



Laramie Energy, LLC

Mesa County, CO

Bruton 30-01 Pad

Bruton 19-18E

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

06 July, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-18E
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 19-18E	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 19-18E					
Well Position	+N/-S	0.0 usft	Northing:	1,526,146.33 usft	Latitude:	39.255247
	+E/-W	0.0 usft	Easting:	2,347,036.51 usft	Longitude:	-107.806189
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	1/5/2017	9.63	65.43	51,461

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	345.61	

Survey Program	Date	7/6/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
204.0	7,829.0	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	1,526,146.33	2,347,036.51	39.255247	-107.806189
204.0	1.80	50.50	204.0	2.0	2.5	1,526,148.31	2,347,039.03	39.255253	-107.806180
First MWD Survey @ 204.0' MD / TVD									
295.0	2.20	57.20	294.9	3.9	5.0	1,526,150.10	2,347,041.65	39.255258	-107.806171
387.0	0.60	316.20	386.9	5.2	6.2	1,526,151.37	2,347,042.84	39.255262	-107.806167
477.0	1.10	273.30	476.9	5.6	5.0	1,526,151.79	2,347,041.66	39.255263	-107.806171
567.0	1.20	295.40	566.9	6.0	3.3	1,526,152.29	2,347,039.96	39.255264	-107.806178
658.0	1.10	169.60	657.9	5.6	2.6	1,526,151.86	2,347,039.24	39.255263	-107.806180
749.0	1.00	145.00	748.8	4.1	3.2	1,526,150.33	2,347,039.82	39.255258	-107.806178
840.0	1.10	132.50	839.8	2.8	4.3	1,526,149.06	2,347,040.88	39.255255	-107.806174
930.0	0.40	60.00	929.8	2.4	5.2	1,526,148.61	2,347,041.78	39.255254	-107.806171
1,024.0	1.30	20.00	1,023.8	3.6	5.9	1,526,149.76	2,347,042.46	39.255257	-107.806168



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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 19-18E	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
1,119.0	3.70	2.90	1,118.7	7.7	6.4	1,526,153.82	2,347,043.09	39.255268	-107.806167
1,213.0	6.90	354.20	1,212.3	16.3	6.0	1,526,162.48	2,347,042.89	39.255292	-107.806168
1,308.0	8.60	351.00	1,306.4	29.0	4.3	1,526,175.21	2,347,041.52	39.255327	-107.806174
1,402.0	12.10	340.80	1,398.9	45.2	-0.1	1,526,191.57	2,347,037.60	39.255372	-107.806189
1,497.0	13.50	337.60	1,491.5	64.9	-7.6	1,526,211.41	2,347,030.60	39.255425	-107.806216
1,594.0	13.80	342.60	1,585.8	86.4	-15.3	1,526,233.11	2,347,023.37	39.255485	-107.806243
1,688.0	13.10	345.10	1,677.2	107.4	-21.4	1,526,254.25	2,347,017.81	39.255542	-107.806265
1,783.0	12.90	343.50	1,769.8	128.0	-27.2	1,526,274.96	2,347,012.56	39.255599	-107.806285
1,876.0	13.00	342.30	1,860.4	147.9	-33.3	1,526,295.03	2,347,006.94	39.255653	-107.806307
1,971.0	12.70	340.80	1,953.0	167.9	-40.0	1,526,315.23	2,347,000.76	39.255708	-107.806330
2,065.0	12.80	350.50	2,044.7	188.0	-45.1	1,526,335.39	2,346,996.16	39.255763	-107.806349
2,160.0	12.20	348.30	2,137.5	208.2	-48.9	1,526,355.69	2,346,992.90	39.255819	-107.806362
2,254.0	11.60	346.90	2,229.5	227.1	-53.1	1,526,374.72	2,346,989.22	39.255871	-107.806377
2,349.0	14.30	349.60	2,322.0	248.0	-57.4	1,526,395.66	2,346,985.47	39.255928	-107.806392
2,443.0	13.70	349.20	2,413.2	270.3	-61.5	1,526,418.12	2,346,981.86	39.255989	-107.806406
2,538.0	13.20	349.00	2,505.6	292.0	-65.7	1,526,439.91	2,346,978.23	39.256049	-107.806421
2,632.0	12.20	348.10	2,597.3	312.3	-69.8	1,526,460.26	2,346,974.65	39.256105	-107.806436
2,726.0	11.70	347.90	2,689.3	331.3	-73.9	1,526,479.40	2,346,971.09	39.256157	-107.806450
2,821.0	14.20	347.40	2,781.9	352.1	-78.4	1,526,500.30	2,346,967.06	39.256214	-107.806466
2,915.0	13.50	345.90	2,873.1	374.0	-83.6	1,526,522.32	2,346,962.43	39.256274	-107.806484
3,010.0	13.10	346.00	2,965.6	395.2	-88.9	1,526,543.65	2,346,957.66	39.256332	-107.806503
3,104.0	12.80	344.40	3,057.2	415.6	-94.3	1,526,564.14	2,346,952.80	39.256388	-107.806522
3,199.0	12.30	343.00	3,149.9	435.4	-100.1	1,526,584.10	2,346,947.52	39.256443	-107.806543
3,294.0	12.30	342.30	3,242.7	454.7	-106.1	1,526,603.56	2,346,941.98	39.256496	-107.806564
3,389.0	13.60	349.80	3,335.3	475.3	-111.2	1,526,624.32	2,346,937.45	39.256552	-107.806582
3,483.0	13.10	349.60	3,426.8	496.7	-115.0	1,526,645.76	2,346,934.11	39.256611	-107.806595
3,578.0	12.70	348.80	3,519.4	517.5	-119.0	1,526,666.69	2,346,930.67	39.256668	-107.806609
3,672.0	12.50	349.10	3,611.1	537.6	-122.9	1,526,686.91	2,346,927.25	39.256723	-107.806623
3,767.0	11.60	348.80	3,704.0	557.1	-126.7	1,526,706.46	2,346,923.95	39.256777	-107.806637
3,861.0	13.70	348.00	3,795.8	577.3	-130.9	1,526,726.72	2,346,920.31	39.256832	-107.806651
3,956.0	13.40	348.50	3,888.1	599.0	-135.4	1,526,748.62	2,346,916.33	39.256892	-107.806667
4,051.0	12.50	345.90	3,980.7	619.8	-140.1	1,526,769.50	2,346,912.16	39.256949	-107.806684
4,145.0	11.50	345.40	4,072.6	638.7	-145.0	1,526,788.55	2,346,907.80	39.257001	-107.806701
4,240.0	14.30	345.40	4,165.2	659.3	-150.3	1,526,809.20	2,346,902.98	39.257057	-107.806720
4,335.0	13.70	343.40	4,257.4	681.4	-156.5	1,526,831.48	2,346,897.37	39.257118	-107.806742
4,429.0	12.80	342.30	4,348.9	702.0	-162.8	1,526,852.22	2,346,891.55	39.257175	-107.806764
4,524.0	13.70	350.00	4,441.4	723.1	-168.0	1,526,873.45	2,346,886.93	39.257233	-107.806782
4,618.0	12.60	348.00	4,532.9	744.1	-172.1	1,526,894.54	2,346,883.40	39.257290	-107.806797
4,713.0	12.00	346.40	4,625.7	763.8	-176.5	1,526,914.38	2,346,879.43	39.257344	-107.806813
4,807.0	11.10	345.50	4,717.8	782.1	-181.1	1,526,932.75	2,346,875.33	39.257395	-107.806829
4,902.0	11.70	348.10	4,811.0	800.4	-185.4	1,526,951.13	2,346,871.52	39.257445	-107.806844
4,996.0	10.50	346.00	4,903.2	818.0	-189.4	1,526,968.87	2,346,867.93	39.257493	-107.806858
5,091.0	9.20	343.30	4,996.8	833.7	-193.7	1,526,984.65	2,346,864.05	39.257536	-107.806873
5,185.0	10.50	350.80	5,089.4	849.3	-197.2	1,527,000.38	2,346,860.92	39.257579	-107.806886
5,280.0	9.80	350.40	5,182.9	865.8	-199.9	1,527,016.97	2,346,858.61	39.257625	-107.806895
5,375.0	9.20	347.40	5,276.6	881.2	-202.9	1,527,032.42	2,346,856.00	39.257667	-107.806906
5,470.0	7.90	345.20	5,370.6	894.9	-206.3	1,527,046.22	2,346,853.02	39.257704	-107.806918
5,564.0	6.70	341.50	5,463.8	906.4	-209.7	1,527,057.75	2,346,849.92	39.257736	-107.806930
5,659.0	5.90	336.30	5,558.2	916.1	-213.4	1,527,067.57	2,346,846.45	39.257763	-107.806943
5,754.0	4.60	336.30	5,652.8	924.1	-216.9	1,527,075.62	2,346,843.16	39.257784	-107.806955
5,848.0	4.90	340.60	5,746.5	931.3	-219.7	1,527,082.92	2,346,840.50	39.257804	-107.806965
5,943.0	4.90	359.70	5,841.2	939.2	-221.1	1,527,090.84	2,346,839.33	39.257826	-107.806970
6,037.0	4.70	354.20	5,934.8	947.0	-221.5	1,527,098.70	2,346,839.12	39.257847	-107.806971
6,132.0	4.00	348.70	6,029.6	954.2	-222.5	1,527,105.84	2,346,838.25	39.257867	-107.806975
6,226.0	3.30	346.60	6,123.4	960.0	-223.8	1,527,111.72	2,346,837.13	39.257883	-107.806980



Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-18E
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 19-18E	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
6,320.0	3.30	345.70	6,217.2	965.3	-225.1	1,527,117.00	2,346,835.97	39.257898	-107.806984
6,415.0	0.50	41.80	6,312.2	968.2	-225.5	1,527,119.97	2,346,835.65	39.257906	-107.806986
6,510.0	0.50	170.10	6,407.2	968.1	-225.2	1,527,119.86	2,346,835.99	39.257905	-107.806984
6,604.0	0.60	214.20	6,501.1	967.3	-225.4	1,527,119.06	2,346,835.77	39.257903	-107.806985
6,699.0	0.60	216.40	6,596.1	966.5	-225.9	1,527,118.26	2,346,835.17	39.257901	-107.806987
6,794.0	0.70	210.80	6,691.1	965.6	-226.5	1,527,117.38	2,346,834.56	39.257898	-107.806989
6,888.0	1.00	210.30	6,785.1	964.4	-227.2	1,527,116.19	2,346,833.82	39.257895	-107.806992
6,983.0	1.20	218.20	6,880.1	962.9	-228.3	1,527,114.72	2,346,832.75	39.257891	-107.806995
7,078.0	0.80	229.00	6,975.1	961.7	-229.4	1,527,113.54	2,346,831.60	39.257888	-107.806999
7,172.0	1.00	241.30	7,069.1	960.9	-230.6	1,527,112.74	2,346,830.37	39.257885	-107.807004
7,267.0	0.40	255.30	7,164.1	960.4	-231.7	1,527,112.29	2,346,829.31	39.257884	-107.807007
7,362.0	1.20	287.40	7,259.1	960.6	-232.9	1,527,112.53	2,346,828.04	39.257885	-107.807012
7,456.0	1.70	292.40	7,353.0	961.4	-235.2	1,527,113.41	2,346,825.84	39.257887	-107.807020
7,551.0	1.10	279.60	7,448.0	962.1	-237.4	1,527,114.16	2,346,823.65	39.257889	-107.807027
7,646.0	1.30	267.70	7,543.0	962.2	-239.3	1,527,114.32	2,346,821.68	39.257889	-107.807034
7,741.0	1.60	276.30	7,638.0	962.3	-241.7	1,527,114.48	2,346,819.29	39.257889	-107.807043
7,775.0	1.40	271.60	7,671.9	962.4	-242.6	1,527,114.57	2,346,818.40	39.257890	-107.807046
7,829.0	1.40	271.60	7,725.9	962.4	-243.9	1,527,114.64	2,346,817.08	39.257890	-107.807051
Projection to TD @ 7829.0'MD / 7725.9'TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
204.0	204.0	2.0	2.5	First MWD Survey @ 204.0' MD / TVD
7,829.0	7,725.9	962.4	-243.9	Projection to TD @ 7829.0'MD / 7725.9'TVD