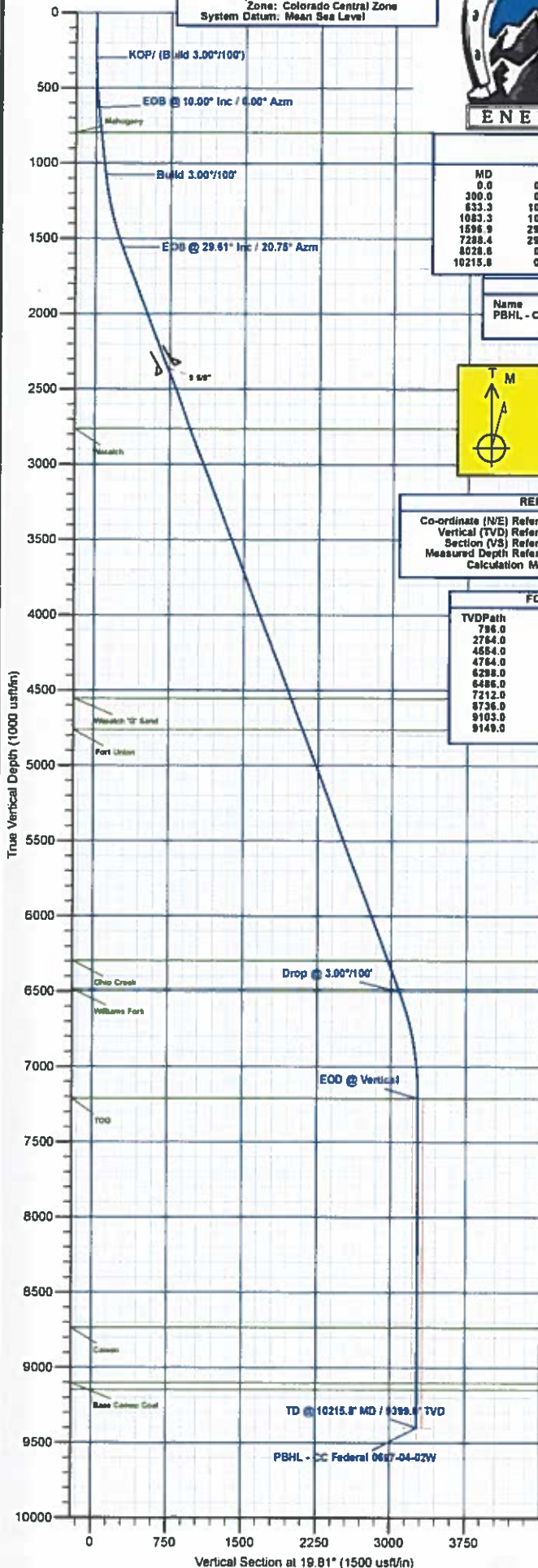


**PROJECT DETAILS: Garfield County, CO**  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Central Zone  
 System Datum: Mean Sea Level

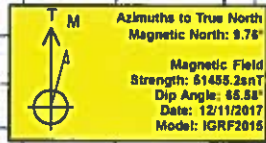


Project: Garfield County, CO  
 Site: CC 604-12-13 Pad  
 Well: CC Federal 0697-04-02W  
 Wellbore: A-4  
 Design: Design #2  
 Latitude: 39.553258  
 Longitude: -108.233422  
 Ground Level: 8529.0  
 WELL @ 8559.0usft (H&P #522)



SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VSecl	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	KOP/ (Build 3.00°/100')
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	EOB @ 10.00° Inc / 0.00° Azm
633.3	10.00	0.00	631.6	29.0	0.0	3.00	0.00	27.3	Build 3.00°/100'
1083.3	10.00	0.00	1074.8	107.2	0.0	0.00	0.00	100.8	EOB @ 29.61° Inc / 20.75° Azm
1599.9	29.61	20.75	1558.1	272.2	45.5	4.00	29.33	271.6	Drop @ 3.00°/100'
7288.6	29.61	20.75	8504.2	2902.2	1042.0	0.00	0.00	3083.6	EOB @ Vertical
8028.6	0.00	0.00	7212.0	3077.2	1108.3	4.00	180.00	3270.7	TD @ 10215.8' MD / 9399.0' TVD
10215.8	0.00	0.00	9399.0	3077.2	1108.3	0.00	0.00	3270.7	

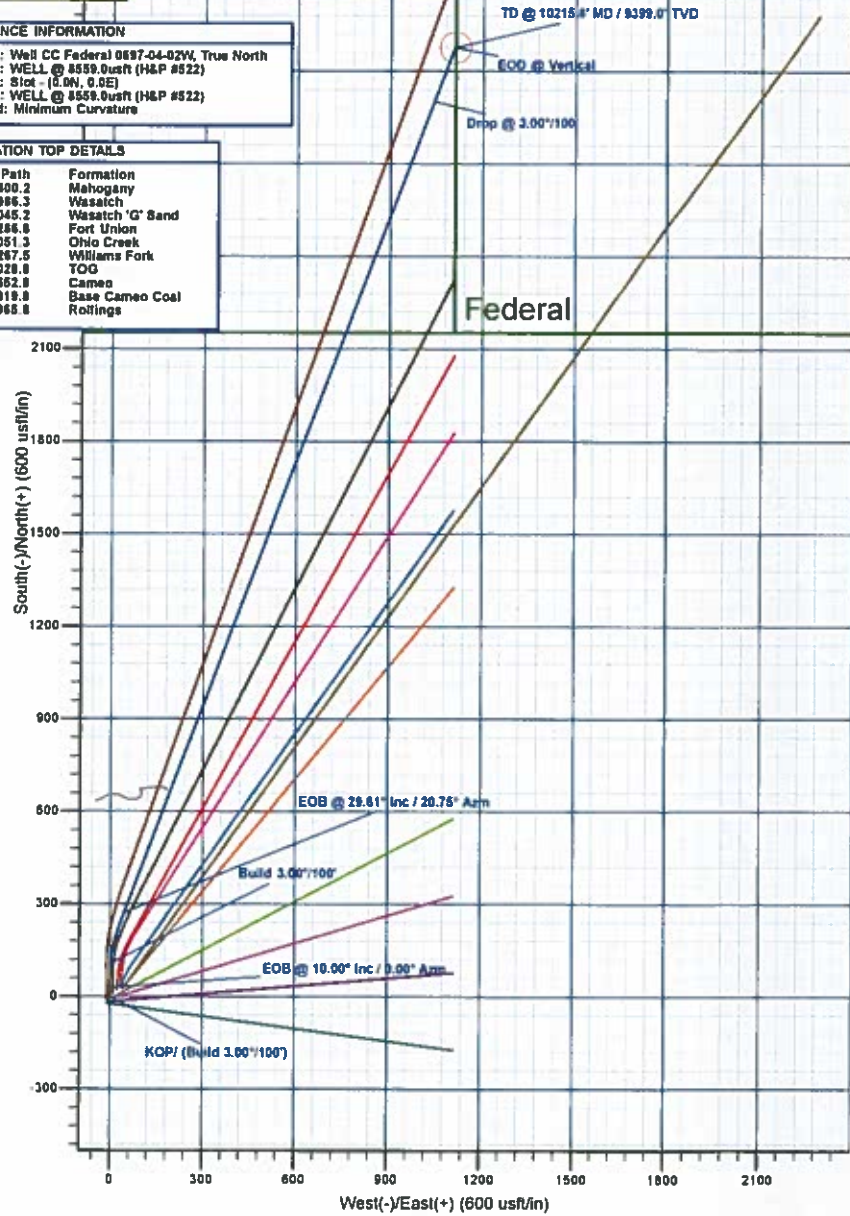
DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
PBHL - CC Federal 0697-04-02W	9399.0	3077.2	1108.3	1641039.48	2230571.20	39.551706	-108.229491



WELL DETAILS: CC Federal 0697-04-02W					
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1637997.03	2229370.83	39.553258	-108.233422

**REFERENCE INFORMATION**  
 Co-ordinate (N/E) Reference: Well CC Federal 0697-04-02W, True North  
 Vertical (TVD) Reference: WELL @ 8559.0usft (H&P #522)  
 Section (VS) Reference: Slot - (0.0N, 0.0E)  
 Measured Depth Reference: WELL @ 8559.0usft (H&P #522)  
 Calculation Method: Minimum Curvature

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
786.0	800.2	Mahogany
2754.0	2996.3	Wasatch
4554.0	5045.2	Wasatch 'G' Sand
4764.0	5286.8	Fort Union
6298.0	7051.3	Ohio Creek
6486.0	7267.5	Williams Fork
7212.0	8028.6	TOG
8736.0	9552.9	Cameo
9103.0	9818.9	Base Cameo Coal
9149.0	9965.8	Rollings



Plan: Design #2 (CC Federal 0697-04-02W/A-4)

Created By: Will Jircik Date: 15:05, June 23 2018



# **Laramie Energy, LLC**

**Garfield County, CO**

**CC 604-12-13 Pad**

**CC Federal 0697-04-02W**

**A-4**

**Plan: Design #2**

## **QES Well Planning Report**

**23 June, 2018**





# Well Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CC Federal 0697-04-02W
<b>Company:</b>	Laramie Energy, LLC	<b>TVD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Site:</b>	CC 604-12-13 Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC Federal 0697-04-02W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	A-4		
<b>Design:</b>	Design #2		

<b>Project</b>	Garfield County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	CC 604-12-13 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,638,031.56 usft	<b>Latitude:</b> 39.553356
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,229,410.52 usft	<b>Longitude:</b> -108.233285
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> -1.72 "

<b>Well</b>	CC Federal 0697-04-02W			
<b>Well Position</b>	+N/-S	-35.7 usft	<b>Northing:</b>	1,637,997.03 usft
	+E/-W	-38.6 usft	<b>Easting:</b>	2,229,370.83 usft
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 8,529.0 usft

<b>Wellbore</b>	A-4				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	12/11/2017	9.76	65.58	51,455.19693909

<b>Design</b>	Design #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	19.81

<b>Plan Sections</b>										
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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
633.3	10.00	0.00	631.6	29.0	0.0	3.00	3.00	0.00	0.00	
1,083.3	10.00	0.00	1,074.8	107.2	0.0	0.00	0.00	0.00	0.00	
1,596.9	29.61	20.75	1,556.1	272.2	45.5	4.00	3.82	4.04	29.93	
7,288.4	29.61	20.75	6,504.2	2,902.2	1,042.0	0.00	0.00	0.00	0.00	
8,028.8	0.00	0.00	7,212.0	3,077.2	1,108.3	4.00	-4.00	0.00	180.00	
10,215.8	0.00	0.00	9,399.0	3,077.2	1,108.3	0.00	0.00	0.00	0.00	PBHL - CC Federal 01





## Well Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CC Federal 0697-04-02W
<b>Company:</b>	Laramie Energy, LLC	<b>TVD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Site:</b>	CC 604-12-13 Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC Federal 0697-04-02W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	A-4		
<b>Design:</b>	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
<b>KOP/ (Build 3.00°/100')</b>									
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	3.00	0.00	400.0	2.6	0.0	2.5	3.00	3.00	0.00
500.0	6.00	0.00	499.6	10.5	0.0	9.8	3.00	3.00	0.00
600.0	9.00	0.00	598.8	23.5	0.0	22.1	3.00	3.00	0.00
<b>EOB @ 10.00° Inc / 0.00° Azm</b>									
633.3	10.00	0.00	631.6	29.0	0.0	27.3	3.00	3.00	0.00
700.0	10.00	0.00	697.3	40.6	0.0	38.2	0.00	0.00	0.00
800.0	10.00	0.00	795.8	58.0	0.0	54.5	0.00	0.00	0.00
<b>Mahogany</b>									
800.2	10.00	0.00	796.0	58.0	0.0	54.6	0.00	0.00	0.00
900.0	10.00	0.00	894.3	75.3	0.0	70.9	0.00	0.00	0.00
1,000.0	10.00	0.00	992.7	92.7	0.0	87.2	0.00	0.00	0.00
<b>Build 3.00°/100'</b>									
1,083.3	10.00	0.00	1,074.8	107.2	0.0	100.8	0.00	0.00	0.00
1,100.0	10.58	1.81	1,091.2	110.1	0.0	103.6	4.00	3.50	10.87
1,200.0	14.23	9.50	1,188.9	131.4	2.4	124.5	4.00	3.65	7.69
1,300.0	18.03	14.06	1,284.9	158.6	8.2	152.0	4.00	3.80	4.55
1,400.0	21.90	17.06	1,378.9	191.5	17.4	186.0	4.00	3.87	3.00
1,500.0	25.81	19.19	1,470.3	229.9	30.0	226.4	4.00	3.91	2.13
<b>EOB @ 29.61° Inc / 20.75° Azm</b>									
1,596.9	29.61	20.75	1,556.1	272.2	45.5	271.5	4.00	3.93	1.61
1,600.0	29.61	20.75	1,558.8	273.6	46.0	273.0	0.00	0.00	0.00
1,700.0	29.61	20.75	1,645.7	319.8	63.5	322.4	0.00	0.00	0.00
1,800.0	29.61	20.75	1,732.7	366.0	81.0	371.8	0.00	0.00	0.00
1,900.0	29.61	20.75	1,819.6	412.2	98.5	421.2	0.00	0.00	0.00
2,000.0	29.61	20.75	1,906.5	458.4	116.0	470.6	0.00	0.00	0.00
2,100.0	29.61	20.75	1,993.5	504.7	133.5	520.0	0.00	0.00	0.00
2,200.0	29.61	20.75	2,080.4	550.9	151.0	569.5	0.00	0.00	0.00
2,300.0	29.61	20.75	2,167.4	597.1	168.6	618.9	0.00	0.00	0.00
2,400.0	29.61	20.75	2,254.3	643.3	186.1	668.3	0.00	0.00	0.00
2,500.0	29.61	20.75	2,341.2	689.5	203.6	717.7	0.00	0.00	0.00
<b>9 5/8"</b>									
2,530.0	29.61	20.75	2,367.3	703.4	208.8	732.5	0.00	0.00	0.00
2,600.0	29.61	20.75	2,428.2	735.7	221.1	767.1	0.00	0.00	0.00
2,700.0	29.61	20.75	2,515.1	781.9	238.6	816.5	0.00	0.00	0.00
2,800.0	29.61	20.75	2,602.0	828.1	256.1	865.9	0.00	0.00	0.00
2,900.0	29.61	20.75	2,689.0	874.3	273.6	915.3	0.00	0.00	0.00
<b>Wasatch</b>									
2,986.3	29.61	20.75	2,764.0	914.2	288.7	958.0	0.00	0.00	0.00
3,000.0	29.61	20.75	2,775.9	920.5	291.1	964.7	0.00	0.00	0.00
3,100.0	29.61	20.75	2,852.9	966.8	308.6	1,014.1	0.00	0.00	0.00
3,200.0	29.61	20.75	2,949.8	1,013.0	326.1	1,063.5	0.00	0.00	0.00
3,300.0	29.61	20.75	3,036.7	1,059.2	343.6	1,113.0	0.00	0.00	0.00
3,400.0	29.61	20.75	3,123.7	1,105.4	361.2	1,162.4	0.00	0.00	0.00
3,500.0	29.61	20.75	3,210.6	1,151.6	378.7	1,211.8	0.00	0.00	0.00
3,600.0	29.61	20.75	3,297.5	1,197.8	396.2	1,261.2	0.00	0.00	0.00
3,700.0	29.61	20.75	3,384.5	1,244.0	413.7	1,310.6	0.00	0.00	0.00
3,800.0	29.61	20.75	3,471.4	1,290.2	431.2	1,360.0	0.00	0.00	0.00
3,900.0	29.61	20.75	3,558.4	1,336.4	448.7	1,409.4	0.00	0.00	0.00



# Well Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CC Federal 0697-04-02W
<b>Company:</b>	Laramie Energy, LLC	<b>TVD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Site:</b>	CC 604-12-13 Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC Federal 0697-04-02W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	A-4		
<b>Design:</b>	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	29.61	20.75	3,645.3	1,382.6	466.2	1,458.8	0.00	0.00	0.00	
4,100.0	29.61	20.75	3,732.2	1,428.8	483.7	1,508.2	0.00	0.00	0.00	
4,200.0	29.61	20.75	3,819.2	1,475.1	501.2	1,557.6	0.00	0.00	0.00	
4,300.0	29.61	20.75	3,906.1	1,521.3	518.7	1,607.0	0.00	0.00	0.00	
4,400.0	29.61	20.75	3,993.0	1,567.5	536.3	1,656.5	0.00	0.00	0.00	
4,500.0	29.61	20.75	4,080.0	1,613.7	553.8	1,705.9	0.00	0.00	0.00	
4,600.0	29.61	20.75	4,166.9	1,659.9	571.3	1,755.3	0.00	0.00	0.00	
4,700.0	29.61	20.75	4,253.8	1,706.1	588.8	1,804.7	0.00	0.00	0.00	
4,800.0	29.61	20.75	4,340.8	1,752.3	606.3	1,854.1	0.00	0.00	0.00	
4,900.0	29.61	20.75	4,427.7	1,798.5	623.8	1,903.5	0.00	0.00	0.00	
5,000.0	29.61	20.75	4,514.7	1,844.7	641.3	1,952.9	0.00	0.00	0.00	
Wasatch 'G' Sand										
5,045.2	29.61	20.75	4,554.0	1,865.6	649.2	1,975.3	0.00	0.00	0.00	
5,100.0	29.61	20.75	4,601.6	1,890.9	658.8	2,002.3	0.00	0.00	0.00	
5,200.0	29.61	20.75	4,688.5	1,937.2	676.3	2,051.7	0.00	0.00	0.00	
Fort Union										
5,286.8	29.61	20.75	4,764.0	1,977.3	691.5	2,094.6	0.00	0.00	0.00	
5,300.0	29.61	20.75	4,775.5	1,983.4	693.8	2,101.1	0.00	0.00	0.00	
5,400.0	29.61	20.75	4,862.4	2,029.6	711.3	2,150.5	0.00	0.00	0.00	
5,500.0	29.61	20.75	4,949.3	2,075.8	728.9	2,200.0	0.00	0.00	0.00	
5,600.0	29.61	20.75	5,036.3	2,122.0	746.4	2,249.4	0.00	0.00	0.00	
5,700.0	29.61	20.75	5,123.2	2,168.2	763.9	2,298.8	0.00	0.00	0.00	
5,800.0	29.61	20.75	5,210.2	2,214.4	781.4	2,348.2	0.00	0.00	0.00	
5,900.0	29.61	20.75	5,297.1	2,260.6	798.9	2,397.6	0.00	0.00	0.00	
6,000.0	29.61	20.75	5,384.0	2,306.8	816.4	2,447.0	0.00	0.00	0.00	
6,100.0	29.61	20.75	5,471.0	2,353.0	833.9	2,496.4	0.00	0.00	0.00	
6,200.0	29.61	20.75	5,557.9	2,399.3	851.4	2,545.8	0.00	0.00	0.00	
6,300.0	29.61	20.75	5,644.8	2,445.5	868.9	2,595.2	0.00	0.00	0.00	
6,400.0	29.61	20.75	5,731.8	2,491.7	886.4	2,644.6	0.00	0.00	0.00	
6,500.0	29.61	20.75	5,818.7	2,537.9	903.9	2,694.0	0.00	0.00	0.00	
6,600.0	29.61	20.75	5,905.7	2,584.1	921.5	2,743.5	0.00	0.00	0.00	
6,700.0	29.61	20.75	5,992.6	2,630.3	939.0	2,792.9	0.00	0.00	0.00	
6,800.0	29.61	20.75	6,079.5	2,676.5	956.5	2,842.3	0.00	0.00	0.00	
6,900.0	29.61	20.75	6,166.5	2,722.7	974.0	2,891.7	0.00	0.00	0.00	
7,000.0	29.61	20.75	6,253.4	2,768.9	991.5	2,941.1	0.00	0.00	0.00	
Ohio Creek										
7,051.3	29.61	20.75	6,298.0	2,792.6	1,000.5	2,966.4	0.00	0.00	0.00	
7,100.0	29.61	20.75	6,340.3	2,815.1	1,009.0	2,990.5	0.00	0.00	0.00	
7,200.0	29.61	20.75	6,427.3	2,861.3	1,026.5	3,039.9	0.00	0.00	0.00	
Williams Fork										
7,267.5	29.61	20.75	6,486.0	2,892.6	1,038.3	3,073.3	0.00	0.00	0.00	
Drop @ 3.00°/100'										
7,288.4	29.61	20.75	6,504.2	2,902.2	1,042.0	3,083.6	0.00	0.00	0.00	
7,300.0	29.15	20.75	6,514.2	2,907.5	1,044.0	3,089.3	4.00	-4.00	0.00	
7,400.0	25.15	20.75	6,603.2	2,950.2	1,060.2	3,134.9	4.00	-4.00	0.00	
7,500.0	21.15	20.75	6,695.1	2,988.9	1,074.1	3,174.2	4.00	-4.00	0.00	
7,600.0	17.15	20.75	6,789.6	3,017.6	1,085.7	3,207.0	4.00	-4.00	0.00	
7,700.0	13.15	20.75	6,886.1	3,042.1	1,095.0	3,233.1	4.00	-4.00	0.00	
7,800.0	9.15	20.75	6,984.2	3,060.1	1,101.8	3,252.5	4.00	-4.00	0.00	
7,900.0	5.15	20.75	7,083.4	3,071.8	1,106.2	3,264.9	4.00	-4.00	0.00	
8,000.0	1.15	20.75	7,183.2	3,076.9	1,108.2	3,270.4	4.00	-4.00	0.00	
EOD @ Vertical - TOG										
8,028.8	0.00	0.00	7,212.0	3,077.2	1,108.3	3,270.7	4.00	-4.00	-72.06	



## Well Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CC Federal 0697-04-02W
<b>Company:</b>	Laramie Energy, LLC	<b>TVD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	WELL @ 8559.0usft (H&P #522)
<b>Site:</b>	CC 604-12-13 Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC Federal 0697-04-02W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	A-4		
<b>Design:</b>	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)
8,100.0	0.00	0.00	7,283.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,200.0	0.00	0.00	7,383.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,300.0	0.00	0.00	7,483.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,400.0	0.00	0.00	7,583.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,500.0	0.00	0.00	7,683.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,600.0	0.00	0.00	7,783.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,700.0	0.00	0.00	7,883.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,800.0	0.00	0.00	7,983.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
8,900.0	0.00	0.00	8,083.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,000.0	0.00	0.00	8,183.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,100.0	0.00	0.00	8,283.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,200.0	0.00	0.00	8,383.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,300.0	0.00	0.00	8,483.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,400.0	0.00	0.00	8,583.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,500.0	0.00	0.00	8,683.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
<b>Cameo</b>									
9,552.8	0.00	0.00	8,736.0	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,600.0	0.00	0.00	8,783.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,700.0	0.00	0.00	8,883.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,800.0	0.00	0.00	8,983.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
9,900.0	0.00	0.00	9,083.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
<b>Base Cameo Coal</b>									
9,919.8	0.00	0.00	9,103.0	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
<b>Rollings</b>									
9,965.8	0.00	0.00	9,149.0	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
10,000.0	0.00	0.00	9,183.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
10,100.0	0.00	0.00	9,283.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
10,200.0	0.00	0.00	9,383.2	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00
<b>TD @ 10215.8' MD / 9399.0' TVD</b>									
10,215.8	0.00	0.00	9,399.0	3,077.2	1,108.3	3,270.7	0.00	0.00	0.00

## Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - CC Federal 069;	0.00	0.00	9,399.0	3,077.2	1,108.3	1,641,039.48	2,230,571.20	39.561706	-108.229491
- plan hits target center									
- Circle (radius 50.0)									

## Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,530.0	2,367.3	9 5/8"	9-5/8	14-1/2



# Well Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CC Federal 0697-04-02W
<b>Company:</b>	Laramie Energy, LLC	<b>TVD Reference:</b>	WELL @ 8559 0usft (H&P #522)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	WELL @ 8559 0usft (H&P #522)
<b>Site:</b>	CC 604-12-13 Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC Federal 0697-04-02W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	A-4		
<b>Design:</b>	Design #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
800.2	796.0	Mahogany				
2,986.3	2,764.0	Wasatch				
5,045.2	4,554.0	Wasatch 'G' Sand				
5,286.8	4,764.0	Fort Union				
7,051.3	6,298.0	Ohio Creek				
7,267.5	6,486.0	Williams Fork				
8,028.8	7,212.0	TOG				
9,552.8	8,736.0	Cameo				
9,919.8	9,103.0	Base Cameo Coal				
9,965.8	9,149.0	Rollings				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.0	300.0	0.0	0.0	KOP/ (Build 3.00"/100')	
633.3	631.6	29.0	0.0	EOB @ 10.00° Inc / 0.00° Azm	
1,083.3	1,074.8	107.2	0.0	Build 3.00"/100'	
1,596.9	1,556.1	272.2	45.5	EOB @ 29.61° Inc / 20.75° Azm	
7,288.4	6,504.2	2,902.2	1,042.0	Drop @ 3.00"/100'	
8,028.8	7,212.0	3,077.2	1,108.3	EOD @ Vertical	
10,215.8	9,399.0	3,077.2	1,108.3	TD @ 10215.8' MD / 9399.0' TVD	