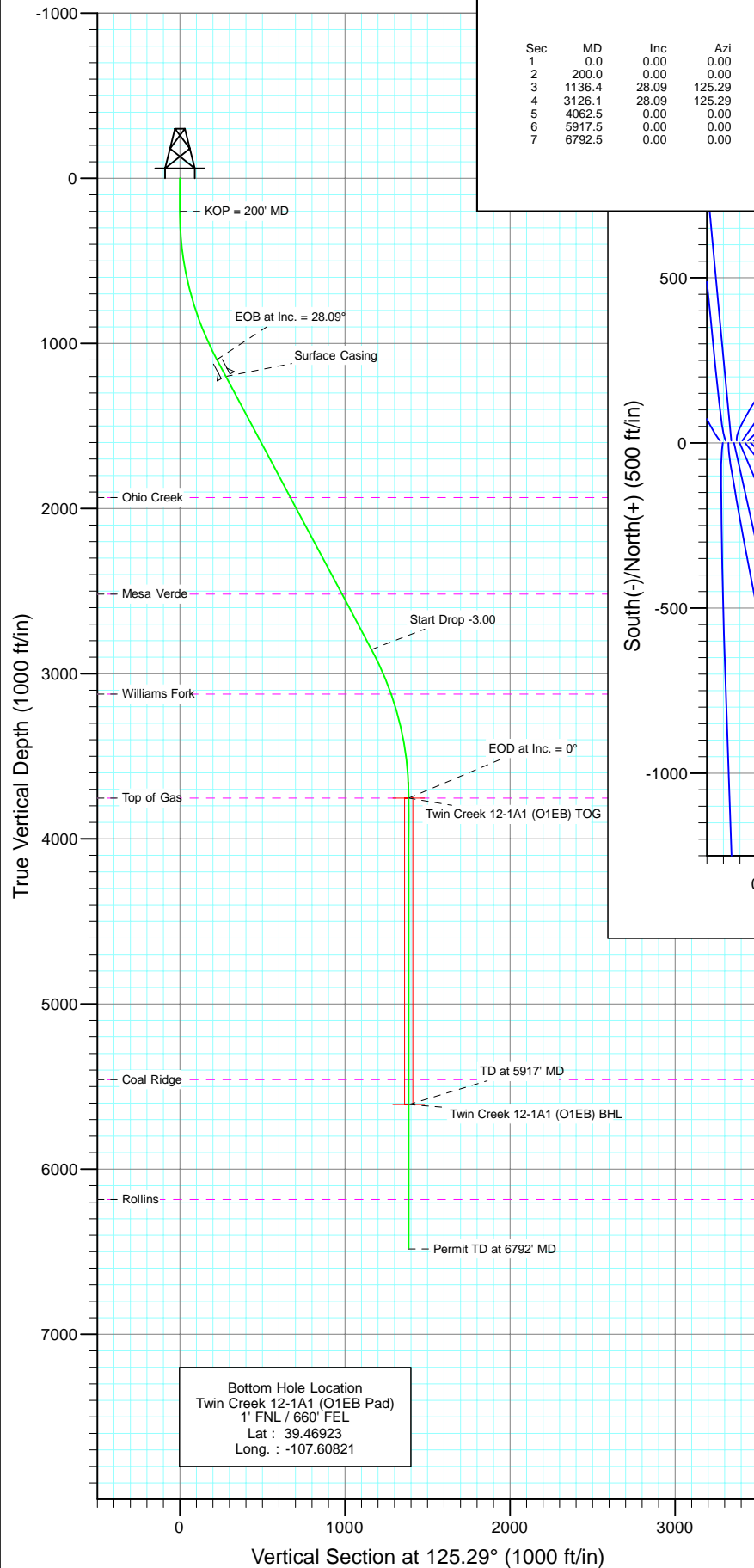
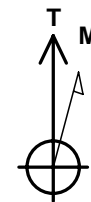
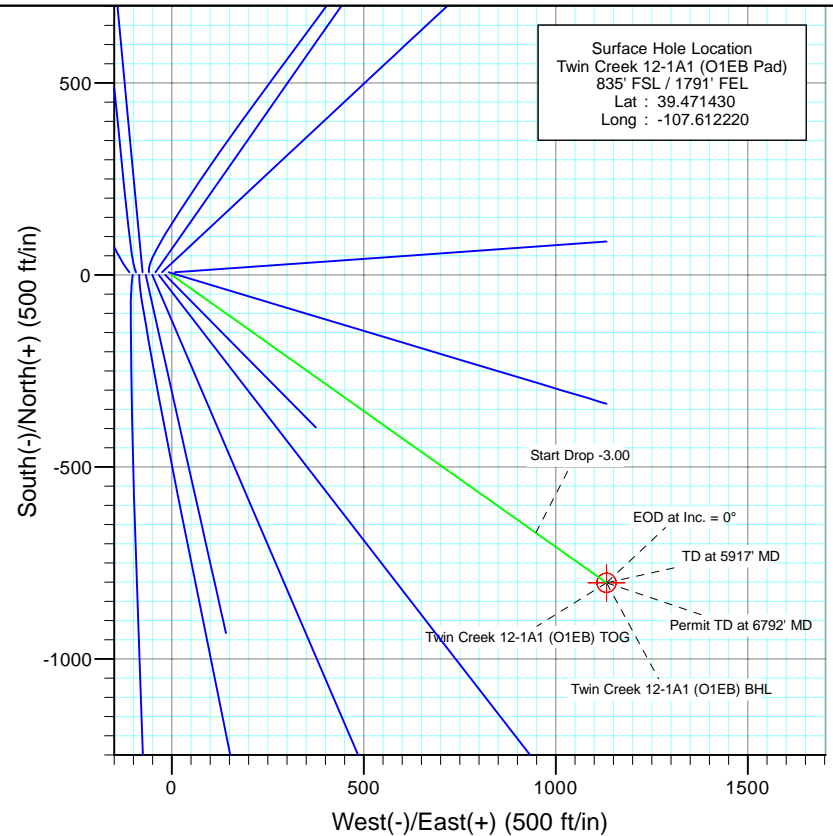




Project: Mamm Creek
 Site: SWSE S1-T7S-R92W (O1EB Pad)
 Well: Twin Creek 12-1A1 (O1EB Pad)
 Wellbore: DD
 Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1136.4	28.09	125.29	1099.3	-130.0	183.6	3.00	125.29	225.0	
4	3126.1	28.09	125.29	2854.7	-671.3	948.4	0.00	0.00	1161.9	
5	4062.5	0.00	0.00	3754.0	-801.3	1132.1	3.00	180.00	1386.9	Twin Creek 12-A1 (O1EB) TOG
6	5917.5	0.00	0.00	5609.0	-801.3	1132.1	0.00	0.00	1386.9	Twin Creek 12-A1 (O1EB) BHL
7	6792.5	0.00	0.00	6484.0	-801.3	1132.1	0.00	0.00	1386.9	



Azimuths to True North
 Magnetic North: 10.35°

Magnetic Field
 Strength: 52424.2snT
 Dip Angle: 65.83°
 Date: 2/3/2010
 Model: IGRF2010

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
1934.0	2082.5	Ohio Creek
2519.0	2745.6	Mesa Verde
3124.0	3420.5	Williams Fork
3754.0	4062.5	Top of Gas
5459.0	5767.5	Coal Ridge
6184.0	6492.5	Rollins

DESIGN DETAILS: Plan #1

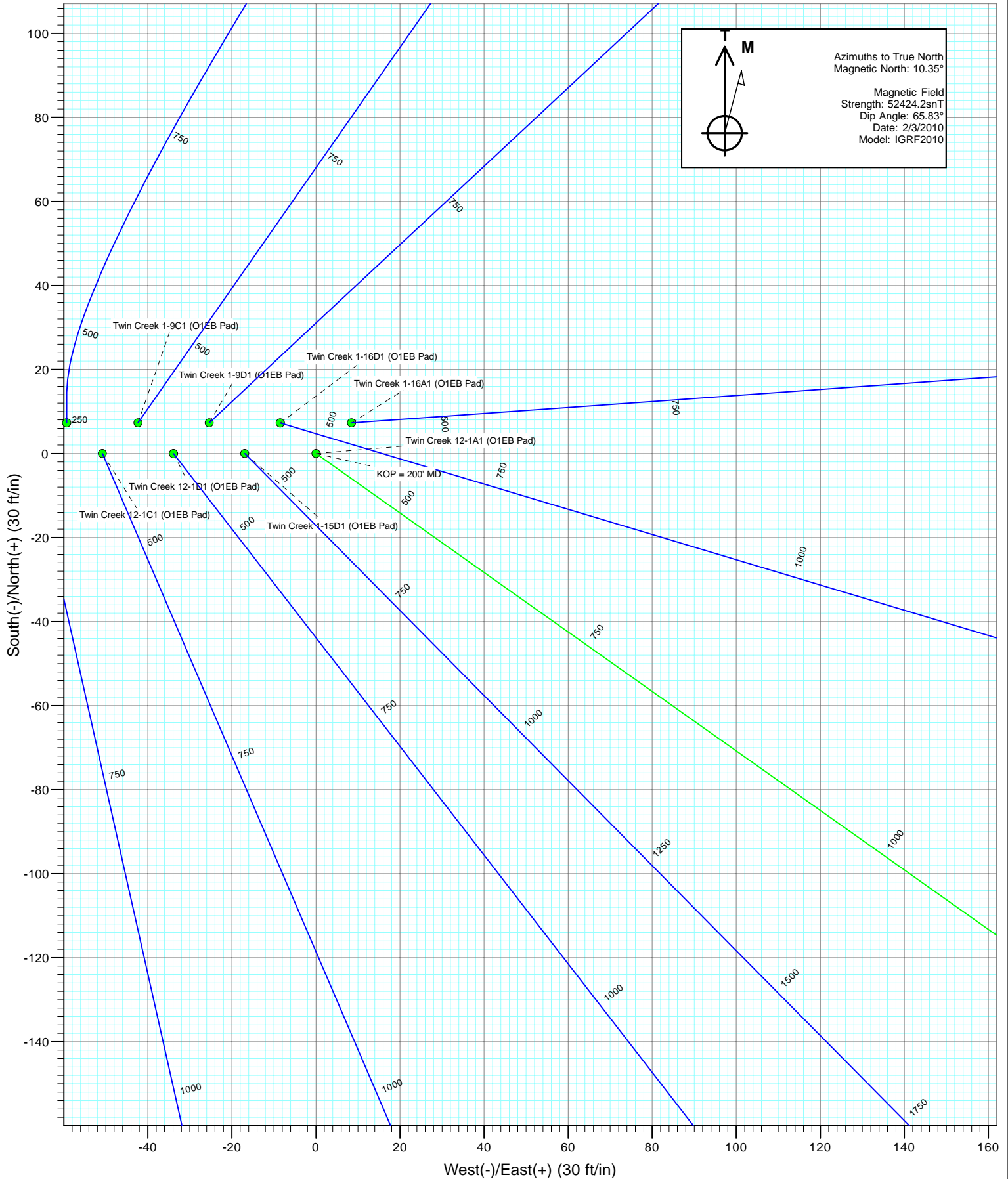
105XXX: KR

KBE @ 6084.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Twin Creek 12-A1 (O1EB) BHL	125.29	Slot	0.0	0.0	0.0

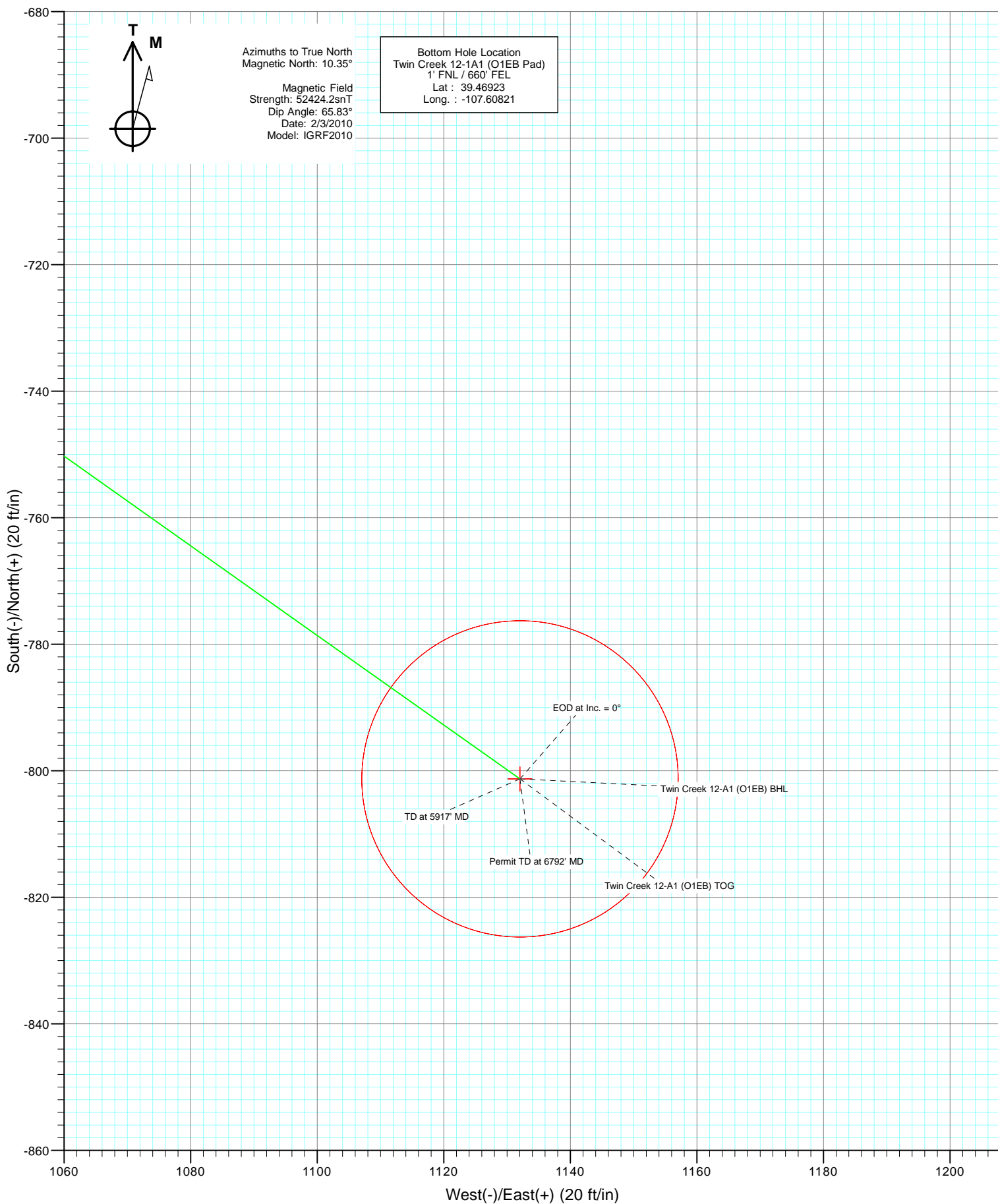


Project: Mamm Creek
Site: SWSE S1-T7S-R92W (O1EB Pad)
Well: Twin Creek 12-1A1 (O1EB Pad)
Wellbore: DD
Design: Plan #1





Project: Mamm Creek
Site: SWSE S1-T7S-R92W (O1EB Pad)
Well: Twin Creek 12-1A1 (O1EB Pad)
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well Twin Creek 12-1A1 (O1EB Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6084.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6084.0ft (Original Well Elev)
Site:	SWSE S1-T7S-R92W (O1EB Pad)	North Reference:	True
Well:	Twin Creek 12-1A1 (O1EB Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP = 200' MD
300.0	3.00	125.29	300.0	-1.5	2.1	2.6	3.00	3.00	
400.0	6.00	125.29	399.6	-6.0	8.5	10.5	3.00	3.00	
500.0	9.00	125.29	498.8	-13.6	19.2	23.5	3.00	3.00	
600.0	12.00	125.29	597.1	-24.1	34.1	41.7	3.00	3.00	
700.0	15.00	125.29	694.3	-37.6	53.1	65.1	3.00	3.00	
800.0	18.00	125.29	790.2	-54.0	76.3	93.5	3.00	3.00	
900.0	21.00	125.29	884.4	-73.3	103.5	126.9	3.00	3.00	
1,000.0	24.00	125.29	976.8	-95.4	134.8	165.1	3.00	3.00	
1,100.0	27.00	125.29	1,067.1	-120.3	169.9	208.2	3.00	3.00	
1,136.4	28.09	125.29	1,099.3	-130.0	183.6	225.0	3.00	3.00	EOB at Inc. = 28.09°
1,200.0	28.09	125.29	1,155.4	-147.3	208.1	254.9	0.00	0.00	
1,250.5	28.09	125.29	1,200.0	-161.0	227.5	278.7	0.00	0.00	Surface Casing
1,300.0	28.09	125.29	1,243.7	-174.5	246.5	302.0	0.00	0.00	
1,400.0	28.09	125.29	1,331.9	-201.7	285.0	349.1	0.00	0.00	
1,500.0	28.09	125.29	1,420.1	-228.9	323.4	396.2	0.00	0.00	
1,600.0	28.09	125.29	1,508.3	-256.1	361.8	443.3	0.00	0.00	
1,700.0	28.09	125.29	1,596.5	-283.3	400.3	490.4	0.00	0.00	
1,800.0	28.09	125.29	1,684.8	-310.5	438.7	537.5	0.00	0.00	
1,900.0	28.09	125.29	1,773.0	-337.7	477.1	584.6	0.00	0.00	
2,000.0	28.09	125.29	1,861.2	-364.9	515.6	631.7	0.00	0.00	
2,082.5	28.09	125.29	1,934.0	-387.4	547.3	670.5	0.00	0.00	Ohio Creek
2,100.0	28.09	125.29	1,949.4	-392.1	554.0	678.7	0.00	0.00	
2,200.0	28.09	125.29	2,037.6	-419.3	592.4	725.8	0.00	0.00	
2,300.0	28.09	125.29	2,125.9	-446.5	630.9	772.9	0.00	0.00	
2,400.0	28.09	125.29	2,214.1	-473.7	669.3	820.0	0.00	0.00	
2,500.0	28.09	125.29	2,302.3	-500.9	707.7	867.1	0.00	0.00	
2,600.0	28.09	125.29	2,390.5	-528.2	746.2	914.2	0.00	0.00	
2,700.0	28.09	125.29	2,478.7	-555.4	784.6	961.3	0.00	0.00	
2,745.6	28.09	125.29	2,519.0	-567.8	802.2	982.8	0.00	0.00	Mesa Verde
2,800.0	28.09	125.29	2,566.9	-582.6	823.1	1,008.4	0.00	0.00	
2,900.0	28.09	125.29	2,655.2	-609.8	861.5	1,055.5	0.00	0.00	
3,000.0	28.09	125.29	2,743.4	-637.0	899.9	1,102.5	0.00	0.00	
3,100.0	28.09	125.29	2,831.6	-664.2	938.4	1,149.6	0.00	0.00	
3,126.1	28.09	125.29	2,854.7	-671.3	948.4	1,161.9	0.00	0.00	Start Drop -3.00
3,200.0	25.88	125.29	2,920.5	-690.6	975.8	1,195.5	3.00	-3.00	
3,300.0	22.88	125.29	3,011.6	-714.5	1,009.4	1,236.7	3.00	-3.00	
3,400.0	19.88	125.29	3,104.7	-735.5	1,039.2	1,273.2	3.00	-3.00	
3,420.5	19.26	125.29	3,124.0	-739.5	1,044.8	1,280.0	3.00	-3.00	Williams Fork
3,500.0	16.88	125.29	3,199.6	-753.8	1,064.9	1,304.7	3.00	-3.00	
3,600.0	13.88	125.29	3,296.0	-769.1	1,086.6	1,331.2	3.00	-3.00	
3,700.0	10.88	125.29	3,393.6	-781.5	1,104.1	1,352.6	3.00	-3.00	
3,800.0	7.88	125.29	3,492.3	-790.9	1,117.4	1,368.9	3.00	-3.00	
3,900.0	4.88	125.29	3,591.7	-797.3	1,126.4	1,380.0	3.00	-3.00	
4,000.0	1.88	125.29	3,691.5	-800.7	1,131.2	1,385.9	3.00	-3.00	
4,062.5	0.00	0.00	3,754.0	-801.3	1,132.1	1,386.9	3.00	-3.00	EOD at Inc. = 0° - Top of Gas - Twin Creek 12-
4,100.0	0.00	0.00	3,791.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,200.0	0.00	0.00	3,891.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,300.0	0.00	0.00	3,991.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,400.0	0.00	0.00	4,091.5	-801.3	1,132.1	1,386.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well Twin Creek 12-1A1 (O1EB Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6084.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6084.0ft (Original Well Elev)
Site:	SWSE S1-T7S-R92W (O1EB Pad)	North Reference:	True
Well:	Twin Creek 12-1A1 (O1EB Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		SWSE S1-T7S-R92W (O1EB Pad)			
Site Position:		Northing:	1,603,540.14 ft	Latitude:	39.471450
From:	Lat/Long	Easting:	2,403,755.74 ft	Longitude:	-107.612310
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.33 °

Well	Twin Creek 12-1A1 (O1EB Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,603,532.25 ft	Latitude:	39.471430
	+E/-W	0.0 ft	Easting:	2,403,780.97 ft	Longitude:	-107.612220
Position Uncertainty	0.0 ft		Wellhead Elevation:	ft	Ground Level:	6,062.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/3/2010	10.35	65.83	52,424

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	125.29

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,136.4	28.09	125.29	1,099.3	-130.0	183.6	3.00	3.00	0.00	125.29	
3,126.1	28.09	125.29	2,854.7	-671.3	948.4	0.00	0.00	0.00	0.00	
4,062.5	0.00	0.00	3,754.0	-801.3	1,132.1	3.00	-3.00	0.00	180.00	Twin Creek 12-A1 (O
5,917.5	0.00	0.00	5,609.0	-801.3	1,132.1	0.00	0.00	0.00	0.00	Twin Creek 12-A1 (O
6,792.5	0.00	0.00	6,484.0	-801.3	1,132.1	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well Twin Creek 12-1A1 (O1EB Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6084.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6084.0ft (Original Well Elev)
Site:	SWSE S1-T7S-R92W (O1EB Pad)	North Reference:	True
Well:	Twin Creek 12-1A1 (O1EB Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,500.0	0.00	0.00	4,191.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,600.0	0.00	0.00	4,291.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,700.0	0.00	0.00	4,391.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,800.0	0.00	0.00	4,491.5	-801.3	1,132.1	1,386.9	0.00	0.00	
4,900.0	0.00	0.00	4,591.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,000.0	0.00	0.00	4,691.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,100.0	0.00	0.00	4,791.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,200.0	0.00	0.00	4,891.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,300.0	0.00	0.00	4,991.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,400.0	0.00	0.00	5,091.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,500.0	0.00	0.00	5,191.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,600.0	0.00	0.00	5,291.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,700.0	0.00	0.00	5,391.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,767.5	0.00	0.00	5,459.0	-801.3	1,132.1	1,386.9	0.00	0.00	Coal Ridge
5,800.0	0.00	0.00	5,491.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,900.0	0.00	0.00	5,591.5	-801.3	1,132.1	1,386.9	0.00	0.00	
5,917.5	0.00	0.00	5,609.0	-801.3	1,132.1	1,386.9	0.00	0.00	TD at 5917' MD - Twin Creek 12-A1 (O1EB) BH
6,000.0	0.00	0.00	5,691.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,100.0	0.00	0.00	5,791.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,200.0	0.00	0.00	5,891.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,300.0	0.00	0.00	5,991.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,400.0	0.00	0.00	6,091.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,492.5	0.00	0.00	6,184.0	-801.3	1,132.1	1,386.9	0.00	0.00	Rollins
6,500.0	0.00	0.00	6,191.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,600.0	0.00	0.00	6,291.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,700.0	0.00	0.00	6,391.5	-801.3	1,132.1	1,386.9	0.00	0.00	
6,792.5	0.00	0.00	6,484.0	-801.3	1,132.1	1,386.9	0.00	0.00	Permit TD at 6792' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Twin Creek 12-A1 (O1EI)	0.00	0.00	5,609.0	-801.3	1,132.1	1,602,704.87	2,404,894.10	39.469230	-107.608210
- plan hits target center									
- Circle (radius 25.0)									
Twin Creek 12-A1 (O1EI)	0.00	0.00	3,754.0	-801.3	1,132.1	1,602,704.87	2,404,894.10	39.469230	-107.608210
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,250.5	1,200.0	Surface Casing	5.500	6.000	

Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well Twin Creek 12-1A1 (O1EB Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6084.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6084.0ft (Original Well Elev)
Site:	SWSE S1-T7S-R92W (O1EB Pad)	North Reference:	True
Well:	Twin Creek 12-1A1 (O1EB Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,082.5	1,934.0	Ohio Creek				
2,745.6	2,519.0	Mesa Verde				
3,420.5	3,124.0	Williams Fork				
4,062.5	3,754.0	Top of Gas				
5,767.5	5,459.0	Coal Ridge				
6,492.5	6,184.0	Rollins				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP = 200' MD	
1,136.4	1,099.3	-130.0	183.6	EOB at Inc. = 28.09°	
3,126.1	2,854.7	-671.3	948.4	Start Drop -3.00	
4,062.5	3,754.0	-801.3	1,132.1	EOD at Inc. = 0°	
5,917.5	5,609.0	-801.3	1,132.1	TD at 5917' MD	
6,792.5	6,484.0	-801.3	1,132.1	Permit TD at 6792' MD	