



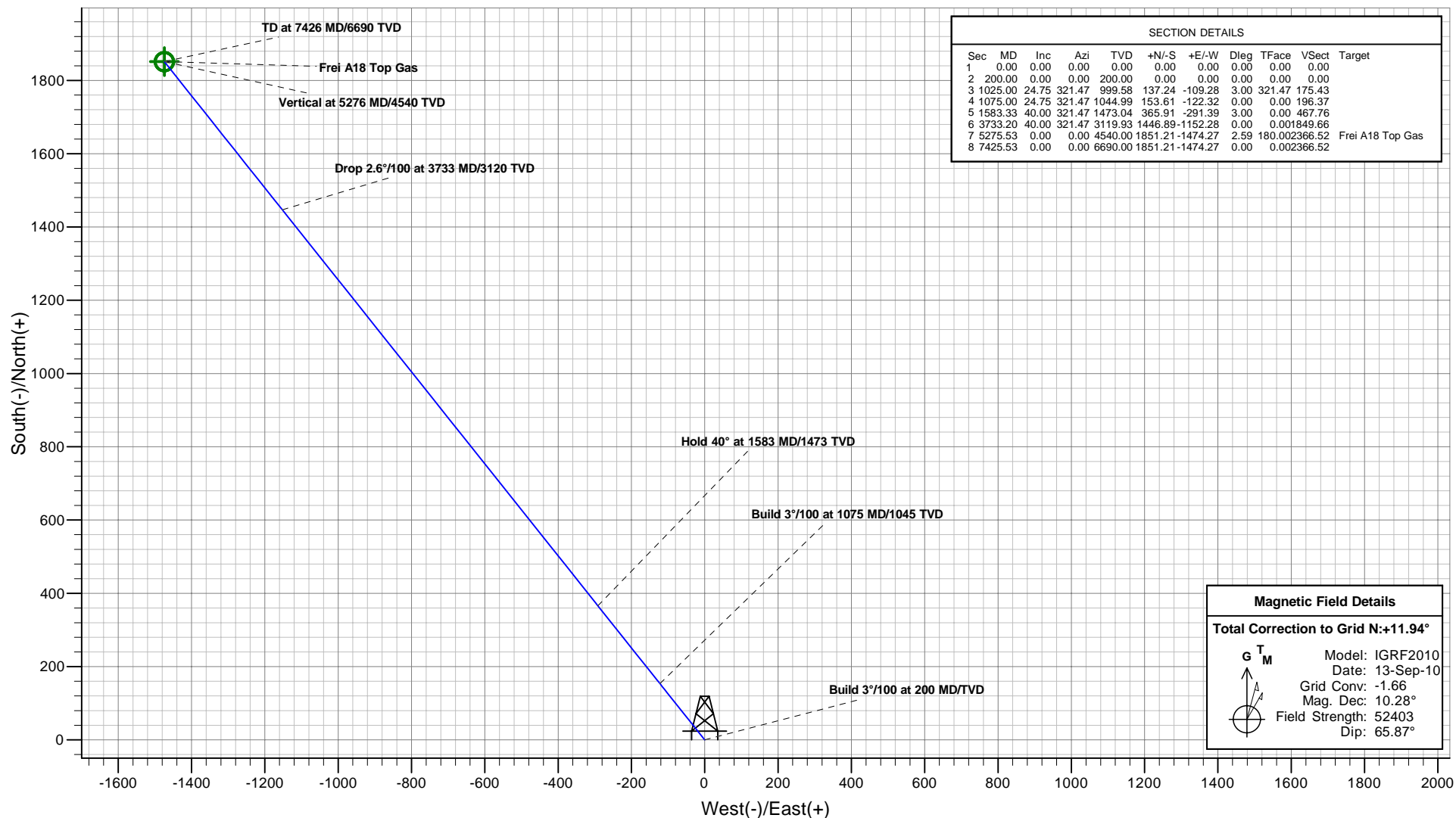
Antero Resources

Frei A18



PLAN VIEW

Project: FREI A PROJECT
Site: FRONTIER 12
Well: Frei A18 (111189)
Wellbore: Frei A18
Design: Frei A18 P01



Plan: Frei A18 P01
Created By: ARK Directional Services
Date: 10:11, 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 A18 (111189) - Slot A18, Grid North
Vertical (TVD) Reference: KB @ 5620.00ft (Original Well Elev)
Section (VS) Reference: Slot - A18(0.00N, 0.00E)
Measured Depth Reference: KB @ 5620.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

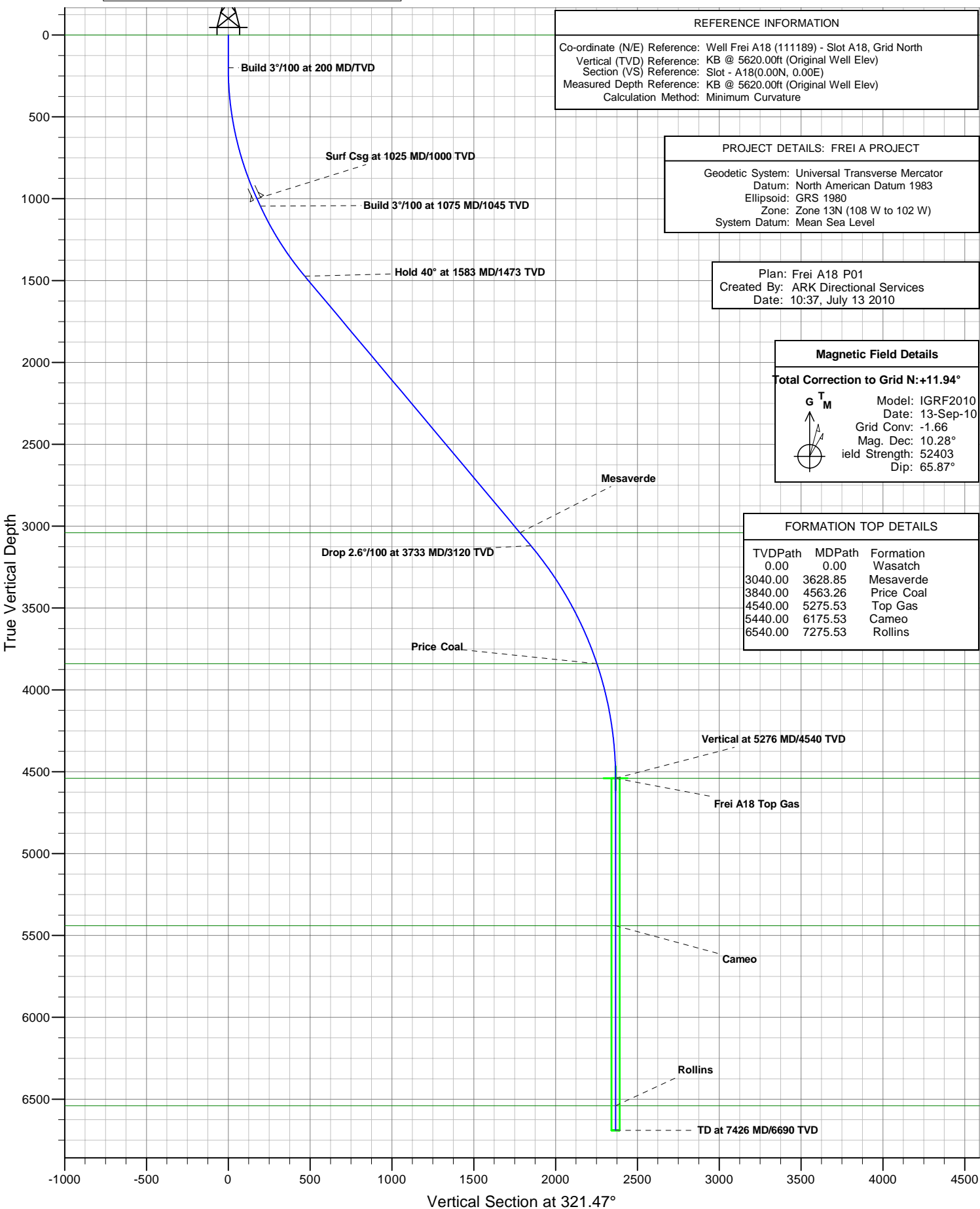


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Frei A18



VERTICAL SECTION VIEW



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FREI A PROJECT

FRONTIER 12

Frei A18 (111189) - Slot A18

Frei A18

Plan: Frei A18 P01

Standard Planning Report - Geographic

13 July, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A18 (111189) - Slot A18
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 A18 (111189)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A18		
Design:	Frei A18 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 A18 (111189) - Slot A18					
Well Position	+N/-S	0.00 ft	Northing:	14,368,394.465 usft	Latitude:	39.535989614°N
	+E/-W	0.00 ft	Easting:	906,395.492 usft	Longitude:	107.603319287°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,596.00 ft

Wellbore	Frei A18				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/09/13	10.28	65.87	52,403

Design	Frei A18 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	321.47	

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	
1,025.00	24.75	321.47	999.58	137.24	-109.28	3.00	3.00	0.00	321.47	
1,075.00	24.75	321.47	1,044.99	153.61	-122.32	0.00	0.00	0.00	0.00	
1,583.33	40.00	321.47	1,473.04	365.91	-291.39	3.00	3.00	0.00	0.00	
3,733.20	40.00	321.47	3,119.93	1,446.89	-1,152.28	0.00	0.00	0.00	0.00	
5,275.53	0.00	0.00	4,540.00	1,851.21	-1,474.27	2.59	-2.59	0.00	180.00	Frei A18 Top Gas
7,425.53	0.00	0.00	6,690.00	1,851.21	-1,474.27	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Frei A18 (111189) - Slot A18
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 A18 (111189)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A18		
Design:	Frei A18 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	14,368,394.465	906,395.492	39.535989614°N	107.603319287°W	
Wasatch										
200.00	0.00	0.00	200.00	0.00	0.00	14,368,394.465	906,395.492	39.535989614°N	107.603319287°W	
Build 3°/100 at 200 MD/TVD										
1,025.00	24.75	321.47	999.58	137.24	-109.28	14,368,531.703	906,286.210	39.536357459°N	107.603720572°W	
1,025.49	43.55	260.48	1,000.00	137.29	-109.52	14,368,531.758	906,285.969	39.536357590°N	107.603721432°W	
Surf Csg at 1025 MD/1000 TVD										
1,075.00	24.75	321.47	1,044.99	153.61	-122.32	14,368,548.078	906,273.170	39.536401348°N	107.603768458°W	
Build 3°/100 at 1075 MD/1045 TVD										
1,583.33	40.00	321.47	1,473.04	365.90	-291.39	14,368,760.367	906,104.104	39.536970352°N	107.604389278°W	
Hold 40° at 1583 MD/1473 TVD										
3,628.85	40.00	321.47	3,040.00	1,394.43	-1,110.50	14,369,788.890	905,284.999	39.539727056°N	107.607397230°W	
Mesaverde										
3,733.20	40.00	321.47	3,119.93	1,446.89	-1,152.28	14,369,841.357	905,243.214	39.539867680°N	107.607550679°W	
Drop 2.6°/100 at 3733 MD/3120 TVD										
4,563.26	18.47	321.47	3,840.00	1,762.16	-1,403.36	14,370,156.624	904,992.138	39.540712660°N	107.608472743°W	
Price Coal										
5,275.53	0.00	0.00	4,540.00	1,851.21	-1,474.27	14,370,245.668	904,921.225	39.540951312°N	107.608733172°W	
Vertical at 5276 MD/4540 TVD - Top Gas										
6,175.53	0.00	0.00	5,440.00	1,851.21	-1,474.27	14,370,245.668	904,921.225	39.540951312°N	107.608733172°W	
Cameo										
7,275.53	0.00	0.00	6,540.00	1,851.21	-1,474.27	14,370,245.668	904,921.225	39.540951312°N	107.608733172°W	
Rollins										
7,425.53	0.00	0.00	6,690.00	1,851.21	-1,474.27	14,370,245.668	904,921.225	39.540951312°N	107.608733172°W	
TD at 7426 MD/6690 TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Frei A18 Top Gas	0.00	360.00	4,540.00	1,851.21	-1,474.27	14,370,245.668	904,921.225	39.540951312°N	107.608733172°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)	
1,025.49	1,000.00	Surf Csg at 1025 MD/1000 TVD	5.50	6.00	

ARK Directional Services

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Project:	FREI A PROJECT	MD Reference:	KB @ 5620.00ft (Original Well Elev)
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Well:	Frei A18 (111189)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Frei A18		
Design:	Frei A18 P01		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch				
3,628.85	3,040.00	Mesaverde				
4,563.26	3,840.00	Price Coal				
5,275.53	4,540.00	Top Gas				
6,175.53	5,440.00	Cameo				
7,275.53	6,540.00	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 3°/100 at 200 MD/TVD	
1,075.00	1,044.99	153.61	-122.32	Build 3°/100 at 1075 MD/1045 TVD	
1,583.33	1,473.04	365.90	-291.39	Hold 40° at 1583 MD/1473 TVD	
3,733.20	3,119.93	1,446.89	-1,152.28	Drop 2.6°/100 at 3733 MD/3120 TVD	
5,275.53	4,540.00	1,851.21	-1,474.27	Vertical at 5276 MD/4540 TVD	
7,425.53	6,690.00	1,851.21	-1,474.27	TD at 7426 MD/6690 TVD	