



Laramie Energy, LLC

Mesa County, CO

Bruton 30-01 Pad

Bruton 19-20E

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

18 June, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-20E
Project:	Mesa County, CO	TVD Reference:	well @ 7449.0usft (H&P #290)
Site:	Bruton 30-01 Pad	MD Reference:	well @ 7449.0usft (H&P #290)
Well:	Bruton 19-20E	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

Project	Mesa County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	Bruton 30-01 Pad				
Site Position:		Northing:	1,526,078.02 usft	Latitude:	39.255061
From:	Lat/Long	Easting:	2,347,056.81 usft	Longitude:	-107.806111
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.45 °

Well	Bruton 19-20E					
Well Position	+N/-S	0.0 usft	Northing:	1,526,127.91 usft	Latitude:	39.255197
	+E/-W	0.0 usft	Easting:	2,347,044.70 usft	Longitude:	-107.806159
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	7,425.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/14/2017	9.59	65.42	51,413

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	331.35	

Survey Program	Date	6/18/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
112.0	7,757.0	MWD Surveys (Wellbore #1)	MWD default	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,526,127.91	2,347,044.70	39.255197	-107.806159
112.0	1.10	91.50	112.0	0.0	1.1	1,526,127.85	2,347,045.77	39.255197	-107.806155
First MWD Survey @ 112.0' MD / TVD									
203.0	1.45	113.80	203.0	-0.5	3.0	1,526,127.32	2,347,047.69	39.255196	-107.806148
295.0	1.50	122.80	294.9	-1.6	5.1	1,526,126.14	2,347,049.73	39.255193	-107.806141
386.0	0.60	12.80	385.9	-1.8	6.2	1,526,125.93	2,347,050.84	39.255192	-107.806137
477.0	0.80	356.70	476.9	-0.7	6.3	1,526,127.03	2,347,050.93	39.255195	-107.806137
567.0	0.90	353.00	566.9	0.6	6.1	1,526,128.36	2,347,050.84	39.255199	-107.806137
657.0	1.00	353.30	656.9	2.1	6.0	1,526,129.85	2,347,050.70	39.255203	-107.806138
748.0	0.20	250.50	747.9	2.8	5.7	1,526,130.59	2,347,050.48	39.255205	-107.806138
839.0	0.20	240.60	838.9	2.7	5.4	1,526,130.46	2,347,050.19	39.255205	-107.806139
929.0	0.30	232.90	928.9	2.5	5.1	1,526,130.25	2,347,049.86	39.255204	-107.806141



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Site:	Bruton 30-01 Pad	MD Reference:	well @ 7449.0usft (H&P #290)
Well:	Bruton 19-20E	North Reference:	True
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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,024.0	0.20	239.20	1,023.9	2.2	4.8	1,526,130.03	2,347,049.51	39.255203	-107.806142
1,118.0	0.20	177.20	1,117.9	2.0	4.6	1,526,129.78	2,347,049.37	39.255203	-107.806142
1,213.0	0.20	188.60	1,212.9	1.7	4.6	1,526,129.45	2,347,049.35	39.255202	-107.806142
1,307.0	0.10	205.90	1,306.9	1.4	4.5	1,526,129.22	2,347,049.28	39.255201	-107.806143
1,402.0	0.20	259.20	1,401.9	1.3	4.3	1,526,129.12	2,347,049.08	39.255201	-107.806143
1,496.0	0.10	167.40	1,495.9	1.2	4.2	1,526,129.01	2,347,048.93	39.255201	-107.806144
1,587.0	0.20	120.00	1,586.9	1.1	4.4	1,526,128.85	2,347,049.09	39.255200	-107.806143
1,681.0	0.20	121.30	1,680.9	0.9	4.6	1,526,128.68	2,347,049.36	39.255200	-107.806142
1,776.0	0.20	72.30	1,775.9	0.9	4.9	1,526,128.63	2,347,049.66	39.255200	-107.806141
1,870.0	0.30	56.90	1,869.9	1.0	5.3	1,526,128.81	2,347,050.03	39.255200	-107.806140
1,965.0	0.30	63.30	1,964.9	1.3	5.7	1,526,129.05	2,347,050.47	39.255201	-107.806138
2,059.0	0.40	52.50	2,058.9	1.6	6.2	1,526,129.34	2,347,050.95	39.255202	-107.806137
2,154.0	0.20	81.60	2,153.9	1.8	6.6	1,526,129.56	2,347,051.39	39.255202	-107.806135
2,248.0	1.50	340.30	2,247.9	3.0	6.4	1,526,130.75	2,347,051.16	39.255206	-107.806136
2,343.0	3.60	337.00	2,342.8	6.9	4.8	1,526,134.70	2,347,049.68	39.255216	-107.806142
2,437.0	5.50	333.70	2,436.5	13.7	1.7	1,526,141.54	2,347,046.70	39.255235	-107.806153
2,532.0	7.50	331.30	2,530.9	23.2	-3.3	1,526,151.18	2,347,041.95	39.255261	-107.806170
2,626.0	9.30	330.70	2,623.8	35.2	-10.0	1,526,163.35	2,347,035.59	39.255294	-107.806194
2,720.0	11.10	331.00	2,716.4	49.7	-18.1	1,526,178.09	2,347,027.86	39.255334	-107.806223
2,815.0	10.90	330.90	2,809.6	65.6	-26.9	1,526,194.16	2,347,019.46	39.255377	-107.806254
2,909.0	10.50	329.80	2,902.0	80.8	-35.5	1,526,209.54	2,347,011.22	39.255419	-107.806284
3,004.0	10.20	328.40	2,995.4	95.4	-44.3	1,526,224.40	2,347,002.83	39.255459	-107.806315
3,098.0	11.40	333.40	3,087.8	110.8	-52.8	1,526,240.01	2,346,994.71	39.255501	-107.806345
3,193.0	11.00	332.30	3,181.0	127.2	-61.2	1,526,256.64	2,346,986.71	39.255547	-107.806375
3,288.0	10.50	332.20	3,274.3	142.9	-69.5	1,526,272.52	2,346,978.86	39.255590	-107.806404
3,383.0	9.90	332.00	3,367.8	157.8	-77.4	1,526,287.59	2,346,971.37	39.255630	-107.806432
3,477.0	11.20	332.20	3,460.2	173.0	-85.4	1,526,303.00	2,346,963.71	39.255672	-107.806460
3,572.0	10.70	332.10	3,553.5	188.9	-93.8	1,526,319.16	2,346,955.68	39.255716	-107.806490
3,666.0	10.40	330.70	3,645.9	204.0	-102.1	1,526,334.48	2,346,947.83	39.255758	-107.806519
3,761.0	10.30	329.00	3,739.3	218.8	-110.6	1,526,349.45	2,346,939.64	39.255798	-107.806549
3,855.0	10.10	330.00	3,831.8	233.1	-119.1	1,526,364.00	2,346,931.56	39.255837	-107.806579
3,950.0	10.10	328.70	3,925.4	247.5	-127.6	1,526,378.54	2,346,923.43	39.255877	-107.806609
4,045.0	9.40	327.70	4,019.0	261.1	-136.1	1,526,392.43	2,346,915.31	39.255914	-107.806639
4,139.0	9.50	326.70	4,111.7	274.1	-144.4	1,526,405.61	2,346,907.28	39.255950	-107.806669
4,234.0	10.70	331.80	4,205.3	288.4	-152.9	1,526,420.14	2,346,899.17	39.255989	-107.806699
4,329.0	11.40	338.20	4,298.5	304.9	-160.6	1,526,436.82	2,346,891.94	39.256035	-107.806726
4,423.0	11.10	337.10	4,390.7	321.9	-167.5	1,526,453.96	2,346,885.40	39.256081	-107.806750
4,518.0	10.50	336.20	4,484.0	338.2	-174.6	1,526,470.47	2,346,878.77	39.256126	-107.806775
4,612.0	9.80	333.80	4,576.5	353.3	-181.6	1,526,485.66	2,346,872.16	39.256167	-107.806800
4,707.0	9.70	338.10	4,670.2	367.9	-188.1	1,526,500.50	2,346,865.98	39.256207	-107.806823
4,801.0	9.20	337.90	4,762.9	382.2	-193.9	1,526,514.95	2,346,860.57	39.256247	-107.806843
4,896.0	9.20	334.80	4,856.7	396.2	-200.0	1,526,529.01	2,346,854.83	39.256285	-107.806865
4,990.0	8.30	329.00	4,949.6	408.8	-206.7	1,526,541.79	2,346,848.46	39.256320	-107.806889
5,085.0	7.40	333.90	5,043.7	420.1	-212.9	1,526,553.32	2,346,842.53	39.256351	-107.806910
5,180.0	6.80	330.40	5,138.0	430.5	-218.4	1,526,563.84	2,346,837.32	39.256379	-107.806930
5,274.0	6.90	335.30	5,231.3	440.5	-223.5	1,526,573.93	2,346,832.47	39.256407	-107.806948
5,369.0	6.90	342.50	5,325.6	451.1	-227.6	1,526,584.66	2,346,828.64	39.256436	-107.806962
5,464.0	6.00	339.40	5,420.0	461.2	-231.0	1,526,594.84	2,346,825.43	39.256464	-107.806975
5,558.0	6.00	338.00	5,513.5	470.4	-234.6	1,526,604.08	2,346,822.10	39.256489	-107.806987
5,653.0	5.00	334.70	5,608.0	478.7	-238.2	1,526,612.51	2,346,818.68	39.256512	-107.807000
5,748.0	4.40	335.30	5,702.7	485.8	-241.5	1,526,619.65	2,346,815.57	39.256531	-107.807012
5,842.0	4.10	348.90	5,796.5	492.3	-243.7	1,526,626.28	2,346,813.58	39.256549	-107.807019
5,937.0	3.50	357.90	5,891.3	498.6	-244.5	1,526,632.52	2,346,812.98	39.256566	-107.807022
6,031.0	2.10	358.90	5,985.1	503.2	-244.6	1,526,637.12	2,346,812.96	39.256579	-107.807022
6,126.0	0.80	347.20	6,080.1	505.5	-244.8	1,526,639.51	2,346,812.84	39.256585	-107.807023



Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-20E
Project:	Mesa County, CO	TVD Reference:	well @ 7449.0usft (H&P #290)
Site:	Bruton 30-01 Pad	MD Reference:	well @ 7449.0usft (H&P #290)
Well:	Bruton 19-20E	North Reference:	True
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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,220.0	0.80	307.50	6,174.1	506.6	-245.4	1,526,640.56	2,346,812.20	39.256588	-107.807025
6,315.0	0.70	293.40	6,269.1	507.2	-246.5	1,526,641.22	2,346,811.16	39.256590	-107.807029
6,409.0	0.90	278.80	6,363.1	507.6	-247.8	1,526,641.60	2,346,809.91	39.256591	-107.807034
6,504.0	1.20	264.30	6,458.1	507.6	-249.5	1,526,641.66	2,346,808.19	39.256591	-107.807040
6,598.0	0.90	333.70	6,552.1	508.1	-250.8	1,526,642.25	2,346,806.89	39.256592	-107.807044
6,693.0	0.90	322.70	6,647.0	509.4	-251.6	1,526,643.53	2,346,806.14	39.256596	-107.807047
6,788.0	1.30	292.10	6,742.0	510.4	-253.0	1,526,644.57	2,346,804.72	39.256599	-107.807052
6,882.0	1.60	277.30	6,836.0	511.0	-255.3	1,526,645.20	2,346,802.44	39.256600	-107.807060
6,977.0	1.90	265.70	6,931.0	511.0	-258.2	1,526,645.32	2,346,799.56	39.256600	-107.807070
7,072.0	2.30	267.00	7,025.9	510.8	-261.7	1,526,645.19	2,346,796.08	39.256600	-107.807083
7,166.0	2.70	254.80	7,119.8	510.1	-265.7	1,526,644.61	2,346,792.05	39.256598	-107.807097
7,261.0	3.50	245.20	7,214.7	508.3	-270.5	1,526,642.93	2,346,787.21	39.256593	-107.807114
7,356.0	3.90	242.50	7,309.5	505.6	-276.0	1,526,640.36	2,346,781.64	39.256585	-107.807133
7,451.0	3.80	239.10	7,404.3	502.5	-281.5	1,526,637.40	2,346,776.00	39.256577	-107.807153
7,545.0	3.80	238.80	7,498.0	499.3	-286.9	1,526,634.32	2,346,770.58	39.256568	-107.807172
7,640.0	3.80	238.00	7,592.8	496.0	-292.2	1,526,631.16	2,346,765.14	39.256559	-107.807191
7,702.0	3.90	240.00	7,654.7	493.9	-295.8	1,526,629.11	2,346,761.52	39.256553	-107.807203
7,757.0	3.90	240.00	7,709.6	492.0	-299.1	1,526,627.32	2,346,758.23	39.256548	-107.807215
Projection to TD @ 7757.0' MD / 7709.6' TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
112.0	112.0	0.0	1.1	First MWD Survey @ 112.0' MD / TVD
7,757.0	7,709.6	492.0	-299.1	Projection to TD @ 7757.0' MD / 7709.6' TVD

Checked By: _____	Approved By: _____	Date: _____
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