



# **Ursa Operating Company, LLC**

**Rockies Region**

**B&V**

**B&V 24A-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 24A-07-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	B&V 24A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 24A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 24A-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:		Latitude:	
From:	Lat/Long	Easting:		Longitude:	
Position Uncertainty:	0.0 usft	Slot Radius:		Grid Convergence:	
		1,598,935.06 usft		39° 27' 0.591 N	
		2,280,801.73 usft		108° 2' 49.963 W	
		13-3/16 "		-1.61 °	

Well	B&V 24A-07-07-95, SHL LAT: 39.450276632 LONG: -108.047158048					
Well Position	+N/-S	0.0 usft	Northing:	1,598,975.59 usft	Latitude:	39° 27' 0.996 N
	+E/-W	0.0 usft	Easting:	2,280,818.09 usft	Longitude:	108° 2' 49.769 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	121.96

Survey Tool Program		Date	8/4/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,779.8	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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<b>Well:</b>	B&V 24A-07-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
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### 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	1,598,975.59	2,280,818.09
100.0	0.00	0.00	100.0	-4,997.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
200.0	0.00	0.00	200.0	-4,897.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
300.0	0.00	0.00	300.0	-4,797.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
400.0	0.00	0.00	400.0	-4,697.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
500.0	0.00	0.00	500.0	-4,597.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
600.0	0.00	0.00	600.0	-4,497.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
700.0	0.00	0.00	700.0	-4,397.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
800.0	0.00	0.00	800.0	-4,297.0	0.0	0.0	0.0	0.00	1,598,975.59	2,280,818.09
<b>Start Build 3.50</b>										
900.0	3.50	121.96	899.9	-4,197.1	-1.6	2.6	3.1	3.50	1,598,973.90	2,280,820.63
1,000.0	7.00	121.96	999.5	-4,097.5	-6.5	10.4	12.2	3.50	1,598,968.84	2,280,828.25
1,100.0	10.50	121.96	1,098.3	-3,998.7	-14.5	23.3	27.4	3.50	1,598,960.43	2,280,840.93
1,200.0	14.00	121.96	1,196.0	-3,901.0	-25.7	41.3	48.6	3.50	1,598,948.70	2,280,858.60
1,300.0	17.50	121.96	1,292.3	-3,804.7	-40.1	64.3	75.8	3.50	1,598,933.69	2,280,881.21
1,400.0	21.00	121.96	1,386.7	-3,710.3	-57.6	92.2	108.7	3.50	1,598,915.46	2,280,908.68
1,500.0	24.50	121.96	1,478.9	-3,618.1	-78.0	125.0	147.4	3.50	1,598,894.08	2,280,940.90
1,600.0	28.00	121.96	1,568.5	-3,528.5	-101.4	162.6	191.6	3.50	1,598,869.63	2,280,977.74
1,700.0	31.50	121.96	1,655.3	-3,441.6	-127.7	204.7	241.2	3.50	1,598,842.20	2,281,019.08
1,800.0	35.00	121.96	1,739.0	-3,358.0	-156.7	251.2	296.1	3.50	1,598,811.88	2,281,064.76
1,826.4	35.92	121.96	1,760.5	-3,336.5	-164.8	264.2	311.4	3.50	1,598,803.42	2,281,077.52
<b>Start 1698.1 hold at 1826.4 MD</b>										
1,900.0	35.92	121.96	1,820.1	-3,276.9	-187.7	300.8	354.5	0.00	1,598,779.54	2,281,113.50
2,000.0	35.92	121.96	1,901.0	-3,195.9	-218.8	350.6	413.2	0.00	1,598,747.09	2,281,162.39
2,100.0	35.92	121.96	1,982.0	-3,115.0	-249.8	400.3	471.9	0.00	1,598,714.65	2,281,211.27
2,200.0	35.92	121.96	2,063.0	-3,034.0	-280.9	450.1	530.6	0.00	1,598,682.21	2,281,260.16
2,300.0	35.92	121.96	2,144.0	-2,953.0	-311.9	499.9	589.2	0.00	1,598,649.77	2,281,309.04

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<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 24A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 24A-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	35.92	121.96	2,225.0	-2,872.0	-343.0	549.7	647.9	0.00	1,598,617.32	2,281,357.93
2,500.0	35.92	121.96	2,305.9	-2,791.0	-374.0	599.4	706.6	0.00	1,598,584.88	2,281,406.81
2,600.0	35.92	121.96	2,386.9	-2,710.1	-405.1	649.2	765.2	0.00	1,598,552.44	2,281,455.70
2,700.0	35.92	121.96	2,467.9	-2,629.1	-436.2	699.0	823.9	0.00	1,598,520.00	2,281,504.58
2,800.0	35.92	121.96	2,548.9	-2,548.1	-467.2	748.8	882.6	0.00	1,598,487.56	2,281,553.47
2,900.0	35.92	121.96	2,629.9	-2,467.1	-498.3	798.5	941.3	0.00	1,598,455.11	2,281,602.35
3,000.0	35.92	121.96	2,710.8	-2,386.1	-529.3	848.3	999.9	0.00	1,598,422.67	2,281,651.24
3,100.0	35.92	121.96	2,791.8	-2,305.2	-560.4	898.1	1,058.6	0.00	1,598,390.23	2,281,700.12
3,200.0	35.92	121.96	2,872.8	-2,224.2	-591.5	947.9	1,117.3	0.00	1,598,357.79	2,281,749.01
3,300.0	35.92	121.96	2,953.8	-2,143.2	-622.5	997.6	1,175.9	0.00	1,598,325.34	2,281,797.89
3,399.1	35.92	121.96	3,034.0	-2,063.0	-653.3	1,047.0	1,234.1	0.00	1,598,293.21	2,281,846.31
<b>Williams Fork</b>										
3,400.0	35.92	121.96	3,034.8	-2,062.2	-653.6	1,047.4	1,234.6	0.00	1,598,292.90	2,281,846.78
3,500.0	35.92	121.96	3,115.7	-1,981.3	-684.6	1,097.2	1,293.3	0.00	1,598,260.46	2,281,895.66
3,524.4	35.92	121.96	3,135.5	-1,961.5	-692.2	1,109.4	1,307.6	0.00	1,598,252.53	2,281,907.61
<b>Start Drop -3.50</b>										
3,600.0	33.28	121.96	3,197.7	-1,899.3	-714.9	1,145.8	1,350.5	3.50	1,598,228.81	2,281,943.36
3,700.0	29.78	121.96	3,282.9	-1,814.0	-742.6	1,190.1	1,402.8	3.50	1,598,199.89	2,281,986.92
3,800.0	26.28	121.96	3,371.2	-1,725.8	-767.5	1,230.0	1,449.8	3.50	1,598,173.91	2,282,026.07
3,900.0	22.78	121.96	3,462.2	-1,634.8	-789.5	1,265.2	1,491.3	3.50	1,598,150.96	2,282,060.66
4,000.0	19.28	121.96	3,555.5	-1,541.5	-808.5	1,295.6	1,527.2	3.50	1,598,131.12	2,282,090.55
4,100.0	15.78	121.96	3,650.8	-1,446.2	-824.4	1,321.2	1,557.3	3.50	1,598,114.47	2,282,115.64
4,200.0	12.28	121.96	3,747.8	-1,349.2	-837.2	1,341.8	1,581.5	3.50	1,598,101.07	2,282,135.84
4,300.0	8.78	121.96	3,846.1	-1,250.9	-846.9	1,357.3	1,599.8	3.50	1,598,090.96	2,282,151.06
4,400.0	5.28	121.96	3,945.4	-1,151.6	-853.4	1,367.6	1,612.0	3.50	1,598,084.20	2,282,161.26
4,500.0	1.78	121.96	4,045.2	-1,051.8	-856.6	1,372.9	1,618.2	3.50	1,598,080.79	2,282,166.39
4,550.8	0.00	0.00	4,096.0	-1,001.0	-857.1	1,373.5	1,619.0	3.50	1,598,080.36	2,282,167.04
<b>Start 2229.0 hold at 4550.8 MD - Back to Vertical - Top of Gas - B&amp;V 24A-07-07-95 TGT</b>										

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<b>Site:</b>	B&V	<b>MD Reference:</b>	B&V 24A-07-07-95 @ 5097.0usft (PAD Est KB)
<b>Well:</b>	B&V 24A-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	4,145.2	-951.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
4,700.0	0.00	0.00	4,245.2	-851.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
4,800.0	0.00	0.00	4,345.2	-751.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
4,900.0	0.00	0.00	4,445.2	-651.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,000.0	0.00	0.00	4,545.2	-551.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,100.0	0.00	0.00	4,645.2	-451.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,200.0	0.00	0.00	4,745.2	-351.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,300.0	0.00	0.00	4,845.2	-251.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,400.0	0.00	0.00	4,945.2	-151.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,500.0	0.00	0.00	5,045.2	-51.8	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,600.0	0.00	0.00	5,145.2	48.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,700.0	0.00	0.00	5,245.2	148.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,800.0	0.00	0.00	5,345.2	248.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,900.0	0.00	0.00	5,445.2	348.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
5,955.8	0.00	0.00	5,501.0	404.0	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
<b>Cameo</b>										
6,000.0	0.00	0.00	5,545.2	448.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,100.0	0.00	0.00	5,645.2	548.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,200.0	0.00	0.00	5,745.2	648.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,300.0	0.00	0.00	5,845.2	748.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,400.0	0.00	0.00	5,945.2	848.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,479.8	0.00	0.00	6,025.0	928.0	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
<b>Rollins</b>										
6,500.0	0.00	0.00	6,045.2	948.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,600.0	0.00	0.00	6,145.2	1,048.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,700.0	0.00	0.00	6,245.2	1,148.2	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
6,779.8	0.00	0.00	6,325.0	1,228.0	-857.1	1,373.5	1,619.0	0.00	1,598,080.36	2,282,167.04
<b>TD at 6779.8</b>										

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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)

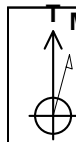
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,955.8	5,501.0	Cameo		0.00		
6,479.8	6,025.0	Rollins		0.00		
3,399.1	3,034.0	Williams Fork		0.00		
4,550.8	4,096.0	Top of Gas		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
800.0	800.0	0.0	0.0	Start Build 3.50	
1,826.4	1,760.5	-164.8	264.2	Start 1698.1 hold at 1826.4 MD	
3,524.4	3,135.5	-692.2	1,109.4	Start Drop -3.50	
4,550.8	4,096.0	-857.1	1,373.5	Start 2229.0 hold at 4550.8 MD	
4,550.8	4,096.0	-857.1	1,373.5	Back to Vertical	
6,779.8	6,325.0	-857.1	1,373.5	TD at 6779.8	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



Well Name: B&V 24A-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 1598975.59 2280818.09 39° 27' 0.996 N 108° 2' 49.769 W  
PAD Est KB B&V 24A-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 24A-07-07-95  
Design #1  
15:26, 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 24A-07-07-95	4096.0	-857.1	1373.5	1598080.36	2282167.04	39° 26' 52.524 N	108° 2' 32.259 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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1826.4	35.92	121.96	1760.5	-164.8	264.2	3.50	121.96	311.4	
4	3524.4	35.92	121.96	3135.5	-692.2	1109.4	0.00	0.00	1307.6	
5	4550.8	0.00	0.00	4096.0	-857.1	1373.5	3.50	180.00	1619.0	B&V 24A-07-07-95 TGT
6	6779.8	0.00	0.00	6325.0	-857.1	1373.5	0.00	0.00	1619.0	

#### ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	Start Build 3.50
1760.5	1826.4	Start 1698.1 hold at 1826.4 MD
3135.5	3524.4	Start Drop -3.50
4096.0	4550.8	Start 2229.0 hold at 4550.8 MD
4096.0	4550.8	Back to Vertical
6325.0	6779.8	TD at 6779.8

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3034.0	3399.1	Williams Fork	0.00	
4096.0	4550.8	Top of Gas	0.00	
5501.0	5955.8	Cameo	0.00	
6025.0	6479.8	Rollins	0.00	

