



Laramie Energy, LLC

Mesa County, CO

Bruton 19-06 Pad

Bruton 19-05W

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

19 September, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-05W
Project:	Mesa County, CO	TVD Reference:	well @ 7286.0usft (H&P #290)
Site:	Bruton 19-06 Pad	MD Reference:	well @ 7286.0usft (H&P #290)
Well:	Bruton 19-05W	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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 19-06 Pad			
Site Position:		Northing:	1,528,940.55 usft	Latitude:	39.262756
From:	Lat/Long	Easting:	2,344,737.10 usft	Longitude:	-107.814558
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.46 °

Well	Bruton 19-05W					
Well Position	+N/-S	0.0 usft	Northing:	1,529,008.69 usft	Latitude:	39.262933
	+E/-W	0.0 usft	Easting:	2,344,593.26 usft	Longitude:	-107.815072
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	7,262.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/18/2017	9.56	65.42	51,387.74285211

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	344.79	

Survey Program	Date	9/19/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
204.0	7,794.0	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	1,529,008.69	2,344,593.26	39.262933	-107.815072
204.0	4.10	269.40	203.8	-0.1	-7.3	1,529,008.80	2,344,585.97	39.262933	-107.815098
First MWD Survey @ 204.0' MD / 203.8' TVD									
295.0	5.10	284.10	294.5	0.9	-14.5	1,529,009.93	2,344,578.82	39.262935	-107.815123
386.0	5.20	303.90	385.2	4.2	-21.8	1,529,013.41	2,344,571.56	39.262944	-107.815149
476.0	5.50	327.90	474.8	10.1	-27.5	1,529,019.48	2,344,566.03	39.262961	-107.815169
567.0	7.00	352.00	565.3	19.3	-30.6	1,529,028.74	2,344,563.18	39.262986	-107.815180
658.0	10.10	355.00	655.2	32.7	-32.1	1,529,042.22	2,344,562.05	39.263023	-107.815185
749.0	13.80	351.20	744.3	51.4	-34.4	1,529,060.95	2,344,560.17	39.263074	-107.815194
840.0	16.60	347.20	832.1	74.8	-39.0	1,529,084.47	2,344,556.23	39.263138	-107.815210
930.0	17.30	346.20	918.2	100.3	-45.0	1,529,110.15	2,344,550.84	39.263209	-107.815231
1,025.0	17.50	352.50	1,008.8	128.2	-50.2	1,529,138.15	2,344,546.32	39.263285	-107.815250



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Site:	Bruton 19-06 Pad	MD Reference:	well @ 7286.0usft (H&P #290)
Well:	Bruton 19-05W	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,119.0	17.80	353.30	1,098.4	156.5	-53.7	1,529,166.51	2,344,543.52	39.263363	-107.815262
1,214.0	17.50	349.90	1,188.9	185.0	-57.9	1,529,195.10	2,344,540.05	39.263441	-107.815277
1,309.0	17.40	346.90	1,279.6	212.9	-63.7	1,529,223.13	2,344,535.03	39.263518	-107.815297
1,404.0	16.80	349.50	1,370.4	240.2	-69.4	1,529,250.60	2,344,530.01	39.263593	-107.815317
1,499.0	16.70	350.00	1,461.3	267.2	-74.3	1,529,277.66	2,344,525.83	39.263667	-107.815335
1,590.0	16.70	351.30	1,548.5	293.0	-78.5	1,529,303.56	2,344,522.24	39.263737	-107.815350
1,684.0	16.10	351.20	1,638.7	319.2	-82.5	1,529,329.88	2,344,518.87	39.263809	-107.815364
1,779.0	15.70	349.40	1,730.0	344.8	-86.9	1,529,355.64	2,344,515.15	39.263880	-107.815379
1,873.0	15.10	349.70	1,820.7	369.4	-91.5	1,529,380.29	2,344,511.24	39.263947	-107.815395
1,968.0	16.00	350.20	1,912.2	394.5	-95.9	1,529,405.48	2,344,507.44	39.264016	-107.815411
2,062.0	14.90	349.70	2,002.8	419.1	-100.3	1,529,430.24	2,344,503.71	39.264084	-107.815426
2,157.0	16.20	351.90	2,094.3	444.3	-104.3	1,529,455.47	2,344,500.30	39.264153	-107.815441
2,252.0	16.70	351.00	2,185.4	470.9	-108.3	1,529,482.17	2,344,496.97	39.264226	-107.815455
2,346.0	17.30	349.40	2,275.3	497.9	-113.0	1,529,509.35	2,344,492.98	39.264300	-107.815471
2,441.0	16.60	349.20	2,366.2	525.2	-118.1	1,529,536.69	2,344,488.54	39.264375	-107.815490
2,535.0	15.60	348.60	2,456.5	550.7	-123.2	1,529,562.39	2,344,484.18	39.264445	-107.815507
2,630.0	15.20	348.70	2,548.1	575.5	-128.1	1,529,587.24	2,344,479.84	39.264513	-107.815525
2,724.0	16.70	347.10	2,638.5	600.7	-133.6	1,529,612.62	2,344,475.06	39.264582	-107.815544
2,819.0	15.80	346.60	2,729.7	626.6	-139.6	1,529,638.66	2,344,469.67	39.264653	-107.815565
2,913.0	16.70	348.30	2,819.9	652.3	-145.3	1,529,664.47	2,344,464.63	39.264724	-107.815585
3,008.0	16.00	348.10	2,911.1	678.5	-150.8	1,529,690.78	2,344,459.83	39.264796	-107.815605
3,103.0	14.80	347.10	3,002.6	703.1	-156.2	1,529,715.55	2,344,455.05	39.264864	-107.815624
3,197.0	16.00	348.60	3,093.3	727.5	-161.4	1,529,740.07	2,344,450.43	39.264931	-107.815642
3,292.0	16.00	348.40	3,184.6	753.2	-166.6	1,529,765.86	2,344,445.86	39.265001	-107.815661
3,386.0	14.70	347.30	3,275.2	777.5	-171.9	1,529,790.31	2,344,441.26	39.265068	-107.815679
3,481.0	16.00	347.30	3,366.8	802.0	-177.4	1,529,814.98	2,344,436.36	39.265135	-107.815699
3,576.0	14.80	346.80	3,458.4	826.6	-183.0	1,529,839.70	2,344,431.34	39.265203	-107.815719
3,670.0	15.80	349.00	3,549.1	850.9	-188.2	1,529,864.07	2,344,426.77	39.265269	-107.815737
3,765.0	16.80	349.50	3,640.3	877.1	-193.2	1,529,890.39	2,344,422.47	39.265341	-107.815755
3,859.0	16.00	347.90	3,730.5	903.1	-198.4	1,529,916.54	2,344,417.94	39.265413	-107.815773
3,954.0	15.40	347.40	3,821.9	928.2	-203.9	1,529,941.78	2,344,413.09	39.265482	-107.815792
4,048.0	15.20	348.20	3,912.6	952.4	-209.1	1,529,966.15	2,344,408.47	39.265548	-107.815811
4,143.0	16.60	348.10	4,003.9	977.9	-214.5	1,529,991.75	2,344,403.77	39.265618	-107.815830
4,238.0	15.80	346.90	4,095.2	1,003.8	-220.2	1,530,017.76	2,344,398.70	39.265689	-107.815850
4,332.0	15.20	347.30	4,185.8	1,028.3	-225.8	1,530,042.38	2,344,393.72	39.265756	-107.815870
4,427.0	15.80	346.70	4,277.3	1,053.0	-231.5	1,530,067.26	2,344,388.64	39.265824	-107.815890
4,522.0	15.70	347.80	4,368.7	1,078.2	-237.2	1,530,092.54	2,344,383.59	39.265893	-107.815910
4,616.0	16.00	348.00	4,459.2	1,103.3	-242.6	1,530,117.77	2,344,378.85	39.265962	-107.815929
4,711.0	15.90	347.00	4,550.5	1,128.7	-248.2	1,530,143.40	2,344,373.85	39.266032	-107.815949
4,806.0	15.40	346.70	4,642.0	1,153.7	-254.1	1,530,168.49	2,344,368.66	39.266101	-107.815970
4,900.0	14.70	346.60	4,732.8	1,177.5	-259.7	1,530,192.38	2,344,363.63	39.266166	-107.815990
4,995.0	14.10	347.10	4,824.8	1,200.5	-265.1	1,530,215.51	2,344,358.84	39.266229	-107.816009
5,089.0	13.50	348.60	4,916.1	1,222.4	-269.8	1,530,237.54	2,344,354.68	39.266289	-107.816025
5,184.0	13.60	349.90	5,008.4	1,244.2	-274.0	1,530,259.51	2,344,351.09	39.266349	-107.816040
5,279.0	14.20	350.00	5,100.6	1,266.7	-277.9	1,530,282.07	2,344,347.68	39.266411	-107.816054
5,373.0	14.60	348.30	5,191.7	1,289.7	-282.4	1,530,305.13	2,344,343.86	39.266474	-107.816070
5,468.0	11.70	344.50	5,284.2	1,310.7	-287.4	1,530,326.26	2,344,339.39	39.266532	-107.816087
5,562.0	8.60	342.30	5,376.7	1,326.6	-292.0	1,530,342.26	2,344,335.11	39.266575	-107.816104
5,656.0	7.20	344.10	5,469.8	1,338.9	-295.8	1,530,354.71	2,344,331.68	39.266609	-107.816117
5,751.0	4.90	344.10	5,564.3	1,348.6	-298.5	1,530,364.41	2,344,329.18	39.266636	-107.816127
5,846.0	2.60	347.90	5,659.1	1,354.6	-300.1	1,530,370.46	2,344,327.77	39.266652	-107.816132
5,940.0	2.10	331.40	5,753.0	1,358.2	-301.4	1,530,374.09	2,344,326.59	39.266662	-107.816137
6,035.0	1.20	334.40	5,847.9	1,360.6	-302.6	1,530,376.54	2,344,325.39	39.266669	-107.816141
6,129.0	1.00	316.70	5,941.9	1,362.1	-303.6	1,530,378.05	2,344,324.44	39.266673	-107.816145
6,224.0	0.80	316.80	6,036.9	1,363.2	-304.6	1,530,379.16	2,344,323.45	39.266676	-107.816148



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Project:	Mesa County, CO	TVD Reference:	well @ 7286.0usft (H&P #290)
Site:	Bruton 19-06 Pad	MD Reference:	well @ 7286.0usft (H&P #290)
Well:	Bruton 19-05W	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,319.0	0.80	292.60	6,131.9	1,363.9	-305.7	1,530,379.93	2,344,322.40	39.266678	-107.816152
6,413.0	0.90	308.20	6,225.9	1,364.6	-306.9	1,530,380.67	2,344,321.23	39.266680	-107.816156
6,508.0	0.60	253.40	6,320.9	1,364.9	-308.0	1,530,381.02	2,344,320.18	39.266681	-107.816160
6,602.0	1.30	244.20	6,414.9	1,364.3	-309.4	1,530,380.45	2,344,318.73	39.266679	-107.816165
6,697.0	0.70	218.00	6,509.9	1,363.4	-310.7	1,530,379.55	2,344,317.38	39.266676	-107.816170
6,792.0	1.40	214.00	6,604.8	1,362.0	-311.7	1,530,378.16	2,344,316.34	39.266672	-107.816173
6,886.0	0.20	266.00	6,698.8	1,361.0	-312.5	1,530,377.22	2,344,315.51	39.266670	-107.816176
6,981.0	0.90	248.90	6,793.8	1,360.7	-313.4	1,530,376.96	2,344,314.64	39.266669	-107.816179
7,075.0	1.30	233.30	6,887.8	1,359.8	-314.9	1,530,376.10	2,344,313.08	39.266667	-107.816185
7,170.0	2.10	228.10	6,982.8	1,358.0	-317.1	1,530,374.35	2,344,310.87	39.266662	-107.816192
7,264.0	1.20	188.50	7,076.7	1,355.9	-318.5	1,530,372.26	2,344,309.39	39.266656	-107.816197
7,359.0	2.60	203.40	7,171.7	1,352.9	-319.5	1,530,369.32	2,344,308.31	39.266648	-107.816201
7,453.0	3.80	222.30	7,265.5	1,348.7	-322.5	1,530,365.14	2,344,305.26	39.266636	-107.816211
7,548.0	2.70	219.00	7,360.4	1,344.6	-326.0	1,530,361.16	2,344,301.63	39.266625	-107.816224
7,642.0	1.90	220.90	7,454.3	1,341.7	-328.4	1,530,358.33	2,344,299.15	39.266617	-107.816232
7,737.0	2.10	227.60	7,549.2	1,339.3	-330.7	1,530,356.02	2,344,296.77	39.266610	-107.816240
7,794.0	2.10	227.60	7,606.2	1,337.9	-332.3	1,530,354.66	2,344,295.19	39.266606	-107.816246
PH TD @ 7794.0' MD / 7606.2' TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
204.0	203.8	-0.1	-7.3	First MWD Survey @ 204.0' MD / 203.8' TVD
7,794.0	7,606.2	1,337.9	-332.3	PH TD @ 7794.0' MD / 7606.2' TVD