



Ursa Operating Company, LLC

Rockies Region

Speakman A

BAT 13C-24-07-96

Wellbore #1

Plan: Design #2

Standard Planning Report

18 September, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well BAT 13C-24-07-96
Company:	Ursa Operating Company, LLC	TVD Reference:	BAT 13C-24-07-96 @ 5197.9ft (Original Well Elev)
Project:	Rockies Region	MD Reference:	BAT 13C-24-07-96 @ 5197.9ft (Original Well Elev)
Site:	Speakman A	North Reference:	True
Well:	BAT 13C-24-07-96	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project	Rockies Region		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

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

Well	BAT 13C-24-07-96, SHL LAT: 39.420916655 LONG: -108.060440163					
Well Position	+N/-S	-36.8 ft	Northing:	1,588,391.37 ft	Latitude:	39° 25' 15.300 N
	+E/-W	33.9 ft	Easting:	2,276,767.55 ft	Longitude:	108° 3' 37.585 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	5,197.9 ft	Ground Level:	5,182.5 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/13/2013	10.08	65.63	52,047

Design	Design #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	259.66

Plan Sections										
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	
733.3	18.67	259.66	723.9	-15.5	-84.7	3.50	3.50	0.00	259.66	
3,291.0	18.67	259.66	3,147.1	-162.4	-890.0	0.00	0.00	0.00	0.00	
3,824.3	0.00	0.00	3,671.0	-177.9	-974.7	3.50	-3.50	0.00	180.00	BAT 13C-24-07-96 T
5,929.3	0.00	0.00	5,776.0	-177.9	-974.7	0.00	0.00	0.00	0.00	BAT 13C-24-07-96 B

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Project:	Rockies Region	MD Reference:	BAT 13C-24-07-96 @ 5197.9ft (Original Well Elev)
Site:	Speakman A	North Reference:	True
Well:	BAT 13C-24-07-96	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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	259.66	299.9	-0.5	-3.0	3.1	3.50	3.50	0.00
400.0	7.00	259.66	399.5	-2.2	-12.0	12.2	3.50	3.50	0.00
500.0	10.50	259.66	498.3	-4.9	-27.0	27.4	3.50	3.50	0.00
600.0	14.00	259.66	596.0	-8.7	-47.8	48.6	3.50	3.50	0.00
700.0	17.50	259.66	692.3	-13.6	-74.5	75.8	3.50	3.50	0.00
733.3	18.67	259.66	723.9	-15.5	-84.7	86.1	3.50	3.50	0.00
Start 2557.6 hold at 733.3 MD									
800.0	18.67	259.66	787.1	-19.3	-105.7	107.5	0.00	0.00	0.00
900.0	18.67	259.66	881.8	-25.0	-137.2	139.5	0.00	0.00	0.00
1,000.0	18.67	259.66	976.6	-30.8	-168.7	171.5	0.00	0.00	0.00
1,100.0	18.67	259.66	1,071.3	-36.5	-200.2	203.5	0.00	0.00	0.00
1,200.0	18.67	259.66	1,166.1	-42.3	-231.6	235.5	0.00	0.00	0.00
1,300.0	18.67	259.66	1,260.8	-48.0	-263.1	267.5	0.00	0.00	0.00
1,400.0	18.67	259.66	1,355.5	-53.8	-294.6	299.5	0.00	0.00	0.00
1,500.0	18.67	259.66	1,450.3	-59.5	-326.1	331.5	0.00	0.00	0.00
1,600.0	18.67	259.66	1,545.0	-65.3	-357.6	363.5	0.00	0.00	0.00
1,700.0	18.67	259.66	1,639.8	-71.0	-389.1	395.5	0.00	0.00	0.00
1,800.0	18.67	259.66	1,734.5	-76.8	-420.6	427.5	0.00	0.00	0.00
1,900.0	18.67	259.66	1,829.2	-82.5	-452.1	459.5	0.00	0.00	0.00
2,000.0	18.67	259.66	1,924.0	-88.2	-483.5	491.5	0.00	0.00	0.00
2,100.0	18.67	259.66	2,018.7	-94.0	-515.0	523.5	0.00	0.00	0.00
2,200.0	18.67	259.66	2,113.5	-99.7	-546.5	555.5	0.00	0.00	0.00
2,300.0	18.67	259.66	2,208.2	-105.5	-578.0	587.5	0.00	0.00	0.00
2,400.0	18.67	259.66	2,302.9	-111.2	-609.5	619.6	0.00	0.00	0.00
2,500.0	18.67	259.66	2,397.7	-117.0	-641.0	651.6	0.00	0.00	0.00
2,600.0	18.67	259.66	2,492.4	-122.7	-672.5	683.6	0.00	0.00	0.00
2,688.2	18.67	259.66	2,576.0	-127.8	-700.2	711.8	0.00	0.00	0.00
WF									
2,700.0	18.67	259.66	2,587.2	-128.5	-703.9	715.6	0.00	0.00	0.00
2,800.0	18.67	259.66	2,681.9	-134.2	-735.4	747.6	0.00	0.00	0.00
2,900.0	18.67	259.66	2,776.6	-140.0	-766.9	779.6	0.00	0.00	0.00
3,000.0	18.67	259.66	2,871.4	-145.7	-798.4	811.6	0.00	0.00	0.00
3,100.0	18.67	259.66	2,966.1	-151.5	-829.9	843.6	0.00	0.00	0.00
3,200.0	18.67	259.66	3,060.9	-157.2	-861.4	875.6	0.00	0.00	0.00
3,291.0	18.67	259.66	3,147.1	-162.4	-890.0	904.7	0.00	0.00	0.00
Start Drop -3.50									
3,300.0	18.35	259.66	3,155.6	-162.9	-892.8	907.6	3.50	-3.50	0.00
3,400.0	14.85	259.66	3,251.4	-168.1	-920.9	936.1	3.50	-3.50	0.00
3,500.0	11.35	259.66	3,348.8	-172.1	-943.2	958.8	3.50	-3.50	0.00
3,600.0	7.85	259.66	3,447.4	-175.1	-959.6	975.5	3.50	-3.50	0.00
3,700.0	4.35	259.66	3,546.8	-177.0	-970.1	986.1	3.50	-3.50	0.00
3,800.0	0.85	259.66	3,646.7	-177.9	-974.6	990.7	3.50	-3.50	0.00
3,824.3	0.00	0.00	3,671.0	-177.9	-974.7	990.8	3.50	-3.50	0.00
Start 2105.0 hold at 3824.3 MD - Top of Perf									
3,900.0	0.00	0.00	3,746.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,000.0	0.00	0.00	3,846.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,100.0	0.00	0.00	3,946.7	-177.9	-974.7	990.8	0.00	0.00	0.00

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Project:	Rockies Region	MD Reference:	BAT 13C-24-07-96 @ 5197.9ft (Original Well Elev)
Site:	Speakman A	North Reference:	True
Well:	BAT 13C-24-07-96	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
4,200.0	0.00	0.00	4,046.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,300.0	0.00	0.00	4,146.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,400.0	0.00	0.00	4,246.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,500.0	0.00	0.00	4,346.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,600.0	0.00	0.00	4,446.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,700.0	0.00	0.00	4,546.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,646.7	-177.9	-974.7	990.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,746.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,846.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,100.0	0.00	0.00	4,946.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,108.3	0.00	0.00	4,955.0	-177.9	-974.7	990.8	0.00	0.00	0.00
Cameo									
5,200.0	0.00	0.00	5,046.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,146.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,246.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,346.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,446.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,629.3	0.00	0.00	5,476.0	-177.9	-974.7	990.8	0.00	0.00	0.00
Rollins									
5,700.0	0.00	0.00	5,546.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,646.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,746.7	-177.9	-974.7	990.8	0.00	0.00	0.00
5,929.3	0.00	0.00	5,776.0	-177.9	-974.7	990.8	0.00	0.00	0.00
TD at 5929.3									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,688.2	2,576.0	WF		0.00	
3,824.3	3,671.0	Top of Perf		0.00	
5,108.3	4,955.0	Cameo		0.00	
5,629.3	5,476.0	Rollins		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
200.0	200.0	0.0	0.0	Start Build 3.50
733.3	723.9	-15.5	-84.7	Start 2557.6 hold at 733.3 MD
3,291.0	3,147.1	-162.4	-890.0	Start Drop -3.50
3,824.3	3,671.0	-177.9	-974.7	Start 2105.0 hold at 3824.3 MD
5,929.3	5,776.0	-177.9	-974.7	TD at 5929.3



Well Name: BAT 13C-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 1588391.37 2276767.55 39° 25' 13.541 N 108° 3' 37.585 W
Original Well Elev BAT 13C-24-07-96 @ 5197.9ft (Original Well Elev)



Azimuths to True North
Magnetic North: 10.08°
Magnetic Field
Strength: 52046.8nT
Dip Angle: 65.63°
Date: 6/13/2013
Model: IGRF200510

Speakman A
BAT 13C-24-07-96
Design #2
12:47, September 18 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BAT 13C-24-07-96 TGT	3671.0	-177.9	-974.7	1588241.03	2275788.20	39° 25' 13.541 N	108° 3' 50.006 W	Rectangle (Sides: L40.0 W100.0)
BAT 13C-24-07-96 BHL	5776.0	-177.9	-974.7	1588241.03	2275788.20	39° 25' 13.541 N	108° 3' 50.006 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	733.3	18.67	259.66	723.9	-15.5	-84.7	3.50	259.66	86.1	
4	3291.0	18.67	259.66	3147.1	-162.4	-890.0	0.00	0.00	904.7	
5	3824.3	0.00	0.00	3671.0	-177.9	-974.7	3.50	180.00	990.8	BAT 13C-24-07-96 TGT
6	5929.3	0.00	0.00	5776.0	-177.9	-974.7	0.00	0.00	990.8	BAT 13C-24-07-96 BHL

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	Start Build 3.50
723.9	733.3	Start 2557.6 hold at 733.3 MD
3147.1	3291.0	Start Drop -3.50
3671.0	3824.3	Start 2105.0 hold at 3824.3 MD
5776.0	5929.3	TD at 5929.3

FORMATION TOP DETAILS

TVDP	MDP	Path	Formation
2576.0	2688.2	WF	
3671.0	3824.3	Top of Perf	
4955.0	5108.3	Cameo	
5476.0	5629.3	Rollins	

