



HOBBS OCD
NOV 27 2018
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30-025-44459

BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 27, T25-S, R33-E

Rojo 7811 27 Fed Com #11H

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

04 June, 2018



Quintana Energy Services

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678



Survey Certification Sheet

Company	Job Number	Date
BTA Oil Producers, LLC	WT-180558	6/5/2018

Lease	Well Name	County & State
N/A	Rojo 7811 27 Fed Com 11H	Lea County, NM

API No.	Survey Depth Range	Survey Type
30-025-44459	165 feet to 173200 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Anthony Corrasco

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

**Christopher
Hughes**

Digitally signed by Christopher Hughes
DN: cn=Christopher Hughes, o=QES,
ou=compliance, email=chrish@qeslp.com,
c=US
Date: 2018.06.22 10:10:05 -05'00'

Christopher Hughes
MWD Compliance Manager
Quintana Energy Services

A large, stylized handwritten signature in black ink, appearing to read 'CHRISTOPHER HUGHES', is written over a horizontal line.



QES Survey Certification Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 27 Fed Com #11H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3369.0usft
Site:	Sec 27, T25-S, R33-E	MD Reference:	WELL @ 3369.0usft
Well:	Rojo 7811 27 Fed Com #11H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project Lea County, NM (NAD 83)

Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Sec 27, T25-S, R33-E

Site Position:		Northing:	403,958.90 usft	Latitude:	32° 6' 29.435 N
From:	Map	Easting:	782,026.00 usft	Longitude:	103° 33' 21.547 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.41 °

Well Rojo 7811 27 Fed Com #11H

Well Position	+N/-S	0.0 usft	Northing:	403,959.30 usft	Latitude:	32° 6' 29.435 N
	+E/-W	0.0 usft	Easting:	782,086.00 usft	Longitude:	103° 33' 20.850 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	4/13/2018	6.85	59.95	47,787.09326880

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	176.27

Survey Program Date 6/4/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
165.0	17,320.0	QES MWD Surveys (Wellbore #1)	OWSG (Rev2) MWD	OWSG MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
165.0	0.30	281.20	165.0	0.1	-0.4	0.4	281.20
First MWD Survey @ 165.0' MD / 165.0' TVD							
260.0	0.30	289.60	260.0	0.2	-0.9	0.9	283.45
341.0	0.30	256.90	341.0	0.2	-1.3	1.3	280.34
436.0	0.60	279.80	436.0	0.3	-2.0	2.1	277.45
517.0	0.30	256.20	517.0	0.3	-2.7	2.7	276.18
605.0	0.30	225.80	605.0	0.1	-3.1	3.1	271.37
699.0	0.10	267.30	699.0	-0.1	-3.3	3.3	268.23
793.0	0.30	31.00	793.0	0.1	-3.3	3.3	271.84
888.0	0.30	29.50	888.0	0.5	-3.0	3.1	280.05
983.0	0.40	7.30	983.0	1.1	-2.9	3.0	280.74



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
1,078.0	0.40	326.90	1,078.0	1.7	-3.0	3.4	299.42	
1,170.0	0.70	339.90	1,170.0	2.5	-3.4	4.2	306.47	
1,263.0	1.00	337.60	1,263.0	3.8	-3.9	5.4	314.27	
1,359.0	1.10	334.30	1,359.0	5.4	-4.6	7.1	319.53	
1,453.0	0.40	86.40	1,452.9	6.2	-4.6	7.8	323.18	
1,549.0	1.10	105.90	1,548.9	6.0	-3.4	6.9	330.17	
1,644.0	0.80	110.00	1,643.9	5.5	-1.9	5.8	340.70	
1,739.0	0.70	123.20	1,738.9	5.0	-0.8	5.0	350.64	
1,834.0	0.80	130.70	1,833.9	4.2	0.2	4.2	2.34	
1,929.0	0.80	125.10	1,928.9	3.4	1.2	3.6	19.75	
2,024.0	0.70	138.30	2,023.9	2.6	2.1	3.4	39.81	
2,119.0	0.60	150.80	2,118.9	1.7	2.8	3.3	58.40	
2,215.0	0.60	147.10	2,214.9	0.8	3.3	3.4	75.59	
2,310.0	0.60	144.10	2,309.9	0.0	3.9	3.9	89.62	
2,405.0	0.70	139.00	2,404.9	-0.8	4.5	4.6	100.21	
2,500.0	0.60	136.20	2,499.9	-1.6	5.3	5.5	107.07	
2,595.0	1.00	124.70	2,594.9	-2.4	6.3	6.7	111.27	
2,689.0	1.00	120.00	2,688.8	-3.3	7.7	8.4	113.43	
2,783.0	1.10	121.20	2,782.8	-4.2	9.1	10.1	114.66	
2,878.0	1.30	115.30	2,877.8	-5.1	10.9	12.0	115.21	
2,974.0	1.30	106.80	2,973.8	-5.9	12.9	14.2	114.58	
3,069.0	1.40	95.40	3,068.8	-6.3	15.1	16.4	112.73	
3,164.0	1.90	85.70	3,163.7	-6.3	17.8	18.9	109.52	
3,258.0	2.30	79.90	3,257.6	-5.9	21.2	22.0	105.46	
3,353.0	2.00	74.10	3,352.6	-5.1	24.7	25.2	101.63	
3,446.0	1.10	56.20	3,445.5	-4.1	27.0	27.3	98.72	
3,540.0	2.00	268.50	3,539.5	-3.7	26.1	26.4	98.03	
3,636.0	1.80	268.90	3,635.5	-3.8	23.0	23.3	99.30	
3,731.0	1.60	266.10	3,730.4	-3.9	20.1	20.5	100.90	
3,826.0	1.50	258.00	3,825.4	-4.2	17.6	18.1	103.51	
3,920.0	1.10	251.10	3,919.4	-4.8	15.5	16.3	107.08	
4,015.0	1.10	250.10	4,014.4	-5.4	13.8	14.8	111.27	
4,110.0	1.20	248.80	4,109.3	-6.1	12.0	13.5	116.69	
4,205.0	1.20	240.90	4,204.3	-6.9	10.2	12.3	123.96	
4,300.0	1.10	226.00	4,299.3	-8.0	8.7	11.8	132.60	
4,395.0	0.80	193.50	4,394.3	-9.3	7.9	12.2	139.62	
4,491.0	0.60	132.10	4,490.3	-10.3	8.1	13.1	141.70	
4,585.0	0.90	102.90	4,584.3	-10.8	9.2	14.2	139.49	
4,680.0	2.00	111.90	4,679.2	-11.6	11.5	16.3	135.22	
4,774.0	2.00	65.50	4,773.2	-11.5	14.5	18.5	128.43	
4,869.0	2.50	41.80	4,868.1	-9.3	17.4	19.7	118.05	
4,940.0	2.10	47.00	4,939.1	-7.2	19.4	20.7	110.45	
5,034.0	2.50	39.30	5,033.0	-4.5	21.9	22.4	101.49	
5,129.0	4.30	38.10	5,127.8	0.0	25.4	25.4	90.11	



QES Survey Certification Report



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Site:	Sec 27, T25-S. R33-E	MD Reference:	WELL @ 3369.0usft
Well:	Rojo 7811 27 Fed Com #11H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
5,225.0	4.10	35.80	5,223.6	5.6	29.7	30.2	79.37	
5,320.0	4.00	38.80	5,318.3	10.9	33.7	35.4	72.08	
5,415.0	3.80	39.00	5,413.1	15.9	37.8	41.0	67.13	
5,510.0	3.60	38.40	5,507.9	20.7	41.6	46.5	63.53	
5,604.0	3.30	35.40	5,601.7	25.2	45.0	51.6	60.72	
5,699.0	3.20	36.00	5,696.6	29.6	48.1	56.5	58.41	
5,794.0	3.00	36.80	5,791.4	33.7	51.2	61.3	56.61	
5,889.0	2.70	36.00	5,886.3	37.5	54.0	65.8	55.19	
5,983.0	3.50	47.00	5,980.2	41.3	57.4	70.7	54.27	
6,078.0	3.90	49.30	6,075.0	45.4	62.0	76.8	53.79	
6,173.0	3.70	47.80	6,169.8	49.5	66.7	83.1	53.39	
6,268.0	3.70	48.10	6,264.6	53.6	71.2	89.2	53.02	
6,363.0	3.60	46.00	6,359.4	57.8	75.7	95.2	52.64	
6,457.0	3.50	46.00	6,453.2	61.8	79.9	101.0	52.26	
6,552.0	3.40	48.10	6,548.0	65.7	84.0	106.7	51.98	
6,647.0	3.30	47.90	6,642.9	69.4	88.2	112.2	51.78	
6,742.0	3.00	50.20	6,737.7	72.8	92.1	117.4	51.66	
6,837.0	2.70	49.00	6,832.6	75.9	95.7	122.2	51.58	
6,933.0	4.80	60.80	6,928.4	79.3	100.9	128.4	51.82	
7,028.0	5.60	63.40	7,023.0	83.4	108.5	136.9	52.47	
7,123.0	5.40	64.40	7,117.6	87.4	116.7	145.8	53.18	
7,218.0	5.40	65.30	7,212.2	91.2	124.8	154.6	53.85	
7,313.0	5.00	66.90	7,306.8	94.7	132.7	163.0	54.49	
7,408.0	4.90	69.60	7,401.4	97.7	140.3	170.9	55.14	
7,503.0	4.40	70.80	7,496.1	100.3	147.5	178.4	55.79	
7,598.0	4.30	75.20	7,590.8	102.4	154.4	185.3	56.44	
7,693.0	3.60	73.40	7,685.6	104.2	160.7	191.5	57.05	
7,788.0	4.50	66.40	7,780.4	106.5	167.0	198.1	57.46	
7,883.0	3.30	72.20	7,875.1	108.9	173.0	204.4	57.82	
7,978.0	4.30	62.70	7,969.9	111.3	178.8	210.6	58.09	
8,071.0	4.90	56.90	8,062.6	115.1	185.2	218.0	58.14	
8,166.0	6.00	58.30	8,157.2	119.9	192.8	227.1	58.12	
8,260.0	7.10	58.70	8,250.6	125.5	202.0	237.8	58.14	
8,354.0	6.20	61.30	8,343.9	131.0	211.4	248.7	58.22	
8,450.0	5.40	61.50	8,439.5	135.6	219.9	258.4	58.34	
8,545.0	4.60	65.30	8,534.1	139.3	227.3	266.6	58.49	
8,639.0	4.70	49.20	8,627.8	143.4	233.6	274.1	58.45	
8,734.0	4.40	44.60	8,722.5	148.6	239.1	281.5	58.15	
8,829.0	4.10	46.00	8,817.2	153.5	244.1	288.4	57.84	
8,924.0	3.80	49.00	8,912.0	158.0	249.0	294.8	57.61	
9,019.0	3.20	48.50	9,006.8	161.8	253.3	300.6	57.44	
9,114.0	2.70	46.00	9,101.7	165.1	256.9	305.4	57.28	
9,210.0	2.20	41.60	9,197.6	168.0	259.8	309.4	57.10	
9,303.0	1.60	29.10	9,290.6	170.5	261.6	312.2	56.90	
9,397.0	1.10	9.60	9,384.5	172.5	262.4	314.0	56.67	



QES Survey Certification Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 27, T25-S, R33-E
Well: Rojo 7811 27 Fed Com #11H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 27 Fed Com #11H
TVD Reference: WELL @ 3369.0usft
MD Reference: WELL @ 3369.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
9,493.0	0.60	318.30	9,480.5	173.8	262.2	314.6	56.46
9,587.0	1.00	282.40	9,574.5	174.4	261.1	313.9	56.26
9,682.0	1.20	268.20	9,669.5	174.5	259.3	312.5	56.05
9,776.0	1.60	274.90	9,763.5	174.6	257.0	310.7	55.81
9,871.0	0.80	20.90	9,858.5	175.3	255.9	310.2	55.58
9,965.0	2.90	47.60	9,952.4	177.5	257.9	313.1	55.45
10,060.0	3.00	43.20	10,047.3	181.0	261.3	317.9	55.30
10,155.0	1.20	19.30	10,142.2	183.7	263.4	321.1	55.10
10,250.0	0.80	333.40	10,237.2	185.3	263.4	322.0	54.88
10,345.0	1.80	326.70	10,332.2	187.1	262.3	322.2	54.50
10,440.0	0.50	327.20	10,427.2	188.7	261.2	322.3	54.16
10,536.0	0.60	120.50	10,523.1	188.8	261.5	322.5	54.17
10,631.0	2.10	68.00	10,618.1	189.2	263.5	324.4	54.32
10,726.0	2.10	59.70	10,713.1	190.7	266.6	327.8	54.42
10,821.0	2.40	40.20	10,808.0	193.1	269.4	331.5	54.36
10,916.0	2.60	79.00	10,902.9	195.1	272.8	335.4	54.44
11,010.0	2.80	109.40	10,996.8	194.7	277.1	338.6	54.90
11,105.0	1.90	142.00	11,091.7	192.7	280.2	340.1	55.49
11,200.0	2.30	144.40	11,186.7	189.9	282.3	340.2	56.07
11,294.0	1.30	180.80	11,280.6	187.3	283.4	339.7	56.54
11,389.0	1.90	236.90	11,375.6	185.4	282.0	337.5	56.69
11,484.0	2.00	242.90	11,470.5	183.7	279.2	334.3	56.66
11,579.0	1.40	243.90	11,565.5	182.5	276.7	331.5	56.60
11,708.0	1.90	221.40	11,694.4	180.2	273.9	327.8	56.66
11,803.0	4.40	178.40	11,789.3	175.3	273.0	324.4	57.28
11,898.0	15.60	168.70	11,882.7	159.1	275.6	318.2	60.00
11,993.0	27.60	168.70	11,970.9	124.9	282.4	308.8	66.14
12,089.0	35.10	171.30	12,052.8	75.7	291.0	300.7	75.41
12,184.0	41.90	173.40	12,127.1	17.2	298.7	299.2	86.71
12,279.0	49.30	173.60	12,193.5	-50.2	306.4	310.5	99.31
12,390.0	58.60	181.70	12,258.9	-139.7	309.7	339.8	114.28
12,497.0	62.90	182.90	12,311.1	-233.0	305.9	384.5	127.29
12,592.0	73.40	181.50	12,346.4	-320.9	302.6	441.1	136.68
12,686.0	75.50	180.80	12,371.6	-411.5	300.8	509.7	143.83
12,780.0	85.10	180.60	12,387.5	-504.0	299.7	586.4	149.27
12,874.0	87.80	179.90	12,393.3	-597.8	299.3	668.5	153.41
12,969.0	87.00	179.60	12,397.6	-692.7	299.7	754.8	156.61
13,063.0	87.00	179.20	12,402.5	-786.6	300.6	842.1	159.08
13,157.0	86.50	179.10	12,407.8	-880.4	302.0	930.8	161.06
13,251.0	89.10	178.90	12,411.4	-974.3	303.7	1,020.6	162.69
13,345.0	88.40	178.40	12,413.5	-1,068.3	305.9	1,111.2	164.02
13,439.0	87.70	178.20	12,416.7	-1,162.2	308.7	1,202.5	165.13
13,533.0	90.80	179.90	12,417.9	-1,256.2	310.2	1,293.9	166.13
13,627.0	91.20	180.80	12,416.3	-1,350.1	309.7	1,385.2	167.08



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Survey								
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13,721.0	92.90	181.30	12,412.9	-1,444.1	307.9	1,476.5	167.96	
13,815.0	92.80	181.20	12,408.2	-1,537.9	305.9	1,568.0	168.75	
13,910.0	87.30	181.00	12,408.2	-1,632.9	304.1	1,660.9	169.45	
14,003.0	86.70	179.90	12,413.0	-1,725.7	303.3	1,752.2	170.03	
14,098.0	84.40	178.90	12,420.4	-1,820.4	304.3	1,845.7	170.51	
14,192.0	88.60	178.00	12,426.1	-1,914.2	306.9	1,938.6	170.89	
14,286.0	88.10	178.20	12,428.8	-2,008.1	310.0	2,031.9	171.22	
14,380.0	90.30	179.10	12,430.2	-2,102.1	312.2	2,125.1	171.55	
14,474.0	89.80	178.90	12,430.1	-2,196.1	313.8	2,218.4	171.87	
14,568.0	89.30	178.50	12,430.8	-2,290.0	316.0	2,311.7	172.14	
14,662.0	89.90	178.40	12,431.5	-2,384.0	318.5	2,405.2	172.39	
14,755.0	88.10	176.40	12,433.1	-2,476.9	322.7	2,497.8	172.58	
14,850.0	90.20	177.30	12,434.5	-2,571.7	328.0	2,592.5	172.73	
14,942.0	93.90	179.10	12,431.2	-2,663.6	330.8	2,684.1	172.92	
15,036.0	92.70	180.30	12,425.8	-2,757.4	331.3	2,777.3	173.15	
15,130.0	93.00	180.80	12,421.1	-2,851.3	330.4	2,870.4	173.39	
15,224.0	90.90	182.90	12,417.9	-2,945.2	327.4	2,963.3	173.66	
15,319.0	91.30	182.40	12,416.1	-3,040.1	323.0	3,057.2	173.94	
15,413.0	91.40	182.80	12,413.9	-3,134.0	318.7	3,150.1	174.19	
15,507.0	91.70	183.10	12,411.3	-3,227.8	313.9	3,243.0	174.45	
15,601.0	91.00	182.20	12,409.1	-3,321.7	309.6	3,336.1	174.68	
15,695.0	92.80	183.10	12,406.0	-3,415.5	305.2	3,429.1	174.89	
15,789.0	93.10	183.80	12,401.2	-3,509.2	299.6	3,522.0	175.12	
15,884.0	92.00	180.50	12,396.9	-3,604.0	296.0	3,616.2	175.30	
15,978.0	91.90	179.20	12,393.7	-3,698.0	296.3	3,709.8	175.42	
16,072.0	92.10	179.40	12,390.5	-3,791.9	297.4	3,803.6	175.52	
16,166.0	92.20	179.60	12,386.9	-3,885.8	298.2	3,897.3	175.61	
16,260.0	91.90	179.10	12,383.6	-3,979.8	299.3	3,991.0	175.70	
16,354.0	91.90	179.10	12,380.5	-4,073.7	300.8	4,084.8	175.78	
16,448.0	92.00	180.60	12,377.3	-4,167.7	301.0	4,178.5	175.87	
16,542.0	92.00	180.80	12,374.0	-4,261.6	299.9	4,272.1	175.98	
16,635.0	91.30	181.30	12,371.3	-4,354.5	298.2	4,364.7	176.08	
16,729.0	89.30	178.20	12,370.8	-4,448.5	298.6	4,458.5	176.16	
16,823.0	87.40	178.00	12,373.5	-4,542.4	301.7	4,552.4	176.20	
16,918.0	86.70	177.60	12,378.4	-4,637.2	305.3	4,647.3	176.23	
17,012.0	86.40	177.10	12,384.1	-4,731.0	309.7	4,741.1	176.26	
17,105.0	86.90	176.60	12,389.5	-4,823.7	314.8	4,833.9	176.27	
17,200.0	86.70	176.10	12,394.8	-4,918.3	320.8	4,928.8	176.27	
17,264.0	87.10	176.10	12,398.3	-4,982.1	325.2	4,992.7	176.27	
17,320.0	87.70	176.10	12,400.8	-5,037.9	329.0	5,048.6	176.26	

TD @ 17320.0' MD / 12400.8' TVD



QES Survey Certification Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 27, T25-S, R33-E
Well: Rojo 7811 27 Fed Com #11H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Rojo 7811 27 Fed Com #11H
TVD Reference: WELL @ 3369.0usft
MD Reference: WELL @ 3369.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
165.0	165.0	0.1	-0.4	First MWD Survey @ 165.0' MD / 165.0' TVD
17,320.0	12,400.8	-5,037.9	329.0	TD @ 17320.0' MD / 12400.8' TVD