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BTA
OIL PRODUCERS

BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 34, T25-S, R33-E

Rojo 7811 34-27 Fed Com #18H

Wellbore #1

HOBBS OCD

SEP 23 2019

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Design: Surveys

QES Survey Certification Report

30 April, 2019



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-190399	5/7/2019

Lease	Well Name	County & State
SEC34, T25-S, R33-E	Rojo 7811 34-27 Feb Com #18H	Lea County, NM

API No.	Survey Depth Range	Survey Type
35-025-44297	157 feet to 20110 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
	David Andersson

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
MWD Compliance Manager

Quintana Energy Services

A large, stylized handwritten signature in black ink, likely belonging to Christopher Hughes, is written over the signature line.



QES Survey Certification Report

QES

Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 34, T25-S, R33-E
 Well: Rojo 7811 34-27 Fed Com #18H
 Wellbore: Wellbore #1
 Design: Surveys

Local Co-ordinate Reference: Well Rojo 7811 34-27 Fed Com #18H
 TVD Reference: WELL @ 3348.0usft (Patterson #566)
 MD Reference: WELL @ 3348.0usft (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 34, T25-S, R33-E

Site Position: Northing: 396,110.60 usft Latitude: 32° 5' 11.910 N
 From: Map Easting: 780,112.60 usft Longitude: 103° 33' 44.445 W
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.41 "

Well Rojo 7811 34-27 Fed Com #18H

Well Position: +N/-S 0.0 usft Northing: 396,110.60 usft Latitude: 32° 5' 11.910 N
 +E/-W 0.0 usft Easting: 780,112.60 usft Longitude: 103° 33' 44.445 W
 Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 3,323.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/5/2019	6.74	59.91	47,673.40855251

Design Surveys

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	1.83

Survey Program Date 4/30/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
157.0	20,110.0	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
157.0	0.10	192.50	157.0	-0.1	0.0	0.1	192.50
First MWD Survey @ 157.0' MD / 157.0' TVD							
268.0	0.10	35.70	268.0	-0.1	0.0	0.1	177.74
360.0	0.60	151.70	360.0	-0.6	0.3	0.6	161.07
453.0	0.40	110.40	453.0	-1.1	0.8	1.3	142.15
546.0	0.40	110.60	546.0	-1.3	1.4	1.9	131.90
639.0	0.50	65.60	639.0	-1.2	2.1	2.4	120.27
732.0	0.70	44.30	732.0	-0.7	2.9	2.9	102.79
826.0	1.20	9.00	826.0	0.7	3.4	3.5	77.90
919.0	1.30	11.40	919.0	2.7	3.8	4.7	54.17
1,012.0	1.10	9.90	1,011.9	4.6	4.1	6.2	41.74



QES Survey Certification Report



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Site:	Sec 34, T25-S, R33-E	MD Reference:	WELL @ 3348.0usft (Patterson #566)
Well:	Rojo 7811 34-27 Fed Com #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Distance (usft)	Closure Azimuth (°)
1,105.0	1.50	13.50	1,104.9	6.7	4.6	8.1	34.33
1,165.0	1.40	15.70	1,164.9	8.2	5.0	9.6	31.25
1,258.0	1.00	13.20	1,257.9	10.1	5.5	11.4	28.47
1,351.0	0.80	29.40	1,350.9	11.4	6.0	12.9	27.56
1,445.0	1.00	26.80	1,444.8	12.7	6.6	14.4	27.59
1,538.0	0.90	37.80	1,537.8	14.0	7.5	15.9	28.01
1,631.0	0.70	32.80	1,630.8	15.1	8.2	17.2	28.59
1,724.0	0.90	41.30	1,723.8	16.1	9.0	18.4	29.22
1,818.0	0.70	40.80	1,817.8	17.1	9.9	19.7	30.00
1,911.0	0.50	42.90	1,910.8	17.8	10.5	20.7	30.55
2,004.0	0.50	37.80	2,003.8	18.4	11.0	21.5	30.91
2,098.0	0.80	46.60	2,097.8	19.2	11.8	22.5	31.49
2,191.0	0.60	56.30	2,190.8	19.9	12.6	23.6	32.40
2,284.0	0.80	68.60	2,283.8	20.4	13.6	24.4	33.53
2,377.0	1.10	65.10	2,376.8	20.9	14.8	25.6	35.21
2,471.0	1.30	64.20	2,470.7	21.8	16.5	27.3	37.23
2,564.0	1.80	68.00	2,563.7	22.8	18.8	29.6	39.81
2,657.0	0.70	109.70	2,656.7	23.1	20.7	31.1	41.87
2,751.0	1.10	114.80	2,750.7	22.6	22.1	31.6	44.40
2,844.0	1.10	115.10	2,843.7	21.8	23.7	32.2	47.40
2,937.0	1.40	113.90	2,936.6	21.0	25.6	33.1	50.64
3,031.0	1.80	102.00	3,030.8	20.2	28.1	34.6	54.25
3,124.0	0.70	90.20	3,123.6	19.9	30.1	36.0	56.50
3,217.0	1.50	75.40	3,216.6	20.2	31.8	37.7	57.58
3,310.0	1.10	132.90	3,309.5	19.9	33.6	39.1	59.39
3,404.0	1.10	111.60	3,403.5	19.0	35.1	39.9	61.66
3,497.0	1.50	89.50	3,496.5	18.6	37.2	41.6	63.38
3,590.0	1.60	77.20	3,589.5	18.9	39.7	43.9	64.49
3,683.0	1.80	62.60	3,682.4	19.8	42.1	46.5	64.78
3,777.0	2.80	93.00	3,776.4	20.3	45.5	49.9	65.97
3,870.0	3.30	91.20	3,869.2	20.1	50.5	54.3	68.27
3,963.0	3.40	76.70	3,962.1	20.7	55.8	59.6	69.66
4,057.0	4.00	67.20	4,055.9	22.6	61.6	65.6	69.83
4,150.0	3.20	52.40	4,148.7	25.5	66.6	71.3	69.09
4,243.0	3.40	59.80	4,241.5	28.4	71.1	76.5	68.20
4,337.0	3.70	86.10	4,335.4	30.0	76.5	82.2	68.56
4,430.0	6.00	109.20	4,428.0	28.6	84.1	88.8	71.19
4,523.0	5.70	111.30	4,520.6	25.4	93.0	96.4	74.74
4,617.0	5.70	114.60	4,614.1	21.7	101.6	103.9	77.93
4,710.0	6.20	125.50	4,706.6	16.9	109.9	111.2	81.26
4,803.0	6.10	126.40	4,799.1	11.0	117.9	118.4	84.65
4,897.0	4.70	109.20	4,892.6	6.8	125.6	125.8	86.90
4,990.0	4.20	104.60	4,985.4	4.7	132.5	132.6	87.97
5,083.0	3.90	99.30	5,078.1	3.3	136.9	136.9	88.63



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QES

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 Project: Lea County, NM (NAD 83)
 Site: Sec 34, T25-S, R33-E
 Well: Rojo 7811 34-27 Fed Com #18H
 Wellbore: Wellbore #1
 Design: Surveys

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Rojo 7811 34-27 Fed Com #18H
 WELL @ 3348.0usft (Patterson #568)
 WELL @ 3348.0usft (Patterson #568)
 Grid
 Minimum Curvature
 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 (°)
5,176.0	4.80	98.80	5,170.9	2.2	145.9	145.9	89.13
5,269.0	5.30	97.70	5,263.5	1.0	154.0	154.0	89.61
5,363.0	5.50	96.90	5,357.1	-0.1	162.7	162.7	90.03
5,456.0	5.30	97.60	5,449.7	-1.2	171.4	171.4	90.39
5,549.0	5.40	96.00	5,542.3	-2.2	180.0	180.0	90.70
5,643.0	5.00	93.50	5,635.9	-2.9	188.5	188.5	90.89
5,736.0	5.30	91.80	5,728.5	-3.3	196.9	196.9	90.96
5,829.0	5.30	92.80	5,821.1	-3.6	205.4	205.5	91.02
5,922.0	4.70	95.10	5,913.7	-4.2	213.5	213.6	91.12
6,016.0	4.70	93.40	6,007.4	-4.8	221.2	221.3	91.23
6,109.0	4.40	94.10	6,100.1	-5.2	228.6	228.6	91.31
6,202.0	4.10	90.00	6,192.9	-5.5	235.5	235.5	91.34
6,296.0	4.00	89.70	6,286.6	-5.5	242.1	242.2	91.30
6,389.0	3.80	90.40	6,379.4	-5.5	248.4	248.5	91.28
6,482.0	3.80	86.80	6,472.2	-5.3	254.6	254.6	91.20
6,576.0	3.90	86.80	6,568.0	-5.0	260.9	260.9	91.09
6,669.0	4.00	84.70	6,658.8	-4.5	267.3	267.3	90.97
6,762.0	4.00	84.20	6,751.6	-3.9	273.7	273.7	90.81
6,856.0	4.10	80.70	6,845.3	-3.0	280.3	280.3	90.61
6,949.0	3.80	83.90	6,938.1	-2.1	286.6	286.7	90.43
7,042.0	3.50	83.30	7,030.9	-1.5	292.5	292.5	90.29
7,135.0	3.20	84.60	7,123.8	-0.9	297.9	297.9	90.17
7,228.0	3.20	91.90	7,216.6	-0.7	303.1	303.1	90.14
7,322.0	2.80	91.40	7,310.5	-0.9	308.0	308.0	90.17
7,415.0	2.60	91.40	7,403.4	-1.0	312.4	312.4	90.18
7,508.0	2.60	92.60	7,496.3	-1.1	316.6	316.6	90.21
7,602.0	2.40	93.20	7,590.2	-1.4	320.7	320.7	90.24
7,695.0	1.80	93.20	7,683.1	-1.5	324.1	324.1	90.27
7,788.0	1.10	103.20	7,778.1	-1.8	326.4	326.5	90.32
7,881.0	0.80	125.00	7,869.1	-2.4	327.8	327.9	90.42
7,975.0	0.60	132.70	7,963.1	-3.1	328.7	328.8	90.54
8,068.0	0.80	135.90	8,056.1	-3.8	329.4	329.5	90.66
8,161.0	0.40	142.40	8,149.1	-4.4	330.0	330.0	90.76
8,254.0	0.40	176.50	8,242.1	-5.0	330.2	330.2	90.86
8,347.0	0.80	217.50	8,335.1	-5.7	329.9	330.0	90.99
8,441.0	0.70	197.80	8,429.1	-6.6	329.4	329.5	91.15
8,534.0	0.80	216.20	8,522.1	-7.6	329.0	329.1	91.32
8,627.0	0.80	224.50	8,615.1	-8.3	328.4	328.5	91.45
8,720.0	0.80	214.10	8,708.1	-9.2	327.7	327.8	91.61
8,813.0	0.60	215.90	8,801.0	10.1	327.0	327.2	91.77
8,907.0	0.70	220.30	8,895.0	-11.0	326.3	326.5	91.92
9,000.0	0.80	252.30	8,988.0	-11.6	325.4	325.6	92.04
9,093.0	0.80	257.90	9,081.0	-11.9	324.3	324.5	92.10
9,186.0	1.00	273.90	9,174.0	-11.9	323.0	323.2	92.12
9,280.0	1.10	279.20	9,268.0	-11.7	321.3	321.5	92.08



QES Survey Certification Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Rojo 7811 34-27 Fed Com #18H
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3348.0usft (Patterson #566)
Site:	Sec 34, T25-S, R33-E	MD Reference:	WELL @ 3348.0usft (Patterson #566)
Well:	Rojo 7811 34-27 Fed Com #18H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Distance (usft)	Closure Azimuth (°)
9,373.0	1.50	275.80	9,361.0	-11.5	319.2	319.4	92.06
9,466.0	1.70	280.60	9,453.9	-11.1	316.6	316.8	92.01
9,559.0	1.30	280.10	9,546.9	-10.5	314.3	314.4	91.91
9,653.0	1.60	293.00	9,640.9	-8.6	312.1	312.2	91.76
9,748.0	0.80	37.60	9,733.9	-8.6	311.3	311.4	91.58
9,839.0	0.90	344.70	9,826.9	-7.4	311.5	311.5	91.35
9,933.0	1.10	308.50	9,920.8	-6.1	310.6	310.6	91.12
10,026.0	1.40	276.20	10,013.8	-5.4	308.7	308.8	91.00
10,120.0	1.90	269.00	10,107.8	-5.3	308.0	308.1	90.99
10,213.0	1.80	274.60	10,200.7	-5.2	303.0	303.1	90.99
10,307.0	0.30	192.30	10,294.7	-5.3	301.5	301.6	91.01
10,400.0	1.00	232.70	10,387.7	-6.1	300.8	300.9	91.16
10,493.0	1.10	267.90	10,480.7	-6.6	299.3	299.3	91.26
10,586.0	1.00	324.50	10,573.7	-6.0	297.9	298.0	91.15
10,680.0	1.60	24.10	10,667.7	-4.1	298.0	298.0	90.79
10,773.0	2.90	49.10	10,760.6	-1.4	300.3	300.3	90.26
10,866.0	2.80	48.20	10,853.5	1.7	303.7	303.8	89.68
10,959.0	2.00	23.40	10,946.4	4.7	308.1	308.1	89.12
11,053.0	2.30	349.30	11,040.3	8.0	306.4	306.5	88.50
11,146.0	2.00	344.20	11,133.3	11.4	305.6	305.8	87.88
11,239.0	1.50	331.40	11,228.2	14.1	304.6	304.9	87.35
11,332.0	2.00	296.90	11,319.2	15.9	302.5	303.0	87.00
11,426.0	2.40	317.10	11,413.1	18.1	299.7	300.3	86.55
11,518.0	2.10	318.40	11,506.0	20.8	297.3	298.0	86.01
11,612.0	2.60	340.50	11,599.0	24.0	295.4	296.4	85.35
11,705.0	2.80	346.80	11,691.9	28.2	294.2	295.6	84.52
11,745.0	2.50	352.50	11,731.8	30.0	293.9	295.4	84.16
11,825.0	0.70	54.10	11,811.8	32.1	294.1	295.8	83.78
11,920.0	15.70	6.90	11,905.6	45.2	296.1	299.5	81.31
12,015.0	25.10	0.60	11,994.5	78.2	297.8	307.9	75.29
12,111.0	33.70	2.00	12,078.1	125.3	299.0	324.2	67.26
12,206.0	42.70	3.60	12,152.7	183.9	301.9	353.5	58.66
12,301.0	51.40	2.60	12,217.3	253.3	305.6	396.9	50.35
12,396.0	58.70	0.30	12,271.7	331.0	307.5	451.9	42.69
12,491.0	67.70	1.00	12,314.5	415.7	308.5	517.7	36.68
12,586.0	74.80	2.40	12,345.0	505.6	311.2	593.7	31.61
12,680.0	79.10	1.00	12,366.2	597.1	313.9	674.6	27.73
12,775.0	79.10	0.30	12,384.2	680.4	315.0	758.9	24.52
12,870.0	84.10	1.10	12,398.1	784.3	316.1	845.6	21.95
12,964.0	91.30	2.20	12,401.9	878.2	318.8	934.2	19.95
13,059.0	92.70	1.30	12,396.5	973.1	321.7	1,024.9	18.30
13,087.0	92.70	2.20	12,397.2	1,001.0	322.6	1,051.7	17.86
13,181.0	90.40	1.10	12,394.7	1,094.9	325.3	1,142.2	16.55
13,276.0	89.90	1.50	12,394.4	1,189.9	327.5	1,234.1	15.39



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 Wellbore: Wellbore #1
 Design: Surveys

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 Survey Calculation Method:
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 WELL @ 3348.0usft (Patterson #566)
 WELL @ 3348.0usft (Patterson #566)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Distance (usft)	Closure Azimuth (°)
13,371.0	92.60	1.10	12,392.4	1,284.8	329.6	1,326.4	14.39
13,466.0	89.10	359.20	12,390.9	1,379.8	329.9	1,418.7	13.44
13,561.0	90.00	1.70	12,391.7	1,474.8	330.6	1,511.4	12.64
13,656.0	90.30	0.10	12,391.4	1,569.8	332.1	1,604.5	11.95
13,751.0	89.80	4.50	12,391.4	1,664.7	335.9	1,698.2	11.41
13,846.0	89.00	2.40	12,392.4	1,759.5	341.8	1,792.4	10.99
13,941.0	89.90	355.90	12,393.3	1,854.4	340.2	1,885.4	10.40
14,036.0	92.10	354.60	12,391.6	1,949.1	332.3	1,977.2	9.68
14,130.0	89.50	348.10	12,390.3	2,041.9	318.2	2,066.6	8.86
14,226.0	89.70	346.20	12,391.0	2,135.5	298.9	2,156.1	7.91
14,320.0	90.30	349.70	12,391.0	2,227.5	277.3	2,244.6	7.10
14,415.0	90.40	353.10	12,390.4	2,321.4	263.0	2,336.2	6.46
14,510.0	90.70	357.30	12,389.5	2,416.0	255.1	2,429.4	6.03
14,605.0	91.20	358.20	12,387.9	2,510.9	251.4	2,523.5	5.72
14,700.0	89.30	357.60	12,387.5	2,605.9	247.9	2,617.6	5.43
14,795.0	89.30	359.70	12,388.6	2,700.8	245.7	2,712.0	5.20
14,891.0	90.70	2.00	12,388.6	2,796.8	247.1	2,807.7	5.05
14,985.0	89.20	4.00	12,388.7	2,890.7	252.0	2,901.6	4.98
15,080.0	88.50	1.10	12,390.6	2,985.5	258.2	2,996.5	4.91
15,174.0	89.20	3.40	12,392.5	3,079.4	259.9	3,090.4	4.82
15,268.0	90.20	5.90	12,393.0	3,173.1	267.5	3,184.4	4.82
15,362.0	89.30	2.40	12,393.4	3,266.9	274.3	3,278.4	4.80
15,456.0	87.80	2.60	12,395.8	3,360.7	278.4	3,372.2	4.74
15,551.0	87.10	5.20	12,400.0	3,455.4	284.9	3,467.1	4.71
15,646.0	86.30	4.50	12,405.5	3,549.9	292.9	3,562.0	4.72
15,741.0	94.10	6.20	12,405.2	3,644.4	301.8	3,656.9	4.73
15,836.0	91.00	3.40	12,400.9	3,739.0	309.7	3,751.8	4.73
15,931.0	92.30	3.40	12,399.2	3,833.6	315.3	3,846.7	4.70
16,026.0	86.40	359.60	12,399.3	3,928.7	317.8	3,941.5	4.62
16,120.0	84.90	0.10	12,406.4	4,022.4	317.6	4,034.9	4.51
16,215.0	92.60	2.00	12,408.5	4,117.3	319.3	4,129.6	4.43
16,310.0	89.30	358.50	12,408.9	4,212.2	319.7	4,224.4	4.34
16,405.0	90.00	358.70	12,407.5	4,307.2	317.4	4,318.9	4.21
16,500.0	90.70	353.90	12,406.9	4,402.0	311.3	4,413.0	4.04
16,595.0	89.10	353.40	12,407.1	4,496.4	300.8	4,508.4	3.83
16,690.0	90.60	356.90	12,407.3	4,591.0	292.7	4,600.4	3.65
16,784.0	91.10	355.50	12,405.9	4,684.8	286.5	4,693.6	3.50
16,879.0	87.70	351.30	12,406.9	4,779.1	275.6	4,787.1	3.30
16,969.0	86.40	354.50	12,411.6	4,868.3	264.5	4,875.5	3.11
17,064.0	88.60	357.30	12,415.7	4,963.0	257.7	4,969.7	2.97
17,159.0	89.70	0.60	12,417.1	5,057.9	256.0	5,064.4	2.90
17,253.0	90.50	1.50	12,416.9	5,151.9	257.7	5,158.4	2.86
17,349.0	92.60	1.70	12,414.4	5,247.8	260.4	5,254.3	2.84
17,443.0	91.80	1.50	12,410.7	5,341.7	263.0	5,348.2	2.82



QES Survey Certification Report



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 34, T25-S, R33-E
 Well: Rojo 7811 34-27 Fed Com #18H
 Wellbore: Wellbore #1
 Design: Surveys

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Rojo 7811 34-27 Fed Com #18H
 WELL @ 3348.0usft (Patterson #586)
 WELL @ 3348.0usft (Patterson #586)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Distance (usft)	Closure Azimuth (°)
17,538.0	91.80	1.70	12,407.8	5,436.6	265.0	5,443.1	2.80
17,633.0	89.90	0.80	12,406.3	5,531.6	267.7	5,538.1	2.77
17,727.0	90.70	1.50	12,405.9	5,625.6	269.6	5,632.0	2.74
17,821.0	90.20	1.50	12,405.1	5,719.6	272.1	5,726.0	2.72
17,916.0	89.00	0.40	12,405.8	5,814.5	273.6	5,821.0	2.69
18,011.0	89.70	359.80	12,406.9	5,909.5	273.9	5,915.9	2.65
18,105.0	91.00	359.70	12,406.3	6,003.5	273.5	6,009.7	2.61
18,199.0	90.20	358.30	12,405.3	6,097.5	271.9	6,103.6	2.55
18,294.0	90.50	357.50	12,404.7	6,192.4	268.4	6,198.2	2.48
18,388.0	90.00	357.80	12,404.3	6,286.3	264.4	6,291.9	2.41
18,483.0	90.30	358.70	12,404.1	6,381.3	261.3	6,386.6	2.35
18,577.0	90.00	355.70	12,403.8	6,475.2	256.7	6,480.3	2.27
18,673.0	89.30	356.80	12,404.4	6,571.0	250.5	6,575.7	2.18
18,767.0	89.10	0.30	12,405.7	6,664.9	248.1	6,669.5	2.13
18,862.0	92.00	2.90	12,404.8	6,759.8	250.7	6,764.5	2.12
18,957.0	88.50	1.80	12,404.4	6,854.7	254.6	6,859.5	2.13
19,051.0	89.30	1.80	12,406.2	6,948.7	257.6	6,953.5	2.12
19,146.0	89.10	1.10	12,407.5	7,043.6	260.0	7,048.4	2.11
19,241.0	90.70	1.80	12,407.7	7,138.6	262.4	7,143.4	2.11
19,336.0	90.80	1.50	12,408.4	7,233.6	265.1	7,238.4	2.10
19,430.0	92.00	0.40	12,404.1	7,327.5	266.7	7,332.4	2.08
19,525.0	89.60	357.80	12,402.8	7,422.5	265.2	7,427.2	2.05
19,621.0	88.90	354.80	12,404.1	7,518.3	259.0	7,522.7	1.97
19,716.0	88.40	351.80	12,406.3	7,612.6	247.9	7,616.6	1.87
19,812.0	89.70	352.70	12,407.9	7,707.7	235.0	7,711.3	1.75
19,907.0	88.00	354.10	12,409.8	7,802.0	224.1	7,805.2	1.65
20,003.0	91.30	356.40	12,410.4	7,897.7	218.1	7,900.6	1.57
20,054.0	90.30	353.40	12,409.7	7,948.5	211.6	7,951.3	1.52
20,110.0	90.30	353.40	12,409.4	8,004.1	205.2	8,006.7	1.47

TD @ 20110.0' MD / 12409.4' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
157.0	157.0	-0.1	0.0	First MWD Survey @ 157.0' MD / 157.0' TVD
20,110.0	12,409.4	8,004.1	205.2	TD @ 20110.0' MD / 12409.4' TVD

Checked By:

Approved By:

Date