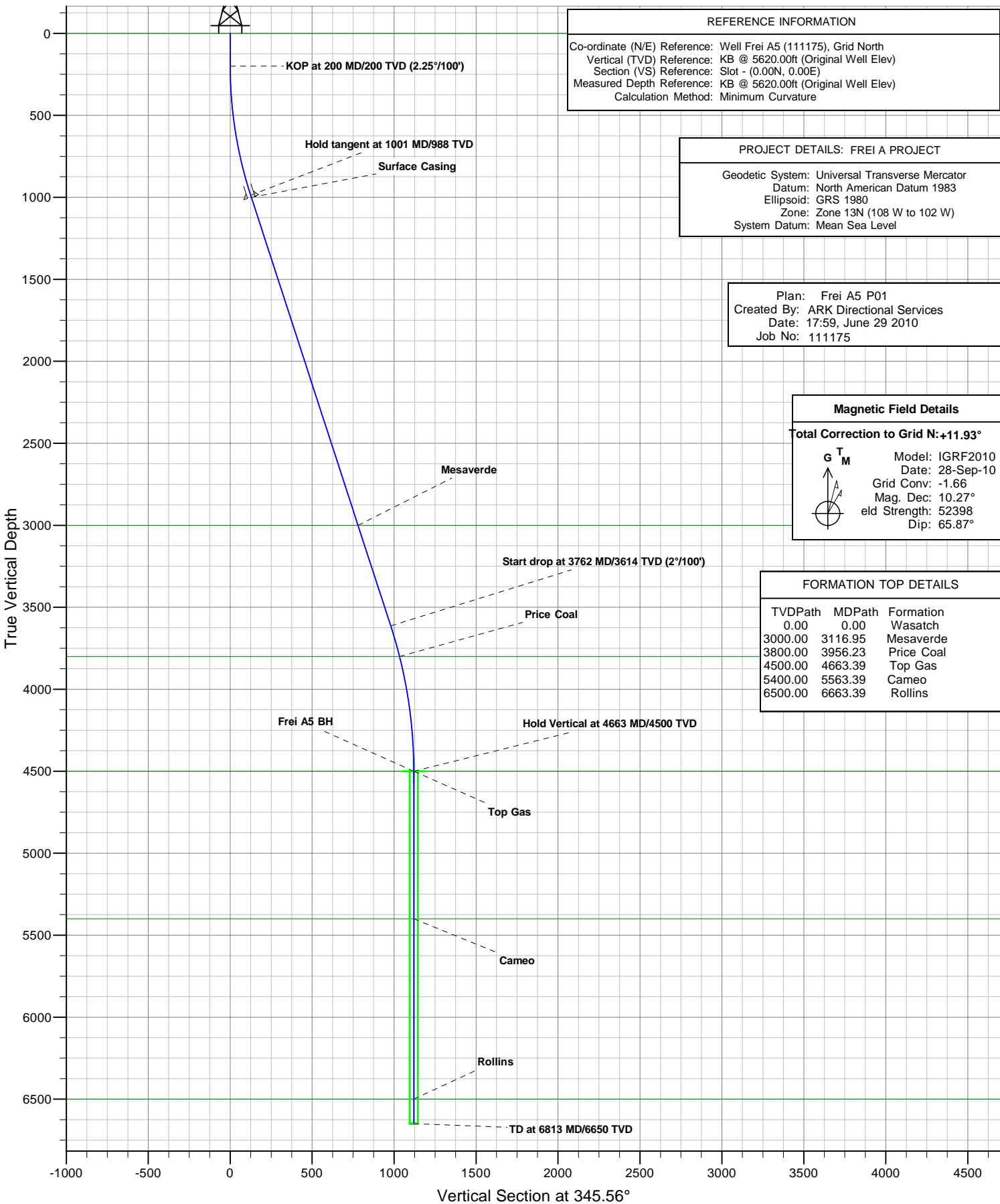




ANTERO RESOURCES

Frei A5

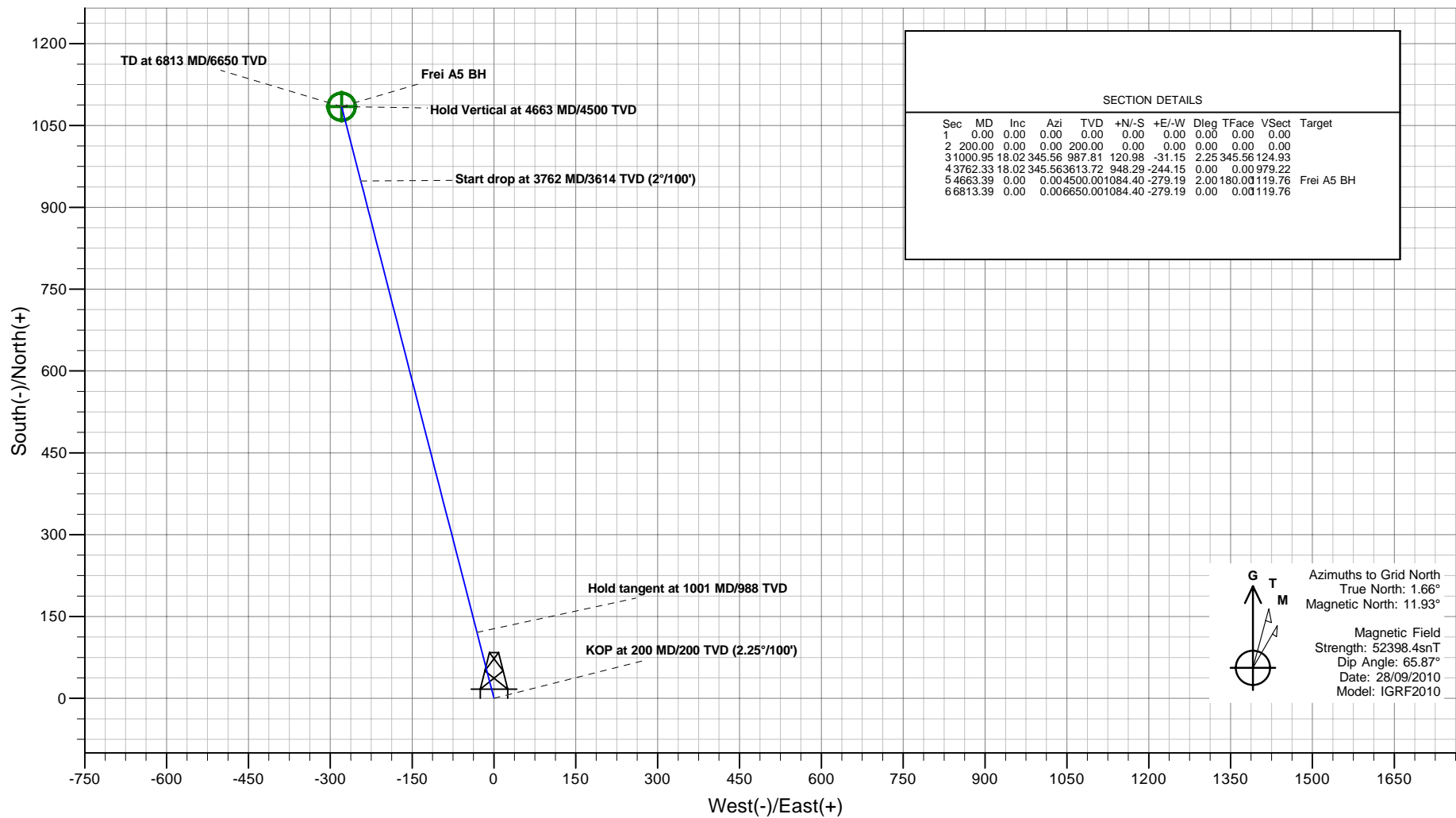




PLAN VIEW

ANTERO RESOURCES

Project: FREI A PROJECT
Site: FRONTIER 12
Well: Frei A5 (111175)
Wellbore: Frei A5
Design: Frei A5 P01
JOB # 111175



Plan: Frei A5 P01
Created By: ARK Directional Services
Date: 17:55, June 29 2010

PROJECT DETAILS: FREI 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 Frei A5 (111175), Grid North
Vertical (TVD) Reference: KB @ 5620.00ft (Original Well Elev)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: KB @ 5620.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

ANTERO RESOURCES

FREI A PROJECT

FRONTIER 12

Frei A5 (111175)

Frei A5

Plan: Frei A5 P01

Standard Planning Report - Geographic

29 June, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Frei A5 (111175)
Company:	ANTERO RESOURCES	TVD Reference:	KB @ 5620.00ft (Original Well Elev)
Project:	FREI A PROJECT	MD Reference:	KB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A5 (111175)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A5		
Design:	Frei A5 P01		

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

Site		FRONTIER 12			
Site Position:		Northing:	14,368,390.50 usft	Latitude:	39.535980489
From:	Lat/Long	Easting:	906,417.64 usft	Longitude:	-107.603240409
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	Frei A5 (111175)					
Well Position	+N/-S	0.00 ft	Northing:	14,368,419.07 usft	Latitude:	39.536057480
	+E/-W	0.00 ft	Easting:	906,399.90 usft	Longitude:	-107.603306190
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	Frei A5				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	28/09/2010	10.27	65.87	52,398

Design	Frei A5 P01				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	345.56	

Plan Sections										
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	
1,000.95	18.02	345.56	987.81	120.98	-31.15	2.25	2.25	0.00	345.56	
3,762.33	18.02	345.56	3,613.72	948.29	-244.15	0.00	0.00	0.00	0.00	
4,663.39	0.00	0.00	4,500.00	1,084.40	-279.19	2.00	-2.00	0.00	180.00	Frei A5 BH
6,813.39	0.00	0.00	6,650.00	1,084.40	-279.19	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Frei A5 (111175)
Company:	ANTERO RESOURCES	TVD Reference:	KB @ 5620.00ft (Original Well Elev)
Project:	FREI A PROJECT	MD Reference:	KB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A5 (111175)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A5		
Design:	Frei A5 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	14,368,419.07	906,399.90	39.536057480	-107.603306190	
Wasatch										
200.00	0.00	0.00	200.00	0.00	0.00	14,368,419.07	906,399.90	39.536057480	-107.603306190	
KOP at 200 MD/200 TVD (2.25°/100')										
1,000.95	18.02	345.56	987.81	120.98	-31.15	14,368,540.06	906,368.75	39.536386927	-107.603428963	
Hold tangent at 1001 MD/988 TVD										
1,013.77	18.02	345.56	1,000.00	124.82	-32.14	14,368,543.90	906,367.76	39.536397388	-107.603432861	
Surface Casing										
3,116.95	18.02	345.56	3,000.00	754.94	-194.37	14,369,174.01	906,205.53	39.538113262	-107.604072325	
Mesaverde										
3,762.33	18.02	345.56	3,613.72	948.29	-244.15	14,369,367.37	906,155.75	39.538639791	-107.604268557	
Start drop at 3762 MD/3614 TVD (2°/100')										
3,956.23	14.14	345.56	3,800.00	1,000.30	-257.54	14,369,419.37	906,142.36	39.538781418	-107.604321340	
Price Coal										
4,663.39	0.00	0.00	4,500.00	1,084.40	-279.19	14,369,503.47	906,120.71	39.539010417	-107.604406687	
Hold Vertical at 4663 MD/4500 TVD - Top Gas										
5,563.39	0.00	0.00	5,400.00	1,084.40	-279.19	14,369,503.47	906,120.71	39.539010417	-107.604406687	
Cameo										
6,663.39	0.00	0.00	6,500.00	1,084.40	-279.19	14,369,503.47	906,120.71	39.539010417	-107.604406687	
Rollins										
6,813.39	0.00	0.00	6,650.00	1,084.40	-279.19	14,369,503.47	906,120.71	39.539010417	-107.604406687	
TD at 6813 MD/6650 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										
Frei A5 BH	0.00	360.00	4,500.00	1,084.40	-279.19	14,369,503.47	906,120.71	39.539010417	-107.604406687	
- plan hits target center										
- Circle (radius 25.00)										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,013.77	1,000.00	Surface Casing	5.50	6.00		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch		0.00		
3,116.95	3,000.00	Mesaverde				
3,956.23	3,800.00	Price Coal				
4,663.39	4,500.00	Top Gas				
5,563.39	5,400.00	Cameo				
6,663.39	6,500.00	Rollins				

ARK Directional Services

Planning Report - Geographic

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Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A5 (111175)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A5		
Design:	Frei A5 P01		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	KOP at 200 MD/200 TVD (2.25°/100')
1,000.95	987.81	120.98	-31.15	Hold tangent at 1001 MD/988 TVD
3,762.33	3,613.72	948.29	-244.15	Start drop at 3762 MD/3614 TVD (2°/100')
4,663.39	4,500.00	1,084.40	-279.19	Hold Vertical at 4663 MD/4500 TVD
6,813.39	6,650.00	1,084.40	-279.19	TD at 6813 MD/6650 TVD