



Ursa Operating Company, LLC

Rockies Region

BMC D

BMC D 41B-18-07-95

Wellbore #1

Design: Actual

End of Well Report

03 October, 2017



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well BMC D 41B-18-07-95
Project:	Rockies Region	TVD Reference:	BMC D 41B-18-07-95 @ 5285.0usft (Plan KB)
Site:	BMC D	MD Reference:	BMC D 41B-18-07-95 @ 5285.0usft (Plan KB)
Well:	BMC D 41B-18-07-95	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		BMC D									
Site Position:		Northing:		1,595,755.80 usft		Latitude:		39.441572650			
From:		Lat/Long		Easting:		2,282,541.08 usft		Longitude:		-108.040739971	
Position Uncertainty:		0.0 usft		Slot Radius:		13-3/16 "		Grid Convergence:		-1.60 °	

Well		BMC D 41B-18-07-95, SHL 39.441539837 -108.040796710				
Well Position	+N-S	0.0 usft	Northing:	1,595,744.31 usft	Latitude:	39.441539837
	+E-W	0.0 usft	Easting:	2,282,524.73 usft	Longitude:	-108.040796710
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	5,268.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2017	9.68	65.53	51,467

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	72.95

Survey Program		Date	10/3/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
108.0	7,100.0	Actual (Wellbore #1)	MWD	MWD - Standard	

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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	
108.0	1.45	207.85	108.0	-1.0	-1.2	-0.6	1.34	1.34	0.00	
139.0	1.80	198.66	139.0	-1.5	-2.0	-1.0	1.40	1.13	-29.65	
168.0	1.85	191.55	168.0	-2.0	-2.9	-1.2	0.80	0.17	-24.52	
198.0	1.54	177.09	197.9	-2.3	-3.8	-1.3	1.75	-1.03	-48.20	
227.0	1.04	168.89	226.9	-2.5	-4.4	-1.2	1.83	-1.72	-28.28	
257.0	0.83	147.25	256.9	-2.4	-4.9	-1.1	1.36	-0.70	-72.13	
288.0	1.10	100.53	287.9	-2.1	-5.1	-0.6	2.59	0.87	-150.71	
317.0	1.69	77.48	316.9	-1.4	-5.1	0.1	2.77	2.03	-79.48	
348.0	2.29	74.61	347.9	-0.4	-4.8	1.1	1.96	1.94	-9.26	
377.0	2.81	73.07	376.9	0.9	-4.5	2.3	1.81	1.79	-5.31	
407.0	2.86	75.31	406.8	2.4	-4.1	3.8	0.41	0.17	7.47	
437.0	3.08	71.36	436.8	4.0	-3.6	5.2	1.00	0.73	-13.17	
468.0	3.38	81.33	467.8	5.7	-3.2	6.9	2.05	0.97	32.16	
499.0	3.43	85.90	498.7	7.5	-3.0	8.8	0.89	0.16	14.74	
529.0	3.47	97.20	528.6	9.2	-3.0	10.6	2.27	0.13	37.67	
559.0	4.31	92.49	558.6	11.1	-3.2	12.6	2.99	2.80	-15.70	
589.0	5.32	86.74	588.5	13.5	-3.2	15.1	3.73	3.37	-19.17	
619.0	6.40	90.18	618.3	16.5	-3.1	18.2	3.78	3.60	11.47	
649.0	7.78	92.67	648.1	20.0	-3.2	21.9	4.71	4.60	8.30	
679.0	9.05	88.76	677.8	24.1	-3.3	26.3	4.64	4.23	-13.03	
709.0	10.24	86.82	707.3	29.0	-3.1	31.3	4.11	3.97	-6.47	
738.0	11.29	84.06	735.8	34.3	-2.6	36.7	4.03	3.62	-9.52	
768.0	12.22	81.51	765.2	40.3	-1.8	42.7	3.55	3.10	-8.50	
828.0	14.41	74.52	823.6	54.1	1.1	56.2	4.52	3.65	-11.65	
871.0	15.64	70.61	865.1	65.2	4.4	66.8	3.71	2.86	-9.09	
916.0	16.92	68.54	908.3	77.8	8.9	78.7	3.12	2.84	-4.60	

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Site:	BMC D	MD Reference:	BMC D 41B-18-07-95 @ 5285.0usft (Plan KB)
Well:	BMC D 41B-18-07-95	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)
958.0	17.84	68.41	948.4	90.3	13.5	90.3	2.19	2.19	-0.31
1,000.0	19.12	69.20	988.2	103.6	18.3	102.7	3.11	3.05	1.88
1,042.0	20.82	70.05	1,027.7	117.9	23.3	116.2	4.11	4.05	2.02
1,084.0	23.03	70.96	1,066.7	133.6	28.5	131.0	5.32	5.26	2.17
1,127.0	24.52	70.92	1,106.0	150.9	34.1	147.4	3.47	3.47	-0.09
1,169.0	25.97	71.31	1,144.0	168.8	39.9	164.3	3.48	3.45	0.93
1,211.0	27.38	71.36	1,181.5	187.6	46.0	182.2	3.36	3.36	0.12
1,253.0	28.96	72.89	1,218.5	207.5	52.1	201.0	4.14	3.76	3.64
1,295.0	30.50	74.08	1,255.0	228.3	58.0	221.0	3.93	3.67	2.83
1,337.0	31.79	73.82	1,291.0	250.0	64.0	241.9	3.09	3.07	-0.62
1,380.0	33.88	73.30	1,327.1	273.3	70.6	264.2	4.90	4.86	-1.21
1,422.0	35.33	74.17	1,361.7	297.2	77.3	287.1	3.65	3.45	2.07
1,464.0	35.97	74.62	1,395.8	321.6	83.8	310.7	1.65	1.52	1.07
1,506.0	36.12	73.95	1,429.7	346.3	90.5	334.5	1.00	0.36	-1.60
1,548.0	35.95	73.55	1,463.7	371.1	97.4	358.2	0.69	-0.40	-0.95
1,590.0	37.27	72.94	1,497.4	396.1	104.7	382.2	3.26	3.14	-1.45
1,633.0	37.75	72.63	1,531.5	422.3	112.4	407.2	1.20	1.12	-0.72
1,677.0	38.07	72.38	1,566.2	449.3	120.5	433.0	0.81	0.73	-0.57
1,721.0	38.67	71.71	1,600.7	476.6	129.0	459.0	1.66	1.36	-1.52
1,763.0	38.89	71.53	1,633.5	502.9	137.3	483.9	0.59	0.52	-0.43
1,805.0	39.20	71.66	1,666.1	529.4	145.6	509.1	0.76	0.74	0.31
1,825.0	39.29	71.58	1,681.6	542.0	149.6	521.1	0.52	0.45	-0.40
Last PZD Surface Survey									
1,909.0	39.59	71.49	1,746.5	595.4	166.5	571.7	0.36	0.36	-0.11
1,993.0	38.73	69.74	1,811.6	648.4	184.1	621.7	1.67	-1.02	-2.08
2,077.0	37.66	70.83	1,877.6	700.2	201.6	670.6	1.51	-1.27	1.30
2,162.0	36.65	73.73	1,945.4	751.6	217.3	719.5	2.38	-1.19	3.41

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2,246.0	35.55	72.37	2,013.2	801.1	231.7	766.8	1.62	-1.31	-1.62	
2,331.0	35.64	73.38	2,082.4	850.5	246.2	814.1	0.70	0.11	1.19	
2,415.0	35.16	73.29	2,150.8	899.2	260.2	860.7	0.57	-0.57	-0.11	
2,499.0	35.73	73.77	2,219.3	947.9	274.0	907.4	0.76	0.68	0.57	
2,584.0	35.07	73.73	2,288.5	997.1	287.8	954.7	0.78	-0.78	-0.05	
2,668.0	36.96	74.26	2,356.5	1,046.5	301.4	1,002.2	2.28	2.25	0.63	
2,753.0	36.20	73.46	2,424.7	1,097.2	315.5	1,050.8	1.06	-0.89	-0.94	
2,837.0	35.77	73.20	2,492.7	1,146.5	329.6	1,098.1	0.54	-0.51	-0.31	
2,921.0	37.00	73.68	2,560.3	1,196.3	343.8	1,145.9	1.50	1.46	0.57	
3,006.0	36.55	73.17	2,628.4	1,247.2	358.4	1,194.7	0.64	-0.53	-0.60	
3,091.0	38.36	73.51	2,695.9	1,298.9	373.2	1,244.2	2.14	2.13	0.40	
3,175.0	37.71	72.19	2,762.1	1,350.7	388.4	1,293.6	1.24	-0.77	-1.57	
3,259.0	36.56	71.75	2,829.0	1,401.4	404.1	1,341.9	1.41	-1.37	-0.52	
3,344.0	35.86	70.96	2,897.6	1,451.6	420.2	1,389.4	0.99	-0.82	-0.93	
3,428.0	36.30	73.11	2,965.5	1,501.0	435.4	1,436.5	1.60	0.52	2.56	
3,513.0	35.51	72.32	3,034.3	1,550.9	450.2	1,484.1	1.08	-0.93	-0.93	
3,597.0	34.89	71.63	3,103.0	1,599.3	465.2	1,530.1	0.88	-0.74	-0.82	
3,682.0	35.42	73.29	3,172.5	1,648.2	480.0	1,576.8	1.29	0.62	1.95	
3,766.0	35.73	73.90	3,240.8	1,697.1	493.8	1,623.7	0.56	0.37	0.73	
3,851.0	36.56	76.19	3,309.4	1,747.2	506.7	1,672.1	1.86	0.98	2.69	
3,935.0	36.52	75.57	3,376.9	1,797.1	518.9	1,720.6	0.44	-0.05	-0.74	
4,019.0	35.73	75.09	3,444.8	1,846.6	531.4	1,768.5	1.00	-0.94	-0.57	
4,104.0	33.71	74.65	3,514.6	1,895.0	544.1	1,815.2	2.39	-2.38	-0.52	
4,188.0	32.34	74.08	3,585.1	1,940.7	556.4	1,859.3	1.67	-1.63	-0.68	
4,272.0	31.25	73.77	3,656.5	1,985.0	568.6	1,901.9	1.31	-1.30	-0.37	
4,357.0	29.62	72.63	3,729.8	2,028.0	581.1	1,943.1	2.03	-1.92	-1.34	
4,441.0	27.25	71.97	3,803.6	2,068.0	593.2	1,981.2	2.85	-2.82	-0.79	

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4,525.0	25.53	70.78		3,878.9	2,105.4	605.1	2,016.6	2.14	-2.05	-1.42
4,612.0	24.43	71.14		3,957.7	2,142.1	617.1	2,051.3	1.28	-1.26	0.41
4,702.0	21.97	70.26		4,040.4	2,177.5	628.8	2,084.8	2.76	-2.73	-0.98
4,786.0	20.13	68.63		4,118.8	2,207.6	639.4	2,113.0	2.30	-2.19	-1.94
4,854.8	18.61	67.21		4,183.7	2,230.3	648.0	2,134.1	2.31	-2.20	-2.06
41B-18-07-95 TGT										
4,870.0	18.28	66.87		4,198.1	2,235.1	649.8	2,138.6	2.31	-2.19	-2.26
4,955.0	16.44	66.61		4,279.3	2,260.3	659.9	2,161.9	2.17	-2.16	-0.31
5,041.0	14.33	66.48		4,362.2	2,283.0	668.9	2,182.8	2.45	-2.45	-0.15
5,125.0	13.62	65.47		4,443.7	2,303.1	677.2	2,201.3	0.89	-0.85	-1.20
5,213.0	10.15	67.27		4,529.8	2,321.1	684.5	2,217.9	3.97	-3.94	2.05
5,302.0	8.65	65.67		4,617.6	2,335.6	690.3	2,231.3	1.71	-1.69	-1.80
5,386.2	6.36	75.60		4,701.1	2,346.5	694.0	2,241.6	3.11	-2.72	11.78
41B-18-07-95										
5,391.0	6.24	76.37		4,705.8	2,347.1	694.2	2,242.1	3.11	-2.55	16.23
5,479.0	3.78	75.88		4,793.5	2,354.7	696.0	2,249.5	2.80	-2.80	-0.56
5,565.0	1.01	146.02		4,879.4	2,357.8	696.1	2,252.7	4.15	-3.22	81.56
5,650.0	0.57	105.98		4,964.4	2,358.4	695.3	2,253.5	0.80	-0.52	-47.11
5,738.0	1.10	97.33		5,052.4	2,359.5	695.1	2,254.8	0.62	0.60	-9.83
5,824.0	1.27	119.70		5,138.4	2,360.9	694.5	2,256.4	0.57	0.20	26.01
5,911.0	1.89	76.06		5,225.4	2,363.0	694.4	2,258.7	1.50	0.71	-50.16
5,995.0	1.36	88.36		5,309.3	2,365.3	694.8	2,261.0	0.75	-0.63	14.64
6,081.0	0.97	109.24		5,395.3	2,366.9	694.6	2,262.7	0.66	-0.45	24.28
6,169.0	0.93	2.89		5,483.3	2,367.7	695.0	2,263.4	1.73	-0.05	-120.85
6,258.0	0.66	281.59		5,572.3	2,367.5	695.8	2,263.0	1.19	-0.30	-91.35
6,347.0	1.10	236.34		5,661.3	2,366.3	695.5	2,261.8	0.89	0.49	-50.84
6,431.0	1.36	221.96		5,745.3	2,364.6	694.3	2,260.4	0.48	0.31	-17.12

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6,515.0	0.40	221.03	5,829.3	2,363.5	693.3	2,259.6	1.14	-1.14	-1.11	
6,600.0	0.44	96.71	5,914.3	2,363.6	693.1	2,259.7	0.87	0.05	-146.26	
6,684.0	0.88	274.82	5,998.3	2,363.3	693.1	2,259.4	1.57	0.52	212.04	
6,769.0	1.54	251.53	6,083.2	2,361.5	692.8	2,257.6	0.95	0.78	-27.40	
6,853.0	1.85	252.72	6,167.2	2,359.1	692.0	2,255.3	0.37	0.37	1.42	
6,937.0	2.11	255.09	6,251.2	2,356.2	691.2	2,252.5	0.32	0.31	2.82	
7,045.0	2.11	246.83	6,359.1	2,352.2	689.9	2,248.7	0.28	0.00	-7.65	
Last PZD Survey										
7,100.0	2.11	246.83	6,414.0	2,350.2	689.1	2,246.9	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)		
1,825.0	1,681.6	149.6	521.1	Last PZD Surface Survey	
7,045.0	6,359.1	689.9	2,248.7	Last PZD Survey	
7,100.0	6,414.0	689.1	2,246.9	Straightline Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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