



Ursa Operating Company, LLC

Rockies Region

BMC L Pad

BMC L 11A-08-07-95

Wellbore #1

Plan: Design #1

Standard Planning Report

15 May, 2017



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BMC L 11A-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BMC L 11A-08-07-95 @ 5447.0usft (Est KB)
Project:	Rockies Region	MD Reference:	BMC L 11A-08-07-95 @ 5447.0usft (Est KB)
Site:	BMC L Pad	North Reference:	True
Well:	BMC L 11A-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Rockies Region		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	BMC L Pad				
Site Position:		Northing:	1,600,015.26 usft	Latitude:	39.453634901
From:	Lat/Long	Easting:	2,287,409.35 usft	Longitude:	-108.023927826
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.59 °

Well	BMC L 11A-08-07-95, SHL: Lat 39.453634901 Long -108.023927826					
Well Position	+N/-S	0.0 usft	Northing:	1,600,015.26 usft	Latitude:	39.453634901
	+E/-W	0.0 usft	Easting:	2,287,409.35 usft	Longitude:	-108.023927826
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,447.0 usft	Ground Level:	5,430.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2017	9.72	65.55	51,518

Design	Design #1			
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	327.70

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,440.8	39.93	327.70	1,350.7	322.6	-204.0	3.50	3.50	0.00	327.70	
3,946.7	39.93	327.70	3,272.3	1,682.0	-1,063.5	0.00	0.00	0.00	0.00	
5,087.5	0.00	0.00	4,323.0	2,004.5	-1,267.5	3.50	-3.50	0.00	180.00	BMC L 11A-08-07-95
7,637.5	0.00	0.00	6,873.0	2,004.5	-1,267.5	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BMC L 11A-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BMC L 11A-08-07-95 @ 5447.0usft (Est KB)
Project:	Rockies Region	MD Reference:	BMC L 11A-08-07-95 @ 5447.0usft (Est KB)
Site:	BMC L Pad	North Reference:	True
Well:	BMC L 11A-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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
0.1	0.00	0.00	0.1	0.0	0.0	0.0	0.00	0.00	0.00
SHL 39.453634901, -108.023927826									
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
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.50									
400.0	3.50	327.70	399.9	2.6	-1.6	3.1	3.50	3.50	0.00
500.0	7.00	327.70	499.5	10.3	-6.5	12.2	3.50	3.50	0.00
600.0	10.50	327.70	598.3	23.2	-14.6	27.4	3.50	3.50	0.00
700.0	14.00	327.70	696.0	41.1	-26.0	48.6	3.50	3.50	0.00
800.0	17.50	327.70	792.3	64.0	-40.5	75.8	3.50	3.50	0.00
900.0	21.00	327.70	886.7	91.9	-58.1	108.7	3.50	3.50	0.00
1,000.0	24.50	327.70	978.9	124.6	-78.8	147.4	3.50	3.50	0.00
1,100.0	28.00	327.70	1,068.5	162.0	-102.4	191.6	3.50	3.50	0.00
1,200.0	31.50	327.70	1,155.3	203.9	-128.9	241.2	3.50	3.50	0.00
1,300.0	35.00	327.70	1,239.0	250.2	-158.2	296.1	3.50	3.50	0.00
1,400.0	38.50	327.70	1,319.1	300.8	-190.2	355.9	3.50	3.50	0.00
1,440.8	39.93	327.70	1,350.7	322.6	-204.0	381.7	3.50	3.50	0.00
Start 2505.9 hold at 1440.8 MD									
1,500.0	39.93	327.70	1,396.1	354.7	-224.3	419.7	0.00	0.00	0.00
1,600.0	39.93	327.70	1,472.8	409.0	-258.6	483.8	0.00	0.00	0.00
1,700.0	39.93	327.70	1,549.5	463.2	-292.9	548.0	0.00	0.00	0.00
1,800.0	39.93	327.70	1,626.1	517.4	-327.2	612.2	0.00	0.00	0.00
1,896.3	39.93	327.70	1,700.0	569.7	-360.2	674.0	0.00	0.00	0.00
Surface Casing									
1,900.0	39.93	327.70	1,702.8	571.7	-361.5	676.4	0.00	0.00	0.00
2,000.0	39.93	327.70	1,779.5	625.9	-395.8	740.6	0.00	0.00	0.00
2,100.0	39.93	327.70	1,856.2	680.2	-430.1	804.8	0.00	0.00	0.00
2,200.0	39.93	327.70	1,932.9	734.4	-464.4	868.9	0.00	0.00	0.00
2,300.0	39.93	327.70	2,009.6	788.7	-498.7	933.1	0.00	0.00	0.00
2,400.0	39.93	327.70	2,086.3	842.9	-533.0	997.3	0.00	0.00	0.00
2,500.0	39.93	327.70	2,162.9	897.2	-567.3	1,061.5	0.00	0.00	0.00
2,600.0	39.93	327.70	2,239.6	951.4	-601.6	1,125.7	0.00	0.00	0.00
2,700.0	39.93	327.70	2,316.3	1,005.7	-635.9	1,189.8	0.00	0.00	0.00
2,800.0	39.93	327.70	2,393.0	1,059.9	-670.2	1,254.0	0.00	0.00	0.00
2,900.0	39.93	327.70	2,469.7	1,114.2	-704.5	1,318.2	0.00	0.00	0.00
3,000.0	39.93	327.70	2,546.4	1,168.4	-738.8	1,382.4	0.00	0.00	0.00
3,100.0	39.93	327.70	2,623.1	1,222.7	-773.1	1,446.6	0.00	0.00	0.00
3,200.0	39.93	327.70	2,699.7	1,276.9	-807.4	1,510.8	0.00	0.00	0.00
3,300.0	39.93	327.70	2,776.4	1,331.2	-841.7	1,574.9	0.00	0.00	0.00
3,400.0	39.93	327.70	2,853.1	1,385.4	-876.0	1,639.1	0.00	0.00	0.00
3,500.0	39.93	327.70	2,929.8	1,439.7	-910.3	1,703.3	0.00	0.00	0.00
3,600.0	39.93	327.70	3,006.5	1,493.9	-944.6	1,767.5	0.00	0.00	0.00
3,700.0	39.93	327.70	3,083.2	1,548.1	-978.9	1,831.7	0.00	0.00	0.00
3,800.0	39.93	327.70	3,159.9	1,602.4	-1,013.2	1,895.8	0.00	0.00	0.00
3,900.0	39.93	327.70	3,236.5	1,656.6	-1,047.5	1,960.0	0.00	0.00	0.00
3,946.7	39.93	327.70	3,272.3	1,682.0	-1,063.5	1,990.0	0.00	0.00	0.00
Start Drop -3.50									
4,000.0	38.06	327.70	3,313.8	1,710.3	-1,081.4	2,023.5	3.50	-3.50	0.00
4,100.0	34.56	327.70	3,394.3	1,760.4	-1,113.1	2,082.7	3.50	-3.50	0.00
4,200.0	31.06	327.70	3,478.4	1,806.2	-1,142.0	2,136.9	3.50	-3.50	0.00
4,249.3	29.33	327.70	3,521.0	1,827.1	-1,155.3	2,161.7	3.50	-3.50	0.00

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Site:	BMC L Pad	North Reference:	True
Well:	BMC L 11A-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
Williams Fork									
4,300.0	27.56	327.70	3,565.6	1,847.5	-1,168.2	2,185.9	3.50	-3.50	0.00
4,400.0	24.06	327.70	3,655.6	1,884.3	-1,191.4	2,229.4	3.50	-3.50	0.00
4,500.0	20.56	327.70	3,748.1	1,916.4	-1,211.7	2,267.4	3.50	-3.50	0.00
4,600.0	17.06	327.70	3,842.7	1,943.7	-1,229.0	2,299.6	3.50	-3.50	0.00
4,700.0	13.56	327.70	3,939.2	1,966.0	-1,243.1	2,326.0	3.50	-3.50	0.00
4,800.0	10.06	327.70	4,037.0	1,983.3	-1,254.0	2,346.5	3.50	-3.50	0.00
4,900.0	6.56	327.70	4,136.0	1,995.5	-1,261.7	2,360.9	3.50	-3.50	0.00
5,000.0	3.06	327.70	4,235.6	2,002.6	-1,266.2	2,369.3	3.50	-3.50	0.00
5,087.5	0.00	0.00	4,323.0	2,004.5	-1,267.5	2,371.6	3.50	-3.50	0.00
Back to Vertical - Start 2550.0 hold at 5087.5 MD - Top of Gas - BMC L 11A-08-07-95 TGT									
5,100.0	0.00	0.00	4,335.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,200.0	0.00	0.00	4,435.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,300.0	0.00	0.00	4,535.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,400.0	0.00	0.00	4,635.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,500.0	0.00	0.00	4,735.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,600.0	0.00	0.00	4,835.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,700.0	0.00	0.00	4,935.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,035.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,135.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,235.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,335.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,435.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,300.0	0.00	0.00	5,535.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,400.0	0.00	0.00	5,635.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,500.0	0.00	0.00	5,735.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,600.0	0.00	0.00	5,835.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,700.0	0.00	0.00	5,935.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,035.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
6,829.5	0.00	0.00	6,065.0	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
Cameo									
6,900.0	0.00	0.00	6,135.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,235.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,100.0	0.00	0.00	6,335.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,435.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,300.0	0.00	0.00	6,535.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,337.5	0.00	0.00	6,573.0	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
Rollins									
7,400.0	0.00	0.00	6,635.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,500.0	0.00	0.00	6,735.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,600.0	0.00	0.00	6,835.5	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
7,637.5	0.00	0.00	6,873.0	2,004.5	-1,267.5	2,371.6	0.00	0.00	0.00
BHL 39.4591380, -108.0284166 - TD at 7637.5									

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Project:	Rockies Region	MD Reference:	BMC L 11A-08-07-95 @ 5447.0usft (Est KB)
Site:	BMC L Pad	North Reference:	True
Well:	BMC L 11A-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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									
BMC L 11A-08-07-95 TC	0.00	0.00	4,323.0	2,004.5	-1,267.5	1,602,054.15	2,286,198.12	39.459138000	-108.028416600
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,550.0)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,249.3	3,521.0	Williams Fork		0.00		
5,087.5	4,323.0	Top of Gas		0.00		
6,829.5	6,065.0	Cameo		0.00		
7,337.5	6,573.0	Rollins		0.00		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.1	0.1	0.0	0.0	SHL 39.453634901, -108.023927826
300.0	300.0	0.0	0.0	Start Build 3.50
1,440.8	1,350.7	322.6	-204.0	Start 2505.9 hold at 1440.8 MD
1,896.3	1,700.0	569.7	-360.2	Surface Casing
3,946.7	3,272.3	1,682.0	-1,063.5	Start Drop -3.50
5,087.5	4,323.0	2,004.5	-1,267.5	Back to Vertical
5,087.5	4,323.0	2,004.5	-1,267.5	Start 2550.0 hold at 5087.5 MD
7,637.5	6,873.0	2,004.5	-1,267.5	BHL 39.4591380, -108.0284166
7,637.5	6,873.0	2,004.5	-1,267.5	TD at 7637.5



Well Name: BMC L 11A-08-07-95
Surface Location: BMC L Pad
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 5430.0
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 1600015.26 2287409.35 39.453634901 -108.023927826
Est KB BMC L 11A-08-07-95 @ 5447.0usft (Est KB)

Slot



Azimuths to True North
Magnetic North: 9.72°
Magnetic Field
Strength: 51518.1nT
Dip Angle: 65.55°
Date: 5/11/2017
Model: IGRF2015

BMC L Pad
BMC L 11A-08-07-95
Design #1
18:06, May 15 2017

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BMC L 11A-08-07-95 TGT	4323.0	2004.5	-1267.5	1602054.15	2286198.12	39.459138000	-108.028416600	Rectangle (Sides: L40.0 W100.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	1440.8	39.93	327.70	1350.7	322.6	-204.0	3.50	327.70	381.7	
4	3946.7	39.93	327.70	3272.3	1682.0	-1063.5	0.00	0.00	1990.0	
5	5087.5	0.00	0.00	4323.0	2004.5	-1267.5	3.50	180.00	2371.6	BMC L 11A-08-07-95 TGT
6	7637.5	0.00	0.00	6873.0	2004.5	-1267.5	0.00	0.00	2371.6	

ANNOTATIONS

TVD	MD	Annotation
0.1	0.1	SHL 39.453634901, -108.023927826
300.0	300.0	Start Build 3.50
1350.7	1440.8	Start 2505.9 hold at 1440.8 MD
1700.0	1896.3	Surface Casing
3272.3	3946.7	Start Drop -3.50
4323.0	5087.5	Back to Vertical
4323.0	5087.5	Start 2550.0 hold at 5087.5 MD
6873.0	7637.5	BHL 39.4591380, -108.0284166
6873.0	7637.5	TD at 7637.5

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3521.0	4249.3	Williams Fork	0.00	
4323.0	5087.5	Top of Gas	0.00	
6065.0	6829.5	Cameo	0.00	
6573.0	7337.5	Rollins	0.00	

