



Ursa Operating Company, LLC

Rockies Region

Monument Ridge B

Monument Ridge B 21A-17-07-95

Wellbore #1

Design: Actual

End of Well Report

23 November, 2016



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Monument Ridge B 21A-17-07-95
Project:	Rockies Region	TVD Reference:	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capst)
Site:	Monument Ridge B	MD Reference:	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capst)
Well:	Monument Ridge B 21A-17-07-95	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	Monument Ridge B		
Site Position:		Northing:	1,596,716.56 usft
From:	Lat/Long	Easting:	2,287,433.43 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39.444583700
		Longitude:	-108.023518100
		Grid Convergence:	-1.59 °

Well		Monument Ridge B 21A-17-07-95, SHL: 39.447585824 -108.012276372				
Well Position	+N/-S	0.0 usft	Northing:	1,597,721.64 usft	Latitude:	39.447585824
	+E/-W	0.0 usft	Easting:	2,290,637.19 usft	Longitude:	-108.012276372
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,718.8 usft	Ground Level:	5,701.8 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/23/2016	9.76	65.55	51,566

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	251.76	

Survey Program	Date	11/23/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
113.0	8,090.0	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	
113.0	0.09	282.60	113.0	0.1	0.0	-0.1	0.08	0.08	0.00	
144.0	0.44	278.03	144.0	0.2	0.0	-0.2	1.13	1.13	-14.74	
174.0	1.10	265.16	174.0	0.6	0.0	-0.6	2.26	2.20	-42.90	
204.0	1.99	262.92	204.0	1.4	-0.1	-1.4	2.97	2.97	-7.47	
233.0	2.64	261.51	233.0	2.5	-0.2	-2.6	2.25	2.24	-4.86	
263.0	3.21	258.52	262.9	4.0	-0.5	-4.1	1.97	1.90	-9.97	
294.0	3.56	258.12	293.9	5.9	-0.9	-5.9	1.13	1.13	-1.29	
324.0	3.74	262.70	323.8	7.8	-1.2	-7.8	1.14	0.60	15.27	
355.0	4.20	260.23	354.7	9.9	-1.5	-9.9	1.58	1.48	-7.97	
385.0	4.66	266.34	384.6	12.1	-1.8	-12.2	2.19	1.53	20.37	
416.0	5.32	267.84	415.5	14.7	-1.9	-14.9	2.17	2.13	4.84	
446.0	5.93	260.95	445.4	17.6	-2.2	-17.8	3.03	2.03	-22.97	
477.0	6.63	256.45	476.2	21.0	-2.9	-21.1	2.76	2.26	-14.52	
508.0	7.38	257.47	507.0	24.7	-3.7	-24.8	2.45	2.42	3.29	
538.0	8.39	258.04	536.7	28.8	-4.6	-28.8	3.38	3.37	1.90	
569.0	9.27	258.78	567.3	33.5	-5.5	-33.5	2.86	2.84	2.39	
600.0	10.50	260.76	597.9	38.8	-6.5	-38.7	4.12	3.97	6.39	
631.0	11.87	256.10	628.3	44.8	-7.7	-44.6	5.29	4.42	-15.03	
692.0	14.85	249.78	687.6	58.9	-11.9	-58.0	5.43	4.89	-10.36	
722.0	16.17	251.71	716.5	66.9	-14.5	-65.6	4.72	4.40	6.43	
752.0	17.45	249.69	745.2	75.5	-17.4	-73.8	4.69	4.27	-6.73	
782.0	18.63	248.94	773.8	84.8	-20.7	-82.5	4.01	3.93	-2.50	
813.0	19.64	249.69	803.0	95.0	-24.3	-92.0	3.35	3.26	2.42	
843.0	20.67	250.93	831.2	105.3	-27.8	-101.7	3.72	3.43	4.13	
885.0	22.15	252.32	870.3	120.6	-32.6	-116.3	3.72	3.52	3.31	
928.0	23.64	252.63	909.9	137.4	-37.6	-132.2	3.48	3.47	0.72	

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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)
971.0	25.05	252.41	949.1	155.1	-43.0	-149.1	3.29	3.28	-0.51
1,014.0	26.85	252.28	987.8	173.9	-48.7	-167.1	4.19	4.19	-0.30
1,056.0	28.70	252.10	1,024.9	193.5	-54.7	-185.7	4.41	4.40	-0.43
1,099.0	30.23	251.97	1,062.4	214.6	-61.2	-205.8	3.56	3.56	-0.30
1,142.0	31.90	252.68	1,099.2	236.8	-67.9	-227.0	3.98	3.88	1.65
1,185.0	33.44	253.03	1,135.4	260.0	-74.7	-249.1	3.61	3.58	0.81
1,227.0	34.80	252.98	1,170.2	283.6	-81.6	-271.7	3.24	3.24	-0.12
1,270.0	36.08	254.43	1,205.2	308.5	-88.6	-295.6	3.56	2.98	3.37
1,313.0	37.35	255.14	1,239.7	334.2	-95.4	-320.4	3.11	2.95	1.65
1,355.0	38.58	254.96	1,272.8	360.0	-102.0	-345.4	2.94	2.93	-0.43
1,398.0	40.08	253.95	1,306.0	387.2	-109.3	-371.6	3.79	3.49	-2.35
1,441.0	41.82	252.02	1,338.5	415.4	-117.6	-398.6	5.00	4.05	-4.49
1,484.0	43.06	250.17	1,370.2	444.4	-127.0	-426.0	4.09	2.88	-4.30
1,526.0	43.37	249.51	1,400.8	473.1	-136.9	-453.0	1.30	0.74	-1.57
1,569.0	43.42	248.81	1,432.1	502.6	-147.4	-480.6	1.12	0.12	-1.63
1,612.0	43.44	248.46	1,463.3	532.1	-158.2	-508.2	0.56	0.05	-0.81
1,654.0	43.51	247.93	1,493.8	561.0	-168.9	-535.0	0.88	0.17	-1.26
1,697.0	43.51	247.40	1,525.0	590.5	-180.2	-562.4	0.85	0.00	-1.23
1,739.0	43.15	248.81	1,555.5	619.3	-190.9	-589.1	2.46	-0.86	3.36
1,782.0	43.24	249.69	1,586.9	648.7	-201.4	-616.6	1.42	0.21	2.05
1,825.0	43.02	251.23	1,618.3	678.1	-211.2	-644.3	2.50	-0.51	3.58
1,868.0	42.80	251.36	1,649.8	707.3	-220.6	-672.1	0.55	-0.51	0.30
1,910.0	42.76	251.05	1,680.6	735.9	-229.8	-699.1	0.51	-0.10	-0.74
Last PZD Surface Survey									
2,000.0	43.69	249.64	1,746.2	797.5	-250.5	-757.1	1.49	1.03	-1.57
2,086.0	44.43	249.07	1,808.0	857.2	-271.6	-813.1	0.98	0.86	-0.66
2,171.0	43.33	248.41	1,869.2	916.1	-292.9	-868.0	1.40	-1.29	-0.78

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Survey										
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2,257.0	42.67	250.00	1,932.1	974.6	-313.8	-922.8	1.48	-0.77	1.85	
2,342.0	43.59	250.83	1,994.2	1,032.7	-333.2	-977.6	1.27	1.08	0.98	
2,428.0	44.34	251.58	2,056.1	1,092.4	-352.5	-1,034.1	1.06	0.87	0.87	
2,513.0	44.87	251.36	2,116.6	1,152.1	-371.5	-1,090.7	0.65	0.62	-0.26	
2,599.0	44.12	250.79	2,177.9	1,212.4	-391.0	-1,147.7	0.99	-0.87	-0.66	
2,684.0	44.21	251.49	2,238.9	1,271.6	-410.1	-1,203.7	0.58	0.11	0.82	
2,770.0	43.81	250.83	2,300.8	1,331.4	-429.4	-1,260.3	0.71	-0.47	-0.77	
2,855.0	44.34	251.49	2,361.8	1,390.5	-448.5	-1,316.2	0.82	0.62	0.78	
2,940.0	44.03	251.71	2,422.8	1,449.7	-467.2	-1,372.4	0.41	-0.36	0.26	
3,025.0	43.02	250.83	2,484.4	1,508.3	-486.0	-1,427.9	1.39	-1.19	-1.04	
3,111.0	43.90	250.96	2,546.8	1,567.4	-505.4	-1,483.8	1.03	1.02	0.15	
3,197.0	43.90	251.09	2,608.8	1,627.0	-524.8	-1,540.2	0.10	0.00	0.15	
3,282.0	43.02	250.39	2,670.5	1,685.5	-544.1	-1,595.4	1.18	-1.04	-0.82	
3,368.0	43.68	250.52	2,733.0	1,744.5	-563.8	-1,651.0	0.77	0.77	0.15	
3,453.0	43.90	251.09	2,794.4	1,803.3	-583.1	-1,706.5	0.53	0.26	0.67	
3,539.0	42.80	250.83	2,856.9	1,862.3	-602.4	-1,762.4	1.30	-1.28	-0.30	
3,624.0	43.20	251.54	2,919.1	1,920.3	-621.1	-1,817.2	0.74	0.47	0.84	
3,709.0	43.18	251.36	2,981.1	1,978.5	-639.6	-1,872.4	0.15	-0.02	-0.21	
3,795.0	43.29	251.36	3,043.7	2,037.4	-658.4	-1,928.2	0.13	0.13	0.00	
3,880.0	44.47	251.53	3,105.0	2,096.3	-677.2	-1,984.0	1.40	1.39	0.20	
3,966.0	45.18	250.83	3,166.0	2,156.9	-696.7	-2,041.4	1.01	0.83	-0.81	
4,051.0	44.87	250.96	3,226.1	2,217.1	-716.4	-2,098.2	0.38	-0.36	0.15	
4,137.0	43.77	250.79	3,287.6	2,277.1	-736.1	-2,155.0	1.29	-1.28	-0.20	
4,222.0	43.99	250.00	3,348.9	2,336.0	-755.9	-2,210.5	0.69	0.26	-0.93	
4,307.0	44.37	250.82	3,409.8	2,395.3	-775.7	-2,266.3	0.81	0.45	0.96	
4,393.0	43.95	250.26	3,471.5	2,455.2	-795.7	-2,322.8	0.67	-0.49	-0.65	
4,478.0	43.15	249.56	3,533.1	2,513.7	-815.8	-2,377.8	1.10	-0.94	-0.82	

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4,563.0	41.81	248.87	3,595.8	2,571.0	-836.2	-2,431.5	1.67	-1.58	-0.81	
4,648.0	41.79	249.82	3,659.2	2,627.6	-856.2	-2,484.5	0.75	-0.02	1.12	
4,734.0	41.70	251.53	3,723.3	2,684.9	-875.1	-2,538.5	1.33	-0.10	1.99	
4,819.0	41.13	251.23	3,787.1	2,741.1	-893.1	-2,591.8	0.71	-0.67	-0.35	
4,904.0	40.43	251.80	3,851.4	2,796.6	-910.7	-2,644.5	0.93	-0.82	0.67	
4,990.0	39.11	251.36	3,917.5	2,851.6	-928.0	-2,696.7	1.57	-1.53	-0.51	
5,075.0	38.10	251.14	3,984.0	2,904.7	-945.1	-2,746.9	1.20	-1.19	-0.26	
5,160.0	36.83	251.05	4,051.4	2,956.4	-961.8	-2,795.8	1.50	-1.49	-0.11	
5,245.0	33.49	250.17	4,120.9	3,005.3	-978.1	-2,842.0	3.97	-3.93	-1.04	
5,331.0	30.10	249.95	4,194.0	3,050.6	-993.5	-2,884.6	3.94	-3.94	-0.26	
5,417.0	26.85	248.81	4,269.6	3,091.5	-1,007.9	-2,922.9	3.83	-3.78	-1.33	
5,502.0	23.64	248.15	4,346.5	3,127.7	-1,021.2	-2,956.7	3.79	-3.78	-0.78	
5,587.0	20.52	248.85	4,425.2	3,159.6	-1,032.9	-2,986.4	3.68	-3.67	0.82	
5,673.0	17.45	248.85	4,506.5	3,187.6	-1,043.0	-3,012.5	3.57	-3.57	0.00	
5,758.0	15.73	248.15	4,588.0	3,211.8	-1,051.9	-3,035.0	2.04	-2.02	-0.82	
5,843.0	14.55	246.18	4,670.0	3,233.9	-1,060.5	-3,055.5	1.51	-1.39	-2.32	
5,878.9	13.84	247.06	4,704.8	3,242.7	-1,064.0	-3,063.6	2.06	-1.97	2.44	
Monument Ridge B 21A-17-07-95										
5,928.0	12.88	248.41	4,752.6	3,254.0	-1,068.3	-3,074.1	2.06	-1.96	2.75	
6,014.0	11.03	253.07	4,836.7	3,271.8	-1,074.2	-3,090.9	2.42	-2.15	5.42	
6,099.0	10.55	252.81	4,920.2	3,287.7	-1,078.9	-3,106.1	0.57	-0.56	-0.31	
6,185.0	8.44	258.48	5,005.1	3,301.9	-1,082.5	-3,119.8	2.68	-2.45	6.59	
6,270.0	6.64	263.88	5,089.3	3,312.9	-1,084.3	-3,130.8	2.27	-2.12	6.35	
6,355.0	4.39	270.03	5,173.9	3,320.7	-1,084.8	-3,138.9	2.73	-2.65	7.24	
6,441.0	2.90	269.68	5,259.7	3,325.9	-1,084.8	-3,144.4	1.73	-1.73	-0.41	
6,526.0	2.99	268.14	5,344.6	3,330.1	-1,084.9	-3,148.8	0.14	0.11	-1.81	
6,612.0	1.67	252.98	5,430.6	3,333.5	-1,085.3	-3,152.2	1.68	-1.53	-17.63	

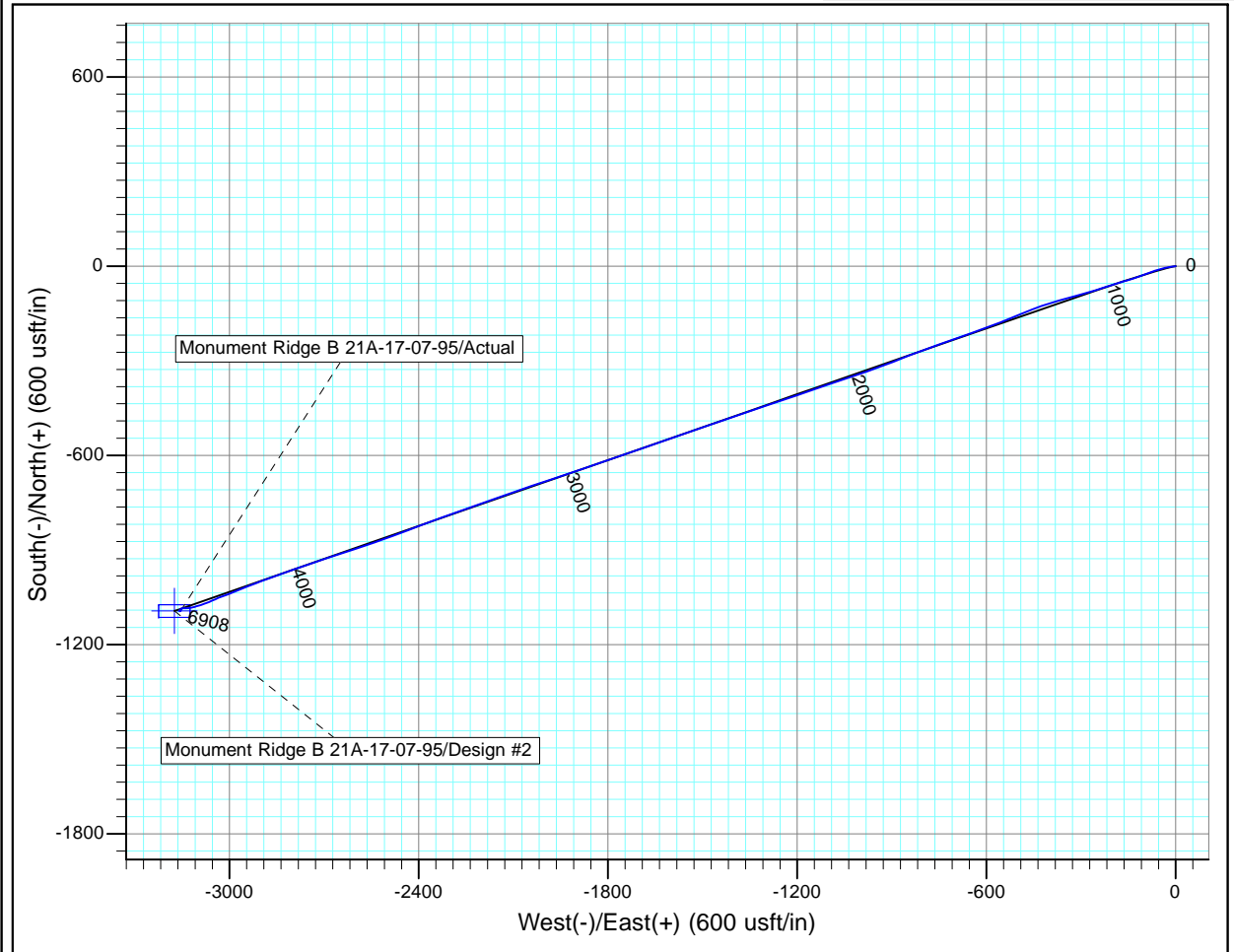
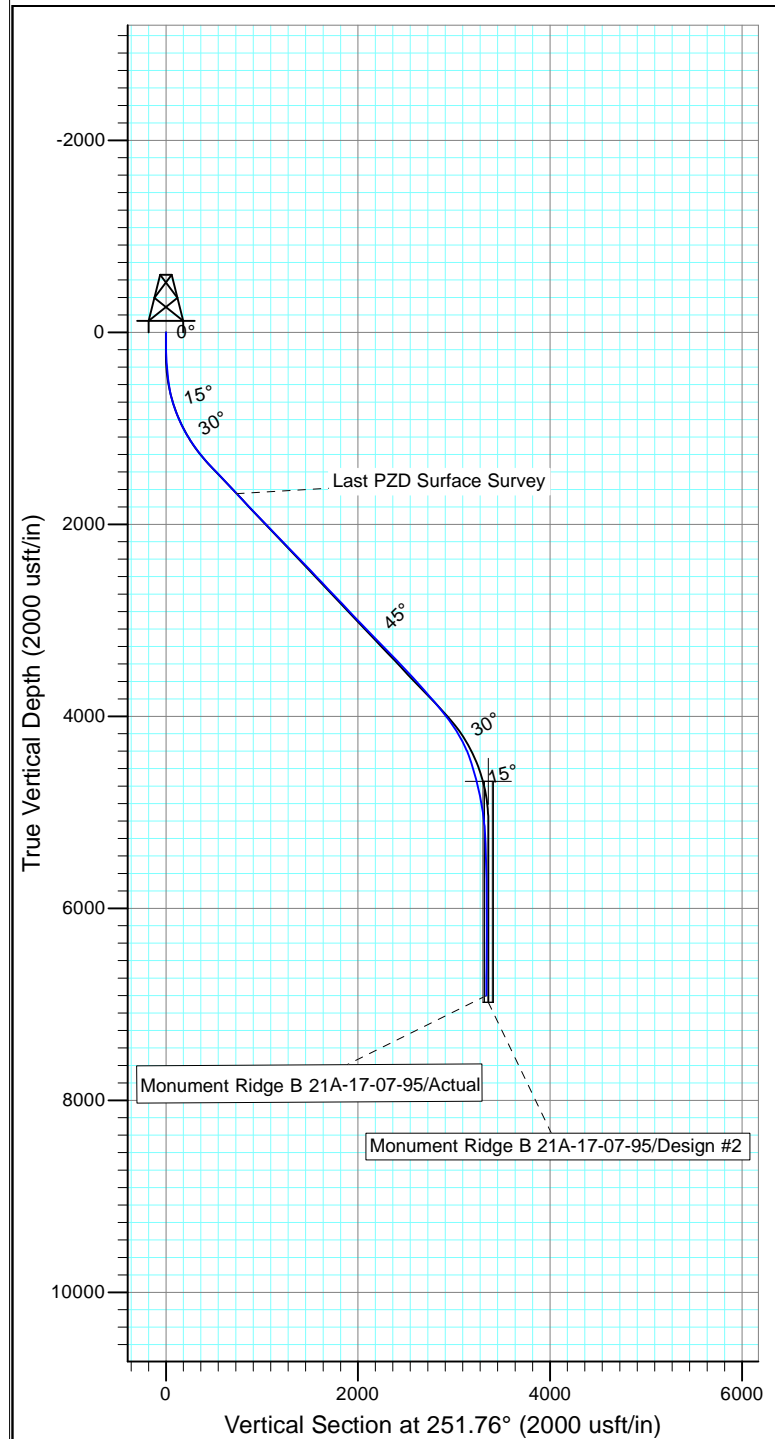
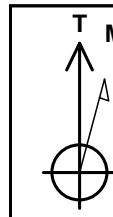
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6,697.0	1.18	203.01	5,515.5	3,335.3	-1,086.5	-3,153.7	1.51	-0.58	-58.79	
6,782.0	0.97	213.43	5,600.5	3,336.5	-1,087.9	-3,154.5	0.34	-0.25	12.26	
6,868.0	1.01	202.80	5,686.5	3,337.5	-1,089.2	-3,155.2	0.22	0.05	-12.36	
6,953.0	1.01	197.92	5,771.5	3,338.5	-1,090.6	-3,155.7	0.10	0.00	-5.74	
7,038.0	1.18	216.14	5,856.5	3,339.6	-1,092.0	-3,156.4	0.45	0.20	21.44	
7,124.0	0.75	209.13	5,942.5	3,340.8	-1,093.2	-3,157.2	0.52	-0.50	-8.15	
7,209.0	0.83	219.54	6,027.5	3,341.7	-1,094.2	-3,157.9	0.19	0.09	12.25	
7,294.0	0.44	345.44	6,112.5	3,342.2	-1,094.4	-3,158.4	1.35	-0.46	148.12	
7,380.0	0.83	1.78	6,198.5	3,342.0	-1,093.4	-3,158.4	0.50	0.45	19.00	
7,465.0	1.01	2.71	6,283.4	3,341.5	-1,092.0	-3,158.4	0.21	0.21	1.09	
7,551.0	0.66	343.51	6,369.4	3,341.2	-1,090.8	-3,158.5	0.52	-0.41	-22.33	
7,636.0	0.57	66.04	6,454.4	3,340.8	-1,090.2	-3,158.2	0.96	-0.11	97.09	
7,721.0	0.89	95.40	6,539.4	3,339.7	-1,090.1	-3,157.2	0.57	0.38	34.54	
7,806.0	1.00	99.33	6,624.4	3,338.5	-1,090.2	-3,155.8	0.15	0.13	4.62	
7,892.0	0.75	133.10	6,710.4	3,337.5	-1,090.8	-3,154.6	0.65	-0.29	39.27	
7,977.0	0.40	167.99	6,795.4	3,337.3	-1,091.4	-3,154.2	0.56	-0.41	41.05	
8,020.0	0.57	193.61	6,838.4	3,337.4	-1,091.8	-3,154.2	0.63	0.40	59.58	
Last PZD Survey										
8,090.0	0.57	193.61	6,908.4	3,337.8	-1,092.5	-3,154.4	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	
1,910.0	1,680.6	-229.8	-699.1	Last PZD Surface Survey	
8,020.0	6,838.4	-1,091.8	-3,154.2	Last PZD Survey	
8,090.0	6,908.4	-1,092.5	-3,154.4	Straightline Projection to TD	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Monument Ridge B 21A-17-07-95
Project:	Rockies Region	TVD Reference:	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capst:
Site:	Monument Ridge B	MD Reference:	Monument Ridge B 21A-17-07-95 @ 5718.8usft (Capst:
Well:	Monument Ridge B 21A-17-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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Design: Actual (Monument Ridge B 21A-17-07-95/Wellbore #1)

Created By: Derek Stephens Date: 9:26, November 23 2016

THIS SURVEY IS CORRECT TO THE BEST OF
 MY KNOWLEDGE AND IS SUPPORTED
 BY ACTUAL FIELD DATA