



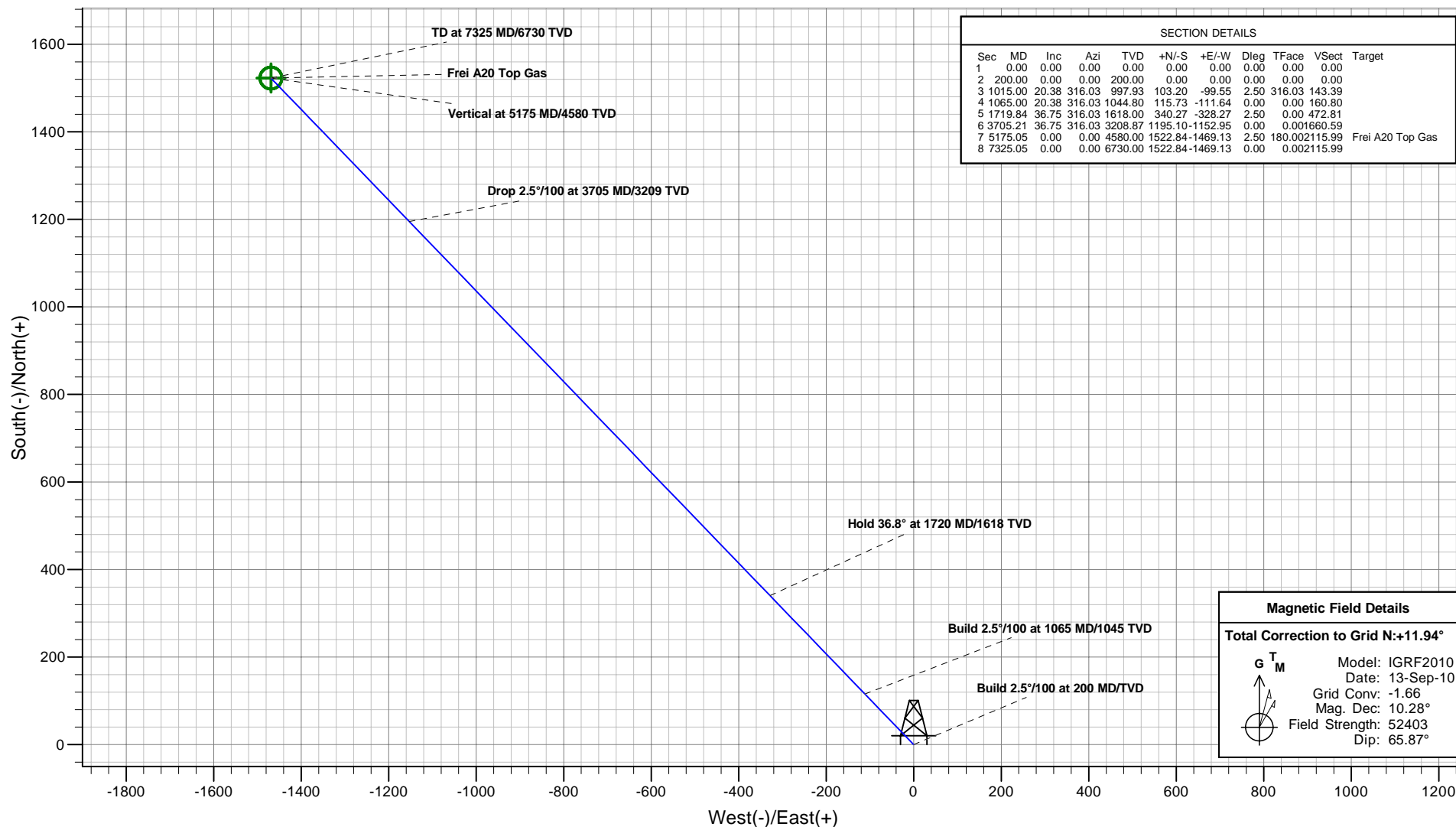
Antero Resources

Frei A20

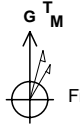


PLAN VIEW

Project: FREI A PROJECT
Site: FRONTIER 12
Well: Frei A20 (111191)
Wellbore: Frei A20
Design: Frei A20 P01



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1015.00	20.38	316.03	997.93	103.20	-99.55	2.50	316.03	143.39	
4	1065.00	20.38	316.03	1044.80	115.73	-111.64	0.00	0.00	160.80	
5	1719.84	36.75	316.03	1618.00	340.27	-328.27	2.50	0.00	472.81	
6	3705.21	36.75	316.03	3208.87	1195.10	-1152.95	0.00	0.00	1660.59	
7	5175.05	0.00	0.00	4580.00	1522.84	-1469.13	2.50	180.00	2115.99	Frei A20 Top Gas
8	7325.05	0.00	0.00	6730.00	1522.84	-1469.13	0.00	0.00	2115.99	

Magnetic Field Details	
Total Correction to Grid N:+11.94°	
	Model: IGRF2010 Date: 13-Sep-10 Grid Conv: -1.66 Mag. Dec: 10.28° Field Strength: 52403 Dip: 65.87°

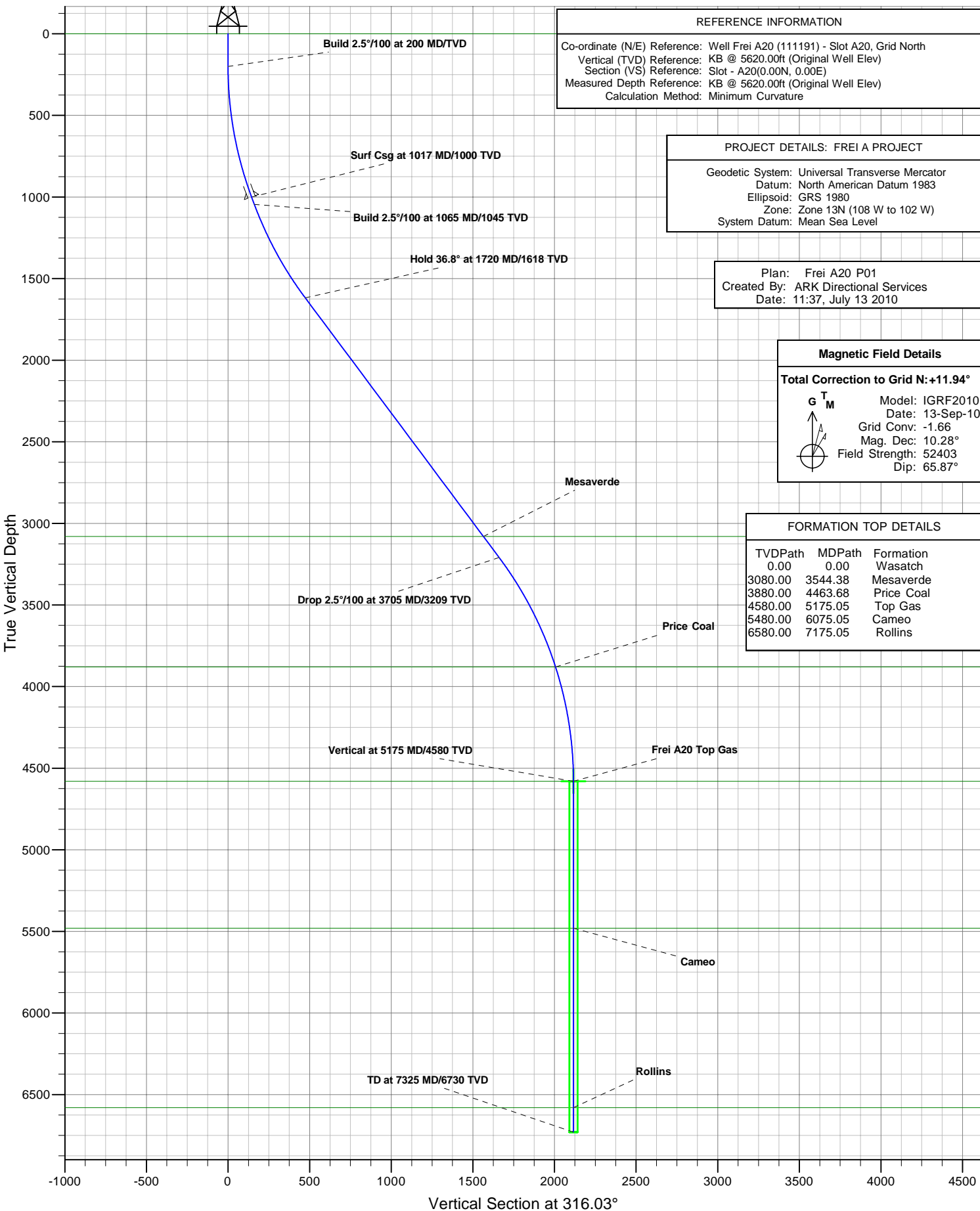
Plan: Frei A20 P01
Created By: ARK Directional Services
Date: 1:35, July 13 2010

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 A20 (111191) - Slot A20, Grid North
Vertical (TVD) Reference: KB @ 5620.00ft (Original Well Elev)
Section (VS) Reference: Slot - A20(0.00N, 0.00E)
Measured Depth Reference: KB @ 5620.00ft (Original Well Elev)
Calculation Method: Minimum Curvature



VERTICAL SECTION VIEW



Antero Resources

FREI A PROJECT

FRONTIER 12

Frei A20 (111191) - Slot A20

Frei A20

Plan: Frei A20 P01

Standard Planning Report - Geographic

13 July, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A20 (111191) - Slot A20
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 A20 (111191)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A20		
Design:	Frei A20 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:	14,368,390.497 usft	Latitude:	39.535980489°N
From:	Lat/Long	Easting:	906,417.639 usft	Longitude:	107.603240409°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	Frei A20 (111191) - Slot A20					
Well Position	+N/-S	0.00 ft	Northing:	14,368,382.161 usft	Latitude:	39.535955682°N
	+E/-W	0.00 ft	Easting:	906,393.288 usft	Longitude:	107.603325834°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	Frei A20				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/09/13	10.28	65.87	52,403

Design	Frei A20 P01				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	4,580.00	0.00	0.00	316.03	

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	
1,015.00	20.38	316.03	997.93	103.20	-99.55	2.50	2.50	0.00	316.03	
1,065.00	20.38	316.03	1,044.80	115.73	-111.64	0.00	0.00	0.00	0.00	
1,719.84	36.75	316.03	1,618.00	340.27	-328.27	2.50	2.50	0.00	0.00	
3,705.21	36.75	316.03	3,208.87	1,195.10	-1,152.95	0.00	0.00	0.00	0.00	
5,175.05	0.00	0.00	4,580.00	1,522.84	-1,469.13	2.50	-2.50	0.00	180.00	Frei A20 Top Gas
7,325.05	0.00	0.00	6,730.00	1,522.84	-1,469.13	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A20 (111191) - Slot A20
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 A20 (111191)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A20		
Design:	Frei A20 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	14,368,382.161	906,393.288	39.535955682°N	107.603325834°W	
Wasatch										
200.00	0.00	0.00	200.00	0.00	0.00	14,368,382.161	906,393.288	39.535955682°N	107.603325834°W	
Build 2.5°/100 at 200 MD/TVD										
1,015.00	20.38	316.03	997.93	103.20	-99.55	14,368,485.359	906,293.735	39.536230909°N	107.603689158°W	
1,017.21	20.38	316.03	1,000.00	103.75	-100.09	14,368,485.912	906,293.201	39.536232384°N	107.603691105°W	
Surf Csg at 1017 MD/1000 TVD										
1,065.00	20.38	316.03	1,044.80	115.73	-111.64	14,368,497.887	906,281.648	39.536264322°N	107.603733268°W	
Build 2.5°/100 at 1065 MD/1045 TVD										
1,719.84	36.75	316.03	1,618.00	340.27	-328.27	14,368,722.433	906,065.022	39.536863171°N	107.604523863°W	
Hold 36.8° at 1720 MD/1618 TVD										
3,544.38	36.75	316.03	3,080.00	1,125.86	-1,086.14	14,369,508.016	905,307.146	39.538958223°N	107.607289902°W	
Mesaverde										
3,705.21	36.75	316.03	3,208.87	1,195.10	-1,152.95	14,369,577.262	905,240.342	39.539142891°N	107.607533726°W	
Drop 2.5°/100 at 3705 MD/3209 TVD										
4,463.68	17.78	316.03	3,880.00	1,444.03	-1,393.09	14,369,826.185	905,000.198	39.539806720°N	107.608410223°W	
Price Coal										
5,175.05	0.00	0.00	4,580.00	1,522.84	-1,469.13	14,369,905.003	904,924.160	39.540016912°N	107.608687758°W	
Vertical at 5175 MD/4580 TVD - Top Gas										
6,075.05	0.00	0.00	5,480.00	1,522.84	-1,469.13	14,369,905.003	904,924.160	39.540016912°N	107.608687758°W	
Cameo										
7,175.05	0.00	0.00	6,580.00	1,522.84	-1,469.13	14,369,905.003	904,924.160	39.540016912°N	107.608687758°W	
Rollins										
7,325.05	0.00	0.00	6,730.00	1,522.84	-1,469.13	14,369,905.003	904,924.160	39.540016912°N	107.608687758°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	
Frei A20 Top Gas - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,580.00	1,522.84	-1,469.13	14,369,905.003	904,924.160	39.540016912°N	107.608687758°W	

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,017.21	1,000.00	Surf Csg at 1017 MD/1000 TVD	5.50	6.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A20 (111191) - Slot A20
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 A20 (111191)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A20		
Design:	Frei A20 P01		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch				
3,544.38	3,080.00	Mesaverde				
4,463.68	3,880.00	Price Coal				
5,175.05	4,580.00	Top Gas				
6,075.05	5,480.00	Cameo				
7,175.05	6,580.00	Rollins				

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	Build 2.5°/100 at 200 MD/TVD	
1,065.00	1,044.80	115.73	-111.64	Build 2.5°/100 at 1065 MD/1045 TVD	
1,719.84	1,618.00	340.27	-328.27	Hold 36.8° at 1720 MD/1618 TVD	
3,705.21	3,208.87	1,195.10	-1,152.95	Drop 2.5°/100 at 3705 MD/3209 TVD	
5,175.05	4,580.00	1,522.84	-1,469.13	Vertical at 5175 MD/4580 TVD	
7,325.05	6,730.00	1,522.84	-1,469.13	TD at 7325 MD/6730 TVD	