



QES Survey Certification Report



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	

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	

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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JUN 15 2018
WV Department of Environmental Protection



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

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



QES Survey Certification Report



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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

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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