



Jay-Bee Oil & Gas

Pleasants County

P4 Pad

P4N2U

ST01

Design: ST01

QES Survey Report

27 April, 2019

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WV Department of
Environmental Protection



06/18/2021



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4N2U
Project:	Pleasants County	TVD Reference:	RKB @ 977.8usft (Patterson #581)
Site:	P4 Pad	MD Reference:	RKB @ 977.8usft (Patterson #581)
Well:	P4N2U	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

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	P4 Pad				
Site Position:		Northing:	341,266.74 usft	Latitude:	39° 25' 34.766 N
From:	Lat/Long	Easting:	1,525,094.26 usft	Longitude:	81° 4' 11.201 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.00 °

Well	P4N2U					
Well Position	+N-S	0.0 usft	Northing:	341,280.21 usft	Latitude:	39° 25' 34.911 N
	+E-W	0.0 usft	Easting:	1,525,162.88 usft	Longitude:	81° 4' 10.329 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	957.2 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/16/2019	-8.43	66.57	51,820.71020898

Design	ST01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	9,791.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0		342.21

Survey Program	Date	4/27/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.0	350.0	VES Gyro (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro	
419.0	9,791.0	QES MWD Surveys (Wellbore #1)	OWSG MWD - Standard	OWSG MWD - Standard	
9,850.0	17,380.0	QES MWD Surveys ST01 (ST01)	OWSG MWD - Standard	OWSG MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00			0.00
50.0	0.15	142.80	50.0	-0.1	0.0	-0.1	0.30			0.00
100.0	0.67	152.02	100.0	-0.4	0.2	-0.4	1.04			18.44
150.0	0.28	125.27	150.0	-0.7	0.5	-0.8	0.88			-53.50
200.0	0.42	281.83	200.0	-0.7	0.4	-0.8	1.37			0.28
250.0	0.62	281.75	250.0	-0.6	-0.1	-0.6	0.40			-0.16
300.0	0.82	269.74	300.0	-0.6	-0.7	-0.3	0.50			-24.02
350.0	0.76	282.90	350.0	-0.5	-1.4	-0.1	0.38			26.32
419.0	0.73	298.78	419.0	-0.2	-2.2	0.5	0.30			23.01

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514.0	1.16	23.95	514.0	1.0	-2.3	1.6	1.39	0.45	89.65
608.0	2.61	41.97	607.9	3.4	-0.5	3.4	1.65	1.54	19.17
703.0	3.94	45.02	702.8	7.4	3.2	6.0	1.41	1.40	3.21
798.0	5.15	51.18	797.5	12.3	8.9	9.0	1.37	1.27	6.48
892.0	6.49	49.18	891.0	18.5	16.2	12.6	1.44	1.43	-2.13
987.0	6.17	46.26	985.4	25.5	23.9	17.0	0.48	-0.34	-3.07
1,082.0	5.36	56.31	1,079.9	31.5	31.3	20.4	1.36	-0.85	10.58
1,176.0	3.61	64.85	1,173.6	35.2	37.6	22.0	1.99	-1.86	9.09
1,271.0	1.56	71.09	1,268.5	36.9	41.6	22.4	2.17	-2.16	6.57
1,366.0	0.30	221.28	1,363.5	37.1	42.6	22.3	1.92	-1.33	158.09
1,461.0	2.12	247.08	1,458.5	36.2	40.8	22.0	1.95	1.92	27.16
1,555.0	2.20	237.78	1,552.4	34.6	37.7	21.4	0.38	0.09	-9.89
1,653.0	0.33	248.50	1,650.4	33.5	35.9	20.9	1.92	-1.91	10.94
1,748.0	2.10	7.70	1,745.4	35.1	35.8	22.5	2.40	1.86	125.47
1,842.0	2.65	2.38	1,839.3	39.0	36.2	26.1	0.63	0.59	-5.66
1,937.0	1.26	31.73	1,934.2	42.1	36.8	28.8	1.76	-1.46	30.89
2,032.0	2.24	138.95	2,029.2	41.6	38.6	27.8	3.03	1.03	112.86
2,063.0	3.00	145.95	2,060.2	40.4	39.4	26.5	2.66	2.45	22.58
2,211.0	4.02	153.11	2,207.9	32.6	43.9	17.6	0.75	0.69	4.84
2,305.0	2.06	164.18	2,301.8	28.0	45.9	12.7	2.17	-2.09	11.78
2,400.0	0.41	190.25	2,396.7	26.0	46.3	10.7	1.79	-1.74	27.44
2,495.0	0.22	257.59	2,491.7	25.7	46.0	10.4	0.40	-0.20	70.88
2,590.0	0.27	158.28	2,586.7	25.4	46.0	10.2	0.39	0.05	-104.54
2,685.0	0.29	127.16	2,681.7	25.1	46.2	9.8	0.16	0.02	-32.76
2,779.0	0.08	57.14	2,775.7	25.0	46.5	9.6	0.29	-0.22	-74.49
2,874.0	0.23	299.13	2,870.7	25.1	46.4	9.7	0.29	0.16	-124.22
2,968.0	0.37	294.22	2,964.7	25.3	45.9	10.1	0.15	0.15	-5.22
3,063.0	0.49	300.07	3,059.7	25.6	45.3	10.6	0.13	0.13	6.16
3,158.0	0.45	311.45	3,154.7	26.1	44.7	11.2	0.11	-0.04	11.98
3,252.0	0.49	313.86	3,248.7	26.6	44.1	11.9	0.05	0.04	2.56
3,347.0	0.46	326.73	3,343.7	27.2	43.6	12.6	0.12	-0.03	13.55
3,442.0	0.35	337.58	3,438.7	27.8	43.3	13.3	0.14	-0.12	11.42
3,536.0	0.40	310.81	3,532.7	28.3	42.9	13.8	0.19	0.05	-28.48
3,631.0	0.15	322.97	3,627.7	28.6	42.6	14.2	0.27	0.26	12.80
3,725.0	0.19	314.38	3,721.7	28.8	42.4	14.5	0.08	0.04	-9.14
3,819.0	0.19	3.65	3,815.7	29.1	42.3	14.8	0.00	0.00	52.41
3,913.0	0.19	131.06	3,909.7	29.1	42.4	14.8	0.00	0.00	135.54
4,007.0	0.17	204.93	4,003.7	28.9	42.5	14.5	0.23	-0.02	78.59
4,102.0	0.45	190.54	4,098.7	28.4	42.4	14.1	0.30	0.00	-15.15
4,196.0	0.99	205.85	4,192.7	27.3	41.9	13.2	0.60	0.00	16.29
4,291.0	0.91	184.45	4,287.7	25.8	41.5	11.9	0.98	-0.08	-22.53
4,386.0	0.31	216.27	4,382.7	24.9	41.3	11.0	0.70	-0.63	33.49
4,481.0	0.15	157.84	4,477.7	24.5	41.2	10.8	0.28	-0.17	-61.51

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4,576.0	1.32	140.06	4,572.7	23.6	42.0	9.6	1.24	1.23	-18.72
4,671.0	1.71	142.21	4,667.6	21.6	43.5	7.3	0.41	0.41	2.26
4,765.0	0.92	118.38	4,761.6	20.2	45.0	5.4	1.00	-0.84	-25.35
4,860.0	1.28	124.27	4,856.6	19.2	46.6	4.0	0.40	0.38	6.20
4,955.0	1.22	113.73	4,951.6	18.2	48.4	2.5	0.25	-0.06	-11.09
5,049.0	0.87	66.11	5,045.6	18.1	50.0	1.9	0.96	-0.37	-50.66
5,144.0	0.90	54.32	5,140.6	18.8	51.2	2.3	0.19	0.03	-12.41
5,239.0	1.33	36.29	5,235.5	20.1	52.5	3.1	0.58	0.45	-18.98
5,334.0	3.50	44.63	5,330.4	23.1	55.2	5.1	2.31	2.28	8.78
5,429.0	6.18	50.10	5,425.1	28.4	61.1	8.4	2.86	2.82	5.76
5,524.0	8.73	55.71	5,519.3	35.8	71.0	12.4	2.79	2.68	5.91
5,618.0	11.10	60.40	5,611.9	44.3	84.8	16.2	2.66	2.52	4.99
5,713.0	13.29	68.26	5,704.7	52.8	102.9	18.9	2.89	2.31	8.27
5,807.0	12.59	68.65	5,796.3	60.6	122.5	20.2	0.75	-0.74	0.41
5,902.0	12.85	65.52	5,889.0	68.7	141.7	22.1	0.78	0.27	-3.29
5,997.0	12.71	64.59	5,981.7	77.6	160.8	24.7	0.26	-0.15	-0.98
6,280.0	12.46	59.97	6,257.9	106.2	215.3	35.3	0.37	-0.09	-1.63
6,375.0	12.92	60.40	6,350.6	116.6	233.4	39.7	0.49	0.48	0.45
6,469.0	14.23	69.05	6,441.9	125.9	253.4	42.5	2.57	1.39	9.20
6,564.0	14.30	70.89	6,534.0	133.9	275.4	43.4	0.48	0.07	1.94
6,658.0	12.88	64.14	6,625.4	142.3	295.8	45.1	2.26	-1.51	-7.18
6,753.0	12.52	62.77	6,718.1	151.6	314.4	48.3	0.49	-0.38	-1.44
6,942.0	14.36	66.96	6,901.9	170.2	354.2	53.8	1.10	0.97	2.22
7,037.0	15.87	68.25	6,993.6	179.6	377.1	55.8	1.63	1.59	1.36
7,132.0	15.07	67.49	7,085.1	189.1	400.6	57.7	0.87	-0.84	-0.80
7,226.0	14.90	66.54	7,175.9	198.6	423.0	59.9	0.32	-0.18	-1.01
7,321.0	15.03	67.76	7,267.7	208.1	445.6	62.0	0.36	0.14	1.28
7,416.0	16.73	69.34	7,359.1	217.6	469.8	63.7	1.85	1.79	1.66
7,511.0	18.24	71.38	7,449.7	227.2	496.7	64.6	1.72	1.59	2.15
7,606.0	15.26	68.73	7,540.7	236.5	522.4	65.6	3.24	-3.14	-2.79
7,700.0	13.77	61.49	7,631.7	246.3	543.8	68.4	2.49	-1.59	-7.70
7,795.0	14.93	64.49	7,723.7	257.0	564.8	72.1	1.45	1.22	3.16
7,890.0	16.55	68.11	7,815.1	267.3	588.4	74.8	1.99	1.71	3.81
7,985.0	17.24	73.31	7,906.0	276.4	614.4	75.5	1.75	0.73	5.47
8,080.0	17.93	80.64	7,996.6	282.8	642.3	73.0	2.44	0.73	7.72
8,174.0	17.92	80.63	8,086.1	287.5	670.9	68.8	0.01	-0.01	-0.01
8,269.0	17.19	81.49	8,176.6	292.0	699.2	64.4	0.82	0.91	0.91
8,363.0	15.82	82.13	8,266.8	295.8	725.6	59.9	0.82	-1.46	0.68
8,469.0	15.05	79.58	8,368.9	300.2	753.4	55.7	0.97	0.93	-2.41
8,557.0	15.71	77.18	8,453.8	305.0	776.3	53.2	0.97	0.93	-2.73
8,652.0	16.59	72.12	8,545.0	312.0	801.8	52.1	1.31	1.31	-5.33
8,746.0	17.82	72.40	8,634.8	320.4	828.2	52.1	1.31	1.31	0.30
8,841.0	17.99	72.10	8,725.2	329.4	856.1	52.1	0.20	0.18	-0.32

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8,935.0	17.35	70.34	8,814.8	338.5	883.1	52.5	0.89	-0.68	-1.87	
9,030.0	17.36	70.55	8,905.5	348.0	909.8	53.4	0.07	0.01	0.22	
9,125.0	16.94	75.09	8,996.2	356.3	936.5	53.1	1.48	-0.44	4.78	
9,220.0	15.12	76.91	9,087.5	362.7	962.0	51.4	1.99	-1.92	1.92	
9,314.0	13.30	80.85	9,178.7	367.2	984.6	48.8	2.19	-1.94	4.19	
9,409.0	12.95	83.57	9,271.2	370.1	1,005.9	45.1	0.75	-0.37	2.86	
9,506.0	11.80	81.87	9,365.9	372.7	1,026.6	41.2	1.24	-1.19	-1.75	
9,601.0	8.70	76.30	9,459.4	375.8	1,043.2	39.1	3.42	-3.26	-5.86	
9,696.0	6.40	69.30	9,553.6	379.4	1,055.1	38.9	2.60	-2.42	-7.37	
ST01 Tie In @ 9791.0'MD / 9648.1' TVD										
9,791.0	4.50	59.50	9,648.1	383.1	1,063.3	39.9	2.22	-2.00	-10.32	
9,850.0	11.40	40.30	9,706.6	388.8	1,069.0	43.5	12.37	11.69	-32.54	
9,898.0	15.50	31.60	9,753.2	397.8	1,075.5	50.2	9.50	8.54	-18.13	
9,945.0	19.20	20.40	9,798.1	410.4	1,081.4	60.4	10.57	7.87	-23.83	
9,993.0	22.40	10.40	9,843.0	426.8	1,085.9	74.7	9.94	6.67	-20.83	
10,040.0	25.80	2.80	9,885.9	445.9	1,088.0	92.1	9.78	7.23	-16.17	
10,088.0	28.40	356.60	9,928.6	467.7	1,087.8	113.0	7.99	5.42	-12.92	
10,135.0	32.40	353.40	9,969.2	491.4	1,085.7	136.2	9.18	8.51	-6.81	
10,183.0	36.40	352.90	10,008.8	518.3	1,082.5	162.8	8.35	8.33	-1.04	
10,230.0	40.90	349.50	10,045.5	547.3	1,077.9	191.8	10.58	9.57	-7.23	
10,277.0	44.70	347.50	10,079.9	578.6	1,071.5	223.5	8.59	8.09	-4.26	
10,324.0	48.80	345.50	10,112.1	611.8	1,063.5	257.6	9.26	8.72	-4.26	
10,372.0	51.30	343.30	10,143.0	647.3	1,053.6	294.4	6.28	5.21	-4.58	
10,419.0	53.20	341.80	10,171.7	682.7	1,042.5	331.6	4.77	4.04	-3.19	
10,467.0	55.30	340.90	10,199.8	719.6	1,030.0	370.5	4.63	4.38	-1.88	
10,514.0	58.50	339.10	10,225.4	756.6	1,016.5	409.9	7.53	6.81	-3.83	
10,562.0	62.80	337.90	10,249.0	795.5	1,001.2	451.6	9.22	8.96	-2.50	
10,609.0	67.30	337.70	10,268.8	835.0	985.1	494.1	9.58	9.57	-0.43	
10,657.0	71.80	338.90	10,285.5	876.8	968.5	538.9	9.66	9.38	2.50	
10,704.0	76.80	339.70	10,298.3	919.1	952.5	584.1	10.76	10.64	1.70	
10,751.0	81.50	339.90	10,307.1	962.4	936.6	630.2	10.01	10.00	0.43	
10,798.0	87.30	340.20	10,311.7	1,006.3	920.6	676.9	12.36	12.34	0.64	
10,846.0	92.70	342.00	10,311.7	1,051.7	905.1	724.9	11.86	11.25	3.75	
10,940.0	89.30	336.60	10,310.0	1,139.6	871.9	818.7	6.79	-3.62	-5.74	
11,035.0	90.40	335.50	10,310.3	1,226.4	833.3	913.2	1.64	1.16	-1.16	
11,130.0	92.70	336.00	10,307.7	1,313.0	794.3	1,007.5	2.48	2.42	0.53	
11,225.0	90.10	330.70	10,305.4	1,397.8	751.7	1,101.3	6.21	6.21	-5.58	
11,319.0	92.10	332.50	10,303.6	1,480.5	707.0	1,193.7	2.86	2.86	1.91	
11,414.0	91.30	327.90	10,300.8	1,562.9	659.8	1,286.5	4.91	4.91	-4.84	
11,508.0	89.90	326.80	10,299.8	1,642.0	609.1	1,377.4	1.89	-1.49	-1.17	
11,603.0	93.10	331.10	10,297.3	1,723.3	560.2	1,469.8	5.64	3.37	4.53	
11,698.0	89.50	327.80	10,295.2	1,805.1	511.9	1,562.4	5.14	3.79	-3.47	
11,793.0	86.80	327.00	10,298.2	1,885.1	460.8	1,654.2	2.96	-2.84	-0.84	
11,888.0	89.20	326.90	10,301.5	1,964.7	409.0	1,745.8	2.53	2.53	-0.11	

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4N2U
Project:	Pleasants County	TVD Reference:	RKB @ 977.8usft (Patterson #581)
Site:	P4 Pad	MD Reference:	RKB @ 977.8usft (Patterson #581)
Well:	P4N2U	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

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)	
11,983.0	92.20	328.70	10,300.4	2,045.0	358.4	1,837.8	3.68	3.16	1.89	
12,030.0	92.70	329.60	10,298.4	2,085.3	334.3	1,883.5	2.19	1.06	1.91	
12,077.0	92.20	329.90	10,296.4	2,125.9	310.6	1,929.3	1.24	-1.06	0.64	
12,124.0	90.90	329.30	10,295.1	2,166.4	286.9	1,975.2	3.05	-2.77	-1.28	
12,172.0	92.00	331.70	10,293.9	2,208.2	263.2	2,022.2	5.50	2.29	5.00	
12,219.0	92.10	333.10	10,292.2	2,249.8	241.5	2,068.5	2.98	0.21	2.98	
12,267.0	91.60	331.50	10,290.6	2,292.3	219.2	2,115.7	3.49	-1.04	-3.33	
12,314.0	92.30	332.20	10,289.0	2,333.7	197.0	2,161.9	2.11	1.49	1.49	
12,362.0	91.60	332.50	10,287.4	2,376.2	174.7	2,209.2	1.59	-1.46	0.63	
12,409.0	91.90	332.20	10,286.0	2,417.8	152.9	2,255.5	0.90	0.64	-0.64	
12,457.0	91.90	331.50	10,284.4	2,460.1	130.3	2,302.7	1.46	0.00	-1.46	
12,504.0	92.00	331.40	10,282.8	2,501.4	107.9	2,348.8	0.30	0.21	-0.21	
12,551.0	92.50	334.80	10,280.9	2,543.2	86.6	2,395.2	7.31	1.06	7.23	
12,598.0	91.50	335.60	10,279.3	2,585.9	66.9	2,441.8	2.72	-2.13	1.70	
12,646.0	91.30	335.00	10,278.1	2,629.5	46.9	2,489.4	1.32	-0.42	-1.25	
12,693.0	91.60	336.20	10,276.9	2,672.3	27.5	2,536.1	2.63	0.64	2.55	
12,741.0	92.40	336.60	10,275.3	2,716.2	8.3	2,583.8	1.86	1.67	0.83	
12,788.0	92.10	334.50	10,273.4	2,759.0	-11.2	2,630.5	4.51	-0.64	-4.47	
12,836.0	91.10	332.60	10,272.1	2,801.9	-32.6	2,677.9	4.47	-2.08	-3.96	
12,883.0	92.00	332.40	10,270.8	2,843.6	-54.2	2,724.2	1.96	1.91	-0.43	
12,930.0	92.70	331.20	10,268.9	2,885.0	-76.4	2,770.4	2.95	1.49	-2.55	
12,977.0	91.10	329.20	10,267.3	2,925.8	-99.8	2,816.3	5.45	-3.40	-4.26	
13,026.0	91.30	329.40	10,266.3	2,967.9	-124.8	2,864.1	0.58	0.41	0.41	
13,073.0	92.30	332.10	10,264.8	3,008.9	-147.7	2,910.1	6.12	2.13	5.74	
13,120.0	91.90	331.80	10,263.1	3,050.3	-169.8	2,956.3	1.06	-0.85	-0.64	
13,167.0	91.40	332.30	10,261.7	3,091.8	-191.9	3,002.6	1.50	-1.06	1.06	
13,215.0	91.50	331.80	10,260.5	3,134.2	-214.3	3,049.8	1.06	0.21	-1.04	
13,262.0	91.50	333.30	10,259.3	3,175.9	-236.0	3,096.1	3.19	0.00	3.19	
13,310.0	91.20	333.70	10,258.2	3,218.8	-257.4	3,143.6	1.04	-0.63	0.83	
13,357.0	92.00	334.70	10,256.8	3,261.1	-277.9	3,190.1	2.72	1.70	2.13	
13,404.0	90.90	335.40	10,255.7	3,303.7	-297.7	3,236.7	2.77	-2.34	1.49	
13,451.0	90.80	334.30	10,255.0	3,346.3	-317.6	3,283.3	2.35	-0.21	-2.34	
13,499.0	90.90	333.60	10,254.2	3,389.4	-338.7	3,330.8	1.47	0.21	-1.46	
13,546.0	91.50	334.30	10,253.3	3,431.6	-359.4	3,377.3	1.98	1.28	1.49	
13,594.0	91.90	333.80	10,251.8	3,474.7	-380.4	3,424.8	1.33	0.83	-1.04	
13,641.0	90.80	333.00	10,250.7	3,516.8	-401.4	3,471.2	2.89	0.34	-1.70	
13,689.0	91.00	331.60	10,250.0	3,559.3	-423.7	3,518.5	2.95	0.42	-2.92	
13,736.0	90.90	330.40	10,249.2	3,600.4	-446.5	3,564.6	2.56	-0.21	0.21	
13,783.0	91.40	330.30	10,248.3	3,641.2	-469.7	3,610.6	1.08	1.06	1.06	
13,830.0	90.50	329.90	10,247.5	3,681.9	-493.2	3,656.5	2.10	1.06	-0.85	
13,878.0	90.90	329.70	10,246.9	3,723.4	-517.3	3,703.4	0.93	1.49	-0.42	
13,925.0	91.60	329.10	10,245.9	3,763.9	-541.2	3,749.2	1.96	1.49	-1.28	
13,972.0	90.90	328.70	10,244.8	3,804.1	-565.5	3,795.0	1.72	-1.49	-0.85	

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4N2U
Project:	Pleasants County	TVD Reference:	RKB @ 977.8usft (Patterson #581)
Site:	P4 Pad	MD Reference:	RKB @ 977.8usft (Patterson #581)
Well:	P4N2U	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

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)
14,019.0	91.40	329.20	10,243.9	3,844.3	-589.7	3,840.7	1.50	1.06	1.06
14,067.0	91.30	328.80	10,242.8	3,885.5	-614.4	3,887.4	0.86	-0.21	-0.83
14,114.0	90.30	328.80	10,242.1	3,925.7	-638.8	3,933.1	2.13	-2.13	0.00
14,162.0	91.00	329.00	10,241.6	3,966.8	-663.6	3,979.8	1.52	1.46	0.42
14,209.0	92.50	330.90	10,240.1	4,007.4	-687.1	4,025.7	5.15	3.19	4.04
14,255.0	93.90	331.80	10,237.6	4,047.7	-709.1	4,070.8	3.62	3.04	1.96
14,350.0	94.00	332.50	10,231.0	4,131.5	-753.4	4,164.2	0.74	0.11	0.74
14,397.0	93.00	332.00	10,228.1	4,173.1	-775.2	4,210.4	2.38	-2.13	-1.06
14,445.0	93.00	332.50	10,225.6	4,215.5	-797.6	4,257.6	1.04	0.00	1.04
14,492.0	92.90	331.20	10,223.2	4,256.9	-819.7	4,303.7	2.77	-0.21	-2.77
14,539.0	93.40	332.00	10,220.6	4,298.1	-842.0	4,349.9	2.01	1.06	1.70
14,633.0	94.20	334.60	10,214.4	4,381.9	-884.2	4,442.5	2.89	0.85	2.77
14,728.0	94.50	334.70	10,207.2	4,467.5	-924.7	4,536.4	0.33	0.32	0.11
14,823.0	95.20	334.90	10,199.2	4,553.2	-965.0	4,630.3	0.77	0.74	0.21
14,918.0	94.50	334.60	10,191.1	4,638.8	-1,005.4	4,724.2	0.80	-0.74	-0.32
15,012.0	92.00	332.30	10,185.8	4,722.7	-1,047.3	4,816.9	3.61	-2.66	-2.45
15,107.0	93.10	332.40	10,181.6	4,806.8	-1,091.4	4,910.4	1.16	1.16	0.11
15,202.0	92.50	332.10	10,176.9	4,890.8	-1,135.6	5,003.9	0.71	-0.63	-0.32
15,297.0	90.80	328.00	10,174.2	4,973.0	-1,183.0	5,096.7	4.67	-1.79	-4.32
15,391.0	91.30	330.60	10,172.5	5,053.8	-1,230.9	5,188.3	2.82	0.53	2.77
15,486.0	91.80	332.40	10,169.9	5,137.3	-1,276.3	5,281.6	1.97	0.53	1.89
15,581.0	90.90	330.80	10,167.7	5,220.8	-1,321.4	5,374.9	1.93	-0.95	-1.68
15,676.0	92.00	333.10	10,165.3	5,304.6	-1,366.1	5,468.4	2.68	1.16	2.42
15,771.0	91.00	332.50	10,162.8	5,389.1	-1,409.5	5,562.0	1.23	-1.05	-0.63
15,866.0	91.10	331.80	10,161.0	5,473.1	-1,453.9	5,655.6	0.74	0.11	-0.74
15,960.0	91.00	332.90	10,159.3	5,556.3	-1,497.5	5,748.2	1.17	-0.11	1.17
16,055.0	90.60	332.90	10,158.0	5,640.9	-1,540.8	5,841.9	0.42	-0.42	0.00
16,149.0	91.50	331.40	10,156.3	5,724.0	-1,584.7	5,934.4	1.86	0.96	-1.60
16,244.0	90.90	330.90	10,154.3	5,807.2	-1,630.5	6,027.7	0.82	-0.63	-0.53
16,339.0	90.40	331.70	10,153.2	5,890.5	-1,676.1	6,120.9	0.99	-0.53	0.84
16,434.0	90.50	332.00	10,152.5	5,974.3	-1,720.9	6,214.4	0.33	0.11	0.32
16,528.0	89.50	332.50	10,152.5	6,057.4	-1,764.7	6,307.0	1.19	-1.06	0.53
16,622.0	89.50	331.00	10,153.3	6,140.2	-1,809.2	6,399.4	1.60	0.00	-1.60
16,716.0	89.50	332.30	10,154.1	6,223.0	-1,853.8	6,491.8	1.38	0.00	1.38
16,811.0	89.20	332.20	10,155.2	6,307.0	-1,898.0	6,585.4	0.33	-0.32	-0.11
16,906.0	90.50	332.90	10,155.4	6,391.3	-1,941.8	6,679.0	1.56	1.37	0.74
17,001.0	89.80	331.10	10,155.2	6,475.2	-1,986.4	6,772.5	2.03	-0.74	-1.89
17,096.0	89.80	331.70	10,155.5	6,558.6	-2,031.9	6,865.8	0.63	0.00	0.63
17,191.0	89.80	331.90	10,155.8	6,642.3	-2,076.8	6,959.2	0.21	0.00	0.21
17,285.0	89.50	333.10	10,156.4	6,725.7	-2,120.2	7,051.9	1.32	-0.32	1.28
17,325.0	89.70	334.30	10,156.7	6,761.6	-2,137.9	7,091.5	3.04	0.50	3.00
TD @ 17380.0' MD / 10157.0' TVD									
17,380.0	89.70	334.30	10,157.0	6,811.1	-2,161.8	7,145.9	0.00	0.00	0.00

WV Department of Environmental Protection
 MAY 03 2021
 Office of Oil and Gas

06/18/2021



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4N2U
Project:	Pleasants County	TVD Reference:	RKB @ 977.8usft (Patterson #581)
Site:	P4 Pad	MD Reference:	RKB @ 977.8usft (Patterson #581)
Well:	P4N2U	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,791.0	9,648.1	383.1	1,063.3	ST01 Tie In @ 9791.0'MD / 9648.1' TVD	
17,380.0	10,157.0	6,811.1	-2,161.8	TD @ 17380.0' MD / 10157.0' TVD	

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