

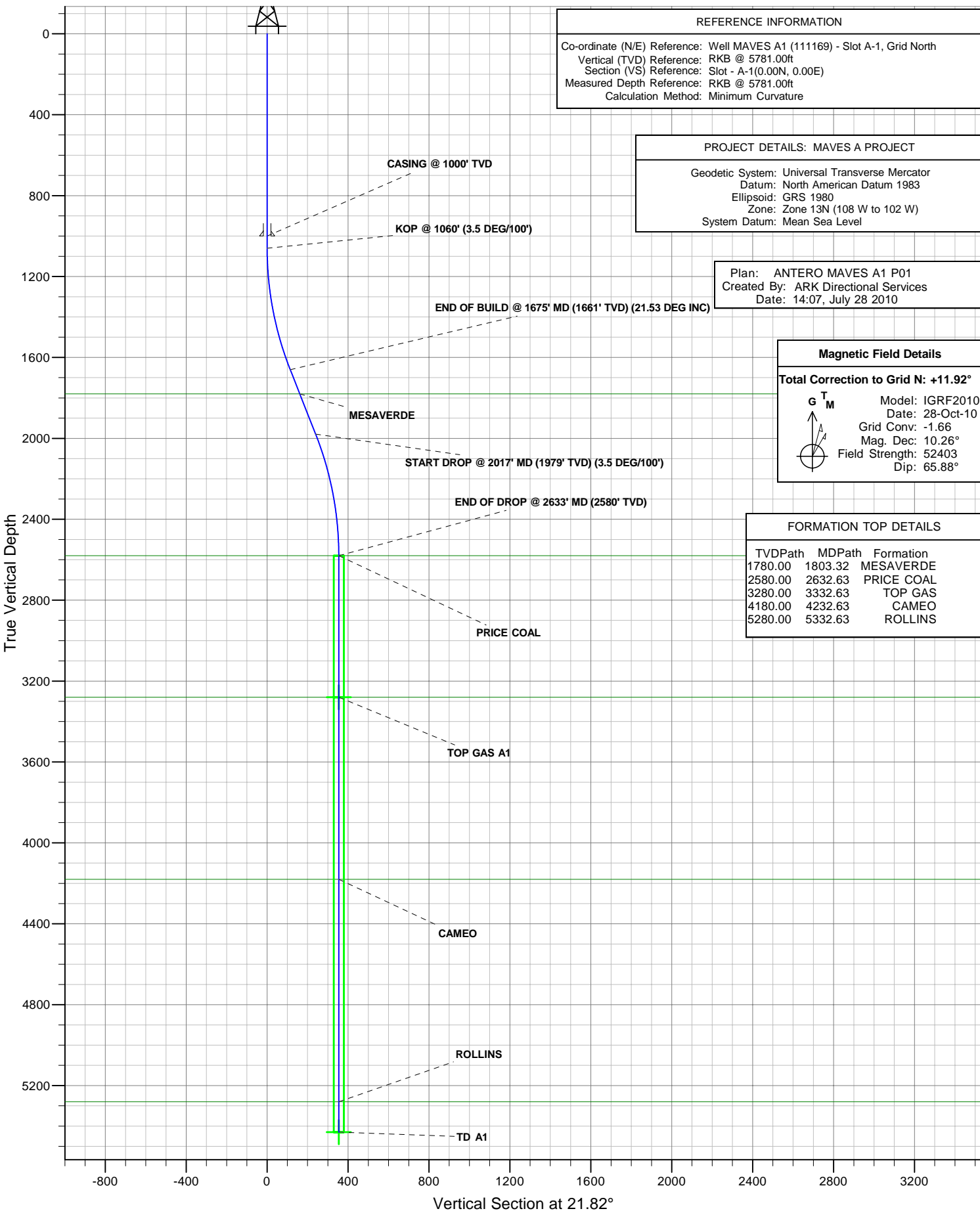


# Antero Resources



MAVES A1 (111169)

## VERTICAL SECTION VIEW





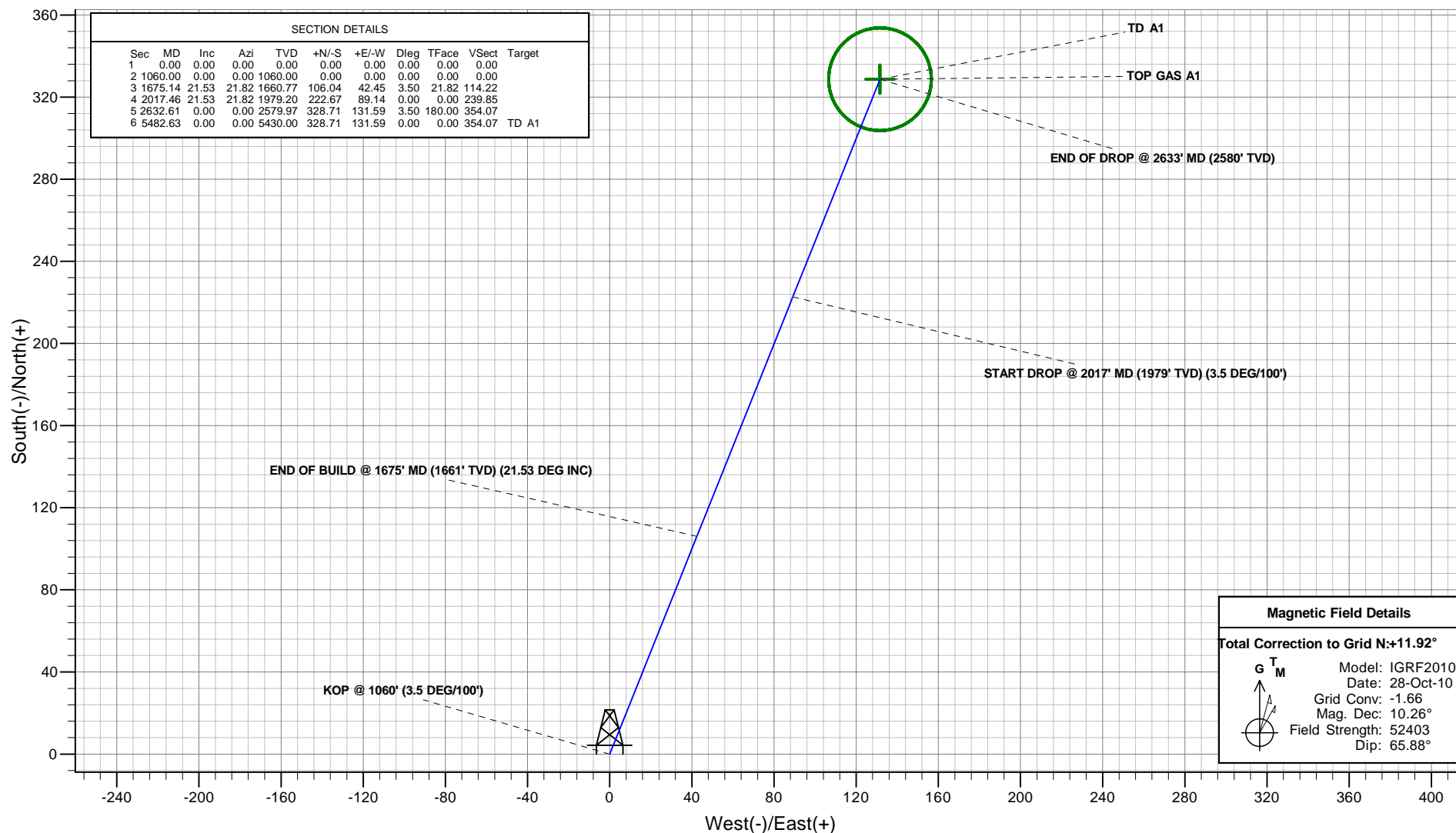
# Antero Resources

## MAVES A1 (111169)



### PLAN VIEW

Project: MAVES A PROJECT  
Site: FRONTIER 12  
Well: MAVES A1 (111169)  
Wellbore: ANTERO MAVES A1  
Design: ANTERO MAVES A1 P01



Plan: ANTERO MAVES A1 P01  
Created By: ARK Directional Services  
Date: 14:09, July 28 2010

#### PROJECT DETAILS: MAVES A PROJECT

Geodetic System: Universal Transverse Mercator  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well MAVES A1 (111169) - Slot A-1, Grid North  
Vertical (TVD) Reference: RKB @ 5781.00ft  
Section (VS) Reference: Slot - A-1(0.00N, 0.00E)  
Measured Depth Reference: RKB @ 5781.00ft  
Calculation Method: Minimum Curvature

# **Antero Resources**

**MAVES A PROJECT**

**FRONTIER 12**

**MAVES A1 (111169) - Slot A-1**

**ANTERO MAVES A1**

**Plan: ANTERO MAVES A1 P01**

## **Standard Planning Report - Geographic**

**28 July, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well MAVES A1 (111169) - Slot A-1
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5781.00ft
<b>Project:</b>	MAVES A PROJECT	<b>MD Reference:</b>	RKB @ 5781.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	MAVES A1 (111169)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO MAVES A1		
<b>Design:</b>	ANTERO MAVES A1 P01		

<b>Project</b>	MAVES A PROJECT		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		FRONTIER 12			
Site Position:		Northing:	14,377,668.141 usft	Latitude:	39.561488840°N
From:	Map	Easting:	907,104.064 usft	Longitude:	107.601759382°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	MAVES A1 (111169) - Slot A-1					
Well Position	+N/-S	0.00 ft	Northing:	14,377,668.141 usft	Latitude:	39.561488840°N
	+E/-W	0.00 ft	Easting:	907,104.064 usft	Longitude:	107.601759382°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,757.00 ft

<b>Wellbore</b>	ANTERO MAVES A1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/10/28	10.26	65.88	52,403

<b>Design</b>	ANTERO MAVES A1 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>	
	5,430.00	0.00	0.00	21.82	

<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	
1,060.00	0.00	0.00	1,060.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,675.14	21.53	21.82	1,660.77	106.04	42.45	3.50	3.50	0.00	21.82	
2,017.46	21.53	21.82	1,979.20	222.67	89.14	0.00	0.00	0.00	0.00	
2,632.61	0.00	0.00	2,579.97	328.71	131.59	3.50	-3.50	0.00	180.00	
5,482.63	0.00	0.00	5,430.00	328.71	131.59	0.00	0.00	0.00	0.00	TD A1

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well MAVES A1 (111169) - Slot A-1
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5781.00ft
<b>Project:</b>	MAVES A PROJECT	<b>MD Reference:</b>	RKB @ 5781.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	MAVES A1 (111169)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO MAVES A1		
<b>Design:</b>	ANTERO MAVES A1 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	14,377,668.141	907,104.064	39.561488840°N	107.601759382°W	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,377,668.141	907,104.064	39.561488840°N	107.601759382°W	
CASING @ 1000' TVD										
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,377,668.141	907,104.064	39.561488840°N	107.601759382°W	
KOP @ 1060' (3.5 DEG/100')										
1,675.14	21.53	21.82	1,660.77	106.04	42.45	14,377,774.181	907,146.514	39.561783138°N	107.601619794°W	
END OF BUILD @ 1675' MD (1661' TVD) (21.53 DEG INC)										
1,803.32	21.53	21.82	1,780.00	149.71	59.93	14,377,817.851	907,163.996	39.561904339°N	107.601562307°W	
MESAVERDE										
2,017.46	21.53	21.82	1,979.20	222.67	89.14	14,377,890.810	907,193.203	39.562106824°N	107.601466266°W	
START DROP @ 2017' MD (1979' TVD) (3.5 DEG/100')										
2,632.61	0.00	0.00	2,579.98	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
END OF DROP @ 2633' MD (2580' TVD)										
2,632.63	0.00	0.00	2,580.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
PRICE COAL										
3,332.63	0.00	0.00	3,280.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
TOP GAS										
4,232.63	0.00	0.00	4,180.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
CAMEO										
5,332.63	0.00	0.00	5,280.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
ROLLINS										
5,482.60	0.00	0.00	5,429.97	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
PROPOSED TD @ 5483' MD (5430' TVD)										
5,482.63	0.00	0.00	5,430.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
TOP GAS A1 - plan hits target center - Circle (radius 25.00)	0.00	0.00	3,280.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	
TD A1 - plan hits target center - Circle (radius 25.00)	0.00	0.00	5,430.00	328.71	131.59	14,377,996.852	907,235.654	39.562401128°N	107.601326672°W	

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

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Well MAVES A1 (111169) - Slot A-1
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5781.00ft
<b>Project:</b>	MAVES A PROJECT	<b>MD Reference:</b>	RKB @ 5781.00ft
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	MAVES A1 (111169)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO MAVES A1		
<b>Design:</b>	ANTERO MAVES A1 P01		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,803.32	1,780.00	MESAVERDE		0.00	
2,632.63	2,580.00	PRICE COAL		0.00	
3,332.63	3,280.00	TOP GAS		0.00	
4,232.63	4,180.00	CAMEO		0.00	
5,332.63	5,280.00	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' (3.5 DEG/100')	
1,675.14	1,660.77	106.04	42.45	END OF BUILD @ 1675' MD (1661' TVD) (21.53 DEG INC)	
2,017.46	1,979.20	222.67	89.14	START DROP @ 2017' MD (1979' TVD) (3.5 DEG/100')	
2,632.61	2,579.98	328.71	131.59	END OF DROP @ 2633' MD (2580' TVD)	
5,482.60	5,429.97	328.71	131.59	PROPOSED TD @ 5483' MD (5430' TVD)	