



Laramie Energy, LLC

Mesa County, CO

Bruton 30-03 Pad

Bruton 30-03W

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

04 September, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 30-03W
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 30-03W	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 30-03W					
Well Position	+N/-S	0.0 usft	Northing:	1,525,271.92 usft	Latitude:	39.252686
	+E/-W	0.0 usft	Easting:	2,344,727.74 usft	Longitude:	-107.814261
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	8/17/2017	9.57	65.42	51,390.03700179

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	301.54	

Survey Program	Date	9/4/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
197.0	7,763.0	QES 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	1,525,271.92	2,344,727.74	39.252686	-107.814261
197.0	1.60	344.40	197.0	2.6	-0.7	1,525,274.59	2,344,727.07	39.252693	-107.814264
First MWD Survey @ 197.0' MD / 197.0' TVD									
288.0	1.60	336.00	287.9	5.0	-1.6	1,525,276.99	2,344,726.27	39.252700	-107.814267
380.0	2.30	327.10	379.9	7.8	-3.1	1,525,279.75	2,344,724.82	39.252707	-107.814272
472.0	2.60	338.90	471.8	11.3	-4.9	1,525,283.29	2,344,723.16	39.252717	-107.814278
563.0	3.90	302.70	562.7	14.9	-8.2	1,525,286.98	2,344,719.90	39.252727	-107.814290
655.0	4.20	299.30	654.4	18.2	-13.8	1,525,290.46	2,344,714.42	39.252736	-107.814310
747.0	4.70	302.20	746.2	21.8	-19.9	1,525,294.27	2,344,708.38	39.252746	-107.814332
838.0	4.40	295.00	836.9	25.3	-26.2	1,525,297.89	2,344,702.16	39.252756	-107.814354
929.0	4.60	294.80	927.6	28.3	-32.7	1,525,301.06	2,344,695.76	39.252764	-107.814377
1,021.0	7.10	300.20	1,019.1	32.7	-41.0	1,525,305.68	2,344,687.61	39.252776	-107.814406



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Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-03W	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
1,115.0	8.30	299.10	1,112.3	38.9	-51.9	1,525,312.18	2,344,676.82	39.252793	-107.814445
1,209.0	8.20	305.00	1,205.3	46.1	-63.4	1,525,319.61	2,344,665.59	39.252813	-107.814485
1,304.0	7.90	302.90	1,299.3	53.5	-74.4	1,525,327.32	2,344,654.75	39.252833	-107.814524
1,398.0	7.60	303.90	1,392.5	60.5	-85.0	1,525,334.56	2,344,644.35	39.252852	-107.814561
1,492.0	7.70	303.80	1,485.7	67.5	-95.4	1,525,341.80	2,344,634.14	39.252871	-107.814598
1,587.0	8.10	306.80	1,579.7	75.0	-106.0	1,525,349.61	2,344,623.68	39.252892	-107.814636
1,681.0	7.90	307.20	1,672.8	82.9	-116.5	1,525,357.75	2,344,613.44	39.252914	-107.814673
1,776.0	7.50	308.70	1,767.0	90.7	-126.5	1,525,365.83	2,344,603.60	39.252935	-107.814708
1,870.0	8.30	302.50	1,860.1	98.2	-137.0	1,525,373.57	2,344,593.29	39.252956	-107.814745
1,964.0	8.00	302.00	1,953.1	105.3	-148.3	1,525,380.97	2,344,582.20	39.252975	-107.814785
2,058.0	7.60	302.90	2,046.3	112.2	-159.0	1,525,388.08	2,344,571.61	39.252994	-107.814823
2,152.0	8.30	298.20	2,139.4	118.7	-170.2	1,525,394.95	2,344,560.59	39.253012	-107.814862
2,247.0	7.70	297.90	2,233.4	125.0	-181.9	1,525,401.46	2,344,549.08	39.253029	-107.814904
2,341.0	7.30	297.70	2,326.6	130.7	-192.8	1,525,407.46	2,344,538.38	39.253045	-107.814942
2,435.0	7.80	295.60	2,419.8	136.2	-203.8	1,525,413.27	2,344,527.48	39.253060	-107.814981
2,529.0	7.20	294.20	2,513.0	141.4	-214.9	1,525,418.73	2,344,516.49	39.253074	-107.815020
2,624.0	8.00	292.80	2,607.2	146.4	-226.4	1,525,424.02	2,344,505.10	39.253088	-107.815061
2,718.0	7.80	291.40	2,700.3	151.2	-238.4	1,525,429.19	2,344,493.26	39.253101	-107.815103
2,812.0	8.10	303.70	2,793.4	157.2	-249.9	1,525,435.48	2,344,481.96	39.253118	-107.815144
2,906.0	7.90	304.60	2,886.5	164.6	-260.7	1,525,443.09	2,344,471.33	39.253138	-107.815182
3,000.0	7.70	302.90	2,979.6	171.7	-271.3	1,525,450.45	2,344,460.91	39.253157	-107.815219
3,095.0	7.30	302.70	3,073.8	178.4	-281.7	1,525,457.43	2,344,450.66	39.253176	-107.815256
3,189.0	8.60	301.30	3,166.9	185.3	-292.8	1,525,464.59	2,344,439.81	39.253195	-107.815295
3,283.0	8.30	300.20	3,259.9	192.3	-304.6	1,525,471.95	2,344,428.12	39.253214	-107.815337
3,377.0	8.00	298.40	3,352.9	198.9	-316.2	1,525,478.77	2,344,416.67	39.253232	-107.815378
3,471.0	7.80	296.20	3,446.0	204.8	-327.7	1,525,484.99	2,344,405.35	39.253248	-107.815419
3,565.0	7.40	296.40	3,539.2	210.3	-338.9	1,525,490.78	2,344,394.35	39.253263	-107.815458
3,660.0	9.00	302.20	3,633.2	217.0	-350.6	1,525,497.76	2,344,382.75	39.253282	-107.815499
3,754.0	8.70	300.00	3,726.1	224.4	-363.0	1,525,505.54	2,344,370.57	39.253302	-107.815543
3,848.0	8.20	298.70	3,819.1	231.2	-375.0	1,525,512.62	2,344,358.71	39.253321	-107.815586
3,943.0	8.00	297.30	3,913.1	237.5	-386.9	1,525,519.20	2,344,347.06	39.253338	-107.815627
4,037.0	7.90	295.70	4,006.2	243.3	-398.5	1,525,525.30	2,344,335.57	39.253354	-107.815669
4,131.0	7.90	295.70	4,099.3	248.9	-410.1	1,525,531.20	2,344,324.08	39.253369	-107.815710
4,225.0	7.50	293.50	4,192.5	254.2	-421.6	1,525,536.73	2,344,312.77	39.253384	-107.815750
4,320.0	8.30	299.10	4,286.6	260.0	-433.3	1,525,542.84	2,344,301.24	39.253400	-107.815791
4,414.0	8.00	297.20	4,379.6	266.3	-445.0	1,525,549.42	2,344,289.66	39.253417	-107.815833
4,508.0	7.50	303.50	4,472.8	272.6	-455.9	1,525,556.08	2,344,278.89	39.253435	-107.815871
4,602.0	7.50	302.70	4,566.0	279.3	-466.2	1,525,563.04	2,344,268.79	39.253453	-107.815908
4,697.0	7.30	298.90	4,660.2	285.6	-476.7	1,525,569.57	2,344,258.45	39.253470	-107.815945
4,791.0	6.70	294.60	4,753.5	290.8	-486.9	1,525,575.00	2,344,248.37	39.253484	-107.815981
4,885.0	6.20	293.90	4,846.9	295.1	-496.6	1,525,579.58	2,344,238.86	39.253496	-107.816015
4,979.0	6.60	299.70	4,940.3	299.8	-505.9	1,525,584.55	2,344,229.65	39.253509	-107.816048
5,073.0	6.40	300.30	5,033.7	305.2	-515.1	1,525,590.10	2,344,220.57	39.253524	-107.816080
5,167.0	5.60	297.00	5,127.2	309.9	-523.7	1,525,595.04	2,344,212.08	39.253537	-107.816111
5,262.0	4.90	301.50	5,221.8	314.1	-531.3	1,525,599.46	2,344,204.61	39.253548	-107.816138
5,356.0	3.60	313.90	5,315.5	318.3	-536.9	1,525,603.74	2,344,199.16	39.253560	-107.816157
5,450.0	3.20	311.70	5,409.4	322.0	-540.9	1,525,607.64	2,344,195.18	39.253570	-107.816172
5,544.0	2.80	302.20	5,503.2	325.0	-544.8	1,525,610.71	2,344,191.35	39.253578	-107.816185
5,638.0	3.20	316.80	5,597.1	328.1	-548.6	1,525,613.94	2,344,187.69	39.253587	-107.816199
5,733.0	2.60	306.00	5,692.0	331.3	-552.1	1,525,617.23	2,344,184.22	39.253596	-107.816211
5,827.0	2.60	298.40	5,785.9	333.6	-555.7	1,525,619.58	2,344,180.68	39.253602	-107.816224
5,921.0	2.40	287.00	5,879.8	335.2	-559.5	1,525,621.27	2,344,176.96	39.253606	-107.816237
6,015.0	2.00	280.80	5,973.7	336.1	-563.0	1,525,622.24	2,344,173.49	39.253609	-107.816249
6,109.0	1.50	277.90	6,067.7	336.6	-565.8	1,525,622.79	2,344,170.67	39.253610	-107.816259
6,204.0	1.10	327.70	6,162.7	337.5	-567.5	1,525,623.77	2,344,168.98	39.253613	-107.816266



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Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-03W	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
6,298.0	0.80	325.80	6,256.7	338.8	-568.4	1,525,625.10	2,344,168.16	39.253616	-107.816269
6,392.0	0.80	300.00	6,350.7	339.7	-569.3	1,525,625.99	2,344,167.25	39.253619	-107.816272
6,486.0	0.60	288.60	6,444.6	340.2	-570.4	1,525,626.51	2,344,166.22	39.253620	-107.816275
6,580.0	0.70	20.70	6,538.6	340.9	-570.6	1,525,627.21	2,344,165.98	39.253622	-107.816276
6,675.0	0.80	31.70	6,633.6	342.0	-570.1	1,525,628.30	2,344,166.56	39.253625	-107.816274
6,769.0	0.60	15.80	6,727.6	343.0	-569.6	1,525,629.32	2,344,167.07	39.253628	-107.816273
6,863.0	0.80	355.50	6,821.6	344.1	-569.5	1,525,630.44	2,344,167.18	39.253631	-107.816272
6,957.0	1.30	249.30	6,915.6	344.4	-570.6	1,525,630.75	2,344,166.14	39.253632	-107.816276
7,052.0	1.10	221.00	7,010.6	343.3	-572.2	1,525,629.72	2,344,164.50	39.253629	-107.816282
7,146.0	2.00	198.00	7,104.6	341.1	-573.3	1,525,627.51	2,344,163.35	39.253623	-107.816286
7,240.0	2.20	193.40	7,198.5	337.8	-574.2	1,525,624.22	2,344,162.34	39.253613	-107.816289
7,335.0	2.50	196.80	7,293.4	334.0	-575.2	1,525,620.49	2,344,161.22	39.253603	-107.816293
7,429.0	2.60	197.00	7,387.3	330.0	-576.4	1,525,616.52	2,344,159.90	39.253592	-107.816297
7,523.0	2.90	204.00	7,481.2	325.8	-578.0	1,525,612.35	2,344,158.21	39.253581	-107.816303
7,618.0	3.20	206.70	7,576.1	321.2	-580.2	1,525,607.84	2,344,155.92	39.253568	-107.816310
7,695.0	3.40	212.30	7,652.9	317.4	-582.4	1,525,604.05	2,344,153.64	39.253558	-107.816318
7,763.0	3.40	212.30	7,720.8	314.0	-584.5	1,525,600.70	2,344,151.40	39.253548	-107.816326

Projection to TD @ 7763.0' MD / 7720.8' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
197.0	197.0	2.6	-0.7	First MWD Survey @ 197.0' MD / 197.0' TVD
7,763.0	7,720.8	314.0	-584.5	Projection to TD @ 7763.0' MD / 7720.8' TVD