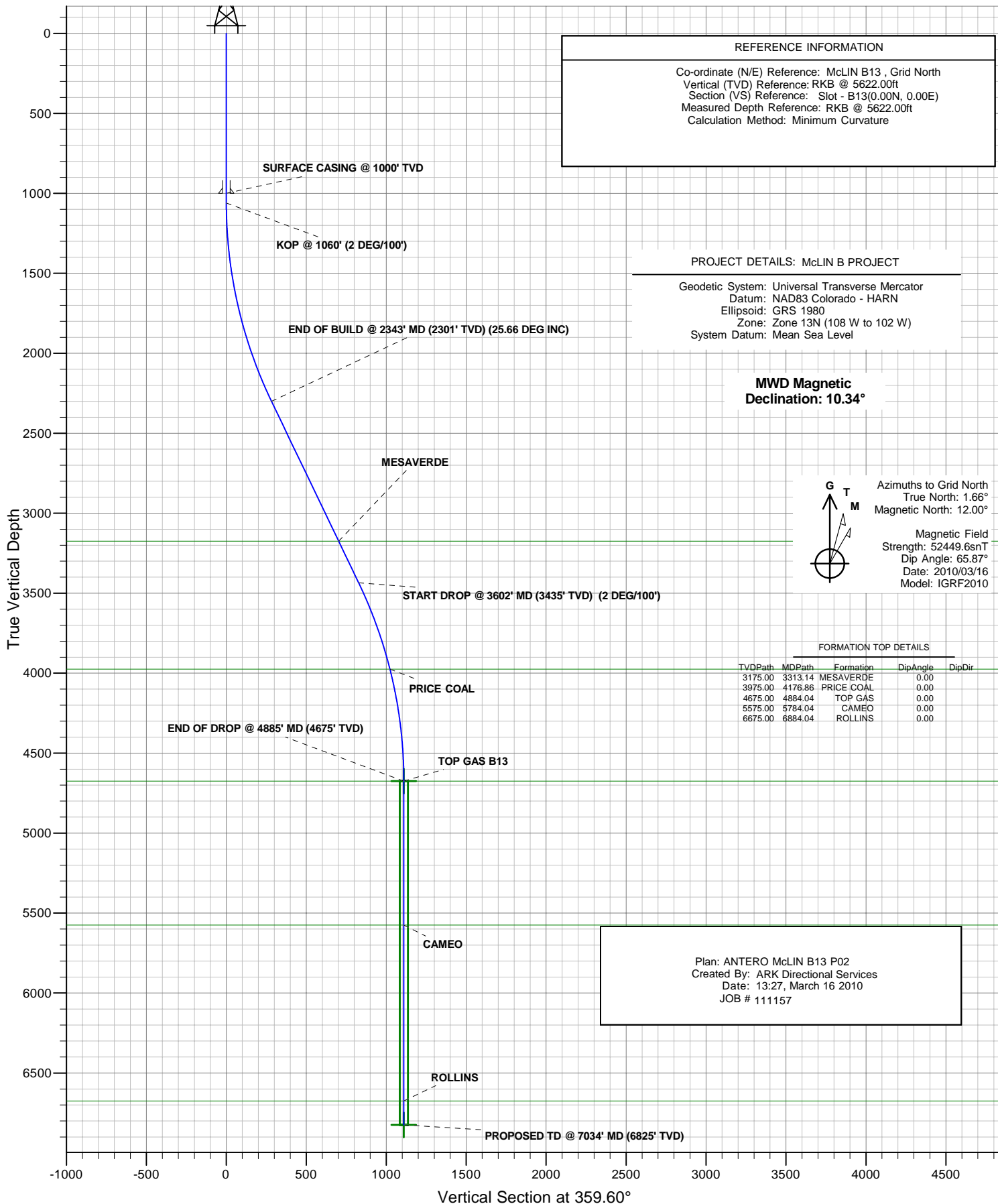




# ANTERO RESOURCES

ANTERO McLIN B13





# **ANTERO RESOURCES**

**McLIN B PROJECT  
FRONTIER 12**

**Plan: ANTERO McLIN B13 P02**

## **Standard Planning Report - Geographic**

**16 March, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B13 (111157) - Slot B13
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5622.00ft
<b>Project:</b>	McLIN B PROJECT	<b>MD Reference:</b>	RKB @ 5622.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	McLIN B13 (111157)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B13		
<b>Design:</b>	ANTERO McLIN B13 P02		

<b>Project</b>	McLIN B PROJECT		
<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		FRONTIER 12			
Site Position:		Northing:	14,366,636.75 usft	Latitude:	39° 31' 51.798 N
From:	Lat/Long	Easting:	904,982.97 usft	Longitude:	107° 36' 29.317 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	McLIN B13 (111157) - Slot B13					
Well Position	+N/-S	0.00 ft	Northing:	14,366,645.79 usft	Latitude:	39° 31' 51.879 N
	+E/-W	0.00 ft	Easting:	904,954.36 usft	Longitude:	107° 36' 29.685 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,598.00 ft

<b>Wellbore</b>	ANTERO McLIN B13				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/03/16	10.34	65.87	52,450

<b>Design</b>	ANTERO McLIN B13 P02				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	359.60	

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,060.00	0.00	0.00	1,060.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,343.00	25.66	359.60	2,300.54	282.52	-1.97	2.00	2.00	0.00	359.60	
3,601.52	25.66	359.60	3,434.94	827.48	-5.76	0.00	0.00	0.00	0.00	
4,884.52	0.00	0.00	4,675.48	1,110.00	-7.73	2.00	-2.00	0.00	180.00	
7,034.04	0.00	0.00	6,825.00	1,110.00	-7.73	0.00	0.00	0.00	0.00	TD B13

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B13 (111157) - Slot B13
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5622.00ft
<b>Project:</b>	McLIN B PROJECT	<b>MD Reference:</b>	RKB @ 5622.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	McLIN B13 (111157)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B13		
<b>Design:</b>	ANTERO McLIN B13 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	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
100.00	0.00	0.00	100.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
200.00	0.00	0.00	200.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
300.00	0.00	0.00	300.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
400.00	0.00	0.00	400.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
500.00	0.00	0.00	500.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
600.00	0.00	0.00	600.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
700.00	0.00	0.00	700.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
800.00	0.00	0.00	800.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
900.00	0.00	0.00	900.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
<b>SURFACE CASING @ 1000' TVD</b>									
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,366,645.79	904,954.36	39° 31' 51.879 N	107° 36' 29.685 W
<b>KOP @ 1060' (2 DEG/100')</b>									
1,100.00	0.80	359.60	1,100.00	0.28	0.00	14,366,646.07	904,954.36	39° 31' 51.882 N	107° 36' 29.685 W
1,200.00	2.80	359.60	1,199.94	3.42	-0.02	14,366,649.21	904,954.34	39° 31' 51.913 N	107° 36' 29.687 W
1,300.00	4.80	359.60	1,299.72	10.05	-0.07	14,366,655.84	904,954.29	39° 31' 51.978 N	107° 36' 29.690 W
1,400.00	6.80	359.60	1,399.20	20.15	-0.14	14,366,665.94	904,954.22	39° 31' 52.078 N	107° 36' 29.694 W
1,500.00	8.80	359.60	1,498.27	33.72	-0.23	14,366,679.51	904,954.13	39° 31' 52.212 N	107° 36' 29.701 W
1,600.00	10.80	359.60	1,596.81	50.74	-0.35	14,366,696.53	904,954.01	39° 31' 52.380 N	107° 36' 29.708 W
1,700.00	12.80	359.60	1,694.69	71.19	-0.50	14,366,716.98	904,953.86	39° 31' 52.582 N	107° 36' 29.718 W
1,800.00	14.80	359.60	1,791.80	95.04	-0.66	14,366,740.83	904,953.70	39° 31' 52.817 N	107° 36' 29.729 W
1,900.00	16.80	359.60	1,888.02	122.27	-0.85	14,366,768.06	904,953.51	39° 31' 53.086 N	107° 36' 29.741 W
2,000.00	18.80	359.60	1,983.22	152.83	-1.06	14,366,798.63	904,953.30	39° 31' 53.388 N	107° 36' 29.755 W
2,100.00	20.80	359.60	2,077.31	186.71	-1.30	14,366,832.50	904,953.06	39° 31' 53.723 N	107° 36' 29.771 W
2,200.00	22.80	359.60	2,170.15	223.84	-1.56	14,366,869.63	904,952.80	39° 31' 54.089 N	107° 36' 29.788 W
2,300.00	24.80	359.60	2,261.64	264.19	-1.84	14,366,909.98	904,952.52	39° 31' 54.488 N	107° 36' 29.806 W
2,343.00	25.66	359.60	2,300.54	282.52	-1.97	14,366,928.31	904,952.39	39° 31' 54.669 N	107° 36' 29.815 W
<b>END OF BUILD @ 2343' MD (2301' TVD) (25.66 DEG INC)</b>									
2,400.00	25.66	359.60	2,351.92	307.20	-2.14	14,366,952.99	904,952.22	39° 31' 54.912 N	107° 36' 29.826 W
2,500.00	25.66	359.60	2,442.06	350.50	-2.44	14,366,996.29	904,951.92	39° 31' 55.340 N	107° 36' 29.846 W
2,600.00	25.66	359.60	2,532.19	393.81	-2.74	14,367,039.60	904,951.62	39° 31' 55.768 N	107° 36' 29.866 W
2,700.00	25.66	359.60	2,622.33	437.11	-3.04	14,367,082.90	904,951.32	39° 31' 56.195 N	107° 36' 29.886 W
2,800.00	25.66	359.60	2,712.47	480.41	-3.34	14,367,126.20	904,951.02	39° 31' 56.623 N	107° 36' 29.905 W
2,900.00	25.66	359.60	2,802.61	523.71	-3.65	14,367,169.50	904,950.71	39° 31' 57.050 N	107° 36' 29.925 W
3,000.00	25.66	359.60	2,892.75	567.01	-3.95	14,367,212.80	904,950.41	39° 31' 57.478 N	107° 36' 29.945 W
3,100.00	25.66	359.60	2,982.88	610.32	-4.25	14,367,256.11	904,950.11	39° 31' 57.906 N	107° 36' 29.965 W
3,200.00	25.66	359.60	3,073.02	653.62	-4.55	14,367,299.41	904,949.81	39° 31' 58.333 N	107° 36' 29.985 W
3,300.00	25.66	359.60	3,163.16	696.92	-4.85	14,367,342.71	904,949.51	39° 31' 58.761 N	107° 36' 30.005 W
3,313.14	25.66	359.60	3,175.00	702.61	-4.89	14,367,348.40	904,949.47	39° 31' 58.817 N	107° 36' 30.007 W
<b>MESAVERDE</b>									
3,400.00	25.66	359.60	3,253.30	740.22	-5.15	14,367,386.01	904,949.21	39° 31' 59.188 N	107° 36' 30.025 W
3,500.00	25.66	359.60	3,343.44	783.52	-5.45	14,367,429.31	904,948.91	39° 31' 59.616 N	107° 36' 30.044 W
3,601.52	25.66	359.60	3,434.94	827.48	-5.76	14,367,473.27	904,948.60	39° 32' 0.050 N	107° 36' 30.065 W
<b>START DROP @ 3602' MD (3435' TVD) (2 DEG/100')</b>									
3,700.00	23.69	359.60	3,524.43	868.59	-6.05	14,367,514.38	904,948.31	39° 32' 0.456 N	107° 36' 30.083 W
3,800.00	21.69	359.60	3,616.68	907.17	-6.31	14,367,552.95	904,948.05	39° 32' 0.837 N	107° 36' 30.101 W
3,900.00	19.69	359.60	3,710.23	942.49	-6.56	14,367,588.28	904,947.80	39° 32' 1.186 N	107° 36' 30.117 W
4,000.00	17.69	359.60	3,804.95	974.54	-6.78	14,367,620.33	904,947.58	39° 32' 1.502 N	107° 36' 30.132 W
4,100.00	15.69	359.60	3,900.73	1,003.26	-6.98	14,367,649.04	904,947.38	39° 32' 1.786 N	107° 36' 30.145 W
4,176.86	14.15	359.60	3,975.00	1,023.05	-7.12	14,367,668.84	904,947.24	39° 32' 1.981 N	107° 36' 30.154 W
<b>PRICE COAL</b>									
4,200.00	13.69	359.60	3,997.46	1,028.61	-7.16	14,367,674.40	904,947.20	39° 32' 2.036 N	107° 36' 30.157 W
4,300.00	11.69	359.60	4,095.01	1,050.58	-7.31	14,367,696.37	904,947.05	39° 32' 2.253 N	107° 36' 30.167 W

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B13 (111157) - Slot B13
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5622.00ft
<b>Project:</b>	McLIN B PROJECT	<b>MD Reference:</b>	RKB @ 5622.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	McLIN B13 (111157)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B13		
<b>Design:</b>	ANTERO McLIN B13 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
4,400.00	9.69	359.60	4,193.27	1,069.13	-7.44	14,367,714.92	904,946.92	39° 32' 2.436 N	107° 36' 30.175 W
4,500.00	7.69	359.60	4,292.12	1,084.24	-7.55	14,367,730.03	904,946.81	39° 32' 2.586 N	107° 36' 30.182 W
4,600.00	5.69	359.60	4,391.43	1,095.89	-7.63	14,367,741.68	904,946.73	39° 32' 2.701 N	107° 36' 30.188 W
4,700.00	3.69	359.60	4,491.09	1,104.06	-7.69	14,367,749.85	904,946.67	39° 32' 2.781 N	107° 36' 30.191 W
4,800.00	1.69	359.60	4,590.98	1,108.76	-7.72	14,367,754.55	904,946.64	39° 32' 2.828 N	107° 36' 30.194 W
4,884.04	0.01	359.60	4,675.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
TOP GAS - TOP GAS B13									
4,884.52	0.00	0.00	4,675.48	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
END OF DROP @ 4885' MD (4675' TVD)									
4,900.00	0.00	0.00	4,690.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,000.00	0.00	0.00	4,790.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,100.00	0.00	0.00	4,890.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,200.00	0.00	0.00	4,990.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,300.00	0.00	0.00	5,090.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,400.00	0.00	0.00	5,190.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,500.00	0.00	0.00	5,290.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,600.00	0.00	0.00	5,390.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,700.00	0.00	0.00	5,490.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,784.04	0.00	0.00	5,575.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
CAMEO									
5,800.00	0.00	0.00	5,590.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
5,900.00	0.00	0.00	5,690.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,000.00	0.00	0.00	5,790.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,100.00	0.00	0.00	5,890.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,200.00	0.00	0.00	5,990.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,300.00	0.00	0.00	6,090.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,400.00	0.00	0.00	6,190.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,500.00	0.00	0.00	6,290.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,600.00	0.00	0.00	6,390.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,700.00	0.00	0.00	6,490.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,800.00	0.00	0.00	6,590.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
6,884.04	0.00	0.00	6,675.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
ROLLINS									
6,900.00	0.00	0.00	6,690.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
7,000.00	0.00	0.00	6,790.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
7,034.00	0.00	0.00	6,824.96	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
PROPOSED TD @ 7034' MD (6825' TVD)									
7,034.04	0.00	0.00	6,825.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
TD B13									

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 B13	0.00	360.00	4,675.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 W
- plan hits target center									
- Circle (radius 25.00)									
TD B13	0.00	360.00	6,825.00	1,110.00	-7.73	14,367,755.79	904,946.63	39° 32' 2.840 N	107° 36' 30.194 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 B13 (111157) - Slot B13
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5622.00ft
<b>Project:</b>	McLIN B PROJECT	<b>MD Reference:</b>	RKB @ 5622.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	McLIN B13 (111157)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B13		
<b>Design:</b>	ANTERO McLIN B13 P02		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	SURFACE CASING @ 1000' TVD	9.62	12.25	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,313.14	3,175.00	MESAVERDE		0.00	
4,176.86	3,975.00	PRICE COAL		0.00	
4,884.04	4,675.00	TOP GAS		0.00	
5,784.04	5,575.00	CAMEO		0.00	
6,884.04	6,675.00	ROLLINS		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,060.00	1,060.00	0.00	0.00	KOP @ 1060' (2 DEG/100')	
2,343.00	2,300.54	282.52	-1.97	END OF BUILD @ 2343' MD (2301' TVD) (25.66 DEG INC)	
3,601.52	3,434.94	827.48	-5.76	START DROP @ 3602' MD (3435' TVD) (2 DEG/100')	
4,884.52	4,675.48	1,110.00	-7.73	END OF DROP @ 4885' MD (4675' TVD)	
7,034.00	6,824.96	1,110.00	-7.73	PROPOSED TD @ 7034' MD (6825' TVD)	