



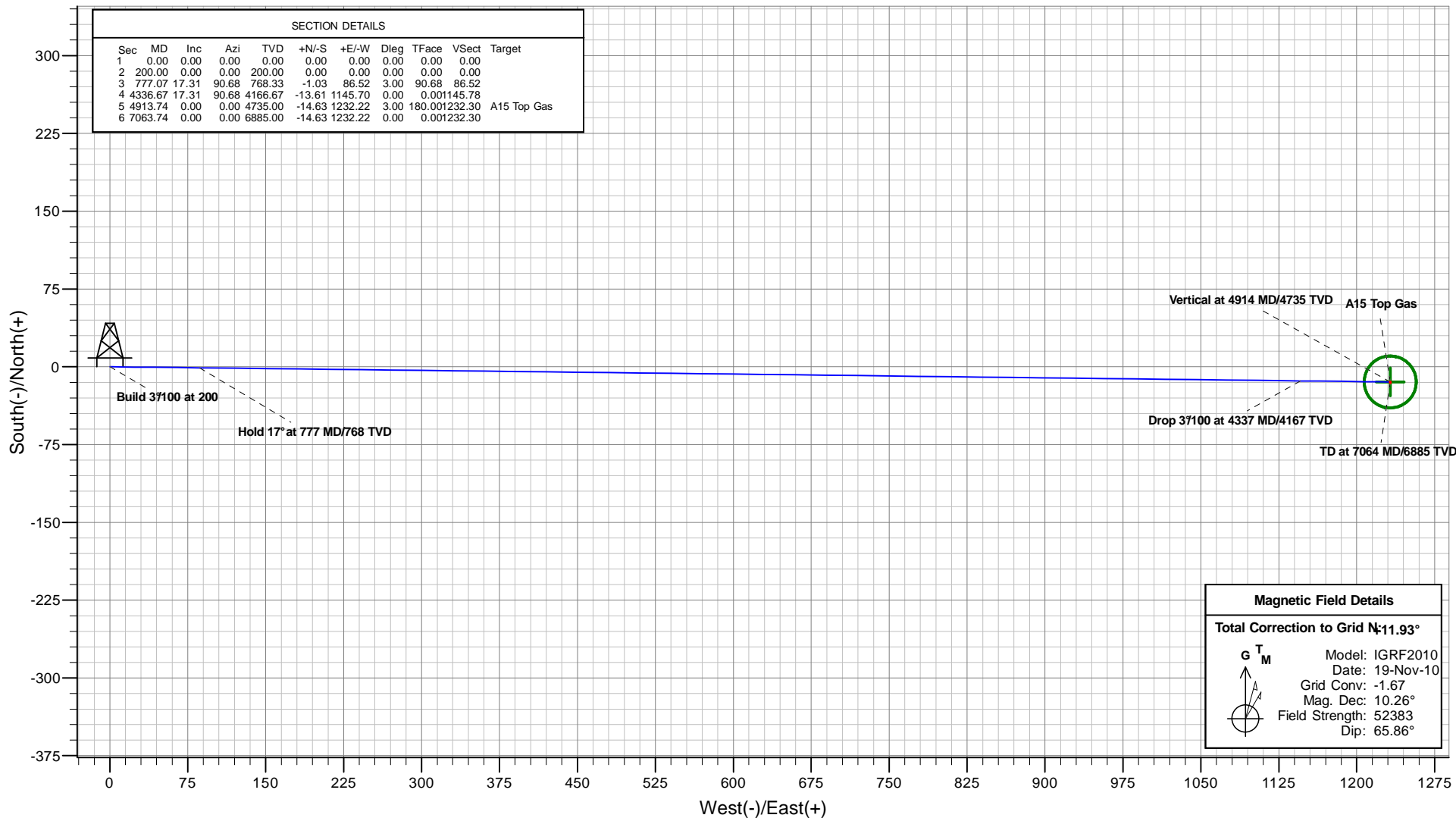
# Antero Resources

## McLin A15 (111218)



### PLAN VIEW

Project: McLin  
Site: McLin A  
Well: McLin A15 (111218)  
Wellbore: McLin A15  
Design: Antero McLin A15 P01



Plan: Antero McLin A15 P01  
Created By: ARK Directional Services  
Date: 13:34, August 19 2010

PROJECT DETAILS: McLin

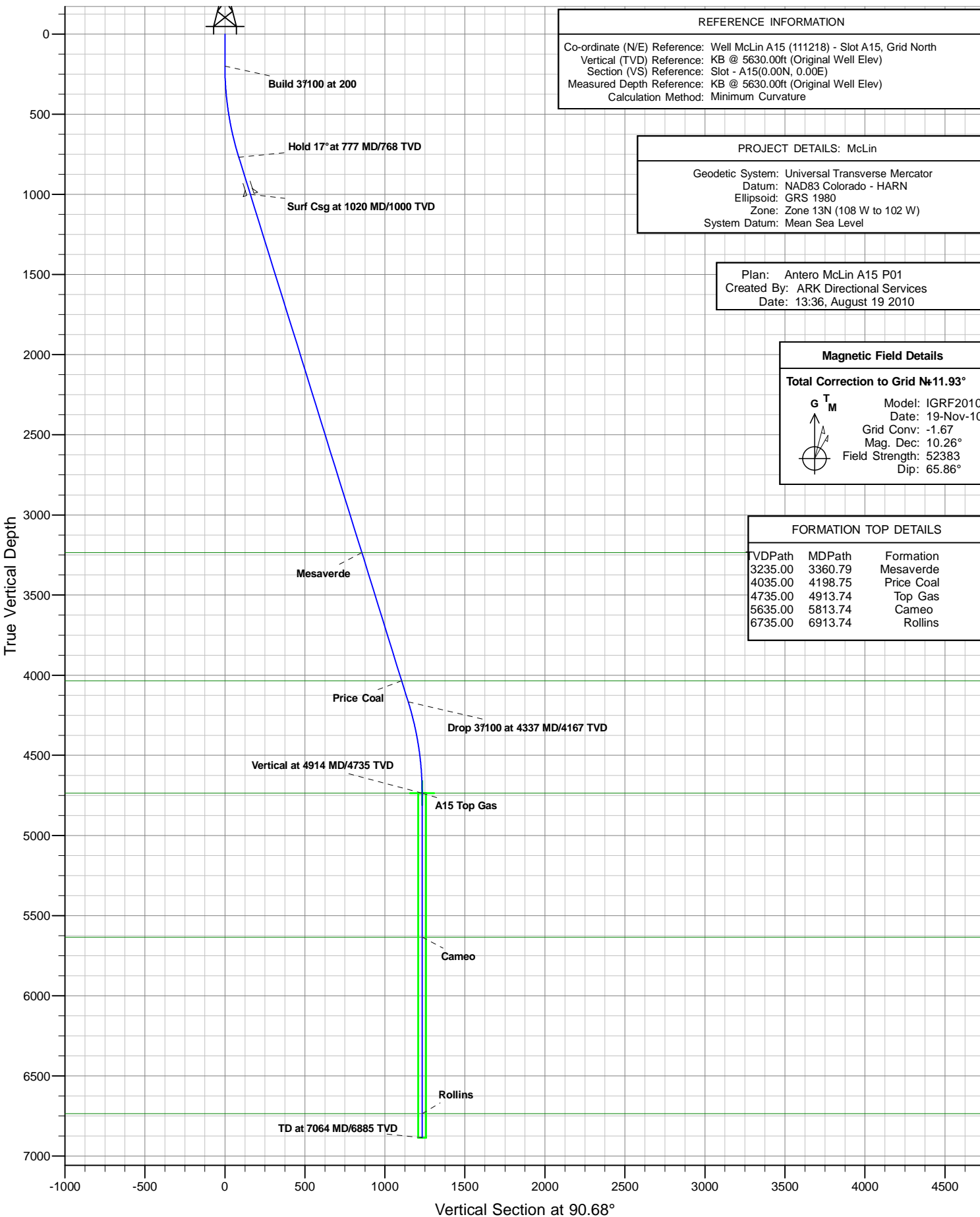
Geodetic System: Universal Transverse Mercator  
Datum: NAD83 Colorado - HARN  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well McLin A15 (111218) - Slot A15, Grid North  
Vertical (TVD) Reference: KB @ 5630.00ft (Original Well Elev)  
Section (VS) Reference: Slot - A15(0.00N, 0.00E)  
Measured Depth Reference: KB @ 5630.00ft (Original Well Elev)  
Calculation Method: Minimum Curvature

## McLin A15 (111218)

### VERTICAL SECTION VIEW



# **Antero Resources**

**McLin**

**McLin A**

**McLin A15 (111218) - Slot A15**

**McLin A15**

**Plan: Antero McLin A15 P01**

## **Standard Planning Report - Geographic**

**19 August, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A15 (111218) - Slot A15
<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 A15 (111218)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A15		
<b>Design:</b>	Antero McLin A15 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 A15 (111218) - Slot A15		
<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>	39.536952464°N
		<b>Longitude:</b>	107.617186304°W
		<b>Ground Level:</b>	5,606.00 ft

<b>Wellbore</b>	McLin A15				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	IGRF2010	2010/11/19	10.26	65.86	52,383

<b>Design</b>	Antero McLin A15 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)	(°)
	4,735.00	0.00	0.00	90.68

<b>Plan Sections</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	<b>TFO</b>	<b>Target</b>
<b>Depth</b>	<b>(°)</b>	<b>(°)</b>	<b>Depth</b>	<b>(ft)</b>	<b>(ft)</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	<b>(°)</b>	
<b>(ft)</b>			<b>(ft)</b>			<b>(°/100ft)</b>	<b>(°/100ft)</b>	<b>(°/100ft)</b>		
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	
777.07	17.31	90.68	768.33	-1.03	86.52	3.00	3.00	0.00	90.68	
4,336.67	17.31	90.68	4,166.67	-13.61	1,145.70	0.00	0.00	0.00	0.00	
4,913.74	0.00	0.00	4,735.00	-14.63	1,232.22	3.00	-3.00	0.00	180.00	A15 Top Gas
7,063.74	0.00	0.00	6,885.00	-14.63	1,232.22	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 A15 (111218) - Slot A15
<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 A15 (111218)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A15		
<b>Design:</b>	Antero McLin A15 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	14,368,858.601	902,495.289	39.536952464°N	107.617186304°W
100.00	0.00	0.00	100.00	0.00	0.00	14,368,858.601	902,495.289	39.536952464°N	107.617186304°W
200.00	0.00	0.00	200.00	0.00	0.00	14,368,858.601	902,495.289	39.536952464°N	107.617186304°W
<b>Build 3°/100 at 200</b>									
300.00	3.00	90.68	299.95	-0.03	2.62	14,368,858.569	902,497.906	39.536952587°N	107.617177027°W
400.00	6.00	90.68	399.63	-0.12	10.46	14,368,858.476	902,505.751	39.536952958°N	107.617149223°W
500.00	9.00	90.68	498.77	-0.28	23.51	14,368,858.321	902,518.801	39.536953575°N	107.617102967°W
600.00	12.00	90.68	597.08	-0.50	41.73	14,368,858.105	902,537.021	39.536954436°N	107.617038387°W
700.00	15.00	90.68	694.31	-0.77	65.07	14,368,857.828	902,560.361	39.536955538°N	107.616955659°W
777.07	17.31	90.68	768.33	-1.03	86.52	14,368,857.573	902,581.805	39.536956551°N	107.616879653°W
<b>Hold 17° at 777 MD/768 TVD</b>									
800.00	17.31	90.68	790.22	-1.11	93.34	14,368,857.492	902,588.626	39.536956874°N	107.616855474°W
900.00	17.31	90.68	885.69	-1.46	123.09	14,368,857.139	902,618.382	39.536958279°N	107.616750007°W
1,000.00	17.31	90.68	981.16	-1.82	152.85	14,368,856.785	902,648.138	39.536959685°N	107.616644539°W
1,020.00	17.31	90.68	1,000.25	-1.89	158.80	14,368,856.715	902,654.089	39.536959966°N	107.616623445°W
<b>Surf Csg at 1020 MD/1000 TVD</b>									
1,100.00	17.31	90.68	1,076.63	-2.17	182.60	14,368,856.432	902,677.894	39.536961091°N	107.616539071°W
1,200.00	17.31	90.68	1,172.10	-2.52	212.36	14,368,856.079	902,707.649	39.536962496°N	107.616433603°W
1,300.00	17.31	90.68	1,267.57	-2.88	242.12	14,368,855.725	902,737.405	39.536963901°N	107.616328135°W
1,400.00	17.31	90.68	1,363.04	-3.23	271.87	14,368,855.372	902,767.161	39.536965306°N	107.616222667°W
1,500.00	17.31	90.68	1,458.51	-3.58	301.63	14,368,855.019	902,796.916	39.536966712°N	107.616117199°W
1,600.00	17.31	90.68	1,553.98	-3.94	331.38	14,368,854.665	902,826.672	39.536968117°N	107.616011731°W
1,700.00	17.31	90.68	1,649.45	-4.29	361.14	14,368,854.312	902,856.428	39.536969521°N	107.615906264°W
1,800.00	17.31	90.68	1,744.92	-4.64	390.90	14,368,853.959	902,886.184	39.536970926°N	107.615800796°W
1,900.00	17.31	90.68	1,840.39	-5.00	420.65	14,368,853.605	902,915.939	39.536972331°N	107.615695328°W
2,000.00	17.31	90.68	1,935.86	-5.35	450.41	14,368,853.252	902,945.695	39.536973736°N	107.615589860°W
2,100.00	17.31	90.68	2,031.33	-5.70	480.16	14,368,852.899	902,975.451	39.536975140°N	107.615484392°W
2,200.00	17.31	90.68	2,126.80	-6.06	509.92	14,368,852.545	903,005.207	39.536976545°N	107.615378924°W
2,300.00	17.31	90.68	2,222.27	-6.41	539.67	14,368,852.192	903,034.962	39.536977949°N	107.615273456°W
2,400.00	17.31	90.68	2,317.74	-6.76	569.43	14,368,851.839	903,064.718	39.536979353°N	107.615167988°W
2,500.00	17.31	90.68	2,413.21	-7.12	599.19	14,368,851.485	903,094.474	39.536980757°N	107.615062520°W
2,600.00	17.31	90.68	2,508.68	-7.47	628.94	14,368,851.132	903,124.229	39.536982162°N	107.614957052°W
2,700.00	17.31	90.68	2,604.15	-7.82	658.70	14,368,850.779	903,153.985	39.536983565°N	107.614851584°W
2,800.00	17.31	90.68	2,699.61	-8.18	688.45	14,368,850.425	903,183.741	39.536984969°N	107.614746116°W
2,900.00	17.31	90.68	2,795.08	-8.53	718.21	14,368,850.072	903,213.497	39.536986373°N	107.614640648°W
3,000.00	17.31	90.68	2,890.55	-8.88	747.96	14,368,849.718	903,243.252	39.536987777°N	107.614535180°W
3,100.00	17.31	90.68	2,986.02	-9.24	777.72	14,368,849.365	903,273.008	39.536989180°N	107.614429712°W
3,200.00	17.31	90.68	3,081.49	-9.59	807.48	14,368,849.012	903,302.764	39.536990584°N	107.614324244°W
3,300.00	17.31	90.68	3,176.96	-9.94	837.23	14,368,848.658	903,332.520	39.536991987°N	107.614218776°W
3,360.79	17.31	90.68	3,235.00	-10.16	855.32	14,368,848.444	903,350.608	39.536992840°N	107.614154661°W
<b>Mesaverde</b>									
3,400.00	17.31	90.68	3,272.43	-10.30	866.99	14,368,848.305	903,362.275	39.536993391°N	107.614113308°W
3,500.00	17.31	90.68	3,367.90	-10.65	896.74	14,368,847.952	903,392.031	39.536994794°N	107.614007840°W
3,600.00	17.31	90.68	3,463.37	-11.00	926.50	14,368,847.598	903,421.787	39.536996197°N	107.613902372°W
3,700.00	17.31	90.68	3,558.84	-11.36	956.26	14,368,847.245	903,451.543	39.536997600°N	107.613796904°W
3,800.00	17.31	90.68	3,654.31	-11.71	986.01	14,368,846.892	903,481.298	39.536999003°N	107.613691435°W
3,900.00	17.31	90.68	3,749.78	-12.06	1,015.77	14,368,846.538	903,511.054	39.537000406°N	107.613585967°W
4,000.00	17.31	90.68	3,845.25	-12.42	1,045.52	14,368,846.185	903,540.810	39.537001808°N	107.613480499°W
4,100.00	17.31	90.68	3,940.72	-12.77	1,075.28	14,368,845.832	903,570.565	39.537003211°N	107.613375031°W
4,198.75	17.31	90.68	4,035.00	-13.12	1,104.66	14,368,845.483	903,599.950	39.537004596°N	107.613270879°W
<b>Price Coal</b>									
4,200.00	17.31	90.68	4,036.19	-13.12	1,105.03	14,368,845.478	903,600.321	39.537004614°N	107.613269563°W
4,300.00	17.31	90.68	4,131.66	-13.48	1,134.79	14,368,845.125	903,630.077	39.537006016°N	107.613164095°W

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin A15 (111218) - Slot A15
<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 A15 (111218)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A15		
<b>Design:</b>	Antero McLin A15 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
4,336.67	17.31	90.68	4,166.67	-13.61	1,145.70	14,368,844.995	903,640.987	39.537006530°N	107.613125423°W
Drop 3°/100 at 4337 MD/4167 TVD									
4,400.00	15.41	90.68	4,227.43	-13.82	1,163.54	14,368,844.784	903,658.827	39.537007371°N	107.613062192°W
4,500.00	12.41	90.68	4,324.49	-14.10	1,187.58	14,368,844.498	903,682.866	39.537008504°N	107.612976986°W
4,600.00	9.41	90.68	4,422.67	-14.33	1,206.51	14,368,844.273	903,701.793	39.537009396°N	107.612909900°W
4,700.00	6.41	90.68	4,521.70	-14.49	1,220.27	14,368,844.110	903,715.556	39.537010044°N	107.612861118°W
4,800.00	3.41	90.68	4,621.33	-14.59	1,228.83	14,368,844.008	903,724.117	39.537010448°N	107.612830773°W
4,900.00	0.41	90.68	4,721.26	-14.63	1,232.17	14,368,843.969	903,727.453	39.537010605°N	107.612818948°W
4,913.74	0.00	0.00	4,735.00	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
Vertical at 4914 MD/4735 TVD - Top Gas - A15 Top Gas									
5,000.00	0.00	0.00	4,821.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,100.00	0.00	0.00	4,921.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,200.00	0.00	0.00	5,021.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,300.00	0.00	0.00	5,121.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,400.00	0.00	0.00	5,221.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,500.00	0.00	0.00	5,321.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,600.00	0.00	0.00	5,421.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,700.00	0.00	0.00	5,521.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,800.00	0.00	0.00	5,621.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
5,813.74	0.00	0.00	5,635.00	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
Cameo									
5,900.00	0.00	0.00	5,721.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,000.00	0.00	0.00	5,821.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,100.00	0.00	0.00	5,921.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,200.00	0.00	0.00	6,021.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,300.00	0.00	0.00	6,121.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,400.00	0.00	0.00	6,221.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,500.00	0.00	0.00	6,321.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,600.00	0.00	0.00	6,421.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,700.00	0.00	0.00	6,521.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,800.00	0.00	0.00	6,621.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,900.00	0.00	0.00	6,721.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
6,913.74	0.00	0.00	6,735.00	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
Rollins									
7,000.00	0.00	0.00	6,821.26	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
7,063.74	0.00	0.00	6,885.00	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°W
TD at 7064 MD/6885 TVD									

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										
A15 Top Gas	0.00	360.00	4,735.00	-14.63	1,232.22	14,368,843.968	903,727.503	39.537010607°N	107.612818773°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 A15 (111218) - Slot A15
<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 A15 (111218)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin A15		
<b>Design:</b>	Antero McLin A15 P01		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,020.00	1,000.25	Surf Csg at 1020 MD/1000 TVD	5.50	6.00	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,360.79	3,235.00	Mesaverde			
4,198.75	4,035.00	Price Coal			
4,913.74	4,735.00	Top Gas			
5,813.74	5,635.00	Cameo			
6,913.74	6,735.00	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 3°/100 at 200	
777.07	768.33	-1.03	86.52	Hold 17° at 777 MD/768 TVD	
4,336.67	4,166.67	-13.61	1,145.70	Drop 3°/100 at 4337 MD/4167 TVD	
4,913.74	4,735.00	-14.63	1,232.22	Vertical at 4914 MD/4735 TVD	
7,063.74	6,885.00	-14.63	1,232.22	TD at 7064 MD/6885 TVD	