



# **Ursa Operating Company, LLC**

**Rockies Region**

**Speakman A**

**BAT 14C-24-07-96**

**Wellbore #1**

**Plan: Design #3**

## **Standard Planning Report**

**23 January, 2014**



<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well BAT 14C-24-07-96
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 14C-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

<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		Speakman A				
Site Position:		Northing:	1,588,429.06 usft	Latitude:	39° 25' 15.663 N	
From:	Lat/Long	Easting:	2,276,734.73 usft	Longitude:	108° 3' 38.016 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.61 °

Well	BAT 14C-24-07-96, SHL LAT: 39.420619068 LONG: -108.060086437					
Well Position	+N/-S	-145.1 usft	Northing:	1,588,280.20 usft	Latitude:	39° 25' 14.228 N
	+E/-W	133.8 usft	Easting:	2,276,864.39 usft	Longitude:	108° 3' 36.311 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,197.9 usft	Ground Level:	5,182.5 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>
	IGRF200510	6/15/2013	10.08	65.63	52,046

<b>Design</b>	Design #3				
<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	218.64	

<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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,230.6	36.07	218.64	1,163.9	-245.2	-196.0	3.50	3.50	0.00	218.64	
2,977.8	36.07	218.64	2,576.1	-1,048.7	-838.4	0.00	0.00	0.00	0.00	
4,008.5	0.00	0.00	3,540.0	-1,293.9	-1,034.4	3.50	-3.50	0.00	180.00	BAT 14C-24-07-96 TC
6,201.5	0.00	0.00	5,733.0	-1,293.9	-1,034.4	0.00	0.00	0.00	0.00	BAT 14C-24-07-96 Bt

<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well BAT 14C-24-07-96
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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 14C-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

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	
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	
Start Build 3.50										
300.0	3.50	218.64	299.9	-2.4	-1.9	3.1	3.50	3.50	0.00	
400.0	7.00	218.64	399.5	-9.5	-7.6	12.2	3.50	3.50	0.00	
500.0	10.50	218.64	498.3	-21.4	-17.1	27.4	3.50	3.50	0.00	
600.0	14.00	218.64	596.0	-38.0	-30.4	48.6	3.50	3.50	0.00	
700.0	17.50	218.64	692.3	-59.2	-47.3	75.8	3.50	3.50	0.00	
800.0	21.00	218.64	786.7	-84.9	-67.9	108.7	3.50	3.50	0.00	
900.0	24.50	218.64	878.9	-115.1	-92.0	147.4	3.50	3.50	0.00	
1,000.0	28.00	218.64	968.5	-149.7	-119.7	191.6	3.50	3.50	0.00	
1,100.0	31.50	218.64	1,055.3	-188.4	-150.6	241.2	3.50	3.50	0.00	
1,200.0	35.00	218.64	1,139.0	-231.2	-184.9	296.1	3.50	3.50	0.00	
1,230.6	36.07	218.64	1,163.9	-245.2	-196.0	313.9	3.50	3.50	0.00	
Start 1747.2 hold at 1230.6 MD										
1,300.0	36.07	218.64	1,220.0	-277.0	-221.5	354.7	0.00	0.00	0.00	
1,400.0	36.07	218.64	1,300.8	-323.0	-258.3	413.6	0.00	0.00	0.00	
1,500.0	36.07	218.64	1,381.6	-369.0	-295.0	472.5	0.00	0.00	0.00	
1,600.0	36.07	218.64	1,462.4	-415.0	-331.8	531.3	0.00	0.00	0.00	
1,700.0	36.07	218.64	1,543.3	-461.0	-368.6	590.2	0.00	0.00	0.00	
1,800.0	36.07	218.64	1,624.1	-507.0	-405.3	649.1	0.00	0.00	0.00	
1,900.0	36.07	218.64	1,704.9	-553.0	-442.1	708.0	0.00	0.00	0.00	
2,000.0	36.07	218.64	1,785.7	-599.0	-478.9	766.9	0.00	0.00	0.00	
2,100.0	36.07	218.64	1,866.6	-645.0	-515.6	825.7	0.00	0.00	0.00	
2,200.0	36.07	218.64	1,947.4	-691.0	-552.4	884.6	0.00	0.00	0.00	
2,300.0	36.07	218.64	2,028.2	-737.0	-589.2	943.5	0.00	0.00	0.00	
2,400.0	36.07	218.64	2,109.1	-782.9	-625.9	1,002.4	0.00	0.00	0.00	
2,500.0	36.07	218.64	2,189.9	-828.9	-662.7	1,061.3	0.00	0.00	0.00	
2,600.0	36.07	218.64	2,270.7	-874.9	-699.5	1,120.2	0.00	0.00	0.00	
2,700.0	36.07	218.64	2,351.5	-920.9	-736.2	1,179.0	0.00	0.00	0.00	
2,800.0	36.07	218.64	2,432.4	-966.9	-773.0	1,237.9	0.00	0.00	0.00	
2,900.0	36.07	218.64	2,513.2	-1,012.9	-809.8	1,296.8	0.00	0.00	0.00	
2,924.5	36.07	218.64	2,533.0	-1,024.2	-818.8	1,311.2	0.00	0.00	0.00	
WF										
2,977.8	36.07	218.64	2,576.1	-1,048.7	-838.4	1,342.6	0.00	0.00	0.00	
Start Drop -3.50										
3,000.0	35.30	218.64	2,594.1	-1,058.8	-846.5	1,355.6	3.50	-3.50	0.00	
3,100.0	31.80	218.64	2,677.4	-1,102.0	-881.0	1,410.8	3.50	-3.50	0.00	
3,200.0	28.30	218.64	2,764.0	-1,141.1	-912.2	1,460.9	3.50	-3.50	0.00	
3,300.0	24.80	218.64	2,853.4	-1,176.0	-940.1	1,505.6	3.50	-3.50	0.00	
3,400.0	21.30	218.64	2,945.4	-1,206.5	-964.6	1,544.7	3.50	-3.50	0.00	
3,500.0	17.80	218.64	3,039.6	-1,232.7	-985.5	1,578.2	3.50	-3.50	0.00	
3,600.0	14.30	218.64	3,135.7	-1,254.2	-1,002.7	1,605.8	3.50	-3.50	0.00	
3,700.0	10.80	218.64	3,233.3	-1,271.2	-1,016.3	1,627.5	3.50	-3.50	0.00	
3,800.0	7.30	218.64	3,332.1	-1,283.5	-1,026.1	1,643.2	3.50	-3.50	0.00	
3,900.0	3.80	218.64	3,431.6	-1,291.0	-1,032.1	1,652.9	3.50	-3.50	0.00	
4,008.5	0.00	0.00	3,540.0	-1,293.9	-1,034.4	1,656.5	3.50	-3.50	0.00	
Start 2193.0 hold at 4008.5 MD - Top of Gas - BAT 14C-24-07-96 TGT										
4,100.0	0.00	0.00	3,631.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,200.0	0.00	0.00	3,731.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 14C-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

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)	
4,300.0	0.00	0.00	3,831.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,400.0	0.00	0.00	3,931.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,031.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,131.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,231.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,800.0	0.00	0.00	4,331.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,431.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,000.0	0.00	0.00	4,531.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,100.0	0.00	0.00	4,631.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,200.0	0.00	0.00	4,731.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,300.0	0.00	0.00	4,831.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,380.5	0.00	0.00	4,912.0	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
Cameo										
5,400.0	0.00	0.00	4,931.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,031.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,131.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,231.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,331.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,431.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
5,901.5	0.00	0.00	5,433.0	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
Rollins										
6,000.0	0.00	0.00	5,531.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
6,100.0	0.00	0.00	5,631.5	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
6,201.5	0.00	0.00	5,733.0	-1,293.9	-1,034.4	1,656.5	0.00	0.00	0.00	
TD at 6201.5 - BAT 14C-24-07-96 BHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
BAT 14C-24-07-96 TGT	0.00	0.00	3,540.0	-1,293.9	-1,034.4	1,587,016.01	2,275,793.97	39° 25' 1.440 N	108° 3' 49.492 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Rectangle (sides W100.0 H40.0 D2,193.0)										
BAT 14C-24-07-96 BHL	0.00	0.00	5,733.0	-1,293.9	-1,034.4	1,587,016.01	2,275,793.97	39° 25' 1.440 N	108° 3' 49.492 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Rectangle (sides W100.0 H40.0 D0.0)										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,924.5	-2,664.9	WF		0.00		
4,008.5	-1,657.9	Top of Gas		0.00		
5,380.5	-285.9	Cameo		0.00		
5,901.5	235.1	Rollins		0.00		

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 14C-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.0	200.0	0.0	0.0	Start Build 3.50
1,230.6	1,163.9	-245.2	-196.0	Start 1747.2 hold at 1230.6 MD
2,977.8	2,576.1	-1,048.7	-838.4	Start Drop -3.50
4,008.5	3,540.0	-1,293.9	-1,034.4	Start 2193.0 hold at 4008.5 MD
6,201.5	5,733.0	-1,293.9	-1,034.4	TD at 6201.5



Well Name: BAT 14C-24-07-96  
Surface Location: Speakman A  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5182.5  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1588280.20 2276864.39 39° 25' 14.228 N 108° 3' 36.311 W  
Original Well Elev BAT 14C-24-07-96 @ 5197.9usft (Original Well Elev)



Azimuths to True North  
Magnetic North: 10.08°  
Magnetic Field  
Strength: 52046.1nT  
Dip Angle: 65.63°  
Date: 6/15/2013  
Model: IGRF200510

Speakman A  
BAT 14C-24-07-96  
Design #3  
11:43, January 23 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BAT 14C-24-07-96	200.0	-1293.9	-1034.4	1587016.01	2275793.97	39° 25' 14.440 N	108° 3' 49.492 W	Rectangle (Sides: L40.0 W100.0)
BAT 14C-24-07-96	5733.0	-1293.9	-1034.4	1587016.01	2275793.97	39° 25' 14.440 N	108° 3' 49.492 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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1230.6	36.07	218.64	1163.9	-245.2	-196.0	3.50	218.64	313.9	
4	2977.8	36.07	218.64	2576.1	-1048.7	-838.4	0.00	0.00	1342.6	
5	4008.5	0.00	0.00	3540.0	-1293.9	-1034.4	3.50	180.00	1656.5	BAT 14C-24-07-96 TGT
6	6201.5	0.00	0.00	5733.0	-1293.9	-1034.4	0.00	0.00	1656.5	BAT 14C-24-07-96 BHL

#### ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	Start Build 3.50
1163.9	1230.6	Start 1747.2 hold at 1230.6 MD
2576.1	2977.8	Start Drop -3.50
3540.0	4008.5	Start 2193.0 hold at 4008.5 MD
5733.0	6201.5	TD at 6201.5

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
2533.0	2924.5	WF	0.00	
3540.0	4008.5	Top of Gas	0.00	
4912.0	5380.5	Cameo	0.00	
5433.0	5901.5	Rollins	0.00	

