



Ursa Operating Company, LLC

Rockies Region

BMC D

BMC D 12A-18-07-95

Wellbore #1

Design: Actual

End of Well Report

16 May, 2017



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well BMC D 12A-18-07-95
Project:	Rockies Region	TVD Reference:	BMC D 12A-18-07-95 @ 5285.0usft (Plan KB)
Site:	BMC D	MD Reference:	BMC D 12A-18-07-95 @ 5285.0usft (Plan KB)
Well:	BMC D 12A-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:		Latitude:	
From:	Lat/Long	Easting:		Longitude:	
Position Uncertainty:	0.0 usft	Slot Radius:		Grid Convergence:	

Well		BMC D 12A-18-07-95, SHL Lat: 39.441596985 Long: -108.040564701				
Well Position	+N-S	0.0 usft	Northing:	1,595,763.28 usft	Latitude:	39.441596985
	+E-W	0.0 usft	Easting:	2,282,590.81 usft	Longitude:	-108.040564701
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,285.0 usft	Ground Level:	5,268.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/16/2017	9.72	65.54	51,509

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	263.58

Survey Program		Date	5/16/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
111.0	6,730.0	Surface (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	
111.0	0.57	210.35	111.0	0.3	-0.5	-0.3	0.51	0.51	0.00	
140.0	0.79	204.37	140.0	0.5	-0.8	-0.4	0.80	0.76	-20.62	
169.0	0.79	240.37	169.0	0.8	-1.1	-0.7	1.68	0.00	124.14	
200.0	1.49	283.61	200.0	1.4	-1.1	-1.3	3.43	2.26	139.48	
230.0	2.56	279.76	230.0	2.4	-0.9	-2.3	3.59	3.57	-12.83	
261.0	3.56	279.34	260.9	4.0	-0.6	-3.9	3.23	3.23	-1.35	
291.0	4.39	283.34	290.9	6.0	-0.2	-6.0	2.92	2.77	13.33	
322.0	5.05	271.48	321.7	8.4	0.1	-8.5	3.79	2.13	-38.26	
352.0	5.63	278.55	351.6	11.2	0.4	-11.3	2.92	1.93	23.57	
383.0	6.77	280.75	382.4	14.4	0.9	-14.6	3.76	3.68	7.10	
414.0	7.65	274.03	413.2	18.1	1.4	-18.4	3.93	2.84	-21.68	
444.0	8.39	272.93	442.9	22.3	1.7	-22.6	2.52	2.47	-3.67	
475.0	9.67	268.71	473.5	27.1	1.7	-27.5	4.65	4.13	-13.61	
505.0	10.55	265.28	503.0	32.3	1.5	-32.7	3.55	2.93	-11.43	
536.0	11.95	263.52	533.5	38.4	0.9	-38.7	4.65	4.52	-5.68	
566.0	12.88	262.82	562.7	44.8	0.1	-45.1	3.14	3.10	-2.33	
597.0	14.21	260.91	592.9	52.1	-0.9	-52.3	4.53	4.29	-6.16	
628.0	15.73	261.99	622.8	60.1	-2.1	-60.2	4.98	4.90	3.48	
658.0	16.61	261.46	651.6	68.5	-3.3	-68.5	2.97	2.93	-1.77	
688.0	17.62	264.32	680.3	77.3	-4.4	-77.3	4.38	3.37	9.53	
719.0	18.24	265.01	709.8	86.8	-5.3	-86.8	2.11	2.00	2.23	
750.0	19.03	265.06	739.2	96.7	-6.2	-96.6	2.55	2.55	0.16	
780.0	19.86	263.88	767.5	106.7	-7.1	-106.6	3.06	2.77	-3.93	
811.0	20.94	261.42	796.5	117.5	-8.5	-117.3	4.45	3.48	-7.94	
841.0	22.26	262.40	824.4	128.5	-10.1	-128.2	4.56	4.40	3.27	
883.0	23.69	261.72	863.1	144.9	-12.3	-144.5	3.46	3.40	-1.62	

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Well:	BMC D 12A-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)
926.0	25.44	262.21	902.2	162.8	-14.8	-162.2	4.10	4.07	1.14
968.0	27.33	263.30	939.8	181.5	-17.2	-180.7	4.65	4.50	2.60
1,010.0	28.78	263.66	976.9	201.2	-19.4	-200.3	3.48	3.45	0.86
1,052.0	30.01	263.17	1,013.5	221.8	-21.8	-220.8	2.98	2.93	-1.17
1,094.0	30.83	262.14	1,049.7	243.1	-24.5	-241.9	2.31	1.95	-2.45
1,136.0	30.94	262.12	1,085.7	264.6	-27.5	-263.2	0.26	0.26	-0.05
1,178.0	30.95	261.71	1,121.8	286.2	-30.5	-284.6	0.50	0.02	-0.98
1,220.0	30.94	261.02	1,157.8	307.8	-33.7	-306.0	0.85	-0.02	-1.64
1,263.0	30.78	260.68	1,194.7	329.8	-37.2	-327.7	0.55	-0.37	-0.79
1,305.0	30.89	260.76	1,230.8	351.3	-40.7	-349.0	0.28	0.26	0.19
1,347.0	29.93	262.73	1,267.0	372.6	-43.8	-370.0	3.30	-2.29	4.69
1,389.0	29.62	263.74	1,303.4	393.4	-46.2	-390.7	1.40	-0.74	2.40
1,431.0	29.44	264.32	1,340.0	414.1	-48.4	-411.3	0.80	-0.43	1.38
1,473.0	29.49	264.53	1,376.5	434.8	-50.4	-431.9	0.27	0.12	0.50
1,516.0	30.72	264.75	1,413.7	456.4	-52.4	-453.4	2.87	2.86	0.51
1,558.0	30.59	264.32	1,449.9	477.8	-54.4	-474.7	0.61	-0.31	-1.02
1,600.0	30.23	263.04	1,486.1	499.0	-56.8	-495.8	1.76	-0.86	-3.05
1,642.0	31.07	263.79	1,522.2	520.5	-59.2	-517.1	2.20	2.00	1.79
1,684.0	31.64	263.88	1,558.1	542.3	-61.6	-538.8	1.36	1.36	0.21
1,726.0	33.42	263.56	1,593.5	564.9	-64.0	-561.2	4.26	4.24	-0.76
1,769.0	34.37	263.96	1,629.2	588.9	-66.7	-585.1	2.27	2.21	0.93
1,795.0	34.45	264.67	1,650.6	603.6	-68.1	-599.7	1.57	0.31	2.73
Last PZD Surface Survey									
1,871.0	34.16	264.61	1,713.4	646.4	-72.1	-642.4	0.38	-0.38	-0.08
1,955.0	33.44	262.91	1,783.2	693.1	-77.2	-688.8	1.41	-0.86	-2.02
2,039.0	32.21	261.20	1,853.8	738.6	-83.5	-733.9	1.83	-1.46	-2.04
2,124.0	31.38	262.16	1,926.1	783.4	-89.9	-778.2	1.14	-0.98	1.13

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2,208.0	32.43	265.63	1,997.4	827.8	-94.6	-822.3	2.52	1.25	4.13
2,292.0	32.30	265.81	2,068.3	872.7	-98.0	-867.2	0.19	-0.15	0.21
2,376.0	31.60	264.80	2,139.6	917.1	-101.6	-911.5	1.05	-0.83	-1.20
2,461.0	30.72	263.61	2,212.3	961.1	-106.1	-955.2	1.26	-1.04	-1.40
2,545.0	32.91	263.95	2,283.7	1,005.4	-110.9	-999.2	2.62	2.61	0.40
2,630.0	32.30	262.73	2,355.3	1,051.2	-116.2	-1,044.7	1.06	-0.72	-1.44
2,714.0	31.77	261.11	2,426.5	1,095.7	-122.4	-1,088.9	1.20	-0.63	-1.93
2,799.0	31.25	260.96	2,499.0	1,140.1	-129.4	-1,132.7	0.62	-0.61	-0.18
2,883.0	30.01	259.48	2,571.3	1,182.8	-136.6	-1,174.9	1.73	-1.48	-1.76
2,968.0	31.25	263.17	2,644.4	1,226.1	-143.1	-1,217.7	2.65	1.46	4.34
3,052.0	30.94	263.88	2,716.4	1,269.5	-148.0	-1,260.8	0.57	-0.37	0.85
3,136.0	29.66	263.44	2,788.9	1,311.8	-152.7	-1,302.9	1.55	-1.52	-0.52
3,223.0	30.10	263.30	2,864.3	1,355.2	-157.7	-1,346.0	0.51	0.51	-0.16
3,311.0	32.21	265.63	2,939.6	1,400.7	-162.1	-1,391.3	2.76	2.40	2.65
3,397.0	31.60	264.01	3,012.6	1,446.1	-166.2	-1,436.6	1.22	-0.71	-1.88
3,483.0	30.76	263.30	3,086.2	1,490.6	-171.1	-1,480.8	1.07	-0.98	-0.83
3,567.0	28.56	263.66	3,159.2	1,532.2	-175.8	-1,522.1	2.63	-2.62	0.43
3,652.0	25.75	263.88	3,234.8	1,571.0	-180.0	-1,560.7	3.31	-3.31	0.26
3,740.0	23.51	265.24	3,314.8	1,607.7	-183.5	-1,597.2	2.63	-2.55	1.55
3,827.0	20.35	261.85	3,395.5	1,640.1	-187.1	-1,629.4	3.91	-3.63	-3.90
3,913.0	18.41	263.61	3,476.6	1,668.7	-190.7	-1,657.7	2.36	-2.26	2.05
4,000.0	15.60	262.91	3,559.8	1,694.1	-193.7	-1,683.0	3.24	-3.23	-0.80
4,088.0	13.70	265.62	3,645.0	1,716.4	-196.0	-1,705.1	2.29	-2.16	3.08
4,177.0	11.33	261.70	3,731.8	1,735.6	-198.0	-1,724.3	2.83	-2.66	-4.40
4,265.0	9.45	267.61	3,818.4	1,751.5	-199.6	-1,740.1	2.45	-2.14	6.72
4,352.0	7.08	261.59	3,904.5	1,764.0	-200.6	-1,752.5	2.90	-2.72	-6.92
4,441.0	4.00	264.40	3,993.1	1,772.5	-201.8	-1,761.0	3.47	-3.46	3.16

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4,493.8	2.44	270.21	4,045.7	1,775.5	-201.9	-1,764.0	3.02	-2.96	11.00	
12A-18-07-95 TGT										
4,527.0	1.49	280.05	4,079.0	1,776.6	-201.9	-1,765.1	3.02	-2.85	29.62	
4,616.0	0.53	95.21	4,167.9	1,777.3	-201.7	-1,765.9	2.27	-1.08	196.81	
4,704.0	1.01	113.23	4,255.9	1,776.3	-202.0	-1,764.7	0.60	0.55	20.48	
4,793.0	0.88	143.73	4,344.9	1,775.2	-202.9	-1,763.6	0.58	-0.15	34.27	
4,879.0	1.14	169.83	4,430.9	1,774.8	-204.3	-1,763.1	0.61	0.30	30.35	
4,964.0	0.53	354.53	4,515.9	1,774.8	-204.7	-1,763.0	1.96	-0.72	-206.24	
5,048.0	0.77	291.62	4,599.9	1,775.3	-204.1	-1,763.5	0.84	0.29	-74.89	
5,132.0	0.92	277.76	4,683.9	1,776.4	-203.8	-1,764.7	0.30	0.18	-16.50	
5,217.0	0.97	289.85	4,768.9	1,777.7	-203.5	-1,766.1	0.24	0.06	14.22	
5,301.0	0.57	276.58	4,852.9	1,778.8	-203.2	-1,767.1	0.52	-0.48	-15.80	
5,386.0	0.92	249.68	4,937.9	1,779.9	-203.4	-1,768.2	0.57	0.41	-31.65	
5,470.0	1.49	220.24	5,021.8	1,781.3	-204.4	-1,769.5	0.98	0.68	-35.05	
5,554.0	0.86	245.74	5,105.8	1,782.7	-205.5	-1,770.8	0.96	-0.75	30.36	
5,639.0	0.99	354.98	5,190.8	1,783.3	-205.1	-1,771.5	1.78	0.15	128.52	
5,723.0	0.88	6.44	5,274.8	1,783.1	-203.7	-1,771.5	0.26	-0.13	13.64	
5,807.0	0.88	351.28	5,358.8	1,783.0	-202.4	-1,771.5	0.28	0.00	-18.05	
5,892.0	0.70	303.07	5,443.8	1,783.4	-201.5	-1,772.0	0.78	-0.21	-56.72	
5,976.0	1.01	258.21	5,527.8	1,784.6	-201.4	-1,773.2	0.85	0.37	-53.40	
6,060.0	1.36	249.86	5,611.8	1,786.3	-201.9	-1,774.8	0.46	0.42	-9.94	
6,144.0	1.76	234.61	5,695.7	1,788.4	-203.0	-1,776.8	0.68	0.48	-18.15	
6,229.0	2.07	210.66	5,780.7	1,790.4	-205.0	-1,778.7	1.00	0.36	-28.18	
6,313.0	1.76	256.71	5,864.7	1,792.6	-206.6	-1,780.7	1.82	-0.37	54.82	
6,397.0	1.71	261.20	5,948.6	1,795.2	-207.1	-1,783.2	0.17	-0.06	5.35	
6,482.0	2.20	263.57	6,033.6	1,798.1	-207.5	-1,786.1	0.58	0.58	2.79	
6,566.0	1.93	257.02	6,117.5	1,801.1	-208.0	-1,789.0	0.43	-0.32	-7.80	

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6,650.0	2.33	243.22	6,201.5	1,804.1	-209.1	-1,792.0	0.77	0.48	-16.43
6,670.0	2.32	239.50	6,221.4	1,804.8	-209.5	-1,792.7	0.76	-0.05	-18.60
Last PZD Survey									
6,730.0	2.32	239.50	6,281.4	1,807.1	-210.7	-1,794.8	0.00	0.00	0.00
Straightline Projection to TD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,795.0	1,650.6	-68.1	-599.7	Last PZD Surface Survey	
6,670.0	6,221.4	-209.5	-1,792.7	Last PZD Survey	
6,730.0	6,281.4	-210.7	-1,794.8	Straightline Projection to TD	

Checked By: _____ Approved By: _____ Date: _____

