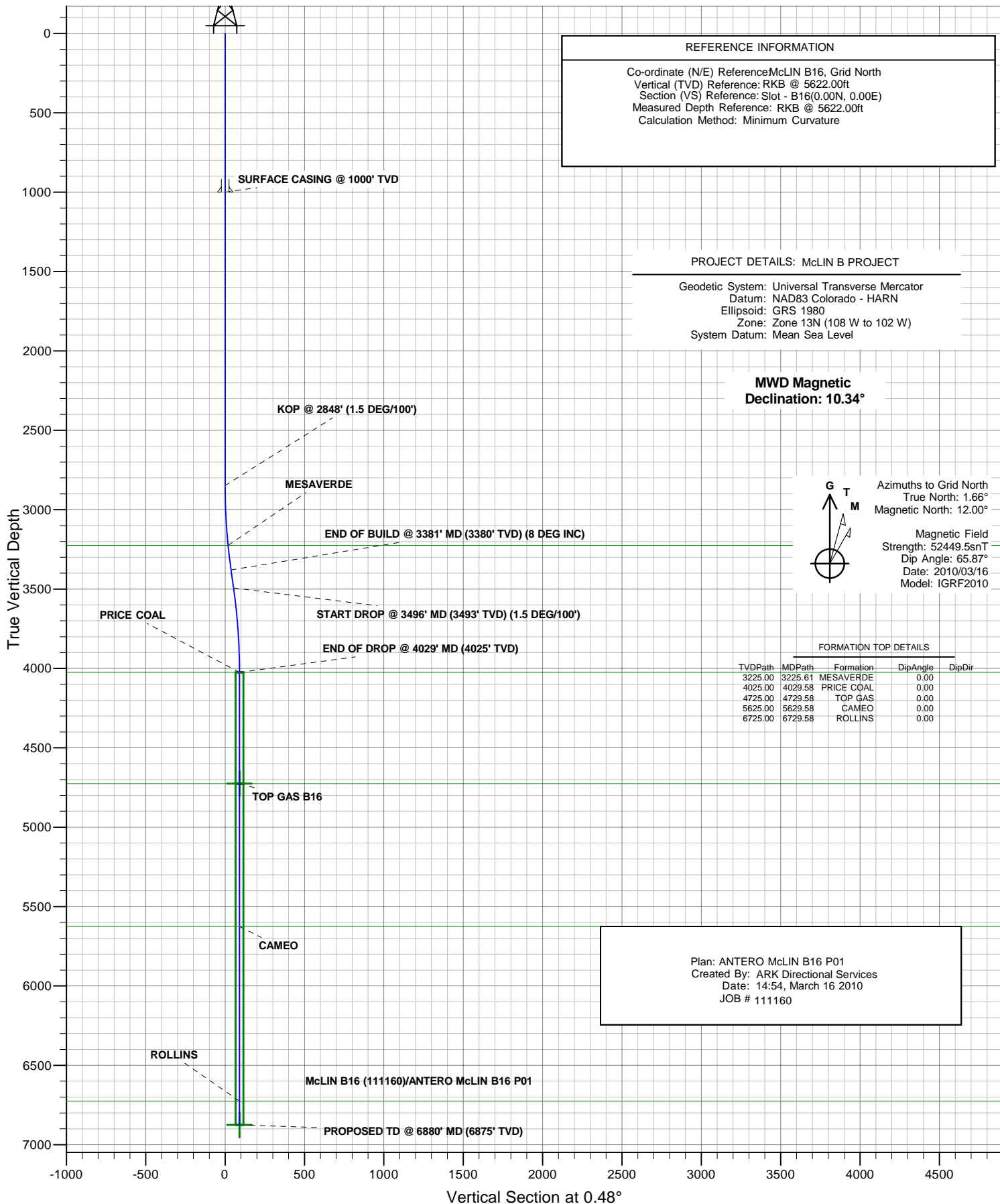




# ANTERO RESOURCES

## ANTERO McLIN B16

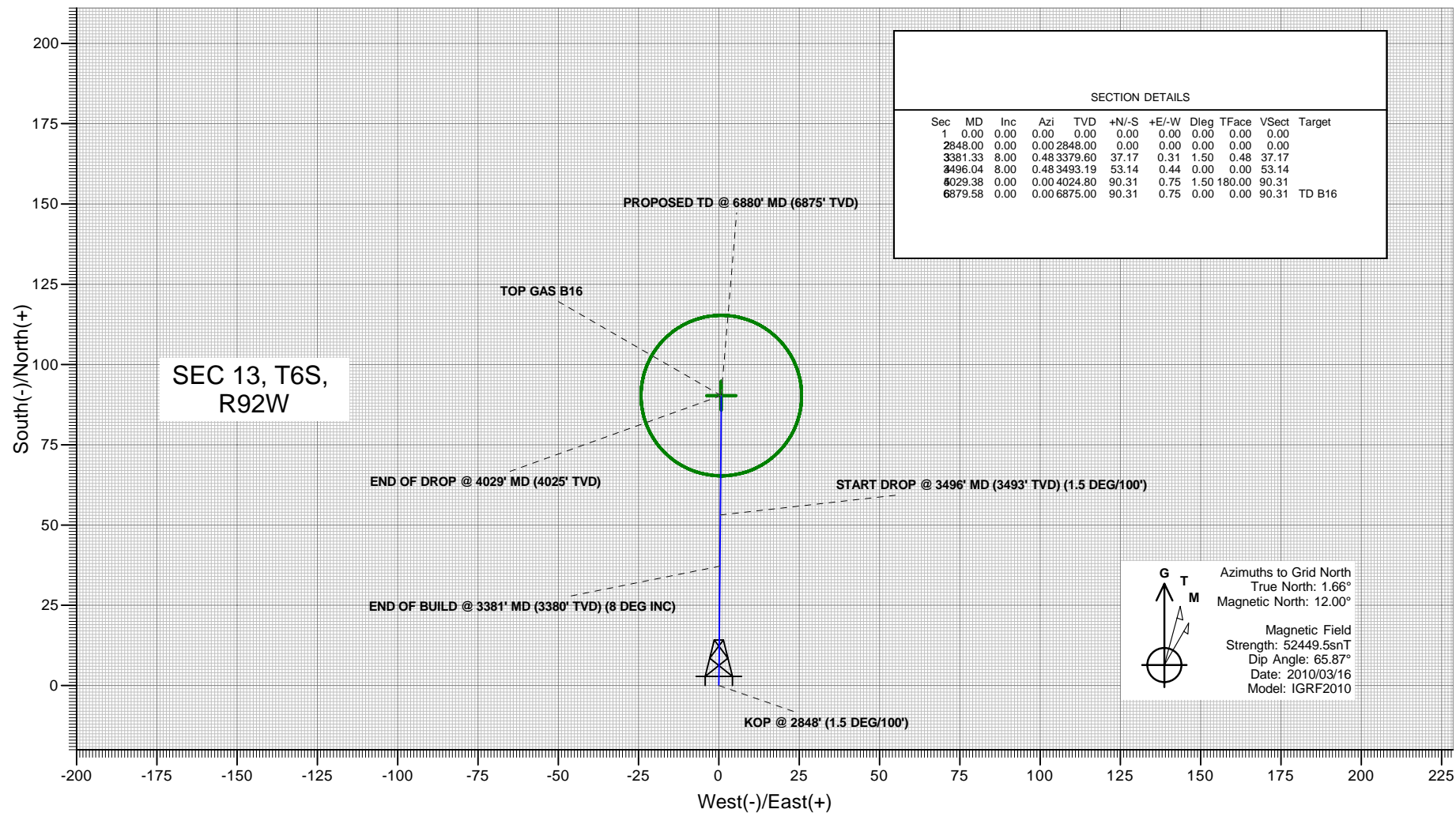




## PLAN VIEW

## ANTERO RESOURCES

Project: McLIN B PROJECT  
Site: FRONTIER 12  
Well: McLIN B16 (111160)  
Wellbore: ANTERO McLIN B16  
Design: ANTERO McLIN B16 P01  
JOB # 111160



### 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	
2848.00	0.00	0.00	2848.00	0.00	0.00	0.00	0.00	0.00	0.00	
3381.33	8.00	0.48	3379.60	37.17	0.31	1.50	0.48	37.17		
3496.04	8.00	0.48	3493.19	53.14	0.44	0.00	0.00	53.14		
4029.38	0.00	0.00	4024.80	90.31	0.75	1.50	180.00	90.31		
6879.58	0.00	0.00	6875.00	90.31	0.75	0.00	0.00	90.31	TD B16	

### PROJECT DETAILS: McLIN B PROJECT

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: McLIN B16, Grid North  
Vertical (TVD) Reference: RKB @ 5622.00ft  
Section (VS) Reference: Slot - B16(0.00N, 0.00E)  
Measured Depth Reference: RKB @ 5622.00ft  
Calculation Method: Minimum Curvature

Plan: ANTERO McLIN B16 P01  
Created By: ARK Directional Services  
Date: 14:57, March 16 2010

# **ANTERO RESOURCES**

**McLIN B PROJECT  
FRONTIER 12**

**Plan: ANTERO McLIN B16 P01**

## **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 B16 (111160) - Slot B16
<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 B16 (111160)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B16		
<b>Design:</b>	ANTERO McLIN B16 P01		

<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 B16 (111160) - Slot B16					
Well Position	+N/-S	0.00 ft	Northing:	14,366,619.81 usft	Latitude:	39° 31' 51.624 N
	+E/-W	0.00 ft	Easting:	904,961.89 usft	Longitude:	107° 36' 29.579 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,598.00 ft

<b>Wellbore</b>	ANTERO McLIN B16				
<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 B16 P01			
<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	0.48

<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	
2,848.00	0.00	0.00	2,848.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,381.33	8.00	0.48	3,379.60	37.17	0.31	1.50	1.50	0.00	0.48	
3,496.04	8.00	0.48	3,493.19	53.14	0.44	0.00	0.00	0.00	0.00	
4,029.38	0.00	0.00	4,024.80	90.31	0.75	1.50	-1.50	0.00	180.00	
6,879.58	0.00	0.00	6,875.00	90.31	0.75	0.00	0.00	0.00	0.00	TD B16

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B16 (111160) - Slot B16
<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 B16 (111160)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B16		
<b>Design:</b>	ANTERO McLIN B16 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	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
100.00	0.00	0.00	100.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
200.00	0.00	0.00	200.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
300.00	0.00	0.00	300.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
400.00	0.00	0.00	400.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
500.00	0.00	0.00	500.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
600.00	0.00	0.00	600.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
700.00	0.00	0.00	700.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
800.00	0.00	0.00	800.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
900.00	0.00	0.00	900.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
SURFACE CASING @ 1000' TVD									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
2,848.00	0.00	0.00	2,848.00	0.00	0.00	14,366,619.81	904,961.89	39° 31' 51.624 N	107° 36' 29.579 W
KOP @ 2848' (1.5 DEG/100')									
2,900.00	0.78	0.48	2,900.00	0.35	0.00	14,366,620.17	904,961.89	39° 31' 51.628 N	107° 36' 29.580 W
3,000.00	2.28	0.48	2,999.96	3.02	0.03	14,366,622.83	904,961.92	39° 31' 51.654 N	107° 36' 29.580 W
3,100.00	3.78	0.48	3,099.82	8.31	0.07	14,366,628.12	904,961.96	39° 31' 51.707 N	107° 36' 29.582 W
3,200.00	5.28	0.48	3,199.50	16.21	0.13	14,366,636.02	904,962.02	39° 31' 51.785 N	107° 36' 29.584 W
3,225.61	5.66	0.48	3,225.00	18.65	0.16	14,366,638.46	904,962.05	39° 31' 51.809 N	107° 36' 29.584 W
MESAVERDE									
3,300.00	6.78	0.48	3,298.95	26.71	0.22	14,366,646.52	904,962.11	39° 31' 51.888 N	107° 36' 29.586 W
3,381.33	8.00	0.48	3,379.60	37.17	0.31	14,366,656.98	904,962.20	39° 31' 51.992 N	107° 36' 29.589 W
END OF BUILD @ 3381' MD (3380' TVD) (8 DEG INC)									
3,400.00	8.00	0.48	3,398.09	39.77	0.33	14,366,659.58	904,962.22	39° 31' 52.017 N	107° 36' 29.590 W
3,496.04	8.00	0.48	3,493.19	53.14	0.44	14,366,672.95	904,962.33	39° 31' 52.149 N	107° 36' 29.593 W
START DROP @ 3496' MD (3493' TVD) (1.5 DEG/100')									
3,500.00	7.94	0.48	3,497.11	53.68	0.45	14,366,673.50	904,962.34	39° 31' 52.155 N	107° 36' 29.594 W
3,600.00	6.44	0.48	3,596.32	66.20	0.55	14,366,686.01	904,962.44	39° 31' 52.278 N	107° 36' 29.597 W
3,700.00	4.94	0.48	3,695.83	76.12	0.63	14,366,695.93	904,962.52	39° 31' 52.376 N	107° 36' 29.600 W
3,800.00	3.44	0.48	3,795.56	83.42	0.69	14,366,703.23	904,962.58	39° 31' 52.449 N	107° 36' 29.601 W
3,900.00	1.94	0.48	3,895.45	88.12	0.73	14,366,707.93	904,962.62	39° 31' 52.495 N	107° 36' 29.603 W
4,000.00	0.44	0.48	3,995.42	90.19	0.75	14,366,710.01	904,962.64	39° 31' 52.515 N	107° 36' 29.603 W
4,029.38	0.00	0.00	4,024.80	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
END OF DROP @ 4029' MD (4025' TVD)									
4,029.58	0.00	0.00	4,025.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
PRICE COAL									

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B16 (111160) - Slot B16
<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 B16 (111160)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B16		
<b>Design:</b>	ANTERO McLIN B16 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
4,100.00	0.00	0.00	4,095.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,200.00	0.00	0.00	4,195.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,300.00	0.00	0.00	4,295.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,400.00	0.00	0.00	4,395.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,500.00	0.00	0.00	4,495.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,600.00	0.00	0.00	4,595.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,700.00	0.00	0.00	4,695.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,729.58	0.00	0.00	4,725.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
TOP GAS - TOP GAS B16									
4,800.00	0.00	0.00	4,795.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
4,900.00	0.00	0.00	4,895.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,000.00	0.00	0.00	4,995.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,100.00	0.00	0.00	5,095.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,200.00	0.00	0.00	5,195.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,300.00	0.00	0.00	5,295.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,400.00	0.00	0.00	5,395.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,500.00	0.00	0.00	5,495.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,600.00	0.00	0.00	5,595.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,629.58	0.00	0.00	5,625.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
CAMEO									
5,700.00	0.00	0.00	5,695.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,800.00	0.00	0.00	5,795.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
5,900.00	0.00	0.00	5,895.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,000.00	0.00	0.00	5,995.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,100.00	0.00	0.00	6,095.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,200.00	0.00	0.00	6,195.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,300.00	0.00	0.00	6,295.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,400.00	0.00	0.00	6,395.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,500.00	0.00	0.00	6,495.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,600.00	0.00	0.00	6,595.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,700.00	0.00	0.00	6,695.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,729.58	0.00	0.00	6,725.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
ROLLINS									
6,800.00	0.00	0.00	6,795.42	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
6,879.55	0.00	0.00	6,874.97	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
PROPOSED TD @ 6880' MD (6875' TVD)									
6,879.58	0.00	0.00	6,875.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
TD B16									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
TOP GAS B16 - hit/miss target - Shape	0.00	0.00	4,725.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W
TD B16 - plan hits target center - Circle (radius 25.00)	0.00	0.00	6,875.00	90.31	0.75	14,366,710.12	904,962.64	39° 31' 52.517 N	107° 36' 29.603 W

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well McLIN B16 (111160) - Slot B16
<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 B16 (111160)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO McLIN B16		
<b>Design:</b>	ANTERO McLIN B16 P01		

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 (°)
3,225.61	3,225.00	MESAVERDE		0.00	
4,029.58	4,025.00	PRICE COAL		0.00	
4,729.58	4,725.00	TOP GAS		0.00	
5,629.58	5,625.00	CAMEO		0.00	
6,729.58	6,725.00	ROLLINS		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,848.00	2,848.00	0.00	0.00	KOP @ 2848' (1.5 DEG/100')	
3,381.33	3,379.60	37.17	0.31	END OF BUILD @ 3381' MD (3380' TVD) (8 DEG INC)	
3,496.04	3,493.19	53.14	0.44	START DROP @ 3496' MD (3493' TVD) (1.5 DEG/100')	
4,029.38	4,024.80	90.31	0.75	END OF DROP @ 4029' MD (4025' TVD)	
6,879.55	6,874.97	90.31	0.75	PROPOSED TD @ 6880' MD (6875' TVD)	