



# **Ursa Operating Company, LLC**

**Rockies Region**

**Monument Ridge B**

**Monument Ridge B 21A-17-07-95**

**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 21A-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21A-17-07-95	<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 21A-17-07-95, SHL: 39.447585824 -108.012276372					
Well Position	+N/-S	1,093.7 usft	Northing:	1,597,721.63 usft	Latitude:	39° 26' 51.309 N
	+E/-W	3,174.6 usft	Easting:	2,290,637.19 usft	Longitude:	108° 0' 44.195 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	6/6/2015	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	251.00	

<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	
1,510.6	42.37	251.00	1,403.2	-139.2	-404.3	3.50	3.50	0.00	251.00	
5,224.1	42.37	251.00	4,146.8	-954.1	-2,770.5	0.00	0.00	0.00	0.00	
6,434.6	0.00	0.00	5,250.0	-1,093.3	-3,174.7	3.50	-3.50	0.00	180.00	
8,163.4	0.00	0.00	6,978.8	-1,093.3	-3,174.7	0.00	0.00	0.00	0.00	

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 21A-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21A-17-07-95	<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	
SHL: 39.447585824, -108.012276372										
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	251.00	399.9	-1.0	-2.9	3.1	3.50	3.50	0.00	
500.0	7.00	251.00	499.5	-4.0	-11.5	12.2	3.50	3.50	0.00	
600.0	10.50	251.00	598.3	-8.9	-25.9	27.4	3.50	3.50	0.00	
700.0	14.00	251.00	696.0	-15.8	-46.0	48.6	3.50	3.50	0.00	
800.0	17.50	251.00	792.3	-24.7	-71.6	75.8	3.50	3.50	0.00	
900.0	21.00	251.00	886.7	-35.4	-102.8	108.7	3.50	3.50	0.00	
1,000.0	24.50	251.00	978.9	-48.0	-139.4	147.4	3.50	3.50	0.00	
1,100.0	28.00	251.00	1,068.5	-62.4	-181.2	191.6	3.50	3.50	0.00	
1,200.0	31.50	251.00	1,155.3	-78.5	-228.1	241.2	3.50	3.50	0.00	
1,300.0	35.00	251.00	1,239.0	-96.4	-279.9	296.1	3.50	3.50	0.00	
1,400.0	38.50	251.00	1,319.1	-115.9	-336.5	355.9	3.50	3.50	0.00	
1,500.0	42.00	251.00	1,395.4	-136.9	-397.6	420.5	3.50	3.50	0.00	
1,510.6	42.37	251.00	1,403.2	-139.2	-404.3	427.6	3.50	3.50	0.00	
Start 3713.5 hold at 1510.6 MD										
1,600.0	42.37	251.00	1,469.3	-158.8	-461.3	487.8	0.00	0.00	0.00	
1,700.0	42.37	251.00	1,543.2	-180.8	-525.0	555.2	0.00	0.00	0.00	
1,800.0	42.37	251.00	1,617.0	-202.7	-588.7	622.6	0.00	0.00	0.00	
1,900.0	42.37	251.00	1,690.9	-224.7	-652.4	690.0	0.00	0.00	0.00	
1,912.3	42.37	251.00	1,700.0	-227.4	-660.2	698.3	0.00	0.00	0.00	
Surface Casing										
2,000.0	42.37	251.00	1,764.8	-246.6	-716.1	757.4	0.00	0.00	0.00	
2,100.0	42.37	251.00	1,838.7	-268.6	-779.9	824.8	0.00	0.00	0.00	
2,200.0	42.37	251.00	1,912.6	-290.5	-843.6	892.2	0.00	0.00	0.00	
2,300.0	42.37	251.00	1,986.5	-312.4	-907.3	959.6	0.00	0.00	0.00	
2,400.0	42.37	251.00	2,060.3	-334.4	-971.0	1,027.0	0.00	0.00	0.00	
2,500.0	42.37	251.00	2,134.2	-356.3	-1,034.7	1,094.4	0.00	0.00	0.00	
2,600.0	42.37	251.00	2,208.1	-378.3	-1,098.4	1,161.8	0.00	0.00	0.00	
2,700.0	42.37	251.00	2,282.0	-400.2	-1,162.2	1,229.1	0.00	0.00	0.00	
2,800.0	42.37	251.00	2,355.9	-422.2	-1,225.9	1,296.5	0.00	0.00	0.00	
2,900.0	42.37	251.00	2,429.7	-444.1	-1,289.6	1,363.9	0.00	0.00	0.00	
3,000.0	42.37	251.00	2,503.6	-466.0	-1,353.3	1,431.3	0.00	0.00	0.00	
3,100.0	42.37	251.00	2,577.5	-488.0	-1,417.0	1,498.7	0.00	0.00	0.00	
3,200.0	42.37	251.00	2,651.4	-509.9	-1,480.8	1,566.1	0.00	0.00	0.00	
3,300.0	42.37	251.00	2,725.3	-531.9	-1,544.5	1,633.5	0.00	0.00	0.00	
3,400.0	42.37	251.00	2,799.1	-553.8	-1,608.2	1,700.9	0.00	0.00	0.00	
3,500.0	42.37	251.00	2,873.0	-575.8	-1,671.9	1,768.3	0.00	0.00	0.00	
3,600.0	42.37	251.00	2,946.9	-597.7	-1,735.6	1,835.7	0.00	0.00	0.00	
3,700.0	42.37	251.00	3,020.8	-619.6	-1,799.4	1,903.1	0.00	0.00	0.00	
3,800.0	42.37	251.00	3,094.7	-641.6	-1,863.1	1,970.4	0.00	0.00	0.00	
3,900.0	42.37	251.00	3,168.6	-663.5	-1,926.8	2,037.8	0.00	0.00	0.00	
4,000.0	42.37	251.00	3,242.4	-685.5	-1,990.5	2,105.2	0.00	0.00	0.00	
4,100.0	42.37	251.00	3,316.3	-707.4	-2,054.2	2,172.6	0.00	0.00	0.00	
4,200.0	42.37	251.00	3,390.2	-729.4	-2,117.9	2,240.0	0.00	0.00	0.00	
4,300.0	42.37	251.00	3,464.1	-751.3	-2,181.7	2,307.4	0.00	0.00	0.00	
4,400.0	42.37	251.00	3,538.0	-773.2	-2,245.4	2,374.8	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
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<b>Well:</b>	Monument Ridge B 21A-17-07-95	<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)
4,482.3	42.37	251.00	3,598.8	-791.3	-2,297.9	2,430.3	0.00	0.00	0.00
<b>Williams Foprk</b>									
4,500.0	42.37	251.00	3,611.8	-795.2	-2,309.1	2,442.2	0.00	0.00	0.00
4,600.0	42.37	251.00	3,685.7	-817.1	-2,372.8	2,509.6	0.00	0.00	0.00
4,700.0	42.37	251.00	3,759.6	-839.1	-2,436.5	2,577.0	0.00	0.00	0.00
4,800.0	42.37	251.00	3,833.5	-861.0	-2,500.3	2,644.4	0.00	0.00	0.00
4,900.0	42.37	251.00	3,907.4	-883.0	-2,564.0	2,711.7	0.00	0.00	0.00
5,000.0	42.37	251.00	3,981.2	-904.9	-2,627.7	2,779.1	0.00	0.00	0.00
5,100.0	42.37	251.00	4,055.1	-926.8	-2,691.4	2,846.5	0.00	0.00	0.00
5,200.0	42.37	251.00	4,129.0	-948.8	-2,755.1	2,913.9	0.00	0.00	0.00
5,224.1	42.37	251.00	4,146.8	-954.1	-2,770.5	2,930.1	0.00	0.00	0.00
<b>Start Drop -3.50</b>									
5,300.0	39.71	251.00	4,204.1	-970.3	-2,817.6	2,980.0	3.50	-3.50	0.00
5,400.0	36.21	251.00	4,282.9	-990.3	-2,875.8	3,041.5	3.50	-3.50	0.00
5,500.0	32.71	251.00	4,365.3	-1,008.7	-2,929.3	3,098.1	3.50	-3.50	0.00
5,600.0	29.21	251.00	4,451.1	-1,025.5	-2,977.9	3,149.5	3.50	-3.50	0.00
5,700.0	25.71	251.00	4,539.8	-1,040.5	-3,021.5	3,195.6	3.50	-3.50	0.00
5,800.0	22.21	251.00	4,631.1	-1,053.7	-3,059.9	3,236.2	3.50	-3.50	0.00
5,849.0	20.50	251.00	4,676.8	-1,059.5	-3,076.8	3,254.1	3.50	-3.50	0.00
<b>Top Of Gas</b>									
5,900.0	18.71	251.00	4,724.8	-1,065.1	-3,092.9	3,271.2	3.50	-3.50	0.00
6,000.0	15.21	251.00	4,820.5	-1,074.6	-3,120.5	3,300.4	3.50	-3.50	0.00
6,100.0	11.71	251.00	4,917.7	-1,082.2	-3,142.5	3,323.6	3.50	-3.50	0.00
6,200.0	8.21	251.00	5,016.2	-1,087.8	-3,158.9	3,340.9	3.50	-3.50	0.00
6,300.0	4.71	251.00	5,115.5	-1,091.5	-3,169.5	3,352.2	3.50	-3.50	0.00
6,400.0	1.21	251.00	5,215.4	-1,093.2	-3,174.4	3,357.3	3.50	-3.50	0.00
6,434.6	0.00	0.00	5,250.0	-1,093.3	-3,174.7	3,357.7	3.50	-3.50	0.00
<b>Start 1728.8 hold at 6434.6 MD - Back to Vertical</b>									
6,500.0	0.00	0.00	5,315.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
6,600.0	0.00	0.00	5,415.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
6,700.0	0.00	0.00	5,515.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
6,800.0	0.00	0.00	5,615.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
6,900.0	0.00	0.00	5,715.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,000.0	0.00	0.00	5,815.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,100.0	0.00	0.00	5,915.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,163.4	0.00	0.00	5,978.8	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
<b>Cameo</b>									
7,200.0	0.00	0.00	6,015.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,300.0	0.00	0.00	6,115.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,400.0	0.00	0.00	6,215.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,500.0	0.00	0.00	6,315.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,600.0	0.00	0.00	6,415.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,700.0	0.00	0.00	6,515.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,800.0	0.00	0.00	6,615.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
7,863.4	0.00	0.00	6,678.8	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
<b>Rollins</b>									
7,900.0	0.00	0.00	6,715.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
8,000.0	0.00	0.00	6,815.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
8,100.0	0.00	0.00	6,915.4	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
8,163.3	0.00	0.00	6,978.7	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
<b>BHL: 39.4445837, -108.0235181</b>									

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21A-17-07-95	<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)
8,163.4	0.00	0.00	6,978.8	-1,093.3	-3,174.7	3,357.7	0.00	0.00	0.00
TD at 8163.4									

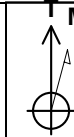
Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Monument Ridge B 21A-	0.00	0.00	4,676.8	-1,093.3	-3,174.7	1,596,716.55	2,287,433.43	39° 26' 40.501 N	108° 1' 24.665 W
- plan misses target center by 97.5usft at 5883.8usft MD (4709.5 TVD, -1063.4 N, -3087.9 E)									
- Rectangle (sides W100.0 H40.0 D2,302.0)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,482.3	3,598.8	Williams Foprk		0.00		
5,849.0	4,676.8	Top Of Gas		0.00		
7,163.4	5,978.8	Cameo		0.00		
7,863.4	6,678.8	Rollins		0.00		
8,163.4	6,978.8	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: 39.447585824, -108.012276372
300.0	300.0	0.0	0.0	Start Build 3.50
1,510.6	1,403.2	-139.2	-404.3	Start 3713.5 hold at 1510.6 MD
1,912.3	1,700.0	-227.4	-660.2	Surface Casing
5,224.1	4,146.8	-954.1	-2,770.5	Start Drop -3.50
6,434.6	5,250.0	-1,093.3	-3,174.7	Start 1728.8 hold at 6434.6 MD
6,434.6	5,250.0	-1,093.3	-3,174.7	Back to Vertical
8,163.3	6,978.7	-1,093.3	-3,174.7	BHL: 39.4445837, -108.0235181
8,163.4	6,978.8	-1,093.3	-3,174.7	TD at 8163.4



Well Name: Monument Ridge B 21A-17-07-95  
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  
0.0 0.0 1597721.63 2290637.19 39° 26' 51.309 N 108° 0' 44.195 W  
Capstar 321 Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capstar 321)



Azimuths to True North  
Magnetic North: 9.84°  
Magnetic Field  
Strength: 51823.0snT  
Dip Angle: 65.59°  
Date: 6/6/2015  
Model: IGRF2010

Monument Ridge B  
Monument Ridge B 21A-17-07-95  
Design #1  
12:31, 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 21A-17-07-95	4676.8	-1093.3	-3174.7	1596716.56	2287433.43	39° 26' 51.309 N	108° 0' 44.195 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	1510.6	42.37	251.00	1403.2	-139.2	-404.3	3.50	251.00	427.6	
4	5224.1	42.37	251.00	4146.8	-954.1	-2770.5	0.00	0.00	2930.1	
5	6434.6	0.00	0.00	5250.0	-1093.3	-3174.7	3.50	180.00	3357.7	
6	8163.4	0.00	0.00	6978.8	-1093.3	-3174.7	0.00	0.00	3357.7	

#### ANNOTATIONS

TVD	MD	Annotation
0.1	0.1	SHL: 39.447585824, -108.012276372
300.0	300.0	Start Build 3.50
1403.2	1510.6	Start 3713.5 hold at 1510.6 MD
1700.0	1912.3	Surface Casing
4146.8	5224.1	Start Drop -3.50
5250.0	6434.6	Start 1728.8 hold at 6434.6 MD
5250.0	6434.6	Back to Vertical
6978.7	8163.3	BHL: 39.4445837, -108.0235181
6978.8	8163.4	TD at 8163.4

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3598.8	4482.3	Williams Foprk	0.00	
4676.8	5849.0	Top Of Gas	0.00	
5978.8	7163.4	Cameo	0.00	
6678.8	7863.4	Rollins	0.00	
6978.8	8163.4	TD	0.00	

