

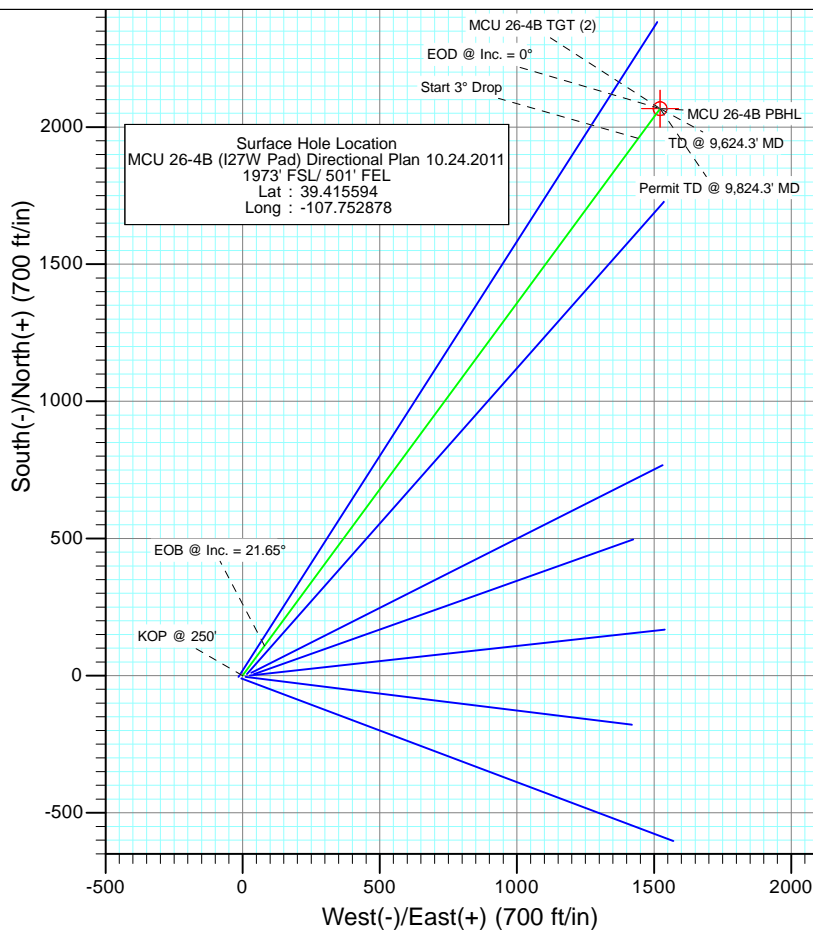
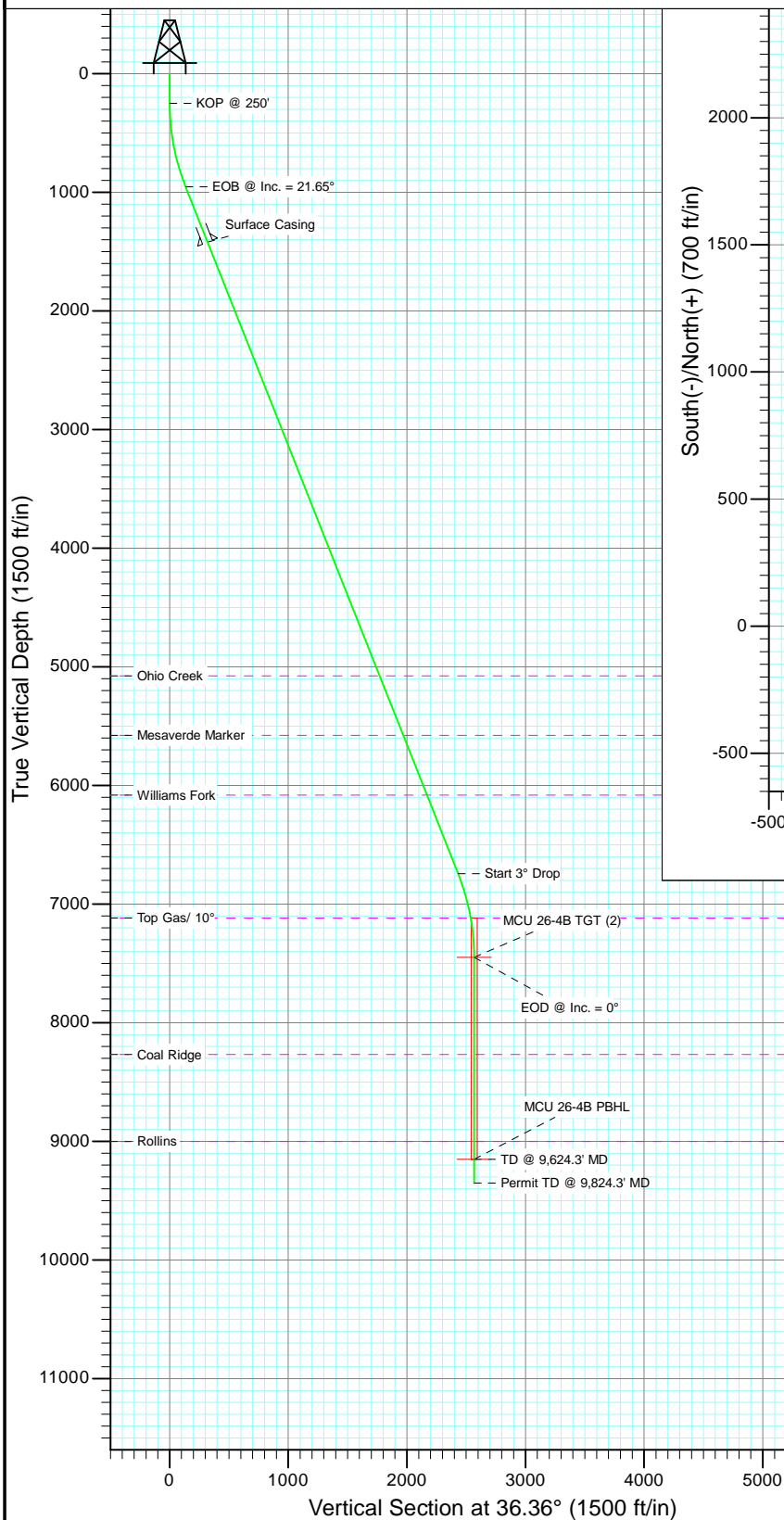


Project: Mamm Creek  
 Site: I27W  
 Well: MCU 26-4B (I27W Pad) Directional Plan 10.24.2011  
 Wellbore: OH  
 Design: Plan #2



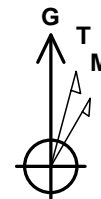
#### SECTION DETAILS

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	250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	
3	971.5	21.65	36.36	954.5	108.5	79.8	3.00	36.36	134.7	
4	7200.4	21.65	36.36	6744.1	1958.7	1442.0	0.00	0.00	2432.2	
5	7921.9	0.00	360.00	7448.6	2067.1	1521.9	3.00	180.00	2566.9	MCU 26-4B TGT (2)
6	9624.3	0.00	360.00	9151.0	2067.1	1521.9	0.00	360.00	2566.9	MCU 26-4B PBHL
7	9824.3	0.00	360.00	9351.0	2067.1	1521.9	0.00	360.00	2566.9	



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5076.0	5405.7	Ohio Creek
5577.0	5944.7	Mesaverde Marker
6081.0	6487.0	Williams Fork
7117.0	7588.6	Top Gas/ 10°
8267.0	8740.3	Coal Ridge
9001.0	9474.3	Rollins



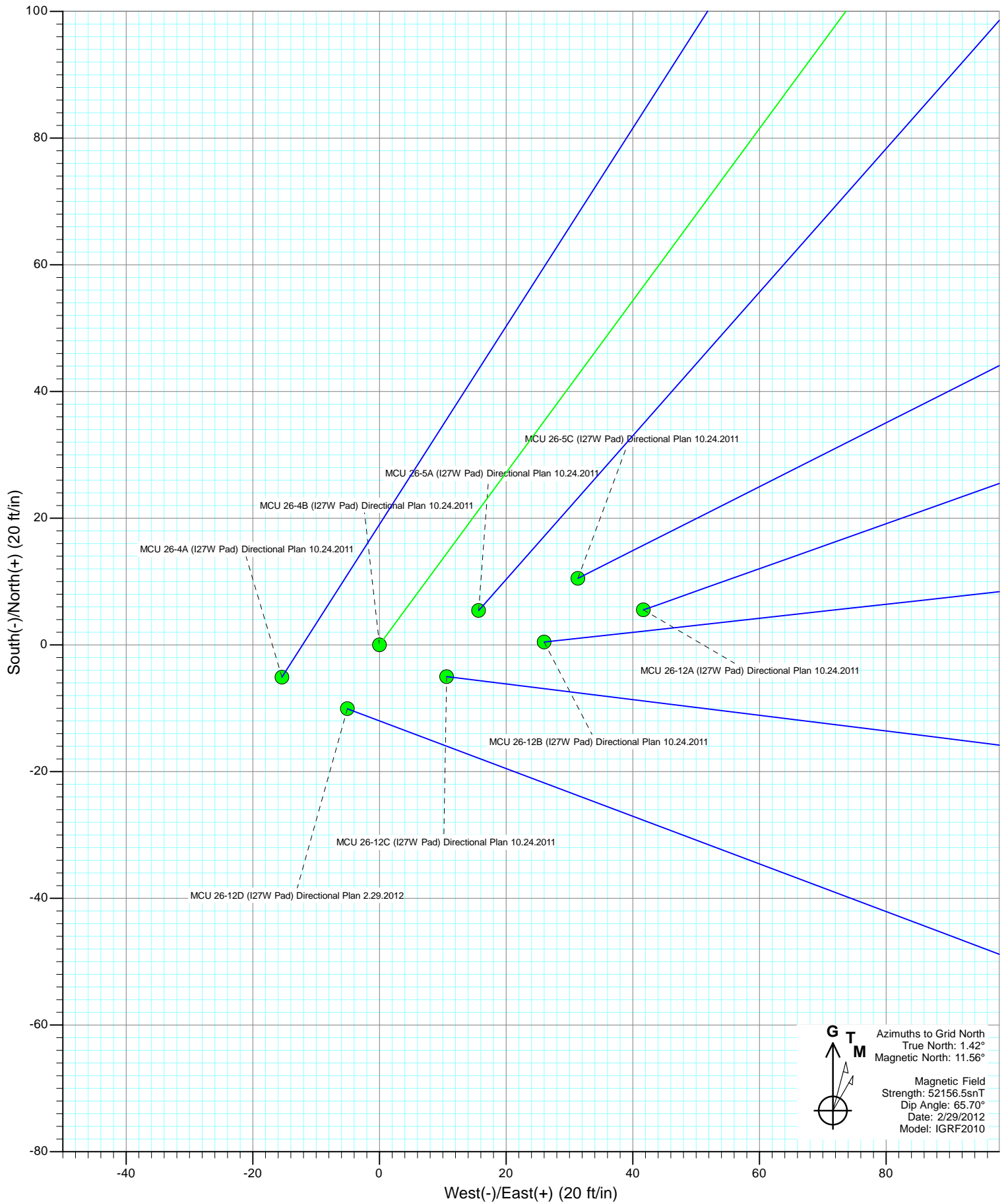
Azimuths to Grid North  
 True North: 1.42°  
 Magnetic North: 11.56°

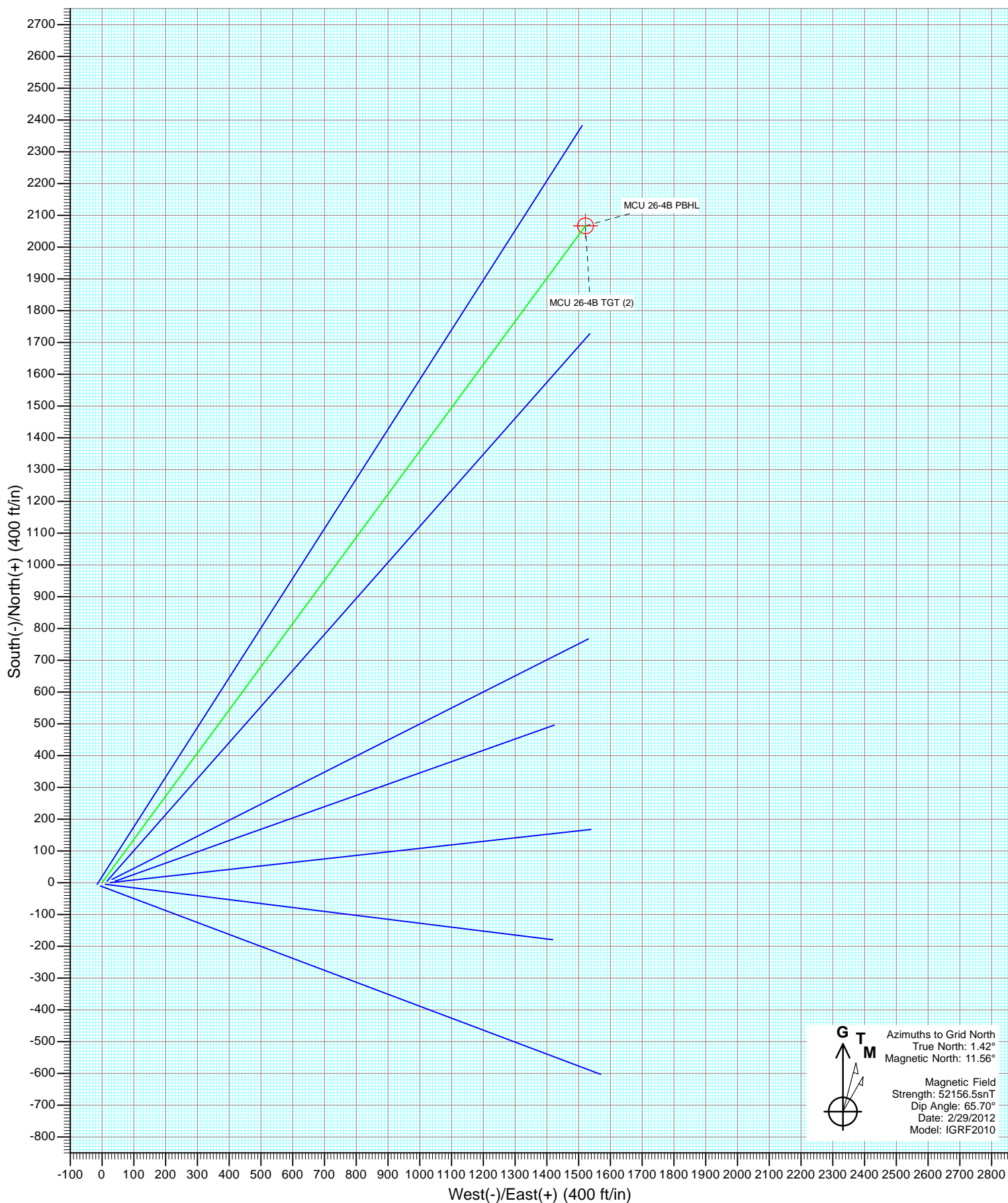
Magnetic Field  
 Strength: 52156.5nT  
 Dip Angle: 65.70°  
 Date: 2/29/2012  
 Model: IGRF2010

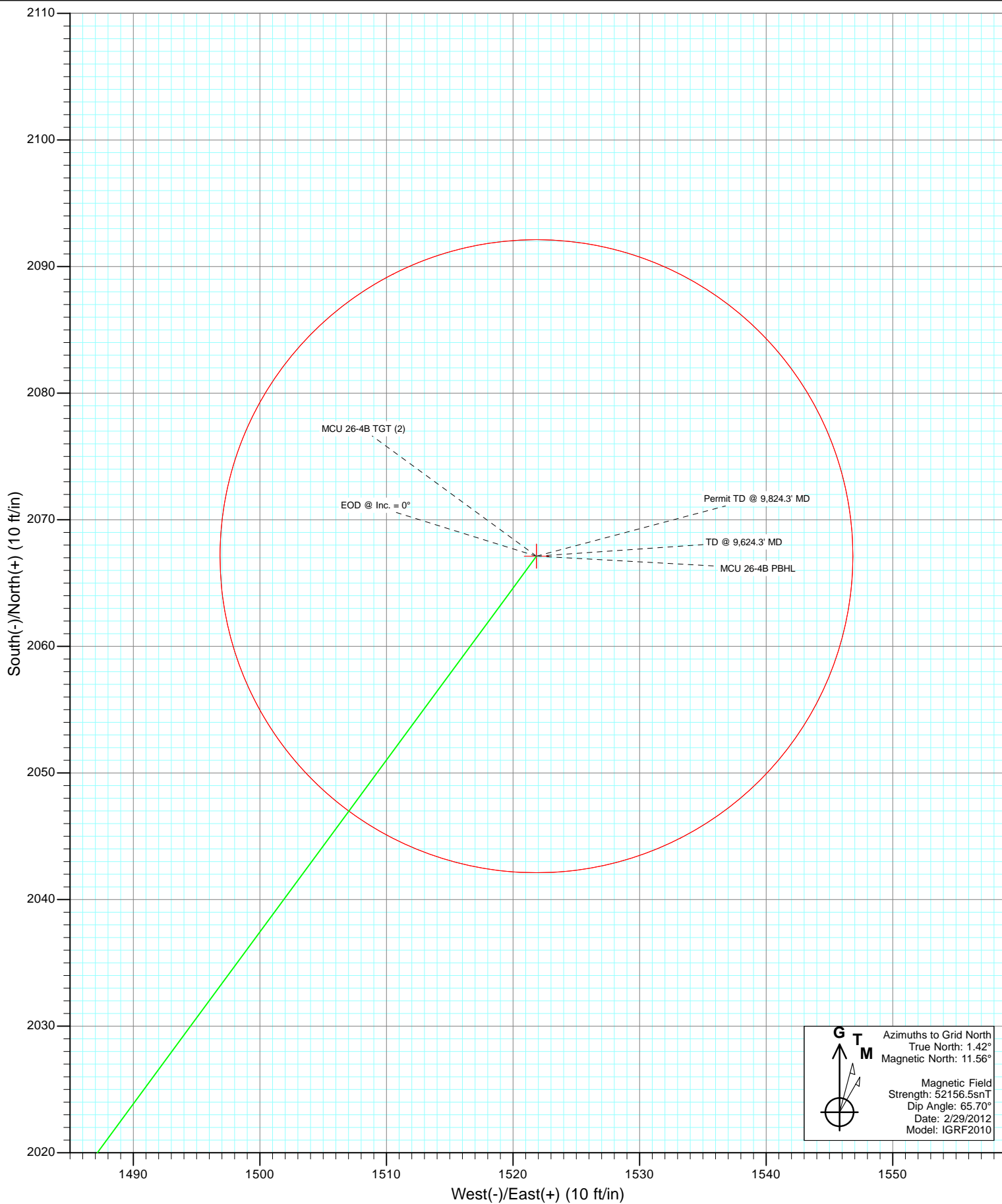
Plan #2  
 MCU 26-4B (I27W Pad) Directional Plan 10.24.2011  
 125XXX; SC

KBE @ 7223.0ft (Original Well Elev)  
 North American Datum 1983  
 Well MCU 26-4B (I27W Pad) Directional Plan 10.24.2011, Grid North

Target	Azimuth	Origin	Type	N/S	E/W
No Target (Freehand)	36.36	Slot		0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 26-4B TGT (2)	7448.6	2067.1	1521.9	39.421371	-107.747674
MCU 26-4B PBHL	9151.0	2067.1	1521.9	39.421371	-107.747674







# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 26-4B (I27W Pad) Directional Plan 10
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Site:</b>	I27W	<b>North Reference:</b>	Grid
<b>Well:</b>	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

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		I27W			
Site Position:		Northing:	1,584,160.49 ft	Latitude:	39.415612
From:	Lat/Long	Easting:	2,363,622.14 ft	Longitude:	-107.752731
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.42 °

Well	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011					
Well Position	+N/-S	0.0 ft	Northing:	1,584,154.96 ft	Latitude:	39.415594
	+E/-W	0.0 ft	Easting:	2,363,580.45 ft	Longitude:	-107.752878
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,201.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/29/2012	10.14	65.70	52,156

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	36.36

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	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
971.5	21.65	36.36	954.5	108.5	79.8	3.00	3.00	0.00	36.36	
7,200.4	21.65	36.36	6,744.1	1,958.7	1,442.0	0.00	0.00	0.00	0.00	
7,921.9	0.00	360.00	7,448.6	2,067.1	1,521.9	3.00	-3.00	0.00	180.00	MCU 26-4B TGT (2)
9,624.3	0.00	360.00	9,151.0	2,067.1	1,521.9	0.00	0.00	0.00	360.00	MCU 26-4B PBHL
9,824.3	0.00	360.00	9,351.0	2,067.1	1,521.9	0.00	0.00	0.00	360.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 26-4B (I27W Pad) Directional Plan 10
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Site:</b>	I27W	<b>North Reference:</b>	Grid
<b>Well:</b>	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

### 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	
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	KOP @ 250'
300.0	1.50	36.36	300.0	0.5	0.4	0.7	3.00	3.00	
400.0	4.50	36.36	399.8	4.7	3.5	5.9	3.00	3.00	
500.0	7.50	36.36	499.3	13.2	9.7	16.3	3.00	3.00	
600.0	10.50	36.36	598.0	25.8	19.0	32.0	3.00	3.00	
700.0	13.50	36.36	695.8	42.5	31.3	52.8	3.00	3.00	
800.0	16.50	36.36	792.4	63.3	46.6	78.6	3.00	3.00	
900.0	19.50	36.36	887.5	88.2	64.9	109.5	3.00	3.00	
971.5	21.65	36.36	954.5	108.5	79.8	134.7	3.00	3.00	EOB @ Inc. = 21.65°
1,000.0	21.65	36.36	981.0	116.9	86.1	145.2	0.00	0.00	
1,100.0	21.65	36.36	1,073.9	146.6	107.9	182.1	0.00	0.00	
1,200.0	21.65	36.36	1,166.8	176.3	129.8	219.0	0.00	0.00	
1,300.0	21.65	36.36	1,259.8	206.0	151.7	255.8	0.00	0.00	
1,400.0	21.65	36.36	1,352.7	235.7	173.5	292.7	0.00	0.00	
1,472.6	21.65	36.36	1,420.3	257.3	189.4	319.5	0.00	0.00	Surface Casing
1,500.0	21.65	36.36	1,445.7	265.4	195.4	329.6	0.00	0.00	
1,600.0	21.65	36.36	1,538.6	295.1	217.3	366.5	0.00	0.00	
1,700.0	21.65	36.36	1,631.6	324.8	239.2	403.4	0.00	0.00	
1,800.0	21.65	36.36	1,724.5	354.5	261.0	440.3	0.00	0.00	
1,900.0	21.65	36.36	1,817.5	384.2	282.9	477.2	0.00	0.00	
2,000.0	21.65	36.36	1,910.4	414.0	304.8	514.0	0.00	0.00	
2,100.0	21.65	36.36	2,003.4	443.7	326.6	550.9	0.00	0.00	
2,200.0	21.65	36.36	2,096.3	473.4	348.5	587.8	0.00	0.00	
2,300.0	21.65	36.36	2,189.3	503.1	370.4	624.7	0.00	0.00	
2,400.0	21.65	36.36	2,282.2	532.8	392.2	661.6	0.00	0.00	
2,500.0	21.65	36.36	2,375.2	562.5	414.1	698.5	0.00	0.00	
2,600.0	21.65	36.36	2,468.1	592.2	436.0	735.4	0.00	0.00	
2,700.0	21.65	36.36	2,561.1	621.9	457.8	772.2	0.00	0.00	
2,800.0	21.65	36.36	2,654.0	651.6	479.7	809.1	0.00	0.00	
2,900.0	21.65	36.36	2,747.0	681.3	501.6	846.0	0.00	0.00	
3,000.0	21.65	36.36	2,839.9	711.0	523.4	882.9	0.00	0.00	
3,100.0	21.65	36.36	2,932.9	740.7	545.3	919.8	0.00	0.00	
3,200.0	21.65	36.36	3,025.8	770.4	567.2	956.7	0.00	0.00	
3,300.0	21.65	36.36	3,118.8	800.1	589.1	993.6	0.00	0.00	
3,400.0	21.65	36.36	3,211.7	829.8	610.9	1,030.4	0.00	0.00	
3,500.0	21.65	36.36	3,304.7	859.5	632.8	1,067.3	0.00	0.00	
3,600.0	21.65	36.36	3,397.6	889.2	654.7	1,104.2	0.00	0.00	
3,700.0	21.65	36.36	3,490.6	918.9	676.5	1,141.1	0.00	0.00	
3,800.0	21.65	36.36	3,583.5	948.6	698.4	1,178.0	0.00	0.00	
3,900.0	21.65	36.36	3,676.5	978.3	720.3	1,214.9	0.00	0.00	
4,000.0	21.65	36.36	3,769.4	1,008.0	742.1	1,251.8	0.00	0.00	
4,100.0	21.65	36.36	3,862.4	1,037.7	764.0	1,288.6	0.00	0.00	
4,200.0	21.65	36.36	3,955.3	1,067.4	785.9	1,325.5	0.00	0.00	
4,300.0	21.65	36.36	4,048.3	1,097.1	807.7	1,362.4	0.00	0.00	
4,400.0	21.65	36.36	4,141.2	1,126.8	829.6	1,399.3	0.00	0.00	
4,500.0	21.65	36.36	4,234.2	1,156.5	851.5	1,436.2	0.00	0.00	
4,600.0	21.65	36.36	4,327.1	1,186.3	873.3	1,473.1	0.00	0.00	
4,700.0	21.65	36.36	4,420.1	1,216.0	895.2	1,510.0	0.00	0.00	
4,800.0	21.65	36.36	4,513.0	1,245.7	917.1	1,546.8	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 26-4B (I27W Pad) Directional Plan 10
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Site:</b>	I27W	<b>North Reference:</b>	Grid
<b>Well:</b>	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

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
4,900.0	21.65	36.36	4,605.9	1,275.4	938.9	1,583.7	0.00	0.00	
5,000.0	21.65	36.36	4,698.9	1,305.1	960.8	1,620.6	0.00	0.00	
5,100.0	21.65	36.36	4,791.8	1,334.8	982.7	1,657.5	0.00	0.00	
5,200.0	21.65	36.36	4,884.8	1,364.5	1,004.6	1,694.4	0.00	0.00	
5,300.0	21.65	36.36	4,977.7	1,394.2	1,026.4	1,731.3	0.00	0.00	
5,400.0	21.65	36.36	5,070.7	1,423.9	1,048.3	1,768.2	0.00	0.00	
5,405.7	21.65	36.36	5,076.0	1,425.6	1,049.5	1,770.3	0.00	0.00	Ohio Creek
5,500.0	21.65	36.36	5,163.6	1,453.6	1,070.2	1,805.0	0.00	0.00	
5,600.0	21.65	36.36	5,256.6	1,483.3	1,092.0	1,841.9	0.00	0.00	
5,700.0	21.65	36.36	5,349.5	1,513.0	1,113.9	1,878.8	0.00	0.00	
5,800.0	21.65	36.36	5,442.5	1,542.7	1,135.8	1,915.7	0.00	0.00	
5,900.0	21.65	36.36	5,535.4	1,572.4	1,157.6	1,952.6	0.00	0.00	
5,944.7	21.65	36.36	5,577.0	1,585.7	1,167.4	1,969.1	0.00	0.00	Mesaverde Marker
6,000.0	21.65	36.36	5,628.4	1,602.1	1,179.5	1,989.5	0.00	0.00	
6,100.0	21.65	36.36	5,721.3	1,631.8	1,201.4	2,026.4	0.00	0.00	
6,200.0	21.65	36.36	5,814.3	1,661.5	1,223.2	2,063.2	0.00	0.00	
6,300.0	21.65	36.36	5,907.2	1,691.2	1,245.1	2,100.1	0.00	0.00	
6,400.0	21.65	36.36	6,000.2	1,720.9	1,267.0	2,137.0	0.00	0.00	
6,487.0	21.65	36.36	6,081.0	1,746.8	1,286.0	2,169.1	0.00	0.00	Williams Fork
6,500.0	21.65	36.36	6,093.1	1,750.6	1,288.8	2,173.9	0.00	0.00	
6,600.0	21.65	36.36	6,186.1	1,780.3	1,310.7	2,210.8	0.00	0.00	
6,700.0	21.65	36.36	6,279.0	1,810.0	1,332.6	2,247.7	0.00	0.00	
6,800.0	21.65	36.36	6,372.0	1,839.7	1,354.5	2,284.6	0.00	0.00	
6,900.0	21.65	36.36	6,464.9	1,869.4	1,376.3	2,321.4	0.00	0.00	
7,000.0	21.65	36.36	6,557.9	1,899.1	1,398.2	2,358.3	0.00	0.00	
7,100.0	21.65	36.36	6,650.8	1,928.8	1,420.1	2,395.2	0.00	0.00	
7,200.4	21.65	36.36	6,744.1	1,958.7	1,442.0	2,432.2	0.00	0.00	Start 3° Drop
7,300.0	18.66	36.36	6,837.6	1,986.3	1,462.4	2,466.5	3.00	-3.00	
7,400.0	15.66	36.36	6,933.2	2,010.1	1,479.8	2,496.0	3.00	-3.00	
7,500.0	12.66	36.36	7,030.1	2,029.7	1,494.3	2,520.5	3.00	-3.00	
7,588.6	10.00	36.36	7,117.0	2,043.8	1,504.7	2,537.9	3.00	-3.00	Top Gas/ 10°
7,600.0	9.66	36.36	7,128.2	2,045.3	1,505.8	2,539.8	3.00	-3.00	
7,700.0	6.66	36.36	7,227.2	2,056.8	1,514.2	2,554.0	3.00	-3.00	
7,800.0	3.66	36.36	7,326.8	2,064.0	1,519.6	2,563.0	3.00	-3.00	
7,900.0	0.66	36.36	7,426.7	2,067.0	1,521.8	2,566.8	3.00	-3.00	
7,921.9	0.00	360.00	7,448.6	2,067.1	1,521.9	2,566.9	3.00	-3.00	EOD @ Inc. = 0°
8,000.0	0.00	360.00	7,526.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,100.0	0.00	360.00	7,626.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,200.0	0.00	360.00	7,726.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,300.0	0.00	360.00	7,826.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,400.0	0.00	360.00	7,926.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,500.0	0.00	360.00	8,026.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,600.0	0.00	360.00	8,126.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,700.0	0.00	360.00	8,226.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,740.3	0.00	360.00	8,267.0	2,067.1	1,521.9	2,566.9	0.00	0.00	Coal Ridge
8,800.0	0.00	360.00	8,326.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
8,900.0	0.00	360.00	8,426.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,000.0	0.00	360.00	8,526.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,100.0	0.00	360.00	8,626.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,200.0	0.00	360.00	8,726.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,300.0	0.00	360.00	8,826.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,400.0	0.00	360.00	8,926.7	2,067.1	1,521.9	2,566.9	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 26-4B (I27W Pad) Directional Plan 10
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Site:</b>	I27W	<b>North Reference:</b>	Grid
<b>Well:</b>	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

### 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
9,474.3	0.00	360.00	9,001.0	2,067.1	1,521.9	2,566.9	0.00	0.00	Rollins
9,500.0	0.00	360.00	9,026.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,600.0	0.00	360.00	9,126.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,624.3	0.00	360.00	9,151.0	2,067.1	1,521.9	2,566.9	0.00	0.00	TD @ 9,624.3' MD
9,700.0	0.00	360.00	9,226.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,800.0	0.00	360.00	9,326.7	2,067.1	1,521.9	2,566.9	0.00	0.00	
9,824.3	0.00	360.00	9,351.0	2,067.1	1,521.9	2,566.9	0.00	0.00	Permit TD @ 9,824.3' MD

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
MCU 26-4B TGT - plan hits target center - Point	0.00	360.00	7,614.5	2,067.1	1,521.9	1,586,222.08	2,365,102.31	39.421371	-107.747674
MCU 26-4B TGT (2) - plan hits target center - Point	0.00	360.00	7,448.6	2,067.1	1,521.9	1,586,222.08	2,365,102.31	39.421371	-107.747674
MCU 26-4B PBHL - plan hits target center - Circle (radius 25.0)	0.00	360.00	9,151.0	2,067.1	1,521.9	1,586,222.08	2,365,102.31	39.421371	-107.747674

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,472.6	1,420.3	Surface Casing	5.500	6.000

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,405.7	5,076.0	Ohio Creek			
5,944.7	5,577.0	Mesaverde Marker			
6,487.0	6,081.0	Williams Fork			
7,588.6	7,117.0	Top Gas/ 10°			
8,740.3	8,267.0	Coal Ridge			
9,474.3	9,001.0	Rollins			



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 26-4B (I27W Pad) Directional Plan 10
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7223.0ft (Original Well Elev)
<b>Site:</b>	I27W	<b>North Reference:</b>	Grid
<b>Well:</b>	MCU 26-4B (I27W Pad) Directional Plan 10.24.2011	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
250.0	250.0	0.0	0.0	KOP @ 250'
971.5	954.5	108.5	79.8	EOB @ Inc. = 21.65°
7,200.4	6,744.1	1,958.7	1,442.0	Start 3° Drop
7,921.9	7,448.6	2,067.1	1,521.9	EOD @ Inc. = 0°
9,624.3	9,151.0	2,067.1	1,521.9	TD @ 9,624.3' MD
9,824.3	9,351.0	2,067.1	1,521.9	Permit TD @ 9,824.3' MD