



# **Ursa Operating Company, LLC**

**Rockies Region**

**B&V**

**B&V 14A-07-07-95**

**Wellbore #1**

**Plan: Design #1**

## **Ursa Operating Company LLC Planning Report**

**05 August, 2014**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well B&V 14A-07-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	B&V 14A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 14A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 14A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

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		B&V			
Site Position:		Northing:		1,598,935.06 usft	
From:	Lat/Long	Easting:		2,280,801.73 usft	
Position Uncertainty:		Slot Radius:		13-3/16 "	
				Latitude: 39° 27' 0.591 N	
				Longitude: 108° 2' 49.963 W	
				Grid Convergence: -1.61 °	

Well		B&V 14A-07-07-95, SHL LAT: 39.450255199 LONG: -108.047192592				
Well Position	+N/-S	0.0 usft	Northing:	1,598,968.06 usft	Latitude:	39° 27' 0.919 N
	+E/-W	0.0 usft	Easting:	2,280,808.12 usft	Longitude:	108° 2' 49.893 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,097.0 usft	Ground Level:	5,084.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/4/2014	9.97	65.61	51,909

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	174.70

Survey Tool Program		Date	8/4/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,385.2	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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<b>Well:</b>	B&V 14A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

## Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-5,097.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
100.0	0.00	0.00	100.0	-4,997.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
200.0	0.00	0.00	200.0	-4,897.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
300.0	0.00	0.00	300.0	-4,797.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
400.0	0.00	0.00	400.0	-4,697.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
500.0	0.00	0.00	500.0	-4,597.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
600.0	0.00	0.00	600.0	-4,497.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
700.0	0.00	0.00	700.0	-4,397.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
800.0	0.00	0.00	800.0	-4,297.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
900.0	0.00	0.00	900.0	-4,197.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
1,000.0	0.00	0.00	1,000.0	-4,097.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
1,100.0	0.00	0.00	1,100.0	-3,997.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
1,200.0	0.00	0.00	1,200.0	-3,897.0	0.0	0.0	0.0	0.00	1,598,968.06	2,280,808.12
<b>Start Build 3.00</b>										
1,300.0	3.00	174.70	1,300.0	-3,797.0	-2.6	0.2	2.6	3.00	1,598,965.45	2,280,808.28
1,400.0	6.00	174.70	1,399.6	-3,697.4	-10.4	1.0	10.5	3.00	1,598,957.62	2,280,808.79
1,500.0	9.00	174.70	1,498.8	-3,598.2	-23.4	2.2	23.5	3.00	1,598,944.59	2,280,809.63
1,600.0	12.00	174.70	1,597.1	-3,499.9	-41.6	3.9	41.7	3.00	1,598,926.41	2,280,810.80
1,700.0	15.00	174.70	1,694.3	-3,402.7	-64.8	6.0	65.1	3.00	1,598,903.12	2,280,812.30
1,726.7	15.80	174.70	1,720.0	-3,377.0	-71.8	6.7	72.2	3.00	1,598,896.05	2,280,812.76
<b>Start 1902.9 hold at 1726.7 MD</b>										
1,800.0	15.80	174.70	1,790.6	-3,306.4	-91.7	8.5	92.1	0.00	1,598,876.12	2,280,814.04
1,900.0	15.80	174.70	1,886.8	-3,210.2	-118.8	11.0	119.4	0.00	1,598,848.95	2,280,815.80
2,000.0	15.80	174.70	1,983.0	-3,114.0	-146.0	13.5	146.6	0.00	1,598,821.78	2,280,817.55
2,100.0	15.80	174.70	2,079.2	-3,017.8	-173.1	16.0	173.8	0.00	1,598,794.61	2,280,819.30
2,200.0	15.80	174.70	2,175.5	-2,921.5	-200.2	18.6	201.0	0.00	1,598,767.44	2,280,821.05
2,300.0	15.80	174.70	2,271.7	-2,825.3	-227.3	21.1	228.3	0.00	1,598,740.27	2,280,822.81

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<b>Well:</b>	B&V 14A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

## Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,400.0	15.80	174.70	2,367.9	-2,729.1	-254.4	23.6	255.5	0.00	1,598,713.09	2,280,824.56
2,500.0	15.80	174.70	2,464.1	-2,632.9	-281.5	26.1	282.7	0.00	1,598,685.92	2,280,826.31
2,600.0	15.80	174.70	2,560.4	-2,536.6	-308.6	28.6	309.9	0.00	1,598,658.75	2,280,828.06
2,700.0	15.80	174.70	2,656.6	-2,440.4	-335.7	31.1	337.2	0.00	1,598,631.58	2,280,829.81
2,800.0	15.80	174.70	2,752.8	-2,344.2	-362.8	33.6	364.4	0.00	1,598,604.41	2,280,831.57
2,900.0	15.80	174.70	2,849.0	-2,248.0	-390.0	36.1	391.6	0.00	1,598,577.24	2,280,833.32
3,000.0	15.80	174.70	2,945.2	-2,151.8	-417.1	38.7	418.9	0.00	1,598,550.07	2,280,835.07
3,066.3	15.80	174.70	3,009.0	-2,088.0	-435.0	40.3	436.9	0.00	1,598,532.06	2,280,836.23
<b>Williams Fork</b>										
3,100.0	15.80	174.70	3,041.5	-2,055.5	-444.2	41.2	446.1	0.00	1,598,522.90	2,280,836.82
3,200.0	15.80	174.70	3,137.7	-1,959.3	-471.3	43.7	473.3	0.00	1,598,495.72	2,280,838.58
3,300.0	15.80	174.70	3,233.9	-1,863.1	-498.4	46.2	500.5	0.00	1,598,468.55	2,280,840.33
3,400.0	15.80	174.70	3,330.1	-1,766.9	-525.5	48.7	527.8	0.00	1,598,441.38	2,280,842.08
3,500.0	15.80	174.70	3,426.4	-1,670.6	-552.6	51.2	555.0	0.00	1,598,414.21	2,280,843.83
3,600.0	15.80	174.70	3,522.6	-1,574.4	-579.7	53.7	582.2	0.00	1,598,387.04	2,280,845.58
3,629.5	15.80	174.70	3,551.0	-1,546.0	-587.7	54.5	590.3	0.00	1,598,379.01	2,280,846.10
<b>Start Drop -3.00</b>										
3,700.0	13.69	174.70	3,619.1	-1,477.9	-605.6	56.1	608.2	3.00	1,598,361.12	2,280,847.26
3,800.0	10.69	174.70	3,716.9	-1,380.1	-626.6	58.1	629.3	3.00	1,598,340.06	2,280,848.61
3,900.0	7.69	174.70	3,815.6	-1,281.4	-642.5	59.6	645.3	3.00	1,598,324.13	2,280,849.64
4,000.0	4.69	174.70	3,915.0	-1,182.0	-653.2	60.6	656.0	3.00	1,598,313.38	2,280,850.33
4,100.0	1.69	174.70	4,014.8	-1,082.2	-658.8	61.1	661.6	3.00	1,598,307.83	2,280,850.69
4,156.2	0.00	0.00	4,071.0	-1,026.0	-659.6	61.1	662.4	3.00	1,598,307.01	2,280,850.75
<b>Back to Vertical - Start 2229.0 hold at 4156.2 MD - Top of Gas - B&amp;V 14A-07-07-95 TGT</b>										
4,200.0	0.00	0.00	4,114.8	-982.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,300.0	0.00	0.00	4,214.8	-882.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,400.0	0.00	0.00	4,314.8	-782.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,500.0	0.00	0.00	4,414.8	-682.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75

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<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 14A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 14A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,600.0	0.00	0.00	4,514.8	-582.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,700.0	0.00	0.00	4,614.8	-482.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,800.0	0.00	0.00	4,714.8	-382.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
4,900.0	0.00	0.00	4,814.8	-282.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,000.0	0.00	0.00	4,914.8	-182.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,100.0	0.00	0.00	5,014.8	-82.2	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,200.0	0.00	0.00	5,114.8	17.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,300.0	0.00	0.00	5,214.8	117.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,400.0	0.00	0.00	5,314.8	217.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,500.0	0.00	0.00	5,414.8	317.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,561.2	0.00	0.00	5,476.0	379.0	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
<b>Cameo</b>										
5,600.0	0.00	0.00	5,514.8	417.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,700.0	0.00	0.00	5,614.8	517.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,800.0	0.00	0.00	5,714.8	617.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
5,900.0	0.00	0.00	5,814.8	717.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
6,000.0	0.00	0.00	5,914.8	817.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
6,085.2	0.00	0.00	6,000.0	903.0	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
<b>Rollins</b>										
6,100.0	0.00	0.00	6,014.8	917.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
6,200.0	0.00	0.00	6,114.8	1,017.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
6,300.0	0.00	0.00	6,214.8	1,117.8	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
6,385.2	0.00	0.00	6,300.0	1,203.0	-659.6	61.1	662.4	0.00	1,598,307.01	2,280,850.75
<b>TD at 6385.2</b>										

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<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 14A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 14A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,066.3	3,009.0	Williams Fork		0.00		
4,156.2	4,071.0	Top of Gas		0.00		
5,561.2	5,476.0	Cameo		0.00		
6,085.2	6,000.0	Rollins		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,200.0	1,200.0	0.0	0.0	Start Build 3.00	
1,726.7	1,720.0	-71.8	6.7	Start 1902.9 hold at 1726.7 MD	
3,629.5	3,551.0	-587.7	54.5	Start Drop -3.00	
4,156.2	4,071.0	-659.6	61.1	Back to Vertical	
4,156.2	4,071.0	-659.6	61.1	Start 2229.0 hold at 4156.2 MD	
6,385.2	6,300.0	-659.6	61.1	TD at 6385.2	

Checked By: _____	Approved By: _____	Date: _____
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Well Name: B&V 14A-07-07-95  
Surface Location: B&V  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5084.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1598968.06 2280808.12 39° 27' 0.919 N 108° 2' 49.893 W  
PAD Est KB B&V 14A-07-07-95 @ 5097.0usft (PAD Est KB)



Azimuths to True North  
Magnetic North: 9.97°  
Magnetic Field  
Strength: 51909.4snT  
Dip Angle: 65.61°  
Date: 8/4/2014  
Model: IGRF2010

B&V  
B&V 14A-07-07-95  
Design #1  
12:56, August 05 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
B&V 14A-07-07-95 TGT	4071.0	-659.6	61.1	1598307.01	2280850.75	39° 26' 54.399 N	108° 2' 49.114 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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1726.7	15.80	174.70	1720.0	-71.8	6.7	3.00	174.70	72.2	
4	3629.5	15.80	174.70	3551.0	-587.7	54.5	0.00	0.00	590.3	
5	4156.2	0.00	0.00	4071.0	-659.6	61.1	3.00	180.00	662.4	B&V 14A-07-07-95 TGT
6	6385.2	0.00	0.00	6300.0	-659.6	61.1	0.00	0.00	662.4	

#### ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	Start Build 3.00
1720.0	1726.7	Start 1902.9 hold at 1726.7 MD
3551.0	3629.5	Start Drop -3.00
4071.0	4156.2	Back to Vertical
4071.0	4156.2	Start 2229.0 hold at 4156.2 MD
6300.0	6385.2	TD at 6385.2

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3009.0	3066.3	Williams Fork	0.00	
4071.0	4156.2	Top of Gas	0.00	
5476.0	5561.2	Cameo	0.00	
6000.0	6085.2	Rollins	0.00	

