



Company Name: Jay-Bee Oil  
 Moe 4  
 Tyler County  
 Rig: Nomsac 81  
 Created By: Shane Robbins  
 Date: 12/12/2016

05/03/2019

Moe 4  
 Tyler County  
 Q160764 & AM-160534  
 Design #3

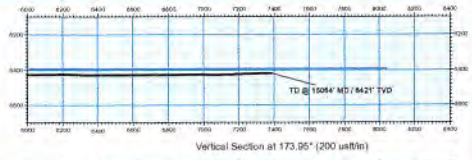
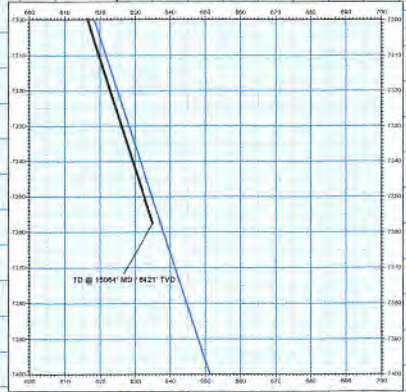
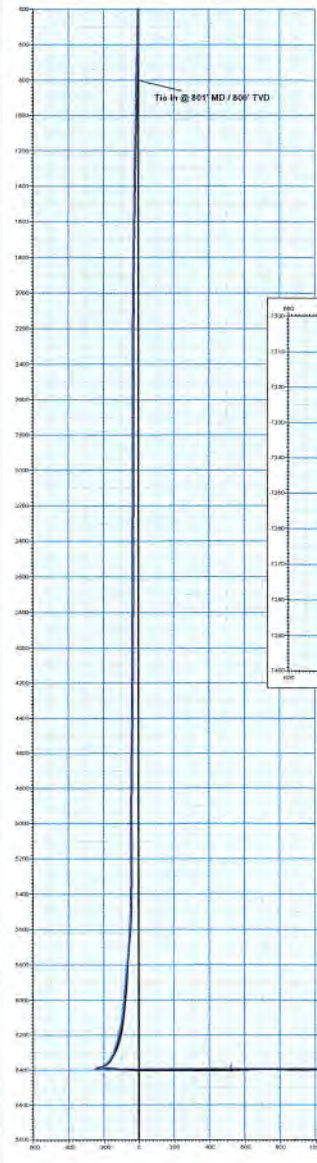
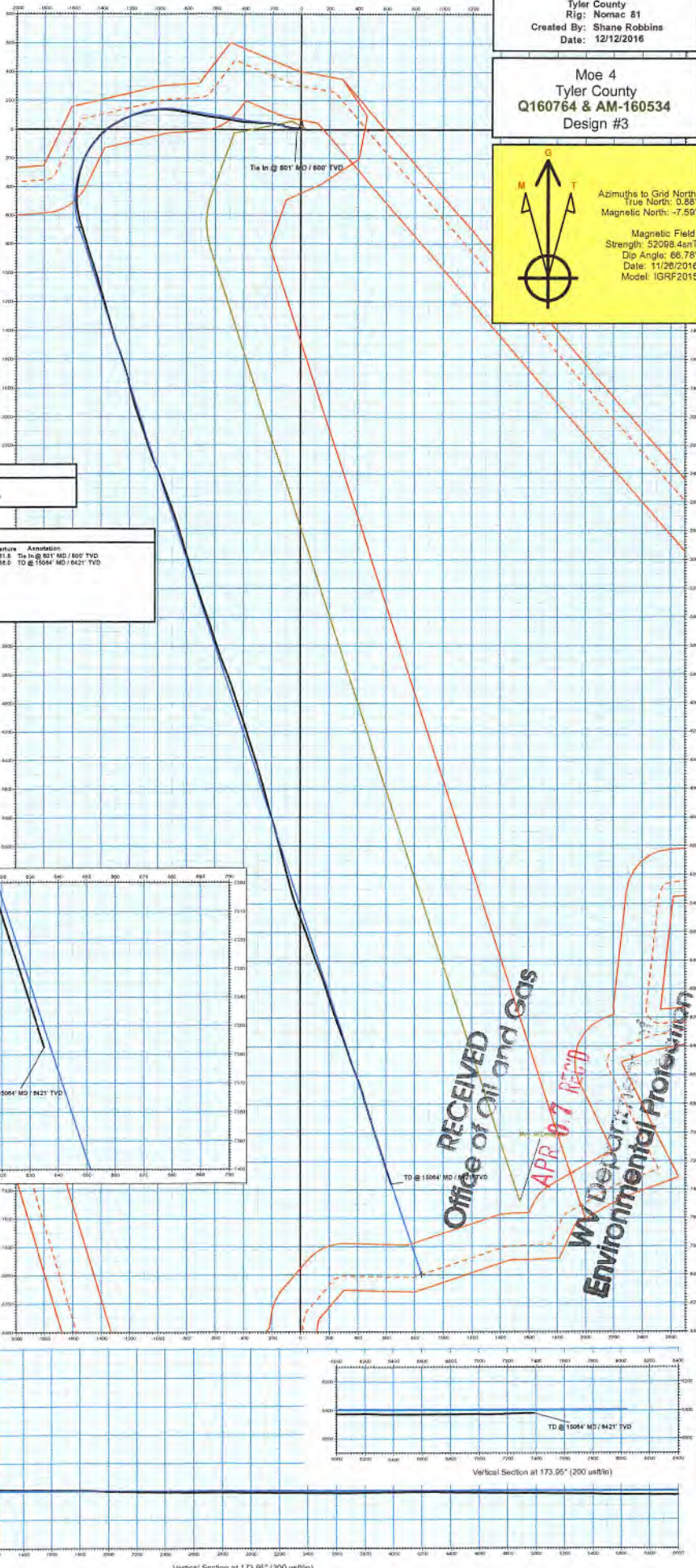
Azimuths to Grid North  
 True North: 0.88°  
 Magnetic North: -7.59°  
 Magnetic Field  
 Strength: 52088.4nT  
 Dip Angle: 66.78°  
 Date: 11/26/2016  
 Model: IGRF2015

**PROJECT DETAILS: Tyler 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: Moe 4**  
 Ground Level: 963.2  
 +N.O. +E./W. Northing Easting Longitude  
 0.0 0.0 350817.83 1515794.07 29° 28' 4.899 N 80° 53' 15.224 W

**ANNOTATIONS**

MD	Inc	API	TVD	HE.S	HE.OM	VSalt	Departure	Annotation
15064.0	00.30	142.10	6421.2	-7357.5	635.2	7383.5	9156.6	Tie In @ 801' MD / 800' TVD TD @ 15064' MD / 6421' TVD



Vertical Section at 173.95° (200 us/in)



# Jay-Bee Oil & Gas

Tyler County

Moe Pad

Moe 4

Wellbore #1

Survey: MWD Surveys

## QES Survey Report

10 February, 2017

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MW Dept. - Survey  
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-160534	2/10/2017

Lease	Well Name	County & State
N/A	Moe 4	Tyler County, WV

API No.	Survey Depth Range	Survey Type
47-095-02322	2253 feet to 15064 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	Jesse Herring

**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

Digitally signed by Christopher Hughes  
 DN: cn=Christopher Hughes, o=QES,  
 ou=compliance, email=chrish@qeslp.com, c=US  
 Date: 2017.02.16 15:08:23 -06'00'

Christopher Hughes  
 MWD Compliance Manager  
 Quintana Energy Services



Survey Report

05/03/2019



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Moe 4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Site:</b>	Moe Pad	<b>MD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Well:</b>	Moe 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

<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		

<b>Site</b>	Moe Pad				
<b>Site Position:</b>		<b>Northing:</b>	355,617.63 usft	<b>Latitude:</b>	39° 28' 4.999 N
<b>From:</b>	Map	<b>Easting:</b>	1,576,794.07 usft	<b>Longitude:</b>	80° 53' 15.224 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.88 °

<b>Well</b>	Moe 4					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	355,617.63 usft	<b>Latitude:</b>	39° 28' 4.999 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,576,794.07 usft	<b>Longitude:</b>	80° 53' 15.224 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	962.0 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	11/26/2016	-8.48	66.78	52,098

<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	173.95	

<b>Survey Program</b>	<b>Date</b>	12/12/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
414.0	801.0	(Pro) MWD (Wellbore #1)	MWD default	MWD - Standard	
2,253.0	15,064.0	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>	
<b>Tie In @ 801' MD / 800' TVD</b>										
801.0	5.49	278.25	799.7	6.7	-30.2	-9.9	0.00	0.00	0.00	
<b>First MWD Survey @ 2253' MD / 2249' TVD</b>										
2,253.0	0.20	297.60	2,249.4	17.9	-101.3	-28.4	0.37	-0.36	1.33	
2,610.0	0.30	249.80	2,606.4	17.8	-102.7	-28.5	0.06	0.03	-13.39	
2,901.0	0.50	279.00	2,897.4	17.8	-104.7	-28.7	0.10	0.07	10.03	
3,188.0	0.50	300.50	3,184.4	18.6	-107.0	-29.8	0.06	0.00	7.49	
3,483.0	0.40	288.90	3,479.4	19.6	-109.1	-31.0	0.05	-0.03	-3.93	
3,800.0	0.50	294.40	3,796.4	20.5	-111.4	-32.1	0.03	0.03	1.74	

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 Environmental Protection



Survey Report

05/03/2019



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Moe 4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Site:</b>	Moe Pad	<b>MD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Well:</b>	Moe 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

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)
4,110.0	0.30	329.00	4,106.4	21.8	-113.0	-33.5	0.10	-0.06	11.16
4,388.0	0.50	324.50	4,384.4	23.4	-114.1	-35.3	0.07	0.07	-1.62
4,695.0	1.00	293.60	4,691.4	25.5	-117.3	-37.8	0.20	0.16	-10.07
4,995.0	0.20	51.40	4,991.3	26.9	-119.3	-39.3	0.37	-0.27	39.27
5,297.0	0.40	333.60	5,293.3	28.2	-119.4	-40.6	0.13	0.07	-25.76
5,349.0	0.50	300.50	5,345.3	28.5	-119.7	-40.9	0.53	0.19	-63.65
5,396.0	0.50	300.70	5,392.3	28.7	-120.0	-41.2	0.00	0.00	0.43
5,444.0	3.60	278.30	5,440.3	29.0	-121.7	-41.7	6.55	6.46	-46.67
5,491.0	8.40	278.30	5,487.0	29.7	-126.5	-42.9	10.21	10.21	0.00
5,539.0	12.00	280.30	5,534.3	31.1	-134.9	-45.1	7.54	7.50	4.17
5,586.0	14.30	275.90	5,580.0	32.6	-145.5	-47.7	5.33	4.89	-9.36
5,633.0	15.80	280.90	5,625.4	34.4	-157.6	-50.8	4.22	3.19	10.64
5,680.0	18.90	277.50	5,670.3	36.6	-171.4	-54.4	6.94	6.60	-7.23
5,728.0	20.60	278.40	5,715.5	38.8	-187.5	-58.4	3.60	3.54	1.88
5,775.0	22.20	278.60	5,759.2	41.4	-204.4	-62.7	3.41	3.40	0.43
5,823.0	23.20	277.40	5,803.5	43.9	-222.8	-67.2	2.30	2.08	-2.50
5,870.0	21.30	273.70	5,847.0	45.7	-240.5	-70.8	5.02	-4.04	-7.87
5,918.0	20.30	269.40	5,891.9	46.2	-257.5	-73.0	3.80	-2.08	-8.96
5,965.0	23.60	274.10	5,935.5	46.7	-275.0	-75.5	7.95	7.02	10.00
6,013.0	27.20	275.70	5,978.8	48.5	-295.5	-79.4	7.63	7.50	3.33
6,044.0	28.90	274.50	6,006.2	49.8	-310.1	-82.2	5.78	5.48	-3.87
6,076.0	29.90	272.80	6,034.0	50.8	-325.7	-84.9	4.07	3.13	-5.31
6,107.0	32.00	272.90	6,060.6	51.6	-341.7	-87.3	6.78	6.77	0.32
6,139.0	33.80	272.50	6,087.5	52.4	-359.0	-90.0	5.67	5.63	-1.25
6,170.0	34.50	271.70	6,113.2	53.1	-376.4	-92.4	2.68	2.26	-2.58
6,202.0	36.10	273.00	6,139.3	53.8	-394.9	-95.1	5.52	5.00	4.06
6,233.0	38.20	275.00	6,164.0	55.1	-413.6	-98.4	7.81	6.77	6.45
6,265.0	40.60	277.60	6,188.7	57.4	-433.7	-102.8	9.10	7.50	8.13
6,296.0	43.60	279.50	6,211.7	60.5	-454.3	-108.0	10.51	9.68	6.13
6,328.0	46.50	280.50	6,234.3	64.4	-476.6	-114.3	9.33	9.06	3.13
6,360.0	51.20	280.00	6,255.4	68.7	-500.3	-121.0	14.73	14.69	-1.56
6,391.0	56.00	279.50	6,273.8	72.9	-524.9	-127.8	15.54	15.48	-1.61
6,423.0	61.00	278.20	6,290.5	77.1	-551.8	-134.8	16.00	15.63	-4.06
6,454.0	64.60	278.20	6,304.6	81.0	-579.1	-141.6	11.61	11.61	0.00
6,485.0	65.70	278.10	6,317.7	85.0	-607.0	-148.5	3.56	3.55	-0.32
6,517.0	67.10	278.20	6,330.5	89.2	-636.0	-155.7	4.38	4.38	0.31
6,549.0	68.30	279.20	6,342.6	93.7	-665.2	-162.8	7.74	3.75	3.13
6,580.0	70.60	280.00	6,353.5	98.5	-693.9	-170.1	7.80	7.42	2.58
6,612.0	74.50	280.50	6,363.1	103.9	-723.3	-179.6	12.28	12.19	1.56
6,643.0	76.80	280.80	6,370.8	109.5	-753.3	-188.3	7.48	7.42	0.97
6,675.0	79.30	281.20	6,377.4	115.5	-784.1	-197.5	7.91	7.81	1.25
6,707.0	81.60	281.50	6,382.7	121.7	-815.1	-206.9	7.25	7.19	0.94
6,738.0	85.30	281.20	6,386.2	127.7	-845.3	-216.1	11.97	11.94	-0.97

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Environmental Protection

Survey Report

05/03/2019



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 4
Project:	Tyler County	TD Reference:	Well @ 982.6usft (Nomac 81)
Site:	Moe Pad	MD Reference:	Well @ 982.6usft (Nomac 81)
Well:	Moe 4	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

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)
6,770.0	87.10	280.00	6,388.4	133.6	-876.6	-225.3	6.76	5.63	-3.75
6,801.0	87.30	276.60	6,389.9	138.1	-907.3	-232.9	10.97	0.65	-10.97
6,833.0	88.30	273.20	6,391.1	140.8	-939.1	-239.0	11.07	3.13	-10.63
6,865.0	88.00	268.80	6,392.1	141.4	-971.1	-242.9	13.77	-0.94	-13.75
6,896.0	87.60	266.10	6,393.3	140.0	-1,002.0	-244.8	8.80	-1.29	-8.71
6,928.0	88.50	263.40	6,394.4	137.1	-1,033.9	-245.3	8.89	2.81	-8.44
6,959.0	89.10	259.50	6,395.1	132.4	-1,064.5	-243.9	12.73	1.94	-12.58
6,991.0	90.70	257.00	6,395.1	125.9	-1,095.9	-240.7	9.28	5.00	-7.81
7,023.0	90.90	254.70	6,394.7	118.1	-1,126.9	-236.2	7.21	0.63	-7.19
7,054.0	91.00	252.90	6,394.2	109.5	-1,156.6	-230.8	5.81	0.32	-5.81
7,101.0	90.50	248.10	6,393.6	93.8	-1,200.9	-219.8	10.27	-1.06	-10.21
7,149.0	90.20	243.00	6,393.3	73.9	-1,244.6	-204.7	10.64	-0.63	-10.63
7,196.0	90.40	241.60	6,393.0	52.1	-1,286.2	-187.3	3.01	0.43	-2.98
7,244.0	89.40	236.80	6,393.1	27.5	-1,327.4	-167.3	10.21	-2.08	-10.00
7,291.0	88.10	230.60	6,394.1	-0.3	-1,365.3	-143.6	13.47	-2.77	-13.19
7,339.0	87.20	225.60	6,396.1	-32.3	-1,401.0	-115.5	10.58	-1.88	-10.42
7,386.0	87.40	221.00	6,398.3	-66.5	-1,433.2	-84.9	9.79	0.43	-9.79
7,434.0	88.30	215.90	6,400.1	-104.0	-1,463.0	-50.7	10.78	1.88	-10.63
7,481.0	89.40	211.30	6,401.1	-143.2	-1,489.0	-14.6	10.06	2.34	-9.79
7,528.0	89.60	205.90	6,401.5	-184.4	-1,511.5	24.1	11.50	0.43	-11.49
7,575.0	89.60	202.10	6,401.8	-227.3	-1,530.6	64.8	8.08	0.00	-8.09
7,623.0	89.80	196.80	6,402.0	-272.6	-1,546.6	108.1	11.05	0.42	-11.04
7,670.0	90.50	192.10	6,401.9	-318.1	-1,558.3	152.1	10.11	1.49	-10.00
7,717.0	90.80	188.60	6,401.4	-364.3	-1,566.7	197.1	7.47	0.64	-7.45
7,764.0	89.20	184.10	6,401.4	-411.0	-1,571.9	243.0	10.16	-3.40	-9.57
7,812.0	89.30	181.60	6,402.0	-458.9	-1,574.3	290.5	5.21	0.21	-5.21
7,859.0	89.20	176.00	6,402.6	-505.9	-1,573.3	337.3	11.92	-0.21	-11.91
7,906.0	89.10	171.20	6,403.3	-552.6	-1,568.1	384.2	10.21	-0.21	-10.21
7,953.0	89.60	167.90	6,403.9	-598.8	-1,559.6	431.1	7.10	1.06	-7.02
8,001.0	90.30	164.40	6,403.9	-645.4	-1,548.1	478.6	7.44	1.46	-7.29
8,048.0	91.30	163.10	6,403.2	-690.5	-1,534.9	524.9	3.49	2.13	-2.77
8,096.0	92.80	163.60	6,401.5	-736.5	-1,521.2	572.0	3.29	3.13	1.04
8,143.0	92.50	163.00	6,399.4	-781.4	-1,507.7	618.2	1.43	-0.64	-1.28
8,191.0	91.10	163.80	6,397.8	-827.4	-1,494.0	665.3	3.36	-2.92	1.67
8,238.0	90.60	162.60	6,397.2	-872.4	-1,480.4	711.5	2.77	-1.06	-2.55
8,285.0	89.50	161.50	6,397.1	-917.1	-1,465.9	757.5	3.31	-2.34	-2.34
8,332.0	89.30	161.50	6,397.6	-961.7	-1,451.0	803.4	0.43	-0.43	0.00
8,379.0	87.20	160.70	6,399.0	-1,006.1	-1,435.8	849.2	4.78	-4.47	-1.70
8,426.0	89.80	163.30	6,400.3	-1,050.8	-1,421.3	895.2	7.82	5.53	5.53
8,474.0	92.50	164.60	6,399.3	-1,096.9	-1,408.0	942.4	6.24	5.63	2.71
8,521.0	91.20	163.70	6,397.8	-1,142.1	-1,395.2	988.7	3.36	-2.77	-1.91
8,569.0	92.00	163.90	6,396.4	-1,188.2	-1,381.8	1,035.9	1.72	1.67	0.42
8,664.0	92.90	164.10	6,392.4	-1,279.4	-1,355.6	1,129.4	0.97	0.95	0.21
8,759.0	90.60	164.10	6,389.5	-1,370.7	-1,329.6	1,223.0	2.42	-2.42	0.00



Survey Report

05/03/2019



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Moe 4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Site:</b>	Moe Pad	<b>MD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Well:</b>	Moe 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

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)	
8,853.0	89.60	161.60	6,389.3	-1,460.5	-1,301.9	1,315.2	2.86	-1.06	-2.66	
8,948.0	89.00	159.30	6,390.5	-1,550.1	-1,270.1	1,407.6	2.50	-0.63	-2.42	
9,043.0	89.70	162.60	6,391.6	-1,639.8	-1,239.1	1,500.1	3.55	0.74	3.47	
9,138.0	88.90	164.20	6,392.7	-1,730.9	-1,212.0	1,593.5	1.88	-0.84	1.68	
9,233.0	90.60	166.70	6,393.1	-1,822.8	-1,188.1	1,687.4	3.18	1.79	2.63	
9,327.0	90.00	163.60	6,392.6	-1,913.7	-1,164.0	1,780.3	3.36	-0.64	-3.30	
9,422.0	88.60	160.30	6,393.8	-2,004.0	-1,134.6	1,873.2	3.77	-1.47	-3.47	
9,517.0	87.30	160.50	6,397.2	-2,093.4	-1,102.8	1,965.5	1.38	-1.37	0.21	
9,612.0	88.60	161.30	6,400.6	-2,183.1	-1,071.7	2,058.0	1.61	1.37	0.84	
9,706.0	89.60	159.40	6,402.1	-2,271.6	-1,040.1	2,149.3	2.28	1.06	-2.02	
9,801.0	88.90	158.00	6,403.3	-2,360.1	-1,005.6	2,241.0	1.65	-0.74	-1.47	
9,896.0	90.00	158.80	6,404.2	-2,448.4	-970.6	2,332.5	1.43	1.16	0.84	
9,990.0	89.50	160.50	6,404.6	-2,536.6	-937.9	2,423.6	1.89	-0.53	1.81	
10,085.0	89.30	159.10	6,405.6	-2,625.7	-905.1	2,515.7	1.49	-0.21	-1.47	
10,179.0	89.30	161.90	6,406.8	-2,714.3	-873.8	2,607.1	2.98	0.00	2.98	
10,274.0	89.70	163.30	6,407.6	-2,805.0	-845.3	2,700.2	1.53	0.42	1.47	
10,369.0	90.40	164.40	6,407.5	-2,896.2	-818.9	2,793.8	1.37	0.74	1.16	
10,464.0	89.60	162.20	6,407.5	-2,987.2	-791.6	2,887.1	2.46	-0.84	-2.32	
10,559.0	89.20	161.10	6,408.5	-3,077.4	-761.7	2,979.9	1.23	-0.42	-1.16	
10,653.0	89.40	161.90	6,409.7	-3,166.5	-731.9	3,071.7	0.88	0.21	0.85	
10,748.0	89.60	161.70	6,410.5	-3,256.7	-702.2	3,164.6	0.30	0.21	-0.21	
10,843.0	89.80	160.20	6,411.0	-3,346.5	-671.2	3,257.1	1.59	0.21	-1.58	
10,938.0	89.30	160.50	6,411.7	-3,436.0	-639.3	3,349.5	0.61	-0.53	0.32	
11,033.0	90.30	163.20	6,412.1	-3,526.3	-609.7	3,442.4	3.03	1.05	2.84	
11,127.0	89.40	160.50	6,412.3	-3,615.6	-580.4	3,534.3	3.03	-0.96	-2.87	
11,222.0	89.30	158.40	6,413.4	-3,704.5	-547.1	3,626.2	2.21	-0.11	-2.21	
11,317.0	90.60	159.40	6,413.5	-3,793.1	-512.9	3,718.0	1.73	1.37	1.05	
11,412.0	91.20	162.00	6,412.0	-3,882.8	-481.5	3,810.4	2.81	0.63	2.74	
11,507.0	91.00	161.60	6,410.2	-3,973.0	-451.8	3,903.3	0.47	-0.21	-0.42	
11,602.0	91.20	161.40	6,408.3	-4,063.1	-421.7	3,996.0	0.30	0.21	-0.21	
11,696.0	89.80	162.40	6,407.5	-4,152.4	-392.5	4,087.9	1.83	-1.49	1.06	
11,791.0	90.40	163.20	6,407.4	-4,243.2	-364.4	4,181.1	1.05	0.63	0.84	
11,886.0	89.80	162.30	6,407.2	-4,333.9	-336.2	4,274.3	1.14	-0.63	-0.95	
11,981.0	88.90	161.90	6,408.3	-4,424.3	-307.0	4,367.3	1.04	-0.95	-0.42	
12,076.0	89.40	163.30	6,409.7	-4,514.9	-278.6	4,460.4	1.56	0.53	1.47	
12,171.0	89.00	165.20	6,411.0	-4,606.4	-252.8	4,554.1	2.04	-0.42	2.00	
12,265.0	89.20	164.80	6,412.5	-4,697.1	-228.5	4,646.9	0.48	0.21	-0.43	
12,360.0	88.90	163.90	6,414.1	-4,788.6	-202.9	4,740.6	1.00	-0.32	-0.95	
12,455.0	89.10	164.40	6,415.7	-4,880.0	-176.9	4,834.2	0.57	0.21	0.53	
12,549.0	89.80	165.90	6,416.6	-4,970.8	-152.8	4,927.0	1.76	0.74	1.60	
12,644.0	90.00	164.20	6,416.8	-5,062.6	-128.3	5,020.9	1.80	0.21	-1.79	
12,739.0	89.40	166.00	6,417.3	-5,154.4	-103.9	5,114.8	2.00	-0.63	1.89	
12,834.0	89.30	165.90	6,418.4	-5,246.6	-80.8	5,208.8	0.15	-0.11	-0.11	



Survey Report

05/03/2019



<b>Company:</b>	Jay-Bee Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Moe 4
<b>Project:</b>	Tyler County	<b>TVD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Site:</b>	Moe Pad	<b>MD Reference:</b>	Well @ 982.6usft (Nomac 81)
<b>Well:</b>	Moe 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

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)
12,929.0	89.80	163.40	6,419.1	-5,338.2	-55.7	5,302.6	2.68	0.53	-2.63
13,023.0	88.60	160.40	6,420.4	-5,427.5	-26.5	5,394.5	3.44	-1.28	-3.19
13,118.0	88.00	158.40	6,423.2	-5,516.4	6.9	5,486.4	2.20	-0.63	-2.11
13,213.0	90.00	160.70	6,424.9	-5,605.4	40.1	5,578.4	3.21	2.11	2.42
13,308.0	90.40	160.90	6,424.6	-5,695.1	71.3	5,670.9	0.47	0.42	0.21
13,402.0	89.40	159.70	6,424.7	-5,783.6	103.0	5,762.2	1.66	-1.06	-1.28
13,497.0	88.80	158.80	6,426.2	-5,872.4	136.7	5,854.1	1.14	-0.63	-0.95
13,591.0	89.40	162.10	6,427.7	-5,961.0	168.1	5,945.5	3.57	0.64	3.51
13,686.0	89.80	162.60	6,428.4	-6,051.5	196.9	6,038.5	0.67	0.42	0.53
13,781.0	90.90	161.90	6,427.8	-6,142.0	225.9	6,131.6	1.37	1.16	-0.74
13,875.0	89.50	160.30	6,427.5	-6,230.9	256.3	6,223.2	2.26	-1.49	-1.70
13,971.0	88.10	159.20	6,429.5	-6,320.9	289.5	6,316.2	1.85	-1.46	-1.15
14,066.0	91.00	161.50	6,430.2	-6,410.4	321.5	6,408.6	3.90	3.05	2.42
14,161.0	90.30	160.50	6,429.1	-6,500.2	352.4	6,501.1	1.28	-0.74	-1.05
14,256.0	89.10	159.10	6,429.6	-6,589.3	385.2	6,593.2	1.94	-1.26	-1.47
14,350.0	89.90	161.60	6,430.4	-6,677.9	416.8	6,684.6	2.79	0.85	2.66
14,446.0	90.70	163.20	6,429.9	-6,769.4	445.8	6,778.6	1.86	0.83	1.67
14,540.0	90.30	162.10	6,429.1	-6,859.1	473.9	6,870.8	1.25	-0.43	-1.17
14,635.0	90.10	161.60	6,428.8	-6,949.4	503.5	6,963.7	0.57	-0.21	-0.53
14,729.0	89.70	161.40	6,429.0	-7,038.5	533.3	7,055.5	0.48	-0.43	-0.21
14,824.0	91.00	161.90	6,428.4	-7,128.7	563.2	7,148.3	1.47	1.37	0.53
14,919.0	93.50	163.40	6,424.6	-7,219.3	591.5	7,241.4	3.07	2.63	1.58
15,014.0	90.30	162.10	6,421.5	-7,309.9	619.7	7,334.5	3.64	-3.37	-1.37
<b>TD @ 15064' MD / 6421' TVD</b>									
15,064.0	90.30	162.10	6,421.2	-7,357.5	635.0	7,383.5	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
801.0	799.7	6.7	-30.2	Tie In @ 801' MD / 800' TVD
2,253.0	2,249.4	17.9	-101.3	First MWD Survey @ 2253' MD / 2249' TVD
15,064.0	6,421.2	-7,357.5	635.0	TD @ 15064' MD / 6421' TVD

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

WV Department of Environmental Protection