



Laramie Energy, LLC

Mesa County, CO

Bruton 30-01 Pad

Bruton 19-12E

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

26 July, 2017





Survey Report - Geographic



Company:	Laramie Energy, LLC	Local Co-ordinate Reference:	Well Bruton 19-12E
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 19-12E	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 30-01 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 19-12E					
Well Position	+N/-S	0.0 usft	Northing:	1,526,163.73 usft	Latitude:	39.255294
	+E/-W	0.0 usft	Easting:	2,347,028.30 usft	Longitude:	-107.806220
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	7/20/2017	9.58	65.42	51,401.71490919

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	355.03	

Survey Program	Date	7/26/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
202.0	8,352.0	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	1,526,163.73	2,347,028.30	39.255294	-107.806220
202.0	0.10	299.40	202.0	0.1	-0.2	1,526,163.82	2,347,028.15	39.255295	-107.806220
First MWD Survey @ 202.0' MD / TVD									
294.0	2.20	3.90	294.0	1.9	-0.1	1,526,165.62	2,347,028.24	39.255300	-107.806220
384.0	5.30	7.50	383.8	7.7	0.6	1,526,171.45	2,347,029.05	39.255316	-107.806218
476.0	9.40	4.00	475.0	19.4	1.6	1,526,183.13	2,347,030.43	39.255348	-107.806214
567.0	12.40	5.40	564.3	36.6	3.1	1,526,200.23	2,347,032.30	39.255395	-107.806209
657.0	15.10	2.10	651.8	57.9	4.4	1,526,221.53	2,347,034.18	39.255454	-107.806204
748.0	18.10	357.20	739.0	83.9	4.2	1,526,247.50	2,347,034.58	39.255525	-107.806205
838.0	20.80	354.00	823.8	113.8	1.8	1,526,277.41	2,347,032.99	39.255607	-107.806213
933.0	22.60	352.80	912.1	148.7	-2.2	1,526,312.39	2,347,029.82	39.255703	-107.806228
1,028.0	25.00	352.70	999.0	186.7	-7.1	1,526,350.53	2,347,025.95	39.255807	-107.806245



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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 19-12E	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
1,123.0	27.40	353.60	1,084.2	228.3	-12.1	1,526,392.28	2,347,022.02	39.255921	-107.806262
1,217.0	28.70	354.40	1,167.2	272.3	-16.7	1,526,436.34	2,347,018.53	39.256042	-107.806279
1,312.0	29.20	355.00	1,250.3	318.1	-20.9	1,526,482.22	2,347,015.44	39.256168	-107.806294
1,406.0	28.30	354.50	1,332.7	363.1	-25.1	1,526,527.34	2,347,012.45	39.256291	-107.806308
1,501.0	28.30	353.30	1,416.4	407.9	-29.9	1,526,572.23	2,347,008.81	39.256414	-107.806325
1,588.0	28.00	352.80	1,493.1	448.6	-34.8	1,526,613.08	2,347,004.88	39.256526	-107.806343
1,683.0	27.70	352.40	1,577.1	492.6	-40.5	1,526,657.22	2,347,000.28	39.256647	-107.806363
1,778.0	28.00	353.70	1,661.1	536.7	-45.9	1,526,701.40	2,346,996.03	39.256768	-107.806382
1,872.0	28.70	354.40	1,743.8	581.1	-50.5	1,526,745.90	2,346,992.54	39.256890	-107.806398
1,967.0	28.70	357.30	1,827.1	626.6	-53.8	1,526,791.45	2,346,990.39	39.257015	-107.806410
2,061.0	28.20	356.80	1,909.8	671.3	-56.1	1,526,836.22	2,346,989.22	39.257138	-107.806418
2,155.0	27.90	356.40	1,992.7	715.4	-58.8	1,526,880.40	2,346,987.73	39.257259	-107.806427
2,250.0	27.60	355.20	2,076.8	759.5	-62.0	1,526,924.58	2,346,985.61	39.257380	-107.806439
2,345.0	27.00	355.30	2,161.2	802.9	-65.6	1,526,968.08	2,346,983.10	39.257499	-107.806451
2,439.0	26.90	356.80	2,245.0	845.4	-68.5	1,527,010.63	2,346,981.25	39.257616	-107.806462
2,533.0	27.10	358.90	2,328.8	888.1	-70.1	1,527,053.30	2,346,980.73	39.257733	-107.806467
2,628.0	27.80	358.30	2,413.1	931.9	-71.2	1,527,097.09	2,346,980.77	39.257853	-107.806471
2,722.0	28.40	358.00	2,496.0	976.1	-72.6	1,527,141.37	2,346,980.46	39.257974	-107.806476
2,816.0	28.50	356.00	2,578.7	1,020.8	-75.0	1,527,186.12	2,346,979.26	39.258097	-107.806485
2,911.0	27.70	355.40	2,662.5	1,065.4	-78.3	1,527,230.81	2,346,977.04	39.258220	-107.806496
3,005.0	30.50	356.10	2,744.6	1,111.0	-81.7	1,527,276.47	2,346,974.82	39.258345	-107.806508
3,100.0	30.70	355.90	2,826.4	1,159.3	-85.1	1,527,324.78	2,346,972.67	39.258477	-107.806520
3,195.0	30.00	354.90	2,908.3	1,207.1	-88.9	1,527,372.71	2,346,970.04	39.258609	-107.806534
3,290.0	29.60	353.60	2,990.8	1,254.1	-93.7	1,527,419.79	2,346,966.51	39.258738	-107.806550
3,384.0	29.10	353.30	3,072.7	1,299.9	-98.9	1,527,465.68	2,346,962.42	39.258863	-107.806569
3,479.0	28.60	353.10	3,155.9	1,345.4	-104.3	1,527,511.32	2,346,958.15	39.258988	-107.806588
3,574.0	27.70	352.40	3,239.7	1,389.8	-110.0	1,527,555.91	2,346,953.63	39.259110	-107.806608
3,668.0	28.60	354.60	3,322.6	1,433.9	-115.0	1,527,600.08	2,346,949.74	39.259231	-107.806626
3,763.0	28.30	354.10	3,406.1	1,478.9	-119.4	1,527,645.21	2,346,946.43	39.259355	-107.806642
3,857.0	27.20	353.70	3,489.3	1,522.4	-124.1	1,527,688.84	2,346,942.89	39.259475	-107.806658
3,952.0	28.70	355.00	3,573.2	1,566.8	-128.5	1,527,733.24	2,346,939.64	39.259596	-107.806673
4,047.0	28.30	355.10	3,656.7	1,611.9	-132.4	1,527,778.49	2,346,936.88	39.259720	-107.806687
4,141.0	27.80	353.30	3,739.6	1,655.9	-136.8	1,527,822.56	2,346,933.54	39.259841	-107.806703
4,236.0	29.00	353.80	3,823.2	1,700.8	-141.9	1,527,867.57	2,346,929.61	39.259964	-107.806721
4,331.0	29.10	354.30	3,906.3	1,746.7	-146.7	1,527,913.56	2,346,925.99	39.260090	-107.806738
4,425.0	27.70	353.10	3,988.9	1,791.1	-151.6	1,527,958.10	2,346,922.23	39.260212	-107.806755
4,520.0	28.30	353.50	4,072.8	1,835.4	-156.8	1,528,002.52	2,346,918.15	39.260334	-107.806773
4,614.0	29.70	356.80	4,155.0	1,880.8	-160.6	1,528,047.99	2,346,915.48	39.260458	-107.806787
4,708.0	30.30	356.40	4,236.4	1,927.7	-163.4	1,528,094.96	2,346,913.88	39.260587	-107.806797
4,803.0	29.60	355.60	4,318.8	1,975.0	-166.7	1,528,142.34	2,346,911.78	39.260717	-107.806808
4,898.0	28.60	356.40	4,401.8	2,021.1	-169.9	1,528,188.50	2,346,909.72	39.260844	-107.806820
4,992.0	28.20	354.60	4,484.5	2,065.7	-173.4	1,528,233.14	2,346,907.35	39.260966	-107.806832
5,087.0	27.20	354.50	4,568.6	2,109.6	-177.6	1,528,277.19	2,346,904.28	39.261087	-107.806847
5,181.0	26.30	352.80	4,652.5	2,151.7	-182.3	1,528,319.34	2,346,900.68	39.261202	-107.806864
5,276.0	24.40	353.40	4,738.4	2,192.1	-187.2	1,528,359.83	2,346,896.81	39.261313	-107.806881
5,371.0	22.40	355.90	4,825.5	2,229.6	-190.7	1,528,397.46	2,346,894.21	39.261416	-107.806893
5,465.0	20.00	353.80	4,913.2	2,263.5	-193.8	1,528,431.38	2,346,892.06	39.261509	-107.806904
5,560.0	18.50	354.50	5,002.9	2,294.6	-197.0	1,528,462.60	2,346,889.65	39.261595	-107.806915
5,655.0	17.90	358.90	5,093.1	2,324.2	-198.7	1,528,492.24	2,346,888.68	39.261676	-107.806921
5,749.0	16.00	357.50	5,183.0	2,351.6	-199.5	1,528,519.64	2,346,888.53	39.261751	-107.806924
5,844.0	15.50	0.50	5,274.5	2,377.4	-200.0	1,528,545.42	2,346,888.72	39.261822	-107.806926
5,938.0	13.30	0.80	5,365.5	2,400.8	-199.7	1,528,568.78	2,346,889.58	39.261886	-107.806925
6,033.0	12.00	358.90	5,458.2	2,421.6	-199.8	1,528,589.57	2,346,890.07	39.261943	-107.806925
6,127.0	10.30	0.40	5,550.4	2,439.7	-199.9	1,528,607.75	2,346,890.40	39.261993	-107.806926
6,222.0	9.20	359.20	5,644.0	2,455.8	-199.9	1,528,623.83	2,346,890.76	39.262037	-107.806926



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Site:	Bruton 30-01 Pad	MD Reference:	well @ 7449.0usft (H&P #290)
Well:	Bruton 19-12E	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
6,316.0	6.70	357.00	5,737.1	2,468.8	-200.3	1,528,636.83	2,346,890.70	39.262073	-107.806927
6,411.0	6.20	357.70	5,831.5	2,479.5	-200.8	1,528,647.50	2,346,890.47	39.262102	-107.806929
6,505.0	5.60	356.30	5,925.0	2,489.1	-201.3	1,528,657.15	2,346,890.22	39.262129	-107.806931
6,600.0	5.40	353.10	6,019.6	2,498.2	-202.2	1,528,666.24	2,346,889.61	39.262153	-107.806934
6,694.0	4.30	354.80	6,113.3	2,506.1	-203.0	1,528,674.16	2,346,888.96	39.262175	-107.806937
6,789.0	3.50	351.50	6,208.0	2,512.5	-203.8	1,528,680.59	2,346,888.38	39.262193	-107.806939
6,884.0	2.90	353.70	6,302.9	2,517.8	-204.5	1,528,685.86	2,346,887.82	39.262207	-107.806942
6,979.0	0.70	339.40	6,397.8	2,520.7	-204.9	1,528,688.80	2,346,887.42	39.262215	-107.806943
7,073.0	0.10	214.70	6,491.8	2,521.2	-205.2	1,528,689.28	2,346,887.19	39.262217	-107.806944
7,168.0	0.57	236.60	6,586.8	2,520.8	-205.6	1,528,688.96	2,346,886.74	39.262216	-107.806946
7,263.0	0.74	196.90	6,681.8	2,520.0	-206.2	1,528,688.13	2,346,886.14	39.262213	-107.806948
7,357.0	0.60	204.10	6,775.8	2,518.9	-206.6	1,528,687.11	2,346,885.74	39.262211	-107.806949
7,452.0	0.90	206.90	6,870.8	2,517.8	-207.1	1,528,686.00	2,346,885.17	39.262207	-107.806951
7,547.0	1.30	217.40	6,965.8	2,516.3	-208.1	1,528,684.51	2,346,884.14	39.262203	-107.806955
7,642.0	1.50	217.00	7,060.8	2,514.5	-209.5	1,528,682.70	2,346,882.69	39.262198	-107.806960
7,736.0	1.70	220.60	7,154.7	2,512.4	-211.1	1,528,680.70	2,346,880.99	39.262193	-107.806965
7,831.0	2.30	217.70	7,249.7	2,509.8	-213.2	1,528,678.17	2,346,878.84	39.262186	-107.806973
7,926.0	2.90	214.50	7,344.6	2,506.4	-215.8	1,528,674.75	2,346,876.23	39.262176	-107.806982
8,020.0	2.40	222.70	7,438.5	2,502.9	-218.4	1,528,671.41	2,346,873.46	39.262167	-107.806991
8,115.0	2.90	217.30	7,533.4	2,499.6	-221.2	1,528,668.11	2,346,870.57	39.262157	-107.807001
8,210.0	2.40	221.40	7,628.3	2,496.2	-224.0	1,528,664.78	2,346,867.71	39.262148	-107.807011
8,294.0	2.70	219.20	7,712.2	2,493.3	-226.4	1,528,661.99	2,346,865.23	39.262140	-107.807019
8,352.0	2.70	219.20	7,770.1	2,491.2	-228.2	1,528,659.92	2,346,863.45	39.262134	-107.807026
Projection to TD @ 8352'MD/ 7770.1"TV									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
202.0	202.0	0.1	-0.2	First MWD Survey @ 202.0' MD / TVD
8,352.0	7,770.1	2,491.2	-228.2	Projection to TD @ 8352'MD/ 7770.1"TV