BTA Oil Producers, LLC

Lea County, NM (NAD 83)
Sec 1, T26-S, R32-E
8105 JV-P Mesa #13H
Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

03 October, 2017

QES

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-170990	1/25/2018

Lease	Well Name	County & State
SEC 1, T-26S, R2E	8105 JV-P Mesa #13H	Lea County, NM

API No.	Survey Depth Range	Survey Type
30-025-42849	838 feet to 14965 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	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: 2018.01.26 07:48:59 -06'00'

Christopher Hughes
MWD Compliance Manager
Quintana Energy Services

Company:	BTA Oil Producers, LLC	**Local Co-ordinate Reference:**	Well 8105 JV-P Mesa #13H
Project:	Lea County, NM (NAD 83)	**TVD Reference:**	WELL @ 3340.0usft (Patterson #594)
Site:	Sec 1, T26-S, R32-E	**MD Reference:**	WELL @ 3340.0usft (Patterson #594)
Well:	8105 JV-P Mesa #13H	**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)

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

Site Sec 1, T26-S, R32-E

Site Position:		**Northing:**	393,099.20 usft	**Latitude:**	32° 4' 43.446 N
From:	Map	**Easting:**	760,413.30 usft	**Longitude:**	103° 37' 33.646 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.38 °

Well 8105 JV-P Mesa #13H

Well Position	**+N/-S**	0.0 usft	**Northing:**	388,433.10 usft	**Latitude:**	32° 3' 57.233 N
	+E/-W	0.0 usft	**Easting:**	761,029.80 usft	**Longitude:**	103° 37' 26.837 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,315.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/1/2017	6.94	59.91	47,817.95443791

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	179.61

Survey Program **Date** 10/3/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	838.0	MS Gyro Surveys (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
902.0	14,965.0	QES MWD Surveys (Wellbore #1)	MWD default	MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
838.0	1.42	285.28	837.9	-0.6	-10.7	10.8	266.58
MS Gyro Tie-In @ 838.0' MD / 837.9' TVD							
902.0	1.50	288.90	901.9	-0.2	-12.3	12.3	269.25
1,092.0	1.70	297.00	1,091.8	1.9	-17.2	17.3	276.40
1,282.0	1.10	304.50	1,281.8	4.2	-21.2	21.6	281.32
1,473.0	1.10	294.00	1,472.7	6.0	-24.4	25.1	283.88
1,663.0	1.20	291.00	1,662.7	7.5	-27.9	28.9	285.01
1,853.0	1.50	286.00	1,852.6	8.9	-32.1	33.3	285.44
2,043.0	1.50	282.40	2,042.6	10.1	-36.9	38.3	285.28
2,233.0	2.00	284.60	2,232.5	11.5	-42.6	44.1	285.07
2,423.0	2.30	274.10	2,422.4	12.6	-49.6	51.2	284.22

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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 (°)
2,612.0	1.10	116.10	2,611.3	12.0	-51.8	53.1	283.10
2,802.0	0.50	133.50	2,801.3	10.7	-49.5	50.6	282.16
2,992.0	0.30	152.50	2,991.3	9.7	-48.7	49.6	281.22
3,182.0	0.50	170.70	3,181.3	8.4	-48.3	49.0	279.86
3,372.0	1.10	118.00	3,371.3	6.7	-46.6	47.1	278.22
3,562.0	1.90	83.00	3,561.2	6.3	-41.8	42.3	278.50
3,752.0	0.30	88.10	3,751.2	6.7	-38.2	38.8	279.88
3,942.0	0.10	242.30	3,941.2	6.6	-37.9	38.4	279.88
4,132.0	0.80	122.90	4,131.2	5.8	-36.9	37.3	278.93
4,322.0	1.90	127.10	4,321.1	3.2	-33.3	33.4	275.45
4,512.0	1.80	132.40	4,511.0	-0.7	-28.6	28.6	268.52
4,701.0	2.10	125.90	4,699.9	-4.8	-23.6	24.0	258.56
4,869.0	2.30	123.10	4,867.8	-8.4	-18.2	20.1	245.23
5,059.0	1.10	349.30	5,057.7	-8.7	-15.4	17.7	240.50
5,249.0	1.20	355.70	5,247.7	-4.9	-15.9	16.6	252.75
5,438.0	1.30	352.90	5,436.6	-0.8	-16.3	16.3	267.09
5,628.0	1.30	354.40	5,626.6	3.5	-16.8	17.1	281.65
5,818.0	1.20	355.30	5,816.5	7.6	-17.1	18.7	293.87
6,007.0	1.30	0.20	6,005.5	11.7	-17.3	20.9	304.09
6,197.0	1.40	3.60	6,195.4	16.2	-17.1	23.6	313.34
6,387.0	1.40	3.60	6,385.4	20.8	-16.8	26.8	321.00
6,577.0	1.50	0.80	6,575.3	25.6	-16.7	30.6	326.95
6,766.0	0.30	175.50	6,764.3	27.6	-16.6	32.2	328.98
6,956.0	0.30	165.30	6,954.3	26.6	-16.4	31.3	328.31
7,146.0	0.40	153.70	7,144.3	25.5	-16.0	30.1	327.92
7,336.0	0.60	165.60	7,334.3	24.0	-15.5	28.5	327.18
7,525.0	0.90	198.90	7,523.3	21.6	-15.7	26.7	324.01
7,714.0	1.10	180.90	7,712.3	18.4	-16.2	24.5	318.62
7,903.0	1.10	178.30	7,901.2	14.8	-16.2	21.9	312.38
8,093.0	1.10	189.40	8,091.2	11.1	-16.4	19.9	304.16
8,282.0	1.20	186.20	8,280.1	7.4	-16.9	18.5	293.57
8,472.0	1.30	173.60	8,470.1	3.3	-16.9	17.2	280.94
8,662.0	1.20	174.30	8,660.1	-0.9	-16.5	16.5	267.04
8,851.0	1.10	162.60	8,849.0	-4.6	-15.7	16.4	253.87
9,041.0	0.90	144.60	9,039.0	-7.5	-14.3	16.2	242.34
9,165.0	0.70	131.40	9,163.0	-8.8	-13.2	15.9	236.29
9,249.0	4.40	177.60	9,246.9	-12.4	-12.7	17.7	225.71
9,344.0	15.20	186.40	9,340.4	-28.4	-13.9	31.7	206.08
9,438.0	23.60	188.10	9,428.9	-59.4	-17.9	62.0	196.82
9,533.0	30.40	180.20	9,513.6	-102.3	-20.7	104.4	191.45
9,628.0	41.70	177.90	9,590.3	-158.1	-19.6	159.3	187.08
9,723.0	50.10	177.40	9,656.3	-226.2	-16.8	226.8	184.25
9,818.0	57.00	177.10	9,712.7	-302.5	-13.1	302.8	182.49
9,913.0	64.40	178.50	9,759.2	-385.2	-10.0	385.3	181.49

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
10,008.0	73.10	178.80	9,793.6	-473.6	-7.9	473.7	180.96
10,103.0	85.00	180.20	9,811.6	-566.7	-7.1	566.8	180.72
10,221.0	87.10	180.80	9,819.7	-684.4	-8.2	684.5	180.68
10,411.0	88.60	181.10	9,826.8	-874.3	-11.3	874.3	180.74
10,600.0	91.00	180.40	9,827.5	-1,063.2	-13.8	1,063.3	180.74
10,790.0	93.40	181.50	9,820.2	-1,253.0	-16.9	1,253.2	180.77
10,979.0	89.60	179.40	9,815.3	-1,441.9	-18.4	1,442.1	180.73
11,168.0	92.10	179.00	9,812.5	-1,630.9	-15.8	1,631.0	180.55
11,263.0	94.30	178.60	9,807.2	-1,725.7	-13.8	1,725.8	180.46
11,358.0	92.10	178.10	9,801.9	-1,820.5	-11.1	1,820.5	180.35
11,453.0	88.80	177.40	9,801.1	-1,915.4	-7.3	1,915.4	180.22
11,547.0	88.70	176.70	9,803.2	-2,009.3	-2.5	2,009.3	180.07
11,737.0	88.80	176.70	9,807.3	-2,198.9	8.4	2,198.9	179.78
11,927.0	89.90	177.40	9,809.5	-2,388.6	18.2	2,388.7	179.56
12,116.0	86.80	179.00	9,814.9	-2,577.4	24.2	2,577.6	179.46
12,306.0	89.90	180.60	9,820.4	-2,767.3	24.8	2,767.4	179.49
12,496.0	87.60	179.70	9,824.5	-2,957.3	24.3	2,957.4	179.53
12,686.0	89.00	179.40	9,830.2	-3,147.2	25.8	3,147.3	179.53
12,876.0	90.50	179.90	9,831.0	-3,337.2	27.0	3,337.3	179.54
13,065.0	87.80	178.30	9,833.8	-3,526.1	29.9	3,526.2	179.51
13,255.0	89.30	178.50	9,838.6	-3,716.0	35.2	3,716.1	179.46
13,445.0	87.20	178.50	9,844.4	-3,905.8	40.2	3,906.0	179.41
13,635.0	86.60	177.80	9,854.7	-4,095.4	46.3	4,095.7	179.35
13,825.0	87.60	177.80	9,864.3	-4,285.0	53.6	4,285.4	179.28
14,015.0	88.20	176.40	9,871.3	-4,474.7	63.2	4,475.1	179.19
14,205.0	88.20	177.30	9,877.2	-4,664.3	73.7	4,664.9	179.10
14,394.0	91.70	181.30	9,877.4	-4,853.2	76.0	4,853.8	179.10
14,584.0	92.90	179.40	9,869.8	-5,043.0	74.8	5,043.6	179.15
14,774.0	91.70	180.40	9,862.1	-5,232.9	75.1	5,233.4	179.18
14,908.0	93.60	179.40	9,855.9	-5,366.7	75.4	5,367.2	179.20
14,965.0	93.60	179.40	9,852.4	-5,423.6	76.0	5,424.1	179.20

TD @ 14965.0' MD / 9852.7' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
838.0	837.9	-0.6	-10.7	MS Gyro Tie-in @ 838.0' MD / 837.9' TVD
14,965.0	9,852.4	-5,423.6	76.0	TD @ 14965.0' MD / 9852.7' TVD

Checked By: _____ Approved By: _____ Date: _____