



Ursa Operating Company, LLC

Rockies Region

B&V

B&V 14A-07-07-95

Wellbore #1

Design: Actual

End of Well Report

27 February, 2017



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-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:		Latitude:	
From:	Lat/Long	Easting:		Longitude:	
Position Uncertainty:	0.0 usft	Slot Radius:		Grid Convergence:	

Well		B&V 14A-07-07-95, SHL LAT: 39.450255199 LONG: -108.047192592				
Well Position	+N/-S	0.0 usft	Northing:	1,598,968.07 usft	Latitude:	39.450255199
	+E/-W	0.0 usft	Easting:	2,280,808.12 usft	Longitude:	-108.047192592
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	2/27/2017	9.75	65.55	51,538

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	173.02

Survey Program		Date	2/27/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
169.0	6,303.0	Surface (Wellbore #1)	MWD	MWD - Standard	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-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	
169.0	0.83	36.98	169.0	-0.9	1.0	0.7	0.49	0.49	0.00	
199.0	0.48	57.94	199.0	-1.1	1.2	1.0	1.40	-1.17	69.87	
229.0	0.75	30.08	229.0	-1.3	1.5	1.2	1.32	0.90	-92.87	
260.0	0.75	38.78	260.0	-1.6	1.8	1.4	0.37	0.00	28.06	
291.0	0.66	26.04	291.0	-1.9	2.1	1.6	0.58	-0.29	-41.10	
321.0	0.31	29.60	321.0	-2.1	2.3	1.7	1.17	-1.17	11.87	
352.0	0.18	249.41	352.0	-2.2	2.4	1.7	1.49	-0.42	-452.23	
382.0	0.35	228.45	382.0	-2.1	2.3	1.6	0.64	0.57	-69.87	
413.0	0.18	218.48	413.0	-2.0	2.2	1.5	0.57	-0.55	-32.16	
443.0	0.57	265.72	443.0	-2.0	2.2	1.3	1.56	1.30	157.47	
474.0	0.57	238.38	474.0	-1.9	2.1	1.0	0.87	0.00	-88.19	
504.0	0.31	229.29	504.0	-1.8	1.9	0.9	0.89	-0.87	-30.30	
535.0	0.66	267.43	535.0	-1.8	1.9	0.6	1.48	1.13	123.03	
565.0	0.75	255.92	565.0	-1.8	1.8	0.3	0.56	0.30	-38.37	
596.0	0.62	230.03	596.0	-1.7	1.7	-0.1	1.07	-0.42	-83.52	
626.0	0.83	254.73	626.0	-1.5	1.5	-0.4	1.24	0.70	82.33	
657.0	0.53	279.03	657.0	-1.5	1.5	-0.8	1.32	-0.97	78.39	
688.0	0.22	251.17	688.0	-1.6	1.5	-1.0	1.13	-1.00	-89.87	
718.0	0.48	171.24	718.0	-1.4	1.3	-1.0	1.64	0.87	-266.43	
749.0	0.48	190.22	749.0	-1.2	1.1	-1.0	0.51	0.00	61.23	
780.0	0.44	202.79	780.0	-1.0	0.8	-1.1	0.35	-0.13	40.55	
810.0	0.88	192.50	810.0	-0.6	0.5	-1.2	1.51	1.47	-34.30	
841.0	0.97	174.53	841.0	-0.2	0.0	-1.2	0.98	0.29	-57.97	
883.0	0.66	204.68	883.0	0.4	-0.6	-1.3	1.24	-0.74	71.79	
926.0	0.57	194.92	926.0	0.8	-1.0	-1.4	0.32	-0.21	-22.70	
969.0	0.88	194.13	969.0	1.3	-1.5	-1.6	0.72	0.72	-1.84	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-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)	
1,012.0	1.01	198.17	1,011.9	2.0	-2.2	-1.8	0.34	0.30	9.40	
1,054.0	1.22	223.99	1,053.9	2.6	-2.9	-2.2	1.28	0.50	61.48	
1,097.0	1.27	192.42	1,096.9	3.3	-3.7	-2.6	1.58	0.12	-73.42	
1,140.0	1.89	179.32	1,139.9	4.5	-4.8	-2.7	1.66	1.44	-30.47	
1,182.0	2.86	169.08	1,181.9	6.2	-6.6	-2.5	2.51	2.31	-24.38	
1,225.0	3.69	159.72	1,224.8	8.6	-8.9	-1.8	2.29	1.93	-21.77	
1,268.0	5.36	164.56	1,267.7	12.0	-12.2	-0.8	3.98	3.88	11.26	
1,310.0	6.86	164.25	1,309.4	16.4	-16.5	0.4	3.57	3.57	-0.74	
1,353.0	8.09	166.05	1,352.1	21.9	-21.9	1.8	2.91	2.86	4.19	
1,396.0	9.32	169.21	1,394.6	28.4	-28.2	3.2	3.07	2.86	7.35	
1,438.0	11.38	171.45	1,435.9	35.9	-35.7	4.5	5.00	4.90	5.33	
1,481.0	12.61	172.29	1,477.9	44.9	-44.5	5.7	2.89	2.86	1.95	
1,524.0	14.59	172.86	1,519.7	55.0	-54.5	7.0	4.62	4.60	1.33	
1,567.0	15.82	174.62	1,561.2	66.3	-65.7	8.3	3.05	2.86	4.09	
1,609.0	16.35	173.87	1,601.6	77.9	-77.3	9.4	1.36	1.26	-1.79	
1,652.0	16.35	172.73	1,642.8	90.0	-89.3	10.8	0.75	0.00	-2.65	
Last PZD Surface Survey										
1,760.0	16.26	172.29	1,746.5	120.3	-119.4	14.8	0.14	-0.08	-0.41	
1,845.0	15.29	171.72	1,828.3	143.4	-142.3	18.0	1.16	-1.14	-0.67	
1,930.0	15.35	175.80	1,910.3	165.9	-164.6	20.4	1.27	0.07	4.80	
2,016.0	14.63	176.82	1,993.4	188.1	-186.8	21.9	0.89	-0.84	1.19	
2,101.0	14.15	176.60	2,075.7	209.2	-207.9	23.1	0.57	-0.56	-0.26	
2,187.0	13.62	176.42	2,159.2	229.8	-228.5	24.3	0.62	-0.62	-0.21	
2,272.0	13.01	177.78	2,241.9	249.3	-248.0	25.3	0.81	-0.72	1.60	
2,357.0	13.93	175.10	2,324.6	269.0	-267.8	26.6	1.31	1.08	-3.15	
2,443.0	13.75	173.43	2,408.1	289.6	-288.3	28.6	0.51	-0.21	-1.94	
2,528.0	14.83	174.49	2,490.4	310.6	-309.1	30.8	1.31	1.27	1.25	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-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)	
2,614.0	14.41	175.41	2,573.6	332.3	-330.7	32.8	0.56	-0.49	1.07	
2,699.0	13.80	174.44	2,656.1	353.0	-351.4	34.6	0.77	-0.72	-1.14	
2,784.0	15.12	174.93	2,738.4	374.2	-372.5	36.5	1.56	1.55	0.58	
2,869.0	14.99	173.96	2,820.5	396.3	-394.5	38.7	0.33	-0.15	-1.14	
2,955.0	14.46	174.40	2,903.6	418.1	-416.2	40.9	0.63	-0.62	0.51	
3,040.0	14.99	173.34	2,985.8	439.7	-437.7	43.2	0.70	0.62	-1.25	
3,125.0	14.50	172.25	3,068.0	461.4	-459.2	45.9	0.66	-0.58	-1.28	
3,211.0	15.29	175.94	3,151.2	483.4	-481.2	48.2	1.43	0.92	4.29	
3,296.0	14.85	175.63	3,233.2	505.5	-503.2	49.8	0.53	-0.52	-0.36	
3,381.0	14.23	175.08	3,315.5	526.8	-524.5	51.5	0.75	-0.73	-0.65	
3,467.0	13.27	173.87	3,399.0	547.3	-544.8	53.5	1.17	-1.12	-1.41	
3,552.0	13.71	172.86	3,481.7	567.1	-564.5	55.8	0.59	0.52	-1.19	
3,638.0	13.67	175.59	3,565.3	587.4	-584.7	57.8	0.75	-0.05	3.17	
3,723.0	13.05	173.70	3,648.0	607.1	-604.3	59.7	0.89	-0.73	-2.22	
3,808.0	12.00	172.62	3,730.9	625.5	-622.6	61.8	1.27	-1.24	-1.27	
3,894.0	9.71	179.23	3,815.4	641.7	-638.7	63.1	3.03	-2.66	7.69	
3,979.0	7.16	180.38	3,899.5	654.0	-651.2	63.1	3.01	-3.00	1.35	
4,064.0	4.13	165.79	3,984.1	662.3	-659.5	63.9	3.92	-3.56	-17.16	
4,150.0	1.80	84.14	4,070.0	665.4	-662.3	66.0	4.95	-2.71	-94.94	
4,154.9	1.76	84.28	4,074.9	665.4	-662.3	66.1	0.74	-0.73	2.91	
B&V 14A-07-07-95 TGT										
4,235.0	1.18	87.84	4,154.9	665.5	-662.2	68.2	0.74	-0.73	4.44	
4,321.0	1.25	24.66	4,240.9	664.8	-661.3	69.4	1.48	0.08	-73.47	
4,406.0	0.92	7.23	4,325.9	663.4	-659.7	69.9	0.54	-0.39	-20.51	
4,491.0	0.57	351.81	4,410.9	662.3	-658.7	69.9	0.47	-0.41	-18.14	
4,577.0	0.48	323.68	4,496.9	661.5	-657.9	69.7	0.31	-0.10	-32.71	
4,662.0	0.13	260.18	4,581.9	661.2	-657.7	69.4	0.51	-0.41	-74.71	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-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)	
4,748.0	0.31	249.33	4,667.9	661.3	-657.8	69.1	0.21	0.21	-12.62	
4,833.0	0.44	254.76	4,752.9	661.4	-657.9	68.5	0.16	0.15	6.39	
4,918.0	0.58	235.68	4,837.9	661.6	-658.3	67.9	0.26	0.16	-22.45	
5,004.0	1.14	4.64	4,923.9	661.0	-657.7	67.6	1.83	0.65	149.95	
5,089.0	1.46	357.88	5,008.9	659.1	-655.7	67.6	0.42	0.38	-7.95	
5,174.0	1.32	341.35	5,093.8	657.0	-653.7	67.2	0.50	-0.16	-19.45	
5,260.0	1.23	317.79	5,179.8	655.3	-652.1	66.3	0.61	-0.10	-27.40	
5,345.0	1.30	301.40	5,264.8	654.0	-650.9	64.9	0.43	0.08	-19.28	
5,431.0	1.14	280.35	5,350.8	653.1	-650.3	63.2	0.55	-0.19	-24.48	
5,516.0	1.45	270.86	5,435.7	652.7	-650.1	61.3	0.44	0.36	-11.16	
5,602.0	2.15	269.89	5,521.7	652.4	-650.1	58.6	0.81	0.81	-1.13	
5,687.0	1.55	252.21	5,606.7	652.4	-650.4	55.9	0.97	-0.71	-20.80	
5,772.0	1.41	255.57	5,691.6	652.8	-651.0	53.8	0.19	-0.16	3.95	
5,858.0	1.93	249.08	5,777.6	653.2	-651.8	51.4	0.64	0.60	-7.55	
5,943.0	2.07	247.13	5,862.5	654.0	-652.9	48.7	0.18	0.16	-2.29	
6,029.0	2.02	241.11	5,948.5	655.0	-654.3	45.9	0.26	-0.06	-7.00	
6,114.0	2.46	228.54	6,033.4	656.6	-656.2	43.2	0.77	0.52	-14.79	
6,200.0	2.29	226.34	6,119.3	658.7	-658.6	40.6	0.22	-0.20	-2.56	
6,242.0	2.11	225.86	6,161.3	659.6	-659.7	39.4	0.43	-0.43	-1.14	
Last PZD Survey										
6,303.0	2.11	225.86	6,222.3	661.0	-661.3	37.8	0.00	0.00	0.00	
Straightline Projection to TD										

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 14A-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 14A-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 14A-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,652.0	1,642.8	-89.3	10.8	Last PZD Surface Survey	
6,242.0	6,161.3	-659.7	39.4	Last PZD Survey	
6,303.0	6,222.3	-661.3	37.8	Straightline Projection to TD	

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

