



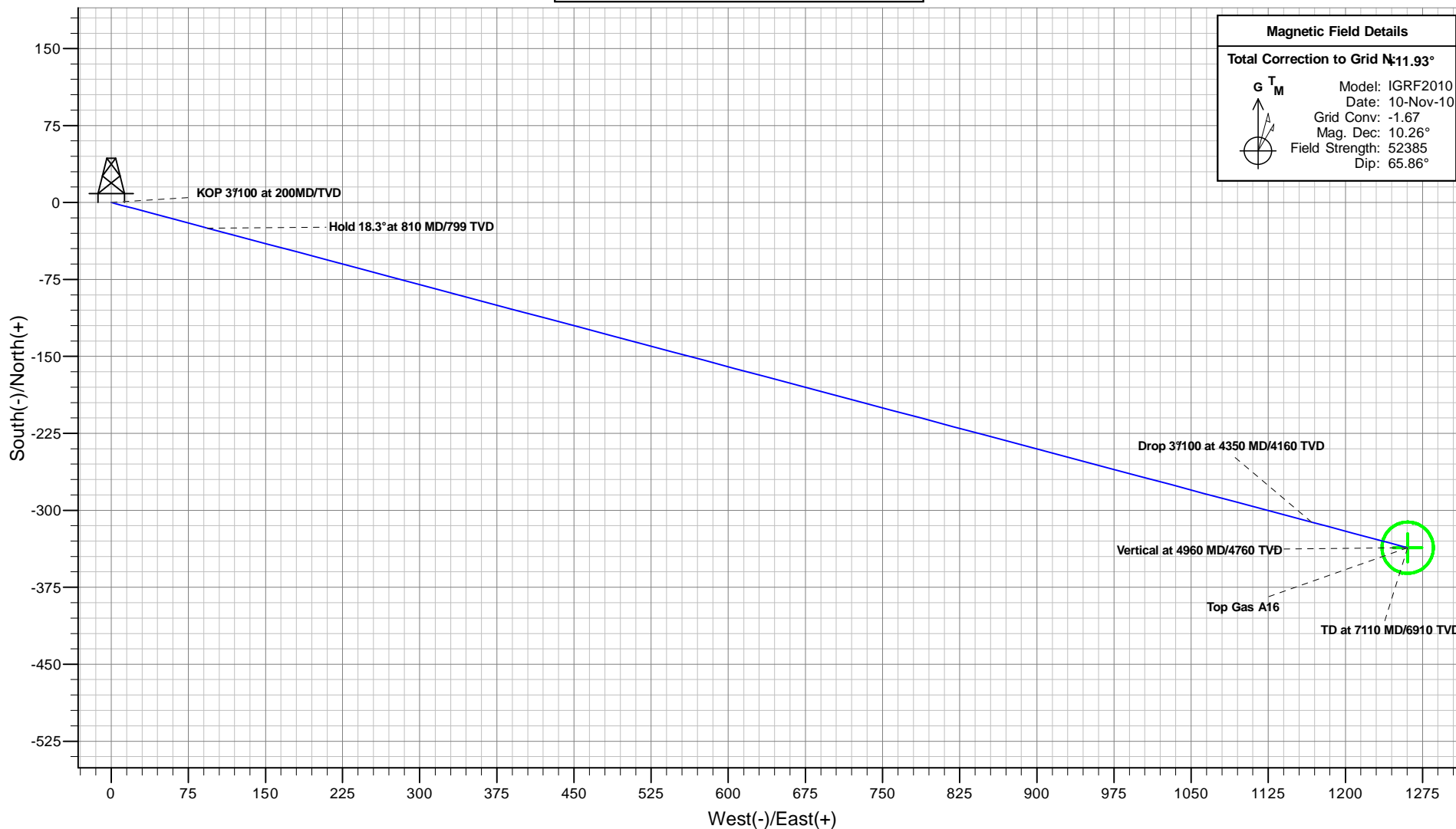
# Antero Resources

## Antero McLin A16



### PLAN VIEW

Project: McLin  
Site: McLin A  
Well: McLin A16 (111199)  
Wellbore: Antero McLin A16  
Design: Antero McLin A16 P01



Plan: Antero McLin A16 P01  
Created By: ARK Directional Services  
Date: 13:28, August 10 2010

PROJECT DETAILS: McLin

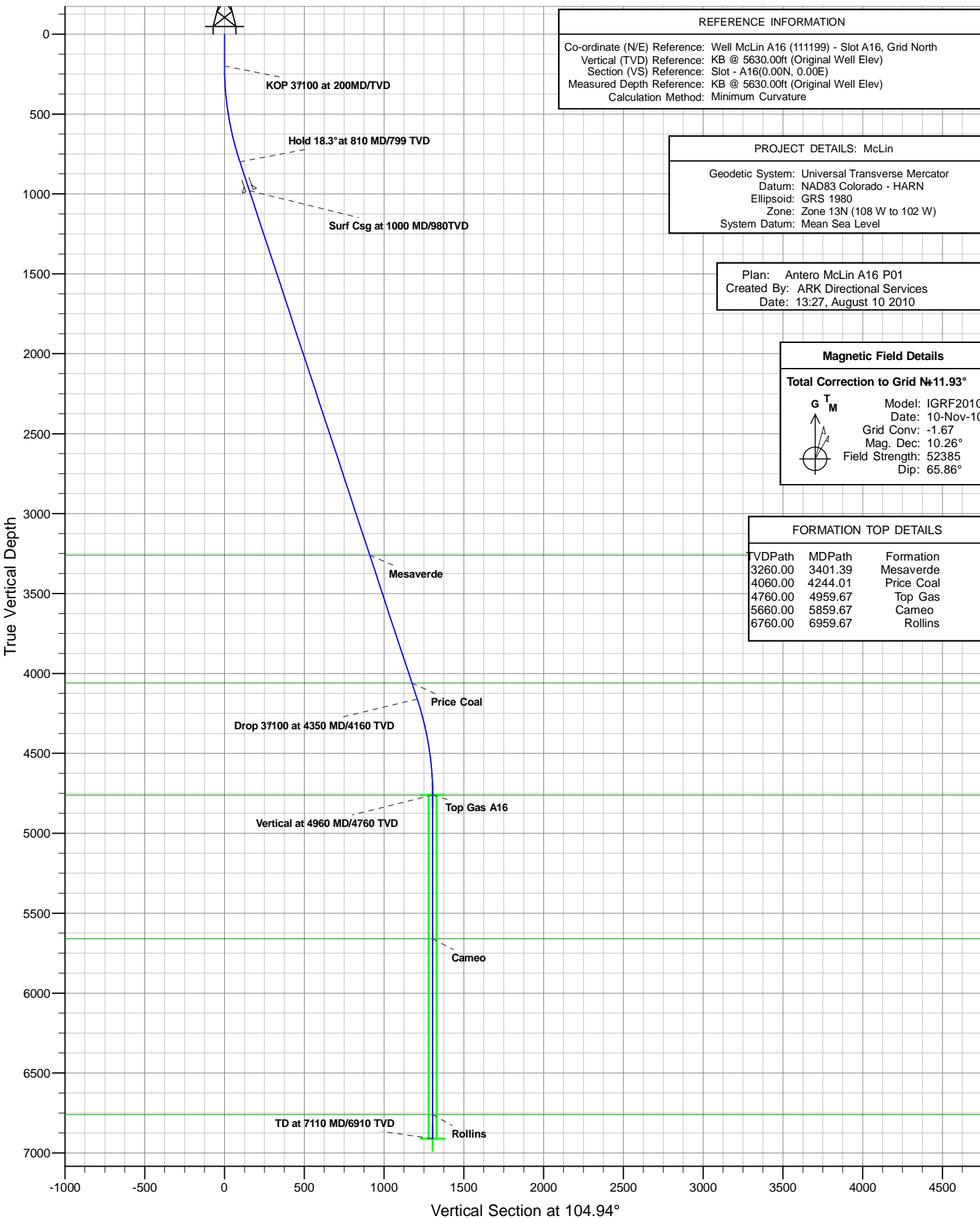
Geodetic System: Universal Transverse Mercator  
Datum: NAD83 Colorado - HARN  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well McLin A16 (111199) - Slot A16, Grid North  
Vertical (TVD) Reference: KB @ 5630.00ft (Original Well Elev)  
Section (VS) Reference: Slot - A16(0.00N, 0.00E)  
Measured Depth Reference: KB @ 5630.00ft (Original Well Elev)  
Calculation Method: Minimum Curvature

## McLin A16 (111199)

### VERTICAL SECTION VIEW



# **Antero Resources**

**McLin**

**McLin A**

**McLin A16 (111199) - Slot A16**

**Antero McLin A16**

**Plan: Antero McLin A16 P01**

## **Standard Planning Report - Geographic**

**10 August, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A16 (111199) - Slot A16
<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 A16 (111199)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Antero McLin A16		
<b>Design:</b>	Antero McLin A16 P01		

<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)		

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

<b>Well</b>	McLin A16 (111199) - Slot A16		
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	
		<b>Latitude:</b>	39.536922990°N
		<b>Longitude:</b>	107.617285600°W
		<b>Ground Level:</b>	5,606.00 ft

<b>Wellbore</b>	Antero McLin A16				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/11/10	10.26	65.86	52,385

<b>Design</b>	Antero McLin A16 P01			
<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	104.94

<b>Plan Sections</b>										
<b>Measured Depth</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical Depth</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg Rate</b>	<b>Build Rate</b>	<b>Turn Rate</b>	<b>TFO</b>	<b>Target</b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
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	
810.03	18.30	104.94	799.71	-24.91	93.33	3.00	3.00	0.00	104.94	
4,349.64	18.30	104.94	4,160.29	-311.49	1,167.22	0.00	0.00	0.00	0.00	
4,959.67	0.00	0.00	4,760.00	-336.40	1,260.55	3.00	-3.00	0.00	180.00	Top Gas A16
7,109.67	0.00	0.00	6,910.00	-336.40	1,260.55	0.00	0.00	0.00	0.00	TD A16

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A16 (111199) - Slot A16
<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 A16 (111199)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Antero McLin A16		
<b>Design:</b>	Antero McLin A16 P01		

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	14,368,848.682	902,466.976	39.536922990°N	107.617285600°W
100.00	0.00	0.00	100.00	0.00	0.00	14,368,848.682	902,466.976	39.536922990°N	107.617285600°W
200.00	0.00	0.00	200.00	0.00	0.00	14,368,848.682	902,466.976	39.536922990°N	107.617285600°W
<b>KOP 3°/100 at 200MD/TVD</b>									
300.00	3.00	104.94	299.95	-0.67	2.53	14,368,848.007	902,469.505	39.536921341°N	107.617276570°W
400.00	6.00	104.94	399.63	-2.70	10.11	14,368,845.984	902,477.085	39.536916396°N	107.617249505°W
500.00	9.00	104.94	498.77	-6.06	22.72	14,368,842.619	902,489.695	39.536908170°N	107.617204479°W
600.00	12.00	104.94	597.08	-10.76	40.32	14,368,837.920	902,507.300	39.536896686°N	107.617141615°W
700.00	15.00	104.94	694.31	-16.78	62.88	14,368,831.902	902,529.852	39.536881974°N	107.617061086°W
800.00	18.00	104.94	790.18	-24.10	90.31	14,368,824.579	902,557.290	39.536864075°N	107.616963112°W
810.03	18.30	104.94	799.71	-24.91	93.33	14,368,823.774	902,560.310	39.536862105°N	107.616952331°W
<b>Hold 18.3° at 810 MD/799 TVD</b>									
900.00	18.30	104.94	885.13	-32.19	120.63	14,368,816.489	902,587.605	39.536844299°N	107.616854866°W
1,000.00	18.30	104.94	980.07	-40.29	150.97	14,368,808.393	902,617.944	39.536824508°N	107.616746533°W
<b>Surf Csg at 1000 MD/980TVD</b>									
1,100.00	18.30	104.94	1,075.01	-48.39	181.31	14,368,800.296	902,648.283	39.536804716°N	107.616638201°W
1,200.00	18.30	104.94	1,169.96	-56.48	211.65	14,368,792.200	902,678.622	39.536784924°N	107.616529869°W
1,300.00	18.30	104.94	1,264.90	-64.58	241.99	14,368,784.103	902,708.961	39.536765133°N	107.616421537°W
1,400.00	18.30	104.94	1,359.84	-72.67	272.32	14,368,776.007	902,739.300	39.536745341°N	107.616313205°W
1,500.00	18.30	104.94	1,454.78	-80.77	302.66	14,368,767.910	902,769.639	39.536725549°N	107.616204873°W
1,600.00	18.30	104.94	1,549.72	-88.87	333.00	14,368,759.814	902,799.978	39.536705756°N	107.616096541°W
1,700.00	18.30	104.94	1,644.67	-96.96	363.34	14,368,751.717	902,830.317	39.536685964°N	107.615988209°W
1,800.00	18.30	104.94	1,739.61	-105.06	393.68	14,368,743.621	902,860.656	39.536666172°N	107.615879877°W
1,900.00	18.30	104.94	1,834.55	-113.16	424.02	14,368,735.524	902,890.995	39.536646379°N	107.615771545°W
2,000.00	18.30	104.94	1,929.49	-121.25	454.36	14,368,727.427	902,921.334	39.536626587°N	107.615663213°W
2,100.00	18.30	104.94	2,024.43	-129.35	484.70	14,368,719.331	902,951.673	39.536606794°N	107.615554881°W
2,200.00	18.30	104.94	2,119.38	-137.45	515.04	14,368,711.234	902,982.012	39.536587001°N	107.615446550°W
2,300.00	18.30	104.94	2,214.32	-145.54	545.38	14,368,703.138	903,012.350	39.536567209°N	107.615338218°W
2,400.00	18.30	104.94	2,309.26	-153.64	575.71	14,368,695.041	903,042.689	39.536547416°N	107.615229887°W
2,500.00	18.30	104.94	2,404.20	-161.74	606.05	14,368,686.945	903,073.028	39.536527623°N	107.615121555°W
2,600.00	18.30	104.94	2,499.14	-169.83	636.39	14,368,678.848	903,103.367	39.536507829°N	107.615013224°W
2,700.00	18.30	104.94	2,594.09	-177.93	666.73	14,368,670.752	903,133.706	39.536488036°N	107.614904892°W
2,800.00	18.30	104.94	2,689.03	-186.03	697.07	14,368,662.655	903,164.045	39.536468243°N	107.614796561°W
2,900.00	18.30	104.94	2,783.97	-194.12	727.41	14,368,654.559	903,194.384	39.536448449°N	107.614688230°W
3,000.00	18.30	104.94	2,878.91	-202.22	757.75	14,368,646.462	903,224.723	39.536428656°N	107.614579898°W
3,100.00	18.30	104.94	2,973.85	-210.32	788.09	14,368,638.366	903,255.062	39.536408862°N	107.614471567°W
3,200.00	18.30	104.94	3,068.80	-218.41	818.43	14,368,630.269	903,285.401	39.536389068°N	107.614363236°W
3,300.00	18.30	104.94	3,163.74	-226.51	848.77	14,368,622.173	903,315.740	39.536369274°N	107.614254905°W
3,400.00	18.30	104.94	3,258.68	-234.61	879.10	14,368,614.076	903,346.079	39.536349480°N	107.614146574°W
3,401.39	18.30	104.94	3,260.00	-234.72	879.53	14,368,613.963	903,346.501	39.536349205°N	107.614145068°W
<b>Mesaverde</b>									
3,500.00	18.30	104.94	3,353.62	-242.70	909.44	14,368,605.980	903,376.418	39.536329686°N	107.614038243°W
3,600.00	18.30	104.94	3,448.56	-250.80	939.78	14,368,597.883	903,406.757	39.536309892°N	107.613929912°W
3,700.00	18.30	104.94	3,543.51	-258.90	970.12	14,368,589.786	903,437.096	39.536290098°N	107.613821582°W
3,800.00	18.30	104.94	3,638.45	-266.99	1,000.46	14,368,581.690	903,467.435	39.536270303°N	107.613713251°W
3,900.00	18.30	104.94	3,733.39	-275.09	1,030.80	14,368,573.593	903,497.774	39.536250509°N	107.613604920°W
4,000.00	18.30	104.94	3,828.33	-283.19	1,061.14	14,368,565.497	903,528.113	39.536230714°N	107.613496589°W
4,100.00	18.30	104.94	3,923.27	-291.28	1,091.48	14,368,557.400	903,558.452	39.536210919°N	107.613388259°W
4,200.00	18.30	104.94	4,018.22	-299.38	1,121.82	14,368,549.304	903,588.791	39.536191125°N	107.613279928°W
4,244.01	18.30	104.94	4,060.00	-302.94	1,135.17	14,368,545.741	903,602.143	39.536182413°N	107.613232253°W
<b>Price Coal</b>									
4,300.00	18.30	104.94	4,113.16	-307.47	1,152.16	14,368,541.207	903,619.129	39.536171330°N	107.613171598°W
4,349.64	18.30	104.94	4,160.29	-311.49	1,167.22	14,368,537.188	903,634.190	39.536161503°N	107.613117821°W
<b>Drop 3°/100 at 4350 MD/4160 TVD</b>									

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A16 (111199) - Slot A16
<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 A16 (111199)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Antero McLin A16		
<b>Design:</b>	Antero McLin A16 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,400.00	16.79	104.94	4,208.30	-315.41	1,181.88	14,368,533.274	903,648.858	39.536151933°N	107.613065448°W
4,500.00	13.79	104.94	4,304.75	-322.21	1,207.36	14,368,526.475	903,674.334	39.536135311°N	107.612974481°W
4,600.00	10.79	104.94	4,402.45	-327.70	1,227.92	14,368,520.987	903,694.898	39.536121893°N	107.612901054°W
4,700.00	7.79	104.94	4,501.13	-331.86	1,243.52	14,368,516.825	903,710.494	39.536111718°N	107.612845368°W
4,800.00	4.79	104.94	4,600.51	-334.68	1,254.10	14,368,514.000	903,721.078	39.536104811°N	107.612807573°W
4,900.00	1.79	104.94	4,700.34	-336.16	1,259.65	14,368,512.521	903,726.623	39.536101194°N	107.612787775°W
4,959.67	0.00	0.00	4,760.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
Vertical at 4960 MD/4760 TVD - Top Gas - Top Gas A16									
5,000.00	0.00	0.00	4,800.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,100.00	0.00	0.00	4,900.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,200.00	0.00	0.00	5,000.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,300.00	0.00	0.00	5,100.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,400.00	0.00	0.00	5,200.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,500.00	0.00	0.00	5,300.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,600.00	0.00	0.00	5,400.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,700.00	0.00	0.00	5,500.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,800.00	0.00	0.00	5,600.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
5,859.67	0.00	0.00	5,660.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
Cameo									
5,900.00	0.00	0.00	5,700.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,000.00	0.00	0.00	5,800.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,100.00	0.00	0.00	5,900.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,200.00	0.00	0.00	6,000.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,300.00	0.00	0.00	6,100.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,400.00	0.00	0.00	6,200.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,500.00	0.00	0.00	6,300.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,600.00	0.00	0.00	6,400.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,700.00	0.00	0.00	6,500.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,800.00	0.00	0.00	6,600.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,900.00	0.00	0.00	6,700.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
6,959.67	0.00	0.00	6,760.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
Rollins									
7,000.00	0.00	0.00	6,800.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
7,100.00	0.00	0.00	6,900.33	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
7,109.67	0.00	0.00	6,910.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
TD at 7110 MD/6910 TVD - TD A16									

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									
Top Gas A16	0.00	360.00	4,760.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°W
- plan hits target center									
- Circle (radius 25.00)									
TD A16	0.00	360.00	6,910.00	-336.40	1,260.55	14,368,512.280	903,727.524	39.536100606°N	107.612784560°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 A16 (111199) - Slot A16
<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 A16 (111199)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Antero McLin A16		
<b>Design:</b>	Antero McLin A16 P01		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	980.07	Surf Csg at 1000 MD/980TVD	5.50	6.00	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,401.39	3,260.00	Mesaverde			
4,244.01	4,060.00	Price Coal			
4,959.67	4,760.00	Top Gas			
5,859.67	5,660.00	Cameo			
6,959.67	6,760.00	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	KOP 3°/100 at 200MD/TVD	
810.03	799.71	-24.91	93.33	Hold 18.3° at 810 MD/799 TVD	
4,349.64	4,160.29	-311.49	1,167.22	Drop 3°/100 at 4350 MD/4160 TVD	
4,959.67	4,760.00	-336.40	1,260.55	Vertical at 4960 MD/4760 TVD	
7,109.67	6,910.00	-336.40	1,260.55	TD at 7110 MD/6910 TVD	