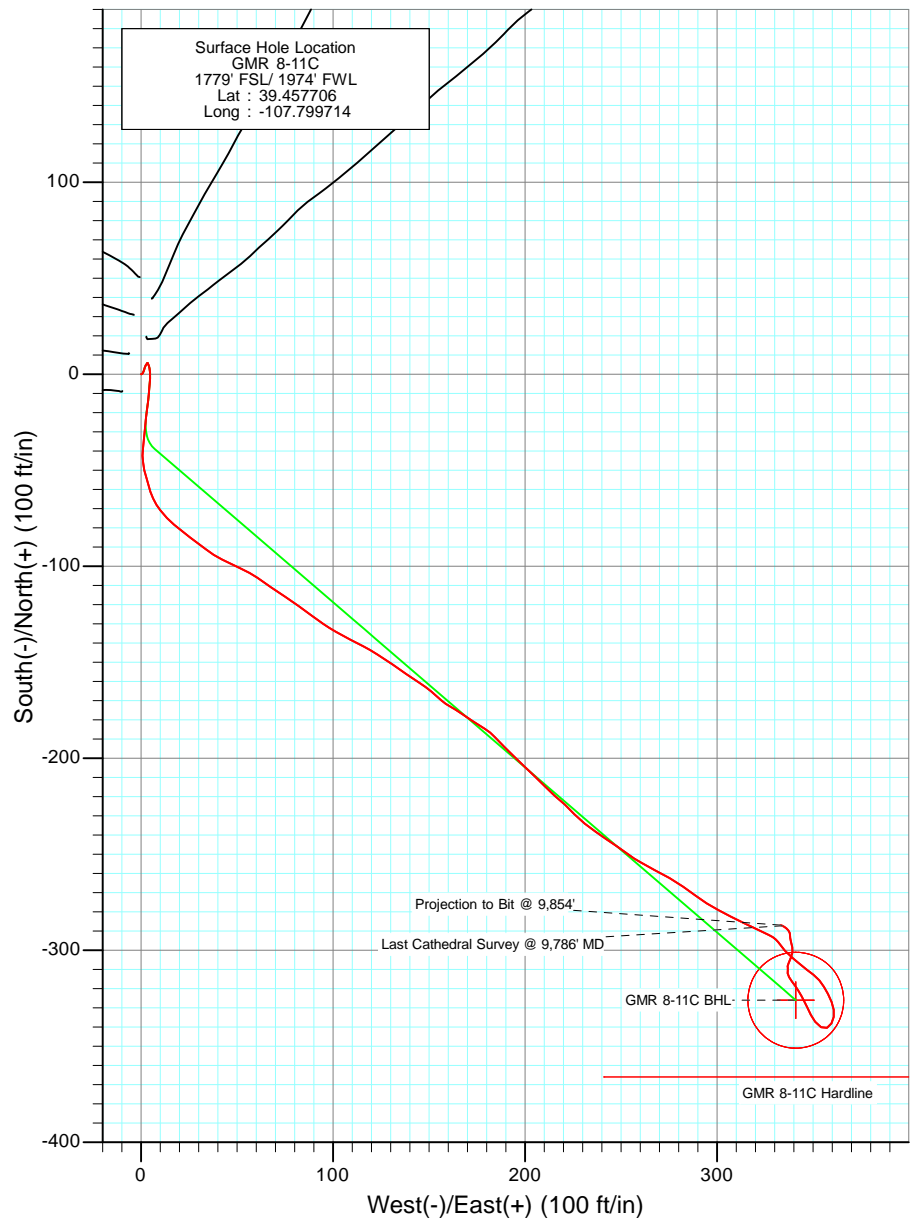
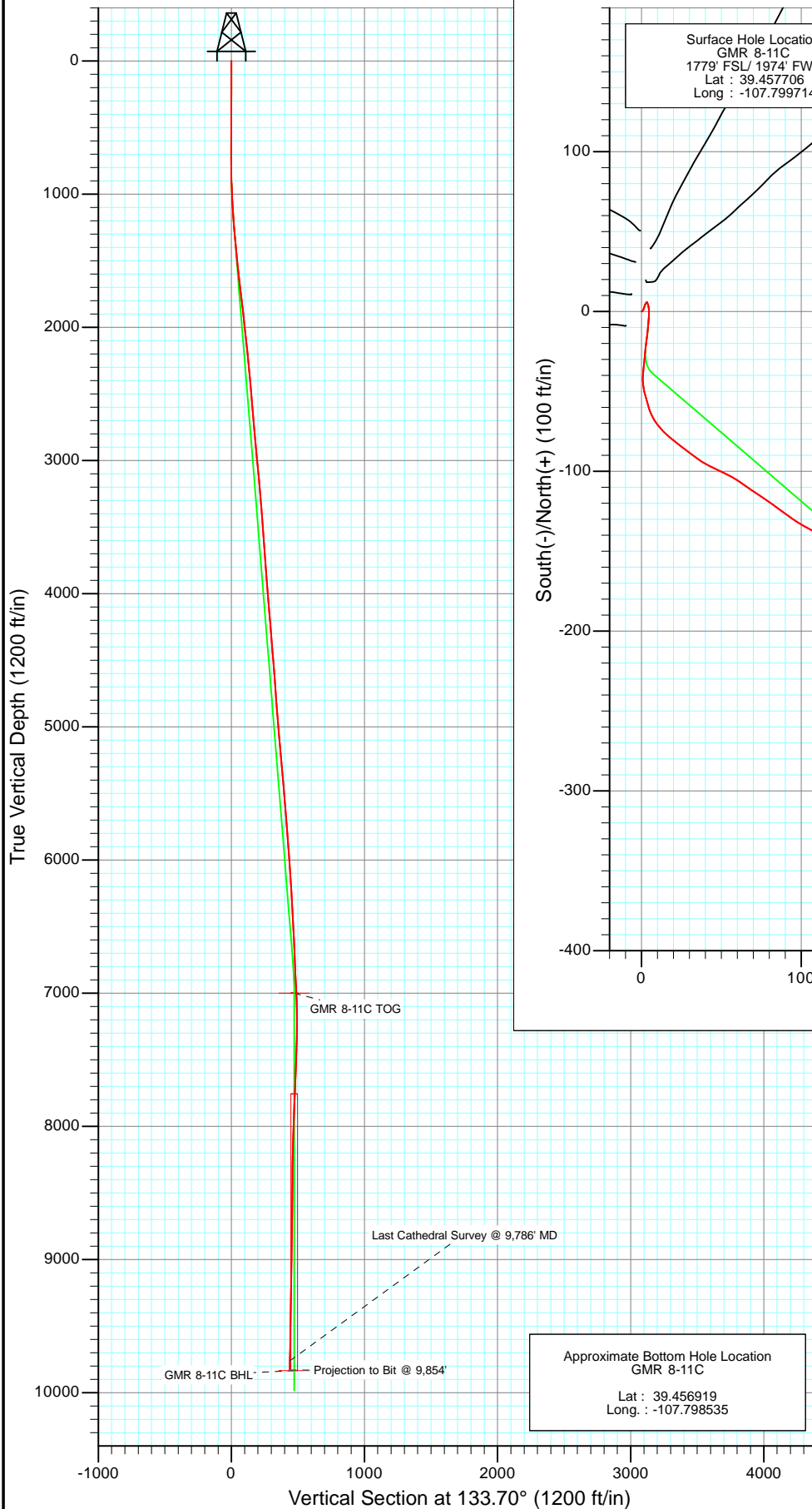




Project: Mamm Creek
 Site: NESW S8 T7S R93W (K8W Pad)
 Well: GMR 8-11C
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.28°

Magnetic Field
 Strength: 52255.2snT
 Dip Angle: 65.75°
 Date: 4/21/2011
 Model: IGRF2010

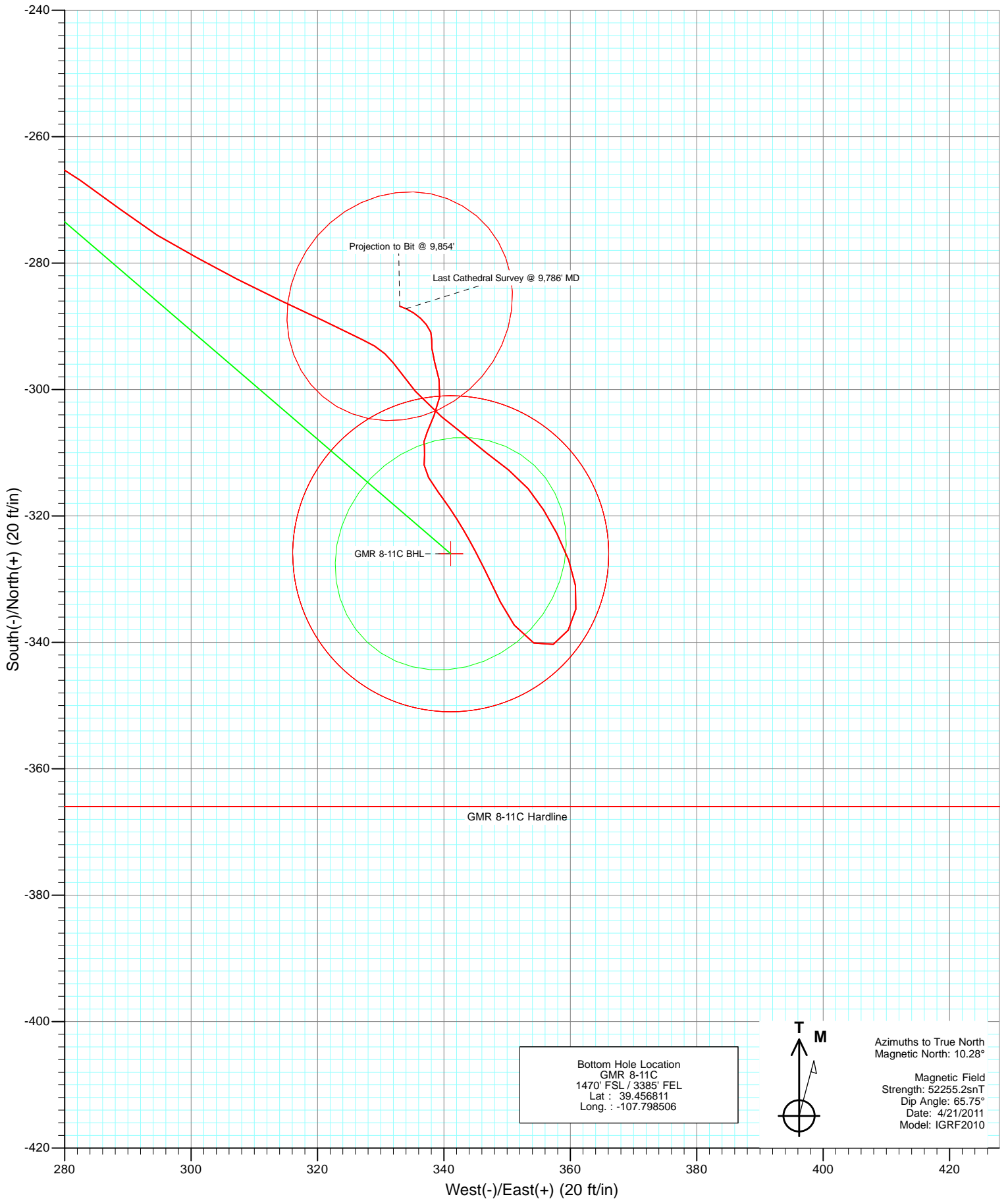
DESIGN DETAILS: DD

Job #115033 (SH), 115175 (MH): KR
 KBE2 @ 7859.0ft (Patterson 330)

Target	Azimuth	Origin	N/S	E/W	From TVD
GMR 8-11C BHL	133.70	Slot	0.0	0.0	0.0

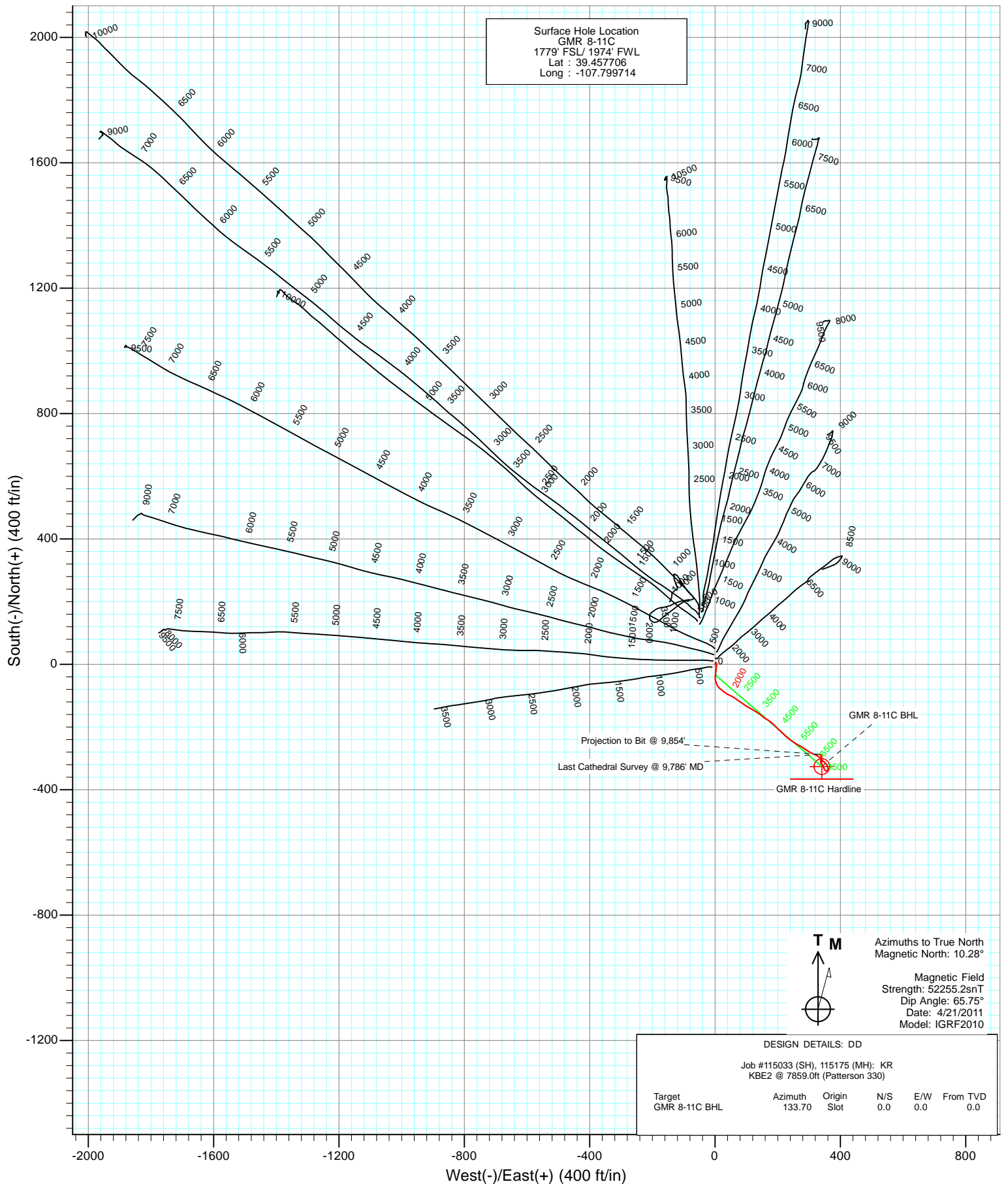


Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-11C
Wellbore: DD
Design: FINAL





Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-11C
Wellbore: DD
Design: FINAL



Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-11C
Project:	Mamm Creek	TVD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Site:	NESW S8 T7S R93W (K8W Pad)	MD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Well:	GMR 8-11C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

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:	39.458194
From:	Lat/Long	Easting:	2,350,698.86 ft	Longitude:	-107.799878
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.45 °

Well		GMR 8-11C				
Well Position	+N/-S	0.0 ft	Northing:	1,599,820.19 ft	Latitude:	39.457706
	+E/-W	0.0 ft	Easting:	2,350,740.59 ft	Longitude:	-107.799714
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)
	IGRF2010	4/21/2011	10.28	65.75	52,255

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	133.70	

Survey Program	Date	5/9/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
122.0	9,854.0	Survey #1 (DD)	MWD	Geolink MWD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
122.0	0.50	72.80	122.0	0.2	0.5	0.3	0.41	0.41		
151.0	0.70	27.20	151.0	0.4	0.7	0.3	1.72	0.69		
181.0	0.50	50.90	181.0	0.6	0.9	0.2	1.05	-0.67		
211.0	0.40	19.20	211.0	0.8	1.0	0.2	0.88	-0.33		
242.0	0.90	23.60	242.0	1.1	1.2	0.1	1.62	1.61		
301.0	0.70	38.30	301.0	1.8	1.6	-0.1	0.48	-0.34		
393.0	1.10	4.00	393.0	3.1	2.0	-0.7	0.71	0.43		
485.0	0.70	33.80	485.0	4.5	2.4	-1.4	0.66	-0.43		
578.0	0.70	37.50	578.0	5.4	3.0	-1.6	0.05	0.00		
670.0	0.10	345.20	670.0	5.9	3.3	-1.7	0.70	-0.65		
762.0	0.50	131.00	762.0	5.7	3.6	-1.3	0.64	0.43		
824.0	0.90	173.30	823.9	5.1	3.9	-0.7	1.01	0.65		

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-11C
Project:	Mamm Creek	TVD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Site:	NESW S8 T7S R93W (K8W Pad)	MD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Well:	GMR 8-11C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
854.0	0.90	157.80	853.9	4.6	4.0	-0.3	0.81	0.00	
885.0	1.50	163.70	884.9	4.0	4.2	0.3	1.97	1.94	
916.0	2.50	166.80	915.9	3.0	4.5	1.2	3.24	3.23	
947.0	2.90	170.60	946.9	1.5	4.8	2.4	1.41	1.29	
978.0	3.30	183.20	977.8	-0.1	4.8	3.6	2.54	1.29	
1,009.0	4.00	182.40	1,008.8	-2.1	4.7	4.9	2.26	2.26	
1,041.0	4.70	186.70	1,040.7	-4.5	4.5	6.4	2.41	2.19	
1,072.0	5.50	182.80	1,071.6	-7.3	4.3	8.1	2.81	2.58	
1,104.0	6.20	184.60	1,103.4	-10.5	4.1	10.2	2.26	2.19	
1,135.0	6.30	188.10	1,134.2	-13.9	3.7	12.3	1.27	0.32	
1,210.0	6.90	186.40	1,208.7	-22.4	2.7	17.4	0.84	0.80	
1,346.0	6.90	185.10	1,343.7	-38.7	1.0	27.5	0.11	0.00	
1,437.0	7.50	167.90	1,434.0	-49.9	1.8	35.8	2.45	0.66	
1,527.0	7.40	160.70	1,523.3	-61.1	4.9	45.8	1.04	-0.11	
1,618.0	6.70	142.10	1,613.6	-70.9	10.1	56.3	2.61	-0.77	
1,709.0	6.50	130.20	1,704.0	-78.4	17.3	66.7	1.52	-0.22	
1,800.0	6.80	126.60	1,794.4	-84.9	25.6	77.2	0.56	0.33	
1,890.0	6.40	127.70	1,883.8	-91.2	33.8	87.4	0.47	-0.44	
1,981.0	6.50	117.00	1,974.2	-96.6	42.4	97.4	1.32	0.11	
2,072.0	6.80	114.20	2,064.6	-101.1	51.9	107.4	0.49	0.33	
2,162.0	5.90	124.20	2,154.0	-105.9	60.6	117.0	1.58	-1.00	
2,253.0	5.40	125.20	2,244.6	-111.0	68.0	125.9	0.56	-0.55	
2,344.0	5.50	123.10	2,335.2	-115.9	75.1	134.4	0.25	0.11	
2,435.0	5.30	126.90	2,425.8	-120.8	82.1	142.8	0.45	-0.22	
2,525.0	5.10	124.80	2,515.4	-125.6	88.8	150.9	0.31	-0.22	
2,616.0	4.50	126.20	2,606.1	-130.0	95.0	158.5	0.67	-0.66	
2,707.0	5.40	118.60	2,696.8	-134.1	101.6	166.1	1.22	0.99	
2,798.0	5.20	118.50	2,787.4	-138.2	109.0	174.2	0.22	-0.22	
2,888.0	4.80	116.30	2,877.0	-141.8	115.9	181.8	0.49	-0.44	
2,979.0	6.00	123.10	2,967.6	-146.1	123.3	190.1	1.49	1.32	
3,070.0	5.70	123.90	3,058.1	-151.2	131.1	199.2	0.34	-0.33	
3,161.0	5.00	126.10	3,148.8	-156.0	138.0	207.6	0.80	-0.77	
3,251.0	5.40	121.30	3,238.4	-160.5	144.8	215.6	0.66	0.44	
3,342.0	4.70	131.10	3,329.0	-165.2	151.3	223.5	1.22	-0.77	
3,433.0	3.90	132.60	3,419.8	-169.8	156.4	230.3	0.89	-0.88	
3,524.0	3.70	117.20	3,510.6	-173.2	161.3	236.2	1.14	-0.22	
3,614.0	4.70	125.50	3,600.3	-176.7	166.8	242.7	1.30	1.11	
3,705.0	4.60	122.00	3,691.0	-180.8	173.0	249.9	0.33	-0.11	
3,796.0	4.50	122.60	3,781.7	-184.6	179.1	257.0	0.12	-0.11	
3,887.0	4.40	136.60	3,872.5	-189.1	184.5	264.0	1.20	-0.11	
3,977.0	4.40	135.50	3,962.2	-194.1	189.3	270.9	0.09	0.00	
4,068.0	4.20	133.20	4,053.0	-198.8	194.2	277.7	0.29	-0.22	
4,159.0	5.10	135.20	4,143.7	-204.0	199.4	285.1	1.00	0.99	
4,249.0	4.40	132.00	4,233.3	-209.1	204.8	292.6	0.83	-0.78	
4,340.0	4.70	137.10	4,324.1	-214.2	209.9	299.8	0.55	0.33	
4,431.0	4.70	130.20	4,414.8	-219.3	215.3	307.2	0.62	0.00	
4,522.0	4.50	132.60	4,505.5	-224.1	220.8	314.5	0.30	-0.22	
4,612.0	4.40	137.90	4,595.2	-229.1	225.7	321.5	0.47	-0.11	
4,703.0	4.70	126.40	4,685.9	-233.9	231.1	328.7	1.05	0.33	
4,794.0	4.10	128.10	4,776.6	-238.1	236.6	335.6	0.67	-0.66	
4,885.0	4.60	122.40	4,867.4	-242.1	242.3	342.4	0.73	0.55	
4,976.0	4.60	125.20	4,958.1	-246.1	248.3	349.6	0.25	0.00	
5,066.0	4.30	126.00	5,047.8	-250.2	254.0	356.5	0.34	-0.33	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-11C
Project:	Mamm Creek	TVD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Site:	NESW S8 T7S R93W (K8W Pad)	MD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Well:	GMR 8-11C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
5,157.0	5.20	120.20	5,138.5	-254.3	260.3	363.9	1.12	0.99	
5,248.0	5.50	116.40	5,229.1	-258.3	267.8	372.1	0.51	0.33	
5,337.0	5.60	120.20	5,317.7	-262.4	275.4	380.4	0.43	0.11	
5,427.0	5.10	124.70	5,407.3	-266.9	282.5	388.6	0.72	-0.56	
5,518.0	4.60	127.40	5,498.0	-271.4	288.7	396.2	0.60	-0.55	
5,609.0	4.60	122.70	5,588.7	-275.6	294.7	403.4	0.41	0.00	
5,700.0	4.60	116.20	5,679.4	-279.2	301.0	410.5	0.57	0.00	
5,791.0	4.30	120.30	5,770.1	-282.5	307.2	417.3	0.48	-0.33	
5,886.0	5.00	112.70	5,864.8	-285.9	314.1	424.6	0.98	0.74	
5,977.0	4.40	118.10	5,955.5	-289.1	320.8	431.7	0.82	-0.66	
6,067.0	4.40	113.70	6,045.2	-292.1	327.1	438.2	0.37	0.00	
6,158.0	3.60	142.60	6,136.0	-295.7	332.0	444.3	2.35	-0.88	
6,249.0	3.60	141.60	6,226.8	-300.3	335.5	450.0	0.07	0.00	
6,340.0	3.70	127.40	6,317.6	-304.3	339.6	455.7	1.00	0.11	
6,430.0	2.70	130.30	6,407.5	-307.4	343.5	460.7	1.13	-1.11	
6,521.0	2.70	128.00	6,498.4	-310.1	346.9	465.0	0.12	0.00	
6,612.0	2.70	126.90	6,589.3	-312.7	350.3	469.3	0.06	0.00	
6,703.0	2.70	140.50	6,680.2	-315.7	353.3	473.5	0.70	0.00	
6,793.0	2.60	147.90	6,770.1	-319.0	355.8	477.6	0.40	-0.11	
6,884.0	2.80	152.40	6,861.0	-322.7	357.9	481.7	0.32	0.22	
6,977.0	2.90	159.90	6,953.9	-327.0	359.8	486.0	0.41	0.11	
7,067.0	2.40	171.60	7,043.8	-331.0	360.8	489.5	0.82	-0.56	
7,158.0	2.40	186.10	7,134.7	-334.8	360.9	492.2	0.67	0.00	
7,247.0	2.30	215.00	7,223.6	-338.1	359.7	493.6	1.32	-0.11	
7,338.0	1.90	239.90	7,314.6	-340.3	357.3	493.4	1.08	-0.44	
7,428.0	2.60	298.60	7,404.5	-340.1	354.2	491.1	2.54	0.78	
7,519.0	2.80	325.50	7,495.4	-337.3	351.2	486.9	1.40	0.22	
7,610.0	2.60	332.60	7,586.3	-333.6	348.9	482.8	0.43	-0.22	
7,701.0	2.30	335.70	7,677.2	-330.1	347.2	479.1	0.36	-0.33	
7,791.0	2.20	331.80	7,767.2	-326.9	345.7	475.8	0.20	-0.11	
7,882.0	2.20	332.50	7,858.1	-323.9	344.1	472.5	0.03	0.00	
7,973.0	1.90	326.70	7,949.0	-321.0	342.4	469.4	0.40	-0.33	
8,064.0	1.70	325.90	8,040.0	-318.7	340.8	466.6	0.22	-0.22	
8,155.0	1.90	323.50	8,131.0	-316.3	339.2	463.8	0.23	0.22	
8,245.0	1.80	329.80	8,220.9	-313.9	337.6	460.9	0.25	-0.11	
8,334.0	1.00	0.90	8,309.9	-311.9	336.9	459.1	1.21	-0.90	
8,425.0	1.00	3.80	8,400.9	-310.3	337.0	458.0	0.06	0.00	
8,515.0	0.70	352.30	8,490.9	-309.0	336.9	457.1	0.38	-0.33	
8,606.0	0.00	280.30	8,581.9	-308.5	336.9	456.7	0.77	-0.77	
8,697.0	0.30	0.60	8,672.9	-308.2	336.9	456.5	0.33	0.33	
8,788.0	1.70	22.30	8,763.8	-306.7	337.4	455.8	1.57	1.54	
8,878.0	2.00	21.70	8,853.8	-304.0	338.5	454.8	0.33	0.33	
8,969.0	1.80	11.40	8,944.7	-301.2	339.3	453.4	0.43	-0.22	
9,060.0	1.80	344.40	9,035.7	-298.4	339.2	451.4	0.92	0.00	
9,151.0	1.70	346.80	9,126.7	-295.7	338.5	449.0	0.14	-0.11	
9,242.0	1.10	351.90	9,217.6	-293.5	338.1	447.2	0.67	-0.66	
9,332.0	0.70	11.20	9,307.6	-292.1	338.1	446.3	0.55	-0.44	
9,423.0	0.90	337.90	9,398.6	-290.9	337.9	445.3	0.55	0.22	
9,514.0	0.90	320.20	9,489.6	-289.7	337.2	443.9	0.30	0.00	
9,604.0	0.80	313.90	9,579.6	-288.7	336.3	442.6	0.15	-0.11	
9,695.0	0.90	304.40	9,670.6	-287.9	335.3	441.3	0.19	0.11	
9,786.0	0.90	292.00	9,761.6	-287.2	334.0	439.9	0.21	0.00	Last Cathedral Survey @ 9,786' MD
9,854.0	0.90	292.00	9,829.6	-286.8	333.0	438.9	0.00	0.00	Projection to Bit @ 9,854'

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-11C
Project:	Mamm Creek	TVD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Site:	NESW S8 T7S R93W (K8W Pad)	MD Reference:	KBE2 @ 7859.0ft (Patterson 330)
Well:	GMR 8-11C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
GMR 8-11C Hardline	0.00	0.00	-9,834.0	-326.0	341.1	1,599,485.69	2,351,073.32	39.456811	-107.798506
- survey misses target center by 9845.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-9,834.0	-40.0	100.0	1,599,443.17	2,351,172.27		
Point 2			-9,834.0	-40.0	-100.0	1,599,448.23	2,350,972.34		
GMR 8-11C BHL	0.00	0.00	9,834.0	-326.0	341.1	1,599,485.69	2,351,073.32	39.456811	-107.798506
- survey misses target center by 40.2ft at 9854.0ft MD (9829.6 TVD, -286.8 N, 333.0 E)									
- Circle (radius 25.0)									
GMR 8-11C TOG	0.00	0.00	7,000.0	-326.0	341.1	1,599,485.69	2,351,073.32	39.456811	-107.798506
- survey misses target center by 19.6ft at 7022.8ft MD (6999.6 TVD, -329.1 N, 360.4 E)									
- Circle (radius 25.0)									
Interp @ 1161.0 (GMR 8	0.00	0.00	1,161.0	-15.5	0.0	1,599,804.66	2,350,740.19	39.457663	-107.799714
- survey misses target center by 3.6ft at 1161.9ft MD (1160.9 TVD, -16.8 N, 3.3 E)									
- Point									

Survey Annotations				
	Measured Depth	Vertical Depth	Local Coordinates	
	(ft)	(ft)	+N/-S (ft)	+E/-W (ft)
				Comment
	9,786.0	9,761.6	-287.2	334.0
	9,854.0	9,829.6	-286.8	333.0

Checked By: _____ Approved By: _____ Date: _____