



BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 22, T25-S, R33-E

Rojo 7811 22 Fed Com #17H

Wellbore #1

HOBBS OCD
JUL 25 2019
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Design: Wellbore #1

Survey Report - Geographic

21 March, 2019





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 #17H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #17H
 TVD Reference: WELL @ 3369.0usft (Patterson #566)
 MD Reference: WELL @ 3369.0usft (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 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 #17H

Well Position +N/-S 0.0 usft Northing: 404,398.90 usft Latitude: 32° 6' 33.790 N
 +E/-W 0.0 usft Easting: 782,022.80 usft Longitude: 103° 33' 21.547 W
 Position Uncertainty 0.0 usft Wellhead Elevation: usft Ground Level: 3,344.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/5/2019	6.75	59.94	47,696.10360344

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	348.61

Survey Program Date 3/21/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
195.0	17,283.0	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	404,398.90	782,022.80	32° 6' 33.790 N	103° 33' 21.547 W
195.0	0.50	189.80	195.0	-0.8	-0.1	404,398.06	782,022.65	32° 6' 33.781 N	103° 33' 21.549 W
First MWD Survey @ 195.0' MD / 195.0' TVD									
287.0	0.40	279.10	287.0	-1.2	-0.5	404,397.72	782,022.27	32° 6' 33.778 N	103° 33' 21.554 W
345.0	0.30	277.00	345.0	-1.1	-0.9	404,397.77	782,021.92	32° 6' 33.779 N	103° 33' 21.558 W
409.0	0.30	280.90	409.0	-1.1	-1.2	404,397.82	782,021.59	32° 6' 33.779 N	103° 33' 21.562 W
473.0	0.30	284.10	473.0	-1.0	-1.5	404,397.89	782,021.26	32° 6' 33.780 N	103° 33' 21.565 W
537.0	0.30	316.40	537.0	-0.8	-1.8	404,398.05	782,020.98	32° 6' 33.781 N	103° 33' 21.569 W
601.0	0.20	282.00	601.0	-0.7	-2.0	404,398.20	782,020.76	32° 6' 33.783 N	103° 33' 21.571 W
725.0	0.30	314.30	725.0	-0.4	-2.5	404,398.47	782,020.31	32° 6' 33.786 N	103° 33' 21.576 W
820.0	0.30	354.20	820.0	0.0	-2.7	404,398.89	782,020.11	32° 6' 33.790 N	103° 33' 21.579 W
915.0	0.10	324.80	915.0	0.3	-2.8	404,399.21	782,020.04	32° 6' 33.793 N	103° 33' 21.580 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
1,010.0	0.20	306.00	1,010.0	0.5	-2.9	404,399.37	782,019.85	32° 6' 33.795 N	103° 33' 21.582 W
1,055.0	0.10	3.30	1,055.0	0.6	-3.0	404,399.46	782,019.79	32° 6' 33.795 N	103° 33' 21.582 W
1,099.0	0.20	250.80	1,099.0	0.6	-3.1	404,399.47	782,019.72	32° 6' 33.796 N	103° 33' 21.583 W
1,194.0	0.20	288.50	1,194.0	0.6	-3.4	404,399.47	782,019.41	32° 6' 33.796 N	103° 33' 21.587 W
1,289.0	0.10	248.90	1,289.0	0.6	-3.6	404,399.49	782,019.17	32° 6' 33.796 N	103° 33' 21.590 W
1,385.0	0.30	283.50	1,385.0	0.6	-3.9	404,399.52	782,018.85	32° 6' 33.796 N	103° 33' 21.593 W
1,480.0	0.30	280.40	1,480.0	0.7	-4.4	404,399.62	782,018.36	32° 6' 33.797 N	103° 33' 21.599 W
1,575.0	0.40	299.40	1,575.0	0.9	-5.0	404,399.83	782,017.83	32° 6' 33.799 N	103° 33' 21.605 W
1,671.0	0.30	299.70	1,671.0	1.2	-5.5	404,400.12	782,017.32	32° 6' 33.802 N	103° 33' 21.611 W
1,766.0	0.20	303.80	1,766.0	1.4	-5.8	404,400.33	782,016.97	32° 6' 33.804 N	103° 33' 21.615 W
1,860.0	0.30	296.40	1,860.0	1.6	-6.2	404,400.53	782,016.61	32° 6' 33.806 N	103° 33' 21.619 W
1,955.0	0.30	267.70	1,955.0	1.7	-6.7	404,400.64	782,016.14	32° 6' 33.807 N	103° 33' 21.625 W
2,050.0	0.30	272.30	2,050.0	1.7	-7.2	404,400.64	782,015.64	32° 6' 33.807 N	103° 33' 21.630 W
2,146.0	0.30	255.40	2,146.0	1.7	-7.6	404,400.58	782,015.15	32° 6' 33.807 N	103° 33' 21.636 W
2,241.0	2.20	254.00	2,240.9	1.1	-9.6	404,400.02	782,013.15	32° 6' 33.801 N	103° 33' 21.659 W
2,337.0	4.30	255.20	2,336.8	-0.3	-14.9	404,398.59	782,007.90	32° 6' 33.788 N	103° 33' 21.721 W
2,434.0	6.90	260.50	2,433.3	-2.2	-24.2	404,396.70	781,998.64	32° 6' 33.770 N	103° 33' 21.828 W
2,529.0	6.90	260.50	2,527.6	-4.1	-35.4	404,394.81	781,987.38	32° 6' 33.752 N	103° 33' 21.960 W
2,624.0	6.70	259.60	2,622.0	-6.0	-46.5	404,392.87	781,976.30	32° 6' 33.733 N	103° 33' 22.088 W
2,719.0	6.20	259.50	2,716.4	-8.0	-57.0	404,390.94	781,965.81	32° 6' 33.715 N	103° 33' 22.211 W
2,813.0	6.00	259.30	2,809.8	-9.8	-66.8	404,389.10	781,955.99	32° 6' 33.697 N	103° 33' 22.325 W
2,909.0	5.80	256.80	2,905.3	-11.8	-76.5	404,387.06	781,946.34	32° 6' 33.678 N	103° 33' 22.437 W
3,004.0	6.80	255.40	2,999.7	-14.4	-86.6	404,384.55	781,936.22	32° 6' 33.654 N	103° 33' 22.555 W
3,099.0	6.50	255.90	3,094.1	-17.1	-97.2	404,381.82	781,925.56	32° 6' 33.628 N	103° 33' 22.679 W
3,194.0	6.10	256.60	3,188.5	-19.6	-107.4	404,379.34	781,915.44	32° 6' 33.604 N	103° 33' 22.797 W
3,289.0	5.30	256.80	3,283.1	-21.7	-116.5	404,377.17	781,906.26	32° 6' 33.583 N	103° 33' 22.904 W
3,383.0	4.70	257.70	3,376.7	-23.5	-124.5	404,375.36	781,898.27	32° 6' 33.566 N	103° 33' 22.997 W
3,478.0	6.20	263.10	3,471.3	-25.0	-133.4	404,373.91	781,889.37	32° 6' 33.552 N	103° 33' 23.101 W
3,573.0	6.40	266.00	3,565.7	-26.0	-143.8	404,372.92	781,879.00	32° 6' 33.543 N	103° 33' 23.221 W
3,668.0	6.30	263.50	3,660.1	-26.9	-154.3	404,371.97	781,868.53	32° 6' 33.534 N	103° 33' 23.343 W
3,764.0	6.30	262.10	3,755.5	-28.3	-164.7	404,370.65	781,858.08	32° 6' 33.522 N	103° 33' 23.465 W
3,859.0	6.20	259.10	3,850.0	-29.9	-174.9	404,368.96	781,847.88	32° 6' 33.506 N	103° 33' 23.584 W
3,954.0	5.80	259.80	3,944.5	-31.8	-184.7	404,367.14	781,838.12	32° 6' 33.489 N	103° 33' 23.697 W
4,049.0	5.80	258.40	4,039.0	-33.6	-194.1	404,365.32	781,828.70	32° 6' 33.471 N	103° 33' 23.807 W
4,144.0	5.50	256.10	4,133.5	-35.6	-203.2	404,363.26	781,819.57	32° 6' 33.452 N	103° 33' 23.913 W
4,240.0	5.50	255.10	4,229.1	-37.9	-212.1	404,360.98	781,810.66	32° 6' 33.430 N	103° 33' 24.017 W
4,335.0	5.20	253.70	4,323.6	-40.3	-220.7	404,358.60	781,802.13	32° 6' 33.407 N	103° 33' 24.116 W
4,430.0	5.70	257.50	4,418.2	-42.5	-229.4	404,356.37	781,793.39	32° 6' 33.385 N	103° 33' 24.218 W
4,525.0	5.30	259.30	4,512.8	-44.4	-238.3	404,354.53	781,784.48	32° 6' 33.368 N	103° 33' 24.322 W
4,621.0	5.50	255.20	4,608.4	-46.4	-247.1	404,352.53	781,775.67	32° 6' 33.348 N	103° 33' 24.424 W
4,716.0	5.50	252.10	4,702.9	-48.9	-255.9	404,349.97	781,766.94	32° 6' 33.324 N	103° 33' 24.526 W
4,811.0	5.40	248.20	4,797.5	-52.0	-264.3	404,346.91	781,758.45	32° 6' 33.294 N	103° 33' 24.625 W
4,907.0	5.00	248.00	4,893.1	-55.2	-272.4	404,343.67	781,750.38	32° 6' 33.263 N	103° 33' 24.719 W
4,975.0	4.90	248.20	4,960.8	-57.4	-277.9	404,341.48	781,744.94	32° 6' 33.241 N	103° 33' 24.783 W
5,083.0	4.90	259.50	5,068.4	-60.0	-286.7	404,338.93	781,736.12	32° 6' 33.217 N	103° 33' 24.885 W
5,177.0	6.90	263.00	5,161.9	-61.4	-296.2	404,337.51	781,726.57	32° 6' 33.203 N	103° 33' 24.997 W
5,272.0	7.70	264.10	5,256.2	-62.7	-308.2	404,336.16	781,714.57	32° 6' 33.191 N	103° 33' 25.136 W
5,366.0	8.00	263.70	5,349.3	-64.1	-321.0	404,334.79	781,701.81	32° 6' 33.178 N	103° 33' 25.285 W
5,461.0	8.20	263.20	5,443.3	-65.6	-334.3	404,333.26	781,688.51	32° 6' 33.164 N	103° 33' 25.439 W
5,557.0	6.60	259.70	5,538.5	-67.4	-346.5	404,331.47	781,676.28	32° 6' 33.147 N	103° 33' 25.582 W
5,651.0	6.70	259.70	5,631.9	-69.4	-357.2	404,329.52	781,665.57	32° 6' 33.129 N	103° 33' 25.706 W
5,746.0	6.80	260.20	5,726.3	-71.3	-368.2	404,327.57	781,654.58	32° 6' 33.110 N	103° 33' 25.834 W
5,841.0	6.90	261.30	5,820.6	-73.1	-379.4	404,325.75	781,643.39	32° 6' 33.093 N	103° 33' 25.965 W
5,936.0	6.90	261.40	5,914.9	-74.9	-390.7	404,324.03	781,632.11	32° 6' 33.077 N	103° 33' 26.096 W
6,032.0	6.60	261.40	6,010.2	-76.6	-401.8	404,322.35	781,620.95	32° 6' 33.061 N	103° 33' 26.226 W



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,127.0	6.60	261.60	6,104.6	-78.2	-412.6	404,320.73	781,610.15	32° 6' 33.046 N	103° 33' 26.351 W
6,223.0	6.70	262.10	6,199.9	-79.7	-423.6	404,319.16	781,599.15	32° 6' 33.031 N	103° 33' 26.479 W
6,317.0	6.70	262.80	6,293.3	-81.2	-434.5	404,317.72	781,588.28	32° 6' 33.017 N	103° 33' 26.606 W
6,413.0	6.60	262.80	6,388.7	-82.6	-445.5	404,316.32	781,577.25	32° 6' 33.004 N	103° 33' 26.734 W
6,508.0	6.70	263.70	6,483.0	-83.9	-456.5	404,315.03	781,566.32	32° 6' 32.992 N	103° 33' 26.861 W
6,602.0	6.90	256.70	6,576.4	-85.8	-467.4	404,313.13	781,555.38	32° 6' 32.974 N	103° 33' 26.989 W
6,697.0	7.30	254.40	6,670.6	-88.7	-478.8	404,310.19	781,544.01	32° 6' 32.946 N	103° 33' 27.121 W
6,791.0	7.30	256.00	6,763.9	-91.8	-490.3	404,307.14	781,532.46	32° 6' 32.917 N	103° 33' 27.256 W
6,887.0	5.70	254.00	6,859.2	-94.5	-500.8	404,304.35	781,521.96	32° 6' 32.890 N	103° 33' 27.378 W
6,983.0	5.60	252.50	6,954.8	-97.3	-509.9	404,301.63	781,512.91	32° 6' 32.863 N	103° 33' 27.484 W
7,078.0	5.70	252.50	7,049.3	-100.1	-518.8	404,298.82	781,503.99	32° 6' 32.836 N	103° 33' 27.587 W
7,173.0	5.50	253.00	7,143.9	-102.8	-527.7	404,296.07	781,495.14	32° 6' 32.810 N	103° 33' 27.691 W
7,268.0	5.00	255.30	7,238.5	-105.2	-536.0	404,293.69	781,486.78	32° 6' 32.787 N	103° 33' 27.788 W
7,362.0	5.00	256.30	7,332.1	-107.2	-544.0	404,291.68	781,478.84	32° 6' 32.767 N	103° 33' 27.881 W
7,458.0	5.90	261.40	7,427.7	-109.0	-552.9	404,289.95	781,469.90	32° 6' 32.751 N	103° 33' 27.985 W
7,553.0	5.70	262.80	7,522.2	-110.3	-562.4	404,288.63	781,460.39	32° 6' 32.739 N	103° 33' 28.095 W
7,646.0	5.70	262.30	7,614.7	-111.5	-571.6	404,287.43	781,451.23	32° 6' 32.727 N	103° 33' 28.202 W
7,740.0	5.50	260.90	7,708.3	-112.8	-580.6	404,286.09	781,442.16	32° 6' 32.715 N	103° 33' 28.307 W
7,836.0	5.40	258.40	7,803.8	-114.4	-589.6	404,284.46	781,433.19	32° 6' 32.699 N	103° 33' 28.412 W
7,931.0	5.60	256.20	7,898.4	-116.4	-598.5	404,282.45	781,424.31	32° 6' 32.680 N	103° 33' 28.515 W
8,026.0	5.30	259.00	7,993.0	-118.4	-607.3	404,280.51	781,415.50	32° 6' 32.661 N	103° 33' 28.618 W
8,120.0	6.10	266.50	8,086.5	-119.5	-616.5	404,279.38	781,406.25	32° 6' 32.651 N	103° 33' 28.725 W
8,215.0	6.00	265.30	8,181.0	-120.2	-626.5	404,278.66	781,396.27	32° 6' 32.645 N	103° 33' 28.842 W
8,310.0	5.60	265.30	8,275.5	-121.0	-636.1	404,277.87	781,386.70	32° 6' 32.637 N	103° 33' 28.953 W
8,404.0	5.50	265.30	8,369.1	-121.8	-645.2	404,277.13	781,377.64	32° 6' 32.631 N	103° 33' 29.058 W
8,499.0	5.70	261.60	8,463.6	-122.8	-654.4	404,276.07	781,368.43	32° 6' 32.621 N	103° 33' 29.165 W
8,594.0	5.50	262.80	8,558.2	-124.1	-663.5	404,274.81	781,359.25	32° 6' 32.609 N	103° 33' 29.272 W
8,689.0	5.60	262.50	8,652.7	-125.3	-672.7	404,273.63	781,350.14	32° 6' 32.598 N	103° 33' 29.378 W
8,784.0	5.40	262.80	8,747.3	-126.4	-681.7	404,272.47	781,341.11	32° 6' 32.587 N	103° 33' 29.483 W
8,879.0	4.90	262.10	8,841.9	-127.6	-690.1	404,271.35	781,332.65	32° 6' 32.577 N	103° 33' 29.582 W
8,975.0	4.70	259.50	8,937.6	-128.8	-698.1	404,270.07	781,324.72	32° 6' 32.565 N	103° 33' 29.674 W
9,071.0	5.60	263.70	9,033.2	-130.1	-706.6	404,268.84	781,316.20	32° 6' 32.553 N	103° 33' 29.773 W
9,166.0	5.30	266.00	9,127.7	-130.9	-715.6	404,268.02	781,307.22	32° 6' 32.546 N	103° 33' 29.878 W
9,261.0	5.30	264.80	9,222.3	-131.6	-724.3	404,267.32	781,298.47	32° 6' 32.539 N	103° 33' 29.980 W
9,357.0	4.10	268.30	9,318.0	-132.1	-732.2	404,266.81	781,290.62	32° 6' 32.535 N	103° 33' 30.071 W
9,452.0	5.60	256.00	9,412.7	-133.3	-740.1	404,265.59	781,282.73	32° 6' 32.523 N	103° 33' 30.163 W
9,548.0	6.50	263.40	9,508.1	-135.1	-750.0	404,263.83	781,272.79	32° 6' 32.507 N	103° 33' 30.278 W
9,643.0	6.70	265.80	9,602.5	-136.1	-760.9	404,262.81	781,261.92	32° 6' 32.497 N	103° 33' 30.405 W
9,739.0	6.10	262.30	9,697.9	-137.2	-771.5	404,261.72	781,251.28	32° 6' 32.487 N	103° 33' 30.529 W
9,834.0	5.40	259.70	9,792.4	-138.7	-780.9	404,260.24	781,241.88	32° 6' 32.473 N	103° 33' 30.638 W
9,930.0	6.40	255.50	9,887.9	-140.8	-790.5	404,258.09	781,232.25	32° 6' 32.453 N	103° 33' 30.750 W
10,025.0	4.40	251.40	9,982.5	-143.3	-799.1	404,255.61	781,223.67	32° 6' 32.429 N	103° 33' 30.850 W
10,120.0	5.30	259.10	10,077.1	-145.3	-806.9	404,253.61	781,215.91	32° 6' 32.409 N	103° 33' 30.941 W
10,216.0	7.10	266.50	10,172.6	-146.5	-817.2	404,252.41	781,205.63	32° 6' 32.398 N	103° 33' 31.060 W
10,311.0	6.90	265.50	10,266.9	-147.3	-828.7	404,251.61	781,194.09	32° 6' 32.391 N	103° 33' 31.194 W
10,406.0	5.80	264.10	10,361.3	-148.2	-839.2	404,250.67	781,183.62	32° 6' 32.383 N	103° 33' 31.316 W
10,502.0	5.80	256.70	10,456.8	-149.8	-848.7	404,249.05	781,174.08	32° 6' 32.367 N	103° 33' 31.427 W
10,597.0	5.40	256.50	10,551.3	-152.0	-857.7	404,246.90	781,165.06	32° 6' 32.347 N	103° 33' 31.532 W
10,693.0	6.20	262.50	10,646.9	-153.7	-867.3	404,245.17	781,155.53	32° 6' 32.330 N	103° 33' 31.643 W
10,788.0	5.90	261.60	10,741.3	-155.1	-877.2	404,243.79	781,145.61	32° 6' 32.317 N	103° 33' 31.759 W
10,884.0	5.70	260.70	10,836.8	-156.6	-886.8	404,242.30	781,136.02	32° 6' 32.303 N	103° 33' 31.870 W
10,978.0	7.10	257.00	10,930.2	-158.7	-897.0	404,240.24	781,125.76	32° 6' 32.284 N	103° 33' 31.990 W
11,074.0	6.90	255.50	11,025.5	-161.4	-908.4	404,237.46	781,114.39	32° 6' 32.257 N	103° 33' 32.122 W
11,169.0	6.10	255.10	11,119.9	-164.2	-918.8	404,234.73	781,103.99	32° 6' 32.231 N	103° 33' 32.243 W
11,264.0	5.10	249.50	11,214.5	-166.9	-927.6	404,231.96	781,095.16	32° 6' 32.204 N	103° 33' 32.346 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 #17H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #17H
 TVD Reference: WELL @ 3369.0usft (Patterson #566)
 MD Reference: WELL @ 3369.0usft (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
11,360.0	4.60	250.50	11,310.1	-169.7	-935.3	404,229.18	781,087.53	32° 6' 32.177 N	103° 33' 32.435 W
11,455.0	3.60	261.60	11,404.9	-171.4	-941.8	404,227.47	781,080.99	32° 6' 32.160 N	103° 33' 32.511 W
11,551.0	3.10	275.30	11,500.7	-171.6	-947.4	404,227.27	781,075.42	32° 6' 32.159 N	103° 33' 32.576 W
11,646.0	3.30	278.70	11,595.6	-171.0	-952.6	404,227.92	781,070.16	32° 6' 32.166 N	103° 33' 32.637 W
11,742.0	3.40	271.40	11,691.4	-170.5	-958.2	404,228.41	781,064.58	32° 6' 32.171 N	103° 33' 32.702 W
11,765.0	3.30	273.90	11,714.4	-170.4	-959.6	404,228.47	781,063.24	32° 6' 32.172 N	103° 33' 32.718 W
11,841.0	6.60	293.90	11,790.1	-168.5	-965.7	404,230.39	781,057.06	32° 6' 32.191 N	103° 33' 32.789 W
11,935.0	18.60	326.80	11,881.7	-153.7	-978.9	404,245.19	781,043.86	32° 6' 32.338 N	103° 33' 32.942 W
12,031.0	31.50	346.20	11,968.7	-116.3	-993.4	404,282.57	781,029.41	32° 6' 32.709 N	103° 33' 33.106 W
12,126.0	45.50	350.90	12,042.8	-58.5	-1,004.7	404,340.43	781,018.07	32° 6' 33.283 N	103° 33' 33.233 W
12,220.0	50.10	353.40	12,106.0	10.5	-1,014.2	404,409.39	781,008.62	32° 6' 33.966 N	103° 33' 33.338 W
12,315.0	53.80	359.20	12,164.5	85.1	-1,018.9	404,483.98	781,003.89	32° 6' 34.704 N	103° 33' 33.386 W
12,337.3	55.07	359.99	12,177.5	103.2	-1,019.0	404,502.12	781,003.76	32° 6' 34.884 N	103° 33' 33.386 W
Crossed 330' HL@ 12337.3' MD / 12177.5' TVD									
12,385.0	57.80	1.60	12,203.9	143.0	-1,018.5	404,541.86	781,004.32	32° 6' 35.277 N	103° 33' 33.376 W
12,458.0	63.90	4.90	12,239.4	206.6	-1,014.8	404,605.46	781,007.99	32° 6' 35.906 N	103° 33' 33.328 W
12,480.0	66.00	4.90	12,248.7	226.4	-1,013.1	404,625.32	781,009.69	32° 6' 36.102 N	103° 33' 33.307 W
12,553.0	72.50	3.50	12,274.6	294.5	-1,008.1	404,693.36	781,014.67	32° 6' 36.775 N	103° 33' 33.243 W
12,647.0	78.20	2.80	12,298.4	385.2	-1,003.1	404,784.13	781,019.66	32° 6' 37.673 N	103° 33' 33.178 W
12,741.0	79.80	2.60	12,316.3	477.4	-998.8	404,876.30	781,024.00	32° 6' 38.585 N	103° 33' 33.120 W
12,834.0	82.50	2.80	12,330.6	569.2	-994.5	404,968.08	781,028.33	32° 6' 39.493 N	103° 33' 33.062 W
12,929.0	85.50	2.10	12,340.5	663.6	-990.4	405,062.46	781,032.37	32° 6' 40.426 N	103° 33' 33.007 W
13,023.0	84.90	1.60	12,348.4	757.2	-987.4	405,156.08	781,035.39	32° 6' 41.353 N	103° 33' 32.964 W
13,117.0	89.70	1.90	12,352.8	851.0	-984.5	405,249.91	781,038.26	32° 6' 42.281 N	103° 33' 32.923 W
13,211.0	90.30	1.90	12,352.8	945.0	-981.4	405,343.86	781,041.38	32° 6' 43.210 N	103° 33' 32.879 W
13,305.0	89.70	1.60	12,352.8	1,038.9	-978.5	405,437.81	781,044.25	32° 6' 44.140 N	103° 33' 32.837 W
13,398.0	89.90	1.60	12,353.2	1,131.9	-976.0	405,530.78	781,046.84	32° 6' 45.059 N	103° 33' 32.799 W
13,492.0	90.50	1.80	12,352.8	1,225.8	-973.2	405,624.73	781,049.63	32° 6' 45.989 N	103° 33' 32.759 W
13,586.0	91.20	1.80	12,351.4	1,319.8	-970.2	405,718.68	781,052.59	32° 6' 46.918 N	103° 33' 32.717 W
13,680.0	91.50	1.90	12,349.2	1,413.7	-967.2	405,812.60	781,055.62	32° 6' 47.848 N	103° 33' 32.674 W
13,774.0	91.30	2.30	12,346.9	1,507.6	-963.7	405,906.51	781,059.06	32° 6' 48.777 N	103° 33' 32.626 W
13,869.0	88.80	359.00	12,346.8	1,602.6	-962.7	406,001.48	781,060.14	32° 6' 49.716 N	103° 33' 32.606 W
13,963.0	89.50	359.70	12,348.2	1,696.6	-963.7	406,095.46	781,059.07	32° 6' 50.646 N	103° 33' 32.610 W
14,056.0	90.10	357.70	12,348.6	1,789.5	-965.8	406,188.44	781,056.96	32° 6' 51.566 N	103° 33' 32.627 W
14,150.0	88.50	357.20	12,349.7	1,883.4	-970.0	406,282.33	781,052.78	32° 6' 52.496 N	103° 33' 32.668 W
14,243.0	86.70	356.70	12,353.6	1,976.2	-975.0	406,375.11	781,047.84	32° 6' 53.414 N	103° 33' 32.717 W
14,337.0	89.70	356.80	12,356.5	2,070.0	-980.3	406,468.91	781,042.51	32° 6' 54.343 N	103° 33' 32.771 W
14,431.0	90.20	356.00	12,356.6	2,163.8	-986.2	406,562.72	781,036.61	32° 6' 55.272 N	103° 33' 32.832 W
14,524.0	89.30	359.00	12,357.0	2,256.7	-990.2	406,655.62	781,032.55	32° 6' 56.191 N	103° 33' 32.872 W
14,618.0	89.00	359.00	12,358.4	2,350.7	-991.9	406,749.59	781,030.91	32° 6' 57.121 N	103° 33' 32.883 W
14,712.0	88.90	359.10	12,360.2	2,444.7	-993.4	406,843.57	781,029.36	32° 6' 58.051 N	103° 33' 32.893 W
14,807.0	88.10	359.70	12,362.6	2,539.6	-994.4	406,938.53	781,028.36	32° 6' 58.991 N	103° 33' 32.897 W
14,900.0	88.40	359.70	12,365.5	2,632.6	-994.9	407,031.48	781,027.87	32° 6' 59.911 N	103° 33' 32.895 W
14,994.0	88.50	359.70	12,368.0	2,726.5	-995.4	407,125.45	781,027.38	32° 7' 0.841 N	103° 33' 32.893 W
15,088.0	88.00	0.00	12,370.9	2,820.5	-995.7	407,219.40	781,027.14	32° 7' 1.770 N	103° 33' 32.888 W
15,181.0	88.90	0.40	12,373.4	2,913.5	-995.3	407,312.37	781,027.46	32° 7' 2.690 N	103° 33' 32.876 W
15,274.0	88.90	359.80	12,375.2	3,006.4	-995.2	407,405.35	781,027.62	32° 7' 3.610 N	103° 33' 32.866 W
15,369.0	89.10	0.20	12,376.9	3,101.4	-995.2	407,500.33	781,027.62	32° 7' 4.550 N	103° 33' 32.858 W
15,463.0	85.40	358.40	12,381.4	3,195.3	-996.3	407,594.20	781,026.48	32° 7' 5.479 N	103° 33' 32.864 W
15,558.0	88.30	358.30	12,386.6	3,290.1	-999.0	407,689.00	781,023.75	32° 7' 6.417 N	103° 33' 32.888 W
15,651.0	87.40	357.20	12,390.1	3,383.0	-1,002.7	407,781.87	781,020.10	32° 7' 7.337 N	103° 33' 32.922 W
15,745.0	90.70	358.80	12,391.6	3,476.9	-1,006.0	407,875.78	781,016.82	32° 7' 8.266 N	103° 33' 32.953 W
15,839.0	90.30	358.60	12,390.8	3,570.9	-1,008.1	407,969.75	781,014.69	32° 7' 9.196 N	103° 33' 32.970 W
15,933.0	88.40	357.40	12,391.9	3,664.8	-1,011.4	408,063.68	781,011.41	32° 7' 10.126 N	103° 33' 33.000 W
16,027.0	87.20	356.70	12,395.5	3,758.6	-1,016.2	408,157.49	781,006.57	32° 7' 11.054 N	103° 33' 33.048 W



Survey Report - Geographic



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 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 22 Fed Com #17H
 TVD Reference: WELL @ 3369.0usft (Patterson #566)
 MD Reference: WELL @ 3369.0usft (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
16,121.0	87.70	359.70	12,399.7	3,852.4	-1,019.2	408,251.34	781,003.63	32° 7' 11.983 N	103° 33' 33.075 W
16,215.0	85.90	359.70	12,404.9	3,946.3	-1,019.7	408,345.18	781,003.13	32° 7' 12.912 N	103° 33' 33.073 W
16,308.0	87.30	359.30	12,410.4	4,039.1	-1,020.5	408,438.01	781,002.32	32° 7' 13.831 N	103° 33' 33.074 W
16,402.0	88.50	359.30	12,413.9	4,133.0	-1,021.6	408,531.94	781,001.18	32° 7' 14.760 N	103° 33' 33.080 W
16,495.0	90.90	2.10	12,414.4	4,226.0	-1,020.5	408,624.92	781,002.31	32° 7' 15.680 N	103° 33' 33.059 W
16,588.0	90.80	2.10	12,413.0	4,318.9	-1,017.1	408,717.84	781,005.72	32° 7' 16.599 N	103° 33' 33.011 W
16,683.0	92.10	1.80	12,410.6	4,413.9	-1,013.8	408,812.76	781,008.95	32° 7' 17.538 N	103° 33' 32.966 W
16,777.0	89.60	1.80	12,409.2	4,507.8	-1,010.9	408,906.69	781,011.90	32° 7' 18.468 N	103° 33' 32.924 W
16,870.0	89.80	1.60	12,409.7	4,600.8	-1,008.1	408,999.65	781,014.66	32° 7' 19.387 N	103° 33' 32.884 W
16,965.0	91.50	3.40	12,408.6	4,695.6	-1,004.0	409,094.55	781,018.81	32° 7' 20.326 N	103° 33' 32.828 W
16,993.0	91.62	3.22	12,407.8	4,723.6	-1,002.4	409,122.49	781,020.42	32° 7' 20.603 N	103° 33' 32.807 W
Crossed 330' HL @ 16993' MD / 12407.8									
17,059.0	91.90	2.80	12,405.8	4,789.5	-998.9	409,188.37	781,023.89	32° 7' 21.254 N	103° 33' 32.761 W
17,153.0	92.50	2.60	12,402.2	4,883.3	-994.5	409,282.19	781,028.31	32° 7' 22.182 N	103° 33' 32.702 W
17,233.0	91.60	1.90	12,399.3	4,963.2	-991.3	409,362.08	781,031.45	32° 7' 22.973 N	103° 33' 32.658 W
17,283.0	91.60	1.90	12,397.9	5,013.1	-989.7	409,412.03	781,033.11	32° 7' 23.467 N	103° 33' 32.635 W
TD @ 17283.0' MD / 12397.8' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
195.0	195.0	-0.8	-0.1	First MWD Survey @ 195.0' MD / 195.0' TVD
12,337.3	12,177.5	103.2	-1,019.0	Crossed 330' HL @ 12337.3' MD / 12177.5' TVD
16,993.0	12,407.8	4,723.6	-1,002.4	Crossed 330' HL @ 16993' MD / 12407.8
17,283.0	12,397.9	5,013.1	-989.7	TD @ 17283.0' MD / 12397.8' TVD

Checked By: _____ Approved By: _____ Date: _____



STA Oil Producers, LLC.

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

Rojo 7811 22 Fed Com 17H

Scale 2"=100' - MD

3/15/2019 7:40 AM

Oper. Company: Quintana Energy Services

Well: Rojo 7811 22 Fed Com 17H

Field: Wolfcamp

Rig: Patterson 566

Well ID: 30-025-45335

Job Number: WT-190340

State: New Mexico

County: Lea

Country: United States of America

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

Start Date: 11/12/2018 13:57:48

End Date: 03/15/2019 07:00:00

Latitude: 32° 6' 33.790 N
Longitude: 103° 33' 21.547 W

Elev GL: 3,344'
Elev DF: 3,372'
Elev KB: 3,372'

Operator 1: D. Andersson

Operator 2: C. Brennemann

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	418 DETEQ	075DET			
Bit Size	8 3/4	6 1/8			
Cal Factor	3.56	2.44			
Survey Offset	55.00	50.00			
Gamma Offset	45.00	40.00			
Resistivity Offset	0.00	0.00			
Start Depth	5030.00	12435.00			
StartDate	11/16/2018	3/9/2019			
StartTime	18:00	09:00			
EndDepth	12435.00	17283.00			
EndDate	11/25/2018	3/15/2019			
EndTime	10:30	07:00			
Hole Data			Casing Data		
Size	From	To	Size	From	To
17 1/2	80.00	1112.00	13 3/8	0.00	1112.00
12 1/4	1112.00	5030.00	9 5/8	0.00	5030.00
8 1/2	5030.00	12421.00	7	0.00	12421.00
6 5/8	12421.00	17283.00			

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

