



# **Ursa Operating Company, LLC**

**Rockies Region**

**Monument Ridge B**

**Monument Ridge B 42D-08-07-95**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**12 June, 2015**



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 42D-08-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 42D-08-07-95 @ 5718.8usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 42D-08-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 42D-08-07-95	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Rockies Region		
<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		

Site		Monument Ridge B			
Site Position:		Northing:	1,596,716.55 usft	Latitude:	39° 26' 40.501 N
From:	Lat/Long	Easting:	2,287,433.43 usft	Longitude:	108° 1' 24.665 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.59 °

Well	Monument Ridge B 42D-08-07-95, SHL: 39.447901401 -108.012356036					
Well Position	+N/-S	1,208.6 usft	Northing:	1,597,837.15 usft	Latitude:	39° 26' 52.445 N
	+E/-W	3,152.1 usft	Easting:	2,290,617.88 usft	Longitude:	108° 0' 44.482 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,718.8 usft	Ground Level:	5,701.8 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/7/2015	9.84	65.59	51,823

<b>Design</b>	Design #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE		<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	344.87	

<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	
1,076.7	27.18	344.87	1,047.9	174.5	-47.2	3.50	3.50	0.00	344.87	
4,445.9	27.18	344.87	4,044.9	1,660.4	-449.0	0.00	0.00	0.00	0.00	
5,222.6	0.00	0.00	4,792.8	1,834.9	-496.2	3.50	-3.50	0.00	180.00	Monument Ridge B 4;
7,524.6	0.00	0.00	7,094.8	1,834.9	-496.2	0.00	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 42D-08-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 42D-08-07-95	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
<b>SHL: 39.447901401, -108.012356036</b>									
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
<b>Start Build 3.50</b>									
400.0	3.50	344.87	399.9	2.9	-0.8	3.1	3.50	3.50	0.00
500.0	7.00	344.87	499.5	11.8	-3.2	12.2	3.50	3.50	0.00
600.0	10.50	344.87	598.3	26.5	-7.2	27.4	3.50	3.50	0.00
700.0	14.00	344.87	696.0	46.9	-12.7	48.6	3.50	3.50	0.00
800.0	17.50	344.87	792.3	73.1	-19.8	75.8	3.50	3.50	0.00
900.0	21.00	344.87	886.7	105.0	-28.4	108.7	3.50	3.50	0.00
1,000.0	24.50	344.87	978.9	142.3	-38.5	147.4	3.50	3.50	0.00
1,076.7	27.18	344.87	1,047.9	174.5	-47.2	180.8	3.50	3.50	0.00
<b>Start 3369.2 hold at 1076.7 MD</b>									
1,100.0	27.18	344.87	1,068.6	184.8	-50.0	191.5	0.00	0.00	0.00
1,200.0	27.18	344.87	1,157.6	228.9	-61.9	237.2	0.00	0.00	0.00
1,300.0	27.18	344.87	1,246.5	273.0	-73.8	282.8	0.00	0.00	0.00
1,400.0	27.18	344.87	1,335.5	317.1	-85.8	328.5	0.00	0.00	0.00
1,500.0	27.18	344.87	1,424.4	361.2	-97.7	374.2	0.00	0.00	0.00
1,600.0	27.18	344.87	1,513.4	405.3	-109.6	419.9	0.00	0.00	0.00
1,700.0	27.18	344.87	1,602.3	449.4	-121.5	465.6	0.00	0.00	0.00
1,800.0	27.18	344.87	1,691.3	493.5	-133.5	511.3	0.00	0.00	0.00
1,809.8	27.18	344.87	1,700.0	497.9	-134.6	515.7	0.00	0.00	0.00
<b>Surface Casing</b>									
1,900.0	27.18	344.87	1,780.2	537.6	-145.4	556.9	0.00	0.00	0.00
2,000.0	27.18	344.87	1,869.2	581.7	-157.3	602.6	0.00	0.00	0.00
2,100.0	27.18	344.87	1,958.2	625.8	-169.2	648.3	0.00	0.00	0.00
2,200.0	27.18	344.87	2,047.1	669.9	-181.2	694.0	0.00	0.00	0.00
2,300.0	27.18	344.87	2,136.1	714.0	-193.1	739.7	0.00	0.00	0.00
2,400.0	27.18	344.87	2,225.0	758.1	-205.0	785.4	0.00	0.00	0.00
2,500.0	27.18	344.87	2,314.0	802.2	-216.9	831.1	0.00	0.00	0.00
2,600.0	27.18	344.87	2,402.9	846.3	-228.9	876.7	0.00	0.00	0.00
2,700.0	27.18	344.87	2,491.9	890.4	-240.8	922.4	0.00	0.00	0.00
2,800.0	27.18	344.87	2,580.8	934.5	-252.7	968.1	0.00	0.00	0.00
2,900.0	27.18	344.87	2,669.8	978.6	-264.6	1,013.8	0.00	0.00	0.00
3,000.0	27.18	344.87	2,758.7	1,022.7	-276.6	1,059.5	0.00	0.00	0.00
3,100.0	27.18	344.87	2,847.7	1,066.8	-288.5	1,105.2	0.00	0.00	0.00
3,200.0	27.18	344.87	2,936.7	1,111.0	-300.4	1,150.9	0.00	0.00	0.00
3,300.0	27.18	344.87	3,025.6	1,155.1	-312.3	1,196.5	0.00	0.00	0.00
3,400.0	27.18	344.87	3,114.6	1,199.2	-324.3	1,242.2	0.00	0.00	0.00
3,500.0	27.18	344.87	3,203.5	1,243.3	-336.2	1,287.9	0.00	0.00	0.00
3,600.0	27.18	344.87	3,292.5	1,287.4	-348.1	1,333.6	0.00	0.00	0.00
3,700.0	27.18	344.87	3,381.4	1,331.5	-360.1	1,379.3	0.00	0.00	0.00
3,800.0	27.18	344.87	3,470.4	1,375.6	-372.0	1,425.0	0.00	0.00	0.00
3,900.0	27.18	344.87	3,559.3	1,419.7	-383.9	1,470.6	0.00	0.00	0.00
4,000.0	27.18	344.87	3,648.3	1,463.8	-395.8	1,516.3	0.00	0.00	0.00
4,074.8	27.18	344.87	3,714.8	1,496.7	-404.7	1,550.5	0.00	0.00	0.00
<b>Williams Fork</b>									
4,100.0	27.18	344.87	3,737.2	1,507.9	-407.8	1,562.0	0.00	0.00	0.00

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<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 42D-08-07-95	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
4,200.0	27.18	344.87	3,826.2	1,552.0	-419.7	1,607.7	0.00	0.00	0.00
4,300.0	27.18	344.87	3,915.2	1,596.1	-431.6	1,653.4	0.00	0.00	0.00
4,400.0	27.18	344.87	4,004.1	1,640.2	-443.5	1,699.1	0.00	0.00	0.00
4,445.9	27.18	344.87	4,044.9	1,660.4	-449.0	1,720.0	0.00	0.00	0.00
Start Drop -3.50									
4,500.0	25.29	344.87	4,093.5	1,683.5	-455.2	1,744.0	3.50	-3.50	0.00
4,600.0	21.79	344.87	4,185.1	1,722.0	-465.7	1,783.9	3.50	-3.50	0.00
4,700.0	18.29	344.87	4,279.1	1,755.1	-474.6	1,818.2	3.50	-3.50	0.00
4,800.0	14.79	344.87	4,374.9	1,782.6	-482.0	1,846.6	3.50	-3.50	0.00
4,900.0	11.29	344.87	4,472.3	1,804.4	-487.9	1,869.2	3.50	-3.50	0.00
5,000.0	7.79	344.87	4,570.9	1,820.4	-492.3	1,885.7	3.50	-3.50	0.00
5,100.0	4.29	344.87	4,670.3	1,830.5	-495.0	1,896.3	3.50	-3.50	0.00
5,200.0	0.79	344.87	4,770.2	1,834.8	-496.2	1,900.7	3.50	-3.50	0.00
5,222.6	0.00	0.00	4,792.8	1,834.9	-496.2	1,900.9	3.50	-3.50	0.00
Back to Vertical - Start 2302.0 hold at 5222.6 MD - Top of Gas									
5,300.0	0.00	0.00	4,870.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,400.0	0.00	0.00	4,970.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,070.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,170.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,270.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,370.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,470.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,570.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,100.0	0.00	0.00	5,670.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,200.0	0.00	0.00	5,770.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,300.0	0.00	0.00	5,870.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,400.0	0.00	0.00	5,970.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,500.0	0.00	0.00	6,070.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,524.6	0.00	0.00	6,094.8	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
Cameo									
6,600.0	0.00	0.00	6,170.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,270.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,370.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
6,900.0	0.00	0.00	6,470.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,570.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,100.0	0.00	0.00	6,670.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,200.0	0.00	0.00	6,770.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,224.6	0.00	0.00	6,794.8	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
Rollins									
7,300.0	0.00	0.00	6,870.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,400.0	0.00	0.00	6,970.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,500.0	0.00	0.00	7,070.2	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
7,524.5	0.00	0.00	7,094.7	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
BHL: 39.4529392, -108.0141133									
7,524.6	0.00	0.00	7,094.8	1,834.9	-496.2	1,900.9	0.00	0.00	0.00
TD at 7524.6 - TD									

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 42D-08-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 42D-08-07-95	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

#### 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
- Shape									
Monument Ridge B 42D- - plan hits target center - Rectangle (sides W100.0 H40.0 D2,302.0)	0.00	0.00	4,792.8	1,834.9	-496.2	1,599,685.12	2,290,172.60	39° 27' 10.581 N	108° 0' 50.808 W

#### Formations

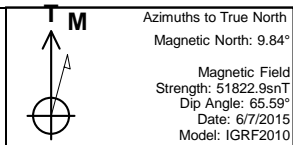
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,074.8	3,714.8	Williams Fork		0.00	
5,222.6	4,792.8	Top of Gas		0.00	
6,524.6	6,094.8	Cameo		0.00	
7,224.6	6,794.8	Rollins		0.00	
7,524.6	7,094.8	TD		0.00	

#### 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: 39.447901401, -108.012356036
300.0	300.0	0.0	0.0	Start Build 3.50
1,076.7	1,047.9	174.5	-47.2	Start 3369.2 hold at 1076.7 MD
1,809.8	1,700.0	497.9	-134.6	Surface Casing
4,445.9	4,044.9	1,660.4	-449.0	Start Drop -3.50
5,222.6	4,792.8	1,834.9	-496.2	Back to Vertical
5,222.6	4,792.8	1,834.9	-496.2	Start 2302.0 hold at 5222.6 MD
7,524.5	7,094.7	1,834.9	-496.2	BHL: 39.4529392, -108.0141133
7,524.6	7,094.8	1,834.9	-496.2	TD at 7524.6



Well Name: Monument Ridge B 42D-08-07-95  
Surface Location: Monument Ridge B  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5701.8  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1597837.16 2290617.88 39° 26' 52.445 N 108° 0' 44.482 W  
PLAN KB Monument Ridge B 42D-08-07-95 @ 5718.8usft (PLAN KB)



Monument Ridge B  
Monument Ridge B 42D-08-07-95  
Design #1  
6:17, June 12 2015

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Monument Ridge B 42D-08-07-95 TGT	4792.8	1834.9	-496.2	1599685.12	2290172.639	39° 27' 10.581 N	108° 0' 50.808 W	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	1076.7	27.18	344.87	1047.9	174.5	-47.2	3.50	344.87	180.8	
4	4445.9	27.18	344.87	4044.9	1660.4	-449.0	0.00	0.00	1720.0	
5	5222.6	0.00	0.00	4792.8	1834.9	-496.2	3.50	180.00	1900.9	Monument Ridge B 42D-08-07-95 TGT
6	7524.6	0.00	0.00	7094.8	1834.9	-496.2	0.00	0.00	1900.9	

#### ANNOTATIONS

TVD	MD	Annotation
0.1	0.1	SHL: 39.447901401, -108.012356036
300.0	300.0	Start Build 3.50
1047.9	1076.7	Start 3369.2 hold at 1076.7 MD
1700.0	1809.8	Surface Casing
4044.9	4445.9	Start Drop -3.50
4792.8	5222.6	Back to Vertical
4792.8	5222.6	Start 2302.0 hold at 5222.6 MD
7094.7	7524.5	BHL: 39.4529392, -108.0141133
7094.8	7524.6	TD at 7524.6

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3714.8	4074.8	Williams Fork	0.00	
4792.8	5222.6	Top of Gas	0.00	
6094.8	6524.6	Cameo	0.00	
6794.8	7224.6	Rollins	0.00	
7094.8	7524.6	TD	0.00	

