-311.8	404,178.39	779,045.50	32° 6' 31.819 N	103° 33' 56.180 W
7,396.0	1.00	210.40	7,381.8	-204.3	-312.7	404,177.04	779,044.61	32° 6' 31.805 N	103° 33' 56.191 W
7,489.0	1.10	213.10	7,474.8	-205.7	-313.6	404,175.59	779,043.71	32° 6' 31.791 N	103° 33' 56.201 W
7,582.0	0.50	205.00	7,567.8	-206.8	-314.2	404,174.47	779,043.05	32° 6' 31.780 N	103° 33' 56.209 W
7,675.0	0.70	187.00	7,660.8	-207.8	-314.5	404,173.54	779,042.81	32° 6' 31.771 N	103° 33' 56.212 W
7,769.0	0.70	186.50	7,754.8	-208.9	-314.6	404,172.40	779,042.68	32° 6' 31.760 N	103° 33' 56.213 W
7,862.0	0.90	184.60	7,847.8	-210.2	-314.7	404,171.11	779,042.55	32° 6' 31.747 N	103° 33' 56.215 W
7,955.0	0.50	9.90	7,940.8	-210.5	-314.7	404,170.78	779,042.57	32° 6' 31.744 N	103° 33' 56.215 W
8,048.0	1.80	4.60	8,033.8	-208.7	-314.5	404,172.63	779,042.75	32° 6' 31.762 N	103° 33' 56.213 W
8,141.0	1.80	3.90	8,126.7	-205.8	-314.3	404,175.55	779,042.97	32° 6' 31.791 N	103° 33' 56.210 W
8,234.0	1.50	8.10	8,219.7	-203.1	-314.1	404,178.21	779,043.24	32° 6' 31.817 N	103° 33' 56.206 W
8,321.0	1.20	2.50	8,306.6	-201.1	-313.9	404,180.25	779,043.44	32° 6' 31.837 N	103° 33' 56.204 W
8,414.0	1.10	353.70	8,399.6	-199.2	-313.9	404,182.11	779,043.38	32° 6' 31.856 N	103° 33' 56.204 W
8,507.0	0.80	358.60	8,492.6	-197.7	-314.0	404,183.64	779,043.27	32° 6' 31.871 N	103° 33' 56.206 W
8,600.0	0.60	350.90	8,585.6	-196.5	-314.1	404,184.77	779,043.18	32° 6' 31.882 N	103° 33' 56.207 W
8,693.0	0.40	333.50	8,678.6	-195.8	-314.3	404,185.55	779,042.96	32° 6' 31.890 N	103° 33' 56.209 W
8,786.0	0.50	299.90	8,771.6	-195.3	-314.8	404,186.04	779,042.46	32° 6' 31.895 N	103° 33' 56.215 W
8,879.0	0.70	297.80	8,864.6	-194.8	-315.7	404,186.51	779,041.60	32° 6' 31.899 N	103° 33' 56.225 W
8,973.0	0.70	298.70	8,958.6	-194.2	-316.7	404,187.05	779,040.59	32° 6' 31.905 N	103° 33' 56.236 W
9,066.0	0.80	285.00	9,051.6	-193.8	-317.8	404,187.49	779,039.47	32° 6' 31.909 N	103° 33' 56.249 W
9,159.0	1.10	272.70	9,144.6	-193.6	-319.3	404,187.70	779,037.95	32° 6' 31.911 N	103° 33' 56.267 W
9,252.0	0.40	149.40	9,237.6	-193.8	-320.1	404,187.46	779,037.22	32° 6' 31.909 N	103° 33' 56.276 W
9,345.0	0.70	202.90	9,330.6	-194.6	-320.1	404,186.66	779,037.17	32° 6' 31.901 N	103° 33' 56.276 W
9,438.0	1.10	216.20	9,423.5	-195.9	-320.9	404,185.42	779,036.42	32° 6' 31.889 N	103° 33' 56.285 W
9,531.0	1.10	224.30	9,516.5	-197.2	-322.0	404,184.06	779,035.27	32° 6' 31.876 N	103° 33' 56.299 W
9,624.0	1.60	223.40	9,609.5	-198.8	-323.5	404,182.47	779,033.75	32° 6' 31.860 N	103° 33' 56.316 W
9,717.0	1.10	198.80	9,702.5	-200.6	-324.7	404,180.69	779,032.57	32° 6' 31.842 N	103° 33' 56.330 W
9,811.0	1.10	175.80	9,796.5	-202.4	-324.9	404,178.93	779,032.35	32° 6' 31.825 N	103° 33' 56.333 W
9,904.0	1.70	187.00	9,889.4	-204.6	-325.1	404,176.67	779,032.24	32° 6' 31.803 N	103° 33' 56.334 W
9,997.0	1.10	106.00	9,982.4	-206.2	-324.4	404,175.06	779,032.94	32° 6' 31.787 N	103° 33' 56.326 W
10,090.0	1.10	128.20	10,075.4	-207.0	-322.8	404,174.26	779,034.49	32° 6' 31.779 N	103° 33' 56.308 W
10,183.0	1.70	136.60	10,168.4	-208.6	-321.2	404,172.70	779,036.14	32° 6' 31.763 N	103° 33' 56.289 W
10,276.0	1.80	73.10	10,261.3	-209.2	-318.8	404,172.13	779,038.49	32° 6' 31.757 N	103° 33' 56.262 W
10,369.0	1.90	90.00	10,354.3	-208.7	-315.9	404,172.55	779,041.43	32° 6' 31.761 N	103° 33' 56.228 W
10,463.0	2.00	77.90	10,448.2	-208.4	-312.7	404,172.90	779,044.59	32° 6' 31.764 N	103° 33' 56.191 W
10,556.0	2.60	77.50	10,541.2	-207.6	-309.1	404,173.69	779,048.24	32° 6' 31.772 N	103° 33' 56.149 W
10,649.0	0.90	98.50	10,634.1	-207.3	-306.3	404,174.04	779,051.02	32° 6' 31.775 N	103° 33' 56.116 W
10,742.0	1.00	148.20	10,727.1	-208.1	-305.1	404,173.24	779,052.17	32° 6' 31.767 N	103° 33' 56.103 W
10,836.0	1.00	318.90	10,821.1	-208.1	-305.2	404,173.16	779,052.06	32° 6' 31.767 N	103° 33' 56.104 W
10,929.0	1.40	310.30	10,914.1	-206.8	-306.6	404,174.51	779,050.66	32° 6' 31.780 N	103° 33' 56.120 W
11,023.0	0.80	318.50	11,008.1	-205.6	-307.9	404,175.74	779,049.35	32° 6' 31.792 N	103° 33' 56.136 W
11,116.0	1.60	296.00	11,101.0	-204.5	-309.5	404,176.80	779,047.75	32° 6' 31.803 N	103° 33' 56.154 W



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 22 Fed Com #23H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3372.0usft (Patterson #566)
Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3372.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #23H	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
11,209.0	2.20	279.90	11,194.0	-203.6	-312.5	404,177.68	779,044.83	32° 6' 31.812 N	103° 33' 56.188 W
11,302.0	0.80	305.70	11,287.0	-202.9	-314.8	404,178.36	779,042.54	32° 6' 31.819 N	103° 33' 56.214 W
11,394.0	1.20	273.70	11,378.9	-202.5	-316.2	404,178.80	779,041.06	32° 6' 31.823 N	103° 33' 56.232 W
11,488.0	1.10	280.90	11,472.9	-202.3	-318.1	404,179.03	779,039.19	32° 6' 31.826 N	103° 33' 56.253 W
11,581.0	1.10	286.20	11,565.9	-201.8	-319.8	404,179.45	779,037.46	32° 6' 31.830 N	103° 33' 56.274 W
11,674.0	1.10	281.60	11,658.9	-201.4	-321.6	404,179.88	779,035.73	32° 6' 31.834 N	103° 33' 56.294 W
11,766.0	1.20	295.70	11,750.9	-200.8	-323.3	404,180.47	779,033.99	32° 6' 31.840 N	103° 33' 56.314 W
11,864.0	0.80	268.60	11,848.9	-200.4	-324.9	404,180.90	779,032.38	32° 6' 31.845 N	103° 33' 56.332 W
11,912.0	0.80	248.70	11,896.8	-200.5	-325.6	404,180.77	779,031.74	32° 6' 31.843 N	103° 33' 56.340 W
12,007.0	6.20	0.90	11,991.7	-195.6	-326.1	404,185.67	779,031.20	32° 6' 31.892 N	103° 33' 56.346 W
12,102.0	20.80	7.60	12,083.8	-173.7	-323.8	404,207.64	779,033.52	32° 6' 32.109 N	103° 33' 56.317 W
12,196.0	36.60	4.20	12,166.0	-128.9	-319.5	404,252.41	779,037.81	32° 6' 32.552 N	103° 33' 56.263 W
12,291.0	46.70	0.40	12,236.9	-65.9	-317.2	404,315.40	779,040.13	32° 6' 33.175 N	103° 33' 56.231 W
12,386.0	53.70	1.10	12,297.7	7.0	-316.2	404,388.33	779,041.11	32° 6' 33.897 N	103° 33' 56.214 W
12,481.0	63.20	0.50	12,347.3	87.9	-315.1	404,469.19	779,042.22	32° 6' 34.697 N	103° 33' 56.194 W
12,503.2	65.14	0.94	12,357.0	107.9	-314.8	404,489.17	779,042.47	32° 6' 34.894 N	103° 33' 56.190 W
330' FSL Crossed @ 12503.2' MD / 12357.0' TVD									
12,576.0	71.50	2.30	12,383.9	175.5	-312.9	404,556.76	779,044.40	32° 6' 35.563 N	103° 33' 56.162 W
12,671.0	82.70	4.40	12,405.1	267.7	-307.5	404,649.04	779,049.84	32° 6' 36.476 N	103° 33' 56.091 W
12,765.0	91.50	3.50	12,409.8	361.3	-301.0	404,742.61	779,056.30	32° 6' 37.401 N	103° 33' 56.008 W
12,784.0	91.00	2.10	12,409.4	380.3	-300.1	404,761.58	779,057.23	32° 6' 37.589 N	103° 33' 55.995 W
12,879.0	90.60	5.50	12,408.1	475.0	-293.8	404,856.35	779,063.52	32° 6' 38.526 N	103° 33' 55.914 W
12,973.0	92.10	8.80	12,405.9	568.3	-282.1	404,949.58	779,075.21	32° 6' 39.448 N	103° 33' 55.771 W
13,067.0	91.50	3.50	12,402.9	661.7	-272.0	405,042.95	779,085.27	32° 6' 40.371 N	103° 33' 55.646 W
13,162.0	88.60	359.00	12,402.8	756.6	-270.0	405,137.90	779,087.35	32° 6' 41.311 N	103° 33' 55.614 W
13,257.0	88.90	356.30	12,404.9	851.5	-273.8	405,232.79	779,083.45	32° 6' 42.250 N	103° 33' 55.652 W
13,352.0	88.20	354.70	12,407.3	946.2	-281.3	405,327.46	779,076.00	32° 6' 43.187 N	103° 33' 55.730 W
13,446.0	88.70	354.20	12,409.8	1,039.7	-290.4	405,420.98	779,066.91	32° 6' 44.113 N	103° 33' 55.828 W
13,541.0	89.90	356.00	12,411.0	1,134.3	-298.5	405,515.62	779,058.80	32° 6' 45.050 N	103° 33' 55.915 W
13,636.0	88.80	355.10	12,412.1	1,229.0	-305.9	405,610.33	779,051.43	32° 6' 45.988 N	103° 33' 55.993 W
13,731.0	89.00	357.40	12,413.9	1,323.8	-312.1	405,705.10	779,045.22	32° 6' 46.926 N	103° 33' 56.057 W
13,826.0	88.30	359.10	12,416.1	1,418.7	-315.0	405,800.03	779,042.32	32° 6' 47.866 N	103° 33' 56.083 W
13,920.0	88.40	359.70	12,418.8	1,512.7	-316.0	405,893.98	779,041.33	32° 6' 48.795 N	103° 33' 56.086 W
14,015.0	89.50	1.20	12,420.6	1,607.7	-315.2	405,988.96	779,042.08	32° 6' 49.735 N	103° 33' 56.070 W
14,110.0	89.10	355.80	12,421.7	1,702.6	-317.7	406,083.88	779,039.59	32° 6' 50.675 N	103° 33' 56.091 W
14,205.0	90.00	350.90	12,422.5	1,796.9	-328.7	406,178.21	779,028.60	32° 6' 51.609 N	103° 33' 56.211 W
14,300.0	89.30	350.50	12,423.1	1,890.7	-344.1	406,271.96	779,013.24	32° 6' 52.538 N	103° 33' 56.382 W
14,395.0	88.90	352.80	12,424.6	1,984.6	-357.8	406,365.94	778,999.45	32° 6' 53.469 N	103° 33' 56.534 W
14,490.0	90.90	357.50	12,424.7	2,079.3	-365.9	406,460.56	778,991.42	32° 6' 54.406 N	103° 33' 56.620 W
14,585.0	92.00	1.20	12,422.3	2,174.2	-367.0	406,555.51	778,990.34	32° 6' 55.345 N	103° 33' 56.625 W
14,681.0	89.20	0.50	12,421.3	2,270.2	-365.5	406,651.48	778,991.77	32° 6' 56.295 N	103° 33' 56.600 W
14,776.0	88.20	358.80	12,423.5	2,365.2	-366.1	406,746.45	778,991.19	32° 6' 57.235 N	103° 33' 56.599 W
14,870.0	86.40	0.90	12,427.9	2,459.0	-366.4	406,840.34	778,990.94	32° 6' 58.164 N	103° 33' 56.594 W
14,965.0	90.00	8.10	12,430.9	2,553.6	-358.9	406,934.92	778,998.39	32° 6' 59.099 N	103° 33' 56.500 W
15,061.0	90.00	11.40	12,430.9	2,648.2	-342.7	407,029.52	779,014.65	32° 7' 0.034 N	103° 33' 56.303 W
15,155.0	89.70	12.50	12,431.1	2,740.2	-323.2	407,121.48	779,034.11	32° 7' 0.943 N	103° 33' 56.069 W
15,231.0	88.10	15.10	12,432.6	2,814.0	-305.1	407,195.27	779,052.23	32° 7' 1.671 N	103° 33' 55.852 W
15,326.0	90.20	10.00	12,434.0	2,906.7	-284.4	407,287.95	779,072.86	32° 7' 2.587 N	103° 33' 55.604 W
15,421.0	90.50	5.60	12,433.4	3,000.7	-271.5	407,382.05	779,085.75	32° 7' 3.517 N	103° 33' 55.447 W
15,516.0	91.20	1.90	12,432.0	3,095.5	-265.3	407,476.82	779,091.96	32° 7' 4.455 N	103° 33' 55.367 W
15,611.0	89.70	5.50	12,431.3	3,190.3	-259.2	407,571.60	779,098.09	32° 7' 5.392 N	103° 33' 55.288 W
15,705.0	88.60	4.20	12,432.7	3,283.9	-251.3	407,665.25	779,106.04	32° 7' 6.318 N	103° 33' 55.187 W
15,800.0	89.90	0.00	12,433.9	3,378.9	-247.8	407,760.15	779,109.52	32° 7' 7.257 N	103° 33' 55.139 W
15,895.0	85.20	350.20	12,438.0	3,473.3	-255.9	407,854.58	779,101.44	32° 7' 8.192 N	103° 33' 55.225 W
15,990.0	84.20	349.80	12,446.8	3,566.4	-272.3	407,947.73	779,085.01	32° 7' 9.115 N	103° 33' 55.408 W



QES
Survey Report - Geographic



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 22 Fed Com #23H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3372.0usft (Patterson #566)
Site:	Sec 22, T25-S, R33-E	MD Reference:	WELL @ 3372.0usft (Patterson #566)
Well:	Rojo 7811 22 Fed Com #23H	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
16,085.0	84.20	350.00	12,456.4	3,659.5	-288.9	408,040.78	779,068.44	32° 7' 10.037 N	103° 33' 55.593 W
16,180.0	86.40	352.10	12,464.1	3,753.0	-303.6	408,134.30	779,053.71	32° 7' 10.963 N	103° 33' 55.757 W
16,275.0	90.00	355.30	12,467.1	3,847.4	-314.0	408,228.65	779,043.30	32° 7' 11.898 N	103° 33' 55.870 W
16,370.0	91.10	355.60	12,466.2	3,942.0	-321.5	408,323.35	779,035.76	32° 7' 12.835 N	103° 33' 55.950 W
16,465.0	90.50	358.40	12,464.9	4,036.9	-326.5	408,418.20	779,030.79	32° 7' 13.774 N	103° 33' 56.000 W
16,559.0	91.30	357.70	12,463.4	4,130.8	-329.7	408,512.13	779,027.60	32° 7' 14.704 N	103° 33' 56.029 W
16,654.0	89.80	357.20	12,462.5	4,225.7	-333.9	408,607.03	779,023.37	32° 7' 15.643 N	103° 33' 56.071 W
16,749.0	90.80	357.70	12,462.0	4,320.6	-338.2	408,701.93	779,019.14	32° 7' 16.583 N	103° 33' 56.112 W
16,844.0	89.60	357.90	12,461.7	4,415.6	-341.8	408,796.86	779,015.50	32° 7' 17.522 N	103° 33' 56.146 W
16,938.0	88.60	356.00	12,463.1	4,509.4	-346.8	408,890.71	779,010.50	32° 7' 18.451 N	103° 33' 56.197 W
17,033.0	90.30	357.40	12,464.1	4,604.2	-352.3	408,985.54	779,005.03	32° 7' 19.390 N	103° 33' 56.253 W
17,128.0	88.30	356.50	12,465.2	4,699.1	-357.3	409,080.39	778,999.97	32° 7' 20.329 N	103° 33' 56.303 W
17,157.4	88.33	356.22	12,466.1	4,728.4	-359.2	409,109.72	778,998.11	32° 7' 20.619 N	103° 33' 56.323 W
330' FNL Crossed @ 17157.4' MD / 12466.1' TVD									
17,223.0	88.40	355.60	12,467.9	4,793.8	-363.9	409,175.13	778,993.43	32° 7' 21.267 N	103° 33' 56.372 W
17,318.0	89.30	354.60	12,469.9	4,888.5	-372.0	409,269.76	778,985.32	32° 7' 22.204 N	103° 33' 56.458 W
17,398.0	89.50	354.60	12,470.7	4,968.1	-379.5	409,349.40	778,977.79	32° 7' 22.992 N	103° 33' 56.539 W
17,452.0	89.50	354.60	12,471.2	5,021.9	-384.6	409,403.16	778,972.71	32° 7' 23.525 N	103° 33' 56.594 W
TD @ 17452.0' MD / 12471.2' TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
180.0	180.0	-0.6	0.3	First MWD Survey @ 180.0'MD / 180.0' TVD	
12,503.2	12,357.0	107.9	-314.8	330' FSL Crossed @ 12503.2' MD / 12357.0' TVD	
17,157.4	12,466.1	4,728.4	-359.2	330' FNL Crossed @ 17157.4' MD / 12466.1' TVD	
17,452.0	12,471.2	5,021.9	-384.6	TD @ 17452.0' MD / 12471.2' TVD	

Checked By: _____	Approved By: _____	Date: _____
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