



Ursa Operating Company, LLC

Rockies Region

BMC L Pad

BMC L 43C-07-07-95

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 43C-07-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BMC L 43C-07-07-95 @ 5447.0usft (Est KB)
Project:	Rockies Region	MD Reference:	BMC L 43C-07-07-95 @ 5447.0usft (Est KB)
Site:	BMC L Pad	North Reference:	True
Well:	BMC L 43C-07-07-95	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 43C-07-07-95, SHL: Lat 39.453514657 Long -108.023879523					
Well Position	+N/-S	-43.8 usft	Northing:	1,599,971.10 usft	Latitude:	39.453514657
	+E/-W	13.6 usft	Easting:	2,287,421.77 usft	Longitude:	-108.023879523
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	241.83

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	
1,770.9	51.48	241.83	1,580.8	-291.5	-544.4	3.50	3.50	0.00	241.83	
3,910.3	51.48	241.83	2,913.2	-1,081.7	-2,020.0	0.00	0.00	0.00	0.00	
5,381.2	0.00	0.00	4,194.0	-1,373.2	-2,564.4	3.50	-3.50	0.00	180.00	BMC L 43C-07-07-95
7,931.2	0.00	0.00	6,744.0	-1,373.2	-2,564.4	0.00	0.00	0.00	0.00	

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Project:	Rockies Region	MD Reference:	BMC L 43C-07-07-95 @ 5447.0usft (Est KB)
Site:	BMC L Pad	North Reference:	True
Well:	BMC L 43C-07-07-95	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 39.453514657, -108.023879523									
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	241.83	399.9	-1.4	-2.7	3.1	3.50	3.50	0.00
500.0	7.00	241.83	499.5	-5.8	-10.8	12.2	3.50	3.50	0.00
600.0	10.50	241.83	598.3	-12.9	-24.2	27.4	3.50	3.50	0.00
700.0	14.00	241.83	696.0	-23.0	-42.9	48.6	3.50	3.50	0.00
800.0	17.50	241.83	792.3	-35.8	-66.8	75.8	3.50	3.50	0.00
900.0	21.00	241.83	886.7	-51.3	-95.9	108.7	3.50	3.50	0.00
1,000.0	24.50	241.83	978.9	-69.6	-129.9	147.4	3.50	3.50	0.00
1,100.0	28.00	241.83	1,068.5	-90.5	-168.9	191.6	3.50	3.50	0.00
1,200.0	31.50	241.83	1,155.3	-113.9	-212.7	241.2	3.50	3.50	0.00
1,300.0	35.00	241.83	1,239.0	-139.8	-261.0	296.1	3.50	3.50	0.00
1,400.0	38.50	241.83	1,319.1	-168.0	-313.7	355.9	3.50	3.50	0.00
1,500.0	42.00	241.83	1,395.4	-198.5	-370.7	420.5	3.50	3.50	0.00
1,600.0	45.50	241.83	1,467.6	-231.1	-431.6	489.6	3.50	3.50	0.00
1,700.0	49.00	241.83	1,535.5	-265.8	-496.4	563.0	3.50	3.50	0.00
1,770.9	51.48	241.83	1,580.8	-291.5	-544.4	617.5	3.50	3.50	0.00
Start 2139.4 hold at 1770.9 MD									
1,800.0	51.48	241.83	1,598.9	-302.3	-564.5	640.3	0.00	0.00	0.00
1,900.0	51.48	241.83	1,661.2	-339.2	-633.4	718.5	0.00	0.00	0.00
1,962.3	51.48	241.83	1,700.0	-362.2	-676.4	767.3	0.00	0.00	0.00
Surface Casing									
2,000.0	51.48	241.83	1,723.5	-376.1	-702.4	796.8	0.00	0.00	0.00
2,100.0	51.48	241.83	1,785.8	-413.1	-771.4	875.0	0.00	0.00	0.00
2,200.0	51.48	241.83	1,848.1	-450.0	-840.4	953.3	0.00	0.00	0.00
2,300.0	51.48	241.83	1,910.3	-486.9	-909.3	1,031.5	0.00	0.00	0.00
2,400.0	51.48	241.83	1,972.6	-523.9	-978.3	1,109.7	0.00	0.00	0.00
2,500.0	51.48	241.83	2,034.9	-560.8	-1,047.3	1,188.0	0.00	0.00	0.00
2,600.0	51.48	241.83	2,097.2	-597.7	-1,116.3	1,266.2	0.00	0.00	0.00
2,700.0	51.48	241.83	2,159.4	-634.7	-1,185.2	1,344.5	0.00	0.00	0.00
2,800.0	51.48	241.83	2,221.7	-671.6	-1,254.2	1,422.7	0.00	0.00	0.00
2,900.0	51.48	241.83	2,284.0	-708.5	-1,323.2	1,500.9	0.00	0.00	0.00
3,000.0	51.48	241.83	2,346.3	-745.5	-1,392.2	1,579.2	0.00	0.00	0.00
3,100.0	51.48	241.83	2,408.6	-782.4	-1,461.1	1,657.4	0.00	0.00	0.00
3,200.0	51.48	241.83	2,470.8	-819.3	-1,530.1	1,735.7	0.00	0.00	0.00
3,300.0	51.48	241.83	2,533.1	-856.3	-1,599.1	1,813.9	0.00	0.00	0.00
3,400.0	51.48	241.83	2,595.4	-893.2	-1,668.1	1,892.1	0.00	0.00	0.00
3,500.0	51.48	241.83	2,657.7	-930.1	-1,737.0	1,970.4	0.00	0.00	0.00
3,600.0	51.48	241.83	2,719.9	-967.1	-1,806.0	2,048.6	0.00	0.00	0.00
3,700.0	51.48	241.83	2,782.2	-1,004.0	-1,875.0	2,126.9	0.00	0.00	0.00
3,800.0	51.48	241.83	2,844.5	-1,040.9	-1,944.0	2,205.1	0.00	0.00	0.00
3,900.0	51.48	241.83	2,906.8	-1,077.9	-2,012.9	2,283.3	0.00	0.00	0.00
3,910.3	51.48	241.83	2,913.2	-1,081.7	-2,020.0	2,291.4	0.00	0.00	0.00
Start Drop -3.50									
4,000.0	48.34	241.83	2,970.9	-1,114.0	-2,080.5	2,360.0	3.50	-3.50	0.00
4,100.0	44.84	241.83	3,039.7	-1,148.3	-2,144.6	2,432.7	3.50	-3.50	0.00
4,200.0	41.34	241.83	3,112.7	-1,180.6	-2,204.8	2,501.0	3.50	-3.50	0.00
4,300.0	37.84	241.83	3,189.7	-1,210.7	-2,260.9	2,564.7	3.50	-3.50	0.00
4,400.0	34.34	241.83	3,270.5	-1,238.5	-2,312.9	2,623.6	3.50	-3.50	0.00

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Site:	BMC L Pad	North Reference:	True
Well:	BMC L 43C-07-07-95	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)
4,500.0	30.84	241.83	3,354.8	-1,263.9	-2,360.4	2,677.4	3.50	-3.50	0.00
4,543.0	29.33	241.83	3,392.0	-1,274.1	-2,379.4	2,699.0	3.50	-3.50	0.00
Williams Fork									
4,600.0	27.34	241.83	3,442.1	-1,286.8	-2,403.2	2,726.0	3.50	-3.50	0.00
4,700.0	23.84	241.83	3,532.3	-1,307.2	-2,441.3	2,769.2	3.50	-3.50	0.00
4,800.0	20.34	241.83	3,624.9	-1,325.0	-2,474.4	2,806.8	3.50	-3.50	0.00
4,900.0	16.84	241.83	3,719.7	-1,340.0	-2,502.5	2,838.7	3.50	-3.50	0.00
5,000.0	13.34	241.83	3,816.3	-1,352.3	-2,525.5	2,864.7	3.50	-3.50	0.00
5,100.0	9.84	241.83	3,914.2	-1,361.8	-2,543.2	2,884.8	3.50	-3.50	0.00
5,200.0	6.34	241.83	4,013.2	-1,368.4	-2,555.6	2,898.9	3.50	-3.50	0.00
5,300.0	2.84	241.83	4,112.8	-1,372.2	-2,562.7	2,906.9	3.50	-3.50	0.00
5,381.2	0.00	0.00	4,194.0	-1,373.2	-2,564.4	2,908.9	3.50	-3.50	0.00
Back to Vertical - Start 2550.0 hold at 5381.2 MD - Top of Gas - BMC L 43C-07-07-95 TGT									
5,400.0	0.00	0.00	4,212.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
5,500.0	0.00	0.00	4,312.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
5,600.0	0.00	0.00	4,412.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
5,700.0	0.00	0.00	4,512.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
5,800.0	0.00	0.00	4,612.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
5,900.0	0.00	0.00	4,712.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,000.0	0.00	0.00	4,812.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,100.0	0.00	0.00	4,912.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,200.0	0.00	0.00	5,012.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,300.0	0.00	0.00	5,112.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,400.0	0.00	0.00	5,212.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,500.0	0.00	0.00	5,312.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,600.0	0.00	0.00	5,412.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,700.0	0.00	0.00	5,512.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,800.0	0.00	0.00	5,612.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
6,900.0	0.00	0.00	5,712.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,000.0	0.00	0.00	5,812.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,100.0	0.00	0.00	5,912.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,123.2	0.00	0.00	5,936.0	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
Cameo									
7,200.0	0.00	0.00	6,012.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,300.0	0.00	0.00	6,112.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,400.0	0.00	0.00	6,212.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,500.0	0.00	0.00	6,312.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,600.0	0.00	0.00	6,412.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,631.2	0.00	0.00	6,444.0	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
Rollins									
7,700.0	0.00	0.00	6,512.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,800.0	0.00	0.00	6,612.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,900.0	0.00	0.00	6,712.8	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
7,931.2	0.00	0.00	6,744.0	-1,373.2	-2,564.4	2,908.9	0.00	0.00	0.00
TD at 7931.2									

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Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
BMC L 43C-07-07-95 TC	0.00	0.00	4,194.0	-1,373.2	-2,564.4	1,598,669.77	2,284,820.30	39.449744500	-108.032960400
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,550.0)									

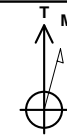
Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
4,543.0	3,392.0	Williams Fork		0.00		
5,381.2	4,194.0	Top of Gas		0.00		
7,123.2	5,936.0	Cameo		0.00		
7,631.2	6,444.0	Rollins		0.00		

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
0.1	0.1	0.0	0.0	SHL 39.453514657, -108.023879523
300.0	300.0	0.0	0.0	Start Build 3.50
1,770.9	1,580.8	-291.5	-544.4	Start 2139.4 hold at 1770.9 MD
1,962.3	1,700.0	-362.2	-676.4	Surface Casing
3,910.3	2,913.2	-1,081.7	-2,020.0	Start Drop -3.50
5,381.2	4,194.0	-1,373.2	-2,564.4	Back to Vertical
5,381.2	4,194.0	-1,373.2	-2,564.4	Start 2550.0 hold at 5381.2 MD
7,931.2	6,744.0	-1,373.2	-2,564.4	TD at 7931.2
7,931.2	6,744.0	-1,373.2	-2,564.4	BHL 39.4497445, -108.0329604



Well Name: BMC L 43C-07-07-95
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 1599971.11 2287421.77 39.453514657 -108.023879523
Est KB BMC L 43C-07-07-95 @ 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 43C-07-07-95
Design #1
20:41, 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 43C-07-07-95 TGT	4194.0	-1373.2	-2564.4	1598669.77	2284820.30	39.449744500	-108.032960400	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	1770.9	51.48	241.83	1580.8	-291.5	-544.4	3.50	241.83	617.5	
4	3910.3	51.48	241.83	2913.2	-1081.7	-2020.0	0.00	0.00	2291.4	
5	5381.2	0.00	0.00	4194.0	-1373.2	-2564.4	3.50	180.00	2908.9	BMC L 43C-07-07-95 TGT
6	7931.2	0.00	0.00	6744.0	-1373.2	-2564.4	0.00	0.00	2908.9	

ANNOTATIONS

TVD	MD	Annotation
0.1	0.1	SHL 39.453514657, -108.023879523
300.0	300.0	Start Build 3.50
1580.8	1770.9	Start 2139.4 hold at 1770.9 MD
1700.0	1962.3	Surface Casing
2913.2	3910.3	Start Drop -3.50
4194.0	5381.2	Start 2550.0 hold at 5381.2 MD
4194.0	5381.2	Back to Vertical
6744.0	7931.2	TD at 7931.2
6744.0	7931.2	BHL 39.4497445, -108.0329604

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3392.0	4543.0	Williams Fork	0.00	
4194.0	5381.2	Top of Gas	0.00	
5936.0	7123.2	Cameo	0.00	
6444.0	7631.2	Rollins	0.00	

