



Laramie Energy, LLC

Mesa County, CO

Bruton 30-03 Pad

Bruton 30-05E

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

24 September, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 30-05E
Project:	Mesa County, CO	TVD Reference:	well @ 7542.0usft (H&P #522)
Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-05E	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 30-03 Pad				
Site Position:		Northing:	1,525,281.27 usft	Latitude:	39.252711
From:	Lat/Long	Easting:	2,344,720.08 usft	Longitude:	-107.814289
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.46 °

Well	Bruton 30-05E					
Well Position	+N/-S	0.0 usft	Northing:	1,525,256.72 usft	Latitude:	39.252644
	+E/-W	0.0 usft	Easting:	2,344,723.39 usft	Longitude:	-107.814275
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	7,512.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/9/2017	9.56	65.42	51,383.01631163

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	94.45	

Survey Program	Date	9/24/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
202.0	8,158.0	MWD Survey (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	1,525,256.72	2,344,723.39	39.252644	-107.814275
202.0	2.40	114.10	201.9	-1.7	3.9	1,525,254.89	2,344,727.21	39.252639	-107.814262
First MWD Survey @ 202.0' MD / TVD									
293.0	3.00	103.70	292.8	-3.1	7.9	1,525,253.45	2,344,731.22	39.252636	-107.814247
385.0	4.00	96.60	384.7	-4.0	13.4	1,525,252.37	2,344,736.73	39.252633	-107.814228
476.0	3.90	93.90	475.5	-4.6	19.7	1,525,251.63	2,344,742.95	39.252631	-107.814206
568.0	4.40	87.10	567.2	-4.6	26.3	1,525,251.43	2,344,749.59	39.252631	-107.814182
660.0	4.70	94.60	658.9	-4.7	33.6	1,525,251.12	2,344,756.87	39.252631	-107.814157
752.0	5.50	92.90	750.6	-5.3	41.8	1,525,250.39	2,344,765.01	39.252630	-107.814128
842.0	8.40	93.10	839.9	-5.8	52.6	1,525,249.54	2,344,775.87	39.252628	-107.814089
934.0	11.30	92.70	930.5	-6.6	68.4	1,525,248.35	2,344,791.56	39.252626	-107.814034
1,026.0	15.00	94.00	1,020.1	-7.9	89.2	1,525,246.56	2,344,812.41	39.252622	-107.813960



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Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-05E	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
1,120.0	18.20	94.20	1,110.2	-9.8	116.0	1,525,243.95	2,344,839.13	39.252617	-107.813866
1,214.0	20.80	95.00	1,198.8	-12.3	147.3	1,525,240.63	2,344,870.33	39.252610	-107.813755
1,308.0	23.90	94.10	1,285.7	-15.2	182.9	1,525,236.90	2,344,905.88	39.252602	-107.813629
1,402.0	24.50	94.30	1,371.4	-18.0	221.4	1,525,233.10	2,344,944.22	39.252595	-107.813494
1,497.0	26.50	93.70	1,457.2	-20.8	262.2	1,525,229.22	2,344,984.93	39.252587	-107.813350
1,591.0	26.50	93.30	1,541.3	-23.4	304.0	1,525,225.59	2,345,026.72	39.252580	-107.813202
1,685.0	25.90	93.20	1,625.6	-25.7	345.5	1,525,222.19	2,345,068.08	39.252573	-107.813055
1,779.0	26.10	92.90	1,710.1	-27.9	386.6	1,525,218.95	2,345,109.16	39.252567	-107.812910
1,874.0	26.30	94.60	1,795.4	-30.7	428.5	1,525,215.14	2,345,150.92	39.252560	-107.812762
1,968.0	26.10	94.50	1,879.7	-34.0	469.8	1,525,210.79	2,345,192.20	39.252551	-107.812616
2,062.0	25.20	94.10	1,964.4	-37.0	510.4	1,525,206.71	2,345,232.68	39.252542	-107.812473
2,156.0	25.40	93.50	2,049.4	-39.7	550.5	1,525,203.02	2,345,272.68	39.252535	-107.812331
2,250.0	25.50	92.80	2,134.3	-41.9	590.8	1,525,199.78	2,345,312.95	39.252529	-107.812189
2,345.0	26.00	93.10	2,219.9	-44.0	632.0	1,525,196.60	2,345,354.09	39.252523	-107.812043
2,439.0	25.60	94.10	2,304.5	-46.6	672.9	1,525,193.00	2,345,394.85	39.252516	-107.811899
2,533.0	25.80	94.20	2,389.2	-49.5	713.5	1,525,189.01	2,345,435.41	39.252508	-107.811756
2,627.0	25.90	93.50	2,473.8	-52.3	754.4	1,525,185.22	2,345,476.22	39.252500	-107.811611
2,721.0	24.20	92.60	2,559.0	-54.4	794.2	1,525,182.08	2,345,515.90	39.252495	-107.811471
2,816.0	22.90	92.10	2,646.0	-56.0	832.1	1,525,179.56	2,345,553.77	39.252490	-107.811337
2,910.0	22.10	91.80	2,732.9	-57.2	868.0	1,525,177.42	2,345,589.68	39.252487	-107.811210
3,004.0	23.90	94.00	2,819.4	-59.1	904.7	1,525,174.60	2,345,626.29	39.252482	-107.811080
3,098.0	24.30	94.30	2,905.2	-61.9	943.0	1,525,170.85	2,345,664.49	39.252474	-107.810945
3,193.0	25.30	95.70	2,991.5	-65.4	982.7	1,525,166.35	2,345,704.08	39.252465	-107.810805
3,287.0	25.90	95.80	3,076.2	-69.4	1,023.1	1,525,161.26	2,345,744.38	39.252453	-107.810662
3,381.0	26.50	96.00	3,160.6	-73.7	1,064.4	1,525,155.94	2,345,785.53	39.252442	-107.810517
3,475.0	27.20	95.30	3,244.4	-77.9	1,106.6	1,525,150.69	2,345,827.66	39.252430	-107.810367
3,569.0	26.70	95.30	3,328.2	-81.8	1,149.0	1,525,145.67	2,345,869.97	39.252419	-107.810218
3,664.0	26.70	94.40	3,413.1	-85.4	1,191.6	1,525,140.98	2,345,912.39	39.252409	-107.810067
3,758.0	25.70	94.30	3,497.4	-88.6	1,232.9	1,525,136.78	2,345,953.68	39.252401	-107.809921
3,852.0	26.10	94.70	3,582.0	-91.8	1,273.9	1,525,132.52	2,345,994.52	39.252392	-107.809777
3,946.0	25.30	95.20	3,666.7	-95.3	1,314.5	1,525,127.97	2,346,035.03	39.252382	-107.809633
4,041.0	25.50	95.00	3,752.5	-98.9	1,355.1	1,525,123.31	2,346,075.51	39.252372	-107.809490
4,135.0	26.30	94.30	3,837.1	-102.2	1,396.0	1,525,118.95	2,346,116.34	39.252363	-107.809345
4,229.0	25.40	94.50	3,921.7	-105.4	1,436.9	1,525,114.77	2,346,157.11	39.252355	-107.809201
4,324.0	26.30	94.90	4,007.2	-108.8	1,478.1	1,525,110.32	2,346,198.29	39.252345	-107.809055
4,418.0	25.40	95.50	4,091.8	-112.5	1,519.0	1,525,105.57	2,346,239.00	39.252335	-107.808911
4,512.0	26.70	95.50	4,176.2	-116.4	1,560.1	1,525,100.57	2,346,279.97	39.252324	-107.808766
4,606.0	26.50	93.80	4,260.3	-119.9	1,602.0	1,525,096.09	2,346,321.82	39.252315	-107.808618
4,701.0	25.30	94.10	4,345.7	-122.7	1,643.4	1,525,092.18	2,346,363.13	39.252307	-107.808472
4,795.0	24.50	92.50	4,431.0	-125.0	1,682.9	1,525,088.88	2,346,402.57	39.252301	-107.808332
4,889.0	21.20	92.40	4,517.6	-126.6	1,719.4	1,525,086.39	2,346,438.98	39.252296	-107.808204
4,983.0	21.60	93.10	4,605.1	-128.2	1,753.6	1,525,083.87	2,346,473.18	39.252292	-107.808083
5,078.0	21.80	91.80	4,693.4	-129.7	1,788.7	1,525,081.48	2,346,508.22	39.252288	-107.807959
5,172.0	22.10	93.80	4,780.6	-131.4	1,823.8	1,525,078.87	2,346,543.26	39.252283	-107.807835
5,266.0	20.00	95.20	4,868.3	-134.1	1,857.5	1,525,075.38	2,346,576.84	39.252276	-107.807716
5,360.0	19.60	94.30	4,956.7	-136.7	1,889.2	1,525,071.94	2,346,608.49	39.252269	-107.807604
5,454.0	19.60	94.00	5,045.3	-139.0	1,920.6	1,525,068.85	2,346,639.87	39.252262	-107.807493
5,548.0	17.80	92.80	5,134.3	-140.8	1,950.7	1,525,066.29	2,346,669.90	39.252257	-107.807387
5,643.0	16.70	93.40	5,225.0	-142.3	1,978.9	1,525,064.05	2,346,697.98	39.252253	-107.807287
5,737.0	15.80	93.60	5,315.3	-143.9	2,005.1	1,525,061.78	2,346,724.19	39.252249	-107.807195
5,832.0	14.20	93.70	5,407.0	-145.5	2,029.6	1,525,059.59	2,346,748.67	39.252244	-107.807108
5,926.0	11.70	95.20	5,498.6	-147.1	2,050.6	1,525,057.45	2,346,769.63	39.252240	-107.807034
6,020.0	8.80	98.00	5,591.1	-148.9	2,067.3	1,525,055.16	2,346,786.19	39.252235	-107.806975
6,115.0	5.70	95.90	5,685.4	-150.4	2,079.2	1,525,053.36	2,346,798.04	39.252231	-107.806933
6,209.0	2.80	88.20	5,779.1	-150.9	2,086.1	1,525,052.78	2,346,804.97	39.252230	-107.806909



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Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-05E	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
6,303.0	2.20	91.00	5,873.0	-150.8	2,090.2	1,525,052.71	2,346,809.07	39.252230	-107.806894
6,397.0	1.50	100.70	5,967.0	-151.1	2,093.2	1,525,052.38	2,346,812.07	39.252229	-107.806883
6,492.0	1.50	66.60	6,061.9	-150.8	2,095.6	1,525,052.58	2,346,814.44	39.252230	-107.806875
6,586.0	0.40	51.90	6,155.9	-150.1	2,097.0	1,525,053.23	2,346,815.84	39.252232	-107.806870
6,680.0	0.40	238.10	6,249.9	-150.1	2,096.9	1,525,053.26	2,346,815.82	39.252232	-107.806870
6,774.0	0.70	0.10	6,343.9	-149.7	2,096.7	1,525,053.67	2,346,815.56	39.252233	-107.806871
6,868.0	0.60	315.50	6,437.9	-148.8	2,096.3	1,525,054.61	2,346,815.24	39.252235	-107.806872
6,963.0	0.50	241.80	6,532.9	-148.6	2,095.6	1,525,054.78	2,346,814.53	39.252236	-107.806875
7,057.0	1.00	238.90	6,626.9	-149.2	2,094.5	1,525,054.19	2,346,813.45	39.252234	-107.806879
7,151.0	0.20	23.50	6,720.9	-149.5	2,093.9	1,525,053.93	2,346,812.80	39.252233	-107.806881
7,245.0	0.30	305.60	6,814.9	-149.2	2,093.8	1,525,054.23	2,346,812.68	39.252234	-107.806881
7,340.0	1.10	227.80	6,909.9	-149.7	2,092.9	1,525,053.79	2,346,811.79	39.252233	-107.806885
7,434.0	1.70	234.00	7,003.8	-151.1	2,091.1	1,525,052.41	2,346,809.96	39.252229	-107.806891
7,528.0	1.50	218.80	7,097.8	-152.9	2,089.2	1,525,050.68	2,346,808.01	39.252224	-107.806898
7,622.0	2.10	214.90	7,191.8	-155.2	2,087.4	1,525,048.35	2,346,806.20	39.252218	-107.806904
7,716.0	2.10	209.00	7,285.7	-158.2	2,085.6	1,525,045.48	2,346,804.30	39.252210	-107.806910
7,811.0	2.00	230.30	7,380.6	-160.7	2,083.5	1,525,042.95	2,346,802.12	39.252202	-107.806918
7,908.0	2.10	228.10	7,477.6	-163.0	2,080.9	1,525,040.75	2,346,799.44	39.252196	-107.806927
8,002.0	2.20	237.00	7,571.5	-165.1	2,078.1	1,525,038.69	2,346,796.59	39.252190	-107.806937
8,096.0	2.10	237.80	7,665.4	-167.0	2,075.1	1,525,036.87	2,346,793.57	39.252185	-107.806947
8,158.0	2.10	237.80	7,727.4	-168.3	2,073.2	1,525,035.71	2,346,791.62	39.252182	-107.806954

Projection to TD @ 8158.0' MD / 7727.4' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
202.0	201.9	-1.7	3.9	First MWD Survey @ 202.0' MD / TVD
8,158.0	7,727.4	-168.3	2,073.2	Projection to TD @ 8158.0' MD / 7727.4' TVD