



# **Ursa Operating Company, LLC**

**Rockies Region**

**Monument Ridge B**

**Monument Ridge B 31C-17-07-95**

**Wellbore #1**

**Design: Actual**

## **End Of Well Report**

**03 October, 2016**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

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		

Site		Monument Ridge B			
Site Position:		Northing:		1,596,716.56 usft	
From:	Lat/Long	Easting:		2,287,433.43 usft	
Position Uncertainty:		Slot Radius:		13-3/16 "	
				Latitude:	
				39.4445837	
				Longitude:	
				-108.0235181	
				Grid Convergence:	
				-1.59 °	

Well		Monument Ridge B 31C-17-07-95, SHL: 39.447476056 -108.012276363				
Well Position	+N/-S	0.0 usft	Northing:	1,597,681.67 usft	Latitude:	39.4474760
	+E/-W	0.0 usft	Easting:	2,290,636.08 usft	Longitude:	-108.0122764
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	8/1/2016	9.79	65.56	51,600

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	224.08

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey Program		Date	10/3/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
142.0	1,840.0	Surface (Wellbore #1)	MWD	MWD - Standard	
1,840.0	7,750.0	Production (Wellbore #1)	MWD	MWD - Standard	

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
142.0	0.97	335.95	142.0	-0.4	1.1	-0.5	0.68	0.68	0.00
172.0	1.05	339.82	172.0	-0.7	1.6	-0.7	0.35	0.27	12.90
202.0	0.40	345.31	202.0	-0.8	1.9	-0.8	2.18	-2.17	18.30
231.0	0.26	26.45	231.0	-1.0	2.1	-0.8	0.92	-0.48	141.86
261.0	0.26	14.38	261.0	-1.1	2.2	-0.8	0.18	0.00	-40.23
292.0	0.53	26.09	292.0	-1.3	2.4	-0.7	0.90	0.87	37.77
323.0	0.79	51.89	323.0	-1.6	2.7	-0.4	1.25	0.84	83.23
354.0	0.62	29.87	354.0	-2.0	3.0	-0.2	1.02	-0.55	-71.03
384.0	0.44	96.98	384.0	-2.2	3.1	0.0	2.02	-0.60	223.70
415.0	0.44	156.96	415.0	-2.2	3.0	0.2	1.42	0.00	193.48
445.0	0.83	188.12	445.0	-2.0	2.6	0.2	1.69	1.30	103.87
476.0	1.36	238.79	476.0	-1.5	2.2	-0.2	3.39	1.71	163.45
506.0	2.14	225.15	506.0	-0.6	1.7	-0.9	2.93	2.60	-45.47
537.0	2.94	210.53	536.9	0.8	0.6	-1.7	3.30	2.58	-47.16
568.0	4.04	213.74	567.9	2.6	-1.0	-2.7	3.60	3.55	10.35
598.0	5.05	224.59	597.8	5.0	-2.9	-4.2	4.41	3.37	36.17
629.0	6.55	222.44	628.6	8.1	-5.1	-6.4	4.89	4.84	-6.94
660.0	7.73	220.51	659.4	12.0	-8.0	-8.9	3.88	3.81	-6.23
690.0	9.18	222.40	689.0	16.4	-11.3	-11.8	4.92	4.83	6.30
721.0	10.68	224.20	719.6	21.7	-15.2	-15.5	4.94	4.84	5.81

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
750.0	12.00	223.54	748.0	27.4	-19.3	-19.5	4.57	4.55	-2.28	
781.0	13.45	226.18	778.3	34.2	-24.1	-24.3	5.04	4.68	8.52	
812.0	14.96	225.60	808.3	41.8	-29.4	-29.7	4.89	4.87	-1.87	
842.0	16.22	226.41	837.2	49.9	-35.0	-35.5	4.26	4.20	2.70	
885.0	17.67	225.08	878.3	62.4	-43.8	-44.5	3.49	3.37	-3.09	
927.0	19.06	222.79	918.2	75.7	-53.3	-53.7	3.73	3.31	-5.45	
970.0	20.81	223.45	958.6	90.3	-64.0	-63.7	4.10	4.07	1.53	
1,013.0	21.80	223.32	998.7	105.9	-75.4	-74.4	2.30	2.30	-0.30	
1,055.0	23.36	222.33	1,037.5	122.1	-87.2	-85.4	3.82	3.71	-2.36	
1,098.0	24.48	223.45	1,076.8	139.5	-100.0	-97.3	2.81	2.60	2.60	
1,141.0	25.31	223.23	1,115.8	157.6	-113.1	-109.7	1.94	1.93	-0.51	
1,184.0	26.40	223.00	1,154.5	176.3	-126.8	-122.5	2.55	2.53	-0.53	
1,226.0	27.64	223.28	1,191.9	195.4	-140.8	-135.5	2.97	2.95	0.67	
1,268.0	29.18	225.79	1,228.8	215.4	-155.0	-149.6	4.64	3.67	5.98	
1,311.0	30.76	226.40	1,266.1	236.9	-169.9	-165.0	3.74	3.67	1.42	
1,354.0	32.27	225.41	1,302.7	259.3	-185.5	-181.2	3.71	3.51	-2.30	
1,396.0	33.75	224.86	1,337.9	282.2	-201.7	-197.4	3.60	3.52	-1.31	
1,439.0	35.26	223.99	1,373.4	306.5	-219.1	-214.4	3.69	3.51	-2.02	
1,482.0	37.27	224.92	1,408.0	332.0	-237.2	-232.3	4.85	4.67	2.16	
1,525.0	39.02	225.12	1,441.9	358.5	-256.0	-251.0	4.08	4.07	0.47	
1,568.0	41.31	226.00	1,474.7	386.3	-275.4	-270.8	5.49	5.33	2.05	
1,610.0	42.50	223.67	1,506.0	414.3	-295.3	-290.6	4.66	2.83	-5.55	
1,653.0	42.42	223.63	1,537.7	443.3	-316.3	-310.7	0.20	-0.19	-0.09	
1,696.0	43.11	223.94	1,569.3	472.5	-337.4	-330.9	1.68	1.60	0.72	
1,739.0	43.14	223.59	1,600.7	501.9	-358.6	-351.2	0.56	0.07	-0.81	
1,781.0	43.16	222.93	1,631.3	530.6	-379.5	-370.9	1.08	0.05	-1.57	

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
1,840.0	42.76	222.05	1,674.5	570.8	-409.2	-398.0	1.22	-0.68	-1.49	
<b>Last PZD Surface Survey</b>										
1,912.0	42.85	220.99	1,727.3	619.7	-445.8	-430.5	1.01	0.12	-1.47	
1,998.0	42.90	223.49	1,790.3	678.2	-489.1	-469.8	1.98	0.06	2.91	
2,083.0	41.75	224.20	1,853.2	735.4	-530.4	-509.4	1.47	-1.35	0.84	
2,168.0	41.18	224.09	1,916.9	791.7	-570.8	-548.6	0.68	-0.67	-0.13	
2,254.0	40.47	223.32	1,981.9	847.9	-611.4	-587.5	1.01	-0.83	-0.90	
2,339.0	40.96	225.03	2,046.4	903.4	-651.2	-626.1	1.43	0.58	2.01	
2,424.0	41.31	224.77	2,110.4	959.3	-690.8	-665.6	0.46	0.41	-0.31	
2,510.0	41.44	225.39	2,174.9	1,016.1	-730.9	-705.8	0.50	0.15	0.72	
2,595.0	40.87	224.59	2,238.9	1,072.0	-770.5	-745.4	0.91	-0.67	-0.94	
2,680.0	40.83	223.80	2,303.2	1,127.6	-810.3	-784.1	0.61	-0.05	-0.93	
2,766.0	41.00	225.08	2,368.2	1,184.0	-850.6	-823.6	0.99	0.20	1.49	
2,851.0	40.93	224.90	2,432.4	1,239.7	-890.0	-863.0	0.16	-0.08	-0.21	
2,937.0	40.87	223.58	2,497.4	1,296.0	-930.3	-902.3	1.01	-0.07	-1.53	
3,022.0	40.61	224.81	2,561.8	1,351.4	-970.1	-940.9	0.99	-0.31	1.45	
3,108.0	40.65	223.72	2,627.1	1,407.4	-1,010.2	-980.0	0.83	0.05	-1.27	
3,193.0	41.13	224.64	2,691.3	1,463.1	-1,050.1	-1,018.8	0.91	0.56	1.08	
3,279.0	39.95	223.28	2,756.7	1,519.0	-1,090.3	-1,057.6	1.71	-1.37	-1.58	
3,364.0	40.61	223.72	2,821.5	1,573.9	-1,130.2	-1,095.4	0.85	0.78	0.52	
3,450.0	40.87	223.89	2,886.7	1,630.1	-1,170.7	-1,134.3	0.33	0.30	0.20	
3,535.0	41.09	224.11	2,950.9	1,685.8	-1,210.8	-1,173.0	0.31	0.26	0.26	
3,620.0	42.06	225.74	3,014.5	1,742.2	-1,250.7	-1,212.8	1.71	1.14	1.92	
3,705.0	41.09	224.29	3,078.0	1,798.6	-1,290.6	-1,252.7	1.61	-1.14	-1.71	
3,791.0	41.40	225.56	3,142.7	1,855.3	-1,330.7	-1,292.8	1.04	0.36	1.48	
3,876.0	40.47	223.89	3,206.9	1,911.0	-1,370.3	-1,332.0	1.69	-1.09	-1.96	
3,962.0	41.31	225.21	3,271.9	1,967.3	-1,410.4	-1,371.5	1.40	0.98	1.53	

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)
4,047.0	40.43	224.33		3,336.2	2,022.9	-1,449.9	-1,410.6	1.24	-1.04	-1.04
4,132.0	40.03	221.30		3,401.1	2,077.7	-1,490.1	-1,447.9	2.35	-0.47	-3.56
4,218.0	37.49	224.37		3,468.2	2,131.5	-1,529.6	-1,484.5	3.70	-2.95	3.57
4,303.0	37.05	226.09		3,535.8	2,183.0	-1,565.9	-1,521.0	1.33	-0.52	2.02
4,389.0	35.30	223.95		3,605.2	2,233.7	-1,601.7	-1,557.0	2.51	-2.03	-2.49
4,474.0	34.10	223.45		3,675.1	2,282.1	-1,636.7	-1,590.4	1.45	-1.41	-0.59
4,559.0	32.89	221.89		3,746.0	2,329.0	-1,671.2	-1,622.2	1.75	-1.42	-1.84
4,645.0	31.90	224.64		3,818.6	2,375.1	-1,704.7	-1,653.7	2.06	-1.15	3.20
4,730.0	28.30	223.67		3,892.1	2,417.7	-1,735.3	-1,683.4	4.27	-4.24	-1.14
4,815.0	25.62	222.53		3,967.9	2,456.2	-1,763.4	-1,709.8	3.21	-3.15	-1.34
4,901.0	21.62	222.40		4,046.7	2,490.7	-1,788.8	-1,733.0	4.65	-4.65	-0.15
4,986.0	18.59	224.20		4,126.5	2,519.9	-1,810.1	-1,753.1	3.64	-3.56	2.12
5,072.0	15.60	224.59		4,208.7	2,545.2	-1,828.2	-1,770.7	3.48	-3.48	0.45
5,157.0	12.35	224.20		4,291.2	2,565.7	-1,842.9	-1,785.1	3.83	-3.82	-0.46
5,242.0	9.62	225.51		4,374.6	2,581.9	-1,854.3	-1,796.5	3.22	-3.21	1.54
5,328.0	6.59	219.80		4,459.7	2,594.0	-1,863.2	-1,804.8	3.64	-3.52	-6.64
5,413.0	4.04	220.02		4,544.4	2,601.8	-1,869.2	-1,809.8	3.00	-3.00	0.26
5,498.0	1.95	192.58		4,629.2	2,606.0	-1,872.9	-1,812.1	2.92	-2.46	-32.28
5,555.0	0.69	164.90		4,686.2	2,607.1	-1,874.2	-1,812.2	2.42	-2.21	-48.56
Monument Ridge B-31C-17-07-95 TGT										
5,583.0	0.48	96.98		4,714.2	2,607.1	-1,874.4	-1,812.0	2.42	-0.75	-242.62
5,669.0	0.26	64.41		4,800.2	2,606.7	-1,874.3	-1,811.5	0.34	-0.26	-37.87
5,754.0	0.26	87.40		4,885.2	2,606.3	-1,874.2	-1,811.1	0.12	0.00	27.05
5,840.0	0.13	252.15		4,971.2	2,606.3	-1,874.3	-1,811.0	0.45	-0.15	191.57
5,925.0	0.44	262.08		5,056.2	2,606.6	-1,874.3	-1,811.5	0.37	0.36	11.68
6,010.0	1.01	270.65		5,141.2	2,607.4	-1,874.4	-1,812.5	0.68	0.67	10.08
6,096.0	1.41	267.84		5,227.2	2,608.7	-1,874.4	-1,814.3	0.47	0.47	-3.27

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
6,181.0	1.54	266.78	5,312.2	2,610.3	-1,874.5	-1,816.5	0.16	0.15	-1.25	
6,266.0	1.41	246.52	5,397.1	2,612.1	-1,875.0	-1,818.6	0.63	-0.15	-23.84	
6,352.0	1.89	235.23	5,483.1	2,614.5	-1,876.2	-1,820.8	0.67	0.56	-13.13	
6,437.0	1.73	208.99	5,568.1	2,617.1	-1,878.1	-1,822.5	0.98	-0.19	-30.87	
6,523.0	2.59	187.11	5,654.0	2,619.9	-1,881.2	-1,823.4	1.37	1.00	-25.44	
6,608.0	1.27	181.75	5,738.9	2,622.1	-1,884.1	-1,823.7	1.57	-1.55	-6.31	
6,693.0	0.75	142.68	5,823.9	2,622.9	-1,885.4	-1,823.4	0.98	-0.61	-45.96	
6,779.0	0.18	23.85	5,909.9	2,622.8	-1,885.8	-1,823.0	0.99	-0.66	-138.17	
6,864.0	1.76	15.06	5,994.9	2,621.6	-1,884.4	-1,822.6	1.86	1.86	-10.34	
6,950.0	1.92	22.92	6,080.9	2,619.1	-1,881.8	-1,821.7	0.35	0.19	9.14	
7,035.0	1.20	39.89	6,165.8	2,616.9	-1,879.8	-1,820.5	1.00	-0.85	19.96	
7,120.0	1.36	37.74	6,250.8	2,615.0	-1,878.3	-1,819.4	0.20	0.19	-2.53	
7,206.0	1.14	43.80	6,336.8	2,613.1	-1,876.9	-1,818.1	0.30	-0.26	7.05	
7,291.0	0.70	79.97	6,421.8	2,611.8	-1,876.2	-1,817.0	0.83	-0.52	42.55	
7,377.0	0.44	173.18	6,507.8	2,611.6	-1,876.4	-1,816.5	0.99	-0.30	108.38	
7,462.0	0.97	218.93	6,592.8	2,612.5	-1,877.3	-1,816.9	0.86	0.62	53.82	
7,547.0	1.23	207.19	6,677.8	2,614.1	-1,878.7	-1,817.8	0.40	0.31	-13.81	
7,633.0	1.14	229.74	6,763.7	2,615.9	-1,880.0	-1,818.8	0.55	-0.10	26.22	
7,695.0	1.19	224.59	6,825.7	2,617.1	-1,880.9	-1,819.8	0.19	0.08	-8.31	
Last PZD Survey										
7,750.0	1.19	224.59	6,880.7	2,618.3	-1,881.7	-1,820.6	0.00	0.00	0.00	
Straight Line Projection to TD										

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Monument Ridge B 31C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Site:</b>	Monument Ridge B	<b>MD Reference:</b>	Monument Ridge B 31C-17-07-95 @ 5718.8usft (PLAN
<b>Well:</b>	Monument Ridge B 31C-17-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,840.0	1,674.5	-409.2	-398.0	Last PZD Surface Survey
7,695.0	6,825.7	-1,880.9	-1,819.8	Last PZD Survey
7,750.0	6,880.7	-1,881.7	-1,820.6	Straight Line Projection to TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_





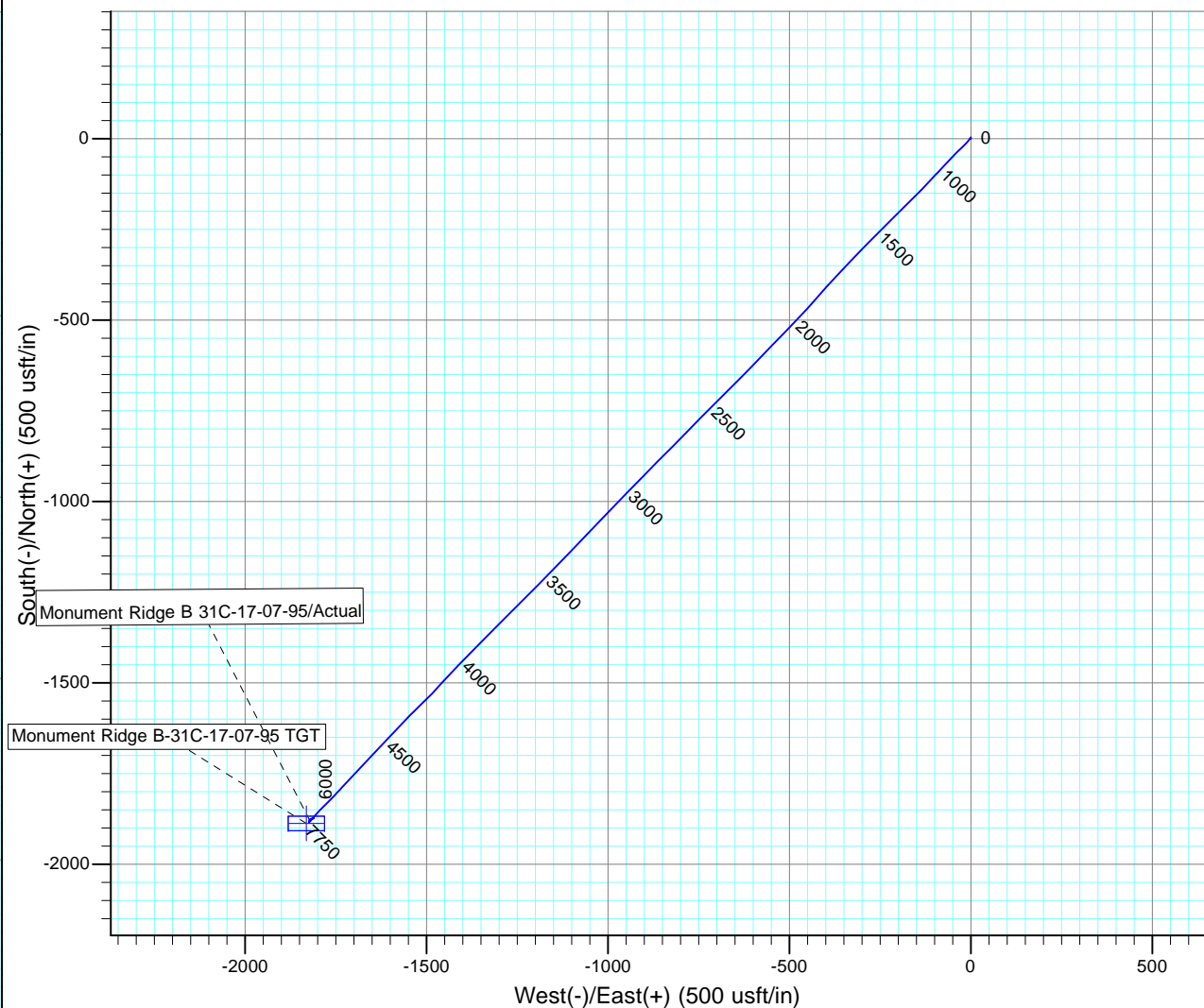
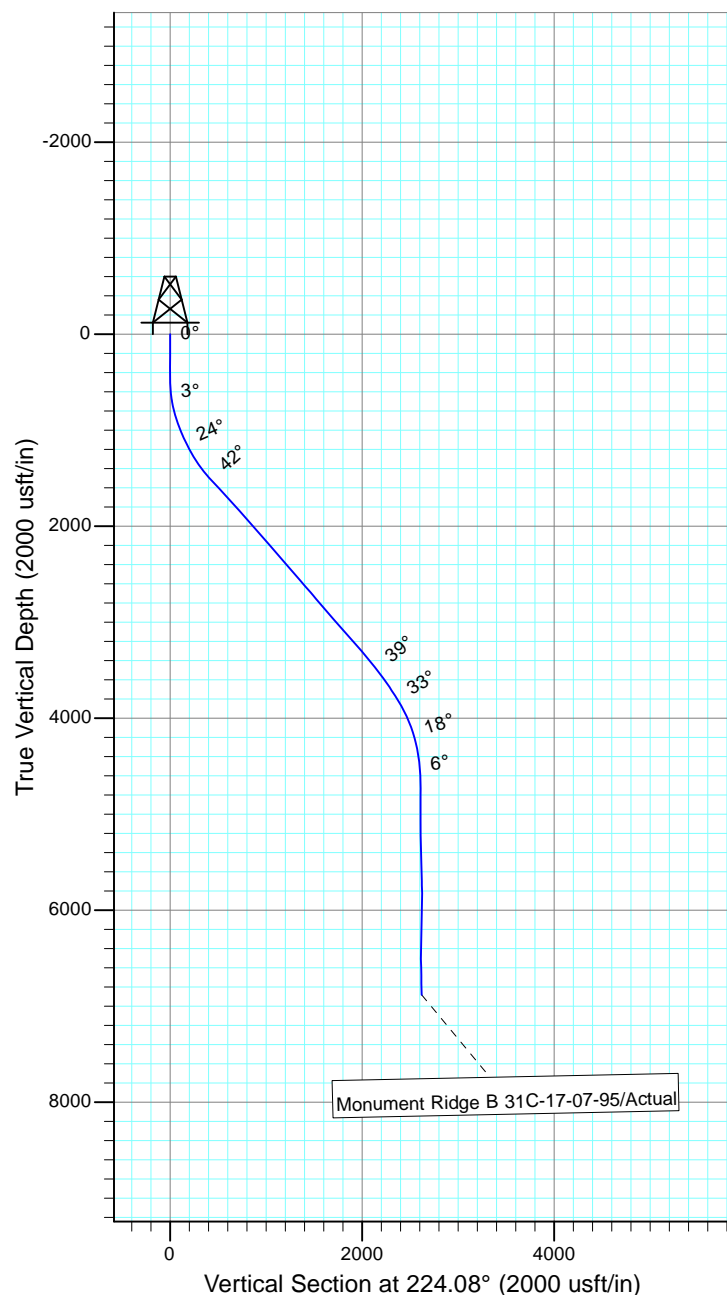
Project: Rockies Region  
 Site: Monument Ridge B  
 Well: Monument Ridge B 31C-17-07-95  
 Wellbore: Wellbore #1  
 SURVEY: Actual

# FINAL SURVEY REPORT



Azimuths to True North  
 Magnetic North: 9.79°

Magnetic Field  
 Strength: 51600.3snT  
 Dip Angle: 65.56°  
 Date: 8/1/2016  
 Model: IGRF2015



Design: Actual (Monument Ridge B 31C-17-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 19:13, October 03 2016  
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS  
 SUPPORTED BY ACTUAL FIELD DATA.