



BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 22, T25-S, R33-E

Rojo 7811 22 Fed Com #15H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

12 February, 2019

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Survey Report - Geographic



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 22, T25-S, R33-E
 Well: Rojo 7811 22 Fed Com #15H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #15H
 TVD Reference: WELL @ 3370.0usft (Patterson #566)
 MD Reference: WELL @ 3370.0usft (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
 Geo Datum: North American Datum 1983
 Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: Sec 22, T25-S, R33-E

Site Position: Northing: 409,243.40 usft Latitude: 32° 7' 21.790 N
 From: Map Easting: 781,148.30 usft Longitude: 103° 33' 31.310 W
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.41 °

Well: Rojo 7811 22 Fed Com #15H

Well Position: +N/-S 0.0 usft Northing: 404,399.19 usft Latitude: 32° 6' 33.788 N
 +E/-W 0.0 usft Easting: 782,082.80 usft Longitude: 103° 33' 20.850 W
 Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 3,345.0 usft

Wellbore: Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/4/2019	6.76	59.94	47,704.27120196

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 2.88

Survey Program: Date 2/12/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
165.0	17,315.0	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	404,399.19	782,082.80	32° 6' 33.788 N	103° 33' 20.850 W
165.0	0.30	153.70	165.0	-0.4	0.2	404,398.80	782,082.99	32° 6' 33.784 N	103° 33' 20.848 W
First MWD Survey @ 165.0' MD / 165.0' TVD									
259.0	0.40	93.40	259.0	-0.6	0.6	404,398.56	782,083.43	32° 6' 33.782 N	103° 33' 20.843 W
352.0	0.40	103.00	352.0	-0.7	1.3	404,398.47	782,084.07	32° 6' 33.781 N	103° 33' 20.835 W
445.0	0.40	79.80	445.0	-0.7	1.9	404,398.46	782,084.70	32° 6' 33.781 N	103° 33' 20.828 W
538.0	0.20	93.50	538.0	-0.7	2.4	404,398.50	782,085.18	32° 6' 33.781 N	103° 33' 20.822 W
631.0	0.40	85.50	631.0	-0.7	2.9	404,398.52	782,085.67	32° 6' 33.781 N	103° 33' 20.817 W
726.0	0.20	48.70	726.0	-0.5	3.3	404,398.66	782,086.12	32° 6' 33.783 N	103° 33' 20.811 W
821.0	0.20	68.60	821.0	-0.4	3.6	404,398.83	782,086.40	32° 6' 33.784 N	103° 33' 20.808 W
916.0	0.20	6.40	916.0	-0.1	3.8	404,399.05	782,086.58	32° 6' 33.787 N	103° 33' 20.806 W
1,011.0	0.30	215.40	1,011.0	-0.2	3.7	404,399.01	782,086.45	32° 6' 33.786 N	103° 33' 20.807 W



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TVD Reference: WELL @ 3370.0usft (Patterson #566)
MD Reference: WELL @ 3370.0usft (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
1,034.0	0.20	215.40	1,034.0	-0.3	3.6	404,398.93	782,086.39	32° 6' 33.785 N	103° 33' 20.808 W
1,104.0	0.40	227.50	1,104.0	-0.5	3.3	404,398.67	782,086.14	32° 6' 33.783 N	103° 33' 20.811 W
1,200.0	1.60	141.70	1,200.0	-1.8	3.9	404,397.39	782,086.72	32° 6' 33.770 N	103° 33' 20.804 W
1,295.0	3.00	127.80	1,294.9	-4.4	6.7	404,394.82	782,089.51	32° 6' 33.745 N	103° 33' 20.772 W
1,390.0	3.80	122.20	1,389.7	-7.6	11.3	404,391.62	782,094.14	32° 6' 33.713 N	103° 33' 20.719 W
1,485.0	4.00	124.50	1,484.5	-11.1	16.7	404,388.07	782,099.53	32° 6' 33.677 N	103° 33' 20.656 W
1,581.0	4.30	123.80	1,580.3	-15.0	22.5	404,384.17	782,105.28	32° 6' 33.638 N	103° 33' 20.590 W
1,676.0	4.10	129.80	1,675.0	-19.2	28.1	404,380.01	782,110.85	32° 6' 33.596 N	103° 33' 20.525 W
1,771.0	3.20	134.30	1,769.8	-23.2	32.6	404,375.99	782,115.36	32° 6' 33.556 N	103° 33' 20.473 W
1,866.0	2.20	131.30	1,864.7	-26.3	35.8	404,372.93	782,118.63	32° 6' 33.526 N	103° 33' 20.435 W
1,961.0	1.50	126.90	1,959.7	-28.2	38.2	404,370.98	782,120.99	32° 6' 33.506 N	103° 33' 20.408 W
2,055.0	1.20	130.30	2,053.6	-29.6	39.9	404,369.61	782,122.73	32° 6' 33.493 N	103° 33' 20.388 W
2,151.0	1.20	132.70	2,149.6	-30.9	41.4	404,368.28	782,124.23	32° 6' 33.479 N	103° 33' 20.371 W
2,247.0	1.20	136.30	2,245.6	-32.3	42.9	404,366.87	782,125.66	32° 6' 33.465 N	103° 33' 20.354 W
2,342.0	1.30	135.00	2,340.6	-33.8	44.3	404,365.39	782,127.11	32° 6' 33.451 N	103° 33' 20.337 W
2,439.0	1.30	132.20	2,437.5	-35.3	45.9	404,363.87	782,128.71	32° 6' 33.435 N	103° 33' 20.319 W
2,534.0	0.80	135.70	2,532.5	-36.5	47.2	404,362.67	782,129.97	32° 6' 33.424 N	103° 33' 20.304 W
2,629.0	0.60	120.10	2,627.5	-37.2	48.1	404,361.95	782,130.86	32° 6' 33.416 N	103° 33' 20.294 W
2,724.0	0.80	110.90	2,722.5	-37.7	49.1	404,361.46	782,131.91	32° 6' 33.411 N	103° 33' 20.282 W
2,818.0	1.10	114.10	2,816.5	-38.3	50.6	404,360.86	782,133.35	32° 6' 33.405 N	103° 33' 20.265 W
2,914.0	1.20	108.30	2,912.5	-39.0	52.3	404,360.17	782,135.14	32° 6' 33.398 N	103° 33' 20.245 W
3,010.0	1.80	102.20	3,008.4	-39.7	54.8	404,359.53	782,137.57	32° 6' 33.392 N	103° 33' 20.216 W
3,104.0	2.30	97.10	3,102.4	-40.2	58.1	404,358.99	782,140.89	32° 6' 33.386 N	103° 33' 20.178 W
3,199.0	1.20	106.40	3,197.3	-40.7	60.9	404,358.47	782,143.73	32° 6' 33.381 N	103° 33' 20.145 W
3,294.0	0.80	247.90	3,292.3	-41.3	61.3	404,357.94	782,144.07	32° 6' 33.376 N	103° 33' 20.141 W
3,389.0	1.80	271.40	3,387.3	-41.5	59.2	404,357.73	782,141.97	32° 6' 33.374 N	103° 33' 20.165 W
3,483.0	1.20	275.00	3,481.3	-41.3	56.7	404,357.85	782,139.51	32° 6' 33.375 N	103° 33' 20.194 W
3,578.0	1.20	257.70	3,576.2	-41.5	54.8	404,357.72	782,137.55	32° 6' 33.374 N	103° 33' 20.217 W
3,674.0	1.50	250.70	3,672.2	-42.1	52.6	404,357.09	782,135.38	32° 6' 33.368 N	103° 33' 20.242 W
3,769.0	1.70	248.20	3,767.2	-43.0	50.1	404,356.16	782,132.90	32° 6' 33.359 N	103° 33' 20.271 W
3,865.0	0.80	263.40	3,863.2	-43.6	48.1	404,355.55	782,130.91	32° 6' 33.353 N	103° 33' 20.294 W
3,959.0	1.40	34.30	3,957.2	-42.8	48.1	404,356.43	782,130.91	32° 6' 33.362 N	103° 33' 20.294 W
4,054.0	1.80	47.50	4,052.1	-40.8	49.9	404,358.39	782,132.66	32° 6' 33.381 N	103° 33' 20.274 W
4,150.0	1.50	50.80	4,148.1	-39.0	51.9	404,360.21	782,134.74	32° 6' 33.399 N	103° 33' 20.249 W
4,245.0	1.40	44.50	4,243.0	-37.4	53.7	404,361.82	782,136.52	32° 6' 33.415 N	103° 33' 20.228 W
4,340.0	1.30	59.80	4,338.0	-36.0	55.5	404,363.19	782,138.27	32° 6' 33.428 N	103° 33' 20.208 W
4,436.0	2.10	76.50	4,434.0	-35.0	58.1	404,364.15	782,140.92	32° 6' 33.437 N	103° 33' 20.177 W
4,531.0	3.20	91.30	4,528.9	-34.7	62.5	404,364.49	782,145.26	32° 6' 33.440 N	103° 33' 20.127 W
4,626.0	4.50	99.30	4,623.7	-35.4	68.8	404,363.83	782,151.59	32° 6' 33.433 N	103° 33' 20.053 W
4,722.0	5.40	106.20	4,719.3	-37.2	76.8	404,361.96	782,159.64	32° 6' 33.414 N	103° 33' 19.960 W
4,817.0	5.60	107.60	4,813.9	-39.9	85.6	404,359.31	782,168.36	32° 6' 33.388 N	103° 33' 19.858 W
4,912.0	5.60	106.00	4,908.4	-42.6	94.4	404,356.63	782,177.23	32° 6' 33.360 N	103° 33' 19.756 W
4,933.0	5.50	106.70	4,929.3	-43.1	96.4	404,356.06	782,179.18	32° 6' 33.355 N	103° 33' 19.733 W
5,075.0	5.40	105.30	5,070.7	-46.8	109.3	404,352.34	782,192.14	32° 6' 33.317 N	103° 33' 19.583 W
5,169.0	4.80	121.70	5,164.3	-50.1	117.0	404,349.11	782,199.75	32° 6' 33.284 N	103° 33' 19.494 W
5,264.0	4.40	151.90	5,259.0	-55.4	122.1	404,343.81	782,204.85	32° 6' 33.231 N	103° 33' 19.435 W
5,359.0	4.20	149.10	5,353.7	-61.6	125.6	404,337.61	782,208.36	32° 6' 33.170 N	103° 33' 19.395 W
5,453.0	4.10	173.00	5,447.5	-67.9	127.7	404,331.32	782,210.53	32° 6' 33.108 N	103° 33' 19.370 W
5,549.0	4.60	182.80	5,543.2	-75.1	128.0	404,324.07	782,210.76	32° 6' 33.036 N	103° 33' 19.368 W
5,644.0	3.40	204.60	5,638.0	-81.5	126.6	404,317.70	782,209.40	32° 6' 32.973 N	103° 33' 19.385 W
5,738.0	2.90	215.70	5,731.9	-86.0	124.1	404,313.23	782,206.86	32° 6' 32.929 N	103° 33' 19.415 W
5,833.0	2.90	214.50	5,826.7	-89.9	121.3	404,309.30	782,204.09	32° 6' 32.890 N	103° 33' 19.447 W
5,928.0	2.90	214.00	5,921.6	-93.9	118.6	404,305.33	782,201.39	32° 6' 32.851 N	103° 33' 19.479 W
6,024.0	2.90	214.70	6,017.5	-97.9	115.9	404,301.32	782,198.65	32° 6' 32.812 N	103° 33' 19.511 W
6,120.0	1.70	212.20	6,113.4	-101.1	113.7	404,298.12	782,196.51	32° 6' 32.780 N	103° 33' 19.536 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
6,215.0	2.20	158.80	6,208.4	-104.0	113.6	404,295.22	782,196.42	32° 6' 32.751 N	103° 33' 19.538 W
6,309.0	2.60	156.10	6,302.3	-107.6	115.1	404,291.59	782,197.93	32° 6' 32.715 N	103° 33' 19.520 W
6,405.0	2.70	102.30	6,398.2	-110.1	118.2	404,289.12	782,201.02	32° 6' 32.691 N	103° 33' 19.485 W
6,500.0	3.00	95.80	6,493.1	-110.8	122.9	404,288.39	782,205.68	32° 6' 32.683 N	103° 33' 19.430 W
6,594.0	3.10	95.50	6,586.9	-111.3	127.9	404,287.90	782,210.66	32° 6' 32.678 N	103° 33' 19.373 W
6,690.0	3.10	96.20	6,682.8	-111.8	133.0	404,287.37	782,215.82	32° 6' 32.672 N	103° 33' 19.313 W
6,784.0	3.20	96.20	6,776.7	-112.4	138.2	404,286.81	782,220.96	32° 6' 32.666 N	103° 33' 19.253 W
6,880.0	3.10	93.90	6,872.5	-112.8	143.4	404,286.35	782,226.21	32° 6' 32.661 N	103° 33' 19.192 W
6,975.0	3.20	95.80	6,967.4	-113.3	148.6	404,285.90	782,231.41	32° 6' 32.657 N	103° 33' 19.132 W
7,070.0	2.00	137.30	7,062.3	-114.8	152.4	404,284.42	782,235.18	32° 6' 32.642 N	103° 33' 19.088 W
7,165.0	2.20	139.80	7,157.2	-117.4	154.7	404,281.81	782,237.48	32° 6' 32.616 N	103° 33' 19.061 W
7,260.0	2.30	139.30	7,252.1	-120.2	157.1	404,278.97	782,239.90	32° 6' 32.587 N	103° 33' 19.033 W
7,354.0	1.50	103.60	7,346.1	-121.9	159.5	404,277.25	782,242.32	32° 6' 32.570 N	103° 33' 19.005 W
7,450.0	1.50	87.40	7,442.1	-122.2	162.0	404,277.01	782,244.80	32° 6' 32.568 N	103° 33' 18.977 W
7,545.0	1.50	86.30	7,537.0	-122.0	164.5	404,277.15	782,247.28	32° 6' 32.569 N	103° 33' 18.948 W
7,639.0	1.50	91.30	7,631.0	-122.0	166.9	404,277.20	782,249.74	32° 6' 32.569 N	103° 33' 18.919 W
7,733.0	1.50	92.10	7,725.0	-122.1	169.4	404,277.13	782,252.20	32° 6' 32.568 N	103° 33' 18.891 W
7,828.0	1.50	90.40	7,819.9	-122.1	171.9	404,277.07	782,254.69	32° 6' 32.568 N	103° 33' 18.862 W
7,923.0	1.60	93.50	7,914.9	-122.2	174.5	404,276.98	782,257.25	32° 6' 32.567 N	103° 33' 18.832 W
8,018.0	1.90	118.90	8,009.9	-123.1	177.2	404,276.14	782,259.96	32° 6' 32.558 N	103° 33' 18.801 W
8,113.0	2.10	127.10	8,104.8	-124.9	179.9	404,274.33	782,262.72	32° 6' 32.540 N	103° 33' 18.768 W
8,207.0	2.00	126.80	8,198.7	-126.9	182.6	404,272.31	782,265.41	32° 6' 32.520 N	103° 33' 18.737 W
8,302.0	1.90	126.10	8,293.7	-128.8	185.2	404,270.39	782,268.01	32° 6' 32.500 N	103° 33' 18.707 W
8,397.0	1.60	96.40	8,388.6	-129.9	187.8	404,269.31	782,270.60	32° 6' 32.490 N	103° 33' 18.677 W
8,491.0	1.50	100.40	8,482.6	-130.2	190.3	404,268.94	782,273.11	32° 6' 32.486 N	103° 33' 18.648 W
8,586.0	1.50	105.90	8,577.6	-130.8	192.7	404,268.38	782,275.53	32° 6' 32.480 N	103° 33' 18.620 W
8,681.0	1.40	111.10	8,672.5	-131.6	195.0	404,267.62	782,277.81	32° 6' 32.472 N	103° 33' 18.594 W
8,776.0	1.50	116.40	8,767.5	-132.5	197.2	404,266.65	782,280.01	32° 6' 32.463 N	103° 33' 18.568 W
8,872.0	1.20	119.20	8,863.5	-133.6	199.2	404,265.60	782,282.01	32° 6' 32.452 N	103° 33' 18.545 W
8,967.0	0.90	127.60	8,958.5	-134.5	200.7	404,264.66	782,283.47	32° 6' 32.443 N	103° 33' 18.528 W
9,063.0	2.10	119.40	9,054.4	-135.9	202.8	404,263.34	782,285.60	32° 6' 32.429 N	103° 33' 18.503 W
9,158.0	1.80	124.30	9,149.4	-137.6	205.6	404,261.64	782,288.35	32° 6' 32.412 N	103° 33' 18.472 W
9,254.0	1.10	141.90	9,245.3	-139.1	207.4	404,260.07	782,290.16	32° 6' 32.397 N	103° 33' 18.451 W
9,349.0	0.80	165.80	9,340.3	-140.5	208.1	404,258.71	782,290.89	32° 6' 32.383 N	103° 33' 18.442 W
9,445.0	2.00	123.10	9,436.3	-142.1	209.7	404,257.14	782,292.46	32° 6' 32.368 N	103° 33' 18.424 W
9,540.0	1.90	153.10	9,531.3	-144.4	211.8	404,254.83	782,294.56	32° 6' 32.345 N	103° 33' 18.400 W
9,636.0	2.40	115.50	9,627.2	-146.6	214.3	404,252.55	782,297.09	32° 6' 32.322 N	103° 33' 18.371 W
9,731.0	3.00	112.40	9,722.1	-148.4	218.4	404,250.74	782,301.19	32° 6' 32.304 N	103° 33' 18.323 W
9,827.0	2.80	114.80	9,818.0	-150.4	222.8	404,248.80	782,305.64	32° 6' 32.284 N	103° 33' 18.272 W
9,922.0	1.80	122.40	9,912.9	-152.2	226.2	404,247.03	782,309.00	32° 6' 32.266 N	103° 33' 18.233 W
10,017.0	1.60	144.70	10,007.8	-154.0	228.2	404,245.15	782,311.03	32° 6' 32.248 N	103° 33' 18.209 W
10,113.0	1.80	116.40	10,103.8	-155.8	230.4	404,243.38	782,313.15	32° 6' 32.230 N	103° 33' 18.185 W
10,208.0	1.50	109.50	10,198.8	-156.9	232.9	404,242.30	782,315.66	32° 6' 32.219 N	103° 33' 18.156 W
10,303.0	1.10	111.10	10,293.7	-157.6	234.9	404,241.56	782,317.69	32° 6' 32.212 N	103° 33' 18.132 W
10,398.0	1.10	133.80	10,388.7	-158.6	236.4	404,240.60	782,319.19	32° 6' 32.202 N	103° 33' 18.115 W
10,494.0	1.10	104.40	10,484.7	-159.5	238.0	404,239.73	782,320.75	32° 6' 32.193 N	103° 33' 18.097 W
10,590.0	0.90	92.80	10,580.7	-159.7	239.6	404,239.47	782,322.40	32° 6' 32.191 N	103° 33' 18.078 W
10,686.0	1.70	89.20	10,676.7	-159.7	241.8	404,239.45	782,324.58	32° 6' 32.190 N	103° 33' 18.052 W
10,781.0	1.90	84.10	10,771.6	-159.6	244.8	404,239.63	782,327.55	32° 6' 32.192 N	103° 33' 18.018 W
10,875.0	2.00	87.70	10,865.6	-159.3	247.9	404,239.86	782,330.74	32° 6' 32.194 N	103° 33' 17.981 W
10,971.0	1.20	96.00	10,961.5	-159.4	250.6	404,239.82	782,333.41	32° 6' 32.193 N	103° 33' 17.950 W
11,066.0	2.10	98.30	11,056.5	-159.7	253.3	404,239.47	782,336.12	32° 6' 32.190 N	103° 33' 17.918 W
11,162.0	2.60	101.80	11,152.4	-160.4	257.2	404,238.77	782,340.00	32° 6' 32.182 N	103° 33' 17.873 W
11,257.0	1.80	98.50	11,247.3	-161.1	260.8	404,238.11	782,343.58	32° 6' 32.176 N	103° 33' 17.831 W
11,352.0	2.20	106.90	11,342.3	-161.8	264.0	404,237.36	782,346.80	32° 6' 32.168 N	103° 33' 17.794 W



Survey Report - Geographic



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 22, T25-S, R33-E
 Well: Rojo 7811 22 Fed Com #15H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #15H
 TVD Reference: WELL @ 3370.0usft (Patterson #566)
 MD Reference: WELL @ 3370.0usft (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
11,448.0	1.60	129.80	11,438.2	-163.2	266.8	404,235.96	782,349.59	32° 6' 32.154 N	103° 33' 17.762 W
11,543.0	1.70	138.40	11,533.2	-165.1	268.8	404,234.06	782,351.55	32° 6' 32.135 N	103° 33' 17.739 W
11,639.0	1.60	145.90	11,629.1	-167.3	270.4	404,231.88	782,353.25	32° 6' 32.113 N	103° 33' 17.720 W
11,734.0	1.80	154.20	11,724.1	-169.7	271.8	404,229.44	782,354.64	32° 6' 32.089 N	103° 33' 17.704 W
11,838.0	7.50	1.50	11,827.9	-164.4	272.7	404,234.77	782,355.53	32° 6' 32.142 N	103° 33' 17.693 W
11,933.0	25.10	358.90	11,918.7	-137.9	272.5	404,261.32	782,355.30	32° 6' 32.405 N	103° 33' 17.693 W
12,024.0	28.80	2.60	11,999.8	-96.7	273.1	404,302.53	782,355.93	32° 6' 32.812 N	103° 33' 17.683 W
12,119.0	34.60	0.80	12,080.6	-46.8	274.5	404,352.41	782,357.34	32° 6' 33.306 N	103° 33' 17.662 W
12,218.0	49.00	1.70	12,154.2	19.0	276.1	404,418.20	782,358.85	32° 6' 33.957 N	103° 33' 17.639 W
12,313.0	54.00	2.90	12,213.3	93.3	279.1	404,492.46	782,361.86	32° 6' 34.691 N	103° 33' 17.598 W
12,336.0	54.62	3.01	12,226.7	111.9	280.0	404,511.12	782,362.82	32° 6' 34.876 N	103° 33' 17.585 W
Cross 330' HL@ 12336.0' MD / 12226.7' TVD									
12,402.0	56.40	3.30	12,264.1	166.2	283.0	404,565.43	782,365.82	32° 6' 35.413 N	103° 33' 17.545 W
12,539.0	64.10	359.40	12,332.1	285.0	285.7	404,684.22	782,368.46	32° 6' 36.588 N	103° 33' 17.505 W
12,633.0	70.00	359.20	12,368.7	371.5	284.6	404,770.74	782,367.40	32° 6' 37.444 N	103° 33' 17.510 W
12,726.0	77.60	357.10	12,394.6	460.7	281.7	404,859.93	782,364.49	32° 6' 38.327 N	103° 33' 17.536 W
12,820.0	91.00	355.20	12,403.9	553.8	275.4	404,953.03	782,358.20	32° 6' 39.249 N	103° 33' 17.601 W
12,914.0	92.10	354.60	12,401.4	647.4	267.1	405,046.62	782,349.85	32° 6' 40.176 N	103° 33' 17.691 W
13,009.0	91.00	357.80	12,398.8	742.2	260.8	405,141.37	782,343.56	32° 6' 41.114 N	103° 33' 17.756 W
13,102.0	89.90	359.70	12,398.1	835.1	258.7	405,234.34	782,341.53	32° 6' 42.034 N	103° 33' 17.772 W
13,197.0	89.80	359.60	12,398.3	930.1	258.2	405,329.33	782,340.95	32° 6' 42.974 N	103° 33' 17.770 W
13,291.0	89.60	359.20	12,398.8	1,024.1	257.2	405,423.33	782,339.97	32° 6' 43.904 N	103° 33' 17.774 W
13,384.0	90.30	359.60	12,398.9	1,117.1	256.2	405,516.32	782,338.99	32° 6' 44.824 N	103° 33' 17.777 W
13,479.0	90.00	359.00	12,398.7	1,212.1	255.0	405,611.31	782,337.83	32° 6' 45.764 N	103° 33' 17.783 W
13,573.0	89.20	358.50	12,399.3	1,306.1	253.0	405,705.29	782,335.78	32° 6' 46.694 N	103° 33' 17.799 W
13,666.0	88.60	1.00	12,401.1	1,399.1	252.6	405,798.26	782,335.38	32° 6' 47.614 N	103° 33' 17.796 W
13,760.0	88.70	1.30	12,403.3	1,493.0	254.5	405,892.22	782,337.26	32° 6' 48.544 N	103° 33' 17.766 W
13,854.0	88.70	1.50	12,405.5	1,587.0	256.8	405,986.16	782,339.56	32° 6' 49.474 N	103° 33' 17.731 W
13,948.0	88.10	359.90	12,408.1	1,680.9	257.9	406,080.12	782,340.71	32° 6' 50.403 N	103° 33' 17.710 W
14,042.0	87.70	359.90	12,411.5	1,774.9	257.7	406,174.05	782,340.54	32° 6' 51.333 N	103° 33' 17.704 W
14,136.0	87.90	359.90	12,415.1	1,868.8	257.6	406,267.98	782,340.38	32° 6' 52.262 N	103° 33' 17.698 W
14,230.0	88.90	359.90	12,417.8	1,962.8	257.4	406,361.95	782,340.21	32° 6' 53.192 N	103° 33' 17.692 W
14,324.0	90.70	1.00	12,418.1	2,056.7	258.2	406,455.94	782,340.95	32° 6' 54.122 N	103° 33' 17.676 W
14,417.0	91.10	0.60	12,416.6	2,149.7	259.5	406,548.92	782,342.25	32° 6' 55.042 N	103° 33' 17.653 W
14,511.0	89.90	2.20	12,415.8	2,243.7	261.7	406,642.88	782,344.55	32° 6' 55.972 N	103° 33' 17.618 W
14,605.0	87.60	1.80	12,417.9	2,337.6	265.0	406,736.79	782,347.83	32° 6' 56.901 N	103° 33' 17.572 W
14,698.0	87.90	2.60	12,421.5	2,430.5	268.6	406,829.65	782,351.39	32° 6' 57.819 N	103° 33' 17.523 W
14,792.0	87.70	2.40	12,425.1	2,524.3	272.7	406,923.49	782,355.49	32° 6' 58.748 N	103° 33' 17.467 W
14,886.0	87.50	2.20	12,429.0	2,618.1	276.5	407,017.34	782,359.26	32° 6' 59.676 N	103° 33' 17.416 W
14,980.0	88.60	3.10	12,432.2	2,712.0	280.8	407,111.18	782,363.60	32° 7' 0.604 N	103° 33' 17.357 W
15,074.0	88.90	3.10	12,434.3	2,805.8	285.9	407,205.02	782,368.69	32° 7' 1.532 N	103° 33' 17.290 W
15,168.0	89.00	3.30	12,436.0	2,899.7	291.1	407,298.86	782,373.93	32° 7' 2.461 N	103° 33' 17.222 W
15,262.0	91.20	0.60	12,435.9	2,993.6	294.3	407,392.79	782,377.13	32° 7' 3.390 N	103° 33' 17.176 W
15,356.0	93.00	0.10	12,432.4	3,087.5	294.9	407,486.72	782,377.70	32° 7' 4.319 N	103° 33' 17.162 W
15,449.0	89.40	359.60	12,430.5	3,180.5	294.7	407,579.68	782,377.46	32° 7' 5.239 N	103° 33' 17.157 W
15,542.0	91.60	0.80	12,429.7	3,273.5	295.0	407,672.67	782,377.79	32° 7' 6.159 N	103° 33' 17.145 W
15,636.0	89.60	0.10	12,428.7	3,367.5	295.7	407,766.66	782,378.52	32° 7' 7.089 N	103° 33' 17.129 W
15,731.0	86.60	358.30	12,431.8	3,462.4	294.4	407,861.58	782,377.20	32° 7' 8.029 N	103° 33' 17.136 W
15,826.0	86.80	358.00	12,437.3	3,557.2	291.3	407,956.37	782,374.14	32° 7' 8.967 N	103° 33' 17.164 W
15,919.0	87.10	358.30	12,442.2	3,650.0	288.3	408,049.19	782,371.14	32° 7' 9.886 N	103° 33' 17.191 W
16,013.0	86.60	358.70	12,447.4	3,743.8	285.9	408,143.02	782,368.68	32° 7' 10.814 N	103° 33' 17.212 W
16,107.0	85.70	358.50	12,453.7	3,837.6	283.6	408,236.78	782,366.39	32° 7' 11.742 N	103° 33' 17.230 W
16,201.0	88.50	358.70	12,458.5	3,931.4	281.3	408,330.62	782,364.10	32° 7' 12.671 N	103° 33' 17.249 W
16,295.0	92.50	1.50	12,457.6	4,025.4	281.5	408,424.59	782,364.26	32° 7' 13.601 N	103° 33' 17.239 W
16,389.0	91.00	4.50	12,454.8	4,119.2	286.4	408,518.40	782,369.18	32° 7' 14.529 N	103° 33' 17.174 W



Survey Report - Geographic



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 22, T25-S, R33-E
 Well: Rojo 7811 22 Fed Com #15H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #15H
 TVD Reference: WELL @ 3370.0usft (Patterson #566)
 MD Reference: WELL @ 3370.0usft (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
16,483.0	88.80	4.00	12,454.9	4,212.9	293.3	408,612.14	782,376.14	32° 7' 15.456 N	103° 33' 17.085 W
16,576.0	90.60	1.10	12,455.4	4,305.8	297.5	408,705.03	782,380.28	32° 7' 16.375 N	103° 33' 17.030 W
16,669.0	90.80	358.20	12,454.3	4,398.8	296.9	408,798.01	782,379.71	32° 7' 17.295 N	103° 33' 17.028 W
16,763.0	90.40	0.10	12,453.3	4,492.8	295.5	408,891.99	782,378.32	32° 7' 18.225 N	103° 33' 17.037 W
16,856.0	88.50	357.50	12,454.2	4,585.8	293.6	408,984.95	782,376.37	32° 7' 19.145 N	103° 33' 17.052 W
16,951.0	87.90	0.80	12,457.2	4,680.7	292.2	409,079.88	782,374.96	32° 7' 20.084 N	103° 33' 17.060 W
17,002.9	89.56	0.03	12,458.3	4,732.6	292.5	409,131.77	782,375.34	32° 7' 20.598 N	103° 33' 17.051 W
Cross 330' HL@ 17002.9' MD / 12458.3' TVD									
17,045.0	90.90	359.40	12,458.2	4,774.7	292.3	409,173.86	782,375.13	32° 7' 21.014 N	103° 33' 17.050 W
17,139.0	89.90	359.00	12,457.5	4,868.7	291.0	409,267.85	782,373.81	32° 7' 21.944 N	103° 33' 17.057 W
17,233.0	90.80	0.30	12,456.9	4,962.7	290.4	409,361.84	782,373.24	32° 7' 22.875 N	103° 33' 17.056 W
17,260.0	91.60	2.00	12,456.4	4,989.6	291.0	409,388.83	782,373.78	32° 7' 23.142 N	103° 33' 17.048 W
17,315.0	91.60	2.00	12,454.8	5,044.6	292.9	409,443.78	782,375.70	32° 7' 23.685 N	103° 33' 17.021 W
TD @ 17315.0' MD / 12454.8' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
165.0	165.0	-0.4	0.2	First MWD Survey @ 165.0' MD / 165.0' TVD
12,336.0	12,226.7	111.9	280.0	Cross 330' HL@ 12336.0' MD / 12226.7' TVD
17,002.9	12,458.3	4,732.6	292.5	Cross 330' HL@ 17002.9' MD / 12458.3' TVD
17,315.0	12,454.8	5,044.6	292.9	TD @ 17315.0' MD / 12454.8' TVD



Quintana Energy Services

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

Rojo 7811 22 Fed Com 15H

Scale 2":100' - MD

2/12/2019 5:17 PM

Oper. Company: BTA Oil Producers LLC
Well: Rojo 7811 22 Fed Com 15H
Field: Wolfcamp
Rig: Patterson 566
Well ID: 30-025-45333
Job Number: WT-190191

State: New Mexico
County: Lea
Country: United States of America
Location: Sec 22, T25-S, R33-E
Start Date: 12/18/2018 09:00:00
End Date: 02/12/2019 17:00:00

Latitude: 32° 6' 33.788 N
Longitude: 103° 33' 20.850 W

Elev GL: 3,370'
Elev DF: 3,398'
Elev KB: 3,398'

Operator 1: D. Andersson

Operator 2: J. Garcia

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	855DETEQ	E504TITAN	722	1950CBG	
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	
Cal Factor	3.94	4.13	4.13	2.56	
Survey Offset	58.00	53.00	54.00	55.00	
Gamma Offset	46.00	41.00	41.00	43.00	
Resistivity Offset	0.00	0.00	0.00	0.00	
Start Depth	5052.00	10468.00	12078.00	12455.00	
StartDate	12/18/2018	12/30/2018	1/3/2019	2/12/2019	
StartTime	02:30	06:00	03:30	17:07	
EndDepth	10468.00	12078.00	12455.00	17315.00	
EndDate	12/22/2018	1/3/2019	1/4/2019	2/12/2019	
EndTime	08:30	03:30	10:30	17:00	
Hole Data			Casing Data		
Size	From	To	Size	From	To
17 1/2	0.00	1075.00	13 3/8	0.00	1150.00
12 1/4	1075.00	4985.00	9 5/8	0.00	4985.00
8 3/4	4985.00	12456.00	7	0.00	12450.00
6 1/8	12456.00	17315.00			

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.

