



# **Ursa Operating Company, LLC**

**Rockies Region**

**Monument Ridge B**

**Monument Ridge B 21B-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 21B-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21B-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 21B-17-07-95, SHL: 39.447530940 -108.012276367					
Well Position	+N/-S	1,073.7 usft	Northing:	1,597,701.65 usft	Latitude:	39° 26' 51.111 N
	+E/-W	3,174.6 usft	Easting:	2,290,636.64 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	245.58

<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	
1,549.5	43.73	245.58	1,431.7	-187.8	-413.5	3.50	3.50	0.00	245.58	
5,267.7	43.73	245.58	4,118.3	-1,250.4	-2,754.0	0.00	0.00	0.00	0.00	
6,517.2	0.00	0.00	5,250.0	-1,438.1	-3,167.5	3.50	-3.50	0.00	180.00	
8,245.0	0.00	0.00	6,977.8	-1,438.1	-3,167.5	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 21B-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21B-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: 39.44753094, -108.012276367										
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	245.58	399.9	-1.3	-2.8	3.1	3.50	3.50	0.00	
500.0	7.00	245.58	499.5	-5.0	-11.1	12.2	3.50	3.50	0.00	
600.0	10.50	245.58	598.3	-11.3	-25.0	27.4	3.50	3.50	0.00	
700.0	14.00	245.58	696.0	-20.1	-44.3	48.6	3.50	3.50	0.00	
800.0	17.50	245.58	792.3	-31.3	-69.0	75.8	3.50	3.50	0.00	
900.0	21.00	245.58	886.7	-45.0	-99.0	108.7	3.50	3.50	0.00	
1,000.0	24.50	245.58	978.9	-60.9	-134.2	147.4	3.50	3.50	0.00	
1,100.0	28.00	245.58	1,068.5	-79.2	-174.5	191.6	3.50	3.50	0.00	
1,200.0	31.50	245.58	1,155.3	-99.7	-219.7	241.2	3.50	3.50	0.00	
1,300.0	35.00	245.58	1,239.0	-122.4	-269.6	296.1	3.50	3.50	0.00	
1,400.0	38.50	245.58	1,319.1	-147.1	-324.0	355.9	3.50	3.50	0.00	
1,500.0	42.00	245.58	1,395.4	-173.8	-382.9	420.5	3.50	3.50	0.00	
1,549.5	43.73	245.58	1,431.7	-187.8	-413.5	454.2	3.50	3.50	0.00	
Start 3718.2 hold at 1549.5 MD										
1,600.0	43.73	245.58	1,468.2	-202.2	-445.3	489.1	0.00	0.00	0.00	
1,700.0	43.73	245.58	1,540.4	-230.8	-508.3	558.2	0.00	0.00	0.00	
1,800.0	43.73	245.58	1,612.7	-259.3	-571.2	627.3	0.00	0.00	0.00	
1,900.0	43.73	245.58	1,684.9	-287.9	-634.1	696.5	0.00	0.00	0.00	
1,920.9	43.73	245.58	1,700.0	-293.9	-647.3	710.9	0.00	0.00	0.00	
Surface Casing										
2,000.0	43.73	245.58	1,757.2	-316.5	-697.1	765.6	0.00	0.00	0.00	
2,100.0	43.73	245.58	1,829.4	-345.1	-760.0	834.7	0.00	0.00	0.00	
2,200.0	43.73	245.58	1,901.7	-373.7	-823.0	903.8	0.00	0.00	0.00	
2,300.0	43.73	245.58	1,973.9	-402.2	-885.9	973.0	0.00	0.00	0.00	
2,400.0	43.73	245.58	2,046.2	-430.8	-948.9	1,042.1	0.00	0.00	0.00	
2,500.0	43.73	245.58	2,118.5	-459.4	-1,011.8	1,111.2	0.00	0.00	0.00	
2,600.0	43.73	245.58	2,190.7	-488.0	-1,074.8	1,180.4	0.00	0.00	0.00	
2,700.0	43.73	245.58	2,263.0	-516.6	-1,137.7	1,249.5	0.00	0.00	0.00	
2,800.0	43.73	245.58	2,335.2	-545.1	-1,200.7	1,318.6	0.00	0.00	0.00	
2,900.0	43.73	245.58	2,407.5	-573.7	-1,263.6	1,387.8	0.00	0.00	0.00	
3,000.0	43.73	245.58	2,479.7	-602.3	-1,326.6	1,456.9	0.00	0.00	0.00	
3,100.0	43.73	245.58	2,552.0	-630.9	-1,389.5	1,526.0	0.00	0.00	0.00	
3,200.0	43.73	245.58	2,624.3	-659.5	-1,452.4	1,595.1	0.00	0.00	0.00	
3,300.0	43.73	245.58	2,696.5	-688.0	-1,515.4	1,664.3	0.00	0.00	0.00	
3,400.0	43.73	245.58	2,768.8	-716.6	-1,578.3	1,733.4	0.00	0.00	0.00	
3,500.0	43.73	245.58	2,841.0	-745.2	-1,641.3	1,802.5	0.00	0.00	0.00	
3,600.0	43.73	245.58	2,913.3	-773.8	-1,704.2	1,871.7	0.00	0.00	0.00	
3,700.0	43.73	245.58	2,985.5	-802.3	-1,767.2	1,940.8	0.00	0.00	0.00	
3,800.0	43.73	245.58	3,057.8	-830.9	-1,830.1	2,009.9	0.00	0.00	0.00	
3,900.0	43.73	245.58	3,130.1	-859.5	-1,893.1	2,079.1	0.00	0.00	0.00	
4,000.0	43.73	245.58	3,202.3	-888.1	-1,956.0	2,148.2	0.00	0.00	0.00	
4,100.0	43.73	245.58	3,274.6	-916.7	-2,019.0	2,217.3	0.00	0.00	0.00	
4,200.0	43.73	245.58	3,346.8	-945.2	-2,081.9	2,286.4	0.00	0.00	0.00	
4,300.0	43.73	245.58	3,419.1	-973.8	-2,144.9	2,355.6	0.00	0.00	0.00	
4,400.0	43.73	245.58	3,491.3	-1,002.4	-2,207.8	2,424.7	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 21B-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21B-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)
4,500.0	43.73	245.58	3,563.6	-1,031.0	-2,270.7	2,493.8	0.00	0.00	0.00
4,547.3	43.73	245.58	3,597.8	-1,044.5	-2,300.5	2,526.6	0.00	0.00	0.00
<b>Williams Fork</b>									
4,600.0	43.73	245.58	3,635.9	-1,059.6	-2,333.7	2,563.0	0.00	0.00	0.00
4,700.0	43.73	245.58	3,708.1	-1,088.1	-2,396.6	2,632.1	0.00	0.00	0.00
4,800.0	43.73	245.58	3,780.4	-1,116.7	-2,459.6	2,701.2	0.00	0.00	0.00
4,900.0	43.73	245.58	3,852.6	-1,145.3	-2,522.5	2,770.4	0.00	0.00	0.00
5,000.0	43.73	245.58	3,924.9	-1,173.9	-2,585.5	2,839.5	0.00	0.00	0.00
5,100.0	43.73	245.58	3,997.1	-1,202.5	-2,648.4	2,908.6	0.00	0.00	0.00
5,200.0	43.73	245.58	4,069.4	-1,231.0	-2,711.4	2,977.7	0.00	0.00	0.00
5,267.7	43.73	245.58	4,118.3	-1,250.4	-2,754.0	3,024.6	0.00	0.00	0.00
<b>Start Drop -3.50</b>									
5,300.0	42.60	245.58	4,141.9	-1,259.5	-2,774.1	3,046.6	3.50	-3.50	0.00
5,400.0	39.10	245.58	4,217.5	-1,286.6	-2,833.7	3,112.0	3.50	-3.50	0.00
5,500.0	35.60	245.58	4,297.0	-1,311.6	-2,888.9	3,172.7	3.50	-3.50	0.00
5,600.0	32.10	245.58	4,380.0	-1,334.7	-2,939.6	3,228.4	3.50	-3.50	0.00
5,700.0	28.60	245.58	4,466.3	-1,355.5	-2,985.6	3,278.9	3.50	-3.50	0.00
5,800.0	25.10	245.58	4,555.5	-1,374.2	-3,026.7	3,324.1	3.50	-3.50	0.00
5,900.0	21.60	245.58	4,647.3	-1,390.6	-3,062.8	3,363.7	3.50	-3.50	0.00
5,930.6	20.53	245.58	4,675.8	-1,395.1	-3,072.8	3,374.7	3.50	-3.50	0.00
<b>Top of Gas</b>									
6,000.0	18.10	245.58	4,741.3	-1,404.6	-3,093.7	3,397.7	3.50	-3.50	0.00
6,100.0	14.60	245.58	4,837.3	-1,416.3	-3,119.4	3,425.8	3.50	-3.50	0.00
6,200.0	11.10	245.58	4,934.7	-1,425.5	-3,139.6	3,448.1	3.50	-3.50	0.00
6,300.0	7.60	245.58	5,033.4	-1,432.2	-3,154.4	3,464.3	3.50	-3.50	0.00
6,400.0	4.10	245.58	5,132.9	-1,436.4	-3,163.7	3,474.5	3.50	-3.50	0.00
6,500.0	0.60	245.58	5,232.8	-1,438.1	-3,167.4	3,478.6	3.50	-3.50	0.00
6,517.2	0.00	0.00	5,250.0	-1,438.1	-3,167.5	3,478.7	3.50	-3.50	0.00
<b>Start 1727.8 hold at 6517.2 MD - Back to Vertical</b>									
6,600.0	0.00	0.00	5,332.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
6,700.0	0.00	0.00	5,432.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
6,800.0	0.00	0.00	5,532.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
6,900.0	0.00	0.00	5,632.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,000.0	0.00	0.00	5,732.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,100.0	0.00	0.00	5,832.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,200.0	0.00	0.00	5,932.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,245.0	0.00	0.00	5,977.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
<b>Cameo</b>									
7,300.0	0.00	0.00	6,032.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,400.0	0.00	0.00	6,132.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,500.0	0.00	0.00	6,232.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,600.0	0.00	0.00	6,332.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,700.0	0.00	0.00	6,432.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,800.0	0.00	0.00	6,532.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,900.0	0.00	0.00	6,632.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
7,945.0	0.00	0.00	6,677.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
<b>Rollins</b>									
8,000.0	0.00	0.00	6,732.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
8,100.0	0.00	0.00	6,832.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
8,200.0	0.00	0.00	6,932.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
8,244.9	0.00	0.00	6,977.7	-1,438.1	-3,167.5	3,478.7	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 21B-17-07-95
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)
<b>Site:</b>	Monument Ridge B	<b>North Reference:</b>	True
<b>Well:</b>	Monument Ridge B 21B-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)
<b>BHL: 39.443582, -108.0234924</b>									
8,245.0	0.00	0.00	6,977.8	-1,438.1	-3,167.5	3,478.7	0.00	0.00	0.00
<b>TD at 8245.0</b>									

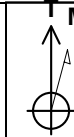
Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Monument Ridge B 21A-	0.00	0.00	4,675.8	-1,438.1	-3,167.5	1,596,351.64	2,287,430.56	39° 26' 36.895 N	108° 1' 24.573 W
- plan misses target center by 97.8usft at 5965.0usft MD (4708.1 TVD, -1400.0 N, -3083.5 E)									
- Rectangle (sides W100.0 H40.0 D2,302.0)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,547.3	3,597.8	Williams Fork		0.00		
5,930.6	4,675.8	Top of Gas		0.00		
7,245.0	5,977.8	Cameo		0.00		
7,945.0	6,677.8	Rollins		0.00		
8,245.0	6,977.8	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: 39.44753094, -108.012276367
300.0	300.0	0.0	0.0	Start Build 3.50
1,549.5	1,431.7	-187.8	-413.5	Start 3718.2 hold at 1549.5 MD
1,920.9	1,700.0	-293.9	-647.3	Surface Casing
5,267.7	4,118.3	-1,250.4	-2,754.0	Start Drop -3.50
6,517.2	5,250.0	-1,438.1	-3,167.5	Start 1727.8 hold at 6517.2 MD
6,517.2	5,250.0	-1,438.1	-3,167.5	Back to Vertical
8,244.9	6,977.7	-1,438.1	-3,167.5	BHL: 39.443582, -108.0234924
8,245.0	6,977.8	-1,438.1	-3,167.5	TD at 8245.0



Well Name: Monument Ridge B 21B-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 1597701.65 2290636.64 39° 26' 51.111 N 108° 0' 44.195 W  
PLAN KB Monument Ridge B 21B-17-07-95 @ 5718.8usft (PLAN KB)



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 21B-17-07-95  
Design #1  
12:26, 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 TGT	4675.8	-1438.1	-3167.5	1596351.64	2287430.559	39° 26' 36.895 N	108° 0' 24.573 W	Rectangle (Sides: L40.0 W100.0)

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	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	1549.5	43.73	245.58	1431.7	-187.8	-413.5	3.50	245.58	454.2	
4	5267.7	43.73	245.58	4118.3	-1250.4	-2754.0	0.00	0.00	3024.6	
5	6517.2	0.00	0.00	5250.0	-1438.1	-3167.5	3.50	180.00	3478.7	
6	8245.0	0.00	0.00	6977.8	-1438.1	-3167.5	0.00	0.00	3478.7	

#### ANNOTATIONS

TVD	MD	Annotation
0.1	0.1	SHL: 39.44753094, -108.012276367
300.0	300.0	Start Build 3.50
1431.7	1549.5	Start 3718.2 hold at 1549.5 MD
1700.0	1920.9	Surface Casing
4118.3	5267.7	Start Drop -3.50
5250.0	6517.2	Start 1727.8 hold at 6517.2 MD
5250.0	6517.2	Back to Vertical
6977.7	8244.9	BHL: 39.443582, -108.0234924
6977.8	8245.0	TD at 8245.0

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3597.8	4547.3	Williams Fork	0.00	
4675.8	5930.6	Top of Gas	0.00	
5977.8	7245.0	Cameo	0.00	
6677.8	7945.0	Rollins	0.00	

