

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-170772	9/1/2017

Lease	Well Name	County & State
N/A	P2N2U	Pleasants County, WV

API No.	Survey Depth Range	Survey Type
47-473-02565	421 feet to 10524 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
9425 feet to 19882 feet MD	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 12:06:11 -05'00'



Jay-Bee Oil & Gas

Pleasants County

P2 Pad

P2N2U

Pilot Hole

Survey: MWD

QES Survey Report

01 September, 2017



WV Department of
Environmental Protection

11/12/2021



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2N2U
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Pilot Hole	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole	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	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	P2N2U					
Well Position	+N/-S	0.0 usft	Northing:	344,458.29 usft	Latitude:	39° 26' 7.634 N
	+E/-W	0.0 usft	Easting:	1,532,849.15 usft	Longitude:	81° 2' 33.083 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	712.2 usft	

Wellbore	Pilot Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/2/2017	-8.39	66.72	52,021.80924735

Design	Pilot Hole				
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	338.93	

Survey Program	Date	8/4/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
421.0	10,524.0	MWD (Pilot Hole)	MWD default	MWD - Standard	

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	0.00	
First MWD Survey @ 421.0' MD / TVD										
421.0	1.78	141.04	420.9	-5.1	4.1	-6.2	0.42	0.42	0.00	
516.0	1.53	136.44	515.9	-7.2	5.9	-8.8	0.30	0.26	-4.84	
610.0	1.37	124.54	609.9	-8.7	7.7	-10.9	0.36	0.07	-12.66	
705.0	1.08	119.54	704.8	-9.8	9.4	-12.5	0.33	-0.31	-5.26	
800.0	0.76	119.43	799.8	-10.5	10.7	-13.7	0.34	0.34	0.12	
895.0	0.36	162.37	894.8	-11.1	11.4	-14.5	0.58	-0.42	45.20	
990.0	0.62	172.57	989.8	-11.9	11.5	-15.3	0.29	0.29	10.74	
1,085.0	0.80	197.83	1,084.8	-13.1	11.4	-16.3	0.38	0.38	26.99	
1,179.0	0.60	183.46	1,178.8	-14.2	11.2	-17.2	0.28	-0.21	-15.29	

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Survey Report



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Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Pilot Hole	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole	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)
1,274.0	0.83	180.61	1,273.8	-15.4	11.1	-18.3	0.24	0.24	-3.00
1,369.0	1.20	173.38	1,368.8	-17.0	11.2	-19.9	0.41	0.39	-7.61
1,464.0	1.35	166.15	1,463.8	-19.1	11.6	-22.0	0.23	0.16	-7.61
1,558.0	1.29	133.03	1,557.7	-20.9	12.7	-24.1	0.80	-0.06	-35.23
1,654.0	1.50	126.16	1,653.7	-22.4	14.5	-26.1	0.28	0.22	-7.16
1,749.0	1.44	102.58	1,748.7	-23.4	16.6	-27.8	0.64	-0.06	-24.82
1,841.0	2.06	87.79	1,840.6	-23.6	19.4	-29.0	0.83	0.67	-16.08
1,937.0	2.40	71.76	1,936.6	-22.9	23.1	-29.6	0.74	0.35	-16.70
2,032.0	2.60	39.71	2,031.5	-20.6	26.3	-28.7	1.47	0.21	-33.74
2,127.0	3.60	18.40	2,126.3	-16.1	28.6	-25.3	1.59	1.05	-22.43
2,222.0	3.13	14.30	2,221.2	-10.8	30.2	-20.9	0.56	-0.49	-4.32
2,317.0	2.26	43.52	2,316.1	-6.9	32.1	-18.0	1.68	-0.92	30.76
2,412.0	1.68	75.27	2,411.0	-5.2	34.8	-17.3	1.28	-0.61	33.42
2,506.0	1.35	96.82	2,505.0	-5.0	37.2	-18.0	0.69	-0.35	22.93
2,601.0	1.43	78.83	2,600.0	-4.9	39.5	-18.7	0.46	0.08	-18.94
2,696.0	2.56	55.11	2,694.9	-3.4	42.4	-18.4	1.45	1.19	-24.97
2,791.0	2.73	42.22	2,789.8	-0.5	45.7	-16.9	0.65	0.18	-13.57
2,886.0	2.05	14.08	2,884.7	2.8	47.6	-14.5	1.41	-0.72	-29.62
2,980.0	2.25	337.29	2,978.7	6.1	47.3	-11.3	1.46	0.21	-39.14
3,075.0	2.84	347.96	3,073.6	10.1	46.1	-7.1	0.79	0.62	11.23
3,170.0	3.24	23.74	3,168.4	14.9	46.7	-2.9	2.01	0.42	37.66
3,264.0	2.51	43.92	3,262.3	18.8	49.2	-0.1	1.32	-0.78	21.47
3,359.0	1.78	54.62	3,357.3	21.2	51.8	1.1	0.87	-0.77	11.26
3,454.0	2.18	58.11	3,452.2	23.0	54.5	1.8	0.44	0.42	3.67
3,549.0	3.25	60.24	3,547.1	25.3	58.4	2.6	1.13	1.13	2.24
3,644.0	3.48	47.27	3,641.9	28.6	62.9	4.1	0.84	0.24	-13.65
3,739.0	4.53	24.87	3,736.7	33.9	66.6	7.7	1.96	1.11	-23.58
3,834.0	5.46	17.99	3,831.3	41.6	69.5	13.8	1.16	0.98	-7.24
3,929.0	6.76	20.30	3,925.8	51.2	72.9	21.6	1.39	1.37	2.43
4,024.0	8.03	27.74	4,020.0	62.3	77.9	30.1	1.67	1.34	7.83
4,118.0	8.59	35.24	4,113.0	73.8	85.0	38.3	1.30	0.60	7.98
4,213.0	8.52	39.48	4,207.0	85.1	93.6	45.7	0.67	-0.07	4.46
4,308.0	9.25	39.44	4,300.8	96.4	102.9	52.9	0.77	0.77	-0.04
4,402.0	8.28	41.79	4,393.7	107.3	112.2	59.8	1.10	-1.03	2.50
4,497.0	7.77	43.35	4,487.8	117.0	121.2	65.6	0.58	-0.54	1.64
4,591.0	8.71	44.60	4,580.8	126.7	130.5	71.3	1.02	1.00	1.33
4,686.0	9.57	48.15	4,674.6	137.1	141.5	77.1	1.08	0.91	3.74
4,781.0	8.31	52.32	4,768.5	146.6	152.8	81.9	1.49	1.33	4.39
4,876.0	7.22	53.90	4,862.6	154.3	163.1	85.4	1.17	-1.15	1.66
4,971.0	7.06	51.12	4,956.9	161.5	172.4	88.7	0.40	-0.17	-2.93
5,065.0	7.46	47.73	5,050.1	169.2	181.4	92.7	0.62	0.43	-3.61
5,160.0	8.17	40.75	5,144.2	178.5	190.4	98.1	1.25	0.75	-7.35
5,255.0	9.48	37.53	5,238.1	189.8	199.6	105.4	1.47	1.38	-3.39

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2N2U
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Pilot Hole	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole	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)	
5,350.0	9.95	46.34	5,331.7	201.7	210.3	112.6	1.64	0.49	9.27	
5,444.0	9.16	53.52	5,424.4	211.7	222.2	117.7	1.52	-0.84	7.64	
5,539.0	8.32	56.83	5,518.3	220.0	234.0	121.1	1.03	-0.88	3.48	
5,634.0	8.23	55.85	5,612.3	227.6	245.4	124.1	0.18	-0.09	-1.03	
5,729.0	9.18	57.16	5,706.3	235.5	257.4	127.2	1.02	1.00	1.38	
5,823.0	9.61	59.36	5,799.0	243.5	270.4	130.0	0.60	0.46	2.34	
5,918.0	10.69	60.91	5,892.5	251.9	285.0	132.6	1.17	1.14	1.63	
6,013.0	10.08	59.45	5,985.9	260.4	299.8	135.2	0.70	-0.64	-1.54	
6,108.0	8.62	52.51	6,079.7	268.9	312.6	138.6	1.94	-1.54	-7.31	
6,205.0	8.82	44.39	6,175.6	278.7	323.6	143.7	1.28	0.21	-8.37	
6,298.0	8.78	48.14	6,267.5	288.5	333.9	149.2	0.62	-0.04	4.03	
6,393.0	8.90	48.04	6,361.3	298.3	344.7	154.4	0.13	0.13	-0.11	
6,488.0	8.78	43.90	6,455.2	308.4	355.2	160.1	0.68	-0.13	-4.36	
6,583.0	8.25	39.09	6,549.2	318.9	364.5	166.5	0.93	-0.56	-5.06	
6,678.0	9.36	38.32	6,643.1	330.3	373.6	173.9	1.17	1.17	-0.81	
6,773.0	10.41	48.28	6,736.6	342.0	384.8	180.8	2.11	1.11	10.48	
6,868.0	9.02	52.76	6,830.3	352.3	397.2	185.9	1.66	-1.46	4.72	
6,963.0	8.30	54.22	6,924.2	360.8	408.7	189.7	0.79	-0.76	1.54	
7,058.0	8.00	51.14	7,018.2	368.9	419.4	193.5	0.56	-0.32	-3.24	
7,153.0	8.64	45.24	7,112.2	378.1	429.6	198.4	1.12	0.67	-6.21	
7,248.0	9.04	41.96	7,206.1	388.7	439.6	204.6	0.68	0.42	-3.45	
7,342.0	8.22	46.03	7,299.0	398.8	449.4	210.6	1.09	-0.87	4.33	
7,437.0	7.53	47.92	7,393.2	407.7	458.9	215.5	0.78	-0.73	1.99	
7,532.0	7.72	40.34	7,487.3	416.8	467.7	220.8	1.08	0.20	-7.98	
7,627.0	8.56	43.31	7,581.4	426.8	476.7	226.9	0.99	0.88	3.13	
7,721.0	8.68	48.27	7,674.3	436.6	486.7	232.4	0.80	0.13	5.28	
7,816.0	8.98	51.99	7,768.2	445.9	497.9	237.1	0.68	0.32	3.92	
7,911.0	7.70	49.41	7,862.2	454.6	508.6	241.4	1.40	-1.35	-2.72	
8,008.0	7.09	45.21	7,958.4	463.1	517.8	246.0	0.84	-0.63	-4.33	
8,103.0	8.19	39.08	8,052.5	472.5	526.2	251.7	1.44	1.16	-6.45	
8,198.0	9.82	43.78	8,146.3	483.6	536.1	258.5	1.88	1.72	4.95	
8,289.0	10.00	43.86	8,236.0	494.9	546.9	265.1	0.20	0.20	0.09	
8,384.0	11.36	43.59	8,329.3	507.6	559.1	272.6	1.43	1.43	-0.28	
8,479.0	11.59	45.68	8,422.4	521.0	572.4	280.4	0.50	0.24	2.20	
8,573.0	9.82	49.40	8,514.8	532.8	585.2	286.8	2.02	-1.88	3.96	
8,668.0	9.07	53.23	8,608.5	542.6	597.4	291.6	1.03	-0.79	4.03	
8,763.0	9.36	55.35	8,702.3	551.5	609.7	295.4	0.47	0.31	2.23	
8,858.0	8.19	57.25	8,796.2	559.5	621.8	298.6	1.27	-1.23	2.00	
8,953.0	7.96	59.54	8,890.2	566.5	633.1	301.0	0.42	-0.24	2.41	
9,048.0	8.45	55.46	8,984.3	573.8	644.6	303.7	0.80	0.52	4.29	
9,143.0	9.19	53.46	9,078.1	582.3	656.4	307.4	0.84	0.78	2.11	
9,230.0	9.53	52.63	9,164.0	590.8	667.7	311.2	0.42	0.39	-0.95	
9,425.0	8.40	55.00	9,356.6	608.8	692.2	319.2	0.61	-0.58	1.22	

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Well:	P2N2U	North Reference:	Grid
Wellbore:	Pilot Hole	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole	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)	
9,520.0	6.90	54.30	9,450.7	616.1	702.5	322.3	1.58	-1.58	-0.74	
9,615.0	5.10	52.70	9,545.2	622.0	710.5	324.9	1.90	-1.89	-1.68	
9,710.0	4.00	49.70	9,639.9	626.7	716.4	327.2	1.18	-1.16	-3.16	
9,805.0	2.90	45.90	9,734.7	630.5	720.7	329.2	1.18	-1.16	-4.00	
9,899.0	1.70	32.20	9,828.7	633.3	723.1	331.0	1.40	-1.28	-14.57	
9,994.0	1.50	20.50	9,923.6	635.7	724.3	332.8	0.40	-0.21	-12.32	
10,089.0	1.30	1.20	10,018.6	637.9	724.8	334.7	0.54	-0.21	-20.32	
10,184.0	1.10	337.70	10,113.6	639.8	724.4	336.6	0.55	-0.21	-24.74	
10,278.0	1.10	319.30	10,207.6	641.3	723.5	338.4	0.37	0.00	-19.57	
10,373.0	1.10	315.80	10,302.5	642.7	722.3	340.1	0.07	0.00	-3.68	
10,468.0	1.30	320.60	10,397.5	644.2	721.0	341.9	0.24	0.21	5.05	
PH TD @ 10524.0' MD / 10453.5' TVD										
10,524.0	1.30	320.60	10,453.5	645.2	720.1	343.1	0.00	0.00	0.00	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
421.0	420.9	-5.1	4.1	First MWD Survey @ 421.0' MD / TVD
10,524.0	10,453.5	645.2	720.1	PH TD @ 10524.0' MD / 10453.5' TVD

Checked By: _____ Approved By: _____ Date: _____

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Jay-Bee Oil & Gas

Pleasants County

P2 Pad

P2N2U

Curve & Lateral

Survey: MWD Surveys (C&L)

QES Survey Report

01 September, 2017



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Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	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	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	P2N2U					
Well Position	+N/-S	0.0 usft	Northing:	344,458.29 usft	Latitude:	39° 26' 7.634 N
	+E/-W	0.0 usft	Easting:	1,532,849.15 usft	Longitude:	81° 2' 33.083 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	712.2 usft

Wellbore	Curve & Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/13/2017	-8.39	66.72	52,028.16115708

Design	Curve & Lateral				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	9,425.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	338.93	

Survey Program	Date	8/14/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
421.0	9,425.0	MWD (Pilot Hole)	MWD default	MWD - Standard	
9,546.0	19,882.0	MWD Surveys (C&L) (Curve & Lateral)	MWD default	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)	
Tie Into PH @ 9425.0' MD / 9356.6' TVD										
9,425.0	8.40	55.00	9,356.6	608.8	692.2	319.2	0.00	0.00	0.00	
9,546.0	13.80	45.60	9,475.3	623.9	709.8	327.1	4.69	4.46	-7.77	
9,641.0	15.10	43.10	9,567.3	640.9	726.3	336.9	1.52	1.37	-2.63	
9,688.0	14.30	41.60	9,612.7	649.7	734.4	342.3	1.88	-1.70	-3.19	
9,736.0	14.20	39.40	9,659.3	658.7	742.0	347.9	1.15	-0.21	-4.58	
9,783.0	15.80	37.00	9,704.7	668.3	749.5	354.1	3.65	3.40	5.11	
9,831.0	18.70	27.60	9,750.5	680.3	757.0	362.7	8.36	6.04	-19.58	
9,878.0	21.00	18.30	9,794.7	695.0	763.2	374.1	8.30	4.89	-19.79	
9,926.0	24.90	11.00	9,838.9	713.1	767.8	389.4	10.04	8.13	-19.21	



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2N2U
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	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)
9,973.0	28.60	6.20	9,880.9	734.0	770.9	407.8	9.11	7.87	-10.21
10,020.0	32.30	359.70	9,921.4	757.7	772.1	429.5	10.53	7.87	-13.83
10,067.0	35.70	353.40	9,960.4	783.9	770.4	454.5	10.41	7.23	-13.40
10,115.0	39.10	347.00	9,998.5	812.6	765.4	483.1	10.75	7.08	-13.33
10,162.0	42.40	342.20	10,034.1	842.2	757.2	513.6	9.68	7.02	-10.21
10,210.0	45.70	339.20	10,068.6	873.6	746.2	547.0	8.13	6.88	-6.25
10,257.0	50.00	338.60	10,100.2	906.1	733.6	581.8	9.20	9.15	-1.28
10,305.0	53.70	336.60	10,129.8	941.0	719.2	619.5	8.38	7.71	-4.17
10,352.0	58.30	335.70	10,156.1	976.6	703.5	658.4	9.91	9.79	-1.91
10,399.0	62.80	334.70	10,179.2	1,013.8	686.3	699.3	9.75	9.57	-2.13
10,446.0	67.50	334.00	10,198.9	1,052.2	667.8	741.8	10.09	10.00	-1.49
10,494.0	71.00	334.30	10,215.9	1,092.6	648.3	786.5	7.32	7.29	0.63
10,541.0	74.20	333.40	10,230.0	1,132.9	628.5	831.2	7.05	6.81	-1.91
10,589.0	78.70	332.70	10,241.2	1,174.4	607.4	877.6	9.48	9.38	-1.46
10,636.0	84.20	333.40	10,248.2	1,215.9	586.3	923.8	11.79	11.70	1.49
10,684.0	90.10	334.40	10,250.6	1,258.9	565.2	971.5	12.47	12.29	2.08
10,778.0	90.80	335.20	10,249.9	1,343.9	525.2	1,065.3	1.13	0.74	0.85
10,873.0	91.60	334.70	10,247.9	1,430.0	485.0	1,160.0	0.99	0.84	-0.53
10,967.0	90.60	332.90	10,246.1	1,514.3	443.5	1,253.6	2.19	-1.06	-1.91
11,062.0	89.90	330.60	10,245.7	1,598.0	398.5	1,347.9	2.53	-0.74	-2.42
11,156.0	90.10	330.80	10,245.7	1,680.0	352.5	1,440.9	0.30	0.21	0.21
11,251.0	90.20	331.10	10,245.4	1,763.0	306.4	1,535.0	0.33	0.11	0.32
11,346.0	90.70	331.40	10,244.7	1,846.3	260.7	1,629.1	0.61	0.53	0.32
11,441.0	89.50	330.70	10,244.5	1,929.4	214.7	1,723.2	1.46	-1.26	-0.74
11,535.0	90.10	330.40	10,244.8	2,011.3	168.5	1,816.2	0.71	0.64	-0.32
11,630.0	90.40	330.00	10,244.4	2,093.7	121.3	1,910.1	0.53	0.32	-0.42
11,725.0	92.40	331.60	10,242.1	2,176.6	75.0	2,004.1	2.70	2.11	1.68
11,819.0	90.90	333.20	10,239.4	2,259.9	31.4	2,097.5	2.33	-1.60	1.70
11,914.0	91.60	335.20	10,237.3	2,345.4	-9.9	2,192.1	2.23	0.74	2.11
12,009.0	92.00	337.50	10,234.3	2,432.3	-48.0	2,287.0	2.46	0.42	2.42
12,104.0	91.30	337.30	10,231.6	2,520.0	-84.5	2,381.9	0.77	-0.74	-0.21
12,198.0	91.70	334.80	10,229.1	2,605.9	-122.6	2,475.7	2.69	0.43	-2.66
12,293.0	92.30	333.30	10,225.8	2,691.2	-164.2	2,570.3	1.70	0.63	-1.58
12,388.0	92.10	330.60	10,222.2	2,775.0	-208.8	2,664.5	2.85	-0.21	-2.84
12,483.0	90.00	331.90	10,220.4	2,858.3	-254.5	2,758.7	2.60	-2.21	1.37
12,577.0	87.40	331.60	10,222.6	2,941.1	-298.9	2,851.9	2.78	-2.77	-0.32
12,672.0	89.20	330.90	10,225.4	3,024.3	-344.6	2,946.0	2.03	1.89	-0.74
12,767.0	89.40	329.90	10,226.5	3,106.9	-391.5	3,039.9	1.07	0.21	-1.05
12,862.0	90.10	330.20	10,227.0	3,189.2	-439.0	3,133.8	0.80	0.74	0.32
12,957.0	90.90	329.80	10,226.1	3,271.5	-486.5	3,227.6	0.94	0.84	-0.42
13,052.0	91.40	331.30	10,224.2	3,354.2	-533.2	3,321.6	1.66	0.53	1.58
13,146.0	93.20	334.90	10,220.5	3,437.9	-575.7	3,415.0	4.28	1.91	3.89
13,241.0	92.40	335.20	10,215.8	3,524.0	-615.7	3,509.7	0.90	-0.84	0.32

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2N2U
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	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)	
13,336.0	93.50	333.00	10,210.9	3,609.3	-657.1	3,604.2	2.59	1.16	-2.32	
13,431.0	91.60	330.90	10,206.7	3,693.1	-701.7	3,698.4	2.98	-2.00	-2.21	
13,526.0	93.40	333.20	10,202.6	3,776.9	-746.2	3,792.6	3.07	1.89	2.42	
13,620.0	93.00	331.90	10,197.3	3,860.2	-789.5	3,885.9	1.44	-0.43	-1.38	
13,715.0	93.10	330.20	10,192.3	3,943.2	-835.4	3,979.9	1.79	0.11	-1.79	
13,810.0	92.10	328.50	10,187.9	4,024.8	-883.8	4,073.4	2.07	-1.05	-1.79	
13,905.0	94.40	329.40	10,182.6	4,106.1	-932.7	4,166.9	2.60	2.42	0.95	
14,000.0	95.40	331.20	10,174.4	4,188.3	-979.6	4,260.4	2.16	1.05	1.89	
14,095.0	95.50	333.50	10,165.4	4,272.0	-1,023.5	4,354.4	2.41	0.11	2.42	
14,189.0	93.90	332.80	10,157.7	4,355.6	-1,065.8	4,447.6	1.86	-1.70	-0.74	
14,284.0	93.20	332.50	10,151.8	4,439.8	-1,109.3	4,541.8	0.80	-0.74	-0.32	
14,379.0	97.00	333.80	10,143.4	4,524.2	-1,152.1	4,635.9	4.23	4.00	1.37	
14,474.0	96.90	333.10	10,131.9	4,608.6	-1,194.2	4,729.8	0.74	-0.11	-0.74	
14,567.0	97.50	332.20	10,120.2	4,690.6	-1,236.6	4,821.5	1.16	0.65	-0.97	
14,662.0	96.30	331.50	10,108.8	4,773.7	-1,281.1	4,915.1	1.46	-1.26	-0.74	
14,757.0	95.60	331.50	10,099.0	4,856.7	-1,326.2	5,008.8	0.74	-0.74	0.00	
14,851.0	94.10	331.50	10,091.0	4,939.1	-1,370.9	5,101.7	1.60	-1.60	0.00	
14,946.0	93.70	332.50	10,084.6	5,022.7	-1,415.4	5,195.8	1.13	-0.42	1.05	
15,041.0	93.80	332.20	10,078.4	5,106.7	-1,459.4	5,289.9	0.33	0.11	-0.32	
15,137.0	91.90	332.40	10,073.6	5,191.6	-1,503.9	5,385.2	1.99	-1.98	0.21	
15,231.0	91.80	332.10	10,070.5	5,274.7	-1,547.7	5,478.5	0.34	-0.11	-0.32	
15,326.0	91.50	330.20	10,067.8	5,357.9	-1,593.5	5,572.6	2.02	-0.32	-2.00	
15,421.0	90.20	332.60	10,066.4	5,441.3	-1,639.0	5,666.7	2.87	-1.37	2.53	
15,516.0	89.90	332.30	10,066.3	5,525.5	-1,682.9	5,761.1	0.45	-0.32	-0.32	
15,611.0	90.00	332.10	10,066.4	5,609.6	-1,727.2	5,855.5	0.24	0.11	-0.21	
15,706.0	90.70	332.30	10,065.8	5,693.6	-1,771.5	5,949.8	0.77	0.74	0.21	
15,800.0	91.50	332.70	10,064.0	5,777.0	-1,814.9	6,043.2	0.95	0.85	0.43	
15,895.0	91.60	332.30	10,061.4	5,861.2	-1,858.8	6,137.6	0.43	0.11	-0.42	
15,990.0	92.20	331.80	10,058.3	5,945.1	-1,903.3	6,231.8	0.82	0.63	-0.53	
16,085.0	91.20	334.70	10,055.5	6,029.9	-1,946.0	6,326.3	3.23	-1.05	3.05	
16,180.0	90.50	332.60	10,054.1	6,115.0	-1,988.2	6,420.9	2.33	-0.74	-2.21	
16,275.0	88.60	331.30	10,054.8	6,198.8	-2,032.8	6,515.2	2.42	-2.00	-1.37	
16,369.0	88.70	331.10	10,057.0	6,281.2	-2,078.1	6,608.3	0.24	0.11	-0.21	
16,464.0	89.50	333.40	10,058.5	6,365.2	-2,122.3	6,702.6	2.56	0.84	2.42	
16,559.0	90.20	333.50	10,058.8	6,450.2	-2,164.8	6,797.2	0.74	0.74	0.11	
16,653.0	90.10	332.90	10,058.5	6,534.1	-2,207.2	6,890.7	0.65	-0.11	-0.64	
16,748.0	90.00	333.10	10,058.4	6,618.7	-2,250.3	6,985.2	0.24	-0.11	0.21	
16,843.0	90.50	332.60	10,058.0	6,703.3	-2,293.7	7,079.7	0.74	0.53	-0.53	
16,937.0	90.30	331.60	10,057.4	6,786.3	-2,337.6	7,173.0	1.08	0.11	0.11	
17,032.0	90.80	331.10	10,056.5	6,869.7	-2,383.2	7,267.2	0.74	0.53	-0.53	
17,127.0	90.90	333.30	10,055.0	6,953.7	-2,427.5	7,361.5	2.32	0.11	0.11	
17,222.0	90.80	333.10	10,053.6	7,038.5	-2,470.3	7,456.0	0.24	-0.11	-0.21	
17,317.0	90.70	333.20	10,052.4	7,123.3	-2,513.2	7,550.5	0.15	-0.11	0.11	

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 WV Department of
 Environmental Protection



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P2N2U
Project:	Pleasants County	TVD Reference:	well @ 732.8usft (Nomac #81)
Site:	P2 Pad	MD Reference:	well @ 732.8usft (Nomac #81)
Well:	P2N2U	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	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)
17,412.0	90.70	332.90	10,051.2	7,207.9	-2,556.3	7,645.0	0.32	0.00	-0.32
17,507.0	90.90	333.40	10,049.9	7,292.7	-2,599.2	7,739.5	0.57	0.21	0.53
17,601.0	91.70	333.60	10,047.8	7,376.8	-2,641.1	7,833.1	0.88	0.85	0.21
17,696.0	91.30	333.20	10,045.3	7,461.7	-2,683.6	7,927.6	0.60	-0.42	-0.42
17,790.0	91.00	332.00	10,043.4	7,545.1	-2,726.9	8,021.0	1.32	-0.32	-1.28
17,885.0	90.90	331.20	10,041.8	7,628.7	-2,772.1	8,115.2	0.85	-0.11	-0.84
17,979.0	90.90	330.90	10,040.4	7,710.9	-2,817.5	8,208.3	0.32	0.00	-0.32
18,074.0	90.90	330.80	10,038.9	7,793.9	-2,863.8	8,302.4	0.11	0.00	-0.11
18,169.0	92.00	332.30	10,036.5	7,877.4	-2,909.1	8,396.6	1.96	1.16	1.58
18,264.0	92.00	332.20	10,033.1	7,961.4	-2,953.3	8,490.9	0.11	0.00	-0.11
18,359.0	89.90	332.80	10,031.6	8,045.7	-2,997.1	8,585.2	2.30	-2.21	0.63
18,453.0	90.60	333.40	10,031.2	8,129.5	-3,039.7	8,678.8	0.98	0.74	0.64
18,548.0	90.70	333.40	10,030.1	8,214.4	-3,082.2	8,773.3	0.11	0.11	0.00
18,643.0	91.00	333.90	10,028.7	8,299.6	-3,124.3	8,867.9	0.61	0.32	0.53
18,737.0	89.40	332.80	10,028.3	8,383.6	-3,166.5	8,961.4	2.07	-1.70	-1.17
18,832.0	89.60	332.70	10,029.2	8,468.0	-3,210.0	9,055.9	0.24	0.21	-0.11
18,927.0	90.00	332.80	10,029.5	8,552.5	-3,253.5	9,150.3	0.43	0.42	0.11
19,021.0	90.50	333.40	10,029.1	8,636.3	-3,296.0	9,243.8	0.83	0.53	0.64
19,116.0	90.90	333.40	10,027.9	8,721.2	-3,338.6	9,338.4	0.42	0.42	0.00
19,211.0	91.20	333.50	10,026.2	8,806.2	-3,381.0	9,432.9	0.33	0.32	0.11
19,306.0	92.30	334.90	10,023.3	8,891.7	-3,422.3	9,527.6	1.87	1.16	1.47
19,401.0	91.40	334.10	10,020.2	8,977.4	-3,463.2	9,622.2	1.27	-0.95	-0.84
19,495.0	90.50	334.60	10,018.7	9,062.1	-3,503.9	9,715.9	1.10	-0.96	0.53
19,590.0	90.80	334.60	10,017.6	9,147.9	-3,544.7	9,810.6	0.32	0.32	0.00
19,685.0	91.20	335.00	10,015.9	9,233.9	-3,585.1	9,905.4	0.60	0.42	0.42
19,780.0	91.80	335.60	10,013.4	9,320.2	-3,624.8	10,000.2	0.89	0.63	0.63
19,831.0	92.00	335.50	10,011.7	9,366.6	-3,645.9	10,051.0	0.44	0.39	-0.20
TD @ 19882.0' MD / 10010.0' TVD									
19,882.0	92.00	335.50	10,010.0	9,412.9	-3,667.0	10,101.9	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,425.0	9,356.6	608.8	692.2	Tie Into PH @ 9425.0' MD / 9356.6' TVD
19,882.0	10,010.0	9,412.9	-3,667.0	TD @ 19882.0' MD / 10010.0' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Jay-Bee Oil & Gas
 P2N2U
 Pleasants County
 Rig: Nomac #81
 Created By: Will Jircik
 Date: 8/14/2017

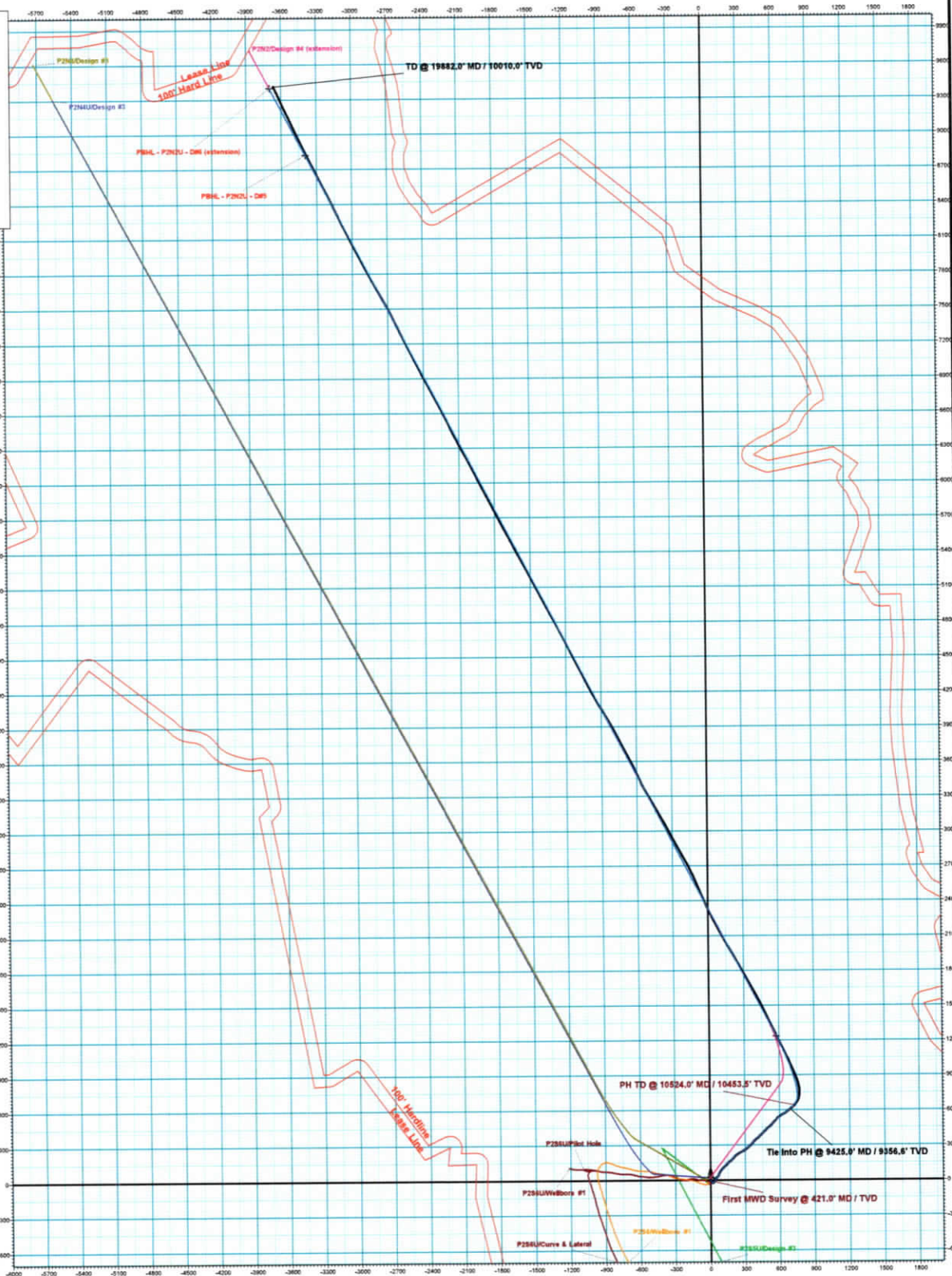
P2N2U
 Pleasants County
 Q170911 & AM-170772
 Design #6 (extended BHL)

PROJECT DETAILS: Pleasants County
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: West Virginia Northern Zone
 System Datum: Mean Sea Level

WELL DETAILS: P2N2U
 Ground Level: 712.2
 Easting: 163268.14
 Northing: 344458.30
 Latitude: 39° 26' 7.634 N
 Longitude: 81° 2' 33.083 W



Azimuths to Grid North
 True North: 0.98
 Magnetic North: -7.40
 Magnetic Field
 Strength: 52028.2snT
 Dip Angle: 66.72
 Date: 7/13/2017
 Model: IGRF2015



DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
P2N2U - P2N2U - DM6 (extension)	10156.5	3398.5	-3750.7	353897.75	1629148.41	39° 27' 39.892 N	81° 3' 22.320 W
P2N2U - P2N2U - DM6	10163.3	8820.6	-3397.5	353278.87	1628481.81	39° 27' 34.223 N	81° 3' 18.327 W
LP - P2N2U - DM6	10253.0	1233.3	576.4	345691.56	1533425.52	39° 26' 19.919 N	81° 2' 25.007 W

Design #6 (Extended BHL)

MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation
9626.0	6.90	64.30	9450.7	616.1	702.5	315.9	0.0	Last MWD Survey
9636.0	6.56	64.06	9488.6	617.3	704.2	319.4	2.1	3' Whipstock 12" (28 DLS, -46.78' TFO)
9650.0	7.38	30.90	9480.5	818.4	705.2	317.0	3.8	Build 10' / 100'
9616.1	14.09	36.12	9547.4	626.9	713.3	324.2	16.2	EOB @ 14.09' Inc. / 36.12' Azm
9631.6	14.09	36.12	9754.6	670.9	742.9	352.0	68.2	Build 10' / 100'
10676.7	90.60	332.36	10253.0	1233.3	576.4	926.4	666.9	EOB @ 90.6' Inc. / 332.36' Azm / 10253' TVD
10994.7	90.60	332.36	10156.5	9398.5	-3750.7	10101.7	9885.4	TD @ 19882' MD / 10156.5' TVD

PH Annotations

MD	Inc	Azi	TVD	+N-S	+E-W	VSecDeparture	Annotation
421.0	1.78	141.04	420.9	-5.1	4.1	-6.2	6.5
10524.0	1.30	320.80	10453.5	645.2	720.1	343.1	1029.7

Curve & Lateral Annotations

MD	Inc	Azi	TVD	+N-S	+E-W	VSecDeparture	Annotation
9425.0	8.40	55.00	9356.8	608.8	692.2	319.2	976.3
19882.0	92.00	335.50	10010.0	9412.9	-3667.0	10101.9	10888.7

Office of Oil and Gas
 MAY 13 2019
 WV Department of Environmental Protection

11/12/2021

Vertical Section at 338.51' (200 usft/in)

