



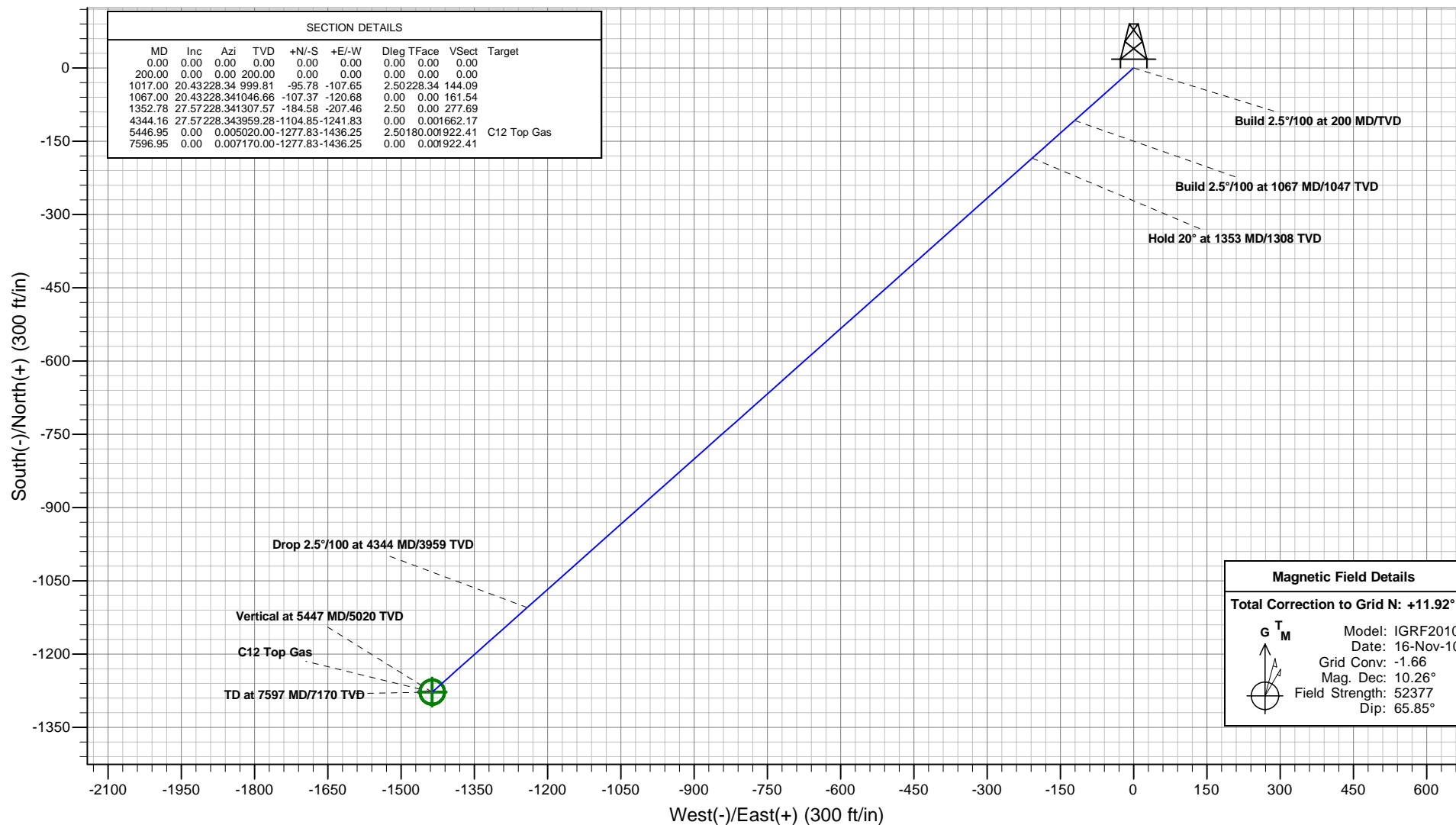
# Antero Resources

## McLin C12 (111231)



### PLAN VIEW

Project: McLin  
Site: McLin C  
Well: McLin C12 (111231)  
Wellbore: McLin C12  
Design: McLin C12 P01



Plan: McLin C12 P01  
Created By: ARK Directional Services  
Date: 14:17, August 17 2010

PROJECT DETAILS: McLin

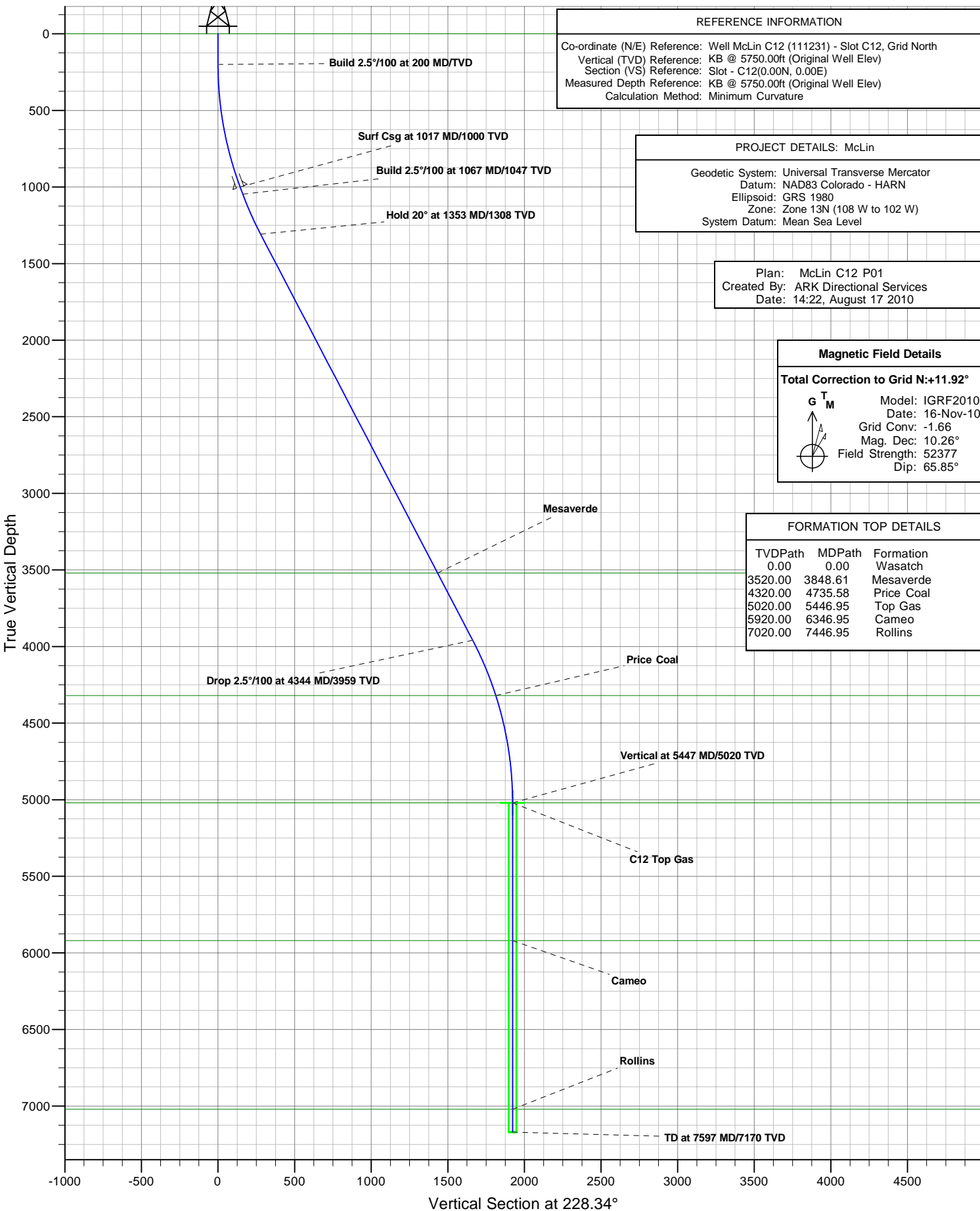
Geodetic System: Universal Transverse Mercator  
Datum: NAD83 Colorado - HARN  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well McLin C12 (111231) - Slot C12, Grid North  
Vertical (TVD) Reference: KB @ 5750.00ft (Original Well Elev)  
Section (VS) Reference: Slot - C12(0.00N, 0.00E)  
Measured Depth Reference: KB @ 5750.00ft (Original Well Elev)  
Calculation Method: Minimum Curvature



VERTICAL SECTION VIEW



# **Antero Resources**

**McLin**

**McLin C**

**McLin C12 (111231) - Slot C12**

**McLin C12**

**Plan: McLin C12 P01**

## **Standard Planning Report - Geographic**

**17 August, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin C12 (111231) - Slot C12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Site:</b>	McLin C	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin C12 (111231)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin C12		
<b>Design:</b>	McLin C12 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 C		
<b>Site Position:</b>		<b>Northing:</b>	14,364,522.752 usft
<b>From:</b>	Map	<b>Easting:</b>	905,235.880 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.20 in
		<b>Latitude:</b>	39.525275157°N
		<b>Longitude:</b>	107.607030464°W
		<b>Grid Convergence:</b>	-1.66 °

<b>Well</b>	McLin C12 (111231) - Slot C12		
<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>	39.525050693°N
		<b>Longitude:</b>	107.607249464°W
		<b>Ground Level:</b>	5,726.00 ft

<b>Wellbore</b>	McLin C12				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/11/16	10.26	65.85	52,377

<b>Design</b>	McLin C12 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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	228.34

<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	228.34	999.81	-95.78	-107.65	2.50	2.50	0.00	228.34	
1,067.00	20.43	228.34	1,046.66	-107.37	-120.68	0.00	0.00	0.00	0.00	
1,352.78	27.57	228.34	1,307.57	-184.58	-207.46	2.50	2.50	0.00	0.00	
4,344.16	27.57	228.34	3,959.28	-1,104.85	-1,241.83	0.00	0.00	0.00	0.00	
5,446.95	0.00	0.00	5,020.00	-1,277.83	-1,436.25	2.50	-2.50	0.00	180.00	C12 Top Gas
7,596.95	0.00	0.00	7,170.00	-1,277.83	-1,436.25	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 C12 (111231) - Slot C12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Site:</b>	McLin C	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin C12 (111231)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin C12		
<b>Design:</b>	McLin C12 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	14,364,442.796	905,171.745	39.525050693°N	107.607249464°W
<b>Wasatch</b>									
100.00	0.00	0.00	100.00	0.00	0.00	14,364,442.796	905,171.745	39.525050693°N	107.607249464°W
200.00	0.00	0.00	200.00	0.00	0.00	14,364,442.796	905,171.745	39.525050693°N	107.607249464°W
<b>Build 2.5°/100 at 200 MD/TVD</b>									
300.00	2.50	228.34	299.97	-1.45	-1.63	14,364,441.346	905,170.115	39.525046586°N	107.607255088°W
400.00	5.00	228.34	399.75	-5.80	-6.52	14,364,436.999	905,165.229	39.525034271°N	107.607271951°W
500.00	7.50	228.34	499.14	-13.03	-14.65	14,364,429.763	905,157.097	39.525013772°N	107.607300020°W
600.00	10.00	228.34	597.97	-23.14	-26.01	14,364,419.652	905,145.732	39.524985128°N	107.607339241°W
700.00	12.50	228.34	696.04	-36.11	-40.59	14,364,406.685	905,131.158	39.524948394°N	107.607389541°W
800.00	15.00	228.34	793.17	-51.91	-58.34	14,364,390.887	905,113.402	39.524903640°N	107.607450822°W
900.00	17.50	228.34	889.17	-70.51	-79.25	14,364,372.288	905,092.498	39.524850950°N	107.607522969°W
1,000.00	20.00	228.34	983.85	-91.87	-103.26	14,364,350.924	905,068.485	39.524790425°N	107.607605845°W
1,017.00	20.43	228.34	999.81	-95.78	-107.65	14,364,347.019	905,064.097	39.524779365°N	107.607620989°W
<b>Surf Csg at 1017 MD/1000 TVD</b>									
1,067.00	20.43	228.34	1,046.66	-107.37	-120.68	14,364,335.421	905,051.060	39.524746507°N	107.607665981°W
<b>Build 2.5°/100 at 1067 MD/1047 TVD</b>									
1,100.00	21.25	228.34	1,077.50	-115.18	-129.45	14,364,327.618	905,042.290	39.524724403°N	107.607696249°W
1,200.00	23.75	228.34	1,169.88	-140.61	-158.04	14,364,302.184	905,013.702	39.524652347°N	107.607794916°W
1,300.00	26.25	228.34	1,260.51	-168.70	-189.62	14,364,274.094	904,982.130	39.524572772°N	107.607903878°W
1,352.78	27.57	228.34	1,307.57	-184.58	-207.46	14,364,258.217	904,964.284	39.524527791°N	107.607965470°W
<b>Hold 20° at 1353 MD/1308 TVD</b>									
1,400.00	27.57	228.34	1,349.43	-199.11	-223.79	14,364,243.690	904,947.956	39.524486638°N	107.608021821°W
1,500.00	27.57	228.34	1,438.07	-229.87	-258.37	14,364,212.926	904,913.378	39.524399485°N	107.608141159°W
1,600.00	27.57	228.34	1,526.72	-260.63	-292.95	14,364,182.162	904,878.800	39.524312332°N	107.608260496°W
1,700.00	27.57	228.34	1,615.36	-291.40	-327.52	14,364,151.399	904,844.222	39.524225179°N	107.608379833°W
1,800.00	27.57	228.34	1,704.01	-322.16	-362.10	14,364,120.635	904,809.644	39.524138026°N	107.608499170°W
1,900.00	27.57	228.34	1,792.65	-352.93	-396.68	14,364,089.871	904,775.066	39.524050873°N	107.608618506°W
2,000.00	27.57	228.34	1,881.30	-383.69	-431.26	14,364,059.107	904,740.488	39.523963719°N	107.608737842°W
2,100.00	27.57	228.34	1,969.94	-414.45	-465.84	14,364,028.343	904,705.910	39.523876566°N	107.608857178°W
2,200.00	27.57	228.34	2,058.59	-445.22	-500.41	14,363,997.579	904,671.332	39.523789412°N	107.608976513°W
2,300.00	27.57	228.34	2,147.23	-475.98	-534.99	14,363,966.816	904,636.754	39.523702258°N	107.609095848°W
2,400.00	27.57	228.34	2,235.88	-506.75	-569.57	14,363,936.052	904,602.176	39.523615104°N	107.609215183°W
2,500.00	27.57	228.34	2,324.52	-537.51	-604.15	14,363,905.288	904,567.598	39.523527950°N	107.609334518°W
2,600.00	27.57	228.34	2,413.17	-568.27	-638.73	14,363,874.524	904,533.020	39.523440796°N	107.609453852°W
2,700.00	27.57	228.34	2,501.81	-599.04	-673.30	14,363,843.760	904,498.441	39.523353642°N	107.609573186°W
2,800.00	27.57	228.34	2,590.46	-629.80	-707.88	14,363,812.996	904,463.863	39.523266488°N	107.609692520°W
2,900.00	27.57	228.34	2,679.10	-660.56	-742.46	14,363,782.232	904,429.285	39.523179333°N	107.609811853°W
3,000.00	27.57	228.34	2,767.75	-691.33	-777.04	14,363,751.469	904,394.707	39.523092179°N	107.609931186°W
3,100.00	27.57	228.34	2,856.39	-722.09	-811.62	14,363,720.705	904,360.129	39.523005024°N	107.610050519°W
3,200.00	27.57	228.34	2,945.04	-752.86	-846.20	14,363,689.941	904,325.551	39.522917870°N	107.610169851°W
3,300.00	27.57	228.34	3,033.68	-783.62	-880.77	14,363,659.177	904,290.973	39.522830715°N	107.610289183°W
3,400.00	27.57	228.34	3,122.33	-814.38	-915.35	14,363,628.413	904,256.395	39.522743560°N	107.610408515°W
3,500.00	27.57	228.34	3,210.97	-845.15	-949.93	14,363,597.649	904,221.817	39.522656405°N	107.610527847°W
3,600.00	27.57	228.34	3,299.62	-875.91	-984.51	14,363,566.885	904,187.239	39.522569249°N	107.610647178°W
3,700.00	27.57	228.34	3,388.26	-906.68	-1,019.09	14,363,536.122	904,152.661	39.522482094°N	107.610766509°W
3,800.00	27.57	228.34	3,476.91	-937.44	-1,053.66	14,363,505.358	904,118.083	39.522394939°N	107.610885840°W
3,848.61	27.57	228.34	3,520.00	-952.39	-1,070.47	14,363,490.403	904,101.274	39.522352572°N	107.610943847°W
<b>Mesaverde</b>									
3,900.00	27.57	228.34	3,565.55	-968.20	-1,088.24	14,363,474.594	904,083.505	39.522307783°N	107.611005170°W
4,000.00	27.57	228.34	3,654.20	-998.97	-1,122.82	14,363,443.830	904,048.927	39.522220627°N	107.611124500°W
4,100.00	27.57	228.34	3,742.84	-1,029.73	-1,157.40	14,363,413.066	904,014.348	39.522133472°N	107.6111243830°W
4,200.00	27.57	228.34	3,831.49	-1,060.50	-1,191.98	14,363,382.302	903,979.770	39.522046316°N	107.6111363159°W
4,300.00	27.57	228.34	3,920.13	-1,091.26	-1,226.56	14,363,351.539	903,945.192	39.521959160°N	107.6111482489°W

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLin C12 (111231) - Slot C12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Site:</b>	McLin C	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin C12 (111231)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin C12		
<b>Design:</b>	McLin C12 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	
4,344.16	27.57	228.34	3,959.28	-1,104.84	-1,241.82	14,363,337.953	903,929.923	39.521920671°N	107.611535184°W	
Drop 2.5°/100 at 4344 MD/3959 TVD										
4,400.00	26.17	228.34	4,009.09	-1,121.62	-1,260.68	14,363,321.177	903,911.067	39.521873144°N	107.611600256°W	
4,500.00	23.67	228.34	4,099.77	-1,149.63	-1,292.16	14,363,293.168	903,879.585	39.521793793°N	107.611708899°W	
4,600.00	21.17	228.34	4,192.20	-1,174.98	-1,320.66	14,363,267.815	903,851.089	39.521721966°N	107.611807239°W	
4,700.00	18.67	228.34	4,286.21	-1,197.63	-1,346.12	14,363,245.166	903,825.632	39.521657799°N	107.611895091°W	
4,735.58	17.78	228.34	4,320.00	-1,205.03	-1,354.43	14,363,237.769	903,817.317	39.521636841°N	107.611923785°W	
Price Coal										
4,800.00	16.17	228.34	4,381.61	-1,217.53	-1,368.49	14,363,225.265	903,803.262	39.521601416°N	107.611972287°W	
4,900.00	13.67	228.34	4,478.23	-1,234.65	-1,387.72	14,363,208.148	903,784.024	39.521552923°N	107.612038679°W	
5,000.00	11.17	228.34	4,575.88	-1,248.95	-1,403.80	14,363,193.849	903,767.952	39.521512412°N	107.612094143°W	
5,100.00	8.67	228.34	4,674.38	-1,260.40	-1,416.67	14,363,182.395	903,755.077	39.521479962°N	107.612138572°W	
5,200.00	6.17	228.34	4,773.53	-1,268.99	-1,426.32	14,363,173.807	903,745.425	39.521455632°N	107.612171881°W	
5,300.00	3.67	228.34	4,873.16	-1,274.70	-1,432.73	14,363,168.103	903,739.013	39.521439471°N	107.612194008°W	
5,400.00	1.17	228.34	4,973.06	-1,277.51	-1,435.89	14,363,165.292	903,735.854	39.521431508°N	107.612204910°W	
5,446.95	0.00	0.00	5,020.00	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
Vertical at 5447 MD/5020 TVD - Top Gas										
5,500.00	0.00	0.00	5,073.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
5,600.00	0.00	0.00	5,173.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
5,700.00	0.00	0.00	5,273.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
5,800.00	0.00	0.00	5,373.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
5,900.00	0.00	0.00	5,473.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,000.00	0.00	0.00	5,573.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,100.00	0.00	0.00	5,673.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,200.00	0.00	0.00	5,773.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,300.00	0.00	0.00	5,873.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,346.95	0.00	0.00	5,920.00	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
Cameo										
6,400.00	0.00	0.00	5,973.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,500.00	0.00	0.00	6,073.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,600.00	0.00	0.00	6,173.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,700.00	0.00	0.00	6,273.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,800.00	0.00	0.00	6,373.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
6,900.00	0.00	0.00	6,473.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,000.00	0.00	0.00	6,573.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,100.00	0.00	0.00	6,673.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,200.00	0.00	0.00	6,773.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,300.00	0.00	0.00	6,873.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,400.00	0.00	0.00	6,973.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,446.95	0.00	0.00	7,020.00	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
Rollins										
7,500.00	0.00	0.00	7,073.05	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
7,596.95	0.00	0.00	7,170.00	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
C12 Top Gas	0.00	360.00	5,020.00	-1,277.83	-1,436.25	14,363,164.972	903,735.495	39.521430603°N	107.612206149°W	
- hit/miss target										
- Shape										
- 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 C12 (111231) - Slot C12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Project:</b>	McLin	<b>MD Reference:</b>	KB @ 5750.00ft (Original Well Elev)
<b>Site:</b>	McLin C	<b>North Reference:</b>	Grid
<b>Well:</b>	McLin C12 (111231)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McLin C12		
<b>Design:</b>	McLin C12 P01		

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 (°)
0.00	0.00	Wasatch			
3,848.61	3,520.00	Mesaverde			
4,735.58	4,320.00	Price Coal			
5,446.95	5,020.00	Top Gas			
6,346.95	5,920.00	Cameo			
7,446.95	7,020.00	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	-107.37	-120.68	Build 2.5°/100 at 1067 MD/1047 TVD	
1,352.78	1,307.57	-184.58	-207.46	Hold 20° at 1353 MD/1308 TVD	
4,344.16	3,959.28	-1,104.84	-1,241.82	Drop 2.5°/100 at 4344 MD/3959 TVD	
5,446.95	5,020.00	-1,277.83	-1,436.25	Vertical at 5447 MD/5020 TVD	
7,596.95	7,170.00	-1,277.83	-1,436.25	TD at 7597 MD/7170 TVD	