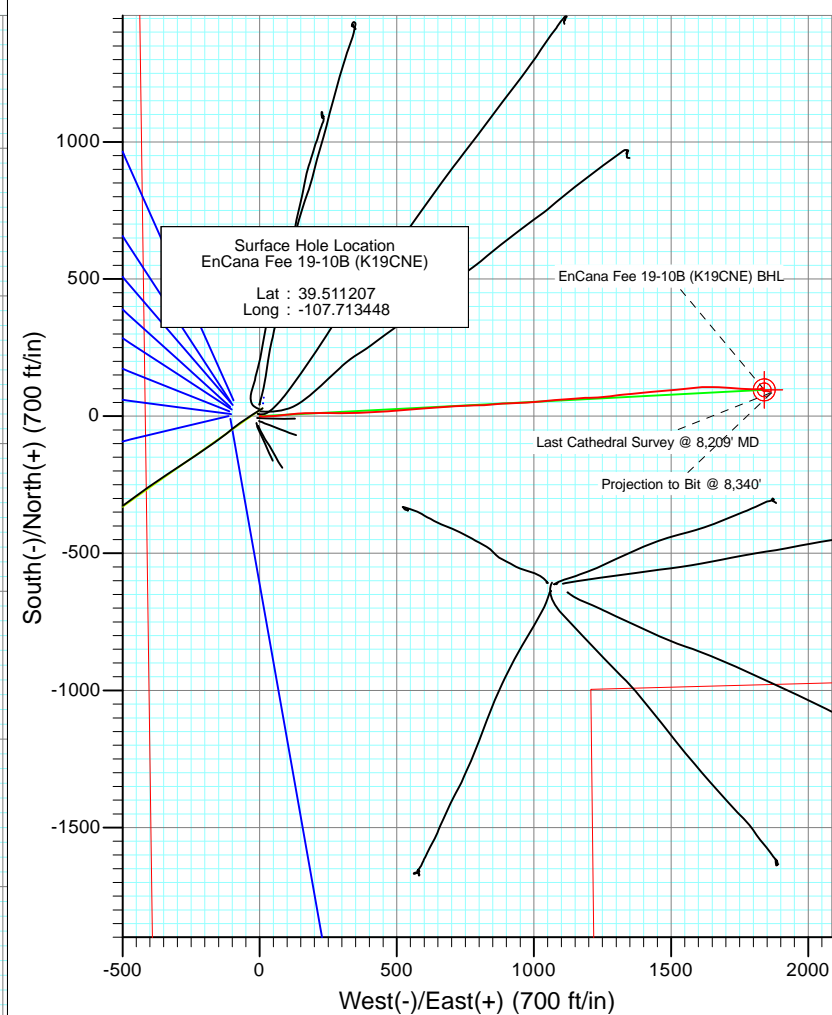
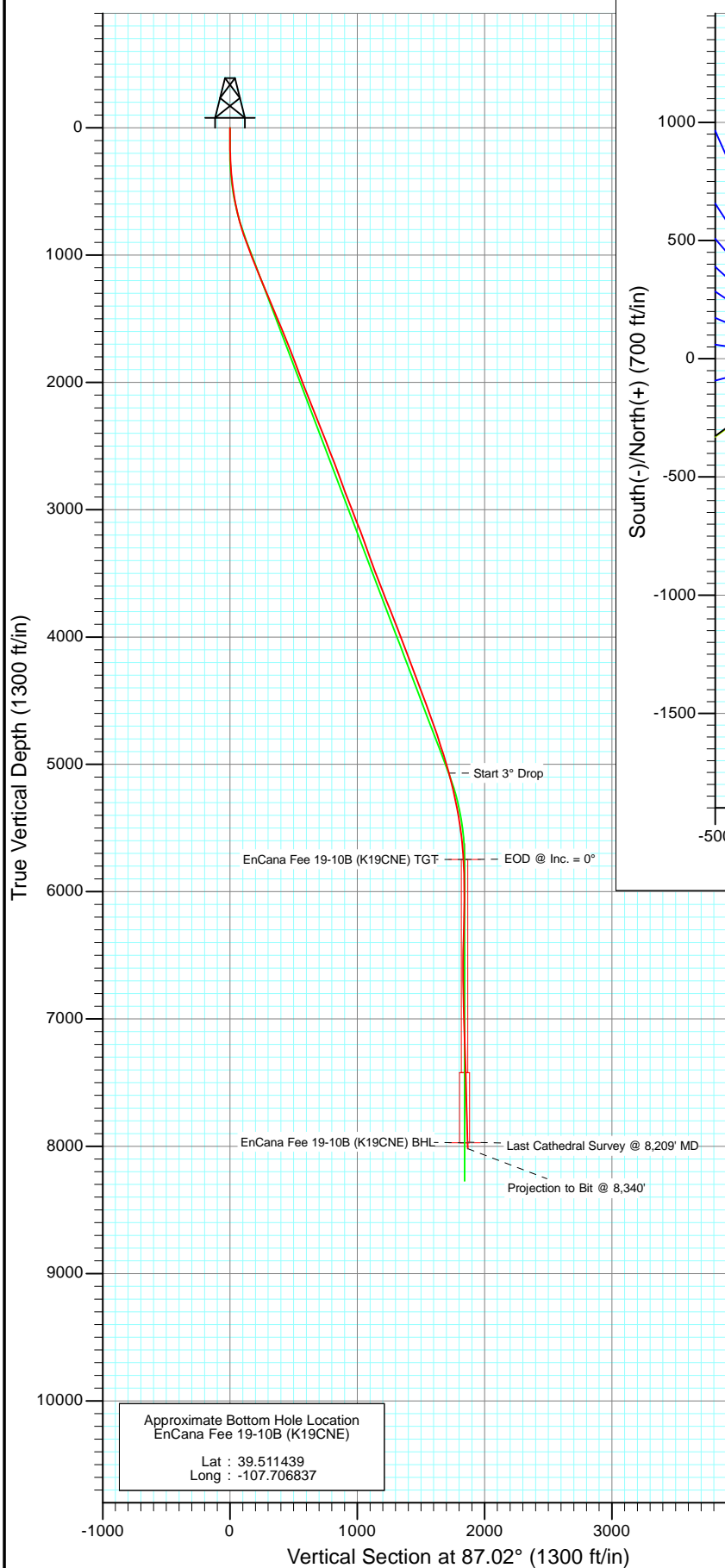




Project: Mamm Creek
Site: K19CNE Pad
Well: EnCana Fee 19-10B (K19CNE)
Wellbore: DD
Design: FINAL



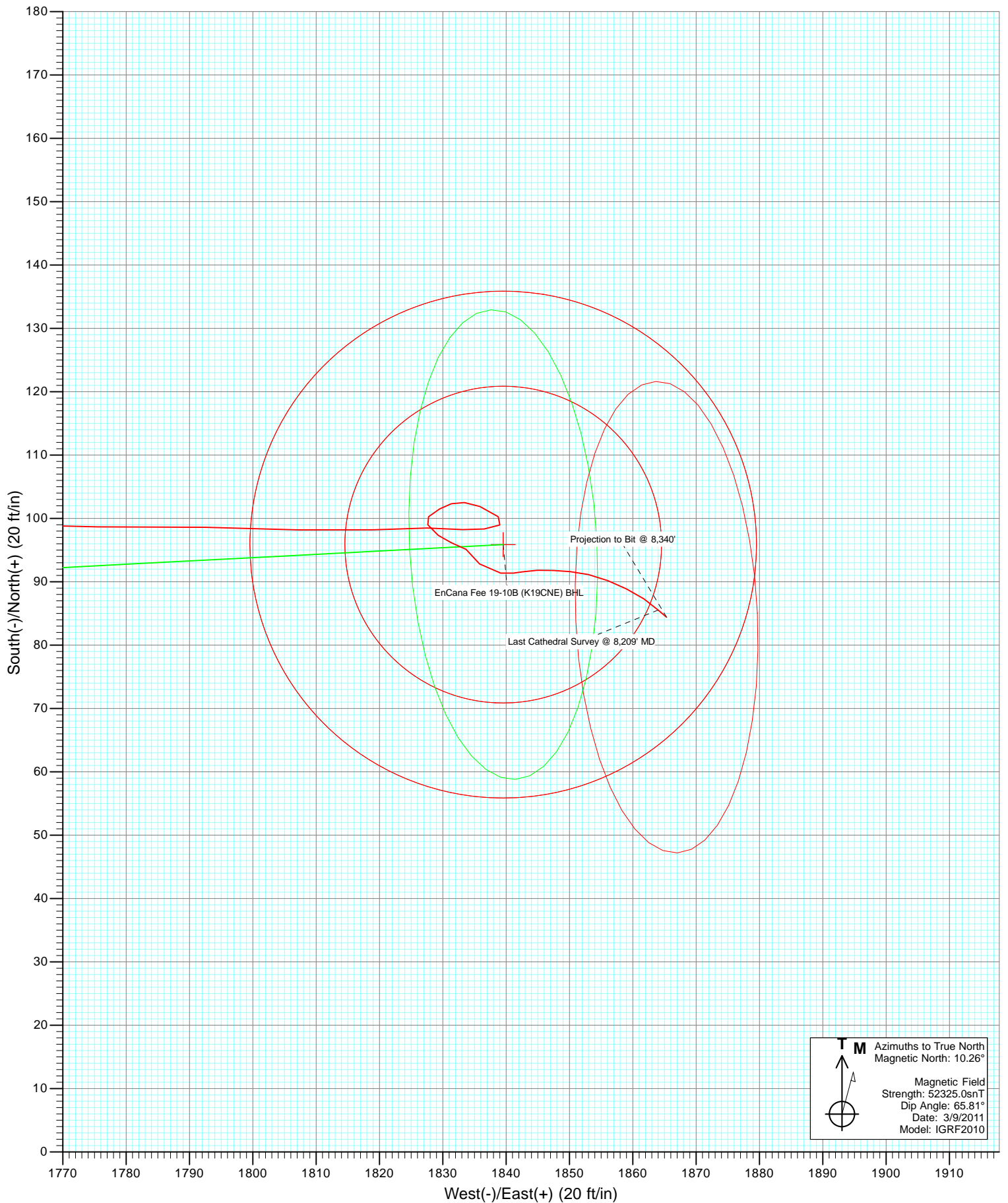
Azimuths to True North
Magnetic North: 10.26°

Magnetic Field
Strength: 52325.0nT
Dip Angle: 65.81°
Date: 3/9/2011
Model: IGRF2010

DD EnCana Fee 19-10B (K19CNE) 115542/125455 (SH) 125042/130355 (MH); SC					
KBE @ 5688.0ft (Original Well Elev) North American Datum 1983 Well EnCana Fee 19-10B (K19CNE), True North					
Target	Azimuth	Origin Type	N/S	E/W	
EnCana Fee 19-10B (K19CNE) BHL	87.02	Slot	0.0	0.0	
	TVD	+N/-S	+E/-W	Latitude	Longitude
EnCana Fee 19-10B (K19CNE) TGT	5747.0	95.9	1839.5	39.511470	-107.706928
EnCana Fee 19-10B (K19CNE) BHL	7972.0	95.9	1839.5	39.511470	-107.706928

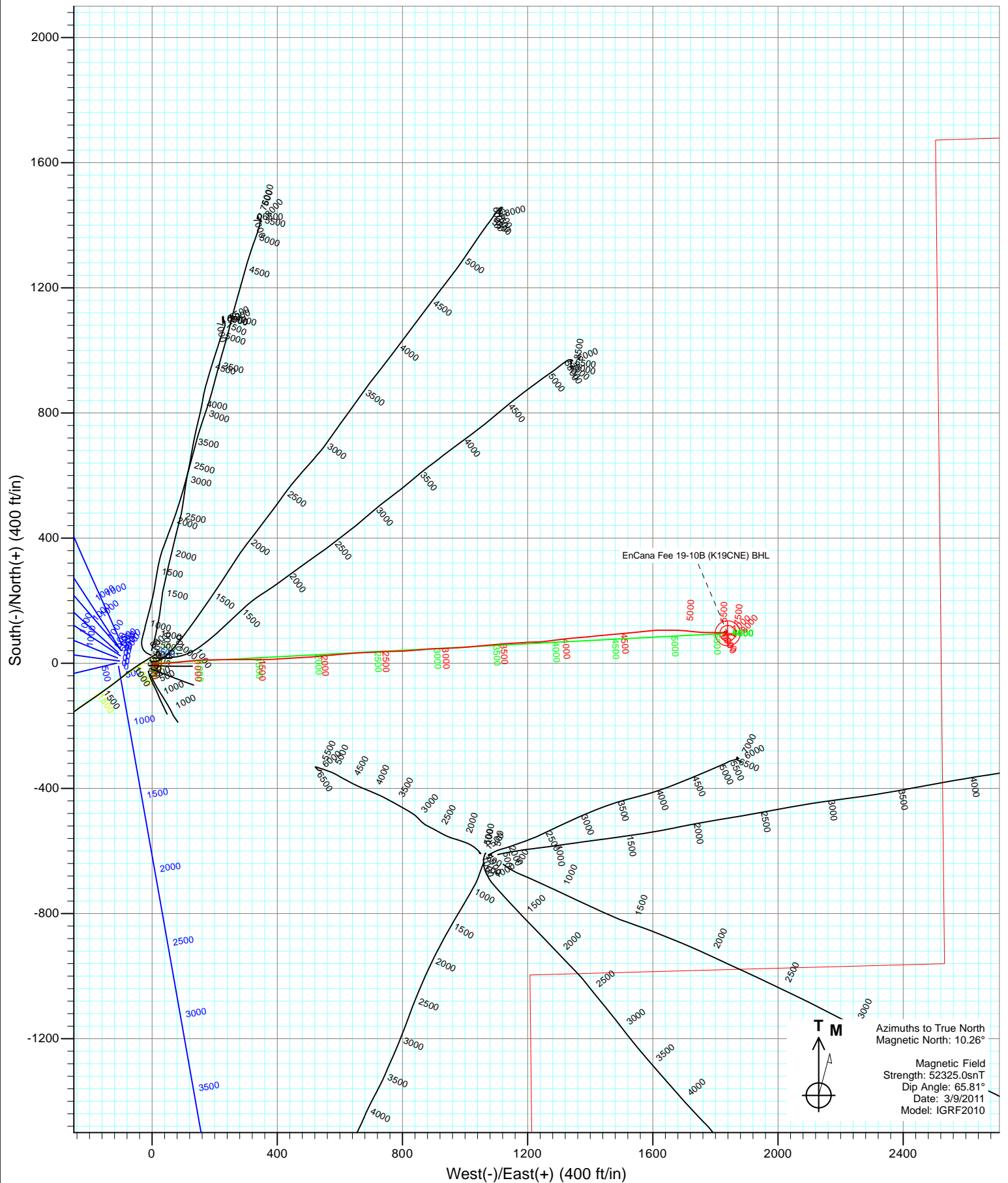


Project: Mamm Creek
Site: K19CNE Pad
Well: EnCana Fee 19-10B (K19CNE)
Wellbore: DD
Design: FINAL





Project: Mamm Creek
Site: K19CNE Pad
Well: EnCana Fee 19-10B (K19CNE)
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well EnCana Fee 19-10B (K19CNE)
Project:	Mamm Creek	TVD Reference:	KBE @ 5688.0ft (Original Well Elev)
Site:	K19CNE Pad	MD Reference:	KBE @ 5688.0ft (Original Well Elev)
Well:	EnCana Fee 19-10B (K19CNE)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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		K19CNE Pad			
Site Position:		Northing:	1,618,725.17 ft	Latitude:	39.511286
From:	Lat/Long	Easting:	2,375,576.53 ft	Longitude:	-107.713411
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.40 °

Well	EnCana Fee 19-10B (K19CNE)					
Well Position	+N/-S	0.0 ft	Northing:	1,618,696.60 ft	Latitude:	39.511207
	+E/-W	0.0 ft	Easting:	2,375,565.43 ft	Longitude:	-107.713448
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,666.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/9/2011	10.26	65.81	52,325

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	87.02	

Survey Program	Date	1/31/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
114.0	8,340.0	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		
114.0	0.20	173.40	114.0	-0.2	0.0	0.0	0.18	0.18		
144.0	0.30	130.60	144.0	-0.3	0.1	0.1	0.68	0.33		
175.0	0.90	96.00	175.0	-0.4	0.4	0.4	2.18	1.94		
206.0	1.80	95.90	206.0	-0.5	1.1	1.1	2.90	2.90		
237.0	2.50	96.30	237.0	-0.6	2.3	2.2	2.26	2.26		
267.0	3.20	90.60	266.9	-0.7	3.8	3.7	2.51	2.33		
298.0	3.90	91.60	297.9	-0.7	5.7	5.6	2.27	2.26		
329.0	4.40	94.20	328.8	-0.8	7.9	7.9	1.72	1.61		
421.0	6.40	90.00	420.4	-1.1	16.6	16.5	2.21	2.17		
514.0	8.70	87.50	512.6	-0.8	28.8	28.7	2.50	2.47		
606.0	11.20	87.50	603.2	-0.1	44.7	44.6	2.72	2.72		
697.0	14.10	83.70	692.0	1.5	64.5	64.5	3.31	3.19		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well EnCana Fee 19-10B (K19CNE)
Project:	Mamm Creek	TVD Reference:	KBE @ 5688.0ft (Original Well Elev)
Site:	K19CNE Pad	MD Reference:	KBE @ 5688.0ft (Original Well Elev)
Well:	EnCana Fee 19-10B (K19CNE)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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
790.0	16.80	83.60	781.6	4.3	89.1	89.2	2.90	2.90	
881.0	19.00	84.30	868.2	7.2	116.9	117.2	2.43	2.42	
973.0	21.10	86.60	954.6	9.7	148.4	148.7	2.44	2.28	
1,068.0	21.70	89.50	1,043.1	10.8	183.0	183.3	1.28	0.63	
1,163.0	22.00	88.70	1,131.2	11.4	218.4	218.7	0.44	0.32	
1,259.0	22.60	90.60	1,220.0	11.6	254.8	255.0	0.98	0.62	
1,310.0	23.10	89.40	1,267.0	11.6	274.6	274.8	1.34	0.98	
1,451.0	22.80	89.50	1,396.9	12.1	329.6	329.8	0.21	-0.21	
1,546.0	22.50	90.00	1,484.6	12.3	366.2	366.3	0.38	-0.32	
1,641.0	22.60	85.60	1,572.3	13.7	402.5	402.7	1.78	0.11	
1,737.0	22.20	86.61	1,661.1	16.2	439.0	439.3	0.58	-0.42	
1,832.0	21.50	87.00	1,749.2	18.2	474.3	474.6	0.75	-0.74	
1,928.0	20.70	85.70	1,838.8	20.4	508.8	509.2	0.97	-0.83	
2,024.0	20.20	84.40	1,928.7	23.3	542.2	542.7	0.70	-0.52	
2,119.0	20.90	84.80	2,017.7	26.4	575.4	576.0	0.75	0.74	
2,215.0	22.10	85.70	2,107.0	29.3	610.5	611.2	1.30	1.25	
2,310.0	21.90	84.40	2,195.1	32.4	646.0	646.8	0.55	-0.21	
2,405.0	21.80	88.70	2,283.3	34.5	681.2	682.1	1.69	-0.11	
2,499.0	21.50	87.10	2,370.7	35.8	715.9	716.8	0.70	-0.32	
2,593.0	21.40	87.10	2,458.1	37.5	750.2	751.1	0.11	-0.11	
2,688.0	21.50	89.30	2,546.6	38.6	784.9	785.9	0.85	0.11	
2,783.0	20.90	85.30	2,635.1	40.2	819.2	820.2	1.65	-0.63	
2,877.0	20.40	84.90	2,723.1	43.0	852.3	853.3	0.55	-0.53	
2,972.0	19.80	86.30	2,812.3	45.5	884.8	886.0	0.81	-0.63	
3,068.0	21.10	88.20	2,902.3	47.1	918.3	919.5	1.52	1.35	
3,163.0	21.70	86.40	2,990.7	48.8	952.9	954.2	0.94	0.63	
3,257.0	21.40	86.10	3,078.1	51.0	987.4	988.7	0.34	-0.32	
3,352.0	20.70	87.10	3,166.8	53.0	1,021.4	1,022.8	0.83	-0.74	
3,447.0	20.30	83.10	3,255.8	55.9	1,054.6	1,056.0	1.53	-0.42	
3,542.0	19.10	84.00	3,345.2	59.5	1,086.4	1,088.0	1.30	-1.26	
3,637.0	20.10	86.90	3,434.7	62.0	1,118.1	1,119.9	1.47	1.05	
3,732.0	21.70	86.20	3,523.5	64.0	1,152.0	1,153.7	1.70	1.68	
3,827.0	20.90	86.20	3,612.0	66.3	1,186.4	1,188.2	0.84	-0.84	
3,922.0	22.00	89.30	3,700.4	67.7	1,221.1	1,223.0	1.66	1.16	
4,017.0	22.20	83.00	3,788.4	70.1	1,256.7	1,258.7	2.50	0.21	
4,112.0	21.70	82.70	3,876.6	74.5	1,291.9	1,294.1	0.54	-0.53	
4,207.0	20.30	84.00	3,965.2	78.4	1,325.8	1,328.0	1.55	-1.47	
4,303.0	20.40	84.80	4,055.3	81.7	1,359.0	1,361.4	0.31	0.10	
4,398.0	21.70	84.90	4,143.9	84.8	1,393.0	1,395.5	1.37	1.37	
4,493.0	21.20	84.10	4,232.3	88.1	1,427.5	1,430.2	0.61	-0.53	
4,588.0	20.00	84.80	4,321.3	91.3	1,460.8	1,463.6	1.29	-1.26	
4,682.0	20.10	85.50	4,409.6	94.1	1,492.9	1,495.8	0.28	0.11	
4,778.0	20.30	84.40	4,499.7	97.0	1,525.9	1,528.9	0.45	0.21	
4,873.0	20.30	83.20	4,588.8	100.5	1,558.7	1,561.8	0.44	0.00	
4,969.0	20.40	84.30	4,678.8	104.2	1,591.9	1,595.2	0.41	0.10	
5,064.0	18.10	89.70	4,768.5	105.9	1,623.1	1,626.4	3.06	-2.42	
5,160.0	17.20	90.30	4,859.9	105.9	1,652.2	1,655.5	0.96	-0.94	
5,256.0	18.60	92.20	4,951.3	105.2	1,681.7	1,684.9	1.58	1.46	
5,352.0	15.10	94.80	5,043.1	103.6	1,709.5	1,712.6	3.73	-3.65	
5,447.0	14.40	96.60	5,135.0	101.2	1,733.6	1,736.5	0.88	-0.74	
5,543.0	13.10	93.60	5,228.3	99.1	1,756.3	1,759.1	1.54	-1.35	
5,638.0	10.30	88.60	5,321.3	98.7	1,775.5	1,778.3	3.13	-2.95	
5,733.0	10.20	91.90	5,414.8	98.6	1,792.4	1,795.1	0.63	-0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well EnCana Fee 19-10B (K19CNE)
Project:	Mamm Creek	TVD Reference:	KBE @ 5688.0ft (Original Well Elev)
Site:	K19CNE Pad	MD Reference:	KBE @ 5688.0ft (Original Well Elev)
Well:	EnCana Fee 19-10B (K19CNE)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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
5,828.0	7.90	91.20	5,508.6	98.2	1,807.4	1,810.0	2.42	-2.42	
5,923.0	6.20	88.20	5,602.9	98.2	1,819.0	1,821.7	1.83	-1.79	
6,018.0	4.10	88.10	5,697.5	98.5	1,827.5	1,830.2	2.21	-2.21	
6,115.0	2.60	99.10	5,794.3	98.3	1,833.2	1,835.8	1.68	-1.55	
6,210.0	1.60	71.00	5,889.2	98.3	1,836.6	1,839.2	1.48	-1.05	
6,304.0	1.50	80.40	5,983.2	99.0	1,839.0	1,841.7	0.29	-0.11	
6,399.0	2.20	306.40	6,078.2	100.3	1,838.8	1,841.5	3.60	0.74	
6,495.0	1.80	290.80	6,174.1	101.9	1,835.9	1,838.7	0.70	-0.42	
6,590.0	1.30	274.90	6,269.1	102.5	1,833.4	1,836.3	0.69	-0.53	
6,685.0	1.20	253.60	6,364.0	102.3	1,831.4	1,834.2	0.50	-0.11	
6,779.0	1.30	239.60	6,458.0	101.5	1,829.5	1,832.3	0.34	0.11	
6,874.0	1.30	229.60	6,553.0	100.3	1,827.8	1,830.5	0.24	0.00	
6,968.0	1.10	128.30	6,647.0	99.0	1,827.7	1,830.3	1.98	-0.21	
7,064.0	1.70	140.20	6,743.0	97.4	1,829.3	1,831.9	0.69	0.62	
7,159.0	1.40	94.50	6,837.9	96.2	1,831.4	1,833.9	1.30	-0.32	
7,255.0	1.80	129.70	6,933.9	95.1	1,833.7	1,836.1	1.08	0.42	
7,350.0	2.00	143.70	7,028.9	92.8	1,835.8	1,838.2	0.53	0.21	
7,446.0	2.80	92.60	7,124.8	91.4	1,839.1	1,841.4	2.28	0.83	
7,541.0	1.40	75.50	7,219.7	91.6	1,842.6	1,844.9	1.60	-1.47	
7,637.0	1.50	91.10	7,315.7	91.8	1,845.0	1,847.3	0.42	0.10	
7,732.0	1.50	91.10	7,410.7	91.8	1,847.5	1,849.7	0.00	0.00	
7,827.0	1.70	95.80	7,505.6	91.6	1,850.1	1,852.4	0.25	0.21	
7,921.0	1.90	102.30	7,599.6	91.1	1,853.0	1,855.3	0.30	0.21	
8,017.0	1.90	112.80	7,695.5	90.2	1,856.0	1,858.2	0.36	0.00	
8,112.0	2.00	114.70	7,790.5	88.9	1,859.0	1,861.1	0.13	0.11	
8,206.0	1.90	125.30	7,884.4	87.3	1,861.8	1,863.8	0.40	-0.11	
8,290.0	2.00	130.30	7,968.4	85.5	1,864.0	1,865.9	0.23	0.12	Last Cathedral Survey @ 8,209' MD
8,340.0	2.00	130.30	8,018.3	84.4	1,865.3	1,867.2	0.00	0.00	Projection to Bit @ 8,340'

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
EnCana Fee 19-10B (K1			0.00	0.00	7,972.0	95.9	1,839.5	1,618,747.63	2,377,406.76	39.511470	-107.706928
- actual wellpath misses target center by 26.8ft at 8290.0ft MD (7968.4 TVD, 85.5 N, 1864.0 E)											
- Circle (radius 40.0)											
EnCana Fee 19-10B (K1			0.00	0.00	5,747.0	95.9	1,839.5	1,618,747.63	2,377,406.76	39.511470	-107.706928
- actual wellpath misses target center by 9.2ft at 6068.2ft MD (5747.5 TVD, 98.5 N, 1830.8 E)											
- Circle (radius 25.0)											

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
		+N/-S (ft)	+E/-W (ft)
8,290.0	7,968.4	85.5	1,864.0
8,340.0	8,018.3	84.4	1,865.3
Last Cathedral Survey @ 8,209' MD			
Projection to Bit @ 8,340'			

Checked By: _____ Approved By: _____ Date: _____