

# **Ursa Operating Company, LLC**

**Rockies Region**

**Speakman A**

**BAT 12A-24-07-96**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**06 June, 2013**



# Payzone Directional

## Planning Report



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BAT 12A-24-07-96
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	BAT 12A-24-07-96 @ 5197.9ft (EST KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 12A-24-07-96 @ 5197.9ft (EST KB)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 12A-24-07-96	<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		Speakman A			
Site Position:		Northing:	484,154.15 m	Latitude:	39° 25' 15.663 N
From:	Lat/Long	Easting:	693,950.13 m	Longitude:	108° 3' 38.016 W
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.61 °

Well	BAT 12A-24-07-96, SHL LAT: 39.421017534 LONG: -108.060560071					
Well Position	+N/-S	0.0 ft	Northing:	484,154.14 m	Latitude:	39° 25' 15.663 N
	+E/-W	0.0 ft	Easting:	693,950.13 m	Longitude:	108° 3' 38.016 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	1,597.9 ft	Ground Level:	5,182.5 ft

<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	6/4/2013	10.09	65.63	52,049

<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)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	319.97

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
1,435.8	43.25	319.97	1,321.7	340.5	-286.0	3.50	3.50	0.00	319.97	
3,206.4	43.25	319.97	2,611.3	1,269.4	-1,066.4	0.00	0.00	0.00	0.00	
4,442.1	0.00	0.00	3,733.0	1,609.9	-1,352.4	3.50	-3.50	0.00	180.00	BAT 12A-24-07-96 TC
6,547.1	0.00	0.00	5,838.0	1,609.9	-1,352.4	0.00	0.00	0.00	0.00	BAT 12A-24-07-96 Bf

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 12A-24-07-96 @ 5197.9ft (EST KB)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 12A-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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	319.97	299.9	2.3	-2.0	3.1	3.50	3.50	0.00
400.0	7.00	319.97	399.5	9.3	-7.8	12.2	3.50	3.50	0.00
500.0	10.50	319.97	498.3	21.0	-17.6	27.4	3.50	3.50	0.00
600.0	14.00	319.97	596.0	37.2	-31.3	48.6	3.50	3.50	0.00
700.0	17.50	319.97	692.3	58.0	-48.7	75.8	3.50	3.50	0.00
800.0	21.00	319.97	786.7	83.3	-69.9	108.7	3.50	3.50	0.00
900.0	24.50	319.97	878.9	112.9	-94.8	147.4	3.50	3.50	0.00
1,000.0	28.00	319.97	968.5	146.7	-123.3	191.6	3.50	3.50	0.00
1,100.0	31.50	319.97	1,055.3	184.7	-155.2	241.2	3.50	3.50	0.00
1,200.0	35.00	319.97	1,139.0	226.7	-190.4	296.1	3.50	3.50	0.00
1,300.0	38.50	319.97	1,219.1	272.5	-228.9	355.9	3.50	3.50	0.00
1,400.0	42.00	319.97	1,295.4	321.9	-270.5	420.5	3.50	3.50	0.00
1,435.8	43.25	319.97	1,321.7	340.5	-286.0	444.7	3.50	3.50	0.00
Start 1770.6 hold at 1435.8 MD									
1,500.0	43.25	319.97	1,368.5	374.2	-314.4	488.7	0.00	0.00	0.00
1,600.0	43.25	319.97	1,441.3	426.7	-358.4	557.2	0.00	0.00	0.00
1,700.0	43.25	319.97	1,514.2	479.1	-402.5	625.8	0.00	0.00	0.00
1,800.0	43.25	319.97	1,587.0	531.6	-446.6	694.3	0.00	0.00	0.00
1,900.0	43.25	319.97	1,659.8	584.1	-490.6	762.8	0.00	0.00	0.00
2,000.0	43.25	319.97	1,732.7	636.5	-534.7	831.3	0.00	0.00	0.00
2,100.0	43.25	319.97	1,805.5	689.0	-578.8	899.8	0.00	0.00	0.00
2,200.0	43.25	319.97	1,878.3	741.4	-622.9	968.4	0.00	0.00	0.00
2,300.0	43.25	319.97	1,951.2	793.9	-666.9	1,036.9	0.00	0.00	0.00
2,400.0	43.25	319.97	2,024.0	846.4	-711.0	1,105.4	0.00	0.00	0.00
2,500.0	43.25	319.97	2,096.8	898.8	-755.1	1,173.9	0.00	0.00	0.00
2,600.0	43.25	319.97	2,169.7	951.3	-799.2	1,242.4	0.00	0.00	0.00
2,700.0	43.25	319.97	2,242.5	1,003.8	-843.2	1,311.0	0.00	0.00	0.00
2,800.0	43.25	319.97	2,315.3	1,056.2	-887.3	1,379.5	0.00	0.00	0.00
2,900.0	43.25	319.97	2,388.2	1,108.7	-931.4	1,448.0	0.00	0.00	0.00
3,000.0	43.25	319.97	2,461.0	1,161.2	-975.5	1,516.5	0.00	0.00	0.00
3,100.0	43.25	319.97	2,533.9	1,213.6	-1,019.5	1,585.0	0.00	0.00	0.00
3,206.4	43.25	319.97	2,611.3	1,269.4	-1,066.4	1,657.9	0.00	0.00	0.00
Start Drop -3.50									
3,242.6	41.98	319.97	2,638.0	1,288.2	-1,082.2	1,682.5	3.50	-3.50	0.00
WF									
3,300.0	39.97	319.97	2,681.3	1,317.0	-1,106.4	1,720.1	3.50	-3.50	0.00
3,400.0	36.47	319.97	2,759.9	1,364.4	-1,146.2	1,781.9	3.50	-3.50	0.00
3,500.0	32.97	319.97	2,842.0	1,408.0	-1,182.8	1,838.9	3.50	-3.50	0.00
3,600.0	29.47	319.97	2,927.5	1,447.7	-1,216.2	1,890.7	3.50	-3.50	0.00
3,700.0	25.97	319.97	3,016.1	1,483.3	-1,246.1	1,937.2	3.50	-3.50	0.00
3,800.0	22.47	319.97	3,107.2	1,514.7	-1,272.5	1,978.3	3.50	-3.50	0.00
3,900.0	18.97	319.97	3,200.7	1,541.8	-1,295.2	2,013.7	3.50	-3.50	0.00
4,000.0	15.47	319.97	3,296.2	1,564.5	-1,314.3	2,043.3	3.50	-3.50	0.00
4,100.0	11.97	319.97	3,393.4	1,582.6	-1,329.5	2,067.0	3.50	-3.50	0.00
4,200.0	8.47	319.97	3,491.8	1,596.2	-1,340.9	2,084.7	3.50	-3.50	0.00
4,300.0	4.97	319.97	3,591.1	1,605.2	-1,348.5	2,096.4	3.50	-3.50	0.00
4,400.0	1.47	319.97	3,690.9	1,609.5	-1,352.1	2,102.1	3.50	-3.50	0.00
4,442.1	0.00	0.00	3,733.0	1,609.9	-1,352.4	2,102.6	3.50	-3.50	0.00
Start 2105.0 hold at 4442.1 MD - TOP PERF									

# Payzone Directional

## Planning Report



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<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	BAT 12A-24-07-96 @ 5197.9ft (EST KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	BAT 12A-24-07-96 @ 5197.9ft (EST KB)
<b>Site:</b>	Speakman A	<b>North Reference:</b>	True
<b>Well:</b>	BAT 12A-24-07-96	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	0.00	0.00	3,790.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
4,600.0	0.00	0.00	3,890.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
4,700.0	0.00	0.00	3,990.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
4,800.0	0.00	0.00	4,090.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
4,900.0	0.00	0.00	4,190.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,000.0	0.00	0.00	4,290.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,100.0	0.00	0.00	4,390.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,200.0	0.00	0.00	4,490.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,300.0	0.00	0.00	4,590.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,400.0	0.00	0.00	4,690.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,500.0	0.00	0.00	4,790.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,600.0	0.00	0.00	4,890.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,700.0	0.00	0.00	4,990.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,726.1	0.00	0.00	5,017.0	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
<b>CAMEO</b>									
5,800.0	0.00	0.00	5,090.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,190.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,290.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,390.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,490.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,247.1	0.00	0.00	5,538.0	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
<b>ROLLINS</b>									
6,300.0	0.00	0.00	5,590.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,400.0	0.00	0.00	5,690.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,500.0	0.00	0.00	5,790.9	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
6,547.1	0.00	0.00	5,838.0	1,609.9	-1,352.4	2,102.6	0.00	0.00	0.00
<b>TD at 6547.1</b>									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,242.6	2,638.0	WF		0.00	
4,442.1	3,733.0	TOP PERF		0.00	
5,726.1	5,017.0	CAMEO		0.00	
6,247.1	5,538.0	ROLLINS		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	Start Build 3.50
1,435.8	1,321.7	340.5	-286.0	Start 1770.6 hold at 1435.8 MD
3,206.4	2,611.3	1,269.4	-1,066.4	Start Drop -3.50
4,442.1	3,733.0	1,609.9	-1,352.4	Start 2105.0 hold at 4442.1 MD
6,547.1	5,838.0	1,609.9	-1,352.4	TD at 6547.1



Well Name: BAT 12A-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 484154.14 693950.13 39° 25' 15.663 N 108° 3' 38.016 W  
EST KB BAT 12A-24-07-96 @ 5197.9ft (EST KB)



Azimuths to True North  
Magnetic North: 10.09°  
Magnetic Field  
Strength: 52049.2snT  
Dip Angle: 65.63°  
Date: 6/4/2013  
Model: IGRF200510

Speakman A  
BAT 12A-24-07-96  
Design #1  
22:43, June 06 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BAT 12A-24-07-96 TGT	3733.0	1609.9	-1352.4	484656.26	693551.90	39° 25' 31.575 N	108° 3' 55.252 W	Point
BAT 12A-24-07-96 BHL	5838.0	1609.9	-1352.4	484656.26	693551.90	39° 25' 31.575 N	108° 3' 55.252 W	Point

#### 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	1435.8	43.25	319.97	1321.7	340.5	-286.0	3.50	319.97	444.7	
4	3206.4	43.25	319.97	2611.3	1269.4	-1066.4	0.00	0.00	1657.9	
5	4442.1	0.00	0.00	3733.0	1609.9	-1352.4	3.50	180.00	2102.6	BAT 12A-24-07-96 TGT
6	6547.1	0.00	0.00	5838.0	1609.9	-1352.4	0.00	0.00	2102.6	BAT 12A-24-07-96 BHL

#### ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	Start Build 3.50
1321.7	1435.8	Start 1770.6 hold at 1435.8 MD
2611.3	3206.4	Start Drop -3.50
3733.0	4442.1	Start 2105.0 hold at 4442.1 MD
5838.0	6547.1	TD at 6547.1

#### FORMATION TOP DETAILS

TVDP	MD	Path	Formation
2638.0	3242.6	WF	WF
3733.0	4442.1	TOP	TOP PERF
5017.0	5726.1	CAMEO	CAMEO
5538.0	6247.1	ROLLINS	ROLLINS

