



# Jay-Bee Oil & Gas

Tyler County  
Jack Hair et al  
RPT 8-4

Wellbore #1

Design: Wellbore #1

## QES Survey Report

02 February, 2017

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WV Department of  
Environmental Protection





Survey Report



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well RPT 8-4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Site:</b>	Jack Hair et al	<b>MD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Well:</b>	RPT 8-4	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM5002

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<b>Project</b>	Tyler County		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	West Virginia Northern Zone		

WV Department of Environmental Protection

<b>Site</b>	Jack Hair et al				
<b>Site Position:</b>		<b>Northing:</b>	360,680.39 usft	<b>Latitude:</b>	39° 28' 59.261 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,605,541.96 usft	<b>Longitude:</b>	80° 47' 9.593 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.82 °

<b>Well</b>	RPT 8-4					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	360,680.38 usft	<b>Latitude:</b>	39° 28' 59.261 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,605,541.96 usft	<b>Longitude:</b>	80° 47' 9.593 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	1,246.5 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	1/20/2017	-8.56	66.76	52,075

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0		347.13

<b>Survey Program</b>	<b>Date</b>	2/2/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.0	5,975.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro	
5,975.0	14,728.0	MWD Surveys (Wellbore #1)	MWD default	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
100.0	2.15	281.71	100.0	-0.3	-1.9	0.1	2.15	2.15	0.00	
200.0	2.68	287.37	199.9	0.2	-5.9	1.5	1.19	0.53	25.66	
300.0	1.83	325.02	299.8	2.2	-9.1	4.1	1.66	-0.85	37.65	
400.0	0.73	39.12	399.8	4.0	-9.6	6.0	1.77	-1.10	74.10	
500.0	0.83	132.34	499.8	4.0	-8.7	5.8	1.14	0.10	93.22	
600.0	1.11	44.31	599.8	4.2	-7.5	5.7	1.36	0.28	-88.03	
700.0	4.49	16.46	699.6	8.6	-5.7	9.7	3.55	3.38	-27.85	
800.0	6.29	13.25	799.2	17.7	-3.3	18.0	1.82	1.80	-3.21	
900.0	6.38	12.81	898.6	28.5	-0.8	27.9	0.10	0.09	-0.44	



Survey Report



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<b>Site:</b>	Jack Hair et al	<b>MD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Well:</b>	RPT 8-4	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM5002

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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)
1,000.0	6.29	14.84	998.0	39.2	1.8	37.8	0.24	-0.09	2.03
1,100.0	6.21	12.95	1,097.4	49.7	4.4	47.5	0.22	-0.08	-1.89
1,200.0	6.04	14.06	1,196.8	60.1	6.9	57.1	0.21	-0.17	1.11
1,300.0	5.95	16.64	1,296.3	70.2	9.7	66.3	0.28	-0.09	2.58
1,400.0	5.63	18.36	1,395.8	79.8	12.7	75.0	0.36	-0.32	1.72
1,500.0	5.42	20.01	1,495.3	88.9	15.9	83.1	0.26	-0.21	1.65
1,600.0	5.20	20.32	1,594.9	97.6	19.1	90.9	0.22	-0.22	0.31
1,700.0	4.98	22.86	1,694.5	105.8	22.3	98.2	0.31	-0.22	2.54
1,800.0	4.61	24.59	1,794.1	113.5	25.7	104.9	0.40	-0.37	1.73
1,900.0	4.35	25.42	1,893.8	120.6	29.0	111.1	0.27	-0.26	0.83
2,000.0	4.05	26.04	1,993.5	127.2	32.2	116.8	0.30	-0.30	0.62
2,100.0	3.93	26.91	2,093.3	133.4	35.3	122.2	0.13	-0.12	0.87
2,200.0	3.68	28.54	2,193.1	139.3	38.3	127.2	0.27	-0.25	1.63
2,300.0	3.44	32.04	2,292.9	144.6	41.5	131.8	0.32	-0.24	3.50
2,400.0	3.13	33.53	2,392.7	149.5	44.6	135.8	0.32	-0.31	1.49
2,500.0	2.46	33.29	2,492.6	153.5	47.3	139.1	0.67	-0.67	-0.24
2,600.0	1.63	25.94	2,592.5	156.6	49.1	141.7	0.87	-0.83	-7.35
2,700.0	1.11	16.21	2,692.5	158.8	50.0	143.7	0.57	-0.52	-9.73
2,800.0	0.95	2.25	2,792.5	160.6	50.3	145.3	0.30	-0.16	-13.96
2,900.0	0.96	347.41	2,892.5	162.2	50.1	147.0	0.25	0.01	-14.84
3,000.0	0.44	326.11	2,992.5	163.3	49.7	148.2	0.57	-0.52	-21.30
3,100.0	0.53	312.55	3,092.5	164.0	49.2	148.9	0.15	0.09	-13.56
3,200.0	0.57	301.01	3,192.5	164.5	48.4	149.6	0.12	0.04	-11.54
3,300.0	0.44	296.44	3,292.5	165.0	47.6	150.2	0.14	-0.13	-4.57
3,400.0	0.54	287.06	3,392.5	165.3	46.8	150.7	0.13	0.10	-9.38
3,500.0	0.47	282.82	3,492.5	165.5	46.0	151.1	0.08	-0.07	-4.24
3,600.0	0.43	276.97	3,592.5	165.6	45.2	151.4	0.06	-0.04	-5.85
3,700.0	0.70	288.01	3,692.4	165.9	44.2	151.9	0.29	0.27	11.04
3,800.0	0.56	283.73	3,792.4	166.2	43.2	152.4	0.15	-0.14	-4.28
3,900.0	0.55	276.25	3,892.4	166.4	42.2	152.8	0.07	-0.01	-7.48
4,000.0	0.52	279.98	3,992.4	166.5	41.3	153.1	0.05	-0.03	3.73
4,100.0	0.57	267.63	4,092.4	166.5	40.4	153.4	0.13	0.05	-12.35
4,200.0	0.44	276.31	4,192.4	166.6	39.5	153.6	0.15	-0.13	8.68
4,300.0	0.63	320.28	4,292.4	167.0	38.8	154.2	0.44	0.19	43.97
4,400.0	0.42	336.95	4,392.4	167.8	38.3	155.1	0.26	-0.21	16.67
4,500.0	0.52	343.44	4,492.4	168.6	38.0	155.9	0.11	0.10	6.49
4,600.0	0.59	346.28	4,592.4	169.5	37.7	156.8	0.08	0.07	2.84
4,700.0	0.56	343.72	4,692.4	170.5	37.5	157.8	0.04	-0.03	-2.56
4,800.0	0.35	337.44	4,792.4	171.2	37.2	158.6	0.22	-0.21	-6.28
4,900.0	0.45	335.42	4,892.4	171.9	36.9	159.3	0.10	0.10	-2.02
5,000.0	0.48	326.64	4,992.4	172.6	36.6	160.1	0.08	0.03	-8.78
5,100.0	0.45	325.80	5,092.4	173.2	36.1	160.8	0.03	-0.03	-0.84
5,200.0	0.58	335.90	5,192.4	174.0	35.7	161.7	0.16	0.13	10.10

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM5002

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)	
5,300.0	0.65	339.17	5,292.4	175.0	35.3	162.8	0.08	0.07	3.27	
5,400.0	0.64	333.73	5,392.4	176.1	34.8	163.9	0.06	-0.01	-5.44	
5,500.0	0.77	339.33	5,492.4	177.2	34.3	165.1	0.15	0.13	5.60	
5,600.0	0.86	337.48	5,592.4	178.5	33.8	166.5	0.09	0.09	-1.85	
5,700.0	0.74	335.19	5,692.3	179.8	33.2	167.9	0.12	-0.12	-2.29	
5,800.0	0.84	329.50	5,792.3	181.0	32.6	169.2	0.13	0.10	-5.69	
5,900.0	0.79	321.33	5,892.3	182.2	31.8	170.5	0.13	-0.05	-8.17	
<b>Gyro Tie-In @ 5975' MD / 5967' TVD</b>										
5,975.0	0.78	322.02	5,967.3	183.0	31.2	171.4	0.02	-0.01	0.92	
6,072.0	0.80	301.80	6,064.3	183.9	30.2	172.5	0.29	0.02	-20.85	
6,167.0	0.70	311.80	6,159.3	184.6	29.2	173.5	0.17	-0.11	10.53	
6,262.0	2.40	355.10	6,254.3	187.0	28.6	175.9	2.05	1.79	45.58	
6,294.0	5.70	1.20	6,286.2	189.2	28.6	178.1	10.39	10.31	19.06	
6,325.0	8.70	0.10	6,316.9	193.1	28.6	181.9	9.69	9.68	-3.55	
6,357.0	11.70	3.20	6,348.4	198.8	28.8	187.4	9.53	9.38	9.69	
6,389.0	13.50	5.80	6,379.7	205.7	29.3	194.0	5.90	5.63	8.13	
6,420.0	16.00	7.30	6,409.6	213.6	30.3	201.5	8.16	8.06	4.84	
6,452.0	18.10	9.00	6,440.2	222.8	31.6	210.2	6.74	6.56	5.31	
6,483.0	20.60	11.50	6,469.5	232.9	33.4	219.6	8.49	8.06	8.06	
6,515.0	21.90	14.90	6,499.3	244.2	36.1	230.1	5.60	4.06	10.63	
6,546.0	23.20	14.10	6,527.9	255.7	39.1	240.6	4.31	4.19	-2.58	
6,578.0	24.30	13.40	6,557.2	268.3	42.1	252.1	3.55	3.44	-2.19	
6,609.0	26.40	14.40	6,585.2	281.1	45.3	264.0	6.91	6.77	3.23	
6,641.0	29.20	16.30	6,613.5	295.5	49.3	277.1	9.18	8.75	5.94	
6,672.0	32.30	17.50	6,640.2	310.7	53.9	290.9	10.19	10.00	3.87	
6,704.0	34.90	18.00	6,666.8	327.5	59.3	306.1	8.17	8.13	1.56	
6,736.0	37.40	18.00	6,692.7	345.5	65.1	322.3	7.81	7.81	0.00	
6,767.0	39.20	17.00	6,717.0	363.8	70.9	338.9	6.14	5.81	-3.23	
6,799.0	42.00	16.30	6,741.3	383.8	76.9	357.0	8.86	8.75	-2.19	
6,830.0	45.40	16.10	6,763.7	404.3	82.8	375.7	10.98	10.97	-0.65	
6,862.0	49.00	16.30	6,785.4	426.9	89.4	396.2	11.26	11.25	0.63	
6,893.0	52.40	15.50	6,805.1	449.9	96.0	417.3	11.15	10.97	-2.58	
6,925.0	55.10	15.90	6,824.0	474.8	102.9	439.9	8.50	8.44	1.25	
6,957.0	58.30	16.30	6,841.5	500.5	110.4	463.3	10.05	10.00	1.25	
6,988.0	61.50	15.10	6,857.1	526.3	117.6	486.9	10.85	10.32	-3.87	
7,020.0	65.50	14.90	6,871.4	554.0	125.0	512.2	12.51	12.50	-0.63	
7,051.0	69.10	15.00	6,883.3	581.6	132.4	537.5	11.62	11.61	0.32	
7,083.0	71.40	14.10	6,894.1	610.7	140.0	564.2	7.66	7.19	-2.81	
7,114.0	73.80	14.20	6,903.4	639.4	147.2	590.6	7.75	7.74	0.32	
7,161.0	77.80	13.10	6,914.9	683.7	157.9	631.3	8.81	8.51	-2.34	
7,209.0	83.50	11.40	6,922.7	729.9	168.0	674.2	12.38	11.88	-3.54	
7,256.0	86.30	11.10	6,926.9	775.9	177.1	716.9	5.99	5.96	-0.64	
7,304.0	88.50	11.90	6,929.1	822.8	186.7	760.6	4.88	4.58	1.67	



Survey Report



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Survey

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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)
7,351.0	92.30	12.10	6,928.8	868.8	196.4	803.2	8.10	8.09	0.43
7,398.0	92.10	10.00	6,927.0	914.9	205.4	846.2	4.49	-0.43	-4.47
7,445.0	91.30	8.30	6,925.6	961.3	212.9	889.7	4.00	-1.70	-3.62
7,493.0	90.30	5.40	6,924.9	1,008.9	218.6	934.9	6.39	-2.08	-6.04
7,540.0	89.30	3.60	6,925.1	1,055.8	222.3	979.7	4.38	-2.13	-3.83
7,588.0	88.70	1.20	6,925.9	1,103.7	224.3	1,026.0	5.15	-1.25	-5.00
7,635.0	88.20	359.10	6,927.2	1,150.7	224.4	1,071.8	4.59	-1.06	-4.47
7,683.0	88.70	358.50	6,928.5	1,198.7	223.4	1,118.8	1.63	1.04	-1.25
7,730.0	88.80	355.80	6,929.5	1,245.6	221.1	1,165.1	5.75	0.21	-5.74
7,777.0	89.00	353.90	6,930.4	1,292.4	216.9	1,211.6	4.06	0.43	-4.04
7,824.0	89.40	351.40	6,931.0	1,339.0	210.9	1,258.4	5.39	0.85	-5.32
7,872.0	90.20	348.90	6,931.2	1,386.3	202.7	1,306.3	5.47	1.67	-5.21
7,919.0	90.20	347.40	6,931.1	1,432.3	193.0	1,353.3	3.19	0.00	-3.19
7,967.0	91.30	348.40	6,930.4	1,479.2	183.0	1,401.3	3.10	2.29	2.08
8,014.0	91.70	347.90	6,929.2	1,525.2	173.3	1,448.3	1.36	0.85	-1.06
8,062.0	91.10	348.00	6,928.0	1,572.1	163.3	1,496.3	1.27	-1.25	0.21
8,156.0	90.20	347.90	6,927.0	1,664.0	143.7	1,590.2	0.96	-0.96	-0.11
8,251.0	89.00	347.00	6,927.6	1,756.8	123.0	1,685.2	1.58	-1.26	-0.95
8,346.0	91.90	346.70	6,926.9	1,849.3	101.4	1,780.2	3.07	3.05	-0.32
8,441.0	91.70	344.60	6,923.9	1,941.3	77.9	1,875.1	2.22	-0.21	-2.21
8,535.0	91.20	344.40	6,921.5	2,031.8	52.8	1,969.0	0.57	-0.53	-0.21
8,630.0	90.00	341.80	6,920.5	2,122.7	25.2	2,063.8	3.01	-1.26	-2.74
8,725.0	90.10	342.10	6,920.4	2,213.0	-4.3	2,158.4	0.33	0.11	0.32
8,820.0	91.30	343.70	6,919.3	2,303.8	-32.2	2,253.1	2.11	1.26	1.68
8,914.0	91.10	343.70	6,917.3	2,394.0	-58.6	2,346.9	0.21	-0.21	0.00
9,009.0	90.20	343.30	6,916.2	2,485.1	-85.6	2,441.7	1.04	-0.95	-0.42
9,104.0	90.20	344.30	6,915.9	2,576.3	-112.1	2,536.6	1.05	0.00	1.05
9,198.0	90.70	345.20	6,915.2	2,667.0	-136.8	2,630.5	1.10	0.53	0.96
9,293.0	91.10	346.10	6,913.7	2,759.0	-160.3	2,725.4	1.04	0.42	0.95
9,387.0	89.70	343.60	6,913.0	2,849.7	-184.9	2,819.3	3.05	-1.49	-2.66
9,482.0	89.30	342.00	6,913.8	2,940.5	-213.0	2,914.1	1.74	-0.42	-1.68
9,577.0	90.10	342.10	6,914.3	3,030.9	-242.3	3,008.7	0.85	0.84	0.11
9,672.0	89.70	338.50	6,914.5	3,120.3	-274.3	3,103.0	3.81	-0.42	-3.79
9,767.0	90.40	338.50	6,914.4	3,208.7	-309.1	3,196.9	0.74	0.74	0.00
9,861.0	90.90	338.00	6,913.3	3,296.0	-343.9	3,289.8	0.75	0.53	-0.53
9,956.0	91.30	339.80	6,911.5	3,384.6	-378.1	3,383.8	1.94	0.42	1.89
10,051.0	90.00	337.40	6,910.4	3,473.0	-412.8	3,477.7	2.87	-1.37	-2.53
10,146.0	89.60	340.10	6,910.8	3,561.6	-447.2	3,571.7	2.87	-0.42	2.84
10,240.0	91.80	341.70	6,909.6	3,650.4	-478.0	3,665.1	2.89	2.34	1.70
10,335.0	90.90	343.60	6,907.4	3,741.0	-506.3	3,759.8	2.21	-0.95	2.00
10,430.0	92.30	344.20	6,904.7	3,832.2	-532.6	3,854.6	1.60	1.47	0.63
10,524.0	90.90	343.90	6,902.1	3,922.6	-558.4	3,948.4	1.52	-1.49	-0.32
10,619.0	90.60	345.40	6,900.9	4,014.2	-583.6	4,043.3	1.61	-0.32	1.58
10,714.0	90.60	342.80	6,899.9	4,105.5	-609.6	4,138.2	2.74	0.00	-2.74





Survey Report



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well RPT 8-4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Site:</b>	Jack Hair et al	<b>MD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Well:</b>	RPT 8-4	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM5002

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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)	
10,809.0	89.90	342.10	6,899.5	4,196.1	-638.3	4,232.9	1.04	-0.74	-0.74	
10,936.0	90.70	343.90	6,898.8	4,317.6	-675.4	4,359.5	1.55	0.63	1.42	
11,031.0	90.10	344.30	6,898.1	4,408.9	-701.4	4,454.4	0.76	-0.63	0.42	
11,125.0	91.00	345.70	6,897.2	4,499.7	-725.7	4,548.3	1.77	0.96	1.49	
11,219.0	90.70	344.20	6,895.8	4,590.5	-750.1	4,642.2	1.63	-0.32	-1.60	
11,314.0	89.20	343.70	6,895.9	4,681.8	-776.4	4,737.1	1.66	-1.58	-0.53	
11,409.0	90.00	343.30	6,896.6	4,772.9	-803.4	4,831.9	0.94	0.84	-0.42	
11,504.0	91.40	341.90	6,895.4	4,863.5	-831.8	4,926.6	2.08	1.47	-1.47	
11,598.0	90.80	341.70	6,893.6	4,952.8	-861.1	5,020.2	0.67	-0.64	-0.21	
11,693.0	90.20	341.70	6,892.8	5,043.0	-891.0	5,114.7	0.63	-0.63	0.00	
11,788.0	90.50	342.60	6,892.2	5,133.4	-920.1	5,209.4	1.00	0.32	0.95	
11,883.0	90.40	342.60	6,891.5	5,224.0	-948.5	5,304.1	0.11	-0.11	0.00	
11,978.0	90.00	342.60	6,891.1	5,314.7	-976.9	5,398.8	0.42	-0.42	0.00	
12,072.0	91.00	342.60	6,890.3	5,404.4	-1,005.0	5,492.5	1.06	1.06	0.00	
12,167.0	89.20	340.00	6,890.1	5,494.4	-1,035.5	5,587.0	3.33	-1.89	-2.74	
12,261.0	90.60	343.30	6,890.3	5,583.6	-1,065.1	5,680.5	3.81	1.49	3.51	
12,356.0	90.60	343.60	6,889.3	5,674.6	-1,092.1	5,775.3	0.32	0.00	0.32	
12,450.0	89.40	343.20	6,889.3	5,764.7	-1,119.0	5,869.1	1.35	-1.28	-0.43	
12,545.0	90.50	343.50	6,889.4	5,855.7	-1,146.2	5,963.9	1.20	1.16	0.32	
12,640.0	90.20	343.90	6,888.8	5,946.9	-1,172.9	6,058.7	0.53	-0.32	0.42	
12,735.0	91.60	341.50	6,887.3	6,037.6	-1,201.1	6,153.4	2.92	1.47	-2.53	
12,830.0	91.10	342.10	6,885.1	6,127.8	-1,230.8	6,248.0	0.82	-0.53	0.63	
12,925.0	88.80	340.20	6,885.2	6,217.7	-1,261.4	6,342.5	3.14	-2.42	-2.00	
13,020.0	89.60	340.90	6,886.5	6,307.3	-1,293.1	6,436.8	1.12	0.84	0.74	
13,114.0	89.50	341.60	6,887.2	6,396.3	-1,323.3	6,530.3	0.75	-0.11	0.74	
13,209.0	88.90	340.80	6,888.6	6,486.2	-1,353.9	6,624.8	1.05	-0.63	-0.84	
13,304.0	88.70	341.30	6,890.5	6,576.0	-1,384.7	6,719.3	0.57	-0.21	0.53	
13,398.0	90.00	342.10	6,891.6	6,665.3	-1,414.3	6,812.8	1.62	1.38	0.85	
13,493.0	90.80	341.80	6,891.0	6,755.6	-1,443.7	6,907.4	0.90	0.84	-0.32	
13,588.0	90.40	340.90	6,890.0	6,845.6	-1,474.1	7,002.0	1.04	-0.42	-0.95	
13,683.0	91.30	341.60	6,888.5	6,935.5	-1,504.6	7,096.4	1.20	0.95	0.74	
13,777.0	92.00	344.00	6,885.8	7,025.3	-1,532.4	7,190.1	2.66	0.74	2.55	
13,872.0	90.80	344.70	6,883.5	7,116.7	-1,558.0	7,285.0	1.46	-1.26	0.74	
13,967.0	90.30	344.80	6,882.6	7,208.4	-1,583.0	7,379.9	0.54	-0.53	0.11	
14,062.0	89.80	345.20	6,882.5	7,300.2	-1,607.6	7,474.8	0.67	-0.53	0.42	
14,156.0	89.90	345.80	6,882.8	7,391.2	-1,631.1	7,568.8	0.65	0.11	0.64	
14,251.0	89.10	345.40	6,883.6	7,483.2	-1,654.7	7,663.8	0.94	-0.84	-0.42	
14,345.0	88.70	345.80	6,885.4	7,574.2	-1,678.1	7,757.7	0.60	-0.43	0.43	
14,440.0	88.70	343.60	6,887.6	7,665.8	-1,703.2	7,852.6	2.32	0.00	-2.32	
14,535.0	90.60	343.90	6,888.1	7,757.0	-1,729.8	7,947.4	2.02	2.00	0.32	
14,630.0	90.60	343.40	6,887.1	7,848.2	-1,756.5	8,042.2	0.53	0.00	-0.53	
14,670.0	90.40	344.00	6,886.8	7,886.6	-1,767.7	8,082.2	1.58	-0.50	1.50	

TD @ 14728' MD / 6886' TVD

WV Department of Environmental Protection



Survey Report



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well RPT 8-4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Site:</b>	Jack Hair et al	<b>MD Reference:</b>	well @ 1267.1usft (Nomac #81)
<b>Well:</b>	RPT 8-4	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM5002

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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)
14,728.0	90.40	344.00	6,886.4	7,942.3	-1,783.7	8,140.1	0.00	0.00	0.00

WV Department of Environmental Protection

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,975.0	5,967.3	183.0	31.2	Gyro Tie-In @ 5975' MD / 5967' TVD
14,728.0	6,886.4	7,942.3	-1,783.7	TD @ 14728' MD / 6886' TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_