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OCT 07 2019
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BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 34, T25-S, R33-E

Rojo 7811 34-27 Fed Com #19H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

18 May, 2019





Survey Report - Geographic



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 34, T25-S, R33-E
 Well: Rojo 7811 34-27 Fed Com #19H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 34-27 Fed Com #19H
 TVD Reference: WELL @ 3348.0usft (Patterson #566)
 MD Reference: WELL @ 3348.0usft (Patterson #566)
 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	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 34, T25-S, R33-E			
Site Position:		Northing:	396,110.60 usft	Latitude: 32° 5' 11.910 N
From: Map		Easting:	780,112.60 usft	Longitude: 103° 33' 44.445 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.41 °

Well	Rojo 7811 34-27 Fed Com #19H			
Well Position	+N/-S 0.0 usft	Northing:	396,110.40 usft	Latitude: 32° 5' 11.910 N
	+E/-W 0.0 usft	Easting:	780,082.60 usft	Longitude: 103° 33' 44.793 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level: 3,323.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/29/2019	6.74	59.91	47,666.65172419

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		357.33

Survey Program	Date 5/18/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
157.0	20,035.0	QES MWD Surveys (Wellbore #1)	OWSG (Rev2) MWD	OWSG MWD - Standard	

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	396,110.40	780,082.60	32° 5' 11.910 N	103° 33' 44.793 W
157.0	0.20	269.80	157.0	0.0	-0.3	396,110.40	780,082.32	32° 5' 11.910 N	103° 33' 44.797 W
First MWD Survey @ 157.0' MD / 157.0' TVD									
268.0	0.30	304.80	268.0	0.2	-0.7	396,110.56	780,081.89	32° 5' 11.912 N	103° 33' 44.802 W
360.0	0.10	1.20	360.0	0.4	-0.9	396,110.78	780,081.69	32° 5' 11.914 N	103° 33' 44.804 W
453.0	0.10	357.60	453.0	0.5	-0.9	396,110.94	780,081.69	32° 5' 11.915 N	103° 33' 44.804 W
546.0	0.00	341.00	546.0	0.6	-0.9	396,111.02	780,081.69	32° 5' 11.916 N	103° 33' 44.804 W
639.0	0.30	51.50	639.0	0.8	-0.7	396,111.18	780,081.88	32° 5' 11.918 N	103° 33' 44.802 W
732.0	0.50	19.70	732.0	1.3	-0.4	396,111.71	780,082.21	32° 5' 11.923 N	103° 33' 44.798 W
826.0	1.10	21.60	826.0	2.5	0.1	396,112.93	780,082.68	32° 5' 11.935 N	103° 33' 44.792 W
919.0	1.20	22.70	919.0	4.3	0.8	396,114.66	780,083.38	32° 5' 11.952 N	103° 33' 44.784 W
1,012.0	1.20	22.20	1,011.9	6.1	1.5	396,116.46	780,084.13	32° 5' 11.970 N	103° 33' 44.775 W



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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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,105.0	1.60	23.00	1,104.9	8.2	2.4	396,118.56	780,085.00	32° 5' 11.990 N	103° 33' 44.765 W
1,196.0	1.50	3.90	1,195.9	10.5	3.0	396,120.92	780,085.58	32° 5' 12.014 N	103° 33' 44.758 W
1,289.0	1.30	357.20	1,288.9	12.8	3.0	396,123.19	780,085.61	32° 5' 12.036 N	103° 33' 44.757 W
1,383.0	1.10	344.50	1,382.8	14.7	2.7	396,125.12	780,085.32	32° 5' 12.055 N	103° 33' 44.761 W
1,476.0	1.20	348.20	1,475.8	16.5	2.3	396,126.93	780,084.88	32° 5' 12.073 N	103° 33' 44.765 W
1,569.0	1.20	351.60	1,568.8	18.5	1.9	396,128.85	780,084.54	32° 5' 12.092 N	103° 33' 44.769 W
1,663.0	1.10	355.40	1,662.8	20.3	1.7	396,130.72	780,084.32	32° 5' 12.111 N	103° 33' 44.772 W
1,756.0	1.10	356.10	1,755.8	22.1	1.6	396,132.50	780,084.19	32° 5' 12.128 N	103° 33' 44.773 W
1,849.0	1.10	353.30	1,848.7	23.9	1.4	396,134.28	780,084.02	32° 5' 12.146 N	103° 33' 44.775 W
1,942.0	0.30	316.90	1,941.7	24.9	1.2	396,135.35	780,083.75	32° 5' 12.157 N	103° 33' 44.778 W
2,036.0	0.60	242.80	2,035.7	24.9	0.6	396,135.30	780,083.15	32° 5' 12.156 N	103° 33' 44.785 W
2,129.0	0.40	258.60	2,128.7	24.6	-0.2	396,135.01	780,082.40	32° 5' 12.153 N	103° 33' 44.794 W
2,222.0	0.40	242.80	2,221.7	24.4	-0.8	396,134.80	780,081.79	32° 5' 12.151 N	103° 33' 44.801 W
2,315.0	0.20	240.50	2,314.7	24.2	-1.2	396,134.57	780,081.36	32° 5' 12.149 N	103° 33' 44.806 W
2,409.0	0.20	341.40	2,408.7	24.2	-1.4	396,134.65	780,081.16	32° 5' 12.150 N	103° 33' 44.808 W
2,502.0	0.40	40.20	2,501.7	24.6	-1.3	396,135.05	780,081.32	32° 5' 12.154 N	103° 33' 44.806 W
2,595.0	0.60	35.30	2,594.7	25.3	-0.8	396,135.69	780,081.81	32° 5' 12.160 N	103° 33' 44.800 W
2,689.0	0.70	89.70	2,688.7	25.7	0.1	396,136.10	780,082.67	32° 5' 12.164 N	103° 33' 44.790 W
2,782.0	0.90	90.40	2,781.7	25.7	1.4	396,136.10	780,083.97	32° 5' 12.164 N	103° 33' 44.775 W
2,875.0	1.20	85.60	2,874.7	25.8	3.1	396,136.17	780,085.67	32° 5' 12.165 N	103° 33' 44.756 W
2,969.0	0.90	180.00	2,968.7	25.1	4.1	396,135.50	780,086.65	32° 5' 12.158 N	103° 33' 44.744 W
3,062.0	1.10	183.40	3,061.7	23.5	4.0	396,133.88	780,086.60	32° 5' 12.142 N	103° 33' 44.745 W
3,155.0	1.00	131.00	3,154.7	22.1	4.6	396,132.46	780,087.16	32° 5' 12.128 N	103° 33' 44.739 W
3,248.0	2.30	99.90	3,247.6	21.2	7.0	396,131.61	780,089.61	32° 5' 12.119 N	103° 33' 44.710 W
3,342.0	1.00	140.60	3,341.6	20.2	9.4	396,130.65	780,091.99	32° 5' 12.110 N	103° 33' 44.683 W
3,435.0	2.10	268.40	3,434.6	19.6	8.2	396,129.97	780,090.80	32° 5' 12.103 N	103° 33' 44.696 W
3,528.0	1.70	296.40	3,527.5	20.1	5.3	396,130.54	780,087.86	32° 5' 12.109 N	103° 33' 44.731 W
3,621.0	1.80	320.10	3,620.5	21.9	3.1	396,132.27	780,085.69	32° 5' 12.126 N	103° 33' 44.756 W
3,715.0	2.00	314.50	3,714.4	24.2	1.0	396,134.55	780,083.57	32° 5' 12.149 N	103° 33' 44.780 W
3,808.0	1.60	324.50	3,807.4	26.3	-0.9	396,136.75	780,081.66	32° 5' 12.171 N	103° 33' 44.802 W
3,901.0	1.70	340.50	3,900.3	28.7	-2.2	396,139.11	780,080.45	32° 5' 12.194 N	103° 33' 44.816 W
3,995.0	1.80	283.90	3,994.3	30.4	-4.0	396,140.77	780,078.55	32° 5' 12.211 N	103° 33' 44.838 W
4,088.0	4.60	262.50	4,087.1	30.2	-9.2	396,140.64	780,073.43	32° 5' 12.210 N	103° 33' 44.897 W
4,181.0	7.40	263.50	4,179.6	29.1	-18.8	396,139.47	780,063.78	32° 5' 12.199 N	103° 33' 45.010 W
4,274.0	7.90	269.50	4,271.8	28.3	-31.2	396,138.74	780,051.44	32° 5' 12.192 N	103° 33' 45.153 W
4,368.0	6.20	276.20	4,365.1	28.8	-42.7	396,139.23	780,039.93	32° 5' 12.198 N	103° 33' 45.287 W
4,461.0	4.30	271.60	4,457.7	29.5	-51.1	396,139.87	780,031.46	32° 5' 12.205 N	103° 33' 45.385 W
4,554.0	3.90	276.20	4,550.5	29.9	-57.8	396,140.31	780,024.83	32° 5' 12.210 N	103° 33' 45.462 W
4,648.0	4.50	248.90	4,644.2	28.9	-64.4	396,139.33	780,018.21	32° 5' 12.201 N	103° 33' 45.539 W
4,741.0	3.90	229.90	4,737.0	25.6	-70.2	396,135.98	780,012.38	32° 5' 12.168 N	103° 33' 45.607 W
4,835.0	4.60	239.60	4,830.7	21.6	-75.9	396,132.01	780,006.69	32° 5' 12.129 N	103° 33' 45.674 W
4,928.0	4.10	243.10	4,923.4	18.2	-82.1	396,128.62	780,000.51	32° 5' 12.096 N	103° 33' 45.746 W
5,021.0	5.60	252.40	5,016.1	15.3	-89.4	396,125.74	779,993.21	32° 5' 12.068 N	103° 33' 45.831 W
5,114.0	6.30	254.90	5,108.6	12.6	-98.6	396,123.04	779,983.96	32° 5' 12.042 N	103° 33' 45.939 W
5,208.0	6.50	254.50	5,202.0	9.9	-108.7	396,120.28	779,973.86	32° 5' 12.015 N	103° 33' 46.056 W
5,301.0	6.60	253.50	5,294.4	7.0	-118.9	396,117.35	779,963.66	32° 5' 11.987 N	103° 33' 46.175 W
5,394.0	6.40	254.70	5,386.8	4.1	-129.1	396,114.47	779,953.54	32° 5' 11.959 N	103° 33' 46.293 W
5,487.0	6.90	258.60	5,479.2	1.6	-139.5	396,111.99	779,943.06	32° 5' 11.935 N	103° 33' 46.415 W
5,580.0	6.50	259.10	5,571.6	-0.5	-150.2	396,109.89	779,932.41	32° 5' 11.915 N	103° 33' 46.539 W
5,674.0	6.60	260.00	5,664.9	-2.4	-160.7	396,107.95	779,921.87	32° 5' 11.897 N	103° 33' 46.662 W
5,767.0	6.60	260.30	5,757.3	-4.3	-171.3	396,106.12	779,911.34	32° 5' 11.880 N	103° 33' 46.784 W
5,861.0	6.40	259.10	5,850.7	-6.2	-181.7	396,104.22	779,900.87	32° 5' 11.862 N	103° 33' 46.906 W
5,954.0	6.10	277.40	5,943.2	-6.5	-191.7	396,103.88	779,890.88	32° 5' 11.859 N	103° 33' 47.022 W
6,047.0	5.30	275.10	6,035.7	-5.5	-200.9	396,104.90	779,881.70	32° 5' 11.870 N	103° 33' 47.129 W
6,140.0	5.30	274.20	6,128.3	-4.8	-209.5	396,105.59	779,873.14	32° 5' 11.877 N	103° 33' 47.228 W



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,234.0	5.30	273.90	6,221.9	-4.2	-218.1	396,106.21	779,864.48	32° 5' 11.884 N	103° 33' 47.329 W
6,327.0	5.00	274.60	6,314.5	-3.6	-226.4	396,106.82	779,856.15	32° 5' 11.890 N	103° 33' 47.426 W
6,420.0	4.90	275.10	6,407.2	-2.9	-234.4	396,107.50	779,848.16	32° 5' 11.898 N	103° 33' 47.519 W
6,514.0	4.70	274.10	6,500.9	-2.3	-242.3	396,108.13	779,840.32	32° 5' 11.905 N	103° 33' 47.610 W
6,607.0	4.70	272.60	6,593.5	-1.8	-249.9	396,108.58	779,832.71	32° 5' 11.909 N	103° 33' 47.698 W
6,700.0	4.50	272.30	6,686.2	-1.5	-257.3	396,108.90	779,825.26	32° 5' 11.913 N	103° 33' 47.785 W
6,794.0	4.50	273.20	6,780.0	-1.1	-264.7	396,109.25	779,817.89	32° 5' 11.917 N	103° 33' 47.870 W
6,887.0	4.20	270.90	6,872.7	-0.9	-271.8	396,109.51	779,810.84	32° 5' 11.920 N	103° 33' 47.952 W
6,980.0	3.90	269.70	6,965.5	-0.9	-278.3	396,109.55	779,804.28	32° 5' 11.921 N	103° 33' 48.028 W
7,073.0	3.80	269.10	7,058.2	-0.9	-284.6	396,109.48	779,798.03	32° 5' 11.921 N	103° 33' 48.101 W
7,167.0	3.60	269.70	7,152.1	-1.0	-290.6	396,109.42	779,791.97	32° 5' 11.921 N	103° 33' 48.172 W
7,260.0	3.40	269.50	7,244.9	-1.0	-296.3	396,109.38	779,786.29	32° 5' 11.921 N	103° 33' 48.238 W
7,353.0	2.40	285.80	7,337.8	-0.5	-300.9	396,109.88	779,781.66	32° 5' 11.926 N	103° 33' 48.291 W
7,446.0	2.80	319.20	7,430.7	1.7	-304.3	396,112.13	779,778.30	32° 5' 11.949 N	103° 33' 48.330 W
7,539.0	1.30	356.80	7,523.6	4.5	-305.8	396,114.91	779,776.76	32° 5' 11.976 N	103° 33' 48.348 W
7,633.0	0.70	24.10	7,617.6	6.1	-305.7	396,116.49	779,776.93	32° 5' 11.992 N	103° 33' 48.346 W
7,726.0	0.30	354.40	7,710.6	6.9	-305.5	396,117.26	779,777.14	32° 5' 11.999 N	103° 33' 48.343 W
7,820.0	0.40	268.60	7,804.6	7.1	-305.8	396,117.49	779,776.79	32° 5' 12.002 N	103° 33' 48.347 W
7,913.0	0.80	256.10	7,897.6	6.9	-306.8	396,117.33	779,775.83	32° 5' 12.000 N	103° 33' 48.358 W
8,006.0	1.10	261.80	7,990.6	6.6	-308.3	396,117.05	779,774.32	32° 5' 11.997 N	103° 33' 48.376 W
8,099.0	1.10	266.50	8,083.6	6.5	-310.1	396,116.86	779,772.54	32° 5' 11.996 N	103° 33' 48.397 W
8,193.0	0.40	289.20	8,177.5	6.5	-311.3	396,116.92	779,771.33	32° 5' 11.996 N	103° 33' 48.411 W
8,286.0	0.40	277.70	8,270.5	6.7	-311.9	396,117.07	779,770.70	32° 5' 11.998 N	103° 33' 48.418 W
8,379.0	0.40	271.20	8,363.5	6.7	-312.5	396,117.12	779,770.06	32° 5' 11.998 N	103° 33' 48.426 W
8,473.0	0.60	255.10	8,457.5	6.6	-313.3	396,117.00	779,769.25	32° 5' 11.997 N	103° 33' 48.435 W
8,566.0	0.50	238.20	8,550.5	6.3	-314.2	396,116.66	779,768.44	32° 5' 11.994 N	103° 33' 48.444 W
8,659.0	0.20	224.80	8,643.5	5.9	-314.6	396,116.33	779,767.98	32° 5' 11.991 N	103° 33' 48.450 W
8,753.0	0.20	215.00	8,737.5	5.7	-314.8	396,116.08	779,767.77	32° 5' 11.988 N	103° 33' 48.452 W
8,846.0	0.40	246.30	8,830.5	5.4	-315.2	396,115.81	779,767.38	32° 5' 11.986 N	103° 33' 48.457 W
8,939.0	0.50	258.40	8,923.5	5.2	-315.9	396,115.60	779,766.69	32° 5' 11.984 N	103° 33' 48.465 W
9,032.0	0.20	266.50	9,016.5	5.1	-316.5	396,115.51	779,766.13	32° 5' 11.983 N	103° 33' 48.471 W
9,125.0	0.40	303.80	9,109.5	5.3	-316.9	396,115.68	779,765.69	32° 5' 11.985 N	103° 33' 48.476 W
9,219.0	0.70	306.40	9,203.5	5.8	-317.6	396,116.21	779,764.96	32° 5' 11.990 N	103° 33' 48.485 W
9,312.0	1.00	295.10	9,296.5	6.5	-318.8	396,116.89	779,763.77	32° 5' 11.997 N	103° 33' 48.499 W
9,405.0	0.90	62.20	9,389.5	7.2	-318.9	396,117.57	779,763.68	32° 5' 12.003 N	103° 33' 48.500 W
9,498.0	1.20	64.30	9,482.5	7.9	-317.4	396,118.33	779,765.20	32° 5' 12.011 N	103° 33' 48.482 W
9,592.0	0.40	53.30	9,576.5	8.6	-316.2	396,118.96	779,766.35	32° 5' 12.017 N	103° 33' 48.468 W
9,685.0	0.70	27.60	9,669.5	9.3	-315.7	396,119.65	779,766.88	32° 5' 12.024 N	103° 33' 48.462 W
9,778.0	0.60	24.30	9,762.5	10.2	-315.3	396,120.60	779,767.34	32° 5' 12.033 N	103° 33' 48.457 W
9,870.0	1.10	8.30	9,854.5	11.5	-314.9	396,121.91	779,767.66	32° 5' 12.046 N	103° 33' 48.453 W
9,963.0	1.60	2.80	9,947.4	13.7	-314.7	396,124.09	779,767.86	32° 5' 12.068 N	103° 33' 48.451 W
10,056.0	1.50	7.40	10,040.4	16.2	-314.5	396,126.60	779,768.08	32° 5' 12.092 N	103° 33' 48.448 W
10,150.0	1.10	13.20	10,134.4	18.3	-314.2	396,128.70	779,768.44	32° 5' 12.113 N	103° 33' 48.443 W
10,243.0	0.60	2.60	10,227.4	19.7	-313.9	396,130.05	779,768.67	32° 5' 12.127 N	103° 33' 48.441 W
10,336.0	0.20	267.90	10,320.4	20.1	-314.1	396,130.53	779,768.53	32° 5' 12.131 N	103° 33' 48.442 W
10,430.0	0.40	37.30	10,414.4	20.4	-314.0	396,130.79	779,768.56	32° 5' 12.134 N	103° 33' 48.442 W
10,523.0	1.10	93.90	10,507.4	20.6	-312.9	396,130.99	779,769.65	32° 5' 12.136 N	103° 33' 48.429 W
10,616.0	3.00	106.20	10,600.3	19.8	-309.7	396,130.25	779,772.88	32° 5' 12.128 N	103° 33' 48.392 W
10,710.0	3.30	115.70	10,694.1	18.0	-304.9	396,128.39	779,777.68	32° 5' 12.109 N	103° 33' 48.336 W
10,803.0	2.10	123.60	10,787.0	15.9	-301.1	396,126.28	779,781.51	32° 5' 12.088 N	103° 33' 48.292 W
10,896.0	1.80	133.80	10,880.0	13.9	-298.6	396,124.33	779,783.98	32° 5' 12.069 N	103° 33' 48.263 W
10,989.0	0.70	168.20	10,973.0	12.4	-297.4	396,122.76	779,785.15	32° 5' 12.053 N	103° 33' 48.250 W
11,082.0	1.20	255.20	11,066.0	11.6	-298.3	396,121.96	779,784.33	32° 5' 12.045 N	103° 33' 48.259 W
11,176.0	1.90	249.40	11,159.9	10.8	-300.7	396,121.16	779,781.92	32° 5' 12.038 N	103° 33' 48.287 W
11,269.0	2.60	248.90	11,252.9	9.5	-304.1	396,119.86	779,778.51	32° 5' 12.025 N	103° 33' 48.327 W



Survey Report - Geographic



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 34, T25-S, R33-E
Well: Rojo 7811 34-27 Fed Com #19H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 34-27 Fed Com #19H
TVD Reference: WELL @ 3348.0usft (Patterson #566)
MD Reference: WELL @ 3348.0usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,362.0	2.90	248.20	11,345.7	7.8	-308.2	396,118.22	779,774.35	32° 5' 12.009 N	103° 33' 48.376 W
11,456.0	3.10	265.60	11,439.6	6.7	-313.0	396,117.14	779,769.61	32° 5' 11.999 N	103° 33' 48.431 W
11,549.0	3.40	280.60	11,532.5	7.1	-318.2	396,117.46	779,764.39	32° 5' 12.002 N	103° 33' 48.491 W
11,634.0	3.80	304.50	11,617.3	9.1	-323.0	396,119.52	779,759.59	32° 5' 12.023 N	103° 33' 48.547 W
11,728.0	6.20	323.00	11,710.9	14.9	-328.6	396,125.34	779,753.97	32° 5' 12.081 N	103° 33' 48.612 W
11,823.0	19.30	1.80	11,803.5	34.8	-331.2	396,145.24	779,751.36	32° 5' 12.278 N	103° 33' 48.641 W
11,919.0	33.60	10.10	11,889.3	77.1	-326.1	396,187.48	779,756.55	32° 5' 12.696 N	103° 33' 48.577 W
12,014.0	35.10	7.80	11,967.7	130.0	-317.7	396,240.42	779,764.86	32° 5' 13.219 N	103° 33' 48.476 W
12,020.4	35.23	7.41	11,972.9	133.7	-317.2	396,244.08	779,765.35	32° 5' 13.255 N	103° 33' 48.470 W
Cross LL@ 12020.4' MD / 11972.9' TVD									
12,109.0	37.20	2.30	12,044.4	185.8	-312.9	396,296.20	779,769.73	32° 5' 13.771 N	103° 33' 48.415 W
12,180.8	46.78	358.88	12,097.8	233.8	-312.5	396,344.17	779,770.09	32° 5' 14.245 N	103° 33' 48.406 W
FTP @ 12180.8' MD / 12097.8' TVD									
12,204.0	49.90	358.00	12,113.2	251.1	-313.0	396,361.49	779,769.61	32° 5' 14.417 N	103° 33' 48.410 W
12,299.0	60.50	359.00	12,167.3	329.0	-315.0	396,439.36	779,767.61	32° 5' 15.187 N	103° 33' 48.427 W
12,394.0	65.60	1.80	12,210.4	413.6	-314.3	396,524.00	779,768.25	32° 5' 16.025 N	103° 33' 48.413 W
12,489.0	71.50	0.90	12,245.1	502.0	-312.3	396,612.36	779,770.32	32° 5' 16.899 N	103° 33' 48.381 W
12,584.0	76.90	359.90	12,270.9	593.3	-311.6	396,703.73	779,770.95	32° 5' 17.803 N	103° 33' 48.367 W
12,678.0	83.40	2.20	12,287.0	685.9	-309.9	396,796.27	779,772.66	32° 5' 18.719 N	103° 33' 48.339 W
12,773.0	89.40	0.80	12,293.0	780.6	-307.5	396,891.01	779,775.14	32° 5' 19.656 N	103° 33' 48.302 W
12,869.0	92.00	2.20	12,291.8	876.6	-304.9	396,986.96	779,777.65	32° 5' 20.605 N	103° 33' 48.265 W
12,904.0	90.20	0.90	12,291.1	911.5	-304.0	397,021.93	779,778.60	32° 5' 20.951 N	103° 33' 48.251 W
12,997.0	91.70	0.10	12,289.6	1,004.5	-303.2	397,114.92	779,779.41	32° 5' 21.871 N	103° 33' 48.234 W
13,092.0	88.50	359.20	12,289.4	1,099.5	-303.8	397,209.90	779,778.83	32° 5' 22.811 N	103° 33' 48.233 W
13,187.0	89.20	359.20	12,291.3	1,194.5	-305.1	397,304.87	779,777.50	32° 5' 23.751 N	103° 33' 48.240 W
13,282.0	91.40	358.00	12,290.8	1,289.4	-307.4	397,399.83	779,775.18	32° 5' 24.691 N	103° 33' 48.260 W
13,376.0	91.80	359.70	12,288.2	1,383.4	-309.3	397,493.77	779,773.30	32° 5' 25.621 N	103° 33' 48.274 W
13,471.0	89.20	0.60	12,287.4	1,478.4	-309.1	397,588.76	779,773.54	32° 5' 26.561 N	103° 33' 48.263 W
13,566.0	88.80	4.10	12,289.0	1,573.3	-305.2	397,683.65	779,777.44	32° 5' 27.499 N	103° 33' 48.210 W
13,662.0	89.70	4.30	12,290.3	1,669.0	-298.1	397,779.39	779,784.47	32° 5' 28.446 N	103° 33' 48.120 W
13,757.0	89.40	2.00	12,291.0	1,763.8	-292.9	397,874.23	779,789.69	32° 5' 29.384 N	103° 33' 48.052 W
13,852.0	89.50	1.80	12,292.0	1,858.8	-289.8	397,969.18	779,792.84	32° 5' 30.324 N	103° 33' 48.007 W
13,866.0	88.50	1.80	12,292.2	1,872.8	-289.3	397,983.17	779,793.28	32° 5' 30.462 N	103° 33' 48.001 W
13,915.0	91.60	2.70	12,292.2	1,921.7	-287.4	398,032.12	779,795.20	32° 5' 30.946 N	103° 33' 47.974 W
13,946.0	89.40	2.00	12,291.9	1,952.7	-286.1	398,063.09	779,796.47	32° 5' 31.253 N	103° 33' 47.957 W
13,976.0	90.00	1.60	12,292.0	1,982.7	-285.2	398,093.08	779,797.41	32° 5' 31.549 N	103° 33' 47.944 W
14,016.0	89.50	1.10	12,292.2	2,022.7	-284.2	398,133.07	779,798.36	32° 5' 31.945 N	103° 33' 47.929 W
14,042.0	90.00	0.90	12,292.3	2,048.7	-283.8	398,159.06	779,798.81	32° 5' 32.202 N	103° 33' 47.922 W
14,062.0	90.60	1.30	12,292.2	2,068.7	-283.4	398,179.06	779,799.20	32° 5' 32.400 N	103° 33' 47.916 W
14,135.0	86.30	0.90	12,294.2	2,141.6	-282.0	398,252.00	779,800.60	32° 5' 33.122 N	103° 33' 47.893 W
14,205.0	85.70	358.70	12,299.1	2,211.4	-282.2	398,321.82	779,800.35	32° 5' 33.813 N	103° 33' 47.890 W
14,230.0	86.80	358.30	12,300.7	2,236.4	-282.9	398,346.76	779,799.70	32° 5' 34.059 N	103° 33' 47.896 W
14,270.0	88.80	357.20	12,302.3	2,276.3	-284.5	398,386.70	779,798.13	32° 5' 34.455 N	103° 33' 47.911 W
14,294.0	89.50	356.90	12,302.6	2,300.3	-285.7	398,410.66	779,796.90	32° 5' 34.692 N	103° 33' 47.923 W
14,326.0	89.80	357.10	12,302.8	2,332.2	-287.4	398,442.62	779,795.22	32° 5' 35.008 N	103° 33' 47.940 W
14,420.0	90.60	357.20	12,302.5	2,426.1	-292.1	398,536.50	779,790.55	32° 5' 35.938 N	103° 33' 47.987 W
14,516.0	88.60	356.90	12,303.1	2,522.0	-297.0	398,632.37	779,785.61	32° 5' 36.887 N	103° 33' 48.036 W
14,547.0	87.60	356.70	12,304.2	2,552.9	-298.7	398,663.30	779,783.88	32° 5' 37.193 N	103° 33' 48.054 W
14,610.0	87.90	356.70	12,306.7	2,615.7	-302.3	398,726.15	779,780.25	32° 5' 37.815 N	103° 33' 48.091 W
14,705.0	88.60	356.90	12,309.6	2,710.6	-307.6	398,820.96	779,774.95	32° 5' 38.754 N	103° 33' 48.144 W
14,801.0	87.70	356.40	12,312.7	2,806.3	-313.3	398,916.74	779,769.35	32° 5' 39.702 N	103° 33' 48.202 W
14,896.0	89.80	358.80	12,314.7	2,901.2	-317.2	399,011.62	779,765.37	32° 5' 40.641 N	103° 33' 48.240 W
14,991.0	90.90	0.40	12,314.1	2,996.2	-317.9	399,106.61	779,764.71	32° 5' 41.581 N	103° 33' 48.240 W
15,085.0	88.80	1.30	12,314.4	3,090.2	-316.5	399,200.60	779,766.10	32° 5' 42.511 N	103° 33' 48.216 W
15,180.0	89.30	0.80	12,316.0	3,185.2	-314.8	399,295.57	779,767.84	32° 5' 43.451 N	103° 33' 48.188 W



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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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,273.0	90.60	357.20	12,316.0	3,278.1	-316.4	399,388.54	779,766.22	32° 5' 44.371 N	103° 33' 48.199 W
15,367.0	89.60	356.40	12,315.9	3,372.0	-321.6	399,482.39	779,760.97	32° 5' 45.300 N	103° 33' 48.252 W
15,462.0	90.10	357.80	12,316.1	3,466.9	-326.4	399,577.26	779,756.17	32° 5' 46.239 N	103° 33' 48.300 W
15,557.0	91.70	359.40	12,314.6	3,561.8	-328.8	399,672.22	779,753.84	32° 5' 47.179 N	103° 33' 48.319 W
15,651.0	90.90	357.80	12,312.5	3,655.8	-331.0	399,766.16	779,751.55	32° 5' 48.108 N	103° 33' 48.338 W
15,746.0	90.70	356.90	12,311.2	3,750.6	-335.4	399,861.05	779,747.16	32° 5' 49.048 N	103° 33' 48.381 W
15,841.0	88.80	357.60	12,311.6	3,845.5	-340.0	399,955.93	779,742.60	32° 5' 49.987 N	103° 33' 48.426 W
15,911.0	87.30	358.70	12,314.0	3,915.5	-342.3	400,025.85	779,740.34	32° 5' 50.679 N	103° 33' 48.447 W
15,936.0	86.50	358.80	12,315.3	3,940.4	-342.8	400,050.81	779,739.80	32° 5' 50.926 N	103° 33' 48.451 W
15,976.0	86.70	358.50	12,317.7	3,980.3	-343.7	400,090.73	779,738.86	32° 5' 51.321 N	103° 33' 48.459 W
16,031.0	88.50	359.70	12,320.0	4,035.3	-344.6	400,145.67	779,737.99	32° 5' 51.865 N	103° 33' 48.464 W
16,046.0	90.00	0.40	12,320.2	4,050.3	-344.6	400,160.67	779,738.01	32° 5' 52.013 N	103° 33' 48.463 W
16,126.0	92.90	1.80	12,318.2	4,130.2	-343.1	400,240.62	779,739.54	32° 5' 52.804 N	103° 33' 48.438 W
16,220.0	90.00	359.40	12,315.8	4,224.2	-342.1	400,334.57	779,740.52	32° 5' 53.734 N	103° 33' 48.419 W
16,253.0	88.50	357.60	12,316.2	4,257.1	-342.9	400,367.55	779,739.66	32° 5' 54.060 N	103° 33' 48.426 W
16,315.0	89.60	358.50	12,317.3	4,319.1	-345.0	400,429.50	779,737.55	32° 5' 54.673 N	103° 33' 48.446 W
16,410.0	91.10	359.90	12,316.7	4,414.1	-346.4	400,524.49	779,736.22	32° 5' 55.613 N	103° 33' 48.453 W
16,505.0	89.30	359.50	12,316.3	4,509.1	-346.9	400,619.48	779,735.73	32° 5' 56.553 N	103° 33' 48.451 W
16,600.0	92.20	0.20	12,315.1	4,604.1	-347.1	400,714.46	779,735.48	32° 5' 57.493 N	103° 33' 48.446 W
16,695.0	89.10	358.30	12,314.0	4,699.0	-348.4	400,809.43	779,734.23	32° 5' 58.433 N	103° 33' 48.453 W
16,790.0	91.60	359.90	12,313.4	4,794.0	-349.9	400,904.41	779,732.74	32° 5' 59.373 N	103° 33' 48.462 W
16,884.0	91.40	0.60	12,311.0	4,888.0	-349.4	400,998.37	779,733.15	32° 6' 0.303 N	103° 33' 48.449 W
16,979.0	91.90	0.40	12,308.2	4,982.9	-348.6	401,093.33	779,733.98	32° 6' 1.242 N	103° 33' 48.432 W
17,051.0	90.00	359.90	12,307.1	5,054.9	-348.4	401,165.32	779,734.17	32° 6' 1.955 N	103° 33' 48.424 W
17,074.0	90.00	359.50	12,307.1	5,077.9	-348.5	401,188.32	779,734.05	32° 6' 2.182 N	103° 33' 48.423 W
17,105.0	90.80	359.50	12,306.8	5,108.9	-348.8	401,219.31	779,733.78	32° 6' 2.489 N	103° 33' 48.424 W
17,168.0	90.20	359.20	12,306.3	5,171.9	-349.5	401,282.31	779,733.06	32° 6' 3.113 N	103° 33' 48.427 W
17,263.0	89.90	1.10	12,306.2	5,266.9	-349.3	401,377.30	779,733.31	32° 6' 4.052 N	103° 33' 48.416 W
17,358.0	87.30	2.00	12,308.5	5,361.8	-346.7	401,472.23	779,735.88	32° 6' 4.992 N	103° 33' 48.378 W
17,453.0	87.80	2.00	12,312.6	5,456.7	-343.4	401,567.09	779,739.19	32° 6' 5.930 N	103° 33' 48.332 W
17,548.0	89.50	359.90	12,314.8	5,551.6	-341.8	401,662.04	779,740.77	32° 6' 6.870 N	103° 33' 48.306 W
17,642.0	90.10	0.40	12,315.2	5,645.6	-341.6	401,756.04	779,741.01	32° 6' 7.800 N	103° 33' 48.295 W
17,737.0	86.10	358.70	12,318.3	5,740.6	-342.3	401,850.96	779,740.27	32° 6' 8.739 N	103° 33' 48.296 W
17,831.0	87.20	359.40	12,323.8	5,834.4	-343.9	401,944.78	779,738.71	32° 6' 9.668 N	103° 33' 48.306 W
17,926.0	87.80	359.40	12,327.9	5,929.3	-344.9	402,039.69	779,737.72	32° 6' 10.607 N	103° 33' 48.310 W
18,020.0	90.20	359.90	12,329.6	6,023.3	-345.5	402,133.66	779,737.14	32° 6' 11.537 N	103° 33' 48.309 W
18,115.0	85.70	356.90	12,333.0	6,118.1	-348.1	402,228.53	779,734.50	32° 6' 12.476 N	103° 33' 48.332 W
18,209.0	90.60	357.60	12,336.0	6,211.9	-352.6	402,322.34	779,729.99	32° 6' 13.404 N	103° 33' 48.376 W
18,304.0	89.30	358.10	12,336.1	6,306.9	-356.2	402,417.27	779,726.43	32° 6' 14.344 N	103° 33' 48.410 W
18,398.0	89.40	358.70	12,337.2	6,400.8	-358.8	402,511.23	779,723.80	32° 6' 15.274 N	103° 33' 48.433 W
18,492.0	89.00	357.40	12,338.5	6,494.8	-362.0	402,605.17	779,720.61	32° 6' 16.204 N	103° 33' 48.462 W
18,587.0	90.70	355.00	12,338.7	6,589.5	-368.3	402,699.95	779,714.31	32° 6' 17.142 N	103° 33' 48.527 W
18,683.0	90.90	352.30	12,337.4	6,684.9	-378.9	402,795.34	779,703.70	32° 6' 18.087 N	103° 33' 48.643 W
18,777.0	91.70	355.00	12,335.2	6,778.3	-389.3	402,888.73	779,693.30	32° 6' 19.011 N	103° 33' 48.756 W
18,872.0	90.90	357.40	12,333.1	6,873.1	-395.6	402,983.49	779,687.01	32° 6' 19.950 N	103° 33' 48.821 W
18,966.0	90.10	358.00	12,332.3	6,967.0	-399.4	403,077.41	779,683.24	32° 6' 20.879 N	103° 33' 48.857 W
19,061.0	89.60	358.50	12,332.5	7,062.0	-402.3	403,172.36	779,680.34	32° 6' 21.819 N	103° 33' 48.883 W
19,156.0	90.40	6.00	12,332.5	7,156.8	-398.5	403,267.22	779,684.06	32° 6' 22.757 N	103° 33' 48.832 W
19,251.0	92.60	5.50	12,330.0	7,251.3	-389.0	403,361.70	779,693.58	32° 6' 23.692 N	103° 33' 48.713 W
19,345.0	92.20	4.30	12,326.1	7,344.9	-381.0	403,455.28	779,701.60	32° 6' 24.617 N	103° 33' 48.612 W
19,440.0	90.20	2.30	12,324.1	7,439.7	-375.5	403,550.09	779,707.06	32° 6' 25.555 N	103° 33' 48.541 W
19,535.0	89.80	3.00	12,324.1	7,534.6	-371.1	403,644.99	779,711.46	32° 6' 26.494 N	103° 33' 48.482 W
19,631.0	89.30	2.70	12,324.9	7,630.5	-366.4	403,740.86	779,716.23	32° 6' 27.442 N	103° 33' 48.418 W
19,726.0	89.30	0.60	12,326.0	7,725.4	-363.6	403,835.81	779,718.97	32° 6' 28.381 N	103° 33' 48.379 W
19,822.0	89.60	359.40	12,326.9	7,821.4	-363.6	403,931.81	779,718.97	32° 6' 29.331 N	103° 33' 48.371 W



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 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
19,917.0	91.70	358.10	12,325.9	7,916.4	-365.7	404,026.77	779,716.89	32° 6' 30.271 N	103° 33' 48.387 W
19,954.0	91.26	357.94	12,324.9	7,953.3	-367.0	404,063.73	779,715.61	32° 6' 30.637 N	103° 33' 48.399 W
LTP @ 19954.0' MD / 12324.9' TVD									
19,985.0	90.90	357.80	12,324.3	7,984.3	-368.1	404,094.71	779,714.46	32° 6' 30.944 N	103° 33' 48.410 W
20,035.0	90.90	357.80	12,323.5	8,034.3	-370.1	404,144.66	779,712.54	32° 6' 31.438 N	103° 33' 48.428 W
TD @ 20035.0' MD / 12323.5' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
157.0	157.0	0.0	-0.3	First MWD Survey @ 157.0' MD / 157.0' TVD	
12,020.4	11,972.9	133.7	-317.2	Cross LL@ 12020.4' MD / 11972.9' TVD	
12,180.8	12,097.8	233.8	-312.5	FTP @ 12180.8' MD / 12097.8' TVD	
19,954.0	12,324.9	7,953.3	-367.0	LTP @ 19954.0' MD / 12324.9' TVD	
20,035.0	12,323.5	8,034.3	-370.1	TD @ 20035.0' MD / 12323.5' TVD	

**Quintana Energy Services**

Quintana Energy Services
13000 W. Hwy 80 East
Odessa TX, 79765

Rojo 7811 34-27 Fed Com 19H**Scale 2":100' - MD****5/18/2019 3:32 AM****Oper. Company:** BTA Oil Producers LLC**Well:** Rojo 7811 34-27 Fed Com 19H**Field:** Wolfcamp**Rig:** Patterson 566**Well ID:** 30-025-44298**Job Number:** WT-190662**State:** NM**County:** Lea**Country:** United States of America**Location:** Sec 34, T25-S R33-E**Start Date:** 03/29/2019 12:00:00**End Date:** 05/18/2019 03:15:00**Latitude:** 32° 5' 11.910 N**Longitude:** 103° 33' 44.793 W**Elev GL:** 3,323'**Elev DF:** 3,348'**Elev KB:** 3,348'**Operator 1:** D. Andersson**Operator 2:** J. James

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	1953CBG	1905CBG	857CBG		
Bit Size	9 7/8	6 3/4	6 3/4		
Cal Factor	4	2.05	2.05		
Survey Offset	50.00	50.00	50.00		
Gamma Offset	38.00	38.00	38.00		
Resistivity Offset	0.00	0.00	0.00		
Start Depth	4900.00	11684.00	18498.00		
StartDate	3/29/2019	5/4/2019	5/12/2019		
StartTime	12:00	10:00	10:00		
EndDepth	11684.00	18498.00	20034.00		
EndDate	4/7/2019	5/11/2019	5/18/2019		
EndTime	10:00	12:30	03:15		
Mud Type	WBM	OBM	OBM		
Mud Weight	9.2	13.1	13.4		
Funnel Viscosity	41	65	65		
Plastic Viscosity	9	24	26		
Yield Point	12	11	16		
Gel Strength	4/4	8/16	9/15		
Solids Content	11	25.5	27		
Sand Content	TR	TR	TR		
Mud Alkalinity	.1				
Filtrate Alkalinity	.1/3				
Chlorides	186000	37000	29000		
Temperature	153	197	197		
Hole Data			Casing Data		
Size	From	To	Size	From	To
14 3/4	80.00	1135.00	24	0.00	80.00
9 7/8	1135.00	11684.00	10 3/4	80.00	1135.00
6 3/4	11684.00	20035.00	7 3/4	1135.00	11684.00

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.



4,920



MD: 4928.00 INC: 4.10 AZ: 243.10 TVD: 4923.44 VS: 22.02