



Laramie Energy, LLC

Garfield County, CO

CC 0604-15-08 Pad

CC Federal 0697-15-18W - Slot A-10

A-10

Plan: Design #2

KLX Well Planning Report

02 June, 2021





Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC Federal 0697-15-18W - Slot A-10
Company:	Laramie Energy, LLC	TVD Reference:	RKB @ 8533.0usft (H&P #522)
Project:	Garfield County, CO	MD Reference:	RKB @ 8533.0usft (H&P #522)
Site:	CC 0604-15-08 Pad	North Reference:	True
Well:	CC Federal 0697-15-18W	Survey Calculation Method:	Minimum Curvature
Wellbore:	A-10		
Design:	Design #2		

Project	Garfield 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		CC 0604-15-08 Pad			
Site Position:		Northing:	1,627,831.19 usft	Latitude:	39.526131
From:	Lat/Long	Easting:	2,238,751.92 usft	Longitude:	-108.199096
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.70 °

Well	CC Federal 0697-15-18W - Slot A-10					
Well Position	+N/-S	-5.7 usft	Northing:	1,627,825.28 usft	Latitude:	39.526116
	+E/-W	8.2 usft	Easting:	2,238,759.98 usft	Longitude:	-108.199067
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	8,503.0 usft

Wellbore	A-10				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2020	12/3/2020	9.40	65.72	51,318.50000000

Design	Design #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	225.19

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
210.0	0.00	0.00	210.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,376.7	35.00	227.00	1,305.5	-235.6	-252.6	3.00	3.00	0.00	227.00	
3,000.0	35.00	227.00	2,635.2	-870.6	-933.6	0.00	0.00	0.00	0.00	
3,198.7	40.74	224.37	2,792.0	-955.9	-1,020.7	3.00	2.89	-1.32	-16.77	
6,864.6	40.74	224.37	5,569.6	-2,666.1	-2,693.6	0.00	0.00	0.00	0.00	
8,222.6	0.00	0.00	6,816.0	-2,997.0	-3,017.3	3.00	-3.00	0.00	180.00	
10,359.6	0.00	0.00	8,953.0	-2,997.0	-3,017.3	0.00	0.00	0.00	0.00	15-18W - PBHL



Well Planning Report



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Project:	Garfield County, CO	MD Reference:	RKB @ 8533.0usft (H&P #522)
Site:	CC 0604-15-08 Pad	North Reference:	True
Well:	CC Federal 0697-15-18W	Survey Calculation Method:	Minimum Curvature
Wellbore:	A-10		
Design:	Design #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 3° / 100'									
210.0	0.00	0.00	210.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	2.70	227.00	300.0	-1.4	-1.6	2.1	3.00	3.00	0.00
400.0	5.70	227.00	399.7	-6.4	-6.9	9.4	3.00	3.00	0.00
Mahogany									
400.3	5.71	227.00	400.0	-6.5	-6.9	9.5	3.00	3.00	0.00
500.0	8.70	227.00	498.9	-15.0	-16.1	22.0	3.00	3.00	0.00
600.0	11.70	227.00	597.3	-27.1	-29.0	39.7	3.00	3.00	0.00
700.0	14.70	227.00	694.6	-42.6	-45.7	62.5	3.00	3.00	0.00
800.0	17.70	227.00	790.7	-61.7	-66.1	90.4	3.00	3.00	0.00
900.0	20.70	227.00	885.1	-84.1	-90.2	123.2	3.00	3.00	0.00
1,000.0	23.70	227.00	977.7	-109.9	-117.8	161.0	3.00	3.00	0.00
1,100.0	26.70	227.00	1,068.1	-138.9	-148.9	203.5	3.00	3.00	0.00
1,200.0	29.70	227.00	1,156.3	-171.1	-183.5	250.8	3.00	3.00	0.00
1,300.0	32.70	227.00	1,241.8	-206.4	-221.4	302.5	3.00	3.00	0.00
EOB @ 35.00° Inc. / 227.00° Azm									
1,376.7	35.00	227.00	1,305.5	-235.6	-252.6	345.2	3.00	3.00	0.00
1,400.0	35.00	227.00	1,324.6	-244.7	-262.4	358.6	0.00	0.00	0.00
1,500.0	35.00	227.00	1,406.5	-283.8	-304.3	415.9	0.00	0.00	0.00
1,600.0	35.00	227.00	1,488.4	-322.9	-346.3	473.3	0.00	0.00	0.00
1,700.0	35.00	227.00	1,570.3	-362.0	-388.2	530.6	0.00	0.00	0.00
1,800.0	35.00	227.00	1,652.2	-401.2	-430.2	587.9	0.00	0.00	0.00
1,900.0	35.00	227.00	1,734.1	-440.3	-472.1	645.2	0.00	0.00	0.00
2,000.0	35.00	227.00	1,816.1	-479.4	-514.1	702.6	0.00	0.00	0.00
2,100.0	35.00	227.00	1,898.0	-518.5	-556.0	759.9	0.00	0.00	0.00
2,200.0	35.00	227.00	1,979.9	-557.6	-598.0	817.2	0.00	0.00	0.00
2,300.0	35.00	227.00	2,061.8	-596.7	-639.9	874.6	0.00	0.00	0.00
2,400.0	35.00	227.00	2,143.7	-635.9	-681.9	931.9	0.00	0.00	0.00
2,500.0	35.00	227.00	2,225.6	-675.0	-723.8	989.2	0.00	0.00	0.00
9 5/8"									
2,530.0	35.00	227.00	2,250.2	-686.7	-736.4	1,006.4	0.00	0.00	0.00
2,600.0	35.00	227.00	2,307.5	-714.1	-765.8	1,046.5	0.00	0.00	0.00
Wasatch									
2,673.8	35.00	227.00	2,368.0	-743.0	-796.7	1,088.9	0.00	0.00	0.00
2,700.0	35.00	227.00	2,389.5	-753.2	-807.7	1,103.9	0.00	0.00	0.00
2,800.0	35.00	227.00	2,471.4	-792.3	-849.7	1,161.2	0.00	0.00	0.00
2,900.0	35.00	227.00	2,553.3	-831.5	-891.6	1,218.5	0.00	0.00	0.00
Build 3° / 100'									
3,000.0	35.00	227.00	2,635.2	-870.6	-933.6	1,275.9	0.00	0.00	0.00
3,100.0	37.88	225.59	2,715.6	-911.6	-976.5	1,335.2	3.00	2.88	-1.41
EOB @ 40.74° Inc. / 224.37° Azm									
3,198.7	40.74	224.37	2,792.0	-955.9	-1,020.7	1,397.8	3.00	2.90	-1.24
3,200.0	40.74	224.37	2,793.0	-956.5	-1,021.3	1,398.6	0.00	0.00	0.00
3,300.0	40.74	224.37	2,868.8	-1,003.1	-1,066.9	1,463.9	0.00	0.00	0.00
3,400.0	40.74	224.37	2,944.5	-1,049.8	-1,112.5	1,529.1	0.00	0.00	0.00
3,500.0	40.74	224.37	3,020.3	-1,096.4	-1,158.2	1,594.4	0.00	0.00	0.00
3,600.0	40.74	224.37	3,096.1	-1,143.1	-1,203.8	1,659.6	0.00	0.00	0.00
3,700.0	40.74	224.37	3,171.8	-1,189.7	-1,249.4	1,724.9	0.00	0.00	0.00
3,800.0	40.74	224.37	3,247.6	-1,236.4	-1,295.1	1,790.1	0.00	0.00	0.00
3,900.0	40.74	224.37	3,323.4	-1,283.0	-1,340.7	1,855.4	0.00	0.00	0.00



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Wellbore:	A-10		
Design:	Design #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,000.0	40.74	224.37	3,399.1	-1,329.7	-1,386.3	1,920.7	0.00	0.00	0.00
4,100.0	40.74	224.37	3,474.9	-1,376.4	-1,432.0	1,985.9	0.00	0.00	0.00
4,200.0	40.74	224.37	3,550.7	-1,423.0	-1,477.6	2,051.2	0.00	0.00	0.00
4,300.0	40.74	224.37	3,626.4	-1,469.7	-1,523.3	2,116.4	0.00	0.00	0.00
4,400.0	40.74	224.37	3,702.2	-1,516.3	-1,568.9	2,181.7	0.00	0.00	0.00
4,500.0	40.74	224.37	3,778.0	-1,563.0	-1,614.5	2,246.9	0.00	0.00	0.00
4,600.0	40.74	224.37	3,853.7	-1,609.6	-1,660.2	2,312.2	0.00	0.00	0.00
4,700.0	40.74	224.37	3,929.5	-1,656.3	-1,705.8	2,377.4	0.00	0.00	0.00
4,800.0	40.74	224.37	4,005.3	-1,702.9	-1,751.4	2,442.7	0.00	0.00	0.00
4,900.0	40.74	224.37	4,081.0	-1,749.6	-1,797.1	2,508.0	0.00	0.00	0.00
5,000.0	40.74	224.37	4,156.8	-1,796.2	-1,842.7	2,573.2	0.00	0.00	0.00
5,100.0	40.74	224.37	4,232.6	-1,842.9	-1,888.3	2,638.5	0.00	0.00	0.00
5,200.0	40.74	224.37	4,308.4	-1,889.5	-1,934.0	2,703.7	0.00	0.00	0.00
Wasatch 'G' Sand									
5,278.7	40.74	224.37	4,368.0	-1,926.3	-1,969.9	2,755.1	0.00	0.00	0.00
5,300.0	40.74	224.37	4,384.1	-1,936.2	-1,979.6	2,769.0	0.00	0.00	0.00
5,400.0	40.74	224.37	4,459.9	-1,982.8	-2,025.3	2,834.2	0.00	0.00	0.00
5,500.0	40.74	224.37	4,535.7	-2,029.5	-2,070.9	2,899.5	0.00	0.00	0.00
Fort Union									
5,555.9	40.74	224.37	4,578.0	-2,055.6	-2,096.4	2,936.0	0.00	0.00	0.00
5,600.0	40.74	224.37	4,611.4	-2,076.2	-2,116.5	2,964.8	0.00	0.00	0.00
5,700.0	40.74	224.37	4,687.2	-2,122.8	-2,162.2	3,030.0	0.00	0.00	0.00
5,800.0	40.74	224.37	4,763.0	-2,169.5	-2,207.8	3,095.3	0.00	0.00	0.00
5,900.0	40.74	224.37	4,838.7	-2,216.1	-2,253.4	3,160.5	0.00	0.00	0.00
6,000.0	40.74	224.37	4,914.5	-2,262.8	-2,299.1	3,225.8	0.00	0.00	0.00
6,100.0	40.74	224.37	4,990.3	-2,309.4	-2,344.7	3,291.0	0.00	0.00	0.00
6,200.0	40.74	224.37	5,066.0	-2,356.1	-2,390.3	3,356.3	0.00	0.00	0.00
6,300.0	40.74	224.37	5,141.8	-2,402.7	-2,436.0	3,421.5	0.00	0.00	0.00
6,400.0	40.74	224.37	5,217.6	-2,449.4	-2,481.6	3,486.8	0.00	0.00	0.00
6,500.0	40.74	224.37	5,293.3	-2,496.0	-2,527.2	3,552.1	0.00	0.00	0.00
6,600.0	40.74	224.37	5,369.1	-2,542.7	-2,572.9	3,617.3	0.00	0.00	0.00
6,700.0	40.74	224.37	5,444.9	-2,589.3	-2,618.5	3,682.6	0.00	0.00	0.00
6,800.0	40.74	224.37	5,520.6	-2,636.0	-2,664.2	3,747.8	0.00	0.00	0.00
Drop 3° /100'									
6,864.6	40.74	224.37	5,569.6	-2,666.1	-2,693.6	3,790.0	0.00	0.00	0.00
6,900.0	39.68	224.37	5,596.6	-2,682.5	-2,709.6	3,812.8	3.00	-3.00	0.00
7,000.0	36.68	224.37	5,675.2	-2,726.7	-2,752.8	3,874.6	3.00	-3.00	0.00
7,100.0	33.68	224.37	5,756.9	-2,767.8	-2,793.1	3,932.2	3.00	-3.00	0.00
7,200.0	30.68	224.37	5,841.6	-2,805.9	-2,830.4	3,985.5	3.00	-3.00	0.00
Ohio Creek									
7,269.5	28.59	224.37	5,902.0	-2,830.5	-2,854.4	4,019.8	3.00	-3.00	0.00
7,300.0	27.68	224.37	5,928.9	-2,840.7	-2,864.4	4,034.2	3.00	-3.00	0.00
7,400.0	24.68	224.37	6,018.6	-2,872.3	-2,895.3	4,078.3	3.00	-3.00	0.00
Williams Fork									
7,477.9	22.34	224.37	6,090.0	-2,894.5	-2,917.0	4,109.4	3.00	-3.00	0.00
7,500.0	21.68	224.37	6,110.5	-2,900.4	-2,922.8	4,117.7	3.00	-3.00	0.00
7,600.0	18.68	224.37	6,204.4	-2,925.1	-2,946.9	4,152.1	3.00	-3.00	0.00
7,700.0	15.68	224.37	6,299.9	-2,946.2	-2,967.6	4,181.7	3.00	-3.00	0.00
7,800.0	12.68	224.37	6,396.9	-2,963.7	-2,984.7	4,206.2	3.00	-3.00	0.00
7,900.0	9.68	224.37	6,494.9	-2,977.5	-2,998.2	4,225.5	3.00	-3.00	0.00
8,000.0	6.68	224.37	6,593.9	-2,987.7	-3,008.2	4,239.8	3.00	-3.00	0.00
8,100.0	3.68	224.37	6,693.5	-2,994.2	-3,014.5	4,248.8	3.00	-3.00	0.00
8,200.0	0.68	224.37	6,793.4	-2,996.9	-3,017.2	4,252.6	3.00	-3.00	0.00



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Wellbore:	A-10		
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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
EOD @ Vertical - TOG									
8,222.6	0.00	0.00	6,816.0	-2,997.0	-3,017.3	4,252.7	3.00	-3.00	0.00
8,300.0	0.00	0.00	6,893.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,400.0	0.00	0.00	6,993.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,500.0	0.00	0.00	7,093.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,600.0	0.00	0.00	7,193.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,700.0	0.00	0.00	7,293.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,800.0	0.00	0.00	7,393.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
8,900.0	0.00	0.00	7,493.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,000.0	0.00	0.00	7,593.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,100.0	0.00	0.00	7,693.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,200.0	0.00	0.00	7,793.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,300.0	0.00	0.00	7,893.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,400.0	0.00	0.00	7,993.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,500.0	0.00	0.00	8,093.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,600.0	0.00	0.00	8,193.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,700.0	0.00	0.00	8,293.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
Cameo									
9,746.6	0.00	0.00	8,340.0	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,800.0	0.00	0.00	8,393.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
9,900.0	0.00	0.00	8,493.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
10,000.0	0.00	0.00	8,593.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
10,100.0	0.00	0.00	8,693.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
Base Cameo Coal									
10,144.6	0.00	0.00	8,738.0	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
Rollins									
10,159.6	0.00	0.00	8,753.0	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
10,200.0	0.00	0.00	8,793.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
10,300.0	0.00	0.00	8,893.4	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00
TD @ 10359.6' MD / 8953.0' TVD									
10,359.6	0.00	0.00	8,953.0	-2,997.0	-3,017.3	4,252.7	0.00	0.00	0.00

Design Targets

Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
15-18W - PBHL	- plan hits target center	0.00	0.00	8,953.0	-2,997.0	-3,017.3	1,624,919.26	2,235,655.03	39.517887	-108.209762
	- Ellipse (radii L50.0 W75.0 on 150.00 azi)									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,530.0	2,250.2	9 5/8"	9-5/8	14-1/2



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC Federal 0697-15-18W - Slot A-10
Company:	Laramie Energy, LLC	TVD Reference:	RKB @ 8533.0usft (H&P #522)
Project:	Garfield County, CO	MD Reference:	RKB @ 8533.0usft (H&P #522)
Site:	CC 0604-15-08 Pad	North Reference:	True
Well:	CC Federal 0697-15-18W	Survey Calculation Method:	Minimum Curvature
Wellbore:	A-10		
Design:	Design #2		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
400.3	400.0	Mahogany			
2,673.8	2,368.0	Wasatch			
5,278.7	4,368.0	Wasatch 'G' Sand			
5,555.9	4,578.0	Fort Union			
7,269.5	5,902.0	Ohio Creek			
7,477.9	6,090.0	Williams Fork			
8,222.6	6,816.0	TOG			
9,746.6	8,340.0	Cameo			
10,144.6	8,738.0	Base Cameo Coal			
10,159.6	8,753.0	Rollins			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
210.0	210.0	0.0	0.0	Build 3° / 100'
1,376.7	1,305.5	-235.6	-252.6	EOB @ 35.00° Inc. / 227.00° Azm
3,000.0	2,635.2	-870.6	-933.6	Build 3° / 100'
3,198.7	2,792.0	-955.9	-1,020.7	EOB @ 40.74° Inc. / 224.37° Azm
6,864.6	5,569.6	-2,666.1	-2,693.6	Drop 3° / 100'
8,222.6	6,816.0	-2,997.0	-3,017.3	EOD @ Vertical
10,359.6	8,953.0	-2,997.0	-3,017.3	TD @ 10359.6' MD / 8953.0' TVD