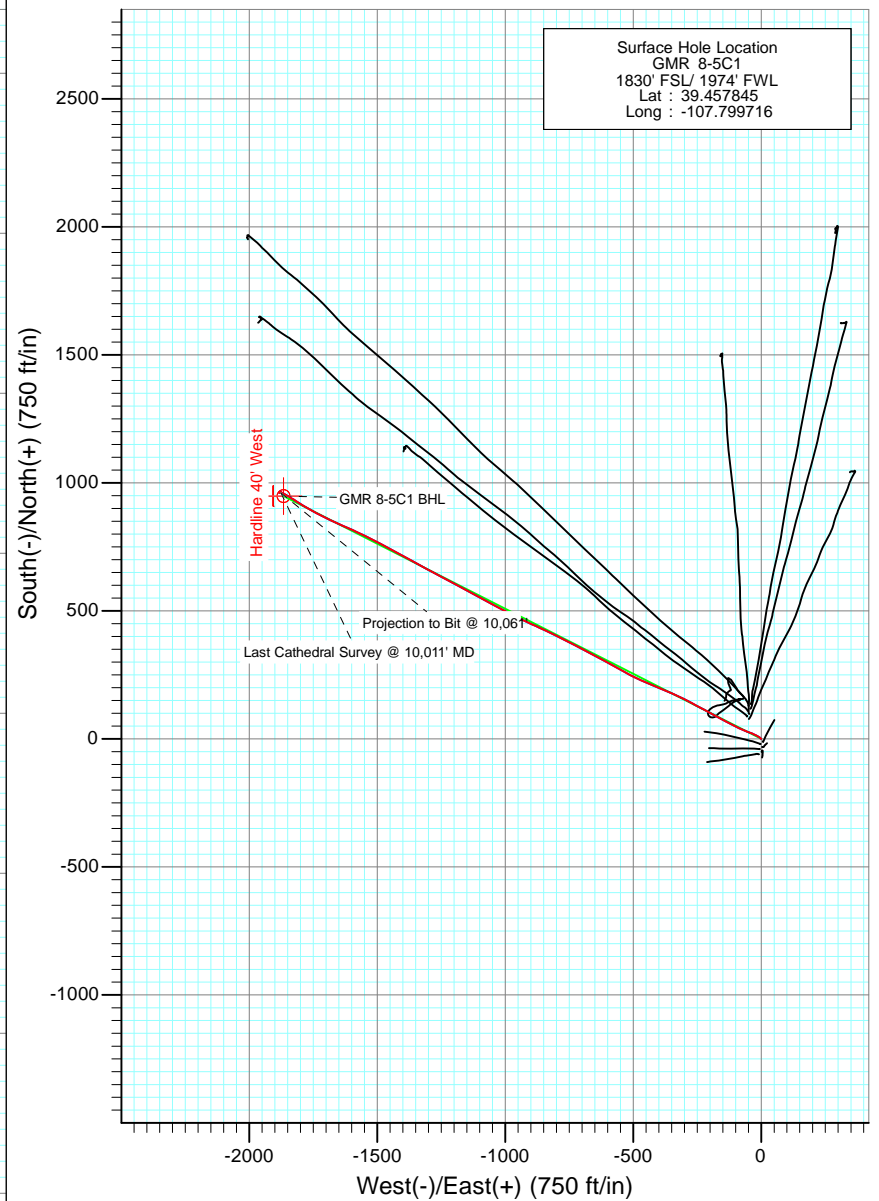
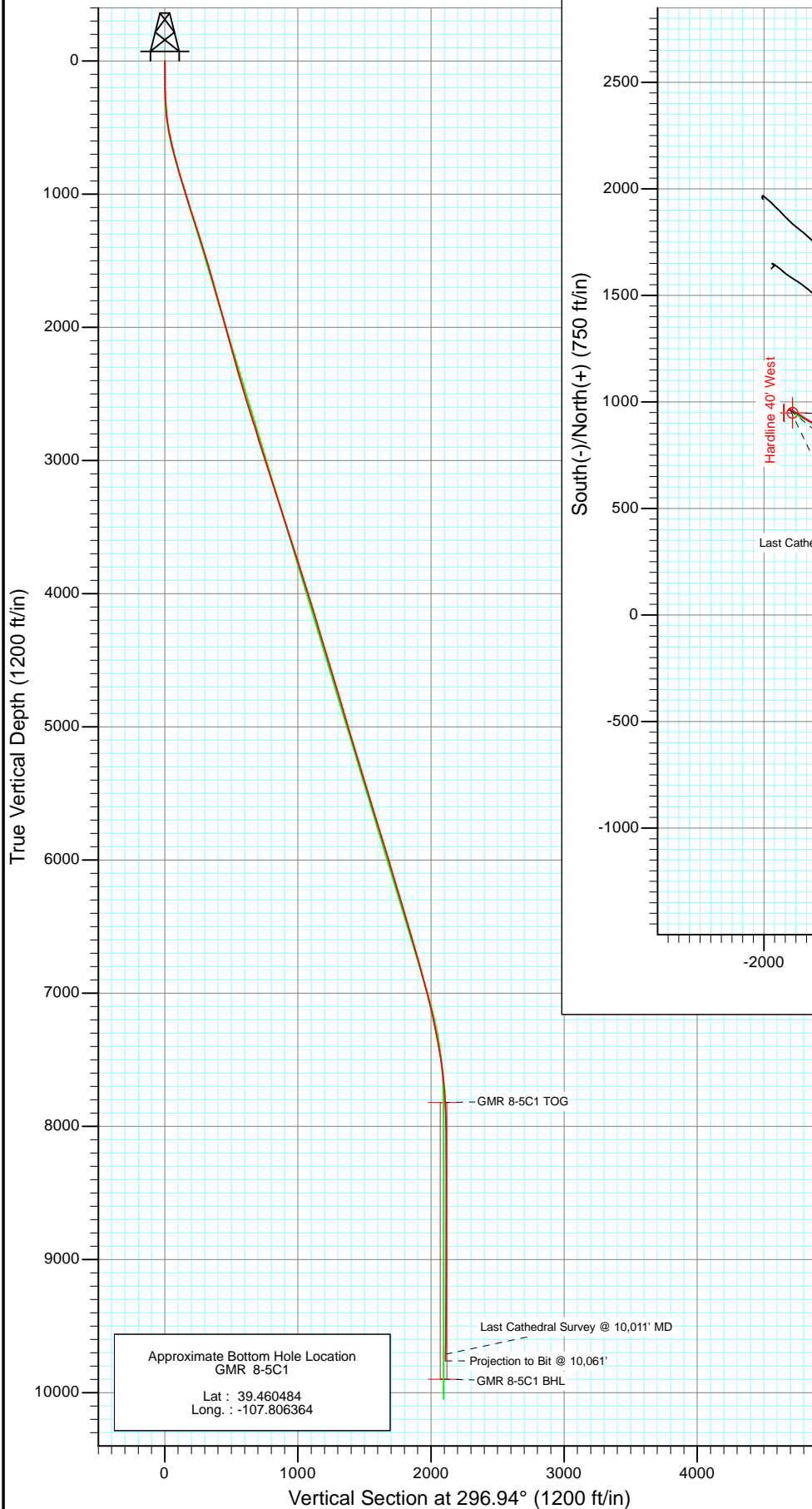




Project: Mamm Creek
 Site: NESW S8 T7S R93W (K8W Pad)
 Well: GMR 8-5C1
 Wellbore: DD
 Design: Final



Azimuths to True North
 Magnetic North: 10.28°

Magnetic Field
 Strength: 52308.9snT
 Dip Angle: 65.77°
 Date: 1/31/2011
 Model: IGRF200510

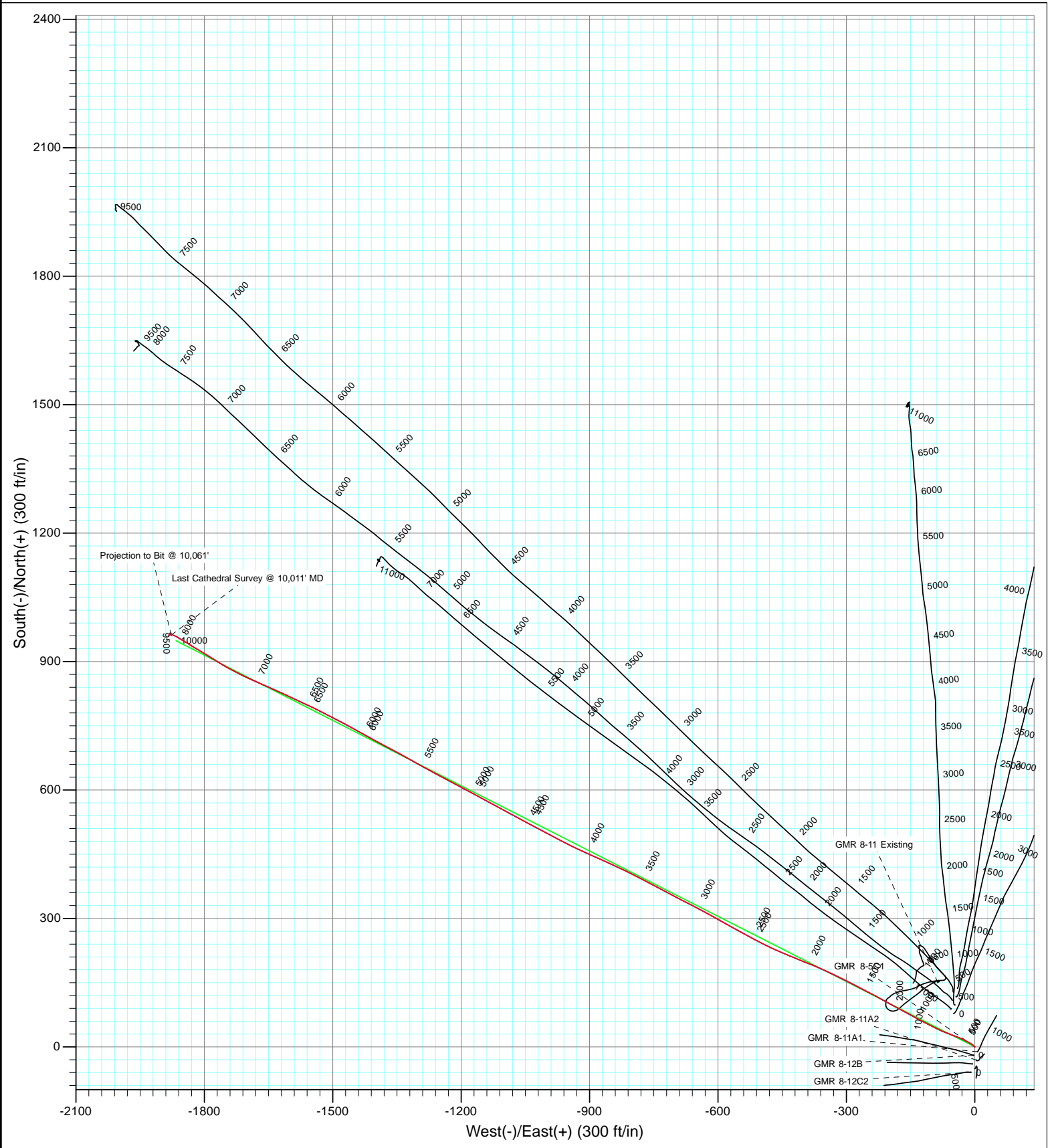
DESIGN DETAILS: DD

Job #115066: KR
 KBE2 @ 7859.0ft (Patterson 330)

Target	Azimuth	Origin	N/S	E/W	From TVD
GMR 8-5C1 BHL	296.94	Slot	0.0	0.0	0.0

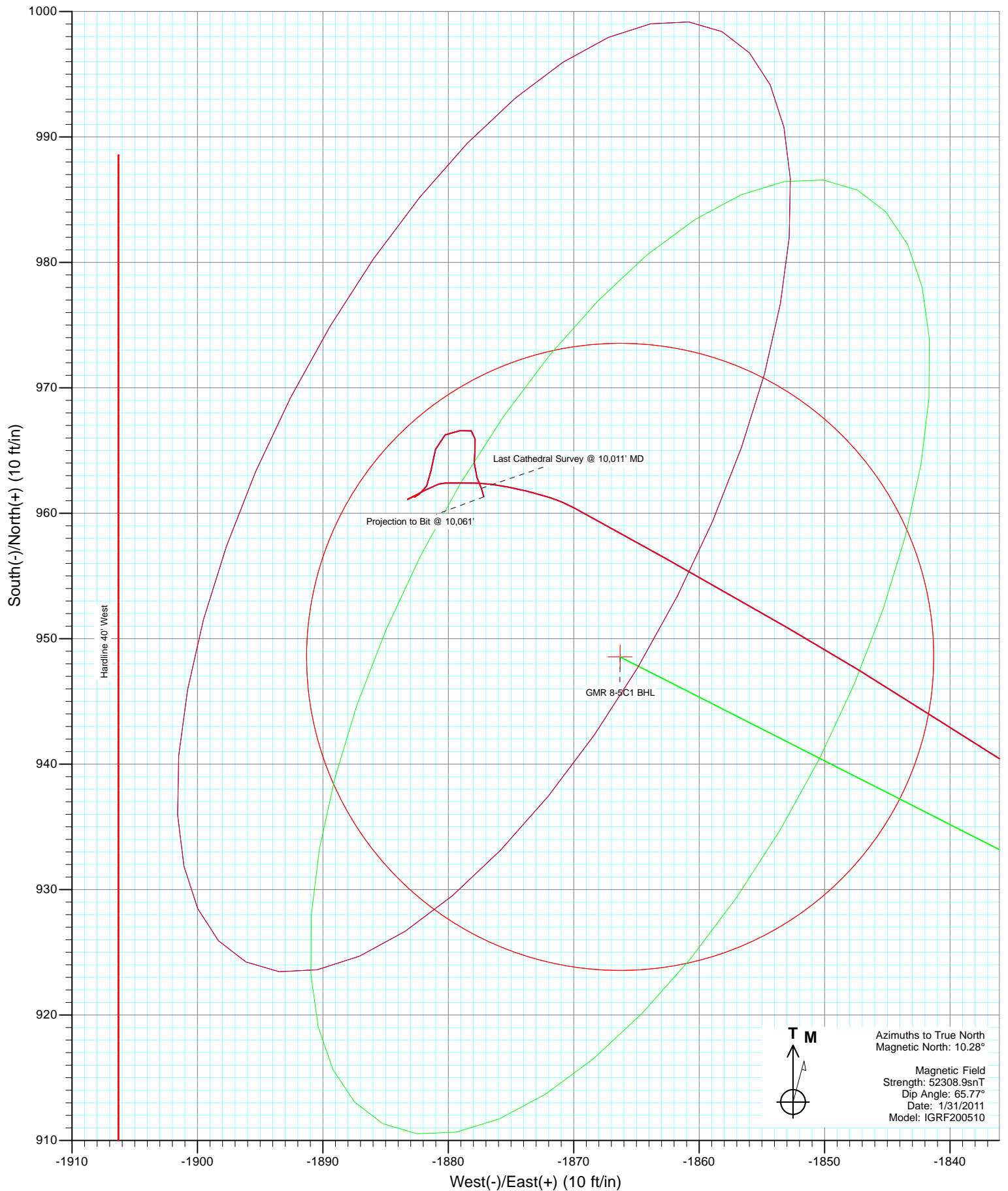


Project: Mamm Creek
Site: NESW S8 T7S R93W (K8W Pad)
Well: GMR 8-5C1
Wellbore: DD
Design: FINAL





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



Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-5C1
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 8-5C1	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 8-5C1					
Well Position	+N/-S	0.0 ft	Northing:	1,599,870.82 ft	Latitude:	39.457845
	+E/-W	0.0 ft	Easting:	2,350,741.31 ft	Longitude:	-107.799716
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	1/31/2011	10.28	65.77	52,309

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	296.94	

Survey Program	Date	2/22/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
121.0	10,061.0	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		
121.0	0.60	280.30	121.0	0.1	-0.6	0.6	0.50	0.50		
151.0	1.10	311.90	151.0	0.3	-1.0	1.0	2.23	1.67		
181.0	1.10	312.50	181.0	0.7	-1.4	1.6	0.04	0.00		
211.0	1.50	316.50	211.0	1.2	-1.9	2.2	1.37	1.33		
242.0	2.00	323.10	242.0	1.9	-2.5	3.1	1.74	1.61		
271.0	2.40	312.30	270.9	2.7	-3.3	4.1	1.98	1.38		
301.0	2.90	314.80	300.9	3.7	-4.3	5.5	1.71	1.67		
332.0	3.60	311.60	331.9	4.9	-5.5	7.2	2.33	2.26		
363.0	4.70	307.20	362.8	6.3	-7.3	9.4	3.69	3.55		
393.0	5.60	300.20	392.7	7.8	-9.5	12.0	3.65	3.00		
424.0	6.50	298.70	423.5	9.4	-12.4	15.3	2.95	2.90		
455.0	8.00	298.80	454.2	11.3	-15.8	19.2	4.84	4.84		

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-5C1
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 8-5C1	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
485.0	8.60	295.10	483.9	13.2	-19.7	23.5	2.68	2.00	
516.0	9.80	297.80	514.5	15.4	-24.1	28.5	4.11	3.87	
547.0	11.00	295.80	545.0	18.0	-29.1	34.1	4.04	3.87	
578.0	12.00	292.60	575.4	20.5	-34.7	40.2	3.83	3.23	
608.0	13.10	291.00	604.7	22.9	-40.8	46.7	3.85	3.67	
670.0	14.20	290.60	664.9	28.1	-54.5	61.3	1.78	1.77	
701.0	14.80	290.40	694.9	30.8	-61.7	69.0	1.94	1.94	
762.0	15.40	293.20	753.8	36.7	-76.5	84.8	1.55	0.98	
793.0	15.70	297.00	783.7	40.3	-84.0	93.1	3.42	0.97	
854.0	16.20	296.10	842.3	47.7	-99.0	109.9	0.91	0.82	
947.0	16.40	296.90	931.6	59.4	-122.4	136.0	0.32	0.22	
1,041.0	17.50	299.10	1,021.5	72.3	-146.5	163.4	1.35	1.17	
1,135.0	17.70	297.90	1,111.1	85.8	-171.5	191.8	0.44	0.21	
1,215.0	18.20	299.30	1,187.2	97.6	-193.2	216.4	0.83	0.62	
1,329.0	17.60	298.10	1,295.7	114.5	-223.9	251.5	0.62	-0.53	
1,360.0	17.60	298.60	1,325.3	118.9	-232.1	260.8	0.49	0.00	
1,453.0	17.10	296.70	1,414.0	131.8	-256.7	288.6	0.81	-0.54	
1,548.0	17.00	298.10	1,504.9	144.6	-281.4	316.4	0.44	-0.11	
1,641.0	16.40	296.00	1,593.9	156.8	-305.2	343.1	0.91	-0.65	
1,735.0	16.40	295.60	1,684.1	168.3	-329.1	369.7	0.12	0.00	
1,829.0	15.60	295.40	1,774.5	179.5	-352.5	395.6	0.85	-0.85	
1,924.0	14.90	290.90	1,866.1	189.3	-375.5	420.5	1.45	-0.74	
2,018.0	15.60	292.50	1,956.8	198.5	-398.4	445.1	0.87	0.74	
2,111.0	14.70	292.40	2,046.6	207.7	-420.9	469.3	0.97	-0.97	
2,205.0	15.20	292.60	2,137.4	217.0	-443.3	493.5	0.53	0.53	
2,299.0	15.70	293.60	2,228.0	226.8	-466.3	518.5	0.60	0.53	
2,394.0	16.00	296.50	2,319.4	237.8	-489.8	544.4	0.89	0.32	
2,488.0	17.10	298.50	2,409.5	250.2	-513.6	571.2	1.32	1.17	
2,582.0	17.60	298.50	2,499.2	263.6	-538.2	599.2	0.53	0.53	
2,677.0	17.30	298.90	2,589.8	277.3	-563.2	627.7	0.34	-0.32	
2,772.0	17.40	299.50	2,680.5	291.1	-587.9	656.0	0.22	0.11	
2,866.0	16.60	299.40	2,770.4	304.6	-611.8	683.4	0.85	-0.85	
2,961.0	16.80	297.40	2,861.4	317.6	-635.8	710.7	0.64	0.21	
3,055.0	17.60	297.20	2,951.2	330.3	-660.5	738.5	0.85	0.85	
3,149.0	18.10	297.60	3,040.7	343.6	-686.1	767.3	0.55	0.53	
3,243.0	17.50	297.90	3,130.2	357.0	-711.6	796.1	0.65	-0.64	
3,337.0	18.20	297.50	3,219.7	370.4	-737.1	824.9	0.76	0.74	
3,431.0	18.20	297.90	3,309.0	384.0	-763.1	854.2	0.13	0.00	
3,525.0	17.70	297.20	3,398.4	397.4	-788.8	883.2	0.58	-0.53	
3,620.0	17.90	295.70	3,488.8	410.3	-814.8	912.2	0.53	0.21	
3,715.0	17.80	295.20	3,579.3	422.9	-841.0	941.4	0.19	-0.11	
3,808.0	18.50	294.40	3,667.6	435.0	-867.3	970.3	0.80	0.75	
3,903.0	17.50	293.20	3,758.0	446.9	-894.2	999.6	1.12	-1.05	
3,998.0	17.10	294.90	3,848.7	458.4	-920.0	1,027.8	0.68	-0.42	
4,092.0	17.40	297.10	3,938.5	470.6	-945.0	1,055.7	0.76	0.32	
4,187.0	17.30	296.50	4,029.1	483.4	-970.3	1,084.0	0.22	-0.11	
4,281.0	17.20	298.80	4,118.9	496.3	-995.0	1,111.9	0.73	-0.11	
4,376.0	16.50	297.10	4,209.8	509.2	-1,019.3	1,139.4	0.90	-0.74	
4,469.0	17.10	299.10	4,298.9	521.9	-1,043.0	1,166.3	0.90	0.65	
4,564.0	16.50	298.30	4,389.8	535.1	-1,067.1	1,193.7	0.68	-0.63	
4,658.0	17.10	298.00	4,479.8	547.9	-1,091.1	1,220.9	0.64	0.64	
4,752.0	16.40	297.40	4,569.8	560.5	-1,115.1	1,248.0	0.77	-0.74	
4,847.0	17.10	299.30	4,660.8	573.5	-1,139.1	1,275.3	0.94	0.74	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-5C1
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 8-5C1	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
4,941.0	16.80	298.10	4,750.7	586.6	-1,163.2	1,302.7	0.49	-0.32	
5,035.0	16.30	298.40	4,840.8	599.3	-1,186.8	1,329.5	0.54	-0.53	
5,130.0	17.00	297.80	4,931.8	612.1	-1,210.8	1,356.7	0.76	0.74	
5,224.0	16.40	298.30	5,021.8	624.8	-1,234.6	1,383.7	0.66	-0.64	
5,319.0	16.90	298.00	5,112.9	637.7	-1,258.6	1,410.9	0.53	0.53	
5,412.0	16.10	297.90	5,202.0	650.0	-1,282.0	1,437.3	0.86	-0.86	
5,506.0	16.60	300.30	5,292.2	662.9	-1,305.1	1,463.8	0.89	0.53	
5,599.0	17.70	299.00	5,381.1	676.5	-1,328.9	1,491.2	1.25	1.18	
5,693.0	17.30	298.00	5,470.7	690.0	-1,353.7	1,519.4	0.53	-0.43	
5,782.0	16.60	297.90	5,555.9	702.1	-1,376.7	1,545.4	0.79	-0.79	
5,882.0	17.40	298.60	5,651.5	716.0	-1,402.4	1,574.6	0.83	0.80	
5,976.0	17.00	298.60	5,741.3	729.3	-1,426.8	1,602.4	0.43	-0.43	
6,070.0	16.50	299.60	5,831.3	742.4	-1,450.5	1,629.5	0.61	-0.53	
6,164.0	17.40	297.80	5,921.2	755.6	-1,474.5	1,656.8	1.11	0.96	
6,259.0	16.80	296.50	6,012.0	768.3	-1,499.4	1,684.8	0.75	-0.63	
6,353.0	16.30	298.30	6,102.1	780.7	-1,523.2	1,711.5	0.76	-0.53	
6,447.0	16.70	295.20	6,192.3	792.7	-1,547.0	1,738.2	1.03	0.43	
6,540.0	16.40	294.40	6,281.4	803.8	-1,571.0	1,764.7	0.41	-0.32	
6,634.0	17.60	296.00	6,371.3	815.5	-1,595.9	1,792.2	1.37	1.28	
6,729.0	16.30	294.00	6,462.2	827.2	-1,621.0	1,819.9	1.50	-1.37	
6,824.0	15.90	293.60	6,553.5	837.8	-1,645.1	1,846.2	0.44	-0.42	
6,918.0	15.70	293.40	6,643.9	848.0	-1,668.6	1,871.7	0.22	-0.21	
7,012.0	16.10	295.10	6,734.3	858.6	-1,692.0	1,897.4	0.65	0.43	
7,107.0	16.10	296.90	6,825.6	870.2	-1,715.7	1,923.8	0.53	0.00	
7,201.0	15.20	297.20	6,916.1	881.7	-1,738.3	1,949.1	0.96	-0.96	
7,295.0	14.50	301.20	7,007.0	893.4	-1,759.3	1,973.2	1.32	-0.74	
7,390.0	13.10	302.30	7,099.2	905.4	-1,778.6	1,995.8	1.50	-1.47	
7,484.0	12.00	301.60	7,191.0	916.2	-1,795.9	2,016.1	1.18	-1.17	
7,579.0	11.30	300.90	7,284.0	926.1	-1,812.3	2,035.2	0.75	-0.74	
7,673.0	10.60	300.90	7,376.3	935.3	-1,827.6	2,053.1	0.74	-0.74	
7,767.0	9.00	302.80	7,468.9	943.7	-1,841.2	2,069.0	1.74	-1.70	
7,862.0	7.60	299.90	7,562.9	950.9	-1,852.9	2,082.7	1.54	-1.47	
7,957.0	5.80	299.30	7,657.3	956.3	-1,862.6	2,093.7	1.90	-1.89	
8,051.0	4.40	298.30	7,750.9	960.4	-1,869.9	2,102.1	1.49	-1.49	
8,082.0	3.60	287.80	7,781.8	961.2	-1,871.9	2,104.2	3.49	-2.58	
8,114.0	3.20	283.40	7,813.8	961.8	-1,873.7	2,106.1	1.49	-1.25	
8,145.0	2.70	280.80	7,844.7	962.1	-1,875.2	2,107.6	1.67	-1.61	
8,177.0	2.20	276.90	7,876.7	962.3	-1,876.6	2,108.9	1.65	-1.56	
8,208.0	1.70	273.30	7,907.7	962.4	-1,877.6	2,109.9	1.66	-1.61	
8,239.0	1.90	267.70	7,938.7	962.4	-1,878.6	2,110.8	0.86	0.65	
8,270.0	1.50	272.50	7,969.6	962.4	-1,879.5	2,111.6	1.37	-1.29	
8,301.0	1.00	267.50	8,000.6	962.4	-1,880.2	2,112.2	1.65	-1.61	
8,333.0	0.90	253.70	8,032.6	962.3	-1,880.7	2,112.6	0.78	-0.31	
8,428.0	0.70	236.00	8,127.6	961.8	-1,881.9	2,113.5	0.33	-0.21	
8,523.0	0.60	247.40	8,222.6	961.3	-1,882.9	2,114.1	0.17	-0.11	
8,617.0	0.10	82.20	8,316.6	961.1	-1,883.2	2,114.3	0.74	-0.53	
8,712.0	0.40	55.40	8,411.6	961.3	-1,882.9	2,114.1	0.33	0.32	
8,806.0	0.10	182.30	8,505.6	961.4	-1,882.6	2,113.9	0.50	-0.32	
8,901.0	0.10	239.90	8,600.6	961.3	-1,882.7	2,113.9	0.10	0.00	
8,995.0	0.70	57.50	8,694.6	961.6	-1,882.3	2,113.7	0.85	0.64	
9,089.0	0.40	14.70	8,788.6	962.2	-1,881.7	2,113.4	0.52	-0.32	
9,183.0	1.10	15.90	8,882.6	963.4	-1,881.4	2,113.7	0.74	0.74	
9,276.0	1.10	9.00	8,975.6	965.1	-1,881.0	2,114.1	0.14	0.00	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well GMR 8-5C1
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 8-5C1	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
9,371.0	0.80	67.80	9,070.6	966.3	-1,880.2	2,114.0	1.02	-0.32	
9,466.0	0.70	82.80	9,165.6	966.6	-1,879.1	2,113.1	0.23	-0.11	
9,561.0	0.40	104.20	9,260.6	966.6	-1,878.2	2,112.3	0.38	-0.32	
9,655.0	0.70	181.40	9,354.6	965.9	-1,877.9	2,111.7	0.77	0.32	
9,749.0	0.40	180.40	9,448.6	965.0	-1,877.9	2,111.3	0.32	-0.32	
9,844.0	0.80	184.90	9,543.5	964.0	-1,877.9	2,110.9	0.42	0.42	
9,939.0	0.70	151.50	9,638.5	962.9	-1,877.7	2,110.2	0.46	-0.11	
10,011.0	0.80	163.20	9,710.5	962.0	-1,877.4	2,109.5	0.25	0.14	Last Cathedral Survey @ 10,011' MD Projection to Bit @ 10,061'
10,061.0	0.80	163.20	9,760.5	961.3	-1,877.2	2,109.0	0.00	0.00	

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
GMR 8-5C1 TOG	0.00	0.00	7,821.0	948.6	-1,866.3	1,600,866.31	2,348,899.62	39.460449	-107.806326
- survey misses target center by 15.4ft at 8120.7ft MD (7820.5 TVD, 961.8 N, -1874.0 E)									
- Point									
Hardline 40' West	0.00	0.00	-9,899.0	948.6	-1,866.3	1,600,866.31	2,348,899.62	39.460449	-107.806326
- survey misses target center by 10118.0ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-9,899.0	40.0	-40.0	1,600,907.31	2,348,860.65		
Point 2			-9,899.0	-40.0	-40.0	1,600,827.34	2,348,858.62		
GMR 8-5C1 BHL	0.00	0.00	9,899.0	948.6	-1,866.3	1,600,866.31	2,348,899.62	39.460449	-107.806326
- survey misses target center by 139.5ft at 10061.0ft MD (9760.5 TVD, 961.3 N, -1877.2 E)									
- Circle (radius 25.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
10,011.0	9,710.5	962.0	-1,877.4	Last Cathedral Survey @ 10,011' MD	
10,061.0	9,760.5	961.3	-1,877.2	Projection to Bit @ 10,061'	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------