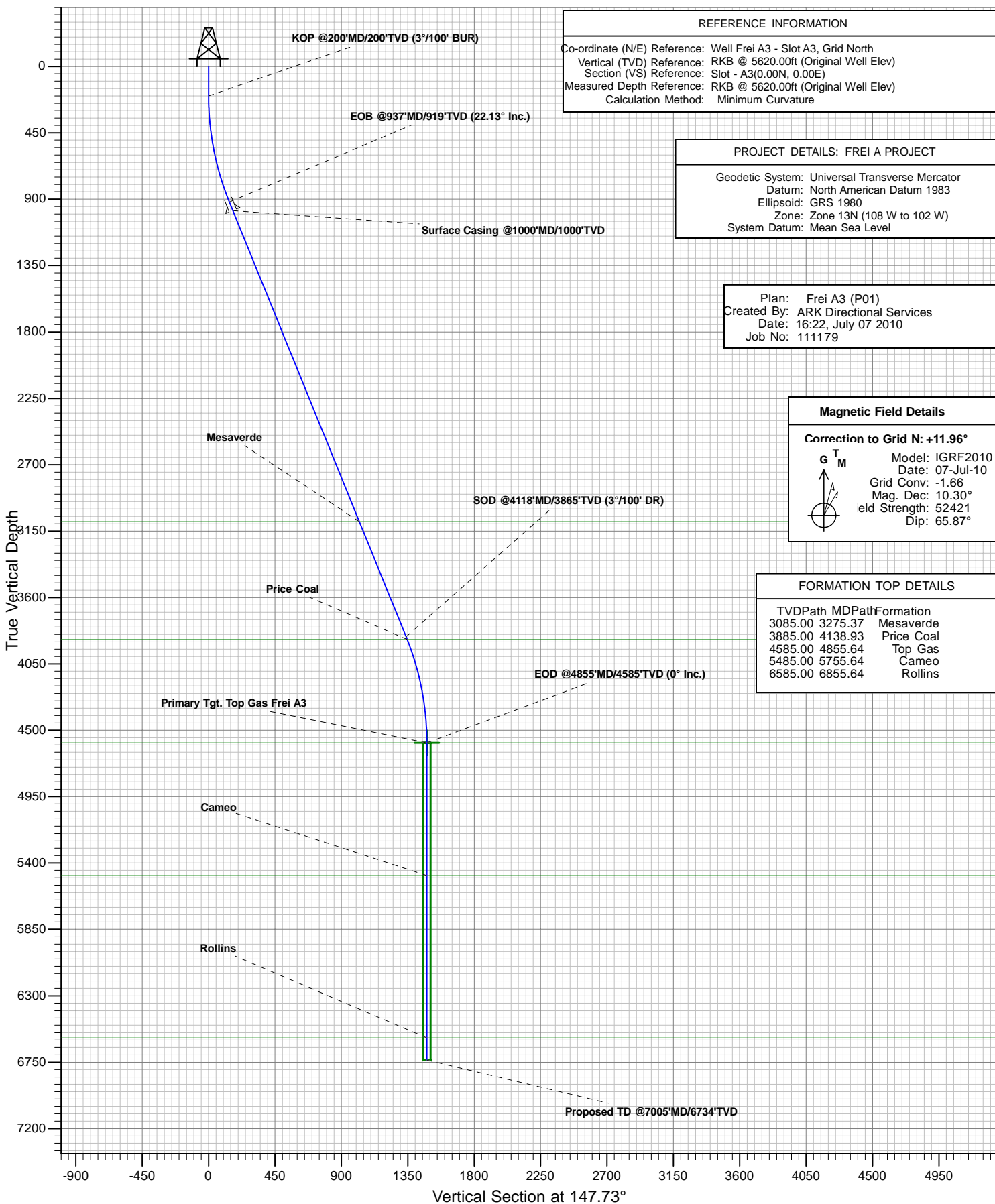




Antero Resources

Frei A3

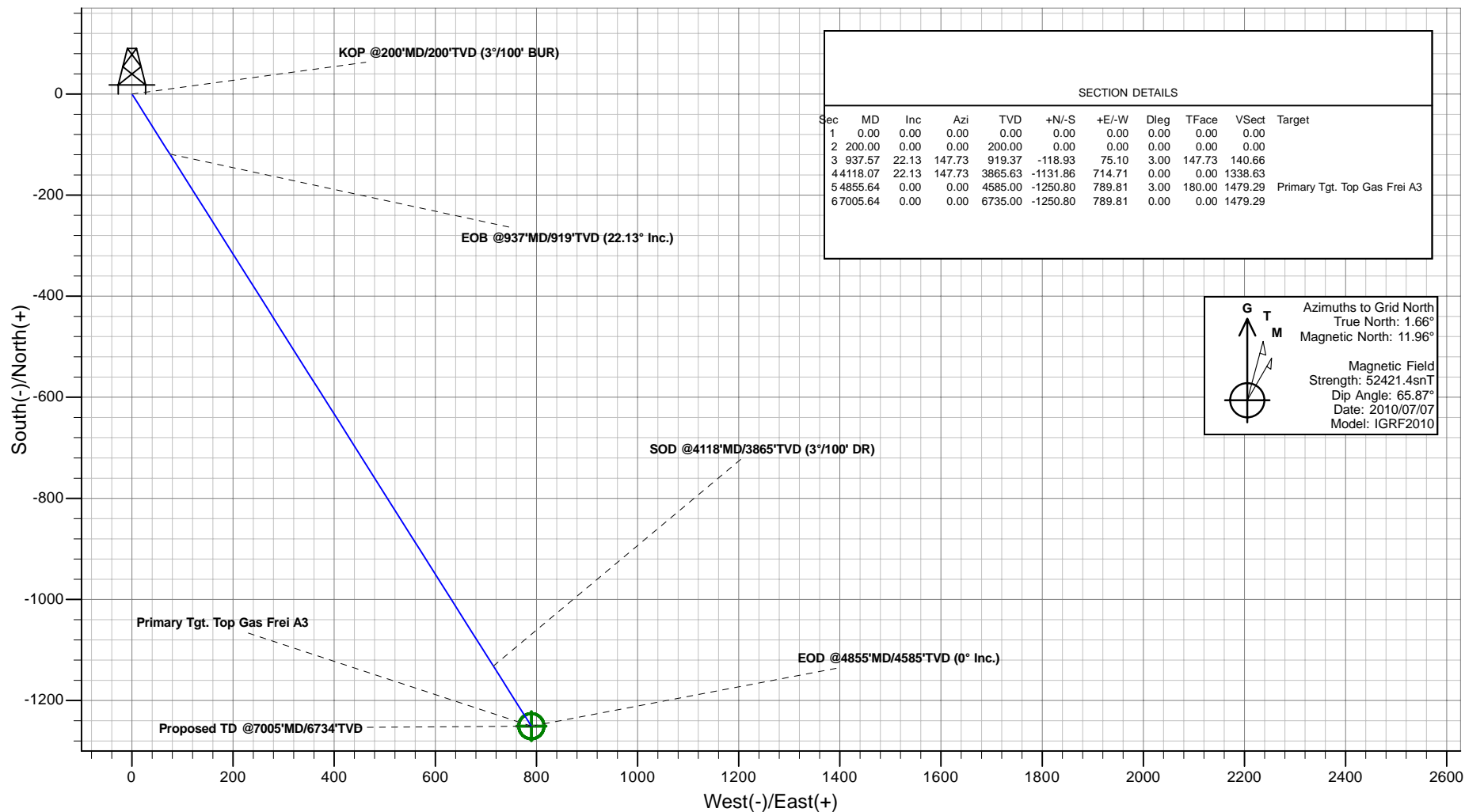




PLAN VIEW

Antero Resources

Project: FREI A PROJECT
Site: FRONTIER 12
Well: Frei A3
Wellbore: Frei A3
Design: Frei A3 (P01)
JOB # 111179



Plan: Frei A3 (P01)
Created By: ARK Directional Services
Date: 16:25, July 07 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 A3, Grid North
Vertical (TVD) Reference: RKB @ 5620.00ft (Original Well Elev)
Section (VS) Reference: Slot - A3(0.00N, 0.00E)
Measured Depth Reference: RKB @ 5620.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

Antero Resources

**FREI A PROJECT
FRONTIER 12**

Plan: Frei A3 (P01)

Standard Planning Report - Geographic

07 July, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A3 - Slot A3
Company:	Antero Resources	TVD Reference:	RKB @ 5620.00ft (Original Well Elev)
Project:	FREI A PROJECT	MD Reference:	RKB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A3		
Design:	Frei A3 (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°N
From:	Lat/Long	Easting:	906,417.64 usft	Longitude:	107.603240409°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	Frei A3 - Slot A3					
Well Position	+N/-S	0.00 ft	Northing:	14,368,353.59 usft	Latitude:	39.535878691°N
	+E/-W	0.00 ft	Easting:	906,411.03 usft	Longitude:	107.603260051°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	Frei A3				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/07/07	10.30	65.87	52,421

Design	Frei A3 (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	147.73	

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	
937.57	22.13	147.73	919.37	-118.93	75.10	3.00	3.00	0.00	147.73	
4,118.07	22.13	147.73	3,865.63	-1,131.86	714.71	0.00	0.00	0.00	0.00	
4,855.64	0.00	0.00	4,585.00	-1,250.80	789.81	3.00	-3.00	0.00	180.00	Primary Tgt. Top Gas
7,005.64	0.00	0.00	6,735.00	-1,250.80	789.81	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A3 - Slot A3
Company:	Antero Resources	TVD Reference:	RKB @ 5620.00ft (Original Well Elev)
Project:	FREI A PROJECT	MD Reference:	RKB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A3		
Design:	Frei A3 (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	14,368,353.59	906,411.03	39.535878691°N	107.603260051°W
200.00	0.00	0.00	200.00	0.00	0.00	14,368,353.59	906,411.03	39.535878691°N	107.603260051°W
KOP @200'MD/200'TVD (3°/100' BUR)									
937.57	22.13	147.73	919.37	-118.93	75.10	14,368,234.65	906,486.13	39.535558352°N	107.602981759°W
EOB @937'MD/919'TVD (22.13° Inc.)									
1,000.00	22.13	147.73	977.20	-138.82	87.66	14,368,214.77	906,498.68	39.535504799°N	107.602935236°W
Surface Casing @1000'MD/1000'TVD									
3,275.37	22.13	147.73	3,085.00	-863.48	545.24	14,367,490.11	906,956.27	39.533552946°N	107.601239658°W
Mesaverde									
4,118.07	22.13	147.73	3,865.63	-1,131.86	714.71	14,367,221.72	907,125.74	39.532830062°N	107.600611717°W
SOD @4118'MD/3865'TVD (3°/100' DR)									
4,138.93	21.50	147.73	3,885.00	-1,138.42	718.85	14,367,215.17	907,129.88	39.532812406°N	107.600596381°W
Price Coal									
4,855.64	0.00	0.00	4,585.00	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W
EOD @4855'MD/4585'TVD (0° Inc.) - Top Gas - Primary Tgt. Top Gas Frei A3									
5,755.64	0.00	0.00	5,485.00	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W
Cameo									
6,855.64	0.00	0.00	6,585.00	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W
Rollins									
7,005.61	0.00	0.00	6,734.97	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W
Proposed TD @7005'MD/6734'TVD									
7,005.64	0.00	0.00	6,735.00	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W

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									
Primary Tgt. Top Gas Fr	0.00	0.00	4,585.00	-1,250.80	789.81	14,367,102.79	907,200.84	39.532509719°N	107.600333454°W
- plan hits target center									
- Circle (radius 25.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	977.20	Surface Casing @1000'MD/1000'TVD	5.50	6.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,275.37	3,085.00	Mesaverde		0.00		
4,138.93	3,885.00	Price Coal		0.00		
4,855.64	4,585.00	Top Gas		0.00		
5,755.64	5,485.00	Cameo		0.00		
6,855.64	6,585.00	Rollins		0.00		

ARK Directional Services

Planning Report - Geographic

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Project:	FREI A PROJECT	MD Reference:	RKB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A3		
Design:	Frei A3 (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 @200'MD/200'TVD (3°/100' BUR)	
937.57	919.37	-118.93	75.10	EOB @937'MD/919'TVD (22.13° Inc.)	
4,118.07	3,865.63	-1,131.86	714.71	SOD @4118'MD/3865'TVD (3°/100' DR)	
4,855.64	4,585.00	-1,250.80	789.81	EOD @4855'MD/4585'TVD (0° Inc.)	
7,005.61	6,734.97	-1,250.80	789.81	Proposed TD @7005'MD/6734'TVD	