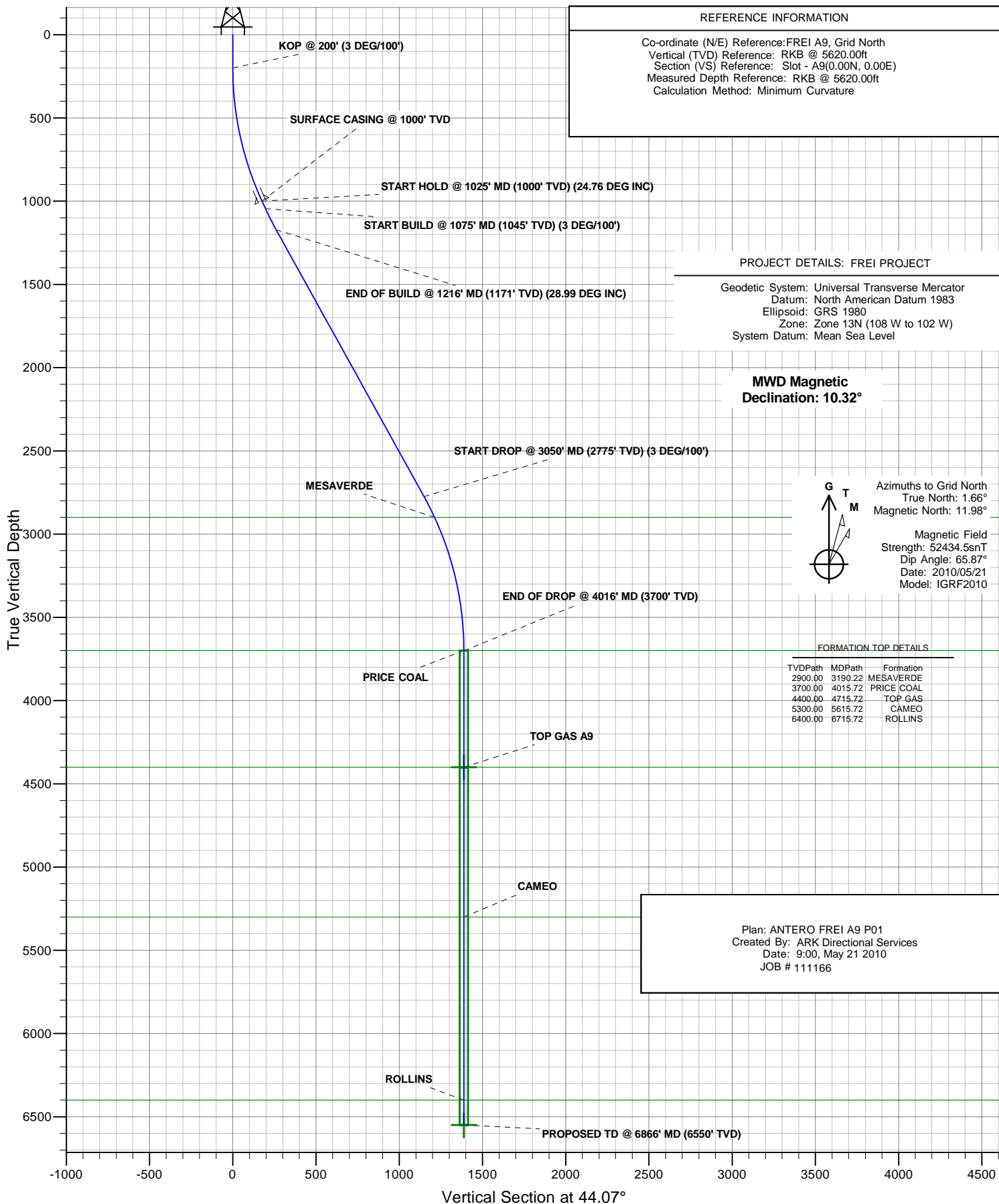




ANTERO RESOURCES

ANTERO FREI A9



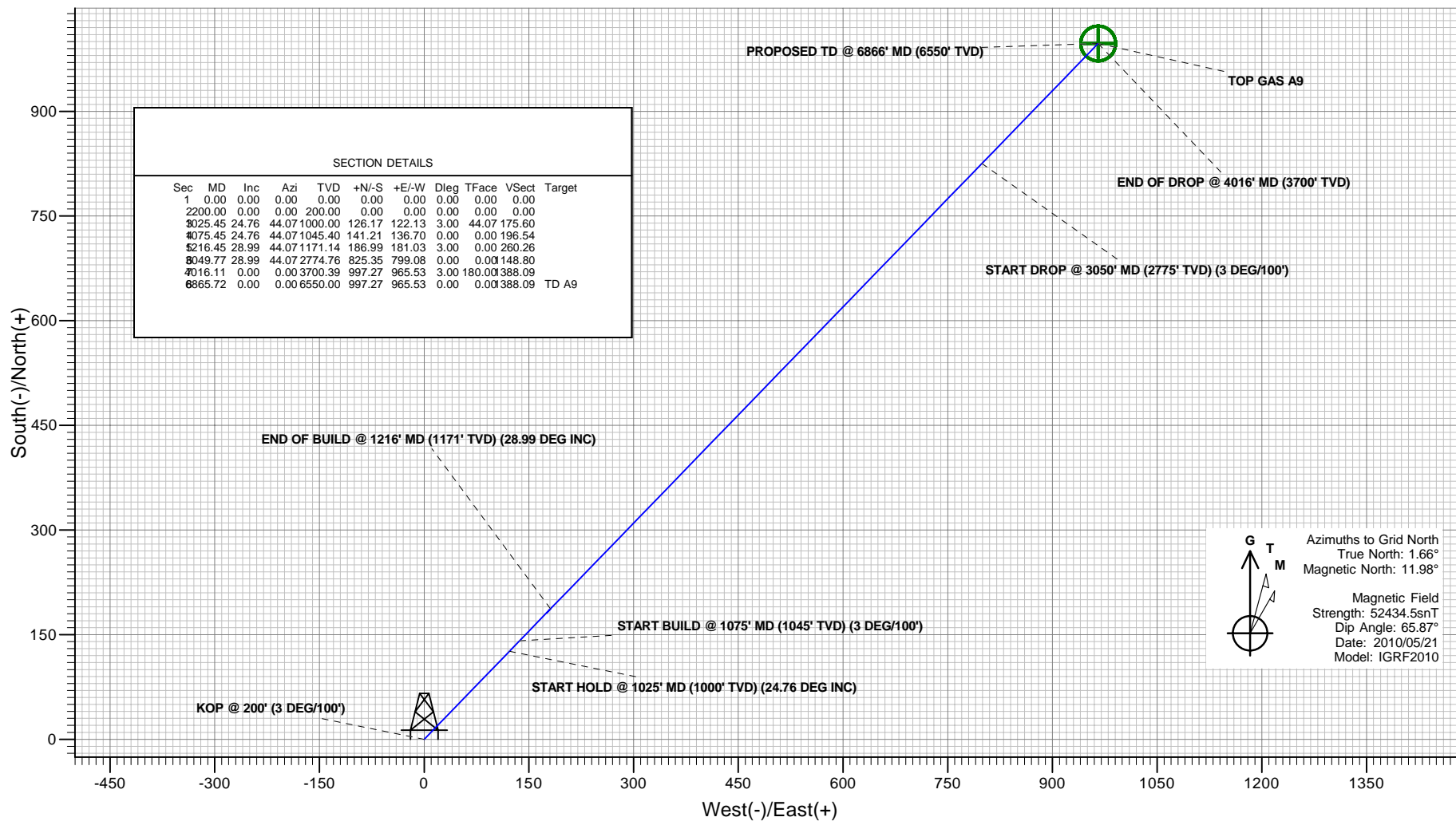


ANTERO RESOURCES



PLAN VIEW

Project: FREI PROJECT
Site: FRONTIER 12
Well: FREI A9 (111166)
Wellbore: ANTERO FREI A9
Design: ANTERO FREI A9 P01
JOB # 111166



Plan: ANTERO FREI A9 P01
Created By: ARK Directional Services
Date: 9:04, May 21 2010

PROJECT DETAILS: FREI 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: FREI A9, Grid North
Vertical (TVD) Reference: RKB @ 5620.00ft
Section (VS) Reference: Slot - A9(0.00N, 0.00E)
Measured Depth Reference: RKB @ 5620.00ft
Calculation Method: Minimum Curvature

ANTERO RESOURCES

**FREI PROJECT
FRONTIER 12**

Plan: ANTERO FREI A9 P01

Standard Planning Report - Geographic

21 May, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well FREI A9 (111166) - Slot A9
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5620.00ft
Project:	FREI PROJECT	MD Reference:	RKB @ 5620.00ft
Site:	FRONTIER 12	North Reference:	Grid
Well:	FREI A9 (111166)	Survey Calculation Method:	Minimum Curvature
Wellbore:	ANTERO FREI A9		
Design:	ANTERO FREI A9 P01		

Project	FREI 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° 32' 9.530 N
From:	Lat/Long	Easting:	906,417.64 usft	Longitude:	107° 36' 11.665 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	FREI A9 (111166) - Slot A9					
Well Position	+N/-S	0.00 ft	Northing:	14,368,402.80 usft	Latitude:	39° 32' 9.652 N
	+E/-W	0.00 ft	Easting:	906,419.84 usft	Longitude:	107° 36' 11.642 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	ANTERO FREI A9				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/05/21	10.32	65.87	52,435

Design	ANTERO FREI A9 P01				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	44.07	

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	
1,025.45	24.76	44.07	1,000.00	126.17	122.13	3.00	3.00	0.00	44.07	
1,075.45	24.76	44.07	1,045.40	141.21	136.70	0.00	0.00	0.00	0.00	
1,216.45	28.99	44.07	1,171.14	186.99	181.03	3.00	3.00	0.00	0.00	
3,049.77	28.99	44.07	2,774.76	825.35	799.08	0.00	0.00	0.00	0.00	
4,016.11	0.00	0.00	3,700.39	997.27	965.53	3.00	-3.00	0.00	180.00	
6,865.72	0.00	0.00	6,550.00	997.27	965.53	0.00	0.00	0.00	0.00	TD A9

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well FREI A9 (111166) - Slot A9
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5620.00ft
Project:	FREI PROJECT	MD Reference:	RKB @ 5620.00ft
Site:	FRONTIER 12	North Reference:	Grid
Well:	FREI A9 (111166)	Survey Calculation Method:	Minimum Curvature
Wellbore:	ANTERO FREI A9		
Design:	ANTERO FREI A9 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	14,368,402.80	906,419.84	39° 32' 9.652 N	107° 36' 11.642 W
100.00	0.00	0.00	100.00	0.00	0.00	14,368,402.80	906,419.84	39° 32' 9.652 N	107° 36' 11.642 W
200.00	0.00	0.00	200.00	0.00	0.00	14,368,402.80	906,419.84	39° 32' 9.652 N	107° 36' 11.642 W
KOP @ 200' (3 DEG/100')									
300.00	3.00	44.07	299.95	1.88	1.82	14,368,404.68	906,421.66	39° 32' 9.671 N	107° 36' 11.619 W
400.00	6.00	44.07	399.63	7.52	7.28	14,368,410.32	906,427.12	39° 32' 9.728 N	107° 36' 11.552 W
500.00	9.00	44.07	498.77	16.89	16.35	14,368,419.69	906,436.19	39° 32' 9.823 N	107° 36' 11.440 W
600.00	12.00	44.07	597.08	29.98	29.02	14,368,432.78	906,448.86	39° 32' 9.956 N	107° 36' 11.283 W
700.00	15.00	44.07	694.31	46.75	45.26	14,368,449.55	906,465.10	39° 32' 10.127 N	107° 36' 11.082 W
800.00	18.00	44.07	790.18	67.15	65.01	14,368,469.95	906,484.85	39° 32' 10.334 N	107° 36' 10.838 W
900.00	21.00	44.07	884.44	91.13	88.22	14,368,493.93	906,508.06	39° 32' 10.577 N	107° 36' 10.550 W
1,000.00	24.00	44.07	976.82	118.62	114.83	14,368,521.42	906,534.67	39° 32' 10.856 N	107° 36' 10.221 W
1,025.45	24.76	44.07	1,000.00	126.17	122.14	14,368,528.97	906,541.98	39° 32' 10.933 N	107° 36' 10.131 W
START HOLD @ 1025' MD (1000' TVD) (24.76 DEG INC) - SURFACE CASING @ 1000' TVD									
1,075.45	24.76	44.07	1,045.40	141.21	136.70	14,368,544.01	906,556.54	39° 32' 11.086 N	107° 36' 9.950 W
START BUILD @ 1075' MD (1045' TVD) (3 DEG/100')									
1,100.00	25.50	44.07	1,067.63	148.70	143.95	14,368,551.50	906,563.79	39° 32' 11.162 N	107° 36' 9.861 W
1,200.00	28.50	44.07	1,156.72	181.31	175.52	14,368,584.11	906,595.36	39° 32' 11.493 N	107° 36' 9.470 W
1,216.45	28.99	44.07	1,171.14	186.99	181.03	14,368,589.79	906,600.87	39° 32' 11.551 N	107° 36' 9.402 W
END OF BUILD @ 1216' MD (1171' TVD) (28.99 DEG INC)									
1,300.00	28.99	44.07	1,244.22	216.09	209.19	14,368,618.89	906,629.03	39° 32' 11.846 N	107° 36' 9.053 W
1,400.00	28.99	44.07	1,331.70	250.90	242.90	14,368,653.71	906,662.74	39° 32' 12.199 N	107° 36' 8.636 W
1,500.00	28.99	44.07	1,419.17	285.72	276.62	14,368,688.53	906,696.46	39° 32' 12.553 N	107° 36' 8.219 W
1,600.00	28.99	44.07	1,506.64	320.54	310.33	14,368,723.34	906,730.17	39° 32' 12.907 N	107° 36' 7.802 W
1,700.00	28.99	44.07	1,594.11	355.36	344.04	14,368,758.16	906,763.88	39° 32' 13.260 N	107° 36' 7.385 W
1,800.00	28.99	44.07	1,681.58	390.18	377.75	14,368,792.98	906,797.59	39° 32' 13.614 N	107° 36' 6.967 W
1,900.00	28.99	44.07	1,769.05	425.00	411.47	14,368,827.80	906,831.30	39° 32' 13.967 N	107° 36' 6.550 W
2,000.00	28.99	44.07	1,856.52	459.82	445.18	14,368,862.62	906,865.02	39° 32' 14.321 N	107° 36' 6.133 W
2,100.00	28.99	44.07	1,943.99	494.64	478.89	14,368,897.44	906,898.73	39° 32' 14.674 N	107° 36' 5.716 W
2,200.00	28.99	44.07	2,031.46	529.46	512.60	14,368,932.26	906,932.44	39° 32' 15.028 N	107° 36' 5.299 W
2,300.00	28.99	44.07	2,118.93	564.28	546.31	14,368,967.08	906,966.15	39° 32' 15.381 N	107° 36' 4.882 W
2,400.00	28.99	44.07	2,206.40	599.10	580.03	14,369,001.90	906,999.87	39° 32' 15.735 N	107° 36' 4.464 W
2,500.00	28.99	44.07	2,293.87	633.92	613.74	14,369,036.72	907,033.58	39° 32' 16.088 N	107° 36' 4.047 W
2,600.00	28.99	44.07	2,381.34	668.74	647.45	14,369,071.54	907,067.29	39° 32' 16.442 N	107° 36' 3.630 W
2,700.00	28.99	44.07	2,468.81	703.56	681.16	14,369,106.36	907,101.00	39° 32' 16.795 N	107° 36' 3.213 W
2,800.00	28.99	44.07	2,556.28	738.38	714.88	14,369,141.18	907,134.71	39° 32' 17.149 N	107° 36' 2.796 W
2,900.00	28.99	44.07	2,643.75	773.20	748.59	14,369,176.00	907,168.43	39° 32' 17.503 N	107° 36' 2.378 W
3,000.00	28.99	44.07	2,731.22	808.02	782.30	14,369,210.82	907,202.14	39° 32' 17.856 N	107° 36' 1.961 W
3,049.77	28.99	44.07	2,774.76	825.35	799.08	14,369,228.15	907,218.92	39° 32' 18.032 N	107° 36' 1.754 W
START DROP @ 3050' MD (2775' TVD) (3 DEG/100')									
3,100.00	27.48	44.07	2,819.01	842.42	815.61	14,369,245.22	907,235.45	39° 32' 18.205 N	107° 36' 1.549 W
3,190.22	24.78	44.07	2,900.00	870.97	843.24	14,369,273.77	907,263.08	39° 32' 18.495 N	107° 36' 1.207 W
MESAVERDE									
3,200.00	24.48	44.07	2,908.89	873.89	846.08	14,369,276.69	907,265.92	39° 32' 18.525 N	107° 36' 1.172 W
3,300.00	21.48	44.07	3,000.94	901.94	873.24	14,369,304.74	907,293.07	39° 32' 18.810 N	107° 36' 0.836 W
3,400.00	18.48	44.07	3,094.91	926.49	897.00	14,369,329.29	907,316.84	39° 32' 19.059 N	107° 36' 0.542 W
3,500.00	15.48	44.07	3,190.54	947.48	917.32	14,369,350.27	907,337.16	39° 32' 19.272 N	107° 36' 0.290 W
3,600.00	12.48	44.07	3,287.56	964.83	934.13	14,369,367.63	907,353.96	39° 32' 19.448 N	107° 36' 0.082 W
3,700.00	9.48	44.07	3,385.72	978.52	947.38	14,369,381.32	907,367.22	39° 32' 19.587 N	107° 35' 59.918 W
3,800.00	6.48	44.07	3,484.74	988.50	957.04	14,369,391.30	907,376.88	39° 32' 19.689 N	107° 35' 59.799 W
3,900.00	3.48	44.07	3,584.35	994.74	963.08	14,369,397.54	907,382.92	39° 32' 19.752 N	107° 35' 59.724 W
4,000.00	0.48	44.07	3,684.28	997.22	965.49	14,369,400.02	907,385.32	39° 32' 19.777 N	107° 35' 59.694 W
4,015.72	0.01	44.07	3,700.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W
PRICE COAL									

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well FREI A9 (111166) - Slot A9
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5620.00ft
Project:	FREI PROJECT	MD Reference:	RKB @ 5620.00ft
Site:	FRONTIER 12	North Reference:	Grid
Well:	FREI A9 (111166)	Survey Calculation Method:	Minimum Curvature
Wellbore:	ANTERO FREI A9		
Design:	ANTERO FREI A9 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	
4,016.11	0.00	0.00	3,700.39	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
END OF DROP @ 4016' MD (3700' TVD)										
4,100.00	0.00	0.00	3,784.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,200.00	0.00	0.00	3,884.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,300.00	0.00	0.00	3,984.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,400.00	0.00	0.00	4,084.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,500.00	0.00	0.00	4,184.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,600.00	0.00	0.00	4,284.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,700.00	0.00	0.00	4,384.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,715.72	0.00	0.00	4,400.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
TOP GAS - TOP GAS A9										
4,800.00	0.00	0.00	4,484.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
4,900.00	0.00	0.00	4,584.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,000.00	0.00	0.00	4,684.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,100.00	0.00	0.00	4,784.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,200.00	0.00	0.00	4,884.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,300.00	0.00	0.00	4,984.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,400.00	0.00	0.00	5,084.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,500.00	0.00	0.00	5,184.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,600.00	0.00	0.00	5,284.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,615.72	0.00	0.00	5,300.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
CAMEO										
5,700.00	0.00	0.00	5,384.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,800.00	0.00	0.00	5,484.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
5,900.00	0.00	0.00	5,584.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,000.00	0.00	0.00	5,684.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,100.00	0.00	0.00	5,784.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,200.00	0.00	0.00	5,884.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,300.00	0.00	0.00	5,984.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,400.00	0.00	0.00	6,084.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,500.00	0.00	0.00	6,184.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,600.00	0.00	0.00	6,284.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,700.00	0.00	0.00	6,384.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,715.72	0.00	0.00	6,400.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
ROLLINS										
6,800.00	0.00	0.00	6,484.28	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
6,865.69	0.00	0.00	6,549.97	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
PROPOSED TD @ 6866' MD (6550' TVD)										
6,865.72	0.00	0.00	6,550.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
TD A9										

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 A9 - plan hits target center - Circle (radius 25.00)	0.00	360.00	4,400.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	
TD A9 - plan hits target center - Circle (radius 25.00)	0.00	360.00	6,550.00	997.27	965.53	14,369,400.07	907,385.37	39° 32' 19.778 N	107° 35' 59.694 W	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well FREI A9 (111166) - Slot A9
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5620.00ft
Project:	FREI PROJECT	MD Reference:	RKB @ 5620.00ft
Site:	FRONTIER 12	North Reference:	Grid
Well:	FREI A9 (111166)	Survey Calculation Method:	Minimum Curvature
Wellbore:	ANTERO FREI A9		
Design:	ANTERO FREI A9 P01		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,025.45	1,000.00	SURFACE CASING @ 1000' TVD	9.62	12.25	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,190.22	2,900.00	MESAVERDE		0.00	
4,015.72	3,700.00	PRICE COAL		0.00	
4,715.72	4,400.00	TOP GAS		0.00	
5,615.72	5,300.00	CAMEO		0.00	
6,715.72	6,400.00	ROLLINS		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	KOP @ 200' (3 DEG/100')	
1,025.45	1,000.00	126.17	122.13	START HOLD @ 1025' MD (1000' TVD) (24.76 DEG INC)	
1,075.45	1,045.40	141.21	136.70	START BUILD @ 1075' MD (1045' TVD) (3 DEG/100')	
1,216.45	1,171.14	186.99	181.03	END OF BUILD @ 1216' MD (1171' TVD) (28.99 DEG INC)	
3,049.77	2,774.76	825.35	799.08	START DROP @ 3050' MD (2775' TVD) (3 DEG/100')	
4,016.11	3,700.39	997.27	965.53	END OF DROP @ 4016' MD (3700' TVD)	
6,865.69	6,549.97	997.27	965.53	PROPOSED TD @ 6866' MD (6550' TVD)	