



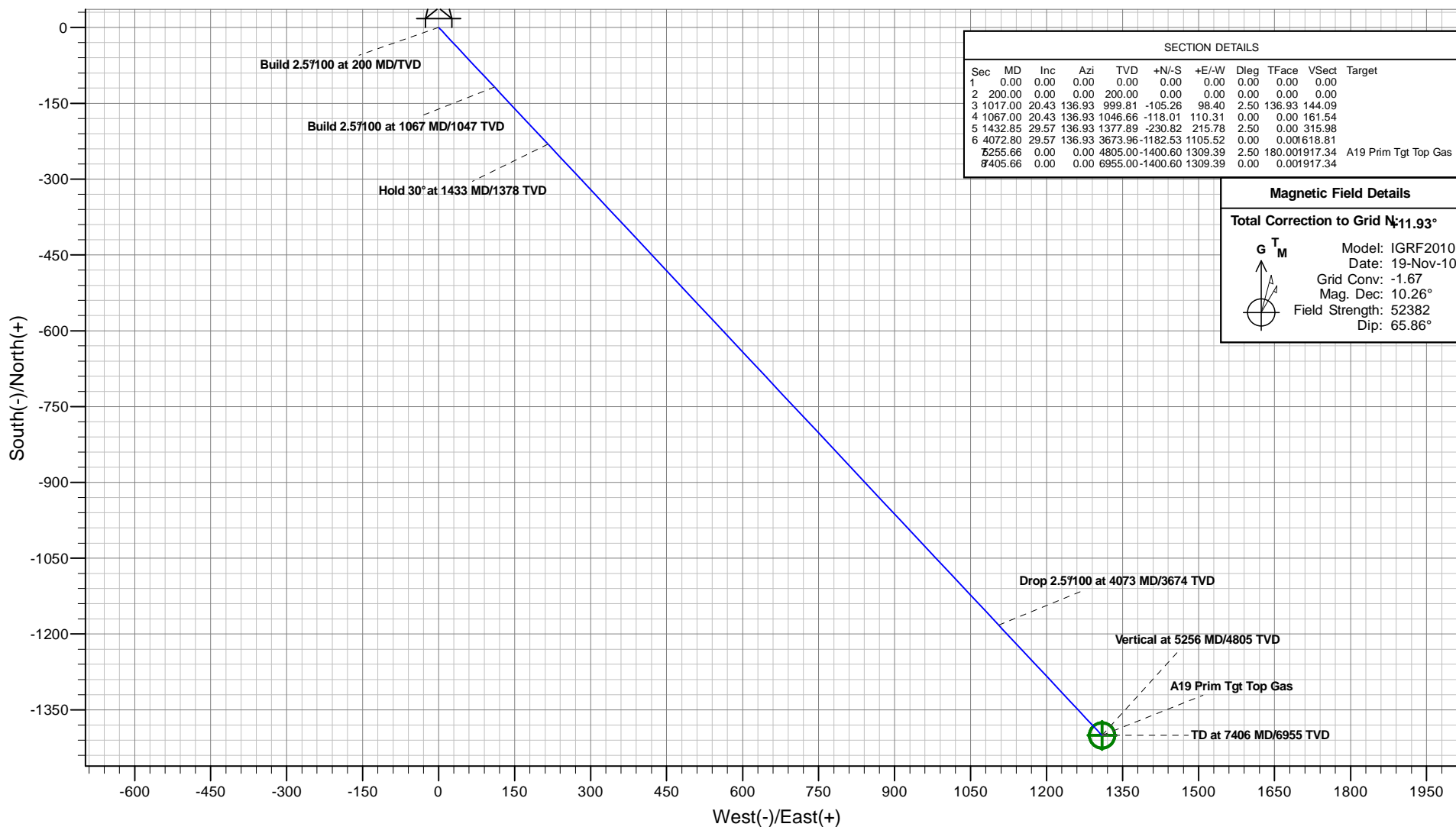
# Antero Resources

## McLin A19 (111222)

Project: McLin  
Site: McLin A  
Well: McLin A19 (111222)  
Wellbore: McLin A19  
Design: Antero McLin A19 P02



### PLAN VIEW



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1017.00	20.43	136.93	999.81	-105.26	98.40	2.50	136.93	144.09	
4	1067.00	20.43	136.93	1046.66	-118.01	110.31	0.00	0.00	161.54	
5	1432.85	29.57	136.93	1377.89	-230.82	215.78	2.50	0.00	315.98	
6	4072.80	29.57	136.93	3673.96	-1182.53	1105.52	0.00	0.00	618.81	
7	5255.66	0.00	0.00	4805.00	-1400.60	1309.39	2.50	180.00	1917.34	A19 Prim Tgt Top Gas
8	7405.66	0.00	0.00	6955.00	-1400.60	1309.39	0.00	0.00	1917.34	

### Magnetic Field Details

Total Correction to Grid N: 11.93°



Model: IGRF2010  
Date: 19-Nov-10  
Grid Conv: -1.67  
Mag. Dec: 10.26°  
Field Strength: 52382  
Dip: 65.86°

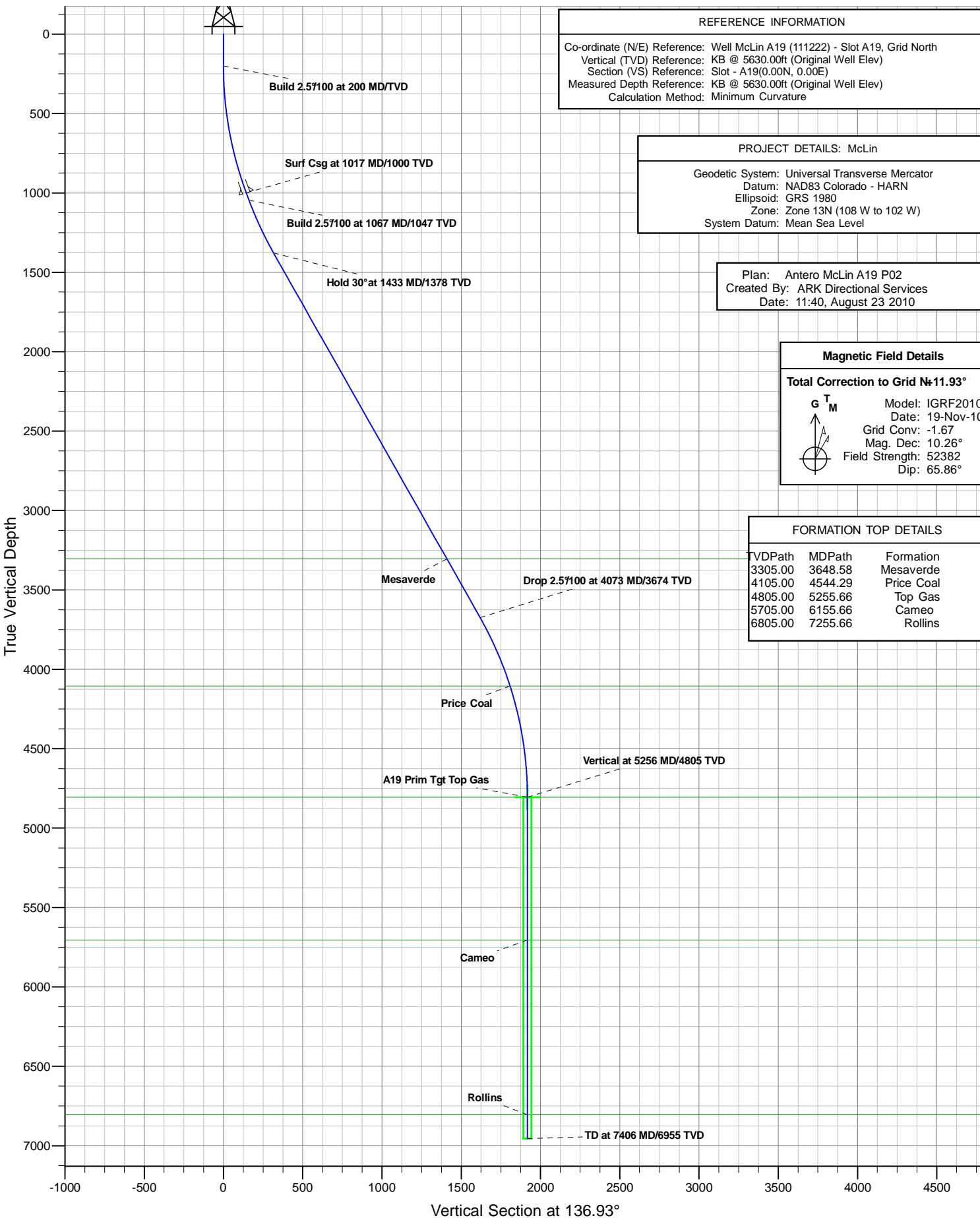
Plan: Antero McLin A19 P02  
Created By: ARK Directional Services  
Date: 11:22, August 23 2010

PROJECT DETAILS: McLin  
Geodetic System: Universal Transverse Mercator  
Datum: NAD83 Colorado - HARN  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

REFERENCE INFORMATION  
Co-ordinate (N/E) Reference: Well McLin A19 (111222) - Slot A19, Grid North  
Vertical (TVD) Reference: KB @ 5630.00ft (Original Well Elev)  
Section (VS) Reference: Slot - A19(0.00N, 0.00E)  
Measured Depth Reference: KB @ 5630.00ft (Original Well Elev)  
Calculation Method: Minimum Curvature

## McLin A19 (111222)

### VERTICAL SECTION VIEW



# **Antero Resources**

**McLin**

**McLin A**

**McLin A19 (111222) - Slot A19**

**McLin A19**

**Plan: Antero McLin A19 P02**

## **Standard Planning Report - Geographic**

**23 August, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A19 (111222) - Slot A19
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Site:</b>	McLin A	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin A19 (111222)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A19		
<b>Design:</b>	Antero McLin A19 P02		

<b>Project</b>	McLin		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 Colorado - HARN		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		McLin A			
Site Position:		Northing:	14,368,868.520 usft	Latitude:	39.536981937°N
From:	Map	Easting:	902,523.601 usft	Longitude:	107.617087010°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.67 °

Well	McLin A19 (111222) - Slot A19					
Well Position	+N/-S	0.00 ft	Northing:	14,368,833.803 usft	Latitude:	39.536878778°N
	+E/-W	0.00 ft	Easting:	902,424.507 usft	Longitude:	107.617434544°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,606.00 ft

<b>Wellbore</b>	McLin A19				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/11/19	10.26	65.86	52,382

<b>Design</b>	Antero McLin A19 P02				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	136.93	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,017.00	20.43	136.93	999.81	-105.26	98.40	2.50	2.50	0.00	136.93	
1,067.00	20.43	136.93	1,046.66	-118.01	110.31	0.00	0.00	0.00	0.00	
1,432.85	29.57	136.93	1,377.89	-230.82	215.78	2.50	2.50	0.00	0.00	
4,072.80	29.57	136.93	3,673.96	-1,182.53	1,105.52	0.00	0.00	0.00	0.00	
5,255.66	0.00	0.00	4,805.00	-1,400.60	1,309.39	2.50	-2.50	0.00	180.00	A19 Prim Tgt Top Ga:
7,405.66	0.00	0.00	6,955.00	-1,400.60	1,309.39	0.00	0.00	0.00	0.00	

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A19 (111222) - Slot A19
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Site:</b>	McLin A	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin A19 (111222)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A19		
<b>Design:</b>	Antero McLin A19 P02		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,368,833.803	902,424.507	39.536878778°N	107.617434544°W
100.00	0.00	0.00	100.00	0.00	0.00	14,368,833.803	902,424.507	39.536878778°N	107.617434544°W
200.00	0.00	0.00	200.00	0.00	0.00	14,368,833.803	902,424.507	39.536878778°N	107.617434544°W
<b>Build 2.5°/100 at 200 MD/TVD</b>									
300.00	2.50	136.93	299.97	-1.59	1.49	14,368,832.209	902,425.997	39.536874526°N	107.617429101°W
400.00	5.00	136.93	399.75	-6.37	5.96	14,368,827.432	902,430.463	39.536861775°N	107.617412785°W
500.00	7.50	136.93	499.14	-14.32	13.39	14,368,819.479	902,437.897	39.536840551°N	107.617385625°W
600.00	10.00	136.93	597.97	-25.44	23.78	14,368,808.367	902,448.284	39.536810894°N	107.617347674°W
700.00	12.50	136.93	696.04	-39.69	37.10	14,368,794.117	902,461.606	39.536772861°N	107.617299004°W
800.00	15.00	136.93	793.17	-57.05	53.33	14,368,776.755	902,477.836	39.536726523°N	107.617239707°W
900.00	17.50	136.93	889.17	-77.49	72.44	14,368,756.314	902,496.943	39.536671969°N	107.617169897°W
1,000.00	20.00	136.93	983.85	-100.97	94.39	14,368,732.834	902,518.892	39.536609303°N	107.617089706°W
1,017.00	20.43	136.93	999.81	-105.26	98.40	14,368,728.544	902,522.903	39.536597852°N	107.617075052°W
<b>Surf Csg at 1017 MD/1000 TVD</b>									
1,067.00	20.43	136.93	1,046.66	-118.01	110.31	14,368,715.797	902,534.820	39.536563833°N	107.617031516°W
<b>Build 2.5°/100 at 1067 MD/1047 TVD</b>									
1,100.00	21.25	136.93	1,077.50	-126.58	118.33	14,368,707.222	902,542.836	39.536540947°N	107.617002227°W
1,200.00	23.75	136.93	1,169.88	-154.53	144.46	14,368,679.270	902,568.968	39.536466345°N	107.616906754°W
1,300.00	26.25	136.93	1,260.51	-185.40	173.32	14,368,648.401	902,597.828	39.536383957°N	107.616801317°W
1,400.00	28.75	136.93	1,349.20	-219.13	204.85	14,368,614.673	902,629.359	39.536293941°N	107.616686119°W
1,432.85	29.57	136.93	1,377.89	-230.82	215.78	14,368,602.981	902,640.290	39.536262735°N	107.616646183°W
<b>Hold 30° at 1433 MD/1378 TVD</b>									
1,500.00	29.57	136.93	1,436.29	-255.03	238.41	14,368,578.773	902,662.921	39.536198126°N	107.616563500°W
1,600.00	29.57	136.93	1,523.27	-291.08	272.12	14,368,542.723	902,696.624	39.536101911°N	107.616440369°W
1,700.00	29.57	136.93	1,610.24	-327.13	305.82	14,368,506.673	902,730.327	39.536005695°N	107.616317239°W
1,800.00	29.57	136.93	1,697.21	-363.18	339.52	14,368,470.623	902,764.030	39.535909480°N	107.616194109°W
1,900.00	29.57	136.93	1,784.19	-399.23	373.23	14,368,434.573	902,797.732	39.535813264°N	107.616070979°W
2,000.00	29.57	136.93	1,871.16	-435.28	406.93	14,368,398.523	902,831.435	39.535717048°N	107.615947849°W
2,100.00	29.57	136.93	1,958.14	-471.33	440.63	14,368,362.472	902,865.138	39.535620832°N	107.615824720°W
2,200.00	29.57	136.93	2,045.11	-507.38	474.33	14,368,326.422	902,898.840	39.535524616°N	107.615701591°W
2,300.00	29.57	136.93	2,132.08	-543.43	508.04	14,368,290.372	902,932.543	39.535428400°N	107.615578463°W
2,400.00	29.57	136.93	2,219.06	-579.48	541.74	14,368,254.322	902,966.246	39.535332184°N	107.615455335°W
2,500.00	29.57	136.93	2,306.03	-615.53	575.44	14,368,218.272	902,999.949	39.535235967°N	107.615332207°W
2,600.00	29.57	136.93	2,393.01	-651.58	609.15	14,368,182.222	903,033.651	39.535139750°N	107.615209080°W
2,700.00	29.57	136.93	2,479.98	-687.63	642.85	14,368,146.172	903,067.354	39.535043533°N	107.615085952°W
2,800.00	29.57	136.93	2,566.96	-723.68	676.55	14,368,110.122	903,101.057	39.534947316°N	107.614962826°W
2,900.00	29.57	136.93	2,653.93	-759.73	710.25	14,368,074.071	903,134.759	39.534851099°N	107.614839699°W
3,000.00	29.57	136.93	2,740.90	-795.78	743.96	14,368,038.021	903,168.462	39.534754882°N	107.614716573°W
3,100.00	29.57	136.93	2,827.88	-831.83	777.66	14,368,001.971	903,202.165	39.534658665°N	107.614593447°W
3,200.00	29.57	136.93	2,914.85	-867.88	811.36	14,367,965.921	903,235.868	39.534562447°N	107.614470322°W
3,300.00	29.57	136.93	3,001.83	-903.93	845.06	14,367,929.871	903,269.570	39.534466229°N	107.614347197°W
3,400.00	29.57	136.93	3,088.80	-939.98	878.77	14,367,893.821	903,303.273	39.534370011°N	107.614224072°W
3,500.00	29.57	136.93	3,175.77	-976.03	912.47	14,367,857.771	903,336.976	39.534273793°N	107.614100948°W
3,600.00	29.57	136.93	3,262.75	-1,012.08	946.17	14,367,821.721	903,370.678	39.534177575°N	107.613977824°W
3,648.58	29.57	136.93	3,305.00	-1,029.60	962.55	14,367,804.208	903,387.051	39.534130833°N	107.613918011°W
<b>Mesaverde</b>									
3,700.00	29.57	136.93	3,349.72	-1,048.13	979.88	14,367,785.670	903,404.381	39.534081357°N	107.613854700°W
3,800.00	29.57	136.93	3,436.70	-1,084.18	1,013.58	14,367,749.620	903,438.084	39.533985139°N	107.613731577°W
3,900.00	29.57	136.93	3,523.67	-1,120.23	1,047.28	14,367,713.570	903,471.787	39.533888920°N	107.613608454°W
4,000.00	29.57	136.93	3,610.65	-1,156.28	1,080.98	14,367,677.520	903,505.489	39.533792701°N	107.613485331°W
4,072.80	29.57	136.93	3,673.96	-1,182.53	1,105.52	14,367,651.276	903,530.025	39.533722654°N	107.613395698°W
<b>Drop 2.5°/100 at 4073 MD/3674 TVD</b>									
4,100.00	28.89	136.93	3,697.70	-1,192.23	1,114.59	14,367,641.573	903,539.096	39.533696757°N	107.613362560°W
4,200.00	26.39	136.93	3,786.28	-1,226.12	1,146.27	14,367,607.685	903,570.777	39.533606310°N	107.613246824°W

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A19 (111222) - Slot A19
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Site:</b>	McLin A	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin A19 (111222)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A19		
<b>Design:</b>	Antero McLin A19 P02		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,300.00	23.89	136.93	3,876.80	-1,257.15	1,175.28	14,367,576.653	903,599.789	39.533523483°N	107.613140839°W
4,400.00	21.39	136.93	3,969.08	-1,285.27	1,201.57	14,367,548.534	903,626.076	39.533448433°N	107.613044805°W
4,500.00	18.89	136.93	4,062.96	-1,310.42	1,225.09	14,367,523.382	903,649.590	39.533381302°N	107.612958905°W
4,544.29	17.78	136.93	4,105.00	-1,320.60	1,234.60	14,367,513.204	903,659.106	39.533354135°N	107.612924142°W
<b>Price Coal</b>									
4,600.00	16.39	136.93	4,158.25	-1,332.56	1,245.78	14,367,501.246	903,670.285	39.533322219°N	107.612883304°W
4,700.00	13.89	136.93	4,254.77	-1,351.64	1,263.62	14,367,482.167	903,688.122	39.533271296°N	107.612818145°W
4,800.00	11.39	136.93	4,352.34	-1,367.62	1,278.56	14,367,466.182	903,703.066	39.533228631°N	107.612763550°W
4,900.00	8.89	136.93	4,450.77	-1,380.49	1,290.59	14,367,453.320	903,715.090	39.533194303°N	107.612719626°W
5,000.00	6.39	136.93	4,549.87	-1,390.20	1,299.67	14,367,443.608	903,724.171	39.533168379°N	107.612686454°W
5,100.00	3.89	136.93	4,649.46	-1,396.74	1,305.79	14,367,437.062	903,730.290	39.533150908°N	107.612664099°W
5,200.00	1.39	136.93	4,749.35	-1,400.11	1,308.93	14,367,433.696	903,733.437	39.533141924°N	107.612652602°W
5,255.66	0.00	0.00	4,805.00	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
<b>Vertical at 5256 MD/4805 TVD - Top Gas - A19 Prim Tgt Top Gas - A19 Top Gas</b>									
5,300.00	0.00	0.00	4,849.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,400.00	0.00	0.00	4,949.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,500.00	0.00	0.00	5,049.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,600.00	0.00	0.00	5,149.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,700.00	0.00	0.00	5,249.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,800.00	0.00	0.00	5,349.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
5,900.00	0.00	0.00	5,449.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,000.00	0.00	0.00	5,549.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,100.00	0.00	0.00	5,649.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,155.66	0.00	0.00	5,705.00	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
<b>Cameo</b>									
6,200.00	0.00	0.00	5,749.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,300.00	0.00	0.00	5,849.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,400.00	0.00	0.00	5,949.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,500.00	0.00	0.00	6,049.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,600.00	0.00	0.00	6,149.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,700.00	0.00	0.00	6,249.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,800.00	0.00	0.00	6,349.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
6,900.00	0.00	0.00	6,449.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,000.00	0.00	0.00	6,549.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,100.00	0.00	0.00	6,649.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,200.00	0.00	0.00	6,749.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,255.66	0.00	0.00	6,805.00	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
<b>Rollins</b>									
7,300.00	0.00	0.00	6,849.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,400.00	0.00	0.00	6,949.34	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
7,405.66	0.00	0.00	6,955.00	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
A19 Prim Tgt Top Gas	0.00	0.00	4,805.00	-1,400.60	1,309.39	14,367,433.202	903,733.899	39.533140606°N	107.612650916°W
- plan hits target center									
- Circle (radius 25.00)									

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A19 (111222) - Slot A19
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5630.00ft (Original Well Elev)
<b>Site:</b>	McLin A	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin A19 (111222)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A19		
<b>Design:</b>	Antero McLin A19 P02		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,017.00	999.81	Surf Csg at 1017 MD/1000 TVD	5.50	6.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,648.58	3,305.00	Mesaverde				
4,544.29	4,105.00	Price Coal				
5,255.66	4,805.00	Top Gas				
6,155.66	5,705.00	Cameo				
7,255.66	6,805.00	Rollins				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	Build 2.5°/100 at 200 MD/TVD	
1,067.00	1,046.66	-118.01	110.31	Build 2.5°/100 at 1067 MD/1047 TVD	
1,432.85	1,377.89	-230.82	215.78	Hold 30° at 1433 MD/1378 TVD	
4,072.80	3,673.96	-1,182.53	1,105.52	Drop 2.5°/100 at 4073 MD/3674 TVD	
5,255.66	4,805.00	-1,400.60	1,309.39	Vertical at 5256 MD/4805 TVD	
7,405.66	6,955.00	-1,400.60	1,309.39	TD at 7406 MD/6955 TVD	