



Laramie Energy, LLC

Mesa County, CO

Bruton 30-03 Pad

Bruton 30-04E

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

19 September, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 30-04E
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 30-04E	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 30-04E					
Well Position	+N/-S	0.0 usft	Northing:	1,525,265.06 usft	Latitude:	39.252667
	+E/-W	0.0 usft	Easting:	2,344,725.30 usft	Longitude:	-107.814269
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	51,383.02950198

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	87.88	

Survey Program	Date	9/19/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
111.0	8,219.0	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	1,525,265.06	2,344,725.30	39.252667	-107.814269
111.0	1.30	91.70	111.0	0.0	1.3	1,525,264.99	2,344,726.56	39.252667	-107.814265
First MWD Survey @ 111.0' MD / 111.0' TVD									
202.0	1.90	91.30	202.0	-0.1	3.8	1,525,264.86	2,344,729.10	39.252667	-107.814256
293.0	2.00	82.50	292.9	0.1	6.9	1,525,264.95	2,344,732.18	39.252667	-107.814245
385.0	2.40	87.10	384.8	0.4	10.4	1,525,265.17	2,344,735.71	39.252668	-107.814233
476.0	2.90	84.10	475.7	0.7	14.6	1,525,265.39	2,344,739.91	39.252669	-107.814218
568.0	4.60	86.90	567.5	1.1	20.6	1,525,265.68	2,344,745.91	39.252670	-107.814197
660.0	6.10	92.00	659.1	1.2	29.2	1,525,265.49	2,344,754.48	39.252670	-107.814166
752.0	7.60	93.40	750.5	0.6	40.1	1,525,264.68	2,344,765.42	39.252669	-107.814128
842.0	10.10	85.90	839.4	0.9	53.9	1,525,264.54	2,344,779.24	39.252669	-107.814079
934.0	13.40	86.50	929.5	2.1	72.6	1,525,265.29	2,344,797.96	39.252673	-107.814013



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Site:	Bruton 30-03 Pad	MD Reference:	well @ 7542.0usft (H&P #522)
Well:	Bruton 30-04E	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
1,026.0	17.20	85.90	1,018.2	3.7	96.8	1,525,266.30	2,344,822.21	39.252677	-107.813927
1,120.0	18.70	85.90	1,107.6	5.8	125.7	1,525,267.63	2,344,851.15	39.252683	-107.813825
1,214.0	20.50	87.70	1,196.2	7.5	157.2	1,525,268.57	2,344,882.66	39.252688	-107.813714
1,308.0	22.70	88.50	1,283.5	8.7	191.8	1,525,268.82	2,344,917.26	39.252691	-107.813592
1,402.0	25.60	88.90	1,369.3	9.5	230.2	1,525,268.71	2,344,955.71	39.252693	-107.813456
1,497.0	26.80	89.60	1,454.5	10.1	272.2	1,525,268.18	2,344,997.65	39.252695	-107.813308
1,588.0	27.90	89.50	1,535.4	10.4	314.0	1,525,267.45	2,345,039.45	39.252696	-107.813160
1,683.0	27.30	88.80	1,619.6	11.0	358.0	1,525,266.98	2,345,083.46	39.252697	-107.813005
1,777.0	26.80	88.70	1,703.3	12.0	400.7	1,525,266.82	2,345,126.21	39.252700	-107.812854
1,871.0	26.00	88.30	1,787.5	13.1	442.5	1,525,266.85	2,345,168.00	39.252703	-107.812707
1,965.0	25.40	87.90	1,872.2	14.4	483.3	1,525,267.16	2,345,208.77	39.252707	-107.812563
2,059.0	24.20	87.30	1,957.5	16.1	522.6	1,525,267.80	2,345,248.19	39.252711	-107.812424
2,154.0	24.30	88.00	2,044.1	17.7	561.6	1,525,268.41	2,345,287.20	39.252716	-107.812286
2,248.0	23.50	87.40	2,130.1	19.2	599.7	1,525,268.96	2,345,325.28	39.252720	-107.812152
2,342.0	23.90	87.80	2,216.1	20.8	637.4	1,525,269.58	2,345,363.06	39.252724	-107.812018
2,436.0	24.30	87.50	2,301.9	22.3	675.8	1,525,270.18	2,345,401.44	39.252728	-107.811883
2,531.0	26.10	88.20	2,387.9	23.9	716.2	1,525,270.66	2,345,441.88	39.252733	-107.811740
2,625.0	24.70	87.00	2,472.8	25.5	756.5	1,525,271.31	2,345,482.19	39.252737	-107.811598
2,719.0	25.80	88.60	2,557.8	27.1	796.5	1,525,271.81	2,345,522.28	39.252741	-107.811456
2,813.0	24.20	87.20	2,643.0	28.5	836.2	1,525,272.24	2,345,562.00	39.252745	-107.811316
2,907.0	25.40	87.90	2,728.4	30.2	875.6	1,525,272.92	2,345,601.42	39.252750	-107.811177
3,001.0	27.30	90.50	2,812.6	30.7	917.3	1,525,272.41	2,345,643.13	39.252751	-107.811030
3,096.0	26.40	90.40	2,897.3	30.4	960.2	1,525,270.98	2,345,686.01	39.252750	-107.810878
3,190.0	25.80	90.50	2,981.8	30.1	1,001.6	1,525,269.60	2,345,727.34	39.252750	-107.810732
3,284.0	27.20	90.50	3,065.9	29.7	1,043.5	1,525,268.17	2,345,769.26	39.252749	-107.810584
3,378.0	26.00	90.40	3,149.9	29.4	1,085.6	1,525,266.76	2,345,811.33	39.252748	-107.810436
3,472.0	24.90	90.20	3,234.8	29.2	1,126.0	1,525,265.52	2,345,851.70	39.252747	-107.810293
3,567.0	26.50	89.30	3,320.4	29.3	1,167.2	1,525,264.66	2,345,892.89	39.252748	-107.810147
3,661.0	25.80	89.10	3,404.8	29.9	1,208.6	1,525,264.18	2,345,934.31	39.252749	-107.810001
3,755.0	26.80	89.50	3,489.0	30.4	1,250.3	1,525,263.63	2,345,975.96	39.252751	-107.809854
3,850.0	26.00	89.50	3,574.1	30.8	1,292.5	1,525,262.92	2,346,018.19	39.252752	-107.809705
3,944.0	25.20	90.20	3,658.9	30.9	1,333.1	1,525,262.00	2,346,058.79	39.252752	-107.809561
4,038.0	25.80	91.20	3,743.8	30.4	1,373.6	1,525,260.47	2,346,099.23	39.252750	-107.809419
4,132.0	24.50	90.80	3,828.8	29.7	1,413.5	1,525,258.75	2,346,139.14	39.252749	-107.809278
4,226.0	26.00	88.00	3,913.9	30.2	1,453.6	1,525,258.18	2,346,179.23	39.252750	-107.809136
4,321.0	25.10	87.90	3,999.6	31.6	1,494.6	1,525,258.60	2,346,220.20	39.252754	-107.808991
4,415.0	26.50	87.80	4,084.2	33.2	1,535.5	1,525,259.09	2,346,261.10	39.252758	-107.808847
4,509.0	25.60	87.90	4,168.6	34.7	1,576.7	1,525,259.59	2,346,302.38	39.252762	-107.808701
4,603.0	27.20	88.00	4,252.8	36.2	1,618.5	1,525,260.02	2,346,344.17	39.252766	-107.808554
4,698.0	27.40	86.20	4,337.3	38.4	1,662.0	1,525,261.12	2,346,387.73	39.252772	-107.808400
4,792.0	27.90	84.70	4,420.5	41.9	1,705.5	1,525,263.47	2,346,431.28	39.252782	-107.808247
4,886.0	25.80	83.30	4,504.4	46.3	1,747.7	1,525,266.81	2,346,473.60	39.252794	-107.808098
4,980.0	24.90	83.80	4,589.3	50.8	1,787.7	1,525,270.32	2,346,513.69	39.252806	-107.807956
5,074.0	25.00	85.10	4,674.6	54.6	1,827.1	1,525,273.15	2,346,553.24	39.252817	-107.807817
5,168.0	22.80	82.90	4,760.5	58.6	1,865.0	1,525,276.13	2,346,591.20	39.252828	-107.807683
5,263.0	21.20	83.20	4,848.6	62.9	1,900.3	1,525,279.54	2,346,626.62	39.252840	-107.807558
5,357.0	19.10	83.30	4,936.8	66.7	1,932.5	1,525,282.52	2,346,658.86	39.252850	-107.807445
5,451.0	17.30	83.20	5,026.1	70.2	1,961.6	1,525,285.23	2,346,688.10	39.252859	-107.807342
5,545.0	15.60	84.00	5,116.3	73.1	1,988.1	1,525,287.53	2,346,714.61	39.252868	-107.807249
5,639.0	13.20	81.20	5,207.3	76.1	2,011.3	1,525,289.90	2,346,737.86	39.252876	-107.807167
5,734.0	12.30	82.20	5,300.0	79.1	2,032.0	1,525,292.41	2,346,758.68	39.252884	-107.807093
5,828.0	10.30	85.30	5,392.1	81.2	2,050.3	1,525,293.99	2,346,777.02	39.252890	-107.807029
5,922.0	8.90	86.20	5,484.8	82.4	2,065.9	1,525,294.76	2,346,792.68	39.252893	-107.806974
6,016.0	5.20	84.60	5,578.1	83.2	2,077.4	1,525,295.35	2,346,804.20	39.252895	-107.806933
6,110.0	4.10	85.10	5,671.8	83.9	2,085.0	1,525,295.84	2,346,811.80	39.252897	-107.806906



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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
6,205.0	2.40	64.60	5,766.6	85.1	2,090.2	1,525,296.85	2,346,817.01	39.252900	-107.806888
6,299.0	1.60	60.20	5,860.6	86.6	2,093.1	1,525,298.28	2,346,819.96	39.252905	-107.806878
6,393.0	1.10	48.90	5,954.5	87.8	2,095.0	1,525,299.47	2,346,821.81	39.252908	-107.806871
6,487.0	0.60	43.20	6,048.5	88.8	2,096.0	1,525,300.40	2,346,822.85	39.252911	-107.806868
6,581.0	0.30	279.60	6,142.5	89.2	2,096.1	1,525,300.80	2,346,822.96	39.252912	-107.806867
6,676.0	0.80	248.60	6,237.5	89.0	2,095.2	1,525,300.62	2,346,822.09	39.252911	-107.806870
6,770.0	1.20	231.30	6,331.5	88.1	2,093.8	1,525,299.80	2,346,820.69	39.252909	-107.806875
6,864.0	1.50	237.70	6,425.5	86.8	2,092.0	1,525,298.57	2,346,818.85	39.252905	-107.806882
6,958.0	1.80	230.60	6,519.4	85.2	2,089.8	1,525,297.03	2,346,816.63	39.252901	-107.806889
7,053.0	1.00	243.90	6,614.4	83.9	2,087.9	1,525,295.77	2,346,814.70	39.252897	-107.806896
7,147.0	0.90	245.70	6,708.4	83.3	2,086.5	1,525,295.14	2,346,813.27	39.252895	-107.806901
7,241.0	1.40	237.90	6,802.4	82.3	2,084.9	1,525,294.27	2,346,811.60	39.252893	-107.806907
7,336.0	1.90	235.60	6,897.3	80.8	2,082.6	1,525,292.82	2,346,809.28	39.252889	-107.806915
7,430.0	1.90	238.80	6,991.3	79.2	2,080.0	1,525,291.20	2,346,806.62	39.252884	-107.806924
7,524.0	1.60	214.30	7,085.3	77.3	2,077.9	1,525,289.37	2,346,804.50	39.252879	-107.806931
7,619.0	2.20	236.10	7,180.2	75.2	2,075.6	1,525,287.31	2,346,802.19	39.252873	-107.806939
7,713.0	2.60	234.00	7,274.1	72.9	2,072.4	1,525,285.13	2,346,798.91	39.252867	-107.806951
7,808.0	3.20	231.40	7,369.0	70.0	2,068.6	1,525,282.31	2,346,795.02	39.252859	-107.806964
7,902.0	3.70	234.70	7,462.8	66.6	2,064.1	1,525,279.04	2,346,790.41	39.252850	-107.806980
7,996.0	3.40	232.30	7,556.6	63.1	2,059.4	1,525,275.70	2,346,785.64	39.252840	-107.806997
8,091.0	3.30	227.90	7,651.5	59.6	2,055.1	1,525,272.26	2,346,781.30	39.252830	-107.807012
8,159.0	3.40	228.90	7,719.4	56.9	2,052.2	1,525,269.69	2,346,778.26	39.252823	-107.807022
8,219.0	3.40	228.90	7,779.3	54.6	2,049.5	1,525,267.42	2,346,775.52	39.252817	-107.807032

Projection to TD @ 8219.0' MD / 7779.3' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
111.0	111.0	0.0	1.3	First MWD Survey @ 111.0' MD / 111.0' TVD
8,219.0	7,779.3	54.6	2,049.5	Projection to TD @ 8219.0' MD / 7779.3' TVD