



Ursa Operating Company, LLC

Rockies Region

B&V

B&V 23A-07-07-95

Wellbore #1

Plan: Design #1

Ursa Operating Company LLC Planning Report

05 August, 2014



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 23A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 23A-07-07-95 @ 5097.0usft (PAD Est KB)
Site:	B&V	MD Reference:	B&V 23A-07-07-95 @ 5097.0usft (PAD Est KB)
Well:	B&V 23A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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:	0.0	Slot Radius:		13-3/16	"
				Latitude:	39° 27' 0.591 N
				Longitude:	108° 2' 49.963 W
				Grid Convergence:	-1.61 °

Well		B&V 23A-07-07-95, SHL LAT: 39.450357021 LONG: -108.046901022				
Well Position	+N-S	0.0 usft	Northing:	1,599,002.82 usft	Latitude:	39° 27' 1.285 N
	+E-W	0.0 usft	Easting:	2,280,891.46 usft	Longitude:	108° 2' 48.844 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	51,910

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	71.32

Survey Tool Program		Date	8/4/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,655.8	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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Wellbore:	Wellbore #1	Survey Calculation Method:	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	1,599,002.82	2,280,891.46
100.0	0.00	0.00	100.0	-4,997.0	0.0	0.0	0.0	0.00	1,599,002.82	2,280,891.46
200.0	0.00	0.00	200.0	-4,897.0	0.0	0.0	0.0	0.00	1,599,002.82	2,280,891.46
300.0	0.00	0.00	300.0	-4,797.0	0.0	0.0	0.0	0.00	1,599,002.82	2,280,891.46
400.0	0.00	0.00	400.0	-4,697.0	0.0	0.0	0.0	0.00	1,599,002.82	2,280,891.46
Start Build 3.00										
500.0	3.00	71.32	500.0	-4,597.0	0.8	2.5	2.6	3.00	1,599,003.59	2,280,893.96
600.0	6.00	71.32	599.6	-4,497.4	3.4	9.9	10.5	3.00	1,599,005.89	2,280,901.46
700.0	9.00	71.32	698.8	-4,398.2	7.5	22.3	23.5	3.00	1,599,009.72	2,280,913.93
800.0	12.00	71.32	797.1	-4,299.9	13.4	39.5	41.7	3.00	1,599,015.07	2,280,931.35
900.0	15.00	71.32	894.3	-4,202.7	20.8	61.6	65.1	3.00	1,599,021.92	2,280,953.67
1,000.0	18.00	71.32	990.2	-4,106.8	29.9	88.6	93.5	3.00	1,599,030.26	2,280,980.81
1,100.0	21.00	71.32	1,084.4	-4,012.6	40.6	120.2	126.9	3.00	1,599,040.06	2,281,012.72
1,200.0	24.00	71.32	1,176.8	-3,920.2	52.9	156.4	165.1	3.00	1,599,051.29	2,281,049.30
1,232.0	24.96	71.32	1,205.9	-3,891.1	57.1	169.0	178.4	3.00	1,599,055.18	2,281,061.96
Start 2362.9 hold at 1232.0 MD										
1,300.0	24.96	71.32	1,267.6	-3,829.4	66.3	196.2	207.1	0.00	1,599,063.61	2,281,089.40
1,400.0	24.96	71.32	1,358.2	-3,738.8	79.8	236.1	249.3	0.00	1,599,076.00	2,281,129.74
1,500.0	24.96	71.32	1,448.9	-3,648.1	93.3	276.1	291.5	0.00	1,599,088.39	2,281,170.08
1,600.0	24.96	71.32	1,539.6	-3,557.4	106.9	316.1	333.7	0.00	1,599,100.78	2,281,210.41
1,700.0	24.96	71.32	1,630.2	-3,466.8	120.4	356.1	375.9	0.00	1,599,113.17	2,281,250.75
1,800.0	24.96	71.32	1,720.9	-3,376.1	133.9	396.0	418.1	0.00	1,599,125.56	2,281,291.09
1,900.0	24.96	71.32	1,811.5	-3,285.5	147.4	436.0	460.3	0.00	1,599,137.95	2,281,331.43
2,000.0	24.96	71.32	1,902.2	-3,194.8	160.9	476.0	502.5	0.00	1,599,150.34	2,281,371.77
2,100.0	24.96	71.32	1,992.9	-3,104.1	174.4	516.0	544.6	0.00	1,599,162.72	2,281,412.10
2,200.0	24.96	71.32	2,083.5	-3,013.5	188.0	555.9	586.8	0.00	1,599,175.11	2,281,452.44
2,300.0	24.96	71.32	2,174.2	-2,922.8	201.5	595.9	629.0	0.00	1,599,187.50	2,281,492.78

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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	24.96	71.32	2,264.9	-2,832.1	215.0	635.9	671.2	0.00	1,599,199.89	2,281,533.12
2,500.0	24.96	71.32	2,355.5	-2,741.5	228.5	675.9	713.4	0.00	1,599,212.28	2,281,573.45
2,600.0	24.96	71.32	2,446.2	-2,650.8	242.0	715.8	755.6	0.00	1,599,224.67	2,281,613.79
2,700.0	24.96	71.32	2,536.8	-2,560.2	255.5	755.8	797.8	0.00	1,599,237.06	2,281,654.13
2,800.0	24.96	71.32	2,627.5	-2,469.5	269.0	795.8	840.0	0.00	1,599,249.45	2,281,694.47
2,900.0	24.96	71.32	2,718.2	-2,378.8	282.6	835.8	882.2	0.00	1,599,261.84	2,281,734.80
3,000.0	24.96	71.32	2,808.8	-2,288.2	296.1	875.7	924.4	0.00	1,599,274.22	2,281,775.14
3,100.0	24.96	71.32	2,899.5	-2,197.5	309.6	915.7	966.6	0.00	1,599,286.61	2,281,815.48
3,200.0	24.96	71.32	2,990.1	-2,106.9	323.1	955.7	1,008.8	0.00	1,599,299.00	2,281,855.82
3,300.0	24.96	71.32	3,080.8	-2,016.2	336.6	995.7	1,051.0	0.00	1,599,311.39	2,281,896.15
3,312.4	24.96	71.32	3,092.0	-2,005.0	338.3	1,000.6	1,056.2	0.00	1,599,312.92	2,281,901.14
Williams Fork										
3,400.0	24.96	71.32	3,171.5	-1,925.5	350.1	1,035.6	1,093.2	0.00	1,599,323.78	2,281,936.49
3,500.0	24.96	71.32	3,262.1	-1,834.9	363.6	1,075.6	1,135.4	0.00	1,599,336.17	2,281,976.83
3,594.8	24.96	71.32	3,348.1	-1,748.9	376.5	1,113.5	1,175.4	0.00	1,599,347.92	2,282,015.08
Start Drop -3.00										
3,600.0	24.80	71.32	3,352.8	-1,744.2	377.2	1,115.6	1,177.6	3.00	1,599,348.56	2,282,017.16
3,700.0	21.80	71.32	3,444.6	-1,652.4	389.8	1,153.0	1,217.2	3.00	1,599,360.17	2,282,054.97
3,800.0	18.80	71.32	3,538.4	-1,558.6	400.9	1,185.9	1,251.9	3.00	1,599,370.36	2,282,088.14
3,900.0	15.80	71.32	3,633.9	-1,463.1	410.5	1,214.1	1,281.6	3.00	1,599,379.09	2,282,116.57
4,000.0	12.80	71.32	3,730.7	-1,366.3	418.4	1,237.5	1,306.3	3.00	1,599,386.34	2,282,140.19
4,100.0	9.80	71.32	3,828.8	-1,268.2	424.7	1,256.1	1,325.9	3.00	1,599,392.10	2,282,158.92
4,200.0	6.80	71.32	3,927.7	-1,169.3	429.3	1,269.7	1,340.3	3.00	1,599,396.34	2,282,172.73
4,300.0	3.80	71.32	4,027.3	-1,069.7	432.2	1,278.5	1,349.6	3.00	1,599,399.05	2,282,181.56
4,400.0	0.80	71.32	4,127.2	-969.8	433.5	1,282.3	1,353.6	3.00	1,599,400.23	2,282,185.40
4,426.8	0.00	0.00	4,154.0	-943.0	433.6	1,282.5	1,353.8	3.00	1,599,400.29	2,282,185.58
Back to Vertical - Start 2229.0 hold at 4426.8 MD - Top of Gas - B&V 23A-07-07-95 TGT										
4,500.0	0.00	0.00	4,227.2	-869.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58

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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	4,327.2	-769.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
4,700.0	0.00	0.00	4,427.2	-669.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
4,800.0	0.00	0.00	4,527.2	-569.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
4,900.0	0.00	0.00	4,627.2	-469.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,000.0	0.00	0.00	4,727.2	-369.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,100.0	0.00	0.00	4,827.2	-269.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,200.0	0.00	0.00	4,927.2	-169.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,300.0	0.00	0.00	5,027.2	-69.8	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,400.0	0.00	0.00	5,127.2	30.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,500.0	0.00	0.00	5,227.2	130.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,600.0	0.00	0.00	5,327.2	230.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,700.0	0.00	0.00	5,427.2	330.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,800.0	0.00	0.00	5,527.2	430.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
5,831.8	0.00	0.00	5,559.0	462.0	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
Cameo										
5,900.0	0.00	0.00	5,627.2	530.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,000.0	0.00	0.00	5,727.2	630.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,100.0	0.00	0.00	5,827.2	730.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,200.0	0.00	0.00	5,927.2	830.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,300.0	0.00	0.00	6,027.2	930.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,355.8	0.00	0.00	6,083.0	986.0	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
Rollins										
6,400.0	0.00	0.00	6,127.2	1,030.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,500.0	0.00	0.00	6,227.2	1,130.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,600.0	0.00	0.00	6,327.2	1,230.2	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
6,655.8	0.00	0.00	6,383.0	1,286.0	433.6	1,282.5	1,353.8	0.00	1,599,400.29	2,282,185.58
TD at 6655.8										

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Site:	B&V	MD Reference:	B&V 23A-07-07-95 @ 5097.0usft (PAD Est KB)
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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,312.4	3,092.0	Williams Fork		0.00		
6,355.8	6,083.0	Rollins		0.00		
5,831.8	5,559.0	Cameo		0.00		
4,426.8	4,154.0	Top of Gas		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
400.0	400.0	0.0	0.0	Start Build 3.00	
1,232.0	1,205.9	57.1	169.0	Start 2362.9 hold at 1232.0 MD	
3,594.8	3,348.1	376.5	1,113.5	Start Drop -3.00	
4,426.8	4,154.0	433.6	1,282.5	Back to Vertical	
4,426.8	4,154.0	433.6	1,282.5	Start 2229.0 hold at 4426.8 MD	
6,655.8	6,383.0	433.6	1,282.5	TD at 6655.8	

Checked By: _____	Approved By: _____	Date: _____
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Well Name: B&V 23A-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 1599002.82 2280891.46 39° 27' 1.285 N 108° 2' 48.844 W
PAD Est KB B&V 23A-07-07-95 @ 5097.0usft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.97°
Magnetic Field
Strength: 51909.5snT
Dip Angle: 65.61°
Date: 8/4/2014
Model: IGRF2010

B&V
B&V 23A-07-07-95
Design #1
14:15, 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 23A-07-07-95 TGT	4154.0	433.6	1282.5	1599400.29	2282185.58	39° 27' 5.570 N	108° 2' 32.494 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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1232.0	24.96	71.32	1205.9	57.1	169.0	3.00	71.32	178.4	
4	3594.8	24.96	71.32	3348.1	376.5	1113.5	0.00	0.00	1175.4	
5	4426.8	0.00	0.00	4154.0	433.6	1282.5	3.00	180.00	1353.8	B&V 23A-07-07-95 TGT
6	6655.8	0.00	0.00	6383.0	433.6	1282.5	0.00	0.00	1353.8	

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	Start Build 3.00
1205.9	1232.0	Start 2362.9 hold at 1232.0 MD
3348.1	3594.8	Start Drop -3.00
4154.0	4426.8	Back to Vertical
4154.0	4426.8	Start 2229.0 hold at 4426.8 MD
6383.0	6655.8	TD at 6655.8

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3092.0	3312.4	Williams Fork	0.00	
4154.0	4426.8	Top of Gas	0.00	
5559.0	5831.8	Cameo	0.00	
6083.0	6355.8	Rollins	0.00	

