



# **Ursa Operating Company, LLC**

**Rockies Region**

**McLin B**

**McLin B21**

**Wellbore #1**

**Design: Actual**

## **End Of Well Report**

**02 November, 2014**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well McLin B21
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	McLin B21 @ 5661.8usft (Capstar 321)
<b>Site:</b>	McLin B	<b>MD Reference:</b>	McLin B21 @ 5661.8usft (Capstar 321)
<b>Well:</b>	McLin B21	<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

<b>Project</b>	Rockies Region		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	McLin B		
<b>Site Position:</b>		<b>Northing:</b>	1,625,192.80 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,405,423.91 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	39° 31' 51.584 N
		<b>Longitude:</b>	107° 36' 29.395 W
		<b>Grid Convergence:</b>	-1.33 °

<b>Well</b>	McLin B21, SHL 39.531054900, -107.608143600					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,625,214.26 usft	<b>Latitude:</b>	39° 31' 51.797 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,405,430.55 usft	<b>Longitude:</b>	107° 36' 29.317 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	5,661.8 usft	<b>Ground Level:</b>	5,648.8 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	7/30/2013	9.87	65.80	52,147

<b>Design</b>	Actual				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	61.72	

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<b>Well:</b>	McLin B21	<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									
	11/2/2014									
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description						
13.0	933.0	Survey #1 (Wellbore #1)	IS-GYRO-WLINE	MEMS RATE GYRO						
1,037.0	7,061.0	Survey #2 (Wellbore #1)	MWD	MWD - Standard						

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	0.00	0.0	0.0	0.0	0.00	0.00	0.00
13.0	0.00	0.00	13.0	0.0	0.0	0.0	0.00	0.00	0.00
113.0	0.07	349.43	113.0	0.0	0.1	0.0	0.07	0.07	0.00
213.0	0.24	64.77	213.0	0.2	0.2	0.2	0.23	0.17	75.34
313.0	0.08	87.81	313.0	0.5	0.3	0.4	0.17	-0.16	23.04
413.0	0.15	218.87	413.0	0.5	0.2	0.4	0.21	0.07	131.06
513.0	0.18	123.37	513.0	0.4	0.0	0.5	0.25	0.03	-95.50
613.0	0.12	219.34	613.0	0.4	-0.2	0.5	0.23	-0.06	95.97
713.0	0.21	163.18	713.0	0.3	-0.4	0.5	0.17	0.09	-56.16
813.0	0.15	150.12	813.0	0.2	-0.7	0.6	0.07	-0.06	-13.06
913.0	0.20	91.84	913.0	0.4	-0.8	0.9	0.18	0.05	-58.28
933.0	0.15	55.71	933.0	0.4	-0.8	0.9	0.59	-0.25	-180.65
1,037.0	0.35	100.66	1,037.0	0.8	-0.8	1.4	0.26	0.19	43.22
1,123.0	1.63	73.55	1,123.0	2.2	-0.5	2.8	1.54	1.49	-31.52
1,208.0	4.00	69.72	1,207.9	6.3	0.9	6.7	2.80	2.79	-4.51
1,293.0	6.59	65.24	1,292.5	14.1	4.0	13.9	3.08	3.05	-5.27
1,379.0	7.78	64.71	1,377.8	24.9	8.5	23.7	1.39	1.38	-0.62
1,464.0	9.23	61.90	1,461.9	37.4	14.2	34.9	1.77	1.71	-3.31
1,549.0	10.19	61.26	1,545.7	51.8	21.0	47.5	1.14	1.13	-0.75
1,635.0	13.58	62.38	1,629.8	69.5	29.3	63.1	3.95	3.94	1.30
1,720.0	16.00	66.03	1,712.0	91.2	38.7	82.7	3.05	2.85	4.29

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<b>Site:</b>	McLin B	<b>MD Reference:</b>	McLin B21 @ 5661.8usft (Capstar 321)
<b>Well:</b>	McLin B21	<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)	
1,806.0	18.15	64.76	1,794.2	116.4	49.3	105.6	2.54	2.50	-1.48	
1,891.0	21.05	61.86	1,874.3	144.8	62.1	131.1	3.60	3.41	-3.41	
1,976.0	24.30	62.25	1,952.7	177.6	77.5	160.0	3.83	3.82	0.46	
2,062.0	27.25	64.23	2,030.1	215.0	94.3	193.4	3.57	3.43	2.30	
2,147.0	27.11	62.91	2,105.7	253.8	111.5	228.2	0.73	-0.16	-1.55	
2,233.0	26.59	61.24	2,182.5	292.6	129.7	262.5	1.07	-0.60	-1.94	
2,318.0	26.19	60.67	2,258.6	330.4	148.1	295.5	0.56	-0.47	-0.67	
2,403.0	25.40	60.14	2,335.1	367.4	166.3	327.7	0.97	-0.93	-0.62	
2,489.0	25.18	59.66	2,412.9	404.1	184.7	359.5	0.35	-0.26	-0.56	
2,574.0	24.26	60.98	2,490.1	439.6	202.4	390.3	1.26	-1.08	1.55	
2,660.0	24.48	62.16	2,568.4	475.1	219.2	421.6	0.62	0.26	1.37	
2,745.0	23.84	61.79	2,646.0	509.9	235.6	452.3	0.77	-0.75	-0.44	
2,830.0	24.04	63.04	2,723.7	544.4	251.6	482.8	0.64	0.24	1.47	
2,916.0	24.30	64.63	2,802.2	579.6	267.1	514.4	0.82	0.30	1.85	
3,001.0	24.42	63.39	2,879.6	614.6	282.4	545.9	0.62	0.14	-1.46	
3,087.0	25.43	66.20	2,957.6	650.8	297.9	578.7	1.81	1.17	3.27	
3,172.0	24.17	65.20	3,034.7	686.4	312.5	611.2	1.56	-1.48	-1.18	
3,258.0	24.17	64.45	3,113.2	721.5	327.5	643.1	0.36	0.00	-0.87	
3,343.0	24.65	63.83	3,190.6	756.6	342.8	674.7	0.64	0.56	-0.73	
3,429.0	24.83	61.99	3,268.7	792.6	359.2	706.7	0.92	0.21	-2.14	
3,514.0	25.66	61.37	3,345.6	828.8	376.4	738.7	1.02	0.98	-0.73	
3,600.0	25.09	61.02	3,423.3	865.7	394.2	771.0	0.69	-0.66	-0.41	
3,685.0	23.99	60.54	3,500.6	901.0	411.4	801.8	1.32	-1.29	-0.56	
3,771.0	24.57	61.08	3,579.0	936.3	428.7	832.6	0.72	0.67	0.63	
3,856.0	23.95	61.77	3,656.5	971.3	445.4	863.3	0.80	-0.73	0.81	
3,942.0	22.27	62.49	3,735.6	1,005.0	461.1	893.1	1.98	-1.95	0.84	
4,027.0	22.85	62.86	3,814.1	1,037.6	476.1	922.1	0.70	0.68	0.44	

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
4,112.0	22.54	62.74	3,892.5	1,070.4	491.1	951.3	0.37	-0.36	-0.14	
4,198.0	19.98	62.30	3,972.6	1,101.6	505.5	978.9	2.98	-2.98	-0.51	
4,283.0	17.84	60.58	4,053.1	1,129.1	518.6	1,003.2	2.60	-2.52	-2.02	
4,369.0	17.84	60.49	4,134.9	1,155.5	531.6	1,026.1	0.03	0.00	-0.10	
4,430.2	17.92	58.76	4,193.1	1,174.2	541.1	1,042.3	0.88	0.12	-2.83	
<b>McLin B21 TGT</b>										
4,454.0	17.95	58.09	4,215.8	1,181.6	544.9	1,048.5	0.88	0.14	-2.81	
4,540.0	16.48	56.72	4,298.0	1,206.9	558.6	1,070.0	1.77	-1.71	-1.59	
4,625.0	15.03	57.42	4,379.8	1,229.9	571.2	1,089.4	1.72	-1.71	0.82	
4,711.0	12.79	59.00	4,463.2	1,250.6	582.1	1,106.9	2.64	-2.60	1.84	
4,796.0	10.50	62.65	4,546.5	1,267.7	590.5	1,121.9	2.83	-2.69	4.29	
4,881.0	7.47	72.10	4,630.4	1,280.9	595.7	1,134.0	3.95	-3.56	11.12	
4,967.0	4.13	65.99	4,716.0	1,289.5	598.7	1,142.2	3.94	-3.88	-7.10	
5,052.0	1.67	70.47	4,800.9	1,293.8	600.4	1,146.1	2.90	-2.89	5.27	
5,138.0	1.19	187.67	4,886.8	1,294.5	599.9	1,147.2	2.85	-0.56	136.28	
5,223.0	1.23	186.06	4,971.8	1,293.5	598.1	1,147.0	0.06	0.05	-1.89	
5,309.0	1.05	175.10	5,057.8	1,292.6	596.4	1,146.9	0.33	-0.21	-12.74	
5,393.0	1.05	154.10	5,141.8	1,292.3	595.0	1,147.3	0.46	0.00	-25.00	
5,479.0	0.77	221.33	5,227.8	1,291.7	593.8	1,147.3	1.20	-0.33	78.17	
5,565.0	0.70	226.12	5,313.8	1,290.7	593.0	1,146.5	0.11	-0.08	5.57	
5,650.0	0.57	224.24	5,398.8	1,289.8	592.4	1,145.9	0.15	-0.15	-2.21	
5,736.0	0.57	250.03	5,484.8	1,288.9	591.9	1,145.2	0.30	0.00	29.99	
5,821.0	0.26	254.12	5,569.8	1,288.3	591.7	1,144.6	0.37	-0.36	4.81	
5,906.0	0.30	58.97	5,654.8	1,288.4	591.8	1,144.6	0.65	0.05	193.94	
5,992.0	0.57	50.83	5,740.8	1,289.0	592.2	1,145.1	0.32	0.31	-9.47	
6,077.0	1.14	37.05	5,825.8	1,290.2	593.1	1,146.0	0.71	0.67	-16.21	
6,163.0	1.63	21.38	5,911.7	1,291.9	594.9	1,146.9	0.72	0.57	-18.22	

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<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

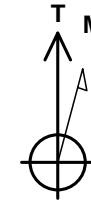
Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
6,248.0	1.80	349.92	5,996.7	1,293.2	597.4	1,147.1	1.11	0.20	-37.01	
6,334.0	0.66	304.57	6,082.7	1,293.4	599.0	1,146.5	1.65	-1.33	-52.73	
6,419.0	0.62	286.42	6,167.7	1,292.9	599.4	1,145.6	0.24	-0.05	-21.35	
6,505.0	0.53	335.86	6,253.7	1,292.6	599.9	1,145.0	0.57	-0.10	57.49	
6,590.0	0.53	351.06	6,338.7	1,292.7	600.6	1,144.8	0.16	0.00	17.88	
6,676.0	1.45	30.35	6,424.7	1,293.8	602.0	1,145.3	1.27	1.07	45.69	
6,761.0	2.64	25.56	6,509.6	1,296.3	604.7	1,146.7	1.41	1.40	-5.64	
6,846.0	3.03	10.97	6,594.5	1,299.3	608.6	1,147.9	0.96	0.46	-17.16	
6,932.0	2.90	16.59	6,680.4	1,302.3	613.0	1,149.0	0.37	-0.15	6.53	
7,004.0	3.01	19.73	6,752.3	1,305.0	616.5	1,150.2	0.27	0.15	4.36	
7,061.0	3.01	19.73	6,809.2	1,307.2	619.3	1,151.2	0.00	0.00	0.00	
<b>McLin B21 TGT BHL</b>										

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



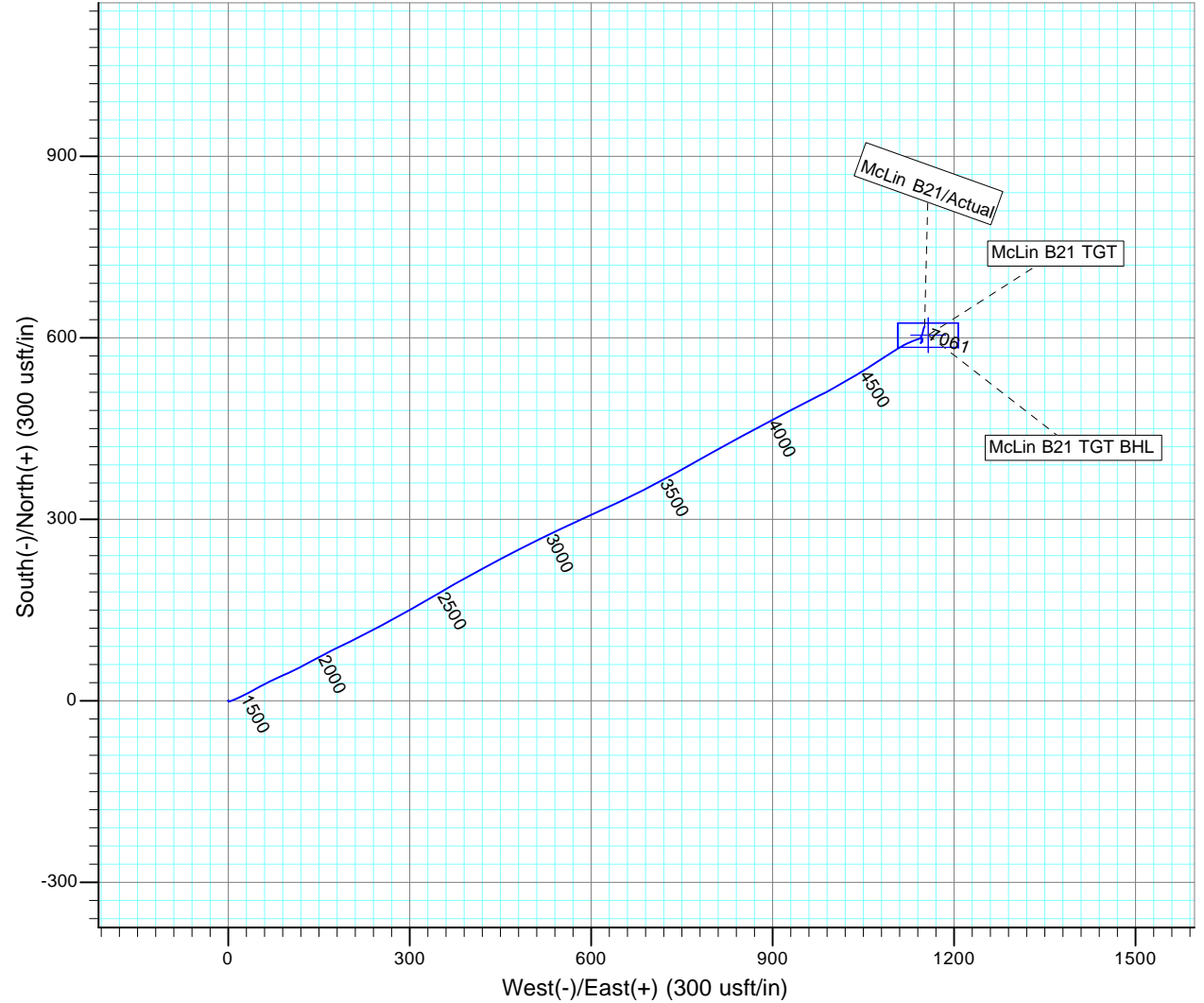
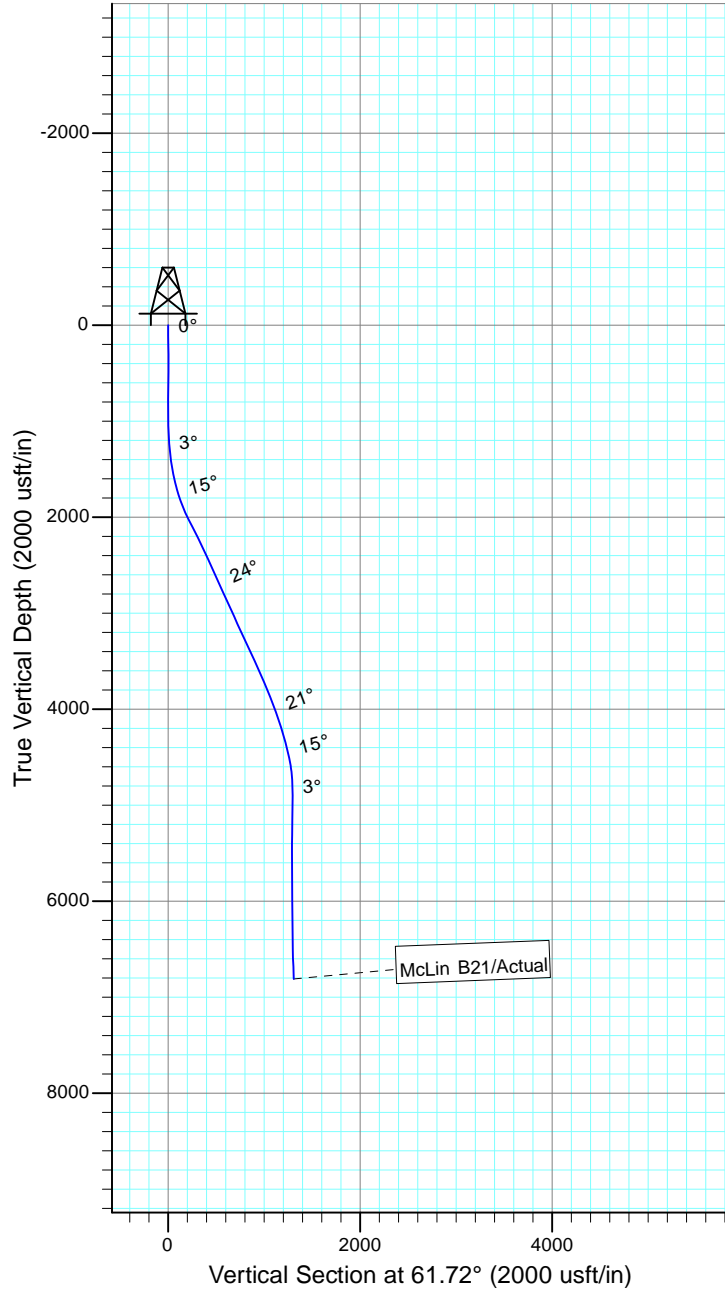
Project: Rockies Region  
 Site: McLin B  
 Well: McLin B21  
 Wellbore: Wellbore ;  
 SURVEY: Actual

FINAL SURVEY REPORT



Azimuths to True North  
 Magnetic North: 9.87°

Magnetic Field  
 Strength: 52146.5snT  
 Dip Angle: 65.80°  
 Date: 7/30/2013  
 Model: IGRF200510



Design: Actual (McLin B21/Wellbore #1)  
 Created By: Sarah Webb-Hudson Date: 20:57, November 02 2014  
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS SUPPORTED BY ACTUAL FIELD DATA.