

04/05/2019



Jay-Bee Oil & Gas

Pleasants County

P2 Pad

P2S6

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

14 July, 2017

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Environmental Protection



Quintana Energy Services

11390 FM 830
 Willis, TX 77318
 Phone: (936) 856-4332
 Fax: (936) 856-8678

**Survey Certification Sheet**

Company	Job Number	Date
Jay-Bee Oil & Gas, Inc.	AM-170723	9/1/2017

Lease	Well Name	County & State
N/A	P2S6	Pleasants County, WV

API No.	Survey Depth Range	Survey Type
47-073-02566	1773 feet to 13418 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	Adam Ball

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

Christopher Hughes
 MWD Compliance Manager
 Quintana Energy Services

Digitally signed by Christopher Hughes

DN: cn=Christopher Hughes, o=QES,
 ou=compliance,

email=chrish@qeslp.com, c=US

Date: 2017.09.01 11:38:24 -05'00'

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QES Survey Certification Report

04/05/2019



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2S6
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2S6	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

Project	Pleasants County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	P2 Pad				
Site Position:		Northing:	344,470.06 usft	Latitude:	39° 26' 7.746 N
From:	Lat/Long	Easting:	1,532,823.36 usft	Longitude:	81° 2' 33.414 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.98 °

Well	P2S6					
Well Position	+N/-S	0.0 usft	Northing:	344,432.63 usft	Latitude:	39° 26' 7.378 N
	+E/-W	0.0 usft	Easting:	1,532,837.26 usft	Longitude:	81° 2' 33.229 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	712.2 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/29/2017	-8.39	66.72	52,033

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	160.74	

Survey Program	Date	7/14/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	1,773.0	VES Gyro Surveys (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro	
1,850.0	13,418.0	MWD Surveys (Gyro Tie-in) (Wellbore #1)	MWD default	MWD - Standard	

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Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
	1,773.0	0.81	228.35	1,771.9	-15.7	-31.0	34.8	243.10
	VES Gyro Tie In @ 1773.0 'MD / 1771.9 'TVD							
	1,850.0	0.30	252.40	1,848.9	-16.2	-31.6	35.5	242.93
	1,935.0	0.50	281.41	1,933.8	-16.2	-32.2	36.0	243.35
	2,030.0	0.31	196.77	2,028.8	-16.3	-32.7	36.5	243.46
	2,125.0	0.26	216.26	2,123.8	-16.7	-32.9	36.9	243.02
	2,220.0	0.37	114.80	2,218.8	-17.0	-32.7	36.9	242.49
	2,267.0	2.39	302.64	2,265.8	-16.6	-33.4	37.3	243.61
	2,315.0	5.17	298.11	2,313.7	-15.0	-36.2	39.2	247.45
	2,362.0	6.81	295.17	2,360.5	-12.8	-40.6	42.6	252.44
	2,410.0	8.07	288.00	2,408.1	-10.6	-46.3	47.5	257.13



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Site: P2 Pad	MD Reference: well @ 732.8usft (Nomac #81)	
Well: P2S6	North Reference: Grid	
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature	
Design: Wellbore #1	Database: EDM5002	

WV Department of Environmental Protection

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
2,457.0	9.07	287.79	2,454.5	-8.4	-53.0	53.7	260.96
2,505.0	9.83	286.38	2,501.9	-6.1	-60.5	60.9	264.22
2,552.0	11.43	286.47	2,548.1	-3.7	-68.9	69.0	266.95
2,600.0	13.98	290.77	2,594.9	-0.3	-78.8	78.8	269.80
2,647.0	15.21	291.55	2,640.4	4.0	-89.9	90.0	272.55
2,694.0	16.98	293.81	2,685.5	9.0	-101.9	102.3	275.07
2,741.0	19.14	290.27	2,730.2	14.5	-115.4	116.3	277.15
2,789.0	18.19	286.63	2,775.7	19.4	-130.0	131.4	278.47
2,836.0	17.76	279.04	2,820.4	22.6	-144.1	145.8	278.91
2,884.0	19.04	277.52	2,866.0	24.8	-159.1	161.0	278.85
2,979.0	18.74	278.40	2,955.8	29.0	-189.5	191.7	278.70
3,074.0	18.61	277.55	3,045.8	33.2	-219.7	222.2	278.60
3,168.0	16.98	277.18	3,135.3	36.9	-248.1	250.9	278.46
3,215.0	15.86	275.88	3,180.4	38.4	-261.3	264.2	278.37
3,263.0	16.32	281.96	3,226.5	40.5	-274.5	277.4	278.40
3,310.0	17.34	286.78	3,271.5	43.9	-287.6	291.0	278.68
3,358.0	19.00	290.22	3,317.1	48.7	-301.8	305.7	279.16
3,453.0	22.21	288.55	3,406.0	59.7	-333.4	338.7	280.16
3,548.0	22.37	284.47	3,494.0	70.0	-367.9	374.5	280.77
3,642.0	21.14	280.19	3,581.3	77.4	-401.9	409.3	280.90
3,737.0	20.73	281.66	3,670.0	83.9	-435.2	443.2	280.91
3,832.0	21.13	287.27	3,758.7	92.3	-468.0	477.1	281.16
3,927.0	21.22	279.79	3,847.3	100.3	-501.3	511.3	281.32
4,022.0	19.24	270.18	3,936.5	103.3	-534.0	543.9	280.95
4,117.0	19.55	270.38	4,026.1	103.5	-565.5	574.9	280.37
4,212.0	18.26	276.17	4,116.0	105.2	-596.2	605.4	280.00
4,306.0	17.91	281.27	4,205.3	109.6	-625.0	634.5	279.94
4,404.0	19.46	286.04	4,298.2	117.0	-655.5	665.8	280.12
4,499.0	22.20	285.13	4,387.0	126.1	-688.0	699.5	280.39
4,594.0	20.46	280.82	4,475.5	133.9	-721.7	734.0	280.51
4,688.0	20.45	282.85	4,563.5	140.6	-753.8	766.8	280.57
4,783.0	20.01	290.71	4,652.7	150.1	-785.2	799.4	280.82
4,878.0	21.34	294.13	4,741.6	162.9	-816.2	832.3	281.29
4,973.0	20.45	289.06	4,830.3	175.4	-847.6	865.6	281.69
5,068.0	18.63	275.02	4,919.9	182.1	-878.5	897.1	281.71
5,162.0	16.89	249.78	5,009.6	178.7	-906.3	923.7	281.16
5,257.0	18.68	223.29	5,100.2	162.9	-929.7	943.9	279.94
5,347.0	22.80	207.30	5,184.4	136.8	-947.6	957.4	278.22
5,394.0	23.80	200.10	5,227.6	119.8	-955.0	962.5	277.15
5,442.0	23.40	187.10	5,271.6	101.3	-959.6	964.9	276.02
5,489.0	24.70	178.70	5,314.5	82.2	-960.5	964.0	274.89
5,537.0	26.30	174.10	5,357.8	61.6	-959.2	961.1	273.67
5,584.0	29.10	169.00	5,399.4	40.0	-955.9	956.7	272.40
5,631.0	33.00	165.40	5,439.7	16.4	-950.5	950.6	270.99



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Design: Wellbore #1

Local Co-ordinate Reference: Well P2S6
TVD Reference: well @ 732.8usft (Nomac #81)
MD Reference: well @ 732.8usft (Nomac #81)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
5,678.0	37.00	163.70	5,478.2	-9.6	-943.3	943.3	269.42
5,726.0	40.70	162.40	5,515.6	-38.4	-934.5	935.3	267.65
5,773.0	44.90	163.40	5,550.1	-68.9	-925.1	927.7	265.74
5,821.0	49.50	164.20	5,582.7	-102.7	-915.3	921.1	263.60
5,868.0	53.70	164.50	5,611.8	-138.2	-905.4	915.9	261.32
5,916.0	58.20	164.70	5,638.7	-176.5	-894.8	912.1	258.84
5,963.0	63.10	165.20	5,661.7	-216.1	-884.2	910.2	256.27
6,009.0	66.80	163.10	5,681.2	-256.1	-872.8	909.6	253.64
6,056.0	70.60	161.80	5,698.3	-297.9	-859.6	909.8	250.89
6,103.0	74.50	161.40	5,712.4	-340.4	-845.5	911.4	248.07
6,150.0	77.50	161.40	5,723.8	-383.6	-830.9	915.2	245.22
6,198.0	81.30	159.60	5,732.6	-428.1	-815.2	920.7	242.29
6,293.0	85.80	156.30	5,743.3	-515.6	-779.7	934.8	236.53
6,388.0	87.30	153.00	5,749.0	-601.2	-739.1	952.8	230.87
6,482.0	89.30	152.50	5,751.8	-684.8	-696.1	976.5	225.47
6,578.0	91.00	151.10	5,751.5	-769.4	-650.7	1,007.7	220.23
6,673.0	91.30	151.20	5,749.6	-852.6	-604.9	1,045.4	215.36
6,768.0	90.10	149.00	5,748.4	-934.9	-557.6	1,088.5	210.81
6,862.0	88.50	146.10	5,749.6	-1,014.2	-507.1	1,133.9	206.57
6,957.0	90.20	149.00	5,750.7	-1,094.4	-456.2	1,185.6	202.63
7,052.0	89.10	148.40	5,751.2	-1,175.5	-406.8	1,243.9	199.09
7,147.0	89.40	148.00	5,752.5	-1,256.3	-356.8	1,305.9	195.85
7,242.0	92.20	151.20	5,751.2	-1,338.2	-308.7	1,373.3	192.99
7,336.0	90.50	153.60	5,748.9	-1,421.4	-265.2	1,446.0	190.57
7,431.0	90.20	157.40	5,748.4	-1,507.9	-225.8	1,524.7	188.52
7,526.0	90.90	156.60	5,747.5	-1,595.3	-188.7	1,606.4	186.74
7,621.0	90.10	156.90	5,746.6	-1,682.6	-151.2	1,689.4	185.13
7,715.0	89.80	156.70	5,746.7	-1,769.0	-114.1	1,772.7	183.69
7,810.0	89.40	153.50	5,747.4	-1,855.1	-74.2	1,856.6	182.29
7,905.0	89.70	157.50	5,748.1	-1,941.6	-34.8	1,941.9	181.03
8,000.0	89.40	155.50	5,748.9	-2,028.7	3.1	2,028.7	179.91
8,094.0	89.80	152.70	5,749.5	-2,113.2	44.2	2,113.7	178.80
8,189.0	89.60	156.30	5,750.0	-2,199.0	85.1	2,200.6	177.78
8,284.0	89.50	154.10	5,750.8	-2,285.2	124.9	2,288.6	176.87
8,379.0	88.60	153.50	5,752.3	-2,370.4	166.8	2,376.3	175.97
8,473.0	89.50	154.40	5,753.9	-2,454.9	208.1	2,463.7	175.15
8,568.0	89.50	154.10	5,754.7	-2,540.4	249.4	2,552.6	174.39
8,663.0	89.70	153.90	5,755.4	-2,625.8	291.0	2,641.9	173.68
8,758.0	90.10	154.70	5,755.6	-2,711.4	332.2	2,731.7	173.01
8,853.0	90.20	154.30	5,755.3	-2,797.1	373.1	2,821.9	172.40
8,948.0	90.00	153.70	5,755.1	-2,882.5	414.8	2,912.2	171.81
9,042.0	90.20	153.60	5,755.0	-2,966.8	456.5	3,001.7	171.25
9,137.0	89.50	152.90	5,755.2	-3,051.6	499.2	3,092.2	170.71
9,232.0	89.70	151.90	5,755.9	-3,135.8	543.3	3,182.5	170.17



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 Project: Pleasants County
 Site: P2 Pad
 Well: P2S6
 Wellbore: Wellbore #1
 Design: Wellbore #1

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

Well P2S6
 well @ 732.8usft (Nomac #81)
 well @ 732.8usft (Nomac #81)
 Grid
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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
9,326.0	89.20	150.20	5,756.8	-3,218.0	588.8	3,271.4	169.63
9,421.0	89.60	153.30	5,757.8	-3,301.7	633.7	3,362.0	169.14
9,516.0	90.20	154.60	5,758.0	-3,387.0	675.4	3,453.7	168.72
9,611.0	89.40	154.80	5,758.3	-3,472.9	716.0	3,546.0	168.35
9,706.0	89.80	154.10	5,758.9	-3,558.6	757.0	3,638.3	167.99
9,801.0	89.50	152.20	5,759.5	-3,643.4	799.9	3,730.2	167.62
9,895.0	89.40	155.30	5,760.4	-3,727.7	841.5	3,821.5	167.28
9,990.0	89.90	156.80	5,761.0	-3,814.5	880.0	3,914.7	167.01
10,085.0	89.80	158.10	5,761.3	-3,902.2	916.5	4,008.4	166.78
10,180.0	89.50	154.50	5,761.8	-3,989.2	954.6	4,101.8	166.54
10,274.0	89.60	153.40	5,762.6	-4,073.7	995.9	4,193.6	166.26
10,369.0	90.30	154.00	5,762.7	-4,158.8	1,038.0	4,286.4	165.99
10,464.0	89.40	152.70	5,762.9	-4,243.7	1,080.6	4,379.2	165.71
10,558.0	89.50	153.00	5,763.8	-4,327.4	1,123.5	4,470.8	165.45
10,653.0	89.10	152.20	5,765.0	-4,411.7	1,167.2	4,563.5	165.18
10,747.0	89.30	151.90	5,766.3	-4,494.7	1,211.3	4,655.1	164.92
10,842.0	89.60	152.30	5,767.2	-4,578.7	1,255.7	4,747.8	164.66
10,937.0	89.60	150.70	5,767.9	-4,662.2	1,301.1	4,840.3	164.41
11,031.0	90.10	153.10	5,768.1	-4,745.1	1,345.3	4,932.1	164.17
11,126.0	90.40	152.60	5,767.7	-4,829.6	1,388.7	5,025.3	163.96
11,221.0	90.50	152.40	5,766.9	-4,913.9	1,432.6	5,118.4	163.75
11,315.0	90.30	151.20	5,766.3	-4,996.7	1,477.0	5,210.4	163.53
11,410.0	89.90	154.10	5,766.1	-5,081.1	1,520.6	5,303.7	163.34
11,505.0	89.80	153.40	5,766.4	-5,166.3	1,562.6	5,397.4	163.17
11,600.0	89.70	153.30	5,766.8	-5,251.2	1,605.2	5,491.1	163.00
11,695.0	89.20	155.50	5,767.7	-5,336.9	1,646.3	5,585.0	162.86
11,789.0	89.30	155.70	5,768.9	-5,422.5	1,685.1	5,678.3	162.74
11,884.0	89.60	156.30	5,769.8	-5,509.2	1,723.7	5,772.6	162.63
11,978.0	90.10	153.80	5,770.1	-5,594.5	1,763.4	5,865.8	162.50
12,073.0	89.80	154.20	5,770.2	-5,679.8	1,805.0	5,959.8	162.37
12,168.0	89.50	153.20	5,770.8	-5,765.0	1,847.1	6,053.7	162.23
12,263.0	89.10	153.40	5,771.9	-5,849.9	1,889.8	6,147.5	162.10
12,358.0	88.90	153.30	5,773.6	-5,934.8	1,932.4	6,241.4	161.96
12,452.0	89.10	153.10	5,775.2	-6,018.7	1,974.8	6,334.3	161.83
12,547.0	90.30	153.60	5,775.7	-6,103.6	2,017.4	6,428.3	161.71
12,642.0	90.30	153.10	5,775.2	-6,188.5	2,060.0	6,522.3	161.59
12,737.0	90.10	151.80	5,774.9	-6,272.7	2,104.0	6,616.1	161.46
12,832.0	89.50	154.10	5,775.2	-6,357.3	2,147.2	6,710.1	161.34
12,926.0	89.70	153.20	5,775.9	-6,441.5	2,188.9	6,803.3	161.23
13,021.0	90.30	153.30	5,775.9	-6,526.4	2,231.6	6,897.4	161.12
13,116.0	90.40	153.10	5,775.3	-6,611.1	2,274.5	6,991.5	161.02
13,211.0	90.30	151.30	5,774.7	-6,695.2	2,318.8	7,085.3	160.90
13,306.0	89.00	150.50	5,775.3	-6,778.2	2,365.0	7,178.9	160.77
13,363.0	89.50	149.70	5,776.0	-6,827.6	2,393.4	7,234.9	160.68



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Well:	P2S6	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
13,418.0	89.50	149.70	5,776.5	-6,875.1	2,421.1	7,288.9	160.60
TD @ 13418.0' MD / 5776.5' TVD							

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,773.0	1,771.9	-15.7	-31.0	VES Gyro Tie In @ 1773.0 'MD / 1771.9 'TVD
13,418.0	5,776.5	-6,875.1	2,421.1	TD @ 13418.0' MD / 5776.5' TVD

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