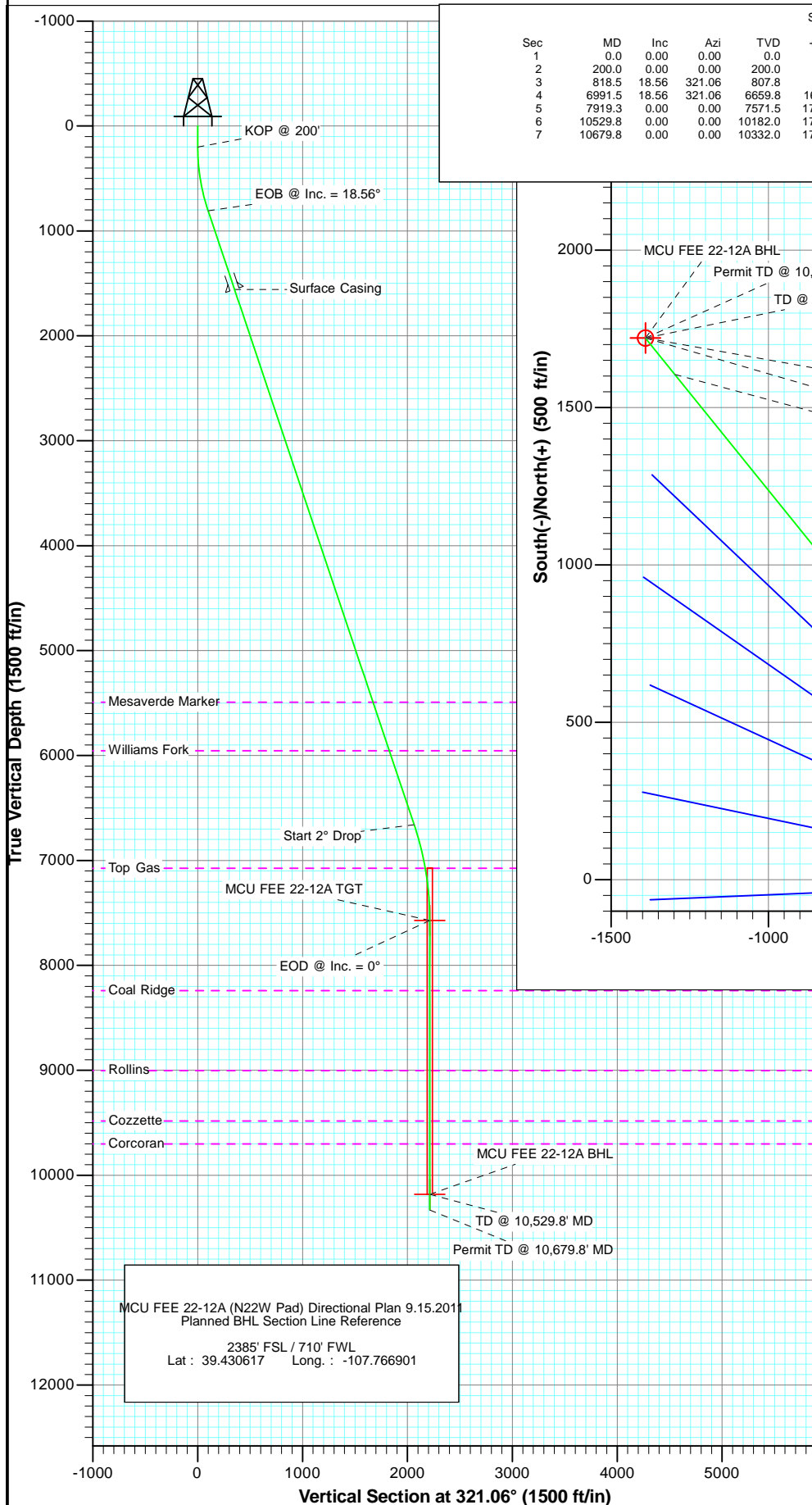
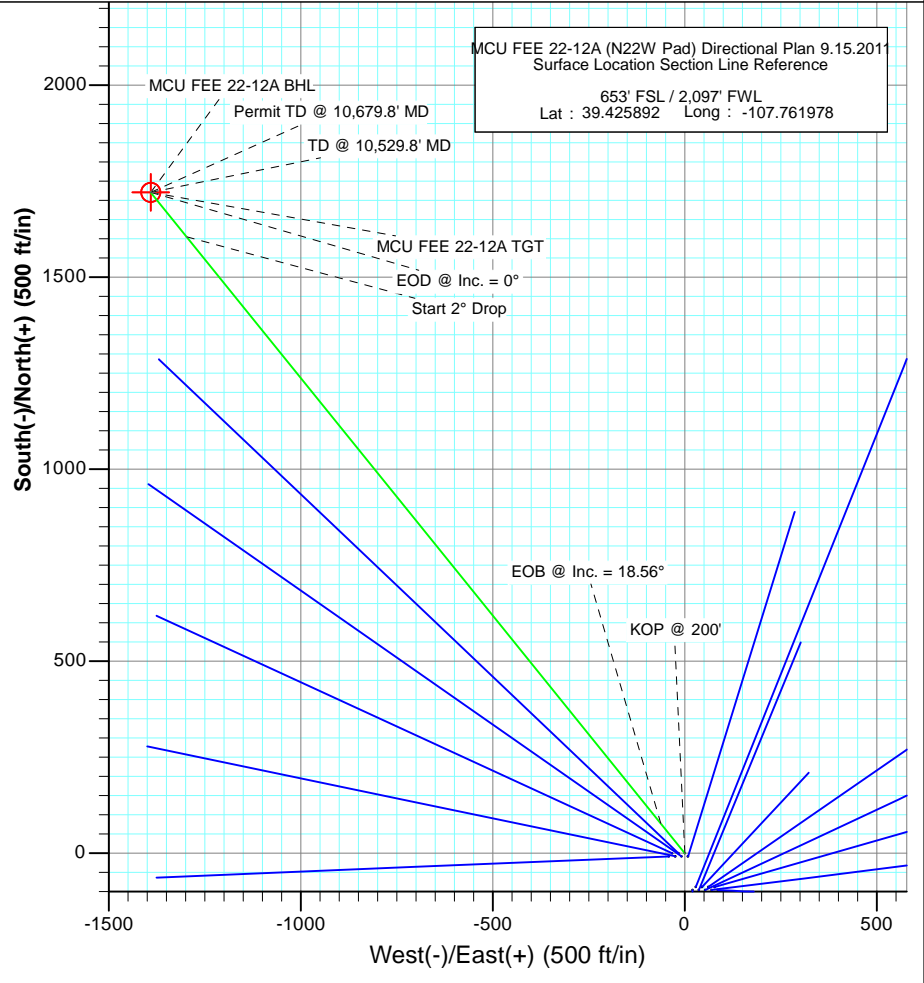




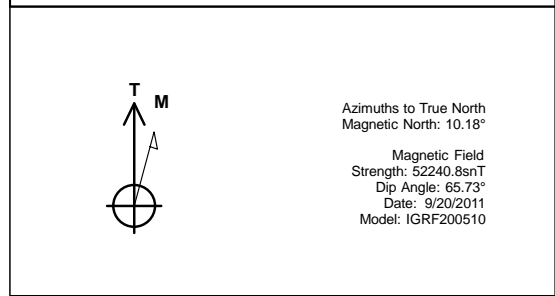
Project: Mamm Creek
Site: N22W Pad
Well: MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Plan: Plan #2



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	818.5	18.56	321.06	807.8	77.2	-62.4	3.00	321.06	99.3	
4	6991.5	18.56	321.06	6659.8	1605.2	-1297.0	0.00	0.00	2063.7	
5	7919.3	0.00	0.00	7571.5	1721.1	-1390.6	2.00	180.00	2212.6	MCU FEE 22-12A TGT
6	10529.8	0.00	0.00	10182.0	1721.1	-1390.6	0.00	0.00	2212.6	MCU FEE 22-12A BHL
7	10679.8	0.00	0.00	10332.0	1721.1	-1390.6	0.00	0.00	2212.6	



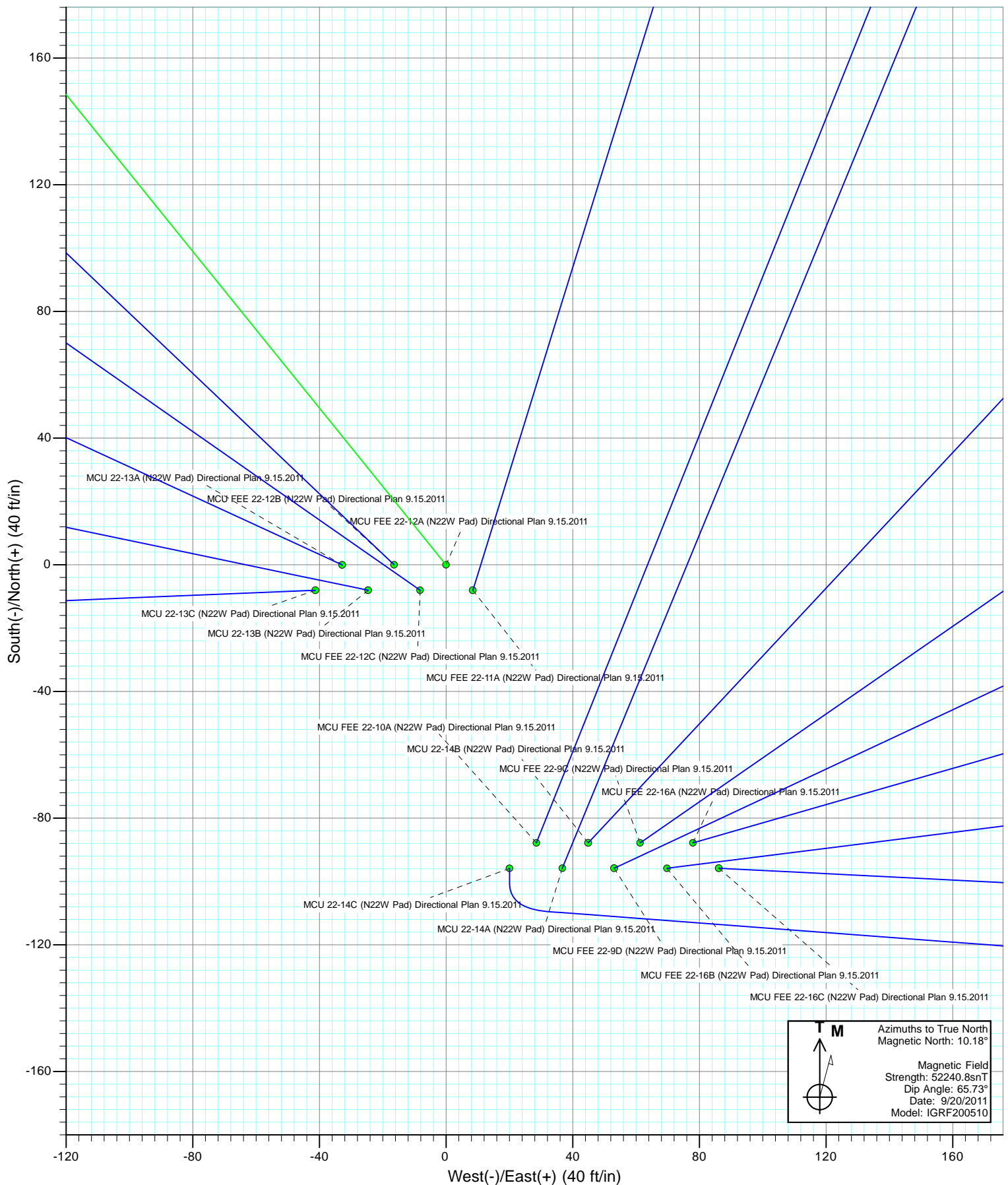
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
5491.0	5758.6	Mesaverde Marker
5955.0	6248.0	Williams Fork
7074.0	7419.3	Top Gas
8240.0	8587.8	Coal Ridge
9002.0	9349.8	Rollins
9482.0	9829.8	Cozzette
9702.0	10049.8	Corcoran



DESIGN DETAILS: Plan #2				
115XXX; SC				
KBE @ 7048.0ft (Original Well Elev)				
No Target (Freehand)	Azimuth	Origin Type	N/S	E/W
	321.06	Slot	0.0	0.0

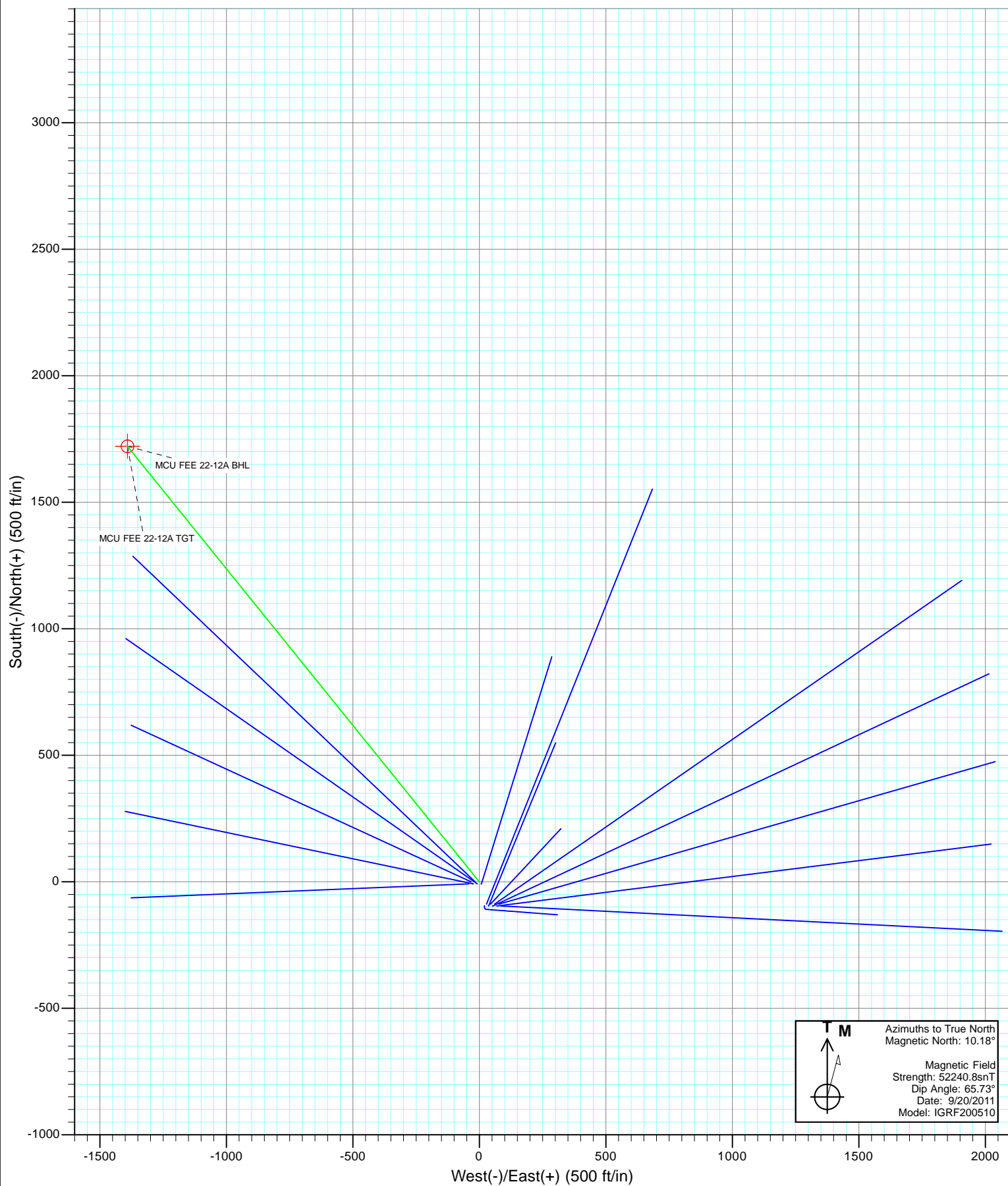


Project: Mamm Creek
Site: N22W Pad
Well: MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Design: Plan #2



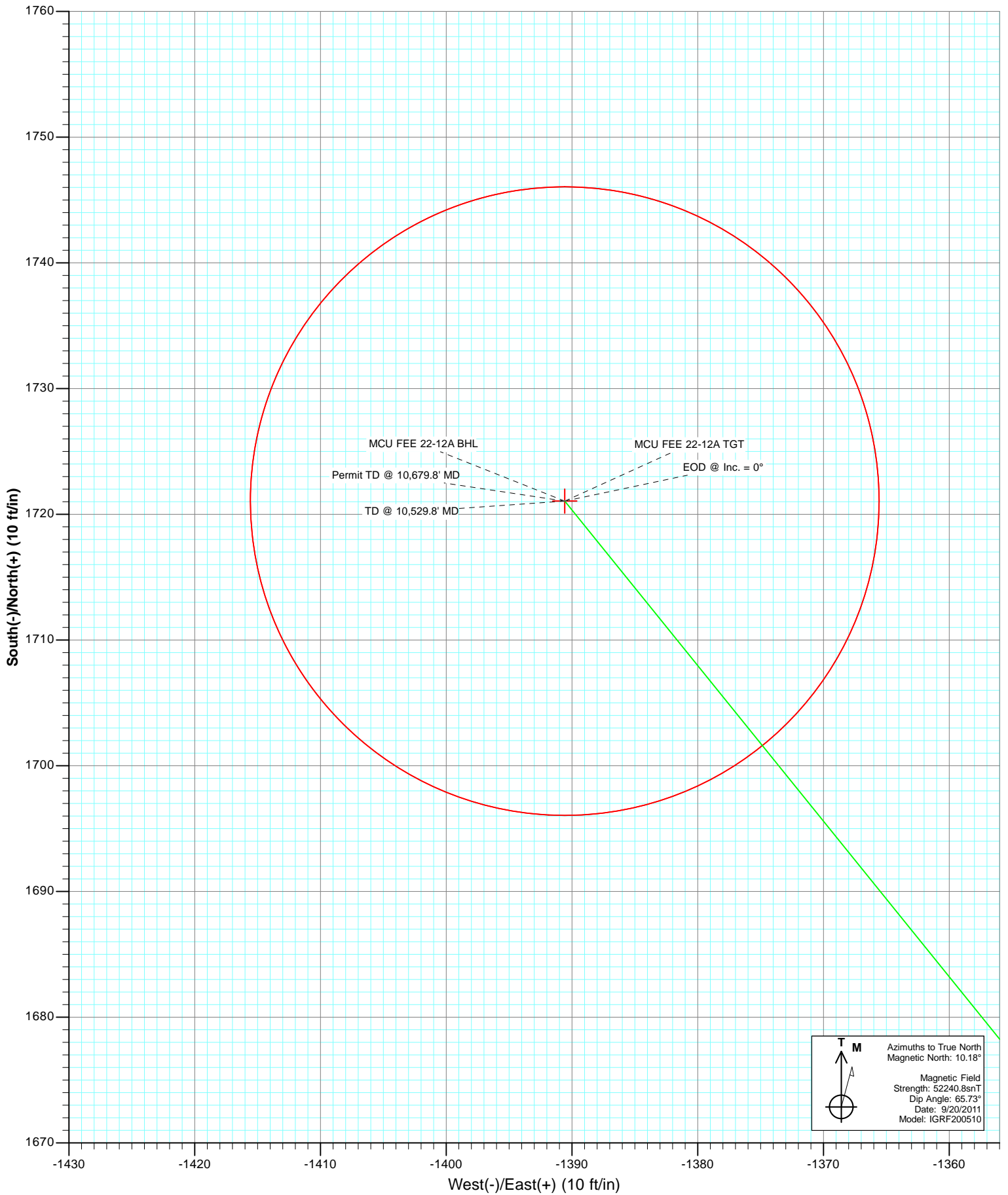


Project: Mamm Creek
Site: N22W Pad
Well: MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Design: Plan #2





Project: Mamm Creek
Site: N22W Pad
Well: MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2011
Wellbore: OH
Plan: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU FEE 22-12A (N22W Pad) Directional P
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:	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.21	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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		N22W Pad			
Site Position:		Northing:	1,587,870.64 ft	Latitude:	39.425629
From:	Lat/Long	Easting:	2,361,187.41 ft	Longitude:	-107.761673
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.43 °

Well	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2011					
Well Position	+N/-S	0.0 ft	Northing:	1,587,968.54 ft	Latitude:	39.425892
	+E/-W	0.0 ft	Easting:	2,361,103.67 ft	Longitude:	-107.761978
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 #2			
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	321.06

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	
818.5	18.56	321.06	807.8	77.2	-62.4	3.00	3.00	0.00	321.06	
6,991.5	18.56	321.06	6,659.8	1,605.2	-1,297.0	0.00	0.00	0.00	0.00	
7,919.3	0.00	0.00	7,571.5	1,721.1	-1,390.6	2.00	-2.00	0.00	180.00	MCU FEE 22-12A TG
10,529.8	0.00	0.00	10,182.0	1,721.1	-1,390.6	0.00	0.00	0.00	0.00	MCU FEE 22-12A BH
10,679.8	0.00	0.00	10,332.0	1,721.1	-1,390.6	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 MCU FEE 22-12A (N22W Pad) Directional P
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:	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2f	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	KOP @ 200'
300.0	3.00	321.06	300.0	2.0	-1.6	2.6	3.00	3.00	
400.0	6.00	321.06	399.6	8.1	-6.6	10.5	3.00	3.00	
500.0	9.00	321.06	498.8	18.3	-14.8	23.5	3.00	3.00	
600.0	12.00	321.06	597.1	32.5	-26.2	41.7	3.00	3.00	
700.0	15.00	321.06	694.3	50.6	-40.9	65.1	3.00	3.00	
800.0	18.00	321.06	790.2	72.7	-58.7	93.5	3.00	3.00	
818.5	18.56	321.06	807.8	77.2	-62.4	99.3	3.00	3.00	EOB @ Inc. = 18.56°
900.0	18.56	321.06	885.0	97.4	-78.7	125.2	0.00	0.00	
1,000.0	18.56	321.06	979.8	122.1	-98.7	157.0	0.00	0.00	
1,100.0	18.56	321.06	1,074.6	146.9	-118.7	188.9	0.00	0.00	
1,200.0	18.56	321.06	1,169.4	171.7	-138.7	220.7	0.00	0.00	
1,300.0	18.56	321.06	1,264.2	196.4	-158.7	252.5	0.00	0.00	
1,400.0	18.56	321.06	1,359.0	221.2	-178.7	284.3	0.00	0.00	
1,500.0	18.56	321.06	1,453.8	245.9	-198.7	316.1	0.00	0.00	
1,600.0	18.56	321.06	1,548.6	270.7	-218.7	348.0	0.00	0.00	
1,610.0	18.56	321.06	1,558.1	273.1	-220.7	351.2	0.00	0.00	Surface Casing
1,700.0	18.56	321.06	1,643.4	295.4	-238.7	379.8	0.00	0.00	
1,800.0	18.56	321.06	1,738.2	320.2	-258.7	411.6	0.00	0.00	
1,900.0	18.56	321.06	1,833.0	344.9	-278.7	443.4	0.00	0.00	
2,000.0	18.56	321.06	1,927.8	369.7	-298.7	475.3	0.00	0.00	
2,100.0	18.56	321.06	2,022.6	394.4	-318.7	507.1	0.00	0.00	
2,200.0	18.56	321.06	2,117.4	419.2	-338.7	538.9	0.00	0.00	
2,300.0	18.56	321.06	2,212.2	443.9	-358.7	570.7	0.00	0.00	
2,400.0	18.56	321.06	2,307.0	468.7	-378.7	602.6	0.00	0.00	
2,500.0	18.56	321.06	2,401.8	493.4	-398.7	634.4	0.00	0.00	
2,600.0	18.56	321.06	2,496.6	518.2	-418.7	666.2	0.00	0.00	
2,700.0	18.56	321.06	2,591.4	542.9	-438.7	698.0	0.00	0.00	
2,800.0	18.56	321.06	2,686.2	567.7	-458.7	729.8	0.00	0.00	
2,900.0	18.56	321.06	2,781.0	592.5	-478.7	761.7	0.00	0.00	
3,000.0	18.56	321.06	2,875.8	617.2	-498.7	793.5	0.00	0.00	
3,100.0	18.56	321.06	2,970.6	642.0	-518.7	825.3	0.00	0.00	
3,200.0	18.56	321.06	3,065.4	666.7	-538.7	857.1	0.00	0.00	
3,300.0	18.56	321.06	3,160.2	691.5	-558.7	889.0	0.00	0.00	
3,400.0	18.56	321.06	3,255.0	716.2	-578.7	920.8	0.00	0.00	
3,500.0	18.56	321.06	3,349.8	741.0	-598.7	952.6	0.00	0.00	
3,600.0	18.56	321.06	3,444.6	765.7	-618.7	984.4	0.00	0.00	
3,700.0	18.56	321.06	3,539.4	790.5	-638.7	1,016.2	0.00	0.00	
3,800.0	18.56	321.06	3,634.3	815.2	-658.7	1,048.1	0.00	0.00	
3,900.0	18.56	321.06	3,729.1	840.0	-678.7	1,079.9	0.00	0.00	
4,000.0	18.56	321.06	3,823.9	864.7	-698.7	1,111.7	0.00	0.00	
4,100.0	18.56	321.06	3,918.7	889.5	-718.7	1,143.5	0.00	0.00	
4,200.0	18.56	321.06	4,013.5	914.2	-738.7	1,175.4	0.00	0.00	
4,300.0	18.56	321.06	4,108.3	939.0	-758.7	1,207.2	0.00	0.00	
4,400.0	18.56	321.06	4,203.1	963.7	-778.7	1,239.0	0.00	0.00	
4,500.0	18.56	321.06	4,297.9	988.5	-798.7	1,270.8	0.00	0.00	
4,600.0	18.56	321.06	4,392.7	1,013.2	-818.7	1,302.7	0.00	0.00	
4,700.0	18.56	321.06	4,487.5	1,038.0	-838.7	1,334.5	0.00	0.00	
4,800.0	18.56	321.06	4,582.3	1,062.8	-858.7	1,366.3	0.00	0.00	
4,900.0	18.56	321.06	4,677.1	1,087.5	-878.7	1,398.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU FEE 22-12A (N22W Pad) Directional P
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:	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2f	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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
5,000.0	18.56	321.06	4,771.9	1,112.3	-898.7	1,429.9	0.00	0.00	
5,100.0	18.56	321.06	4,866.7	1,137.0	-918.7	1,461.8	0.00	0.00	
5,200.0	18.56	321.06	4,961.5	1,161.8	-938.7	1,493.6	0.00	0.00	
5,300.0	18.56	321.06	5,056.3	1,186.5	-958.7	1,525.4	0.00	0.00	
5,400.0	18.56	321.06	5,151.1	1,211.3	-978.7	1,557.2	0.00	0.00	
5,500.0	18.56	321.06	5,245.9	1,236.0	-998.7	1,589.1	0.00	0.00	
5,600.0	18.56	321.06	5,340.7	1,260.8	-1,018.7	1,620.9	0.00	0.00	
5,700.0	18.56	321.06	5,435.5	1,285.5	-1,038.7	1,652.7	0.00	0.00	
5,758.6	18.56	321.06	5,491.0	1,300.0	-1,050.4	1,671.3	0.00	0.00	Mesaverde Marker
5,800.0	18.56	321.06	5,530.3	1,310.3	-1,058.7	1,684.5	0.00	0.00	
5,900.0	18.56	321.06	5,625.1	1,335.0	-1,078.7	1,716.3	0.00	0.00	
6,000.0	18.56	321.06	5,719.9	1,359.8	-1,098.7	1,748.2	0.00	0.00	
6,100.0	18.56	321.06	5,814.7	1,384.5	-1,118.7	1,780.0	0.00	0.00	
6,200.0	18.56	321.06	5,909.5	1,409.3	-1,138.7	1,811.8	0.00	0.00	
6,248.0	18.56	321.06	5,955.0	1,421.2	-1,148.3	1,827.1	0.00	0.00	Williams Fork
6,300.0	18.56	321.06	6,004.3	1,434.0	-1,158.7	1,843.6	0.00	0.00	
6,400.0	18.56	321.06	6,099.1	1,458.8	-1,178.7	1,875.5	0.00	0.00	
6,500.0	18.56	321.06	6,193.9	1,483.6	-1,198.7	1,907.3	0.00	0.00	
6,600.0	18.56	321.06	6,288.7	1,508.3	-1,218.7	1,939.1	0.00	0.00	
6,700.0	18.56	321.06	6,383.5	1,533.1	-1,238.7	1,970.9	0.00	0.00	
6,800.0	18.56	321.06	6,478.3	1,557.8	-1,258.7	2,002.8	0.00	0.00	
6,900.0	18.56	321.06	6,573.1	1,582.6	-1,278.7	2,034.6	0.00	0.00	
6,991.5	18.56	321.06	6,659.8	1,605.2	-1,297.0	2,063.7	0.00	0.00	Start 2° Drop
7,000.0	18.39	321.06	6,667.9	1,607.3	-1,298.7	2,066.4	2.00	-2.00	
7,100.0	16.39	321.06	6,763.3	1,630.5	-1,317.4	2,096.3	2.00	-2.00	
7,200.0	14.39	321.06	6,859.7	1,651.2	-1,334.1	2,122.8	2.00	-2.00	
7,300.0	12.39	321.06	6,957.0	1,669.2	-1,348.7	2,145.9	2.00	-2.00	
7,400.0	10.39	321.06	7,055.0	1,684.5	-1,361.1	2,165.7	2.00	-2.00	
7,419.3	10.00	321.06	7,074.0	1,687.2	-1,363.2	2,169.1	2.00	-2.00	Top Gas
7,500.0	8.39	321.06	7,153.7	1,697.2	-1,371.3	2,182.0	2.00	-2.00	
7,600.0	6.39	321.06	7,252.9	1,707.2	-1,379.4	2,194.8	2.00	-2.00	
7,700.0	4.39	321.06	7,352.4	1,714.5	-1,385.3	2,204.2	2.00	-2.00	
7,800.0	2.39	321.06	7,452.2	1,719.1	-1,389.0	2,210.1	2.00	-2.00	
7,900.0	0.39	321.06	7,552.2	1,721.0	-1,390.5	2,212.6	2.00	-2.00	
7,919.3	0.00	0.00	7,571.5	1,721.1	-1,390.6	2,212.6	2.00	-2.00	EOD @ Inc. = 0°
8,000.0	0.00	0.00	7,652.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,100.0	0.00	0.00	7,752.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,200.0	0.00	0.00	7,852.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,300.0	0.00	0.00	7,952.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,400.0	0.00	0.00	8,052.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,500.0	0.00	0.00	8,152.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,587.8	0.00	0.00	8,240.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	Coal Ridge
8,600.0	0.00	0.00	8,252.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,700.0	0.00	0.00	8,352.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,800.0	0.00	0.00	8,452.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
8,900.0	0.00	0.00	8,552.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,000.0	0.00	0.00	8,652.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,100.0	0.00	0.00	8,752.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,200.0	0.00	0.00	8,852.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,300.0	0.00	0.00	8,952.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,349.8	0.00	0.00	9,002.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	Rollins
9,400.0	0.00	0.00	9,052.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU FEE 22-12A (N22W Pad) Directional P
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:	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.2f	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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
9,500.0	0.00	0.00	9,152.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,600.0	0.00	0.00	9,252.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,700.0	0.00	0.00	9,352.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,800.0	0.00	0.00	9,452.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
9,829.8	0.00	0.00	9,482.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	Cozzette
9,900.0	0.00	0.00	9,552.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,000.0	0.00	0.00	9,652.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,049.8	0.00	0.00	9,702.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	Corcoran
10,100.0	0.00	0.00	9,752.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,200.0	0.00	0.00	9,852.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,300.0	0.00	0.00	9,952.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,400.0	0.00	0.00	10,052.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,500.0	0.00	0.00	10,152.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,529.8	0.00	0.00	10,182.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	TD @ 10,529.8' MD
10,600.0	0.00	0.00	10,252.2	1,721.1	-1,390.6	2,212.6	0.00	0.00	
10,679.8	0.00	0.00	10,332.0	1,721.1	-1,390.6	2,212.6	0.00	0.00	Permit TD @ 10,679.8' 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									
MCU FEE 22-12A BHL	0.00	0.00	10,182.0	1,721.1	-1,390.6	1,589,723.68	2,359,756.38	39.430617	-107.766901
- plan hits target center									
- Circle (radius 25.0)									
MCU FEE 22-12A TGT	0.00	0.00	7,571.5	1,721.1	-1,390.6	1,589,723.68	2,359,756.38	39.430617	-107.766901
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,610.0	1,558.1	Surface Casing	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,758.6	5,491.0	Mesaverde Marker			
6,248.0	5,955.0	Williams Fork			
7,419.3	7,074.0	Top Gas			
8,587.8	8,240.0	Coal Ridge			
9,349.8	9,002.0	Rollins			
9,829.8	9,482.0	Cozzette			
10,049.8	9,702.0	Corcoran			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU FEE 22-12A (N22W Pad) Directional P
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:	MCU FEE 22-12A (N22W Pad) Directional Plan 9.15.20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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'
818.5	807.8	77.2	-62.4	EOB @ Inc. = 18.56°
6,991.5	6,659.8	1,605.2	-1,297.0	Start 2° Drop
7,919.3	7,571.5	1,721.1	-1,390.6	EOD @ Inc. = 0°
10,529.8	10,182.0	1,721.1	-1,390.6	TD @ 10,529.8' MD
10,679.8	10,332.0	1,721.1	-1,390.6	Permit TD @ 10,679.8' MD