

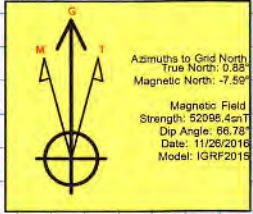
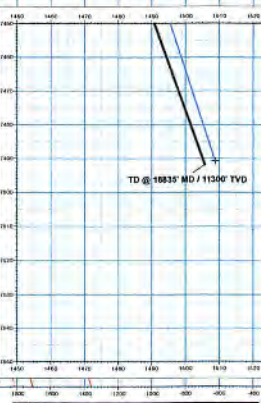
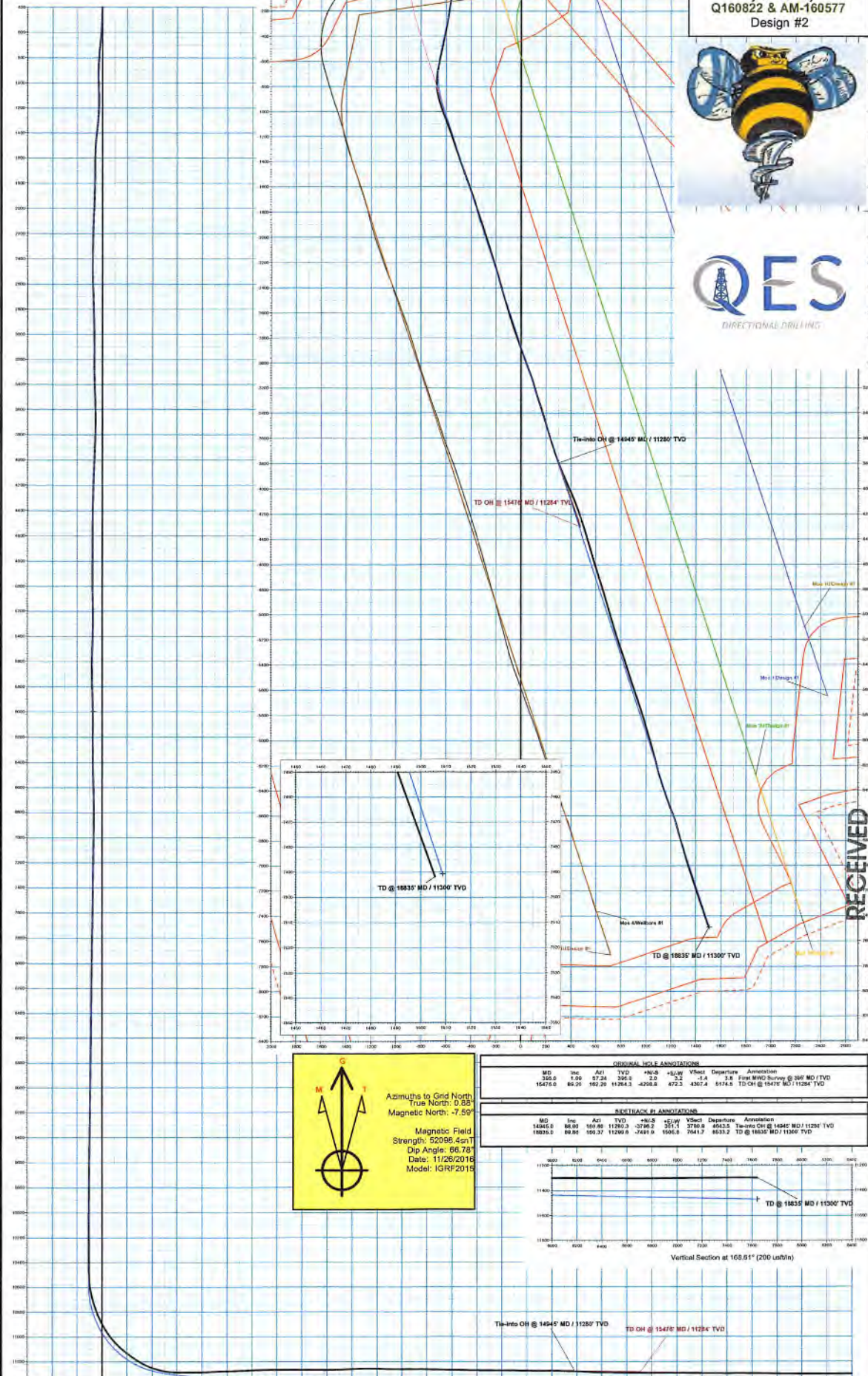
05/03/2019

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 3U
 Ground Level: 881.8
 Northing: 35623.56
 Easting: 157823.56
 Longitude: 81° 29' 4.803" N 88° 07' 14.888" W

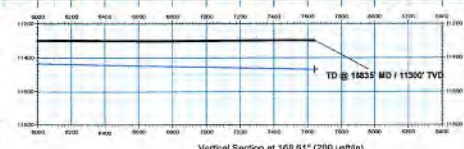
Company Name: Jay-Bee Oil & Gas
 Moe 3U
 Tyler County
 Rig: Nomac #81
 Created By: Shane Robbins
 Date: 01/13/2017

Moe 3U
 Tyler County
 Q160822 & AM-160577
 Design #2



ORIGINAL HOLE ANNOTATIONS							
MD	INC	AZI	TVD	+N-S	+E-W	VRest	Annotation
350.0	1.00	57.28	356.8	2.0	3.2	-1.4	First MWD Survey @ 386' MD / TVD
15476.0	89.20	162.20	11264.3	-4208.8	4723.3	4367.4	TD OH @ 15478' MD / 11284' TVD

RETRACK #1 ANNOTATIONS							
MD	INC	AZI	TVD	+N-S	+E-W	VDecl	Annotation
14845.0	89.83	169.88	11290.3	-3748.2	3511.1	3730.9	Ti-Info OH @ 14545' MD / 11280' TVD
18335.0	89.92	169.27	11290.6	-7491.9	1506.8	7041.7	TD @ 18355' MD / 11300' TVD



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Jay-Bee Oil & Gas

Tyler County

Moe Pad

Moe 3U

Wellbore #1

Survey: MWD Surveys

QES Survey Report

19 January, 2017

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

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

Well	Moe 3U					
Well Position	+N/-S	0.0 usft	Northing:	355,623.60 usft	Latitude:	39° 28' 5.063 N
	+E/-W	0.0 usft	Easting:	1,576,823.56 usft	Longitude:	80° 53' 14.849 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	961.9 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/26/2016	-8.48	66.78	52,098

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		

Survey Program	Date	1/11/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
395.0	15,476.0	MWD Surveys (Wellbore #1)	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 @ 395' MD / TVD										
395.0	1.09	57.24	395.0	2.0	3.2	-1.4	0.28	0.28	0.00	
423.0	1.04	35.09	423.0	2.4	3.5	-1.6	1.47	-0.18	-79.11	
470.0	1.72	1.03	470.0	3.4	3.8	-2.6	2.21	1.45	-72.47	
517.0	2.44	354.72	516.9	5.1	3.7	-4.3	1.61	1.53	-13.43	
564.0	3.38	358.43	563.9	7.5	3.6	-6.7	2.04	2.00	7.89	
612.0	4.59	347.58	611.7	10.8	3.1	-10.0	2.96	2.52	-22.60	
659.0	5.59	340.89	658.6	14.8	2.0	-14.1	2.47	2.13	-14.23	
707.0	6.22	326.14	706.3	19.2	-0.2	-18.9	3.41	1.31	-30.73	
754.0	6.15	312.84	753.0	23.0	-3.5	-23.2	3.05	-0.15	-28.30	

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Survey Report

Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	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)
802.0	5.84	295.38	800.8	25.8	-7.6	-26.8	3.84	-0.65	-36.38
849.0	5.81	282.94	847.5	27.4	-12.1	-29.2	2.68	-0.06	-26.47
896.0	5.70	268.24	894.3	27.8	-16.7	-30.6	3.14	-0.23	-31.28
943.0	4.44	257.29	941.1	27.3	-20.8	-30.9	3.37	-2.68	-23.30
991.0	3.15	237.91	989.0	26.2	-23.8	-30.4	3.75	-2.69	-40.38
1,038.0	2.25	215.69	1,036.0	24.8	-25.4	-29.3	2.90	-1.91	-47.28
1,086.0	1.29	205.98	1,083.9	23.6	-26.2	-28.3	2.09	-2.00	-20.23
1,133.0	0.35	188.49	1,130.9	22.9	-26.4	-27.7	2.05	-2.00	-37.21
1,181.0	1.02	15.83	1,178.9	23.2	-26.3	-27.9	2.85	1.40	-359.71
1,228.0	2.76	11.20	1,225.9	24.7	-26.0	-29.4	3.71	3.70	-9.85
1,275.0	4.12	6.80	1,272.8	27.5	-25.6	-32.0	2.95	2.89	-9.36
1,322.0	5.51	358.16	1,319.7	31.4	-25.5	-35.8	3.33	2.96	-18.38
1,370.0	6.37	354.66	1,367.4	36.4	-25.8	-40.8	1.94	1.79	-7.29
1,417.0	6.16	348.35	1,414.1	41.5	-26.5	-45.9	1.53	-0.45	-13.43
1,465.0	5.11	330.96	1,461.9	45.8	-28.1	-50.5	4.15	-2.19	-36.23
1,512.0	4.17	321.53	1,508.7	49.0	-30.2	-54.0	2.57	-2.00	-20.06
1,560.0	3.14	305.53	1,556.6	51.1	-32.3	-56.5	3.00	-2.15	-33.33
1,607.0	2.32	288.61	1,603.6	52.2	-34.3	-57.9	2.43	-1.74	-36.00
1,654.0	2.30	261.56	1,650.5	52.4	-36.1	-58.5	2.30	-0.04	-57.55
1,701.0	3.22	257.14	1,697.5	51.9	-38.3	-58.5	2.01	1.96	-9.40
1,749.0	3.61	260.55	1,745.4	51.4	-41.1	-58.5	0.92	0.81	7.10
1,843.0	4.94	274.31	1,839.1	51.2	-48.1	-59.7	1.78	1.41	14.64
1,938.0	7.16	275.70	1,933.6	52.1	-58.1	-62.5	2.34	2.34	1.46
2,033.0	9.07	276.31	2,027.7	53.5	-71.4	-66.6	2.01	2.01	0.64
2,108.0	7.42	275.83	2,101.9	54.6	-82.1	-69.8	2.20	-2.20	-0.64
2,222.0	7.19	269.47	2,215.0	55.3	-96.6	-73.3	0.74	-0.20	-5.58
2,320.0	8.53	265.84	2,312.0	54.7	-109.9	-75.4	1.46	1.37	-3.70
2,414.0	9.47	261.40	2,404.9	53.1	-124.5	-76.6	1.24	1.00	-4.72
2,509.0	9.02	254.64	2,498.6	49.9	-139.4	-76.5	1.24	-0.47	-7.12
2,604.0	7.19	245.84	2,592.7	45.5	-152.0	-74.7	2.32	-1.93	-9.26
2,698.0	5.57	239.02	2,686.1	40.8	-161.3	-71.8	1.90	-1.72	-7.26
2,793.0	4.99	239.15	2,780.7	36.3	-168.8	-68.9	0.61	-0.61	0.14
2,888.0	5.44	243.49	2,875.3	32.2	-176.4	-66.4	0.63	0.47	4.57
2,982.0	6.73	248.98	2,968.8	28.2	-185.5	-64.3	1.50	1.37	5.84
3,077.0	7.45	258.80	3,063.1	25.0	-196.8	-63.4	1.48	0.76	10.34
3,172.0	8.43	261.67	3,157.1	22.8	-209.7	-63.8	1.11	1.03	3.02
3,267.0	8.41	256.20	3,251.1	20.1	-223.3	-63.8	0.84	-0.02	-5.76
3,361.0	6.79	247.77	3,344.3	16.4	-235.2	-62.5	2.09	-0.02	-8.97
3,456.0	5.70	236.43	3,438.7	11.7	-244.3	-59.7	1.76	-1.15	-11.94
3,551.0	4.94	238.12	3,533.3	6.9	-251.7	-56.5	0.82	-0.80	1.78
3,646.0	4.47	252.96	3,628.0	3.6	-258.7	-54.7	0.87	-0.49	15.62
3,740.0	4.64	263.35	3,721.7	2.1	-266.0	-54.6	0.89	0.18	11.05
3,838.0	5.44	274.15	3,819.3	2.0	-274.6	-56.2	1.26	0.82	11.02

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Survey Report

Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
3,932.0	6.59	280.04	3,912.8	3.3	-284.3	-59.3	1.39	1.22	6.27
4,027.0	6.91	281.37	4,007.2	5.3	-295.3	-63.6	0.37	0.34	1.40
4,122.0	5.58	280.75	4,101.6	7.3	-305.4	-67.5	1.40	-1.40	-0.65
4,217.0	4.59	278.78	4,196.2	8.8	-313.7	-70.6	1.06	-1.04	-2.07
4,312.0	4.65	277.71	4,290.9	9.9	-321.3	-73.1	0.11	0.06	-1.13
4,407.0	4.86	272.64	4,385.6	10.6	-329.1	-75.4	0.49	0.22	-5.34
4,502.0	6.10	265.71	4,480.2	10.4	-338.2	-77.0	1.48	1.31	-7.29
4,597.0	6.49	260.00	4,574.6	9.1	-348.5	-77.7	0.78	0.41	-6.01
4,691.0	6.61	256.27	4,668.0	6.9	-359.0	-77.6	0.47	0.13	-3.97
4,786.0	7.41	260.34	4,762.3	4.5	-370.3	-77.6	0.99	0.84	4.28
4,881.0	7.59	260.73	4,856.4	2.5	-382.6	-78.0	0.20	0.19	0.41
4,975.0	7.60	255.72	4,949.6	0.0	-394.7	-77.9	0.70	0.01	-5.33
5,070.0	6.35	248.69	5,043.9	-3.5	-405.7	-76.7	1.59	-1.32	-7.40
5,164.0	6.05	246.22	5,137.4	-7.4	-415.1	-74.7	0.43	-0.32	-2.63
5,262.0	6.28	255.08	5,234.8	-10.8	-425.0	-73.3	1.00	0.23	9.04
5,356.0	6.14	267.15	5,328.3	-12.4	-435.0	-73.7	1.39	-0.15	12.84
5,451.0	6.55	276.31	5,422.7	-12.1	-445.4	-76.1	1.15	0.43	9.64
5,546.0	7.45	276.19	5,517.0	-10.8	-456.9	-79.6	0.95	0.95	-0.13
5,642.0	7.94	262.20	5,612.1	-11.0	-469.7	-81.9	2.01	0.51	-14.57
5,737.0	7.44	251.00	5,706.3	-13.9	-482.0	-81.5	1.66	-0.53	-11.79
5,832.0	6.62	242.91	5,800.5	-18.4	-492.7	-79.2	1.35	-0.86	-8.52
5,927.0	4.93	238.61	5,895.1	-23.1	-501.1	-76.4	1.84	-1.78	-4.53
6,021.0	3.16	242.15	5,988.8	-26.4	-506.8	-74.2	1.90	-1.88	3.77
6,116.0	1.64	263.52	6,083.7	-27.7	-510.5	-73.6	1.83	-1.60	22.49
6,211.0	0.76	276.33	6,178.7	-27.8	-512.5	-73.9	0.96	-0.93	13.48
6,306.0	0.24	224.57	6,273.7	-27.9	-513.2	-74.0	0.67	-0.55	-54.48
6,401.0	0.56	188.80	6,368.7	-28.5	-513.4	-73.5	0.41	0.34	-37.65
6,495.0	1.24	184.50	6,462.7	-30.0	-513.6	-72.0	0.73	0.72	-4.57
6,592.0	1.70	197.74	6,559.7	-32.4	-514.1	-69.8	0.59	0.47	13.65
6,687.0	1.82	209.16	6,654.6	-35.0	-515.3	-67.4	0.39	0.13	12.02
6,781.0	1.92	239.45	6,748.6	-37.2	-517.3	-65.8	1.04	0.11	32.22
6,971.0	1.74	286.59	6,938.5	-37.9	-522.9	-66.1	0.78	-0.09	24.81
7,160.0	0.88	335.46	7,127.4	-35.8	-526.2	-68.8	0.71	-0.46	25.86
7,350.0	0.87	336.90	7,317.4	-33.2	-527.4	-71.7	0.01	0.01	0.76
7,627.0	0.73	322.49	7,594.4	-29.8	-529.3	-75.3	0.09	0.09	5.20
7,913.0	1.34	339.87	7,880.3	-25.2	-531.5	-80.2	0.24	0.21	6.08
8,197.0	1.66	268.64	8,164.3	-22.2	-536.8	-84.2	0.62	0.11	-25.08
8,481.0	0.70	14.37	8,448.2	-20.6	-540.5	-86.5	0.69	-0.34	37.23
8,765.0	1.18	32.85	8,732.2	-16.5	-538.5	-90.2	0.20	0.17	6.51
8,955.0	2.17	58.36	8,922.1	-13.0	-534.3	-92.8	0.22	0.16	13.43
9,050.0	2.49	64.11	9,017.0	-11.1	-530.9	-94.2	0.22	0.34	6.05
9,192.0	2.00	55.40	9,158.9	-8.4	-526.1	-95.7	0.42	-0.35	8.73
9,321.0	0.90	41.10	9,287.9	-6.3	-523.6	-97.2	0.89	-0.85	-11.09

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	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)
9,511.0	1.10	25.40	9,477.9	-3.5	-521.9	-99.6	0.18	0.11	-8.26
9,606.0	0.80	6.80	9,572.8	-2.1	-521.4	-100.9	0.45	-0.32	-19.58
9,700.0	0.70	336.00	9,666.8	-0.9	-521.5	-102.1	0.44	-0.11	-32.77
9,890.0	0.60	309.10	9,856.8	0.8	-522.8	-104.0	0.17	-0.05	-14.16
10,079.0	1.90	266.30	10,045.8	1.2	-526.7	-105.2	0.80	0.69	-22.65
10,205.0	1.50	264.70	10,171.7	0.9	-530.4	-105.7	0.32	-0.32	-1.27
10,300.0	1.20	258.20	10,266.7	0.6	-532.6	-105.8	0.35	-0.32	-6.84
10,395.0	1.30	260.30	10,361.7	0.2	-534.7	-105.8	0.12	0.11	2.21
10,490.0	1.40	271.10	10,456.6	0.1	-536.9	-106.1	0.29	0.11	11.37
10,584.0	5.30	203.90	10,550.5	-3.9	-539.8	-102.8	5.24	4.15	-71.49
10,631.0	10.00	198.00	10,597.1	-9.7	-541.9	-97.5	10.13	10.00	-12.55
10,679.0	12.90	194.70	10,644.1	-18.9	-544.6	-89.0	6.19	6.04	-6.88
10,726.0	15.70	195.30	10,689.6	-30.1	-547.6	-78.6	5.97	5.96	1.28
10,774.0	18.60	191.60	10,735.5	-43.9	-550.8	-65.8	6.45	6.04	-7.71
10,821.0	21.10	190.00	10,779.7	-59.5	-553.8	-51.0	5.44	5.32	-3.40
10,869.0	23.20	188.20	10,824.2	-77.4	-556.7	-34.0	4.60	4.38	-3.75
10,916.0	26.20	188.00	10,866.8	-96.9	-559.4	-15.5	6.39	6.38	-0.43
10,963.0	29.50	186.90	10,908.4	-118.6	-562.3	5.3	7.11	7.02	-2.34
11,010.0	33.60	188.30	10,948.4	-143.0	-565.5	28.5	8.86	8.72	2.98
11,058.0	37.40	189.60	10,987.5	-170.5	-569.9	54.6	8.07	7.92	2.71
11,105.0	41.20	188.80	11,023.9	-199.9	-574.6	82.5	8.16	8.09	-1.70
11,153.0	45.80	189.30	11,058.7	-232.5	-579.8	113.4	9.61	9.58	1.04
11,200.0	50.00	190.10	11,090.2	-266.9	-585.7	146.0	9.02	8.94	1.70
11,248.0	52.70	191.70	11,120.2	-303.7	-592.8	180.6	6.20	5.63	3.33
11,295.0	55.20	191.20	11,147.8	-340.9	-600.4	215.7	5.39	5.32	-1.06
11,342.0	57.70	190.30	11,173.8	-379.4	-607.7	251.9	5.55	5.32	-1.91
11,389.0	60.70	191.40	11,197.9	-419.1	-615.3	289.3	6.69	6.38	2.34
11,437.0	64.30	191.30	11,220.0	-460.8	-623.6	328.6	7.50	7.50	-0.21
11,484.0	68.30	193.20	11,238.9	-502.8	-632.8	368.0	9.28	8.51	4.04
11,532.0	73.10	192.20	11,254.8	-547.0	-642.7	409.3	10.19	10.00	-2.08
11,579.0	76.30	192.00	11,267.2	-591.3	-652.2	450.9	6.82	6.81	-0.43
11,627.0	79.80	189.20	11,277.1	-637.5	-660.9	494.4	9.26	7.29	-5.83
11,674.0	85.10	188.10	11,283.3	-683.5	-667.9	538.2	11.51	11.28	-2.34
11,722.0	88.90	185.10	11,285.8	-731.1	-673.4	583.8	10.08	7.92	-6.25
11,769.0	90.40	180.40	11,286.1	-778.1	-675.6	629.3	10.50	3.19	-10.00
11,817.0	89.60	173.30	11,286.1	-826.0	-673.0	676.8	14.89	-1.67	-14.79
11,864.0	89.80	166.30	11,286.3	-872.2	-664.7	723.7	14.90	0.43	-14.89
11,912.0	91.40	164.10	11,285.8	-918.6	-652.4	771.7	5.67	3.33	-4.58
12,007.0	92.60	159.30	11,282.5	-1,008.7	-622.6	865.9	5.21	1.26	-5.05
12,102.0	91.70	159.00	11,278.9	-1,097.4	-586.8	959.5	0.95	-0.95	-0.32
12,196.0	91.60	161.40	11,276.2	-1,185.8	-557.0	1,052.5	2.55	-0.11	2.55
12,291.0	92.40	161.30	11,272.9	-1,275.8	-526.6	1,146.6	0.85	0.84	-0.11
12,386.0	92.50	160.90	11,268.9	-1,365.6	-495.9	1,240.7	0.43	0.11	-0.42
12,481.0	90.70	160.10	11,266.2	-1,455.1	-464.2	1,334.8	2.07	-1.89	-0.84

Office of Oil and Gas
APR 07 2019



Survey Report

05/03/2019



Handwritten notes: "Environmental Protection" and "AP 117 ASD".

Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 3925 usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 11284 usft (Nomac #81)
Well:	Moe 3U	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)
12,575.0	89.60	160.30	11,266.0	-1,543.5	-432.3	1,427.7	1.19	-1.17	0.21
12,670.0	89.60	161.10	11,266.6	-1,633.2	-400.9	1,521.8	0.84	0.00	0.84
12,765.0	89.80	160.40	11,267.1	-1,722.9	-369.6	1,615.9	0.77	0.21	-0.74
12,860.0	89.80	160.80	11,267.5	-1,812.5	-338.1	1,710.0	0.42	0.00	0.42
12,954.0	89.70	161.70	11,267.9	-1,901.5	-307.9	1,803.2	0.96	-0.11	0.96
13,049.0	92.70	162.70	11,265.9	-1,991.9	-278.8	1,897.6	3.33	3.16	1.05
13,144.0	93.00	162.20	11,261.2	-2,082.4	-250.2	1,991.9	0.61	0.32	-0.53
13,238.0	91.20	163.10	11,257.7	-2,172.0	-222.2	2,085.4	2.14	-1.91	0.96
13,333.0	89.00	163.50	11,257.5	-2,263.0	-194.9	2,180.0	2.35	-2.32	0.42
13,428.0	88.10	163.40	11,259.9	-2,354.0	-167.9	2,274.5	0.95	-0.95	-0.11
13,522.0	89.40	163.50	11,262.0	-2,444.1	-141.1	2,368.1	1.39	1.38	0.11
13,617.0	89.60	163.70	11,262.8	-2,535.3	-114.3	2,462.8	0.30	0.21	0.21
13,711.0	89.10	163.70	11,263.9	-2,625.5	-87.9	2,556.4	0.53	-0.53	0.00
13,806.0	88.50	161.00	11,265.9	-2,716.0	-59.1	2,650.8	2.91	-0.63	-2.84
13,901.0	89.30	160.40	11,267.7	-2,805.6	-27.7	2,744.9	1.05	0.84	-0.63
13,996.0	88.80	159.70	11,269.3	-2,894.9	4.7	2,838.8	0.91	-0.53	-0.74
14,091.0	89.70	161.00	11,270.5	-2,984.4	36.7	2,932.8	1.66	0.95	1.37
14,186.0	89.10	159.70	11,271.5	-3,073.8	68.6	3,026.8	1.51	-0.63	-1.37
14,281.0	89.80	163.20	11,272.4	-3,163.9	98.8	3,121.1	3.76	0.74	3.68
14,376.0	89.50	163.00	11,273.0	-3,254.8	126.4	3,215.6	0.38	-0.32	-0.21
14,471.0	88.60	161.20	11,274.6	-3,345.1	155.6	3,310.0	2.12	-0.95	-1.89
14,566.0	89.70	163.40	11,276.0	-3,435.6	184.5	3,404.4	2.59	1.16	2.32
14,660.0	89.80	162.80	11,276.4	-3,525.6	211.8	3,498.0	0.65	0.11	-0.64
14,755.0	89.40	162.40	11,277.1	-3,616.2	240.2	3,592.4	0.60	-0.42	-0.42
14,850.0	88.90	161.10	11,278.5	-3,706.4	270.0	3,686.8	1.47	-0.53	-1.37
14,945.0	88.90	160.60	11,280.3	-3,796.2	301.1	3,780.9	0.53	0.00	-0.53
15,040.0	89.80	161.70	11,281.4	-3,886.1	331.8	3,875.1	1.50	0.95	1.16
15,134.0	89.80	161.10	11,281.7	-3,975.1	361.8	3,968.3	0.64	0.00	-0.64
15,229.0	89.80	160.80	11,282.0	-4,064.9	392.8	4,062.5	0.32	0.00	-0.32
15,324.0	89.60	160.40	11,282.5	-4,154.5	424.4	4,156.5	0.47	-0.21	-0.42
15,419.0	89.20	162.20	11,283.5	-4,244.5	454.8	4,250.8	1.94	-0.42	1.89
TD OH @ 15476' MD / 11284' TVD									
15,476.0	89.20	162.20	11,284.3	-4,298.8	472.3	4,307.4	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
395.0	395.0	2.0	3.2	First MWD Survey @ 395' MD / TVD
15,476.0	11,284.3	-4,298.8	472.3	TD OH @ 15476' MD / 11284' TVD

Checked By: _____ Approved By: _____ Date: _____



Jay-Bee Oil & Gas

Tyler County

Moe Pad

Moe 3U

Sidetrack #1

Survey: Sidetrack #1

QES Survey Report

19 January, 2017

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Survey Report

05/03/2019



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	North Reference:	Grid
Wellbore:	Sidetrack #1	Survey Calculation Method:	Minimum Curvature
Design:	Sidetrack #1	Database:	EDM5002

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

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

Well	Moe 3U					
Well Position	+N/-S	0.0 usft	Northing:	355,623.60 usft	Latitude:	39° 28' 5.063 N
	+E/-W	0.0 usft	Easting:	1,576,823.56 usft	Longitude:	80° 53' 14.849 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	961.9 usft

Wellbore	Sidetrack #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/11/2017	-8.48	66.77	52,084

Design	Sidetrack #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	14,945.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0		

Survey Program	Date	1/12/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
395.0	14,945.0	MWD Surveys (Wellbore #1)	MWD default	MWD - Standard
15,046.0	18,835.0	Sidetrack #1 (Sidetrack #1)	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 OH @ 14945' MD / 11280' TVD										
14,945.0	88.90	160.60	11,280.3	-3,796.2	301.1	3,780.9	0.00	0.00	0.00	
15,046.0	85.77	156.43	11,285.0	-3,890.0	338.1	3,880.2	5.16	-3.10	-4.13	
15,140.0	89.25	155.18	11,289.1	-3,975.7	376.6	3,971.7	3.93	3.70	-1.33	
15,235.0	89.72	157.57	11,289.9	-4,062.7	414.6	4,064.6	2.56	0.49	2.52	
15,330.0	88.85	159.77	11,291.1	-4,151.2	449.2	4,158.1	2.49	-0.92	2.32	
15,425.0	89.15	159.22	11,292.8	-4,240.1	482.4	4,251.9	0.66	0.32	-0.58	
15,519.0	90.19	163.07	11,293.3	-4,329.1	512.8	4,345.1	4.24	1.11	4.10	
15,614.0	90.19	164.02	11,293.0	-4,420.2	539.7	4,439.7	1.00	0.00	1.00	
15,708.0	89.67	163.02	11,293.1	-4,510.3	566.4	4,533.3	1.20	-0.55	-1.06	

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	North Reference:	Grid
Wellbore:	Sidetrack #1	Survey Calculation Method:	Minimum Curvature
Design:	Sidetrack #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)
15,803.0	89.51	163.41	11,293.8	-4,601.3	593.8	4,627.9	0.44	-0.17	0.41
15,898.0	89.40	162.47	11,294.7	-4,692.1	621.7	4,722.4	1.00	-0.12	-0.99
15,993.0	89.62	162.79	11,295.5	-4,782.7	650.1	4,816.9	0.41	0.23	0.34
16,088.0	89.83	164.00	11,296.0	-4,873.8	677.2	4,911.5	1.29	0.22	1.27
16,183.0	90.11	163.90	11,296.0	-4,965.1	703.5	5,006.2	0.31	0.29	-0.11
16,277.0	89.97	163.42	11,296.0	-5,055.3	729.9	5,099.9	0.53	-0.15	-0.51
16,372.0	89.56	162.88	11,296.4	-5,146.2	757.4	5,194.4	0.71	-0.43	-0.57
16,467.0	89.32	161.82	11,297.3	-5,236.7	786.3	5,288.9	1.14	-0.25	-1.12
16,562.0	89.15	160.53	11,298.5	-5,326.6	816.9	5,383.0	1.37	-0.18	-1.36
16,656.0	89.69	162.59	11,299.5	-5,415.8	846.6	5,476.3	2.27	0.57	2.19
16,751.0	89.63	162.14	11,300.1	-5,506.3	875.4	5,570.8	0.48	-0.06	-0.47
16,846.0	89.65	160.36	11,300.7	-5,596.3	905.9	5,665.0	1.87	0.02	-1.87
16,941.0	90.42	162.14	11,300.6	-5,686.2	936.5	5,759.2	2.04	0.81	1.87
17,035.0	90.18	162.03	11,300.1	-5,775.7	965.4	5,852.6	0.28	-0.26	-0.12
17,130.0	89.69	164.07	11,300.2	-5,866.5	993.1	5,947.1	2.21	-0.52	2.15
17,224.0	89.25	162.74	11,301.1	-5,956.6	1,019.9	6,040.7	1.49	-0.47	-1.41
17,319.0	89.99	164.28	11,301.7	-6,047.7	1,046.9	6,135.3	1.80	0.78	1.62
17,414.0	89.86	165.57	11,301.8	-6,139.4	1,071.6	6,230.1	1.36	-0.14	1.36
17,508.0	89.94	165.26	11,302.0	-6,230.4	1,095.3	6,324.0	0.34	0.09	-0.33
17,603.0	89.50	162.15	11,302.5	-6,321.6	1,121.9	6,418.6	3.31	-0.46	-3.27
17,697.0	90.08	160.27	11,302.8	-6,410.6	1,152.2	6,511.9	2.09	0.62	-2.00
17,792.0	89.55	161.13	11,303.1	-6,500.2	1,183.6	6,605.9	1.06	-0.56	0.91
17,887.0	89.39	159.15	11,304.0	-6,589.6	1,215.9	6,699.9	2.09	-0.17	-2.08
17,982.0	90.76	164.58	11,303.9	-6,679.8	1,245.4	6,794.2	5.89	1.44	5.72
18,076.0	90.38	163.56	11,302.9	-6,770.2	1,271.2	6,887.9	1.16	-0.40	-1.09
18,171.0	90.70	163.80	11,302.0	-6,861.4	1,297.9	6,982.6	0.42	0.34	0.25
18,266.0	90.42	162.14	11,301.1	-6,952.2	1,325.7	7,077.1	1.77	-0.29	-1.75
18,361.0	90.58	162.44	11,300.3	-7,042.7	1,354.6	7,171.5	0.36	0.17	0.32
18,455.0	90.14	161.96	11,299.7	-7,132.2	1,383.4	7,264.9	0.69	0.22	-0.51
18,550.0	90.35	161.97	11,299.3	-7,222.5	1,412.8	7,359.3	0.22	0.22	0.01
18,645.0	89.85	160.83	11,299.1	-7,312.5	1,443.1	7,453.5	1.31	-0.53	1.20
18,740.0	89.82	161.12	11,299.4	-7,402.4	1,474.1	7,547.7	0.31	-0.03	0.31
18,773.0	89.86	160.37	11,299.5	-7,433.5	1,484.9	7,580.4	2.28	0.12	-2.27
TD @ 18835' MD / 11300' TVD									
18,835.0	89.86	160.37	11,299.6	-7,491.9	1,505.8	7,641.7	0.00	0.00	0.00

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Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
14,945.0	11,280.3	-3,796.2	301.1	Tie-into OH @ 14945' MD / 11280' TVD
18,835.0	11,299.6	-7,491.9	1,505.8	TD @ 18835' MD / 11300' TVD



Survey Report

05/03/2019



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well Moe 3U
Project:	Tyler County	TVD Reference:	well @ 982.5usft (Nomac #81)
Site:	Moe Pad	MD Reference:	well @ 982.5usft (Nomac #81)
Well:	Moe 3U	North Reference:	Grid
Wellbore:	Sidetrack #1	Survey Calculation Method:	Minimum Curvature
Design:	Sidetrack #1	Database:	EDM5002

Checked By: _____ Approved By: _____ Date: _____

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