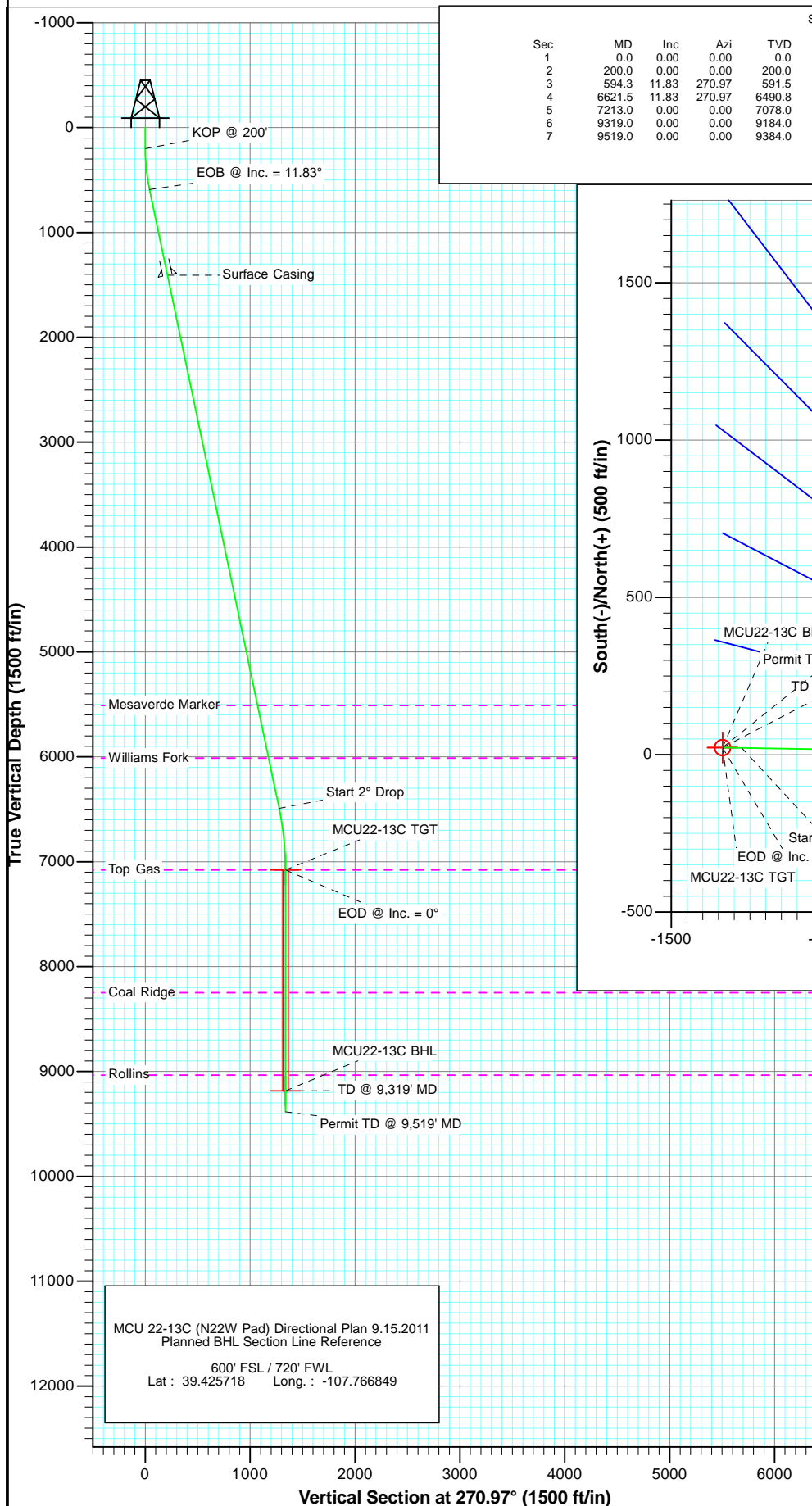


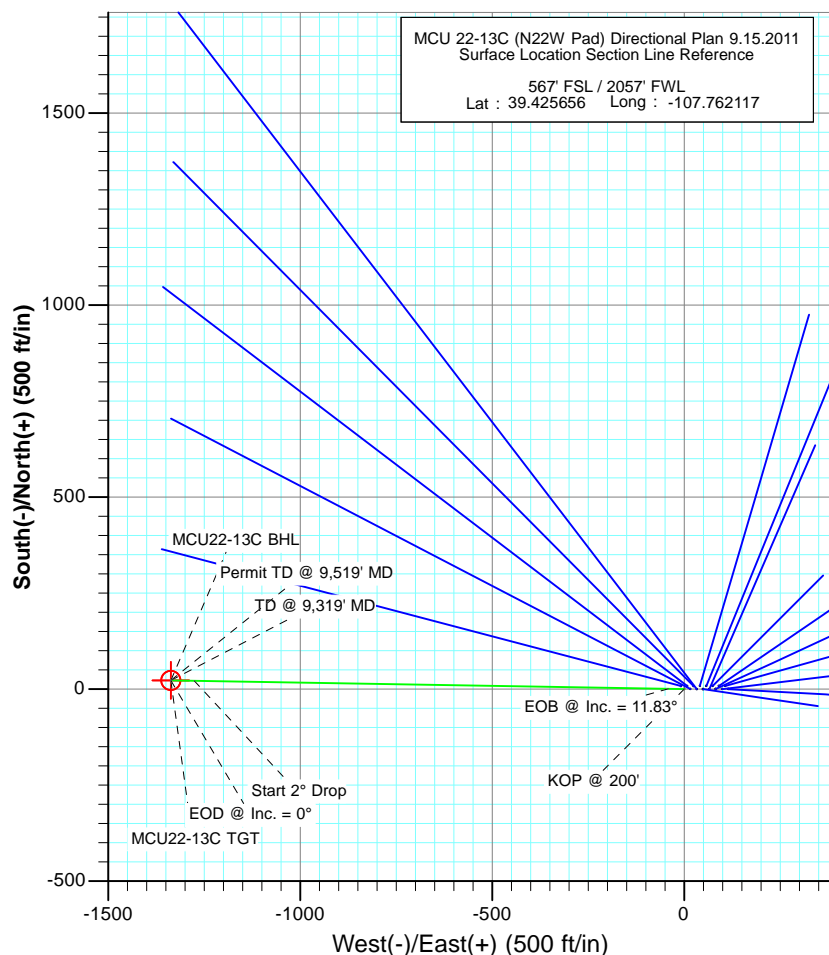


Project: Mamm Creek
Site: N22W Pad Plan #1 (MCU 22-13C (N22W Pac
Well: MCU 22-13C (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Plan: Plan #1



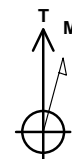
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	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	594.3	11.83	270.97	591.5	0.7	-40.6	3.00	270.97	40.6	
4	6621.5	11.83	270.97	6490.8	21.6	-1275.9	0.00	0.00	1276.1	
5	7213.0	0.00	0.00	7078.0	22.6	-1336.7	2.00	180.00	1336.9	MCU22-13C TGT
6	9319.0	0.00	0.00	9184.0	22.6	-1336.7	0.00	0.00	1336.9	MCU22-13C BHL
7	9519.0	0.00	0.00	9384.0	22.6	-1336.7	0.00	0.00	1336.9	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5510.0	5619.5	Mesaverde Marker
6011.0	6131.4	Williams Fork
7078.0	7213.0	Top Gas
8248.0	8383.0	Coal Ridge
9034.0	9169.0	Rollins



Azimuths to True North
Magnetic North: 10.18°

Magnetic Field
Strength: 52240.6snT
Dip Angle: 65.73°
Date: 9/20/2011
Model: IGRF200510

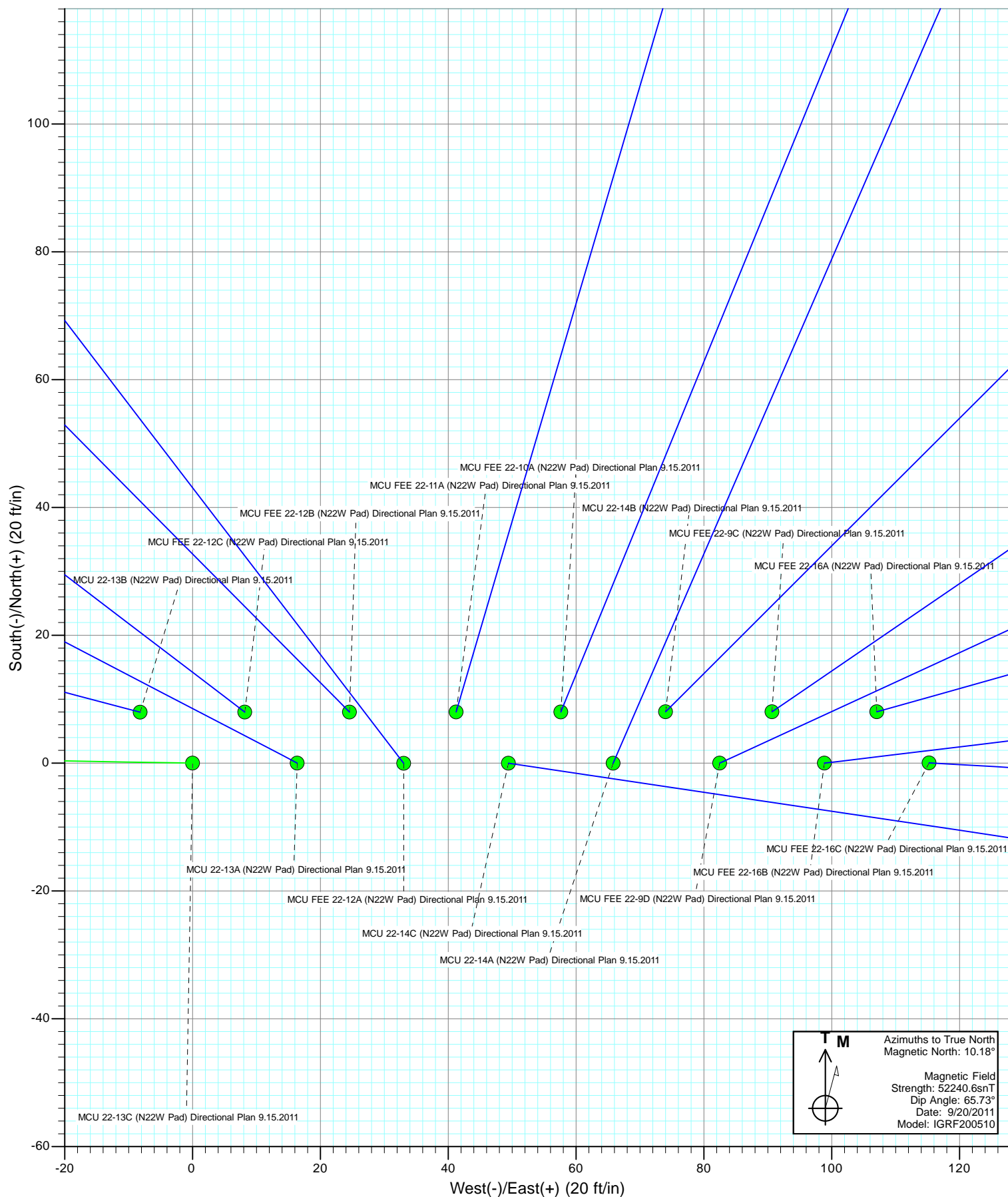
DESIGN DETAILS: Plan #1

115XXX; SC
KBE @ 7048.0ft (Original Well Elev)

No Target (Freehand)	270.97 Azimuth	Origin Type	N/S	E/W
		Slot	0.0	0.0

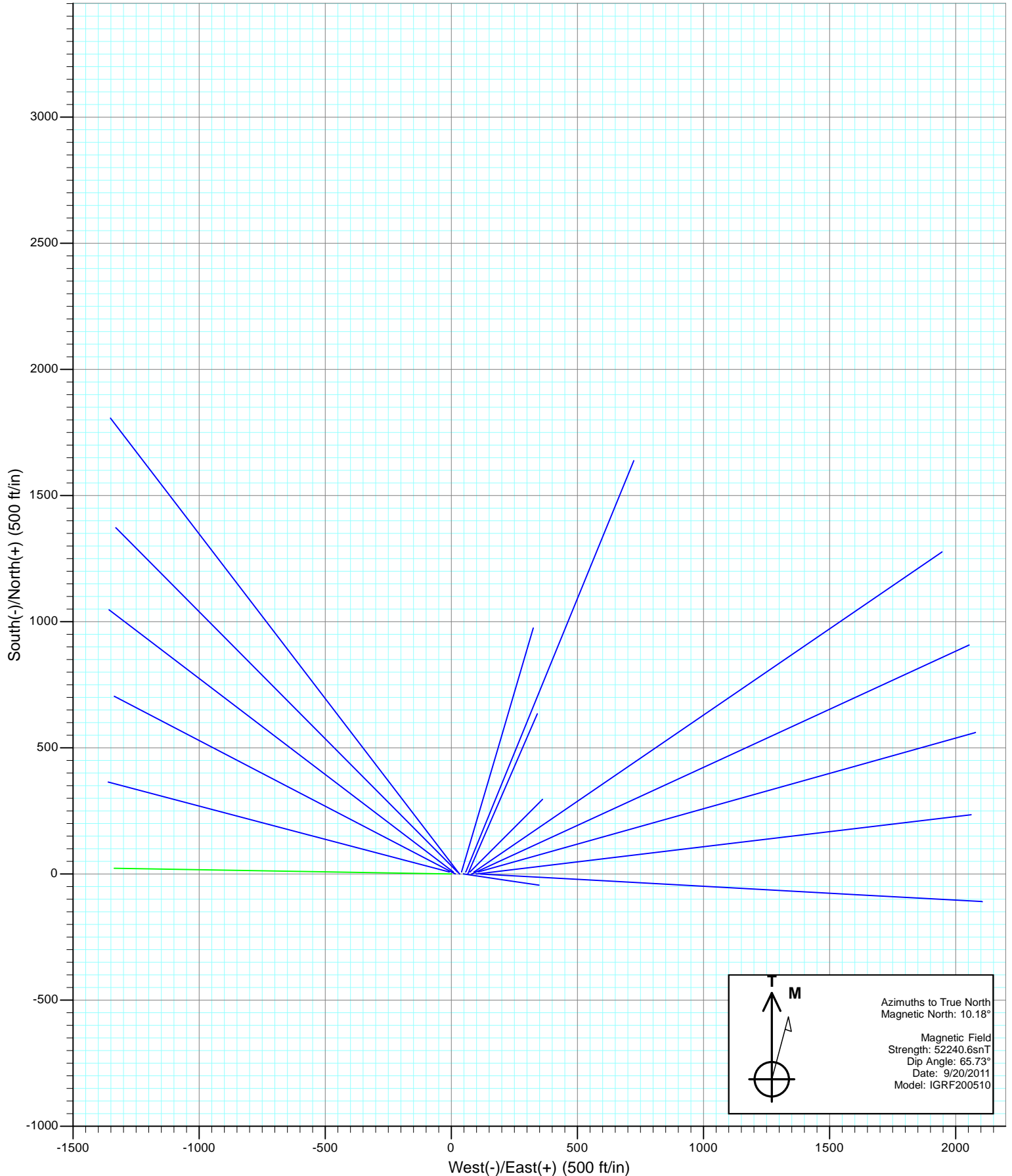


Project: Mamm Creek
Site: N22W Pad
Well: MCU 22-13C (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Design: Plan #1



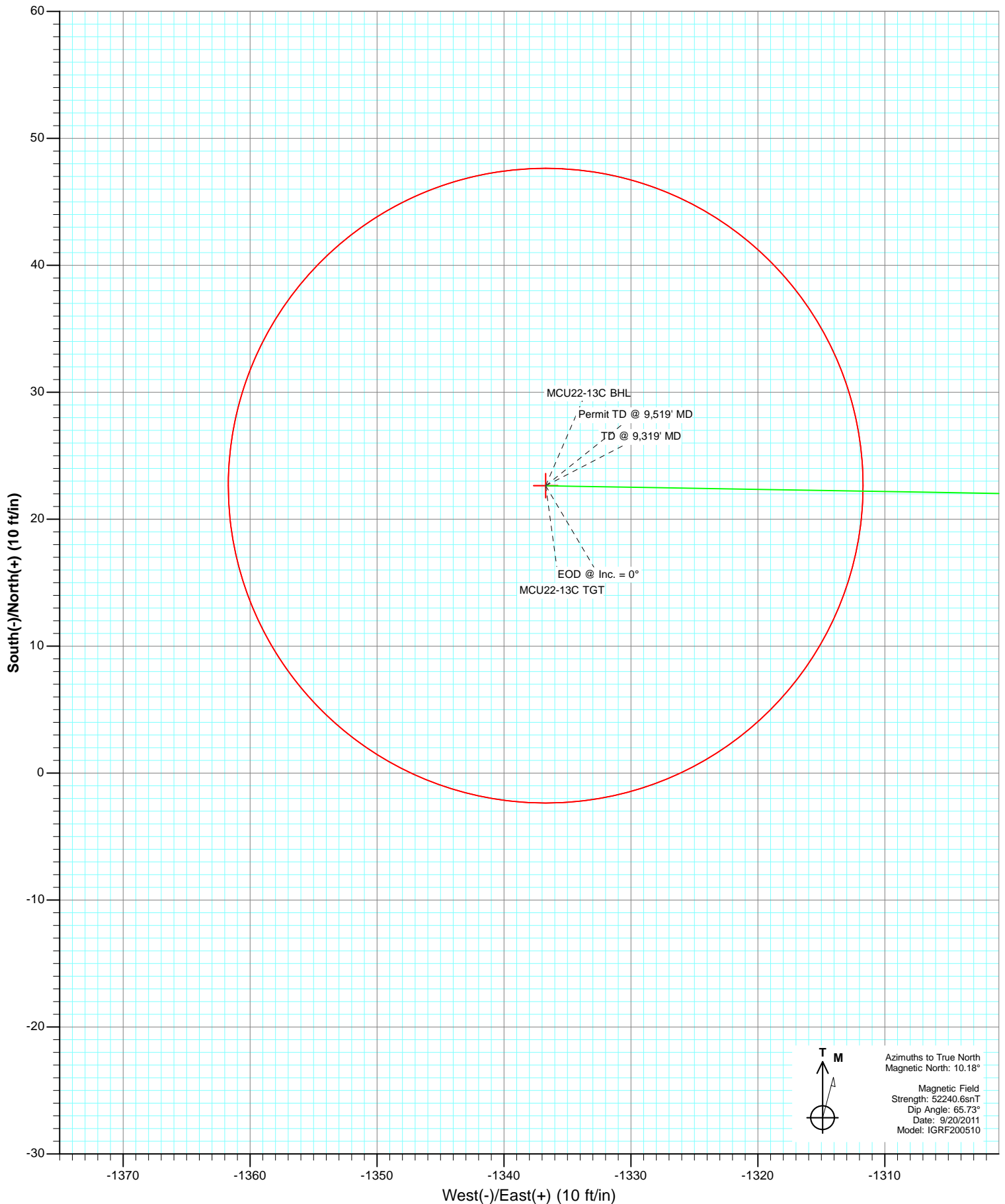


Project: Mamm Creek
Site: N22W Pad
Well: MCU 22-13C (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Design: Plan #1





Project: Mamm Creek
Site: N22W Pad Plan #1 (MCU 22-13C (N22W Pad
Well: MCU 22-13C (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Plan: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU22-13C (N22W Pad) Directional Plan 9
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7048.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7048.0ft (Original Well Elev)
Site:	N22W Pad	North Reference:	True
Well:	MCU22-13C (N22W Pad) Directional Plan 9.15.2011	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		N22W Pad			
Site Position:		Northing:	1,587,880.73 ft	Latitude:	39.425656
From:	Lat/Long	Easting:	2,361,177.49 ft	Longitude:	-107.761709
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.43 °

Well	MCU22-13C (N22W Pad) Directional Plan 9.15.2011					
Well Position	+N/-S	0.0 ft	Northing:	1,587,883.58 ft	Latitude:	39.425656
	+E/-W	0.0 ft	Easting:	2,361,062.28 ft	Longitude:	-107.762117
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,026.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/20/2011	10.18	65.73	52,241

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	270.97

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	
594.3	11.83	270.97	591.5	0.7	-40.6	3.00	3.00	0.00	270.97	
6,621.5	11.83	270.97	6,490.8	21.6	-1,275.9	0.00	0.00	0.00	0.00	
7,213.0	0.00	0.00	7,078.0	22.6	-1,336.7	2.00	-2.00	0.00	180.00	MCU22-13C TGT
9,319.0	0.00	0.00	9,184.0	22.6	-1,336.7	0.00	0.00	0.00	0.00	MCU22-13C BHL
9,519.0	0.00	0.00	9,384.0	22.6	-1,336.7	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU22-13C (N22W Pad) Directional Plan 9
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7048.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7048.0ft (Original Well Elev)
Site:	N22W Pad	North Reference:	True
Well:	MCU22-13C (N22W Pad) Directional Plan 9.15.2011	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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'
300.0	3.00	270.97	300.0	0.0	-2.6	2.6	3.00	3.00	
400.0	6.00	270.97	399.6	0.2	-10.5	10.5	3.00	3.00	
500.0	9.00	270.97	498.8	0.4	-23.5	23.5	3.00	3.00	
594.3	11.83	270.97	591.5	0.7	-40.6	40.6	3.00	3.00	EOB @ Inc. = 11.83°
600.0	11.83	270.97	597.1	0.7	-41.7	41.7	0.00	0.00	
700.0	11.83	270.97	695.0	1.1	-62.2	62.2	0.00	0.00	
800.0	11.83	270.97	792.8	1.4	-82.7	82.7	0.00	0.00	
900.0	11.83	270.97	890.7	1.7	-103.2	103.2	0.00	0.00	
1,000.0	11.83	270.97	988.6	2.1	-123.7	123.7	0.00	0.00	
1,100.0	11.83	270.97	1,086.5	2.4	-144.2	144.2	0.00	0.00	
1,200.0	11.83	270.97	1,184.3	2.8	-164.7	164.7	0.00	0.00	
1,300.0	11.83	270.97	1,282.2	3.1	-185.2	185.2	0.00	0.00	
1,400.0	11.83	270.97	1,380.1	3.5	-205.7	205.7	0.00	0.00	
1,428.0	11.83	270.97	1,407.5	3.6	-211.4	211.5	0.00	0.00	Surface Casing
1,500.0	11.83	270.97	1,478.0	3.8	-226.2	226.2	0.00	0.00	
1,600.0	11.83	270.97	1,575.8	4.2	-246.7	246.7	0.00	0.00	
1,700.0	11.83	270.97	1,673.7	4.5	-267.2	267.2	0.00	0.00	
1,800.0	11.83	270.97	1,771.6	4.9	-287.7	287.7	0.00	0.00	
1,900.0	11.83	270.97	1,869.5	5.2	-308.2	308.2	0.00	0.00	
2,000.0	11.83	270.97	1,967.4	5.6	-328.7	328.7	0.00	0.00	
2,100.0	11.83	270.97	2,065.2	5.9	-349.2	349.2	0.00	0.00	
2,200.0	11.83	270.97	2,163.1	6.3	-369.7	369.7	0.00	0.00	
2,300.0	11.83	270.97	2,261.0	6.6	-390.1	390.2	0.00	0.00	
2,400.0	11.83	270.97	2,358.9	7.0	-410.6	410.7	0.00	0.00	
2,500.0	11.83	270.97	2,456.7	7.3	-431.1	431.2	0.00	0.00	
2,600.0	11.83	270.97	2,554.6	7.6	-451.6	451.7	0.00	0.00	
2,700.0	11.83	270.97	2,652.5	8.0	-472.1	472.2	0.00	0.00	
2,800.0	11.83	270.97	2,750.4	8.3	-492.6	492.7	0.00	0.00	
2,900.0	11.83	270.97	2,848.2	8.7	-513.1	513.2	0.00	0.00	
3,000.0	11.83	270.97	2,946.1	9.0	-533.6	533.7	0.00	0.00	
3,100.0	11.83	270.97	3,044.0	9.4	-554.1	554.2	0.00	0.00	
3,200.0	11.83	270.97	3,141.9	9.7	-574.6	574.7	0.00	0.00	
3,300.0	11.83	270.97	3,239.7	10.1	-595.1	595.2	0.00	0.00	
3,400.0	11.83	270.97	3,337.6	10.4	-615.6	615.7	0.00	0.00	
3,500.0	11.83	270.97	3,435.5	10.8	-636.1	636.2	0.00	0.00	
3,600.0	11.83	270.97	3,533.4	11.1	-656.6	656.7	0.00	0.00	
3,700.0	11.83	270.97	3,631.3	11.5	-677.1	677.2	0.00	0.00	
3,800.0	11.83	270.97	3,729.1	11.8	-697.6	697.7	0.00	0.00	
3,900.0	11.83	270.97	3,827.0	12.2	-718.1	718.2	0.00	0.00	
4,000.0	11.83	270.97	3,924.9	12.5	-738.6	738.7	0.00	0.00	
4,100.0	11.83	270.97	4,022.8	12.9	-759.1	759.2	0.00	0.00	
4,200.0	11.83	270.97	4,120.6	13.2	-779.6	779.7	0.00	0.00	
4,300.0	11.83	270.97	4,218.5	13.5	-800.1	800.2	0.00	0.00	
4,400.0	11.83	270.97	4,316.4	13.9	-820.6	820.7	0.00	0.00	
4,500.0	11.83	270.97	4,414.3	14.2	-841.1	841.2	0.00	0.00	
4,600.0	11.83	270.97	4,512.1	14.6	-861.6	861.7	0.00	0.00	
4,700.0	11.83	270.97	4,610.0	14.9	-882.0	882.2	0.00	0.00	
4,800.0	11.83	270.97	4,707.9	15.3	-902.5	902.7	0.00	0.00	
4,900.0	11.83	270.97	4,805.8	15.6	-923.0	923.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU22-13C (N22W Pad) Directional Plan 9
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7048.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7048.0ft (Original Well Elev)
Site:	N22W Pad	North Reference:	True
Well:	MCU22-13C (N22W Pad) Directional Plan 9.15.2011	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
5,000.0	11.83	270.97	4,903.6	16.0	-943.5	943.7	0.00	0.00	
5,100.0	11.83	270.97	5,001.5	16.3	-964.0	964.2	0.00	0.00	
5,200.0	11.83	270.97	5,099.4	16.7	-984.5	984.7	0.00	0.00	
5,300.0	11.83	270.97	5,197.3	17.0	-1,005.0	1,005.2	0.00	0.00	
5,400.0	11.83	270.97	5,295.2	17.4	-1,025.5	1,025.7	0.00	0.00	
5,500.0	11.83	270.97	5,393.0	17.7	-1,046.0	1,046.2	0.00	0.00	
5,600.0	11.83	270.97	5,490.9	18.1	-1,066.5	1,066.7	0.00	0.00	
5,619.5	11.83	270.97	5,510.0	18.1	-1,070.5	1,070.7	0.00	0.00	Mesaverde Marker
5,700.0	11.83	270.97	5,588.8	18.4	-1,087.0	1,087.2	0.00	0.00	
5,800.0	11.83	270.97	5,686.7	18.8	-1,107.5	1,107.7	0.00	0.00	
5,900.0	11.83	270.97	5,784.5	19.1	-1,128.0	1,128.2	0.00	0.00	
6,000.0	11.83	270.97	5,882.4	19.4	-1,148.5	1,148.7	0.00	0.00	
6,100.0	11.83	270.97	5,980.3	19.8	-1,169.0	1,169.2	0.00	0.00	
6,131.4	11.83	270.97	6,011.0	19.9	-1,175.4	1,175.6	0.00	0.00	Williams Fork
6,200.0	11.83	270.97	6,078.2	20.1	-1,189.5	1,189.7	0.00	0.00	
6,300.0	11.83	270.97	6,176.0	20.5	-1,210.0	1,210.2	0.00	0.00	
6,400.0	11.83	270.97	6,273.9	20.8	-1,230.5	1,230.7	0.00	0.00	
6,500.0	11.83	270.97	6,371.8	21.2	-1,251.0	1,251.2	0.00	0.00	
6,600.0	11.83	270.97	6,469.7	21.5	-1,271.5	1,271.7	0.00	0.00	
6,621.5	11.83	270.97	6,490.8	21.6	-1,275.9	1,276.1	0.00	0.00	Start 2° Drop
6,700.0	10.26	270.97	6,567.8	21.9	-1,290.9	1,291.1	2.00	-2.00	
6,800.0	8.26	270.97	6,666.5	22.1	-1,307.0	1,307.2	2.00	-2.00	
6,900.0	6.26	270.97	6,765.6	22.3	-1,319.6	1,319.8	2.00	-2.00	
7,000.0	4.26	270.97	6,865.2	22.5	-1,328.8	1,329.0	2.00	-2.00	
7,100.0	2.26	270.97	6,965.1	22.6	-1,334.5	1,334.7	2.00	-2.00	
7,200.0	0.26	270.97	7,065.0	22.6	-1,336.7	1,336.9	2.00	-2.00	
7,213.0	0.00	0.00	7,078.0	22.6	-1,336.7	1,336.9	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
7,300.0	0.00	0.00	7,165.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,400.0	0.00	0.00	7,265.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,500.0	0.00	0.00	7,365.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,600.0	0.00	0.00	7,465.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,700.0	0.00	0.00	7,565.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,800.0	0.00	0.00	7,665.0	22.6	-1,336.7	1,336.9	0.00	0.00	
7,900.0	0.00	0.00	7,765.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,000.0	0.00	0.00	7,865.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,100.0	0.00	0.00	7,965.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,200.0	0.00	0.00	8,065.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,300.0	0.00	0.00	8,165.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,383.0	0.00	0.00	8,248.0	22.6	-1,336.7	1,336.9	0.00	0.00	Coal Ridge
8,400.0	0.00	0.00	8,265.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,500.0	0.00	0.00	8,365.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,600.0	0.00	0.00	8,465.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,700.0	0.00	0.00	8,565.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,800.0	0.00	0.00	8,665.0	22.6	-1,336.7	1,336.9	0.00	0.00	
8,900.0	0.00	0.00	8,765.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,000.0	0.00	0.00	8,865.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,100.0	0.00	0.00	8,965.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,169.0	0.00	0.00	9,034.0	22.6	-1,336.7	1,336.9	0.00	0.00	Rollins
9,200.0	0.00	0.00	9,065.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,300.0	0.00	0.00	9,165.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,319.0	0.00	0.00	9,184.0	22.6	-1,336.7	1,336.9	0.00	0.00	TD @ 9,319' MD
9,400.0	0.00	0.00	9,265.0	22.6	-1,336.7	1,336.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU22-13C (N22W Pad) Directional Plan 9
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7048.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7048.0ft (Original Well Elev)
Site:	N22W Pad	North Reference:	True
Well:	MCU22-13C (N22W Pad) Directional Plan 9.15.2011	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
9,500.0	0.00	0.00	9,365.0	22.6	-1,336.7	1,336.9	0.00	0.00	
9,519.0	0.00	0.00	9,384.0	22.6	-1,336.7	1,336.9	0.00	0.00	Permit TD @ 9,519' 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
MCU22-13C TGT - plan hits target center - Point	0.00	0.00	7,078.0	22.6	-1,336.7	1,587,939.49	2,359,726.54	39.425718	-107.766849
MCU22-13C BHL - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,184.0	22.6	-1,336.7	1,587,939.49	2,359,726.54	39.425718	-107.766849

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,428.0	1,407.5	Surface Casing	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,619.5	5,510.0	Mesaverde Marker			
6,131.4	6,011.0	Williams Fork			
7,213.0	7,078.0	Top Gas			
8,383.0	8,248.0	Coal Ridge			
9,169.0	9,034.0	Rollins			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
594.3	591.5	0.7	-40.6	EOB @ Inc. = 11.83°
6,621.5	6,490.8	21.6	-1,275.9	Start 2° Drop
7,213.0	7,078.0	22.6	-1,336.7	EOD @ Inc. = 0°
9,319.0	9,184.0	22.6	-1,336.7	TD @ 9,319' MD
9,519.0	9,384.0	22.6	-1,336.7	Permit TD @ 9,519' MD