



Ursa Operating Company, LLC

Rockies Region

B&V

B&V 33A-07-07-95

Wellbore #1

Design: Actual

End of Well Report

15 February, 2017



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

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		Using geodetic scale factor

Site		B&V							
Site Position:		Northing:		1,598,935.06	usft	Latitude:		39.450164128	
From:	Lat/Long	Easting:		2,280,801.73	usft	Longitude:		-108.047211920	
Position Uncertainty:		0.0	usft	Slot Radius:		13-3/16	"	Grid Convergence:	-1.61 °

Well		B&V 33A-07-07-95, SHL: 39.450425606 -108.04679048				
Well Position	+N/-S	0.0 usft	Northing:	1,599,026.93 usft	Latitude:	39.450425606
	+E/-W	0.0 usft	Easting:	2,280,923.36 usft	Longitude:	-108.046790480
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,101.0 usft	Ground Level:	5,084.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/15/2017	9.75	65.55	51,542

Design		Actual			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.0	0.0	0.0	77.54

Survey Program		Date	2/15/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
104.0	7,120.0	Actual (Wellbore #1)	MWD	MWD - Standard	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
104.0	0.39	276.45	104.0	-0.3	0.0	-0.4	0.37	0.37	0.00	
134.0	0.53	294.33	134.0	-0.5	0.1	-0.6	0.66	0.47	59.60	
163.0	0.57	271.96	163.0	-0.8	0.2	-0.8	0.75	0.14	-77.14	
192.0	0.13	21.51	192.0	-0.9	0.2	-1.0	2.16	-1.52	377.76	
223.0	0.66	76.71	223.0	-0.7	0.3	-0.8	1.92	1.71	178.06	
253.0	1.54	84.44	253.0	-0.1	0.4	-0.2	2.97	2.93	25.77	
284.0	2.60	84.32	284.0	1.0	0.5	0.9	3.42	3.42	-0.39	
315.0	3.56	80.37	314.9	2.6	0.7	2.5	3.17	3.10	-12.74	
345.0	4.53	76.90	344.8	4.7	1.1	4.6	3.33	3.23	-11.57	
376.0	5.14	74.29	375.7	7.4	1.8	7.1	2.09	1.97	-8.42	
406.0	6.24	76.01	405.6	10.3	2.5	10.0	3.71	3.67	5.73	
436.0	7.29	75.79	435.4	13.9	3.4	13.4	3.50	3.50	-0.73	
466.0	8.88	78.11	465.1	18.1	4.3	17.6	5.41	5.30	7.73	
497.0	10.72	78.64	495.6	23.4	5.4	22.7	5.94	5.94	1.71	
527.0	12.13	79.30	525.0	29.3	6.5	28.6	4.72	4.70	2.20	
558.0	13.77	78.69	555.2	36.2	7.9	35.4	5.31	5.29	-1.97	
589.0	14.94	78.47	585.3	43.9	9.4	42.9	3.78	3.77	-0.71	
619.0	15.82	77.76	614.2	51.9	11.0	50.7	3.00	2.93	-2.37	
649.0	16.96	76.36	643.0	60.3	12.9	58.9	4.02	3.80	-4.67	
680.0	17.91	75.91	672.6	69.6	15.2	68.0	3.10	3.06	-1.45	
711.0	19.07	76.45	702.0	79.5	17.5	77.5	3.78	3.74	1.74	
741.0	19.78	77.50	730.2	89.4	19.7	87.2	2.64	2.37	3.50	
772.0	20.52	80.00	759.4	100.1	21.8	97.7	3.66	2.39	8.06	
802.0	21.40	81.10	787.4	110.8	23.6	108.3	3.21	2.93	3.67	
833.0	22.53	81.61	816.1	122.4	25.3	119.7	3.70	3.65	1.65	
876.0	24.35	80.44	855.6	139.5	28.0	136.6	4.37	4.23	-2.72	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
918.0	25.93	78.99	893.6	157.3	31.2	154.2	4.04	3.76	-3.45	
961.0	26.89	77.54	932.1	176.4	35.1	172.9	2.69	2.23	-3.37	
1,004.0	27.95	76.88	970.3	196.2	39.5	192.2	2.56	2.47	-1.53	
1,047.0	28.92	76.32	1,008.1	216.7	44.2	212.1	2.34	2.26	-1.30	
1,089.0	29.31	76.58	1,044.8	237.1	49.0	232.0	0.98	0.93	0.62	
1,132.0	30.15	77.06	1,082.1	258.4	53.9	252.8	2.03	1.95	1.12	
1,174.0	31.46	77.28	1,118.2	280.0	58.6	273.7	3.13	3.12	0.52	
1,217.0	32.61	77.28	1,154.6	302.8	63.7	296.0	2.67	2.67	0.00	
1,260.0	33.92	76.98	1,190.6	326.3	68.9	319.0	3.07	3.05	-0.70	
1,303.0	35.16	76.09	1,226.0	350.7	74.6	342.7	3.11	2.88	-2.07	
1,345.0	36.68	76.02	1,260.0	375.4	80.5	366.6	3.62	3.62	-0.17	
1,388.0	37.97	76.88	1,294.2	401.4	86.6	392.0	3.24	3.00	2.00	
1,431.0	38.15	77.41	1,328.1	427.9	92.5	417.8	0.87	0.42	1.23	
1,473.0	38.23	76.58	1,361.1	453.9	98.4	443.1	1.24	0.19	-1.98	
1,516.0	38.45	76.14	1,394.8	480.6	104.7	469.0	0.82	0.51	-1.02	
1,559.0	38.98	75.92	1,428.4	507.4	111.2	495.1	1.27	1.23	-0.51	
1,601.0	38.76	77.10	1,461.1	533.8	117.3	520.7	1.84	-0.52	2.81	
1,644.0	38.89	77.37	1,494.6	560.8	123.3	547.0	0.50	0.30	0.63	
1,687.0	38.34	78.46	1,528.2	587.6	128.9	573.3	2.03	-1.28	2.53	
1,729.0	38.50	78.91	1,561.1	613.7	134.0	598.9	0.77	0.38	1.07	
1,772.0	38.89	78.73	1,594.6	640.6	139.2	625.2	0.94	0.91	-0.42	
1,814.0	39.20	78.29	1,627.2	667.0	144.5	651.2	0.99	0.74	-1.05	
1,857.0	39.86	77.98	1,660.4	694.4	150.1	678.0	1.60	1.53	-0.72	
Last PZD Surface Survey										
1,933.0	39.99	76.53	1,718.7	743.2	160.9	725.5	1.24	0.17	-1.91	
2,019.0	38.45	75.57	1,785.3	797.5	174.0	778.3	1.92	-1.79	-1.12	
2,104.0	37.57	77.46	1,852.3	849.8	186.2	829.2	1.72	-1.04	2.22	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
2,189.0	36.56	77.28	1,920.1	901.1	197.4	879.2	1.20	-1.19	-0.21	
2,275.0	37.10	78.51	1,989.0	952.6	208.2	929.6	1.06	0.63	1.43	
2,360.0	37.35	78.20	2,056.6	1,004.0	218.6	979.9	0.37	0.29	-0.36	
2,446.0	38.63	79.26	2,124.4	1,057.0	228.9	1,031.9	1.67	1.49	1.23	
2,530.0	38.98	79.57	2,189.9	1,109.6	238.6	1,083.6	0.48	0.42	0.37	
2,616.0	38.14	80.00	2,257.1	1,163.1	248.1	1,136.4	1.03	-0.98	0.50	
2,702.0	38.10	78.25	2,324.8	1,216.2	258.1	1,188.5	1.26	-0.05	-2.03	
2,787.0	37.49	77.90	2,392.0	1,268.3	268.9	1,239.5	0.76	-0.72	-0.41	
2,873.0	37.50	77.11	2,460.2	1,320.6	280.2	1,290.6	0.56	0.01	-0.92	
2,958.0	37.81	76.56	2,527.5	1,372.5	292.0	1,341.1	0.54	0.36	-0.65	
3,043.0	37.97	77.46	2,594.6	1,424.7	303.8	1,392.0	0.68	0.19	1.06	
3,129.0	37.18	78.16	2,662.7	1,477.2	314.8	1,443.3	1.04	-0.92	0.81	
3,214.0	37.49	78.47	2,730.3	1,528.7	325.3	1,493.7	0.43	0.36	0.36	
3,299.0	37.62	78.25	2,797.7	1,580.5	335.7	1,544.5	0.22	0.15	-0.26	
3,385.0	38.01	77.72	2,865.6	1,633.3	346.7	1,596.1	0.59	0.45	-0.62	
3,470.0	37.00	75.96	2,933.1	1,685.0	358.5	1,646.4	1.73	-1.19	-2.07	
3,555.0	37.05	76.27	3,000.9	1,736.2	370.8	1,696.1	0.23	0.06	0.36	
3,641.0	37.13	75.21	3,069.5	1,788.0	383.5	1,746.4	0.75	0.09	-1.23	
3,726.0	37.84	76.05	3,137.0	1,839.7	396.4	1,796.5	1.03	0.84	0.99	
3,812.0	38.23	75.30	3,204.7	1,892.7	409.5	1,847.8	0.70	0.45	-0.87	
3,897.0	37.44	75.13	3,271.8	1,944.8	422.8	1,898.3	0.94	-0.93	-0.20	
3,983.0	37.31	74.95	3,340.2	1,996.9	436.3	1,948.7	0.20	-0.15	-0.21	
4,068.0	37.20	75.98	3,407.8	2,048.3	449.2	1,998.5	0.74	-0.13	1.21	
4,153.0	35.86	75.48	3,476.1	2,098.9	461.6	2,047.5	1.61	-1.58	-0.59	
4,239.0	34.06	75.61	3,546.6	2,148.2	473.9	2,095.2	2.09	-2.09	0.15	
4,324.0	31.77	75.52	3,618.0	2,194.3	485.5	2,140.0	2.69	-2.69	-0.11	
4,409.0	28.95	76.65	3,691.3	2,237.3	495.8	2,181.7	3.38	-3.32	1.33	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)
4,495.0	26.94	78.91		3,767.3	2,277.5	504.4	2,221.0	2.64	-2.34	2.63
4,580.0	26.24	81.37		3,843.3	2,315.5	510.9	2,258.5	1.53	-0.82	2.89
4,665.0	26.72	81.81		3,919.4	2,353.3	516.4	2,296.0	0.61	0.56	0.52
4,750.0	25.75	80.84		3,995.6	2,390.8	522.1	2,333.1	1.25	-1.14	-1.14
4,836.0	23.78	79.34		4,073.7	2,426.8	528.3	2,368.6	2.40	-2.29	-1.74
4,921.0	22.71	74.45		4,151.8	2,460.3	535.8	2,401.3	2.60	-1.26	-5.75
5,006.0	19.82	72.45		4,231.0	2,491.1	544.6	2,430.8	3.50	-3.40	-2.35
5,009.3	19.73	72.54		4,234.1	2,492.2	544.9	2,431.9	2.84	-2.68	2.73
B&V 33A-07-07-95 TGT										
5,092.0	17.53	75.08		4,312.5	2,518.6	552.3	2,457.3	2.84	-2.66	3.07
5,177.0	15.82	76.09		4,393.9	2,542.9	558.4	2,480.9	2.04	-2.01	1.19
5,262.0	14.19	76.66		4,476.0	2,564.9	563.6	2,502.3	1.93	-1.92	0.67
5,348.0	11.78	75.79		4,559.8	2,584.2	568.2	2,521.0	2.81	-2.80	-1.01
5,433.0	9.93	75.61		4,643.3	2,600.2	572.1	2,536.5	2.18	-2.18	-0.21
5,519.0	8.00	76.01		4,728.2	2,613.6	575.4	2,549.5	2.25	-2.24	0.47
5,555.5	7.24	76.98		4,764.4	2,618.5	576.6	2,554.2	2.11	-2.08	2.67
B&V 33A-07-07-95										
5,604.0	6.24	78.64		4,812.6	2,624.2	577.8	2,559.8	2.11	-2.07	3.42
5,689.0	5.27	78.91		4,897.1	2,632.7	579.4	2,568.2	1.14	-1.14	0.32
5,775.0	4.88	79.43		4,982.8	2,640.3	580.9	2,575.6	0.46	-0.45	0.60
5,860.0	3.46	82.34		5,067.6	2,646.5	581.9	2,581.7	1.69	-1.67	3.42
5,946.0	2.76	85.75		5,153.4	2,651.1	582.4	2,586.4	0.84	-0.81	3.97
6,031.0	2.29	91.78		5,238.4	2,654.8	582.5	2,590.1	0.63	-0.55	7.09
6,116.0	2.46	112.83		5,323.3	2,657.9	581.7	2,593.5	1.04	0.20	24.76
6,202.0	2.50	109.32		5,409.2	2,661.0	580.4	2,597.0	0.18	0.05	-4.08
6,287.0	1.98	109.80		5,494.1	2,663.8	579.2	2,600.1	0.61	-0.61	0.56
6,373.0	1.80	113.45		5,580.1	2,666.2	578.2	2,602.7	0.25	-0.21	4.24

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 33A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 33A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 33A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)
6,458.0	1.45	133.05	5,665.1	2,667.9	576.9	2,604.7	0.77	-0.41	23.06
6,544.0	0.75	180.68	5,751.0	2,668.4	575.6	2,605.5	1.27	-0.81	55.38
6,629.0	0.75	180.38	5,836.0	2,668.1	574.5	2,605.5	0.00	0.00	-0.35
6,715.0	0.70	178.62	5,922.0	2,667.9	573.4	2,605.5	0.06	-0.06	-2.05
6,800.0	0.62	145.40	6,007.0	2,668.0	572.5	2,605.8	0.45	-0.09	-39.08
6,885.0	0.88	106.02	6,092.0	2,668.7	572.0	2,606.7	0.66	0.31	-46.33
6,970.0	0.66	63.35	6,177.0	2,669.7	572.0	2,607.7	0.70	-0.26	-50.20
7,050.0	0.44	100.97	6,257.0	2,670.5	572.2	2,608.5	0.51	-0.27	47.02
Last PZD Survey									
7,120.0	0.44	100.97	6,327.0	2,671.0	572.1	2,609.0	0.00	0.00	0.00
Straightline Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,857.0	1,660.4	150.1	678.0	Last PZD Surface Survey
7,050.0	6,257.0	572.2	2,608.5	Last PZD Survey
7,120.0	6,327.0	572.1	2,609.0	Straightline Projection to TD

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

