



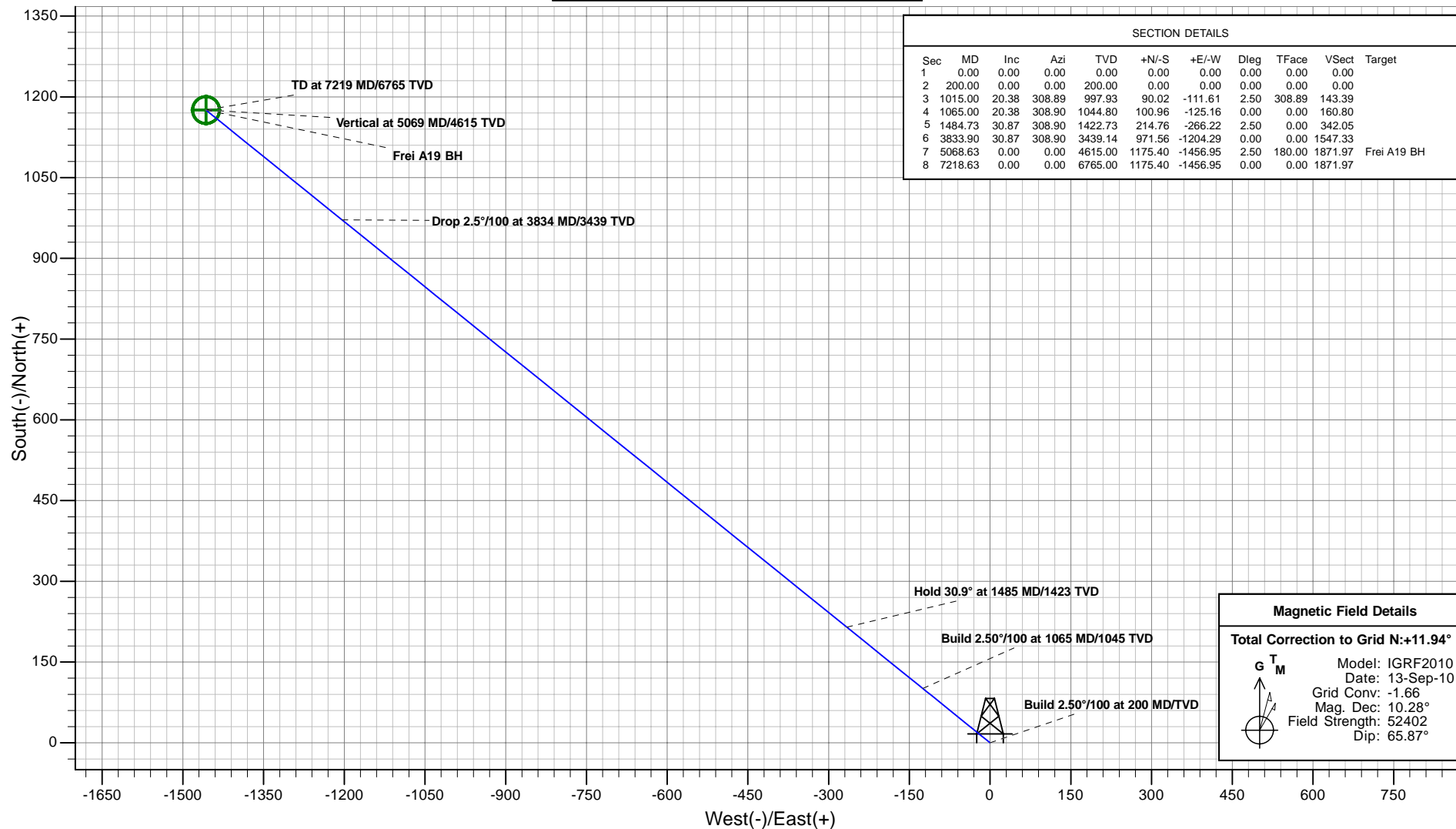
Antero Resources

Frei A19



PLAN VIEW

Project: FREI A PROJECT
Site: FRONTIER 12
Well: Frei A19 (111190)
Wellbore: Frei A19
Design: Frei A19 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	308.89	997.93	90.02	-111.61	2.50	308.89	143.39	
4	1065.00	20.38	308.90	1044.80	100.96	-125.16	0.00	0.00	160.80	
5	1484.73	30.87	308.90	1422.73	214.76	-266.22	2.50	0.00	342.05	
6	3833.90	30.87	308.90	3439.14	971.56	-1204.29	0.00	0.00	1547.33	
7	5068.63	0.00	0.00	4615.00	1175.40	-1456.95	2.50	180.00	1871.97	Frei A19 BH
8	7218.63	0.00	0.00	6765.00	1175.40	-1456.95	0.00	0.00	1871.97	

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: 52402
Dip: 65.87°

Plan: Frei A19 P01
Created By: ARK Directional Services
Date: 12:16, July 13 2010

PROJECT DETAILS: FREI A PROJECT

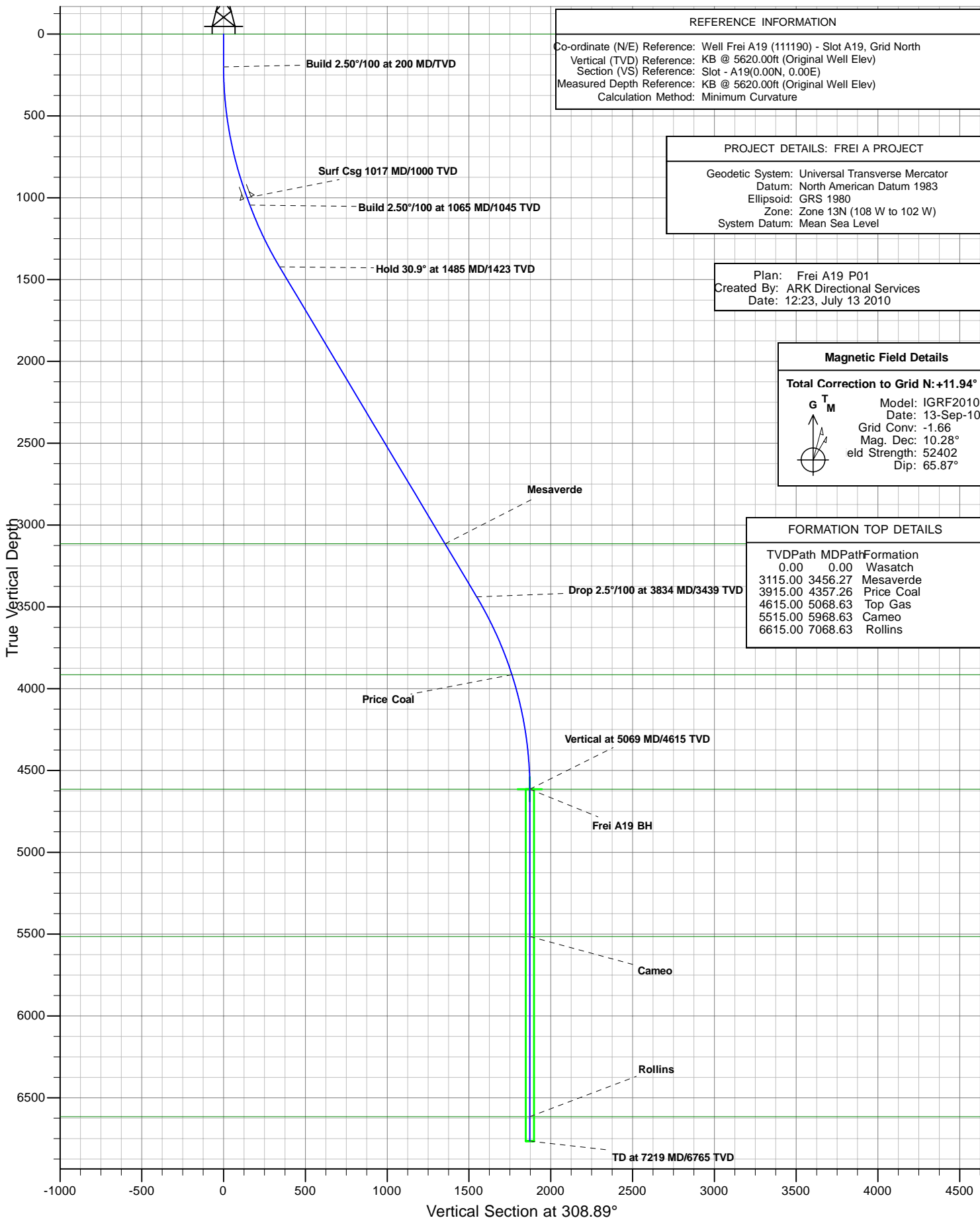
Geodetic System: Universal Transverse Mercator
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Frei A19 (111190) - Slot A19, Grid North
Vertical (TVD) Reference: KB @ 5620.00ft (Original Well Elev)
Section (VS) Reference: Slot - A19(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 A19 (111190) - Slot A19

Frei A19

Plan: Frei A19 P01

Standard Planning Report - Geographic

13 July, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A19 (111190) - Slot A19
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 A19 (111190)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A19		
Design:	Frei A19 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 A19 (111190) - Slot A19					
Well Position	+N/-S	0.00 ft	Northing:	14,368,369.857 usft	Latitude:	39.535921750°N
	+E/-W	0.00 ft	Easting:	906,391.083 usft	Longitude:	107.603332385°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	Frei A19				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	13/09/2010	10.28	65.87	52,402

Design	Frei A19 P01				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	4,615.00	0.00	0.00	308.89	

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	308.89	997.93	90.02	-111.61	2.50	2.50	0.00	308.89	
1,065.00	20.38	308.90	1,044.80	100.96	-125.16	0.00	0.00	0.00	0.00	
1,484.73	30.87	308.90	1,422.73	214.76	-266.22	2.50	2.50	0.00	0.00	
3,833.90	30.87	308.90	3,439.14	971.56	-1,204.29	0.00	0.00	0.00	0.00	
5,068.63	0.00	0.00	4,615.00	1,175.40	-1,456.95	2.50	-2.50	0.00	180.00	Frei A19 BH
7,218.63	0.00	0.00	6,765.00	1,175.40	-1,456.95	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A19 (111190) - Slot A19
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 A19 (111190)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A19		
Design:	Frei A19 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	14,368,369.857	906,391.083	39.535921750°N	107.603332385°W	
Wasatch										
200.00	0.00	0.00	200.00	0.00	0.00	14,368,369.857	906,391.083	39.535921750°N	107.603332385°W	
Build 2.50°/100 at 200 MD/TVD										
1,015.00	20.38	308.89	997.93	90.02	-111.61	14,368,459.881	906,279.475	39.536159876°N	107.603737071°W	
1,017.21	20.49	315.32	1,000.00	90.54	-112.18	14,368,460.397	906,278.904	39.536161246°N	107.603739147°W	
Surf Csg 1017 MD/1000 TVD										
1,065.00	20.38	308.90	1,044.80	100.96	-125.16	14,368,470.812	906,265.926	39.536188788°N	107.603786198°W	
Build 2.50°/100 at 1065 MD/1045 TVD										
1,484.73	30.87	308.90	1,422.73	214.76	-266.22	14,368,584.617	906,124.861	39.536489817°N	107.604297698°W	
Hold 30.9° at 1485 MD/1423 TVD										
3,456.27	30.87	308.90	3,115.00	849.90	-1,053.49	14,369,219.757	905,337.593	39.538169789°N	107.607152408°W	
Mesaverde										
3,833.90	30.87	308.90	3,439.14	971.56	-1,204.29	14,369,341.412	905,186.799	39.538491564°N	107.607699217°W	
Drop 2.5°/100 at 3834 MD/3439 TVD										
4,357.26	17.78	308.90	3,915.00	1,106.63	-1,371.71	14,369,476.487	905,019.371	39.538848830°N	107.608306351°W	
Price Coal										
5,068.63	0.00	0.00	4,615.00	1,175.40	-1,456.95	14,369,545.253	904,934.134	39.539030712°N	107.608615443°W	
Vertical at 5069 MD/4615 TVD - Top Gas - Frei A19 BH										
5,968.63	0.00	0.00	5,515.00	1,175.40	-1,456.95	14,369,545.253	904,934.134	39.539030712°N	107.608615443°W	
Cameo										
7,068.63	0.00	0.00	6,615.00	1,175.40	-1,456.95	14,369,545.253	904,934.134	39.539030712°N	107.608615443°W	
Rollins										
7,218.63	0.00	0.00	6,765.00	1,175.40	-1,456.95	14,369,545.253	904,934.134	39.539030712°N	107.608615443°W	
TD at 7219 MD/6765 TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Frei A19 BH	0.00	360.00	4,615.00	1,175.40	-1,456.95	14,369,545.253	904,934.134	39.539030712°N	107.608615443°W	
- hit/miss target										
- Shape										
- plan hits target center										
- Circle (radius 25.00)										

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

ARK Directional Services

Planning Report - Geographic

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Project:	FREI A PROJECT	MD Reference:	KB @ 5620.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	Frei A19 (111190)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A19		
Design:	Frei A19 P01		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch				
3,456.27	3,115.00	Mesaverde				
4,357.26	3,915.00	Price Coal				
5,068.63	4,615.00	Top Gas				
5,968.63	5,515.00	Cameo				
7,068.63	6,615.00	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 2.50°/100 at 200 MD/TVD	
1,065.00	1,044.80	90.02	-111.61	Build 2.50°/100 at 1065 MD/1045 TVD	
1,484.73	1,422.73	100.96	-125.16	Hold 30.9° at 1485 MD/1423 TVD	
3,833.90	3,439.14	214.76	-266.22	Drop 2.5°/100 at 3834 MD/3439 TVD	
5,068.63	4,615.00	971.56	-1,204.29	Vertical at 5069 MD/4615 TVD	
7,218.63	6,765.00	1,175.40	-1,456.95	TD at 7219 MD/6765 TVD	