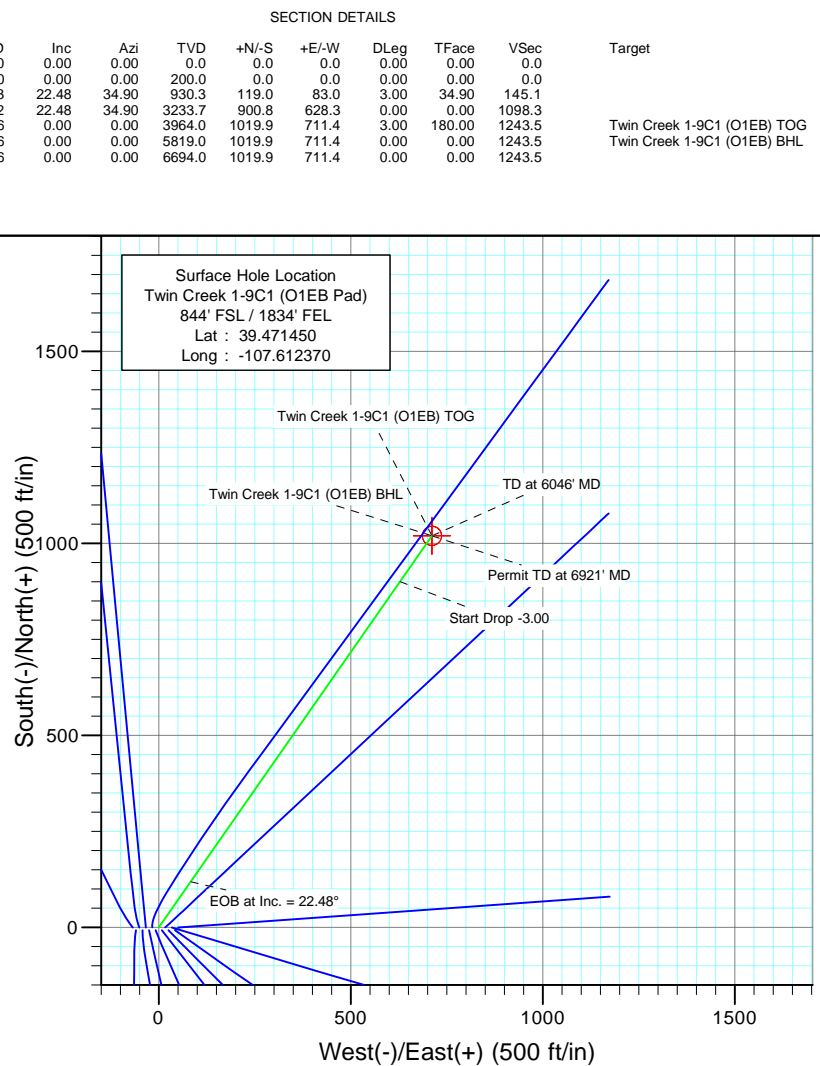
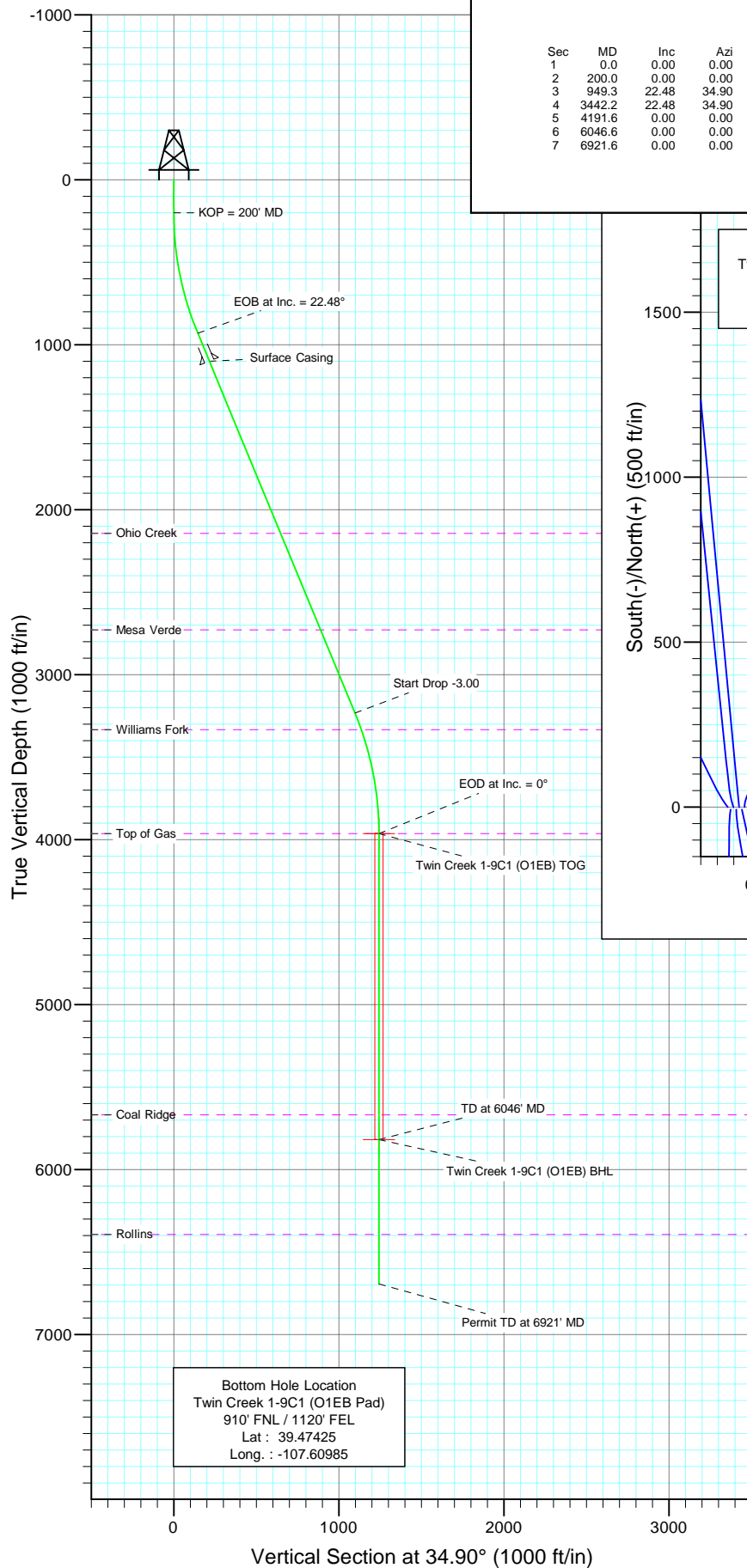




Project: Mamm Creek
Site: SWSE S1-T7S-R92W (O1EB Pad)
Well: Twin Creek 1-9C1 (O1EB Pad)
Wellbore: DD
Design: Plan #1



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

TVDPath	MDPath	Formation
2144.0	2262.9	Ohio Creek
2729.0	2896.0	Mesa Verde
3334.0	3549.6	Williams Fork
3964.0	4191.6	Top of Gas
5669.0	5896.6	Coal Ridge
6394.0	6621.6	Rollins

DESIGN DETAILS: Plan #1

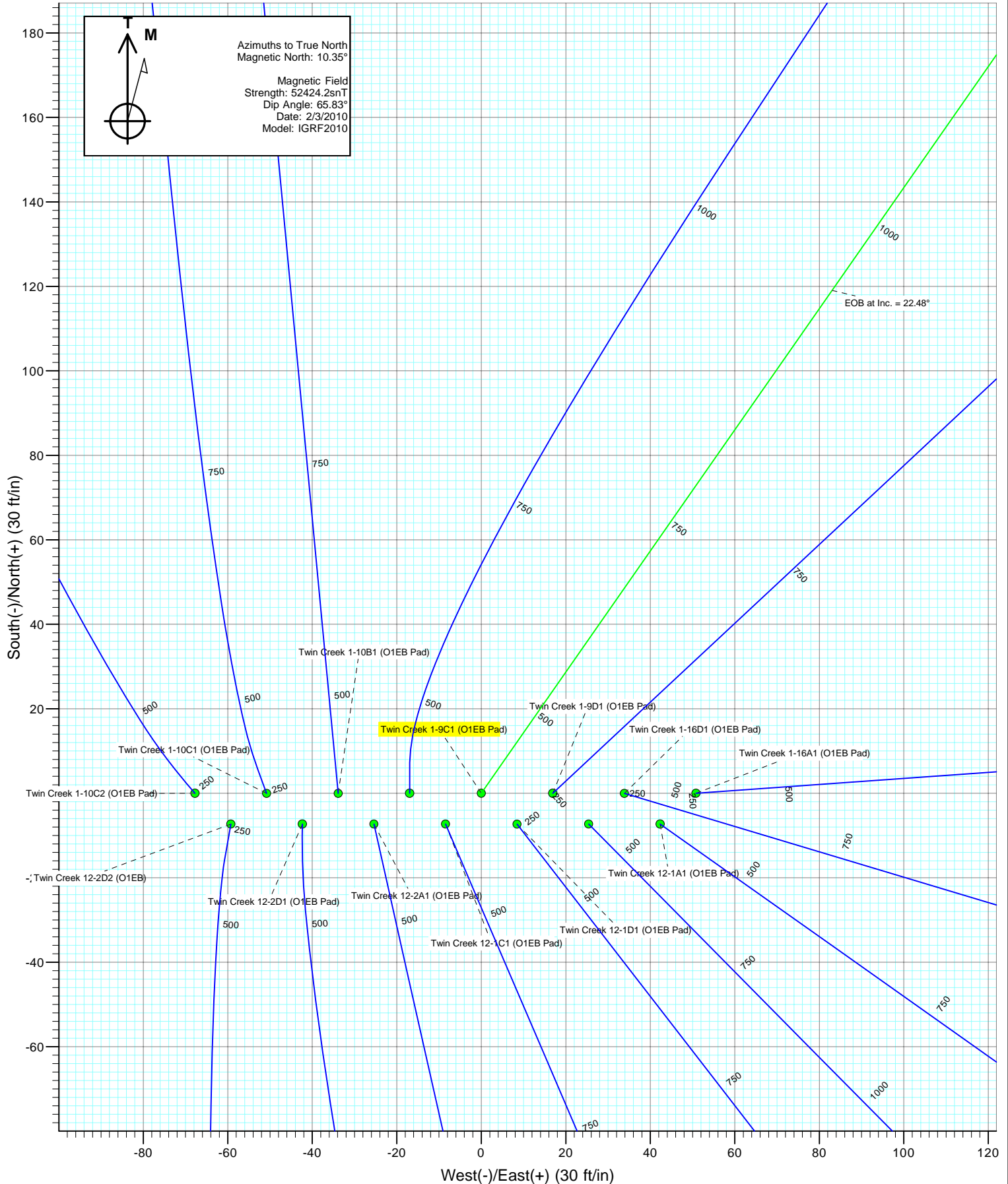
105XXX: KR

KBE @ 6084.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
Twin Creek 1-9C1 (O1EB) BHL	34.90	Slot	0.0	0.0	0.0

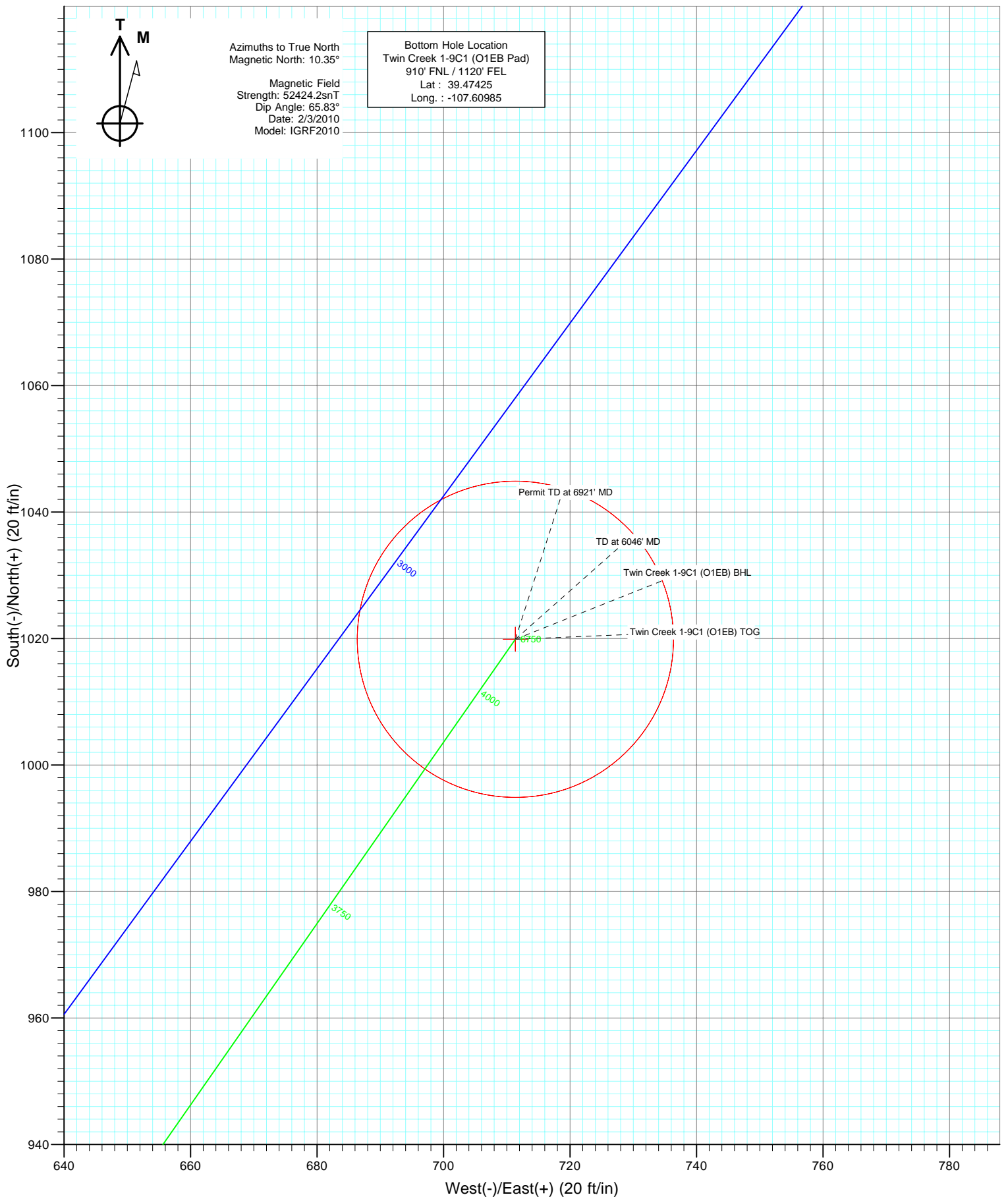


Project: Mamm Creek
Site: SWSE S1-T7S-R92W (O1EB Pad)
Well: Twin Creek 1-9C1 (O1EB Pad)
Wellbore: DD
Design: Plan #1





Project: Mamm Creek
Site: SWSE S1-T7S-R92W (O1EB Pad)
Well: Twin Creek 1-9C1 (O1EB Pad)
Wellbore: DD
Design: Plan #1



Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Twin Creek 1-9C1 (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 1-9C1 (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 1-9C1 (O1EB Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,603,540.53 ft	Latitude:	39.471450
	+E/-W	0.0 ft	Easting:	2,403,738.81 ft	Longitude:	-107.612370
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	34.90

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	
949.3	22.48	34.90	930.3	119.0	83.0	3.00	3.00	0.00	34.90	
3,442.2	22.48	34.90	3,233.7	900.8	628.3	0.00	0.00	0.00	0.00	
4,191.6	0.00	0.00	3,964.0	1,019.9	711.4	3.00	-3.00	0.00	180.00	Twin Creek 1-9C1 (O
6,046.6	0.00	0.00	5,819.0	1,019.9	711.4	0.00	0.00	0.00	0.00	Twin Creek 1-9C1 (O
6,921.6	0.00	0.00	6,694.0	1,019.9	711.4	0.00	0.00	0.00	0.00	

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Twin Creek 1-9C1 (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 1-9C1 (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	34.90	300.0	2.1	1.5	2.6	3.00	3.00	
400.0	6.00	34.90	399.6	8.6	6.0	10.5	3.00	3.00	
500.0	9.00	34.90	498.8	19.3	13.5	23.5	3.00	3.00	
600.0	12.00	34.90	597.1	34.2	23.9	41.7	3.00	3.00	
700.0	15.00	34.90	694.3	53.4	37.2	65.1	3.00	3.00	
800.0	18.00	34.90	790.2	76.7	53.5	93.5	3.00	3.00	
900.0	21.00	34.90	884.4	104.0	72.6	126.9	3.00	3.00	
949.3	22.48	34.90	930.3	119.0	83.0	145.1	3.00	3.00	EOB at Inc. = 22.48°
1,000.0	22.48	34.90	977.1	134.9	94.1	164.5	0.00	0.00	
1,100.0	22.48	34.90	1,069.5	166.3	116.0	202.7	0.00	0.00	
1,133.0	22.48	34.90	1,100.0	176.6	123.2	215.4	0.00	0.00	Surface Casing
1,200.0	22.48	34.90	1,161.9	197.6	137.9	241.0	0.00	0.00	
1,300.0	22.48	34.90	1,254.3	229.0	159.7	279.2	0.00	0.00	
1,400.0	22.48	34.90	1,346.7	260.4	181.6	317.4	0.00	0.00	
1,500.0	22.48	34.90	1,439.1	291.7	203.5	355.7	0.00	0.00	
1,600.0	22.48	34.90	1,531.5	323.1	225.4	393.9	0.00	0.00	
1,700.0	22.48	34.90	1,623.9	354.5	247.2	432.2	0.00	0.00	
1,800.0	22.48	34.90	1,716.3	385.8	269.1	470.4	0.00	0.00	
1,900.0	22.48	34.90	1,808.7	417.2	291.0	508.6	0.00	0.00	
2,000.0	22.48	34.90	1,901.1	448.5	312.9	546.9	0.00	0.00	
2,100.0	22.48	34.90	1,993.5	479.9	334.7	585.1	0.00	0.00	
2,200.0	22.48	34.90	2,085.9	511.3	356.6	623.3	0.00	0.00	
2,262.9	22.48	34.90	2,144.0	531.0	370.4	647.4	0.00	0.00	Ohio Creek
2,300.0	22.48	34.90	2,178.3	542.6	378.5	661.6	0.00	0.00	
2,400.0	22.48	34.90	2,270.7	574.0	400.4	699.8	0.00	0.00	
2,500.0	22.48	34.90	2,363.1	605.3	422.2	738.1	0.00	0.00	
2,600.0	22.48	34.90	2,455.5	636.7	444.1	776.3	0.00	0.00	
2,700.0	22.48	34.90	2,547.9	668.1	466.0	814.5	0.00	0.00	
2,800.0	22.48	34.90	2,640.3	699.4	487.9	852.8	0.00	0.00	
2,896.0	22.48	34.90	2,729.0	729.5	508.9	889.5	0.00	0.00	Mesa Verde
2,900.0	22.48	34.90	2,732.7	730.8	509.7	891.0	0.00	0.00	
3,000.0	22.48	34.90	2,825.1	762.2	531.6	929.2	0.00	0.00	
3,100.0	22.48	34.90	2,917.5	793.5	553.5	967.5	0.00	0.00	
3,200.0	22.48	34.90	3,009.9	824.9	575.3	1,005.7	0.00	0.00	
3,300.0	22.48	34.90	3,102.3	856.2	597.2	1,043.9	0.00	0.00	
3,400.0	22.48	34.90	3,194.7	887.6	619.1	1,082.2	0.00	0.00	
3,442.2	22.48	34.90	3,233.7	900.8	628.3	1,098.3	0.00	0.00	Start Drop -3.00
3,500.0	20.75	34.90	3,287.4	918.3	640.5	1,119.6	3.00	-3.00	
3,549.6	19.26	34.90	3,334.0	932.2	650.2	1,136.6	3.00	-3.00	Williams Fork
3,600.0	17.75	34.90	3,381.8	945.3	659.4	1,152.6	3.00	-3.00	
3,700.0	14.75	34.90	3,477.8	968.3	675.4	1,180.5	3.00	-3.00	
3,800.0	11.75	34.90	3,575.1	987.1	688.5	1,203.5	3.00	-3.00	
3,900.0	8.75	34.90	3,673.5	1,001.7	698.7	1,221.2	3.00	-3.00	
4,000.0	5.75	34.90	3,772.7	1,012.0	705.9	1,233.9	3.00	-3.00	
4,100.0	2.75	34.90	3,872.4	1,018.1	710.1	1,241.3	3.00	-3.00	
4,191.6	0.00	0.00	3,964.0	1,019.9	711.4	1,243.5	3.00	-3.00	EOD at Inc. = 0° - Top of Gas - Twin Creek 1-9C
4,200.0	0.00	0.00	3,972.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,300.0	0.00	0.00	4,072.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,400.0	0.00	0.00	4,172.4	1,019.9	711.4	1,243.5	0.00	0.00	

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Twin Creek 1-9C1 (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 1-9C1 (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	4,272.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,600.0	0.00	0.00	4,372.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,700.0	0.00	0.00	4,472.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,800.0	0.00	0.00	4,572.4	1,019.9	711.4	1,243.5	0.00	0.00	
4,900.0	0.00	0.00	4,672.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,000.0	0.00	0.00	4,772.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,100.0	0.00	0.00	4,872.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,200.0	0.00	0.00	4,972.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,300.0	0.00	0.00	5,072.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,400.0	0.00	0.00	5,172.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,500.0	0.00	0.00	5,272.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,600.0	0.00	0.00	5,372.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,700.0	0.00	0.00	5,472.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,800.0	0.00	0.00	5,572.4	1,019.9	711.4	1,243.5	0.00	0.00	
5,896.6	0.00	0.00	5,669.0	1,019.9	711.4	1,243.5	0.00	0.00	Coal Ridge
5,900.0	0.00	0.00	5,672.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,000.0	0.00	0.00	5,772.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,046.6	0.00	0.00	5,819.0	1,019.9	711.4	1,243.5	0.00	0.00	TD at 6046' MD - Twin Creek 1-9C1 (O1EB) B-
6,100.0	0.00	0.00	5,872.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,200.0	0.00	0.00	5,972.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,300.0	0.00	0.00	6,072.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,400.0	0.00	0.00	6,172.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,500.0	0.00	0.00	6,272.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,600.0	0.00	0.00	6,372.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,621.6	0.00	0.00	6,394.0	1,019.9	711.4	1,243.5	0.00	0.00	Rollins
6,700.0	0.00	0.00	6,472.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,800.0	0.00	0.00	6,572.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,900.0	0.00	0.00	6,672.4	1,019.9	711.4	1,243.5	0.00	0.00	
6,921.6	0.00	0.00	6,694.0	1,019.9	711.4	1,243.5	0.00	0.00	Permit TD at 6921' 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 1-9C1 (O1E	0.00	0.00	3,964.0	1,019.9	711.4	1,604,543.60	2,404,473.70	39.474250	-107.609850	
- plan hits target center										
- Point										
Twin Creek 1-9C1 (O1E	0.00	0.00	5,819.0	1,019.9	711.4	1,604,543.60	2,404,473.70	39.474250	-107.609850	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,133.0	1,100.0	Surface Casing	5.500	6.000	

Planning Report

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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 1-9C1 (O1EB Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,262.9	2,144.0	Ohio Creek				
2,896.0	2,729.0	Mesa Verde				
3,549.6	3,334.0	Williams Fork				
4,191.6	3,964.0	Top of Gas				
5,896.6	5,669.0	Coal Ridge				
6,621.6	6,394.0	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	
949.3	930.3	119.0	83.0	EOB at Inc. = 22.48°	
3,442.2	3,233.7	900.8	628.3	Start Drop -3.00	
4,191.6	3,964.0	1,019.9	711.4	EOD at Inc. = 0°	
6,046.6	5,819.0	1,019.9	711.4	TD at 6046' MD	
6,921.6	6,694.0	1,019.9	711.4	Permit TD at 6921' MD	