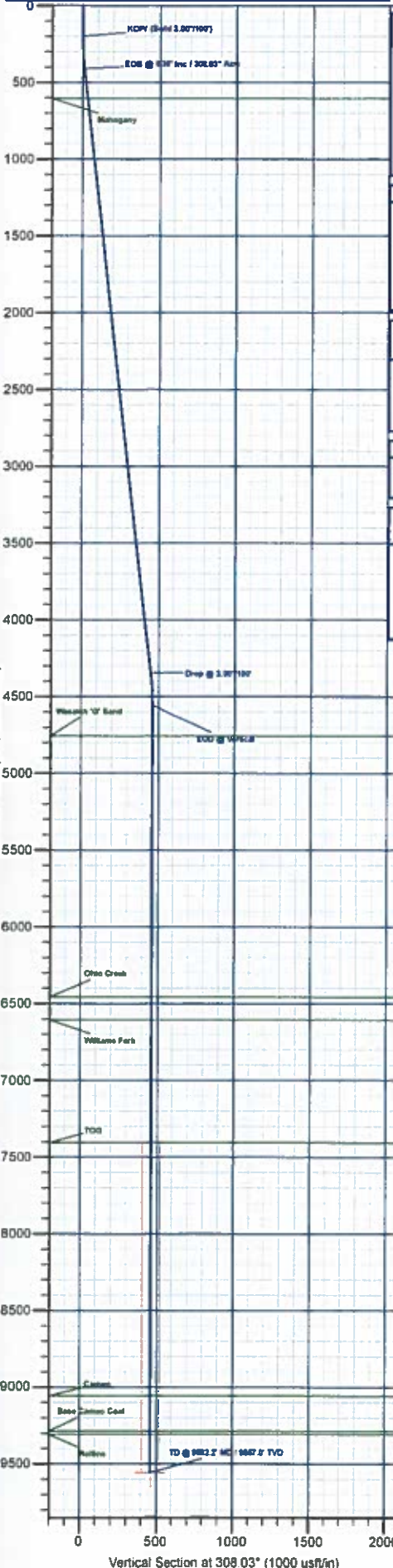


PROJECT DETAILS: Garfield County, CO
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone
 System Datum: Mean Sea Level

WELL DETAILS: CC 0697-04-07E
 +N/-S: 0.0 +E/-W: 0.0 Northing: 1639415.45 Ground Level: 8609.0 Latitude: 39.557493 Longitude: -108.218828
 Easting: 2233530.22



Project: Garfield County, CO
 Site: CC 604-41-32 Pad
 Well: CC 0697-04-07E
 Wellbore: Wellbore #1
 Design: Design #3
 Latitude: 39.557493
 Longitude: -108.218828
 Ground Level: 8609.0
 Well @ 8639.0usft (RKB 30')

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
805.0	807.5	Mahogany
4787.0	4782.2	Wasatch 'G' Sand
6457.0	6482.2	Ohio Creek
6607.0	6632.2	Williams Fork
7407.0	7432.2	TOG
9097.0	9082.2	Cameo
9267.0	9312.2	Base Cameo Coal
9307.0	9332.2	Rollins

Azimuths to True North
 Magnetic North: 9.77°
 Magnetic Field Strength: 51479.5nT
 Dip Angle: 65.59°
 Date: 10/4/2017
 Model: IGRF2015

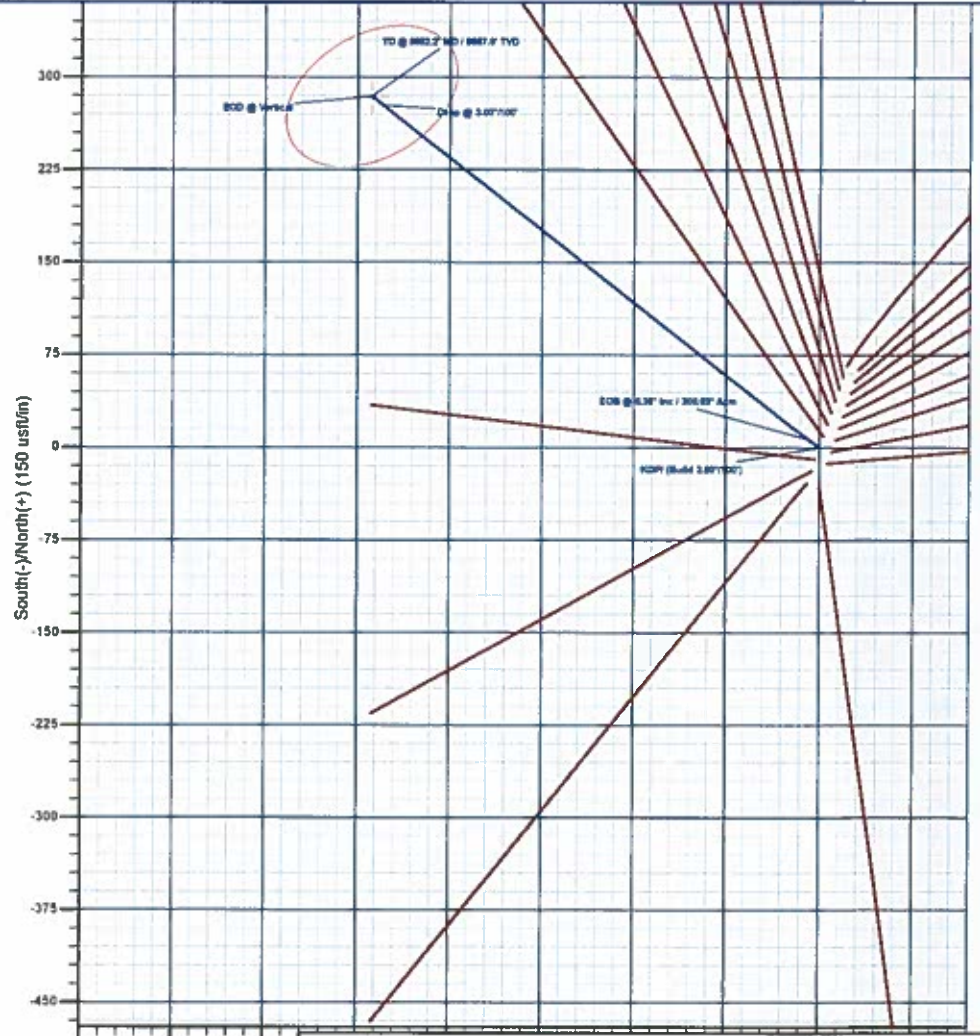
REFERENCE INFORMATION
 Co-ordinate (NE) Reference: Well CC 0697-04-07E, True North
 Vertical (TVD) Reference: Well @ 8639.0usft (RKB 30')
 Section (VS) Reference: Slot - (0.0N, 0.0E)
 Measured Depth Reference: Well @ 8639.0usft (RKB 30')
 Calculation Method: Minimum Curvature

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL - CC 0697-04-07E	9557.0	284.5	-363.7	1639710.70	2233176.18	39.568274	-108.220118

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	KOP/ (Build 3.00°/100')
411.9	6.36	308.03	411.5	7.2	-9.2	3.00	308.03	11.7	EDB @ 6.36° Inc / 308.03° Azm
4370.3	6.36	308.03	4348.5	277.3	-354.5	0.00	0.00	450.0	Drop @ 3.00°/100'
4582.2	0.00	0.00	4587.0	284.5	-363.7	3.00	180.00	481.8	EDB @ Vertical
9582.2	0.00	0.00	9557.0	284.5	-363.7	0.00	0.00	481.8	TD @ 9582.2' MD / 9557.0' TVD



Plan: Design #3 (CC 0697-04-07E/Wellbore #1)
 Created By: Will Jircik Date: 14:22, February 04 2019



Laramie Energy, LLC

Garfield County, CO

CC 604-41-32 Pad

CC 0697-04-07E

Wellbore #1

Plan: Design #3

QES Well Planning Report

04 February, 2019





Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC 0697-04-07E
Company:	Laramie Energy, LLC	TVD Reference:	Well @ 8639.0usft (RKB 30')
Project:	Garfield County, CO	MD Reference:	Well @ 8639.0usft (RKB 30')
Site:	CC 604-41-32 Pad	North Reference:	True
Well:	CC 0697-04-07E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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 604-41-32 Pad			
Site Position:		Northing:	1,639,464.67 usft	Latitude: 39.557630
From:	Lat/Long	Easting:	2,233,548.14 usft	Longitude: -108.218770
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence: -1.71"

Well	CC 0697-04-07E			
Well Position	+N/-S	-49.7 usft	Northing:	1,639,415.45 usft
	+E/-W	-16.4 usft	Easting:	2,233,530.22 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level: 8,609.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/4/2017	9.77	65.59	51,479.48101972

Design	Design #3			
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	308.03

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
411.9	6.36	308.03	411.5	7.2	-9.2	3.00	3.00	0.00	308.03	
4,370.3	6.36	308.03	4,345.5	277.3	-354.5	0.00	0.00	0.00	0.00	
4,582.2	0.00	0.00	4,557.0	284.5	-363.7	3.00	-3.00	0.00	180.00	
9,582.2	0.00	0.00	9,557.0	284.5	-363.7	0.00	0.00	0.00	0.00	PBHL - CC 0697-04-C



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC 0697-04-07E
Company:	Laramie Energy, LLC	TVD Reference:	Well @ 8639.0usft (RKB 30')
Project:	Garfield County, CO	MD Reference:	Well @ 8639.0usft (RKB 30')
Site:	CC 604-41-32 Pad	North Reference:	True
Well:	CC 0697-04-07E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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
KOP/ (Build 3.00°/100')									
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	3.00	308.03	300.0	1.6	-2.1	2.6	3.00	3.00	0.00
400.0	6.00	308.03	399.6	6.4	-8.2	10.5	3.00	3.00	0.00
EOB @ 6.36° Inc / 308.03° Azm									
411.9	6.36	308.03	411.5	7.2	-9.2	11.7	3.00	3.00	0.00
500.0	6.36	308.03	499.0	13.2	-16.9	21.5	0.00	0.00	0.00
600.0	6.36	308.03	598.4	20.1	-25.7	32.6	0.00	0.00	0.00
Mahogany									
607.6	6.36	308.03	606.0	20.6	-26.3	33.4	0.00	0.00	0.00
700.0	6.36	308.03	697.8	26.9	-34.4	43.6	0.00	0.00	0.00
800.0	6.36	308.03	797.2	33.7	-43.1	54.7	0.00	0.00	0.00
900.0	6.36	308.03	896.6	40.5	-51.8	65.8	0.00	0.00	0.00
1,000.0	6.36	308.03	995.9	47.4	-60.5	76.9	0.00	0.00	0.00
1,100.0	6.36	308.03	1,095.3	54.2	-69.3	87.9	0.00	0.00	0.00
1,200.0	6.36	308.03	1,194.7	61.0	-78.0	99.0	0.00	0.00	0.00
1,300.0	6.36	308.03	1,294.1	67.8	-86.7	110.1	0.00	0.00	0.00
1,400.0	6.36	308.03	1,393.5	74.6	-95.4	121.1	0.00	0.00	0.00
1,500.0	6.36	308.03	1,492.9	81.5	-104.1	132.2	0.00	0.00	0.00
1,600.0	6.36	308.03	1,592.3	88.3	-112.9	143.3	0.00	0.00	0.00
1,700.0	6.36	308.03	1,691.6	95.1	-121.6	154.4	0.00	0.00	0.00
1,800.0	6.36	308.03	1,791.0	101.9	-130.3	165.4	0.00	0.00	0.00
1,900.0	6.36	308.03	1,890.4	108.7	-139.0	176.5	0.00	0.00	0.00
2,000.0	6.36	308.03	1,989.8	115.6	-147.7	187.6	0.00	0.00	0.00
2,100.0	6.36	308.03	2,089.2	122.4	-156.5	198.7	0.00	0.00	0.00
2,200.0	6.36	308.03	2,188.6	129.2	-165.2	209.7	0.00	0.00	0.00
2,300.0	6.36	308.03	2,288.0	136.0	-173.9	220.8	0.00	0.00	0.00
2,400.0	6.36	308.03	2,387.3	142.9	-182.6	231.9	0.00	0.00	0.00
2,500.0	6.36	308.03	2,486.7	149.7	-191.4	242.9	0.00	0.00	0.00
2,600.0	6.36	308.03	2,586.1	156.5	-200.1	254.0	0.00	0.00	0.00
2,700.0	6.36	308.03	2,685.5	163.3	-208.8	265.1	0.00	0.00	0.00
2,800.0	6.36	308.03	2,784.9	170.1	-217.5	276.2	0.00	0.00	0.00
2,900.0	6.36	308.03	2,884.3	177.0	-226.2	287.2	0.00	0.00	0.00
3,000.0	6.36	308.03	2,983.7	183.8	-235.0	298.3	0.00	0.00	0.00
3,100.0	6.36	308.03	3,083.0	190.6	-243.7	309.4	0.00	0.00	0.00
3,200.0	6.36	308.03	3,182.4	197.4	-252.4	320.4	0.00	0.00	0.00
3,300.0	6.36	308.03	3,281.8	204.2	-261.1	331.5	0.00	0.00	0.00
3,400.0	6.36	308.03	3,381.2	211.1	-269.8	342.6	0.00	0.00	0.00
3,500.0	6.36	308.03	3,480.6	217.9	-278.6	353.7	0.00	0.00	0.00
3,600.0	6.36	308.03	3,580.0	224.7	-287.3	364.7	0.00	0.00	0.00
3,700.0	6.36	308.03	3,679.3	231.5	-296.0	375.8	0.00	0.00	0.00
3,800.0	6.36	308.03	3,778.7	238.4	-304.7	386.9	0.00	0.00	0.00
3,900.0	6.36	308.03	3,878.1	245.2	-313.5	398.0	0.00	0.00	0.00
4,000.0	6.36	308.03	3,977.5	252.0	-322.2	409.0	0.00	0.00	0.00
4,100.0	6.36	308.03	4,076.9	258.8	-330.9	420.1	0.00	0.00	0.00
4,200.0	6.36	308.03	4,176.3	265.6	-339.6	431.2	0.00	0.00	0.00
4,300.0	6.36	308.03	4,275.7	272.5	-348.3	442.2	0.00	0.00	0.00
Drop @ 3.00°/100'									
4,370.3	6.36	308.03	4,345.5	277.3	-354.5	450.0	0.00	0.00	0.00
4,400.0	5.47	308.03	4,375.1	279.1	-356.9	453.1	3.00	-3.00	0.00
4,500.0	2.47	308.03	4,474.8	283.4	-362.3	460.0	3.00	-3.00	0.00
EOD @ Vertical									



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC 0697-04-07E
Company:	Laramie Energy, LLC	TVD Reference:	Well @ 8638.0usft (RKB 30')
Project:	Garfield County, CO	MD Reference:	Well @ 8639.0usft (RKB 30')
Site:	CC 604-41-32 Pad	North Reference:	True
Well:	CC 0697-04-07E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
4,582.2	0.00	0.00	4,557.0	284.5	-363.7	461.8	3.00	-3.00	0.00
4,600.0	0.00	0.00	4,574.8	284.5	-363.7	461.8	0.00	0.00	0.00
4,700.0	0.00	0.00	4,674.8	284.5	-363.7	461.8	0.00	0.00	0.00
Wasatch 'G' Sand									
4,782.2	0.00	0.00	4,757.0	284.5	-363.7	461.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,774.8	284.5	-363.7	461.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,874.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,974.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,100.0	0.00	0.00	5,074.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,174.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,274.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,374.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,474.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,574.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,674.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,774.8	284.5	-363.7	461.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,874.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,974.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,074.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,174.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,274.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,374.8	284.5	-363.7	461.8	0.00	0.00	0.00
Ohio Creek									
6,482.2	0.00	0.00	6,457.0	284.5	-363.7	461.8	0.00	0.00	0.00
6,500.0	0.00	0.00	6,474.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,574.8	284.5	-363.7	461.8	0.00	0.00	0.00
Williams Fork									
6,632.2	0.00	0.00	6,607.0	284.5	-363.7	461.8	0.00	0.00	0.00
6,700.0	0.00	0.00	6,674.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,774.8	284.5	-363.7	461.8	0.00	0.00	0.00
6,900.0	0.00	0.00	6,874.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,974.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,100.0	0.00	0.00	7,074.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,200.0	0.00	0.00	7,174.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,300.0	0.00	0.00	7,274.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,374.8	284.5	-363.7	461.8	0.00	0.00	0.00
TOG									
7,432.2	0.00	0.00	7,407.0	284.5	-363.7	461.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,474.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,574.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,674.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,774.8	284.5	-363.7	461.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,874.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,974.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,100.0	0.00	0.00	8,074.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,200.0	0.00	0.00	8,174.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,300.0	0.00	0.00	8,274.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,374.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,474.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,574.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,674.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,774.8	284.5	-363.7	461.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,874.8	284.5	-363.7	461.8	0.00	0.00	0.00



Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CC 0697-04-07E
Company:	Laramie Energy, LLC	TVD Reference:	Well @ 8639 0usft (RKB 30')
Project:	Garfield County, CO	MD Reference:	Well @ 8639 0usft (RKB 30')
Site:	CC 604-41-32 Pad	North Reference:	True
Well:	CC 0697-04-07E	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
9,000.0	0.00	0.00	8,974.8	284.5	-363.7	461.8	0.00	0.00	0.00
Cameo									
9,082.2	0.00	0.00	9,057.0	284.5	-363.7	461.8	0.00	0.00	0.00
9,100.0	0.00	0.00	9,074.8	284.5	-363.7	461.8	0.00	0.00	0.00
9,200.0	0.00	0.00	9,174.8	284.5	-363.7	461.8	0.00	0.00	0.00
9,300.0	0.00	0.00	9,274.8	284.5	-363.7	461.8	0.00	0.00	0.00
Base Cameo Coal									
9,312.2	0.00	0.00	9,287.0	284.5	-363.7	461.8	0.00	0.00	0.00
Rollins									
9,332.2	0.00	0.00	9,307.0	284.5	-363.7	461.8	0.00	0.00	0.00
9,400.0	0.00	0.00	9,374.8	284.5	-363.7	461.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,474.8	284.5	-363.7	461.8	0.00	0.00	0.00
TD @ 9582.2' MD / 9557.0' TVD									
9,582.2	0.00	0.00	9,557.0	284.5	-363.7	461.8	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 0697-04-07E	0.00	0.00	9,557.0	284.5	-363.7	1,639,710.70	2,233,175.18	39.558274	-108.220118
- plan hits target center									
- 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	2,516.5	9 5/8"	9-5/8	14-3/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
607.6	606.0	Mahogany			
4,782.2	4,757.0	Wasatch 'G' Sand			
6,482.2	6,457.0	Ohio Creek			
6,632.2	6,607.0	Williams Fork			
7,432.2	7,407.0	TOG			
9,082.2	9,057.0	Cameo			
9,312.2	9,287.0	Base Cameo Coal			
9,332.2	9,307.0	Rollins			



Well Planning Report



Database: EDM 5000.1 Single User Db
Company: Laramie Energy, LLC
Project: Garfield County, CO
Site: CC 604-41-32 Pad
Well: CC 0697-04-07E
Wellbore: Wellbore #1
Design: Design #3

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well CC 0697-04-07E
Well @ 8639.0usft (RKB 30')
Well @ 8639.0usft (RKB 30')
True
Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.0	200.0	0.0	0.0	KOP/ (Build 3.00"/100')
411.9	411.5	7.2	-9.2	EOB @ 6.36" Inc / 308.03° Azm
4,370.3	4,345.5	277.3	-354.5	Drop @ 3.00"/100'
4,582.2	4,557.0	284.5	-363.7	EOD @ Vertical
9,582.2	9,557.0	284.5	-363.7	TD @ 9582.2' MD / 9557.0' TVD