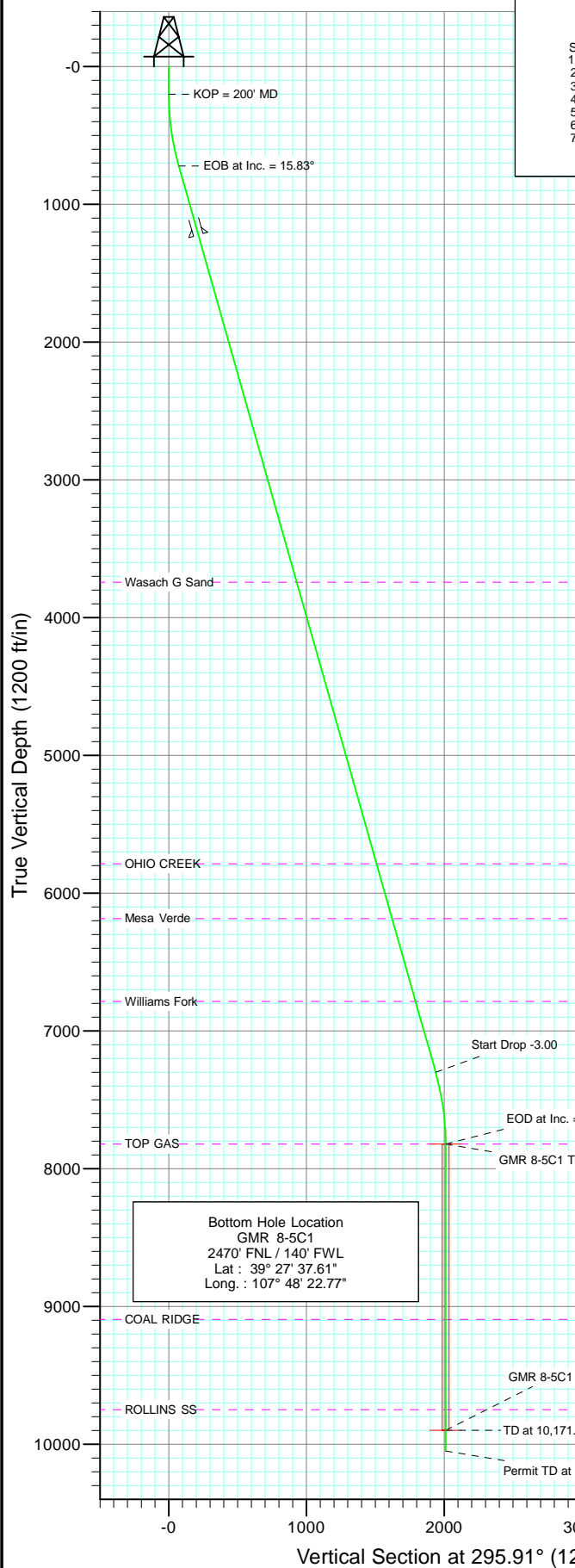
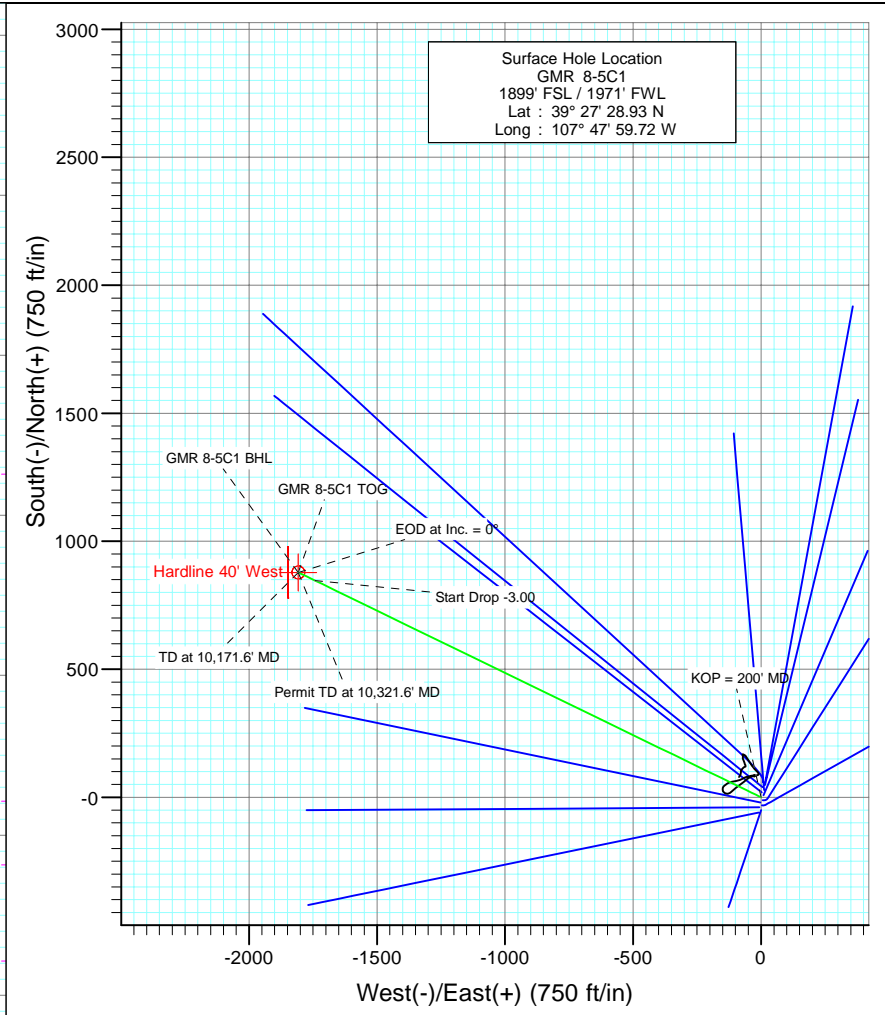




Project: Mamm Creek
 Site: NESW S8 T7S R93W (K8W Pad)
 Well: GMR 8-5C1
 Wellbore: DD
 Design: Plan #1



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	727.6	15.83	295.91	720.9	31.6	-65.1	3.00	295.91	72.4	
4	7566.1	15.83	295.91	7300.1	846.6	-1742.7	3.00	0.00	1937.4	
5	8093.6	0.00	0.00	7821.0	878.3	-1807.8	3.00	180.00	2009.8	GMR 8-5C1 TOG
6	10171.6	0.00	0.00	9899.0	878.3	-1807.8	0.00	0.00	2009.8	GMR 8-5C1 BHL
7	10321.6	0.00	0.00	10049.0	878.3	-1807.8	0.00	0.00	2009.8	



Azimuths to True North
 Magnetic North: 10.45°

Magnetic Field
 Strength: 52432.1snT
 Dip Angle: 65.80°
 Date: 10/28/2009
 Model: IGRF200510

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3743.0	3868.8	Wasach G Sand
5787.0	5993.3	OHIO CREEK
6185.0	6407.0	Mesa Verde
6786.0	7031.7	Williams Fork
7821.0	8093.6	TOP GAS
9094.0	9366.6	COAL RIDGE
9749.0	10021.6	ROLLINS SS

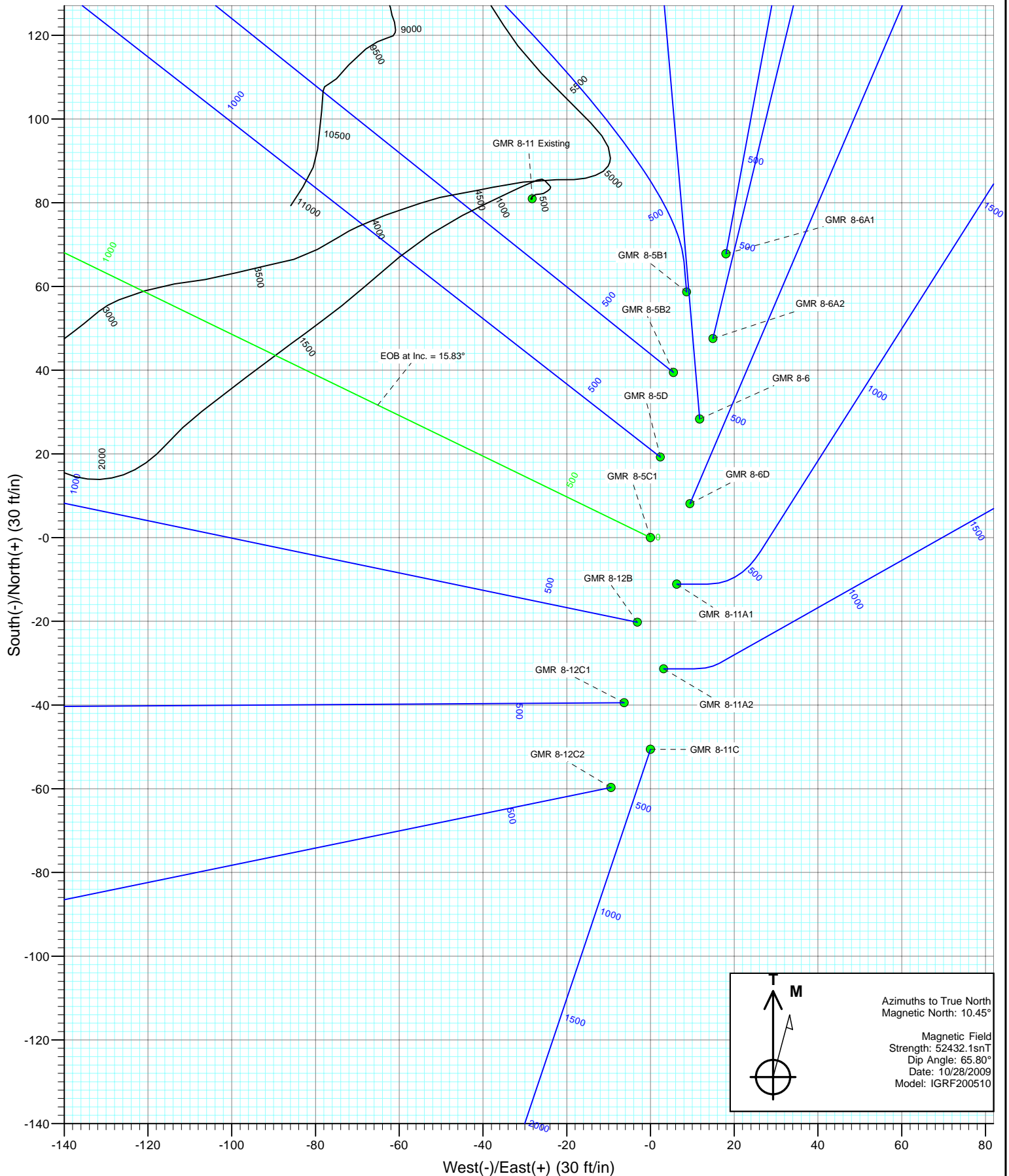
DESIGN DETAILS: Plan #1

Job #95xxx: KR
 KBE @ 7848.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
GMR 8-5C1 BHL	295.91	Slot	0.0	0.0	0.0



Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-5C1
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well GMR 8-5C1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7848.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7848.0ft (Original Well Elev)
Site:	NESW S8 T7S R93W (K8W Pad)	North Reference:	True
Well:	GMR 8-5C1	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		NESW S8 T7S R93W (K8W Pad)			
Site Position:		Northing:	1,599,999.23 ft	Latitude:	39° 27' 29.50 N
From:	Lat/Long	Easting:	2,350,698.86 ft	Longitude:	107° 47' 59.56 W
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.45 °

Well	GMR 8-5C1					
Well Position	+N/-S	0.0 ft	Northing:	1,599,941.89 ft	Latitude:	39° 27' 28.93 N
	+E/-W	0.0 ft	Easting:	2,350,684.86 ft	Longitude:	107° 47' 59.72 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,826.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	10/28/2009	10.45	65.80	52,432

Design	Plan #1				
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	295.91	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
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	
727.6	15.83	295.91	720.9	31.6	-65.1	3.00	3.00	0.00	295.91	
7,566.1	15.83	295.91	7,300.1	846.6	-1,742.7	0.00	0.00	0.00	0.00	
8,093.6	0.00	0.00	7,821.0	878.3	-1,807.8	3.00	-3.00	0.00	180.00	GMR 8-5C1 TOG
10,171.6	0.00	0.00	9,899.0	878.3	-1,807.8	0.00	0.00	0.00	0.00	GMR 8-5C1 BHL
10,321.6	0.00	0.00	10,049.0	878.3	-1,807.8	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: US EDM 2003.21 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-5C1
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well GMR 8-5C1
TVD Reference: KBE @ 7848.0ft (Original Well Elev)
MD Reference: KBE @ 7848.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	Hardline 40' West
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	295.91	300.0	1.1	-2.4	2.6	3.00	3.00	
400.0	6.00	295.91	399.6	4.6	-9.4	10.5	3.00	3.00	
500.0	9.00	295.91	498.8	10.3	-21.1	23.5	3.00	3.00	
600.0	12.00	295.91	597.1	18.2	-37.5	41.7	3.00	3.00	
700.0	15.00	295.91	694.3	28.4	-58.5	65.1	3.00	3.00	
727.6	15.83	295.91	720.9	31.6	-65.1	72.4	3.00	3.00	EOB at Inc. = 15.83°
800.0	15.83	295.91	790.6	40.3	-82.9	92.2	0.00	0.00	
900.0	15.83	295.91	886.8	52.2	-107.4	119.4	0.00	0.00	
1,000.0	15.83	295.91	983.0	64.1	-132.0	146.7	0.00	0.00	
1,100.0	15.83	295.91	1,079.2	76.0	-156.5	174.0	0.00	0.00	
1,200.0	15.83	295.91	1,175.4	87.9	-181.0	201.2	0.00	0.00	
1,250.0	15.83	295.91	1,223.5	93.9	-193.3	214.9	0.00	0.00	Surface Casing
1,300.0	15.83	295.91	1,271.6	99.9	-205.5	228.5	0.00	0.00	
1,400.0	15.83	295.91	1,367.8	111.8	-230.1	255.8	0.00	0.00	
1,500.0	15.83	295.91	1,464.0	123.7	-254.6	283.1	0.00	0.00	
1,600.0	15.83	295.91	1,560.2	135.6	-279.1	310.3	0.00	0.00	
1,700.0	15.83	295.91	1,656.5	147.5	-303.7	337.6	0.00	0.00	
1,800.0	15.83	295.91	1,752.7	159.5	-328.2	364.9	0.00	0.00	
1,900.0	15.83	295.91	1,848.9	171.4	-352.7	392.2	0.00	0.00	
2,000.0	15.83	295.91	1,945.1	183.3	-377.3	419.4	0.00	0.00	
2,100.0	15.83	295.91	2,041.3	195.2	-401.8	446.7	0.00	0.00	
2,200.0	15.83	295.91	2,137.5	207.1	-426.3	474.0	0.00	0.00	
2,300.0	15.83	295.91	2,233.7	219.0	-450.9	501.2	0.00	0.00	
2,400.0	15.83	295.91	2,329.9	231.0	-475.4	528.5	0.00	0.00	
2,500.0	15.83	295.91	2,426.1	242.9	-499.9	555.8	0.00	0.00	
2,600.0	15.83	295.91	2,522.3	254.8	-524.4	583.1	0.00	0.00	
2,700.0	15.83	295.91	2,618.5	266.7	-549.0	610.3	0.00	0.00	
2,800.0	15.83	295.91	2,714.8	278.6	-573.5	637.6	0.00	0.00	
2,900.0	15.83	295.91	2,811.0	290.6	-598.0	664.9	0.00	0.00	
3,000.0	15.83	295.91	2,907.2	302.5	-622.6	692.2	0.00	0.00	
3,100.0	15.83	295.91	3,003.4	314.4	-647.1	719.4	0.00	0.00	
3,200.0	15.83	295.91	3,099.6	326.3	-671.6	746.7	0.00	0.00	
3,300.0	15.83	295.91	3,195.8	338.2	-696.2	774.0	0.00	0.00	
3,400.0	15.83	295.91	3,292.0	350.1	-720.7	801.2	0.00	0.00	
3,500.0	15.83	295.91	3,388.2	362.1	-745.2	828.5	0.00	0.00	
3,600.0	15.83	295.91	3,484.4	374.0	-769.8	855.8	0.00	0.00	
3,700.0	15.83	295.91	3,580.6	385.9	-794.3	883.1	0.00	0.00	
3,800.0	15.83	295.91	3,676.8	397.8	-818.8	910.3	0.00	0.00	
3,868.8	15.83	295.91	3,743.0	406.0	-835.7	929.1	0.00	0.00	Wasach G Sand
3,900.0	15.83	295.91	3,773.1	409.7	-843.3	937.6	0.00	0.00	
4,000.0	15.83	295.91	3,869.3	421.6	-867.9	964.9	0.00	0.00	
4,100.0	15.83	295.91	3,965.5	433.6	-892.4	992.2	0.00	0.00	
4,200.0	15.83	295.91	4,061.7	445.5	-916.9	1,019.4	0.00	0.00	
4,300.0	15.83	295.91	4,157.9	457.4	-941.5	1,046.7	0.00	0.00	
4,400.0	15.83	295.91	4,254.1	469.3	-966.0	1,074.0	0.00	0.00	
4,500.0	15.83	295.91	4,350.3	481.2	-990.5	1,101.2	0.00	0.00	
4,600.0	15.83	295.91	4,446.5	493.2	-1,015.1	1,128.5	0.00	0.00	
4,700.0	15.83	295.91	4,542.7	505.1	-1,039.6	1,155.8	0.00	0.00	
4,800.0	15.83	295.91	4,638.9	517.0	-1,064.1	1,183.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: US EDM 2003.21 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-5C1
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well GMR 8-5C1
TVD Reference: KBE @ 7848.0ft (Original Well Elev)
MD Reference: KBE @ 7848.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	15.83	295.91	4,735.1	528.9	-1,088.7	1,210.3	0.00	0.00	
5,000.0	15.83	295.91	4,831.4	540.8	-1,113.2	1,237.6	0.00	0.00	
5,100.0	15.83	295.91	4,927.6	552.7	-1,137.7	1,264.9	0.00	0.00	
5,200.0	15.83	295.91	5,023.8	564.7	-1,162.2	1,292.2	0.00	0.00	
5,300.0	15.83	295.91	5,120.0	576.6	-1,186.8	1,319.4	0.00	0.00	
5,400.0	15.83	295.91	5,216.2	588.5	-1,211.3	1,346.7	0.00	0.00	
5,500.0	15.83	295.91	5,312.4	600.4	-1,235.8	1,374.0	0.00	0.00	
5,600.0	15.83	295.91	5,408.6	612.3	-1,260.4	1,401.2	0.00	0.00	
5,700.0	15.83	295.91	5,504.8	624.3	-1,284.9	1,428.5	0.00	0.00	
5,800.0	15.83	295.91	5,601.0	636.2	-1,309.4	1,455.8	0.00	0.00	
5,900.0	15.83	295.91	5,697.2	648.1	-1,334.0	1,483.1	0.00	0.00	
5,993.3	15.83	295.91	5,787.0	659.2	-1,356.9	1,508.5	0.00	0.00	OHIO CREEK
6,000.0	15.83	295.91	5,793.4	660.0	-1,358.5	1,510.3	0.00	0.00	
6,100.0	15.83	295.91	5,889.7	671.9	-1,383.0	1,537.6	0.00	0.00	
6,200.0	15.83	295.91	5,985.9	683.8	-1,407.6	1,564.9	0.00	0.00	
6,300.0	15.83	295.91	6,082.1	695.8	-1,432.1	1,592.2	0.00	0.00	
6,400.0	15.83	295.91	6,178.3	707.7	-1,456.6	1,619.4	0.00	0.00	
6,407.0	15.83	295.91	6,185.0	708.5	-1,458.3	1,621.3	0.00	0.00	Mesa Verde
6,500.0	15.83	295.91	6,274.5	719.6	-1,481.2	1,646.7	0.00	0.00	
6,600.0	15.83	295.91	6,370.7	731.5	-1,505.7	1,674.0	0.00	0.00	
6,700.0	15.83	295.91	6,466.9	743.4	-1,530.2	1,701.2	0.00	0.00	
6,800.0	15.83	295.91	6,563.1	755.4	-1,554.7	1,728.5	0.00	0.00	
6,900.0	15.83	295.91	6,659.3	767.3	-1,579.3	1,755.8	0.00	0.00	
7,000.0	15.83	295.91	6,755.5	779.2	-1,603.8	1,783.1	0.00	0.00	
7,031.7	15.83	295.91	6,786.0	783.0	-1,611.6	1,791.7	0.00	0.00	Williams Fork
7,100.0	15.83	295.91	6,851.7	791.1	-1,628.3	1,810.3	0.00	0.00	
7,200.0	15.83	295.91	6,948.0	803.0	-1,652.9	1,837.6	0.00	0.00	
7,300.0	15.83	295.91	7,044.2	814.9	-1,677.4	1,864.9	0.00	0.00	
7,400.0	15.83	295.91	7,140.4	826.9	-1,701.9	1,892.2	0.00	0.00	
7,500.0	15.83	295.91	7,236.6	838.8	-1,726.5	1,919.4	0.00	0.00	
7,566.1	15.83	295.91	7,300.1	846.6	-1,742.7	1,937.4	0.00	0.00	Start Drop -3.00
7,600.0	14.81	295.91	7,332.9	850.6	-1,750.7	1,946.4	3.00	-3.00	
7,700.0	11.81	295.91	7,430.2	860.6	-1,771.4	1,969.4	3.00	-3.00	
7,800.0	8.81	295.91	7,528.6	868.4	-1,787.5	1,987.3	3.00	-3.00	
7,900.0	5.81	295.91	7,627.7	874.0	-1,799.0	2,000.0	3.00	-3.00	
8,000.0	2.81	295.91	7,727.4	877.3	-1,805.7	2,007.5	3.00	-3.00	
8,093.6	0.00	0.00	7,821.0	878.3	-1,807.8	2,009.8	3.00	-3.00	EOD at Inc. = 0° - TOP GAS - GMR 8-5C1 TOC
8,100.0	0.00	0.00	7,827.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,200.0	0.00	0.00	7,927.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,300.0	0.00	0.00	8,027.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,400.0	0.00	0.00	8,127.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,500.0	0.00	0.00	8,227.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,600.0	0.00	0.00	8,327.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,700.0	0.00	0.00	8,427.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,800.0	0.00	0.00	8,527.4	878.3	-1,807.8	2,009.8	0.00	0.00	
8,900.0	0.00	0.00	8,627.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,000.0	0.00	0.00	8,727.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,100.0	0.00	0.00	8,827.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,200.0	0.00	0.00	8,927.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,300.0	0.00	0.00	9,027.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,366.6	0.00	0.00	9,094.0	878.3	-1,807.8	2,009.8	0.00	0.00	COAL RIDGE
9,400.0	0.00	0.00	9,127.4	878.3	-1,807.8	2,009.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well GMR 8-5C1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7848.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7848.0ft (Original Well Elev)
Site:	NESW S8 T7S R93W (K8W Pad)	North Reference:	True
Well:	GMR 8-5C1	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
9,500.0	0.00	0.00	9,227.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,600.0	0.00	0.00	9,327.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,700.0	0.00	0.00	9,427.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,800.0	0.00	0.00	9,527.4	878.3	-1,807.8	2,009.8	0.00	0.00	
9,900.0	0.00	0.00	9,627.4	878.3	-1,807.8	2,009.8	0.00	0.00	
10,000.0	0.00	0.00	9,727.4	878.3	-1,807.8	2,009.8	0.00	0.00	
10,021.6	0.00	0.00	9,749.0	878.3	-1,807.8	2,009.8	0.00	0.00	ROLLINS SS
10,100.0	0.00	0.00	9,827.4	878.3	-1,807.8	2,009.8	0.00	0.00	
10,171.6	0.00	0.00	9,899.0	878.3	-1,807.8	2,009.8	0.00	0.00	TD at 10,171.6' MD - GMR 8-5C1 BHL
10,200.0	0.00	0.00	9,927.4	878.3	-1,807.8	2,009.8	0.00	0.00	
10,300.0	0.00	0.00	10,027.4	878.3	-1,807.8	2,009.8	0.00	0.00	
10,321.6	0.00	0.00	10,049.0	878.3	-1,807.8	2,009.8	0.00	0.00	Permit TD at 10,321.6' 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									
GMR 8-5C1 TOG	0.00	0.00	7,821.0	878.3	-1,807.8	1,600,865.66	2,348,899.89	39° 27' 37.61 N	107° 48' 22.77 W
- plan hits target center									
- Point									
Hardline 40' West	0.00	0.00	-10,857.0	1,568.3	-1,901.8	1,601,557.85	2,348,823.32	39° 27' 44.43 N	107° 48' 23.97 W
- plan misses target center by 11133.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-10,857.0	100.0	-40.0	1,601,658.83	2,348,785.87		
Point 2			-10,857.0	-100.0	-40.0	1,601,458.89	2,348,780.80		
GMR 8-5C1 BHL	0.00	0.00	9,899.0	878.3	-1,807.8	1,600,865.66	2,348,899.89	39° 27' 37.61 N	107° 48' 22.77 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,250.0	1,223.5	Surface Casing	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,868.8	3,743.0	Wasach G Sand			
5,993.3	5,787.0	OHIO CREEK			
6,407.0	6,185.0	Mesa Verde			
7,031.7	6,786.0	Williams Fork			
8,093.6	7,821.0	TOP GAS			
9,366.6	9,094.0	COAL RIDGE			
10,021.6	9,749.0	ROLLINS SS			

Cathedral Energy Services

Planning Report

Database:	US EDM 2003.21 Multi Users DB	Local Co-ordinate Reference:	Well GMR 8-5C1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7848.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7848.0ft (Original Well Elev)
Site:	NESW S8 T7S R93W (K8W Pad)	North Reference:	True
Well:	GMR 8-5C1	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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' MD
727.6	720.9	31.6	-65.1	EOB at Inc. = 15.83°
7,566.1	7,300.1	846.6	-1,742.7	Start Drop -3.00
8,093.6	7,821.0	878.3	-1,807.8	EOD at Inc. = 0°
10,171.6	9,899.0	878.3	-1,807.8	TD at 10,171.6' MD
10,321.6	10,049.0	878.3	-1,807.8	Permit TD at 10,321.6' MD