



30-025-43079

HOBBS OCD

MAY 21 2018

RECEIVED

BTA Oil Producers, LLC

Lea County, NM

Sec 12, T26-S, R32-E

8105 JV-P Mesa #9H

Wellbore #1

Survey: MWD Surveys

QES Survey Report

30 January, 2017



Quintana Energy Services HOBBS OCD

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678

MAY 21 2018

**RECEIVED****Survey Certification Sheet**

Company	Job Number	Date
BTA Oil Producers	WT-170007	1/30/2017

Lease	Well Name	County & State
Sec12,T26-S,R32E	8105 JV-P Mesa #9H	Lea, NM

API No.	Survey Depth Range	Survey Type
30-025-43079	4570 feet to 14600 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	Daniel Longoria

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: 2017.02.01 08:28:15 -06'00'

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

Christopher Hughes

MWD Compliance Manager

Quintana Energy Services



Survey Report

QES

Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well 8105 JV-P Mesa #9H
Project:	Lea County, NM	TVD Reference:	WELL @ 3307.0usft (Nomac #94)
Site:	Sec 12, T26-S, R32-E	MD Reference:	WELL @ 3307.0usft (Nomac #94)
Well:	8105 JV-P Mesa #9H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

Project	Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 12, T26-S, R32-E		
Site Position:		Northing:	387,700.70 usft
From:	Map	Easting:	716,333.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 50.330 N
		Longitude:	103° 38' 5.976 W
		Grid Convergence:	0.37 °

Well	8105 JV-P Mesa #9H		
Well Position	+N-S	0.0 usft	Northing: 387,700.70 usft
	+E-W	0.0 usft	Easting: 716,333.60 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 3' 50.330 N
		Longitude:	103° 38' 5.976 W
		Ground Level:	3,282.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	12/12/2016	(°)
			7.03
			Dip Angle
			(°)
			59.91
			Field Strength
			(nT)
			47,890

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			180.17

Survey Program	Date 1/17/2017		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	4,570.0	Gyro (Wellbore #1)	Good_gyro
4,714.0	14,600.0	MWD Surveys (Wellbore #1)	MWD default
			Description
			Good Gyro
			MWD - Standard

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N-S	+E-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
Gyro Tie-In @ 4570' MD / 4569' TVD									
4,570.0	1.65	155.37	4,569.1	-16.7	13.2	16.7	0.00	0.00	0.00
4,714.0	1.60	150.10	4,713.0	-20.4	15.1	20.3	0.11	-0.03	-3.66
4,873.0	1.80	337.80	4,872.0	-20.0	15.2	19.9	2.13	0.13	-108.36
4,968.0	3.40	354.40	4,966.9	-15.8	14.4	15.7	1.84	1.68	17.47
5,063.0	5.20	0.20	5,061.6	-8.7	14.1	8.6	1.95	1.89	6.11
5,158.0	7.40	358.20	5,156.0	1.7	13.9	-1.8	2.33	2.32	-2.11
5,253.0	7.10	357.20	5,250.3	13.7	13.5	-13.8	0.34	-0.32	-1.05
5,348.0	6.90	356.10	5,344.6	25.3	12.8	-25.3	0.25	-0.21	-1.16
5,443.0	6.80	354.90	5,438.9	36.6	11.9	-36.6	0.18	-0.11	-1.26



Survey Report



Company: BTA Oil Producers, LLC
 Project: Lea County, NM
 Site: Sec 12, T26-S, R32-E
 Well: 8105 JV-P Mesa #9H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well 8105 JV-P Mesa #9H
 TVD Reference: WELL @ 3307.0usft (Nomac #94)
 MD Reference: WELL @ 3307.0usft (Nomac #94)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM5002

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,537.0	6.60	353.30	5,532.2	47.5	10.8	-47.5	0.29	-0.21	-1.70
5,632.0	6.50	353.30	5,626.6	58.3	9.5	-58.3	0.11	-0.11	0.00
5,727.0	6.20	354.70	5,721.0	68.7	8.4	-68.7	0.36	-0.32	1.47
5,822.0	5.90	351.90	5,815.5	78.6	7.2	-78.7	0.44	-0.32	2.95
5,917.0	5.70	348.90	5,910.0	88.1	5.7	-88.1	0.38	-0.21	-3.16
6,012.0	5.70	349.10	6,004.6	97.4	3.9	-97.4	0.02	0.00	0.21
6,107.0	5.70	348.90	6,099.1	106.6	2.1	-106.6	0.02	0.00	-0.21
6,202.0	5.70	348.20	6,193.6	115.9	0.2	-115.9	0.07	0.00	-0.74
6,297.0	5.70	351.00	6,288.2	125.2	-1.5	-125.1	0.29	0.00	2.95
6,392.0	5.90	350.50	6,382.7	134.6	-3.1	-134.6	0.22	0.21	-0.53
6,487.0	5.50	348.50	6,477.2	143.9	-4.8	-143.9	0.47	-0.42	-2.11
6,582.0	5.40	346.10	6,571.8	152.7	-6.8	-152.7	0.26	-0.11	-2.53
6,677.0	5.20	345.60	6,666.4	161.2	-8.9	-161.2	0.22	-0.21	-0.53
6,772.0	6.00	3.80	6,760.9	170.3	-9.6	-170.3	2.04	0.84	19.16
6,866.0	6.30	7.50	6,854.4	180.4	-8.7	-180.3	0.53	0.32	3.94
6,961.0	6.20	353.30	6,948.8	190.6	-8.6	-190.6	1.63	-0.11	-14.95
7,056.0	6.30	349.10	7,043.2	200.8	-10.2	-200.8	0.49	0.11	-4.42
7,151.0	6.10	352.10	7,137.7	211.0	-11.8	-210.9	0.40	-0.21	3.16
7,246.0	6.00	352.40	7,232.2	220.9	-13.2	-220.8	0.11	-0.11	0.32
7,341.0	5.90	351.70	7,326.7	230.6	-14.5	-230.6	0.13	-0.11	-0.74
7,436.0	5.60	351.40	7,421.2	240.0	-15.9	-240.0	0.32	-0.32	-0.32
7,530.0	5.50	349.60	7,514.7	249.0	-17.4	-249.0	0.21	-0.11	-1.91
7,625.0	4.90	346.30	7,609.3	257.4	-19.2	-257.4	0.71	-0.63	-3.47
7,721.0	6.40	353.80	7,704.9	266.7	-20.8	-266.7	1.74	1.56	7.81
7,816.0	6.40	353.80	7,799.3	277.3	-21.9	-277.2	0.00	0.00	0.00
7,911.0	6.00	352.80	7,893.7	287.4	-23.1	-287.4	0.44	-0.42	-1.05
8,006.0	6.00	354.50	7,988.2	297.3	-24.2	-297.2	0.19	0.00	1.79
8,101.0	5.60	351.70	8,082.7	306.8	-25.4	-306.8	0.52	-0.42	-2.95
8,196.0	5.20	350.60	8,177.3	315.7	-26.7	-315.6	0.43	-0.42	-1.16
8,291.0	6.00	351.50	8,271.8	324.8	-28.2	-324.7	0.85	0.84	0.95
8,386.0	5.80	351.50	8,366.3	334.5	-29.6	-334.4	0.21	-0.21	0.00
8,481.0	5.60	350.80	8,460.9	343.8	-31.1	-343.7	0.22	-0.21	-0.74
8,576.0	5.10	348.50	8,555.5	352.5	-32.6	-352.4	0.57	-0.53	-2.42
8,671.0	4.80	346.60	8,650.1	360.5	-34.4	-360.4	0.36	-0.32	-2.00
8,766.0	4.40	342.20	8,744.8	367.9	-36.4	-367.8	0.56	-0.42	-4.63
8,861.0	4.00	338.90	8,839.5	374.4	-38.7	-374.3	0.49	-0.42	-3.47
8,956.0	3.60	334.80	8,934.3	380.2	-41.2	-380.1	0.51	-0.42	-4.32
9,051.0	0.80	280.00	9,065.2	384.1	-43.9	-384.0	2.45	-2.14	-41.83
9,146.0	3.40	210.90	9,136.2	382.4	-45.4	-382.2	4.51	3.66	-97.32
9,241.0	16.40	192.60	9,229.6	366.8	-49.8	-366.7	13.91	13.68	-19.26
9,336.0	26.70	185.20	9,317.8	332.4	-54.7	-332.2	11.19	10.84	-7.79
9,431.0	35.10	182.30	9,399.3	283.7	-57.7	-283.6	8.98	8.84	-3.05
9,526.0	43.60	180.00	9,472.7	223.6	-58.8	-223.4	9.08	8.95	-2.42



Survey Report

QES

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Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well 8105 JV-P Mesa #9H
TVD Reference: WELL @ 3307.0usft (Nomac #94)
MD Reference: WELL @ 3307.0usft (Nomac #94)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,633.0	51.70	178.00	9,536.6	153.4	-57.5	-153.3	8.67	8.53	-2.11
9,728.0	59.20	179.10	9,590.5	75.3	-55.6	-75.1	7.95	7.89	1.16
9,823.0	66.10	178.20	9,634.1	-9.0	-53.6	9.2	7.31	7.26	-0.95
9,918.0	73.60	179.80	9,666.8	-98.1	-52.0	98.3	8.05	7.89	1.68
10,013.0	80.60	179.60	9,688.0	-190.7	-51.6	190.8	7.37	7.37	-0.21
10,108.0	87.10	180.30	9,698.2	-285.1	-51.5	285.2	6.88	6.84	0.74
10,228.0	86.20	180.00	9,705.2	-404.9	-51.8	405.0	0.79	-0.75	-0.25
10,323.0	86.40	179.80	9,711.3	-499.7	-51.6	499.8	0.30	0.21	-0.21
10,418.0	86.30	181.20	9,717.4	-594.5	-52.5	594.6	1.47	-0.11	1.47
10,513.0	86.70	181.20	9,723.2	-689.3	-54.4	689.4	0.42	0.42	0.00
10,608.0	87.20	181.40	9,728.2	-784.1	-56.6	784.3	0.57	0.53	0.21
10,703.0	88.00	181.40	9,732.2	-879.0	-58.9	879.2	0.84	0.84	0.00
10,798.0	86.70	180.90	9,736.6	-973.9	-60.8	974.1	1.47	-1.37	-0.53
10,893.0	87.40	181.70	9,741.5	-1,068.7	-63.0	1,068.9	1.12	0.74	0.84
10,987.0	87.20	180.70	9,745.9	-1,162.6	-64.9	1,162.8	1.08	-0.21	-1.06
11,082.0	87.10	177.90	9,750.6	-1,257.5	-63.8	1,257.7	2.95	-0.11	-2.95
11,178.0	87.10	179.60	9,755.5	-1,353.3	-61.7	1,353.5	1.77	0.00	1.77
11,273.0	87.10	178.90	9,760.3	-1,448.2	-60.4	1,448.4	0.74	0.00	-0.74
11,368.0	86.70	181.00	9,765.4	-1,543.0	-60.4	1,543.2	2.25	-0.42	2.21
11,463.0	87.90	180.10	9,769.9	-1,637.9	-61.3	1,638.1	1.58	1.26	-0.95
11,558.0	89.60	179.40	9,772.0	-1,732.9	-60.9	1,733.1	1.94	1.79	-0.74
11,653.0	90.00	179.80	9,772.3	-1,827.9	-60.2	1,828.1	0.60	0.42	0.42
11,749.0	90.00	180.70	9,772.3	-1,923.9	-60.6	1,924.1	0.94	0.00	0.94
11,843.0	89.90	181.40	9,772.4	-2,017.9	-62.3	2,018.1	0.75	-0.11	0.74
11,938.0	88.60	180.10	9,773.6	-2,112.9	-63.6	2,113.0	1.94	-1.37	-1.37
12,033.0	88.60	181.00	9,775.9	-2,207.8	-64.5	2,208.0	0.95	0.00	0.95
12,128.0	88.70	180.00	9,778.2	-2,302.8	-65.3	2,303.0	1.06	0.11	-1.05
12,223.0	89.50	179.40	9,779.7	-2,397.8	-64.8	2,398.0	1.05	0.84	-0.63
12,318.0	89.50	179.60	9,780.5	-2,492.8	-64.0	2,493.0	0.21	0.00	0.21
12,413.0	89.60	179.60	9,781.3	-2,587.8	-63.3	2,588.0	0.11	0.11	0.00
12,508.0	88.60	180.50	9,782.7	-2,682.8	-63.4	2,682.9	1.42	-1.05	0.95
12,603.0	88.70	180.10	9,785.0	-2,777.7	-63.9	2,777.9	0.43	0.11	-0.42
12,698.0	88.60	180.00	9,787.2	-2,872.7	-64.0	2,872.9	0.15	-0.11	-0.11
12,793.0	88.60	180.70	9,789.5	-2,967.7	-64.6	2,967.9	0.74	0.00	0.74
12,887.0	88.80	180.50	9,791.7	-3,061.6	-65.6	3,061.8	0.30	0.21	-0.21
12,983.0	89.10	180.30	9,793.4	-3,157.6	-66.2	3,157.8	0.38	0.31	-0.21
13,077.0	87.10	180.90	9,796.6	-3,251.6	-67.2	3,251.8	2.22	-2.13	0.64
13,172.0	86.70	180.70	9,801.7	-3,346.4	-68.5	3,346.6	0.47	-0.42	-0.21
13,267.0	87.80	178.90	9,806.2	-3,441.3	-68.2	3,441.5	2.22	1.16	-1.89
13,362.0	90.40	180.00	9,807.7	-3,536.3	-67.3	3,536.5	2.97	2.74	1.16
13,457.0	92.10	178.20	9,805.7	-3,631.2	-65.8	3,631.4	2.61	1.79	-1.89
13,552.0	92.60	178.90	9,801.8	-3,726.1	-63.4	3,726.3	0.91	0.53	0.74
13,647.0	93.30	180.00	9,796.9	-3,821.0	-62.5	3,821.2	1.37	0.74	1.16



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QES

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Design: Wellbore #1

Local Co-ordinate Reference: 8105 JV-P Mesa #9H
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13,742.0	93.20	178.60	9,791.5	-3,915.8	-61.3	3,916.0	1.48	-0.11	-1.47
13,836.0	91.50	179.40	9,787.6	-4,009.7	-59.7	4,009.9	2.00	-1.81	0.85
13,931.0	88.70	178.00	9,787.5	-4,104.7	-57.5	4,104.8	3.30	-2.95	-1.47
14,026.0	89.10	177.70	9,789.3	-4,199.6	-54.0	4,199.8	0.53	0.42	-0.32
14,121.0	87.80	178.70	9,791.9	-4,294.5	-51.0	4,294.7	1.73	-1.37	1.05
14,216.0	87.40	179.40	9,795.8	-4,389.4	-49.4	4,389.6	0.85	-0.42	0.74
14,311.0	88.30	178.20	9,799.4	-4,484.3	-47.4	4,484.5	1.58	0.95	-1.26
14,406.0	88.10	179.40	9,802.4	-4,579.3	-45.4	4,579.4	1.28	-0.21	1.26
14,501.0	88.00	178.40	9,805.6	-4,674.2	-43.6	4,674.3	1.06	-0.11	-1.05
14,548.0	88.10	179.10	9,807.2	-4,721.2	-42.6	4,721.3	1.50	0.21	1.49
TD @ 14600' MD / 9809' TVD									
14,600.0	88.10	179.10	9,809.0	-4,773.1	-41.8	4,773.2	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N-S (usft)	+E-W (usft)	Comment
4,570.0	4,569.1	-16.7	13.2	Gyro Tie-In @ 4570' MD / 4569' TVD
14,600.0	9,809.0	-4,773.1	-41.8	TD @ 14600' MD / 9809' TVD

Checked By: _____ Approved By: _____ Date: _____