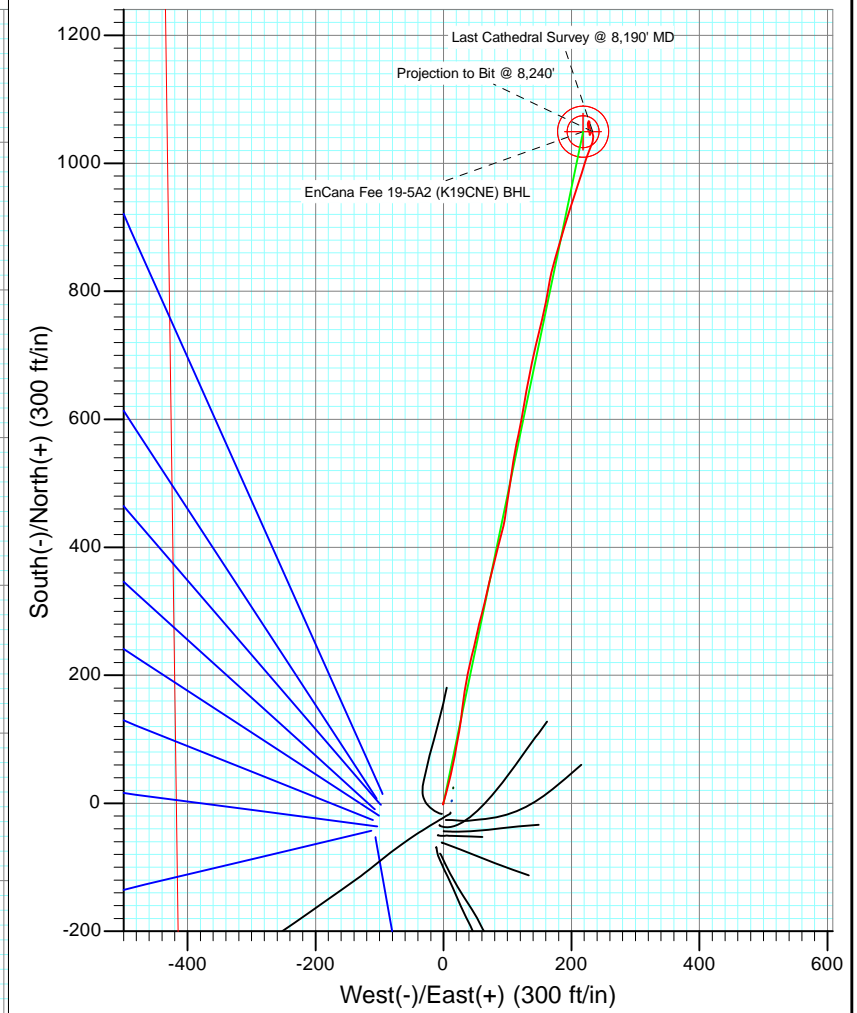
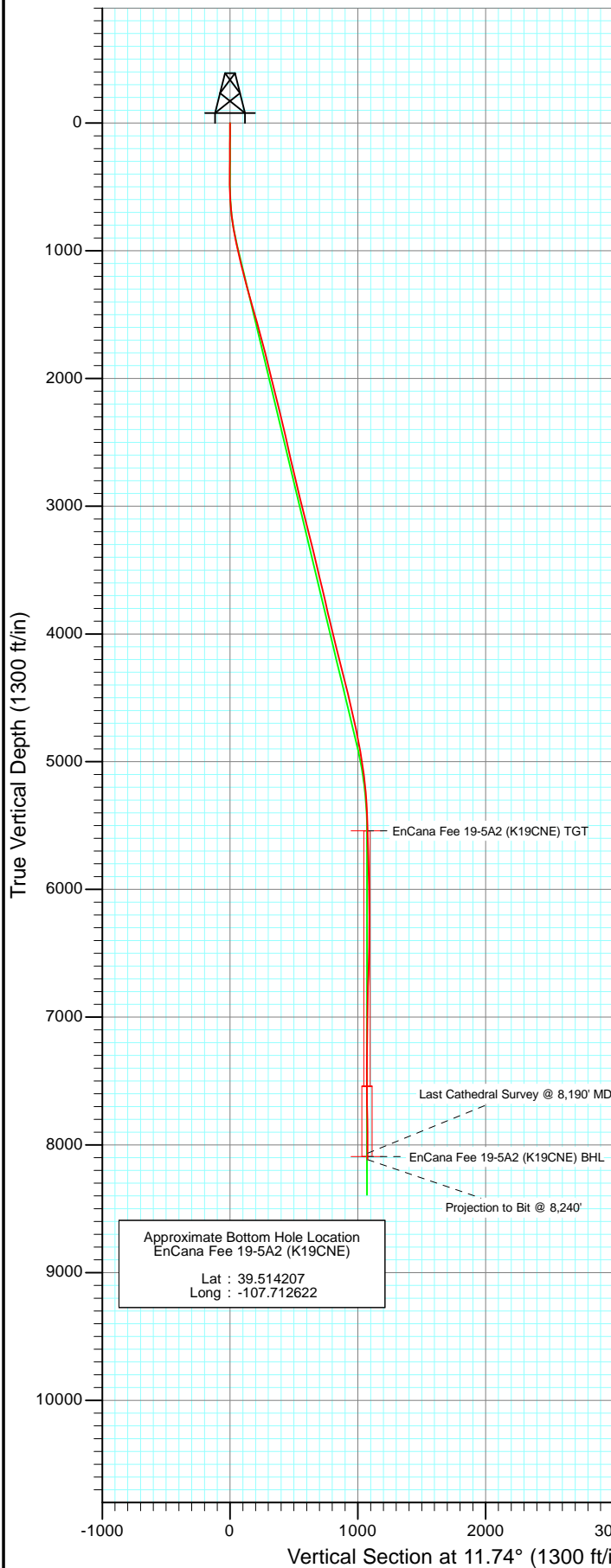




Project: Mamm Creek  
 Site: K19CNE Pad  
 Well: EnCana Fee 19-5A2 (K19CNE)  
 Wellbore: DD  
 Design: FINAL



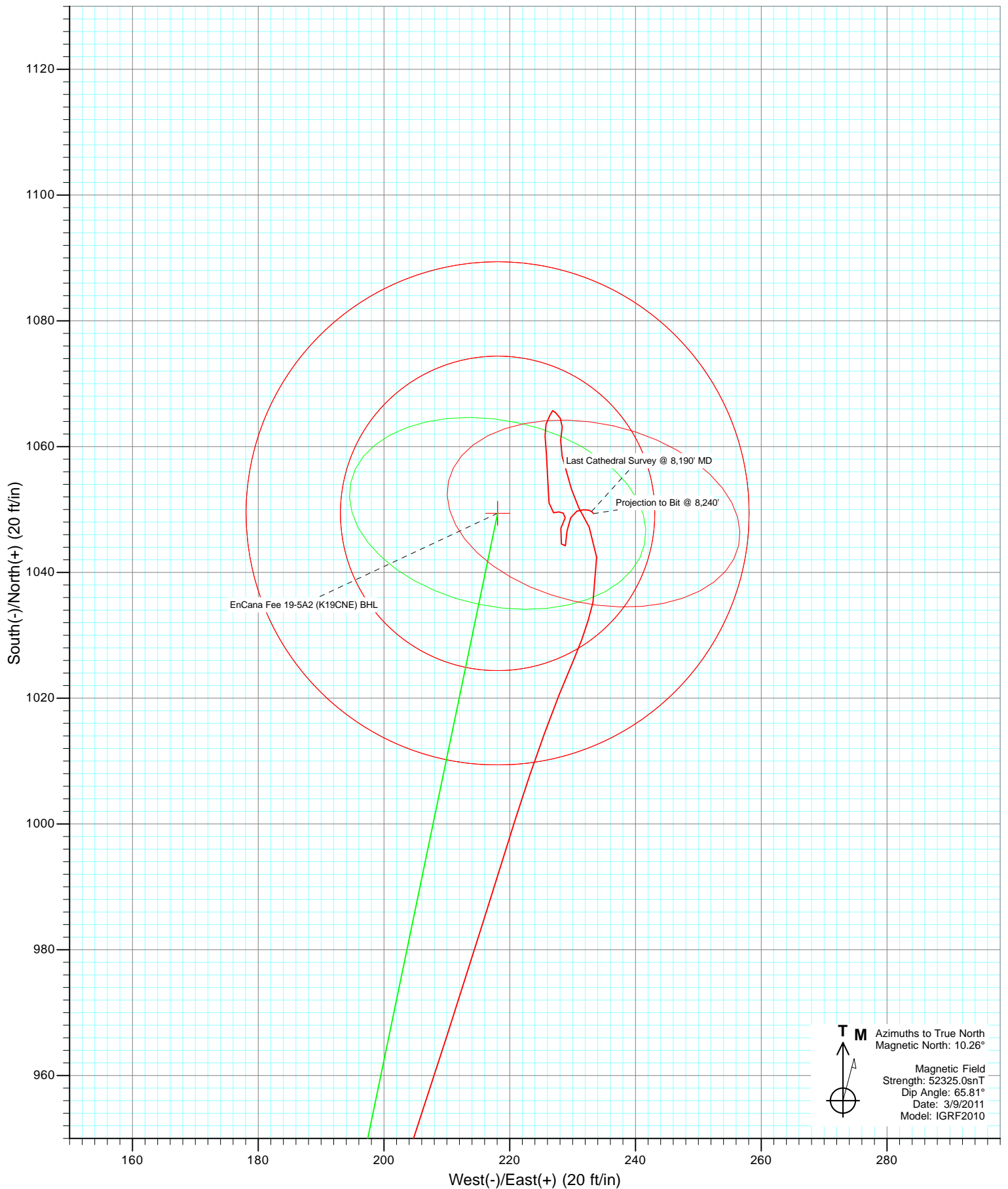
Azimuths to True North  
 Magnetic North: 10.26°

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

DD EnCana Fee 19-5A2 (K19CNE) (2000 FSL - 240 FWL) 115546/126155; SC					
KBE @ 5687.0ft (Original Well Elev) North American Datum 1983 Well EnCana Fee 19-5A2 (K19CNE), True North					
Target	Azimuth	Origin Type	N/S	E/W	
EnCana Fee 19-5A2 (K19CNE) BHL	11.74	Slot	0.0	0.0	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
EnCana Fee 19-5A2 (K19CNE) TGT	5541.0	1049.4	218.1	39.514207	-107.712676
EnCana Fee 19-5A2 (K19CNE) BHL	8091.0	1049.4	218.1	39.514207	-107.712676

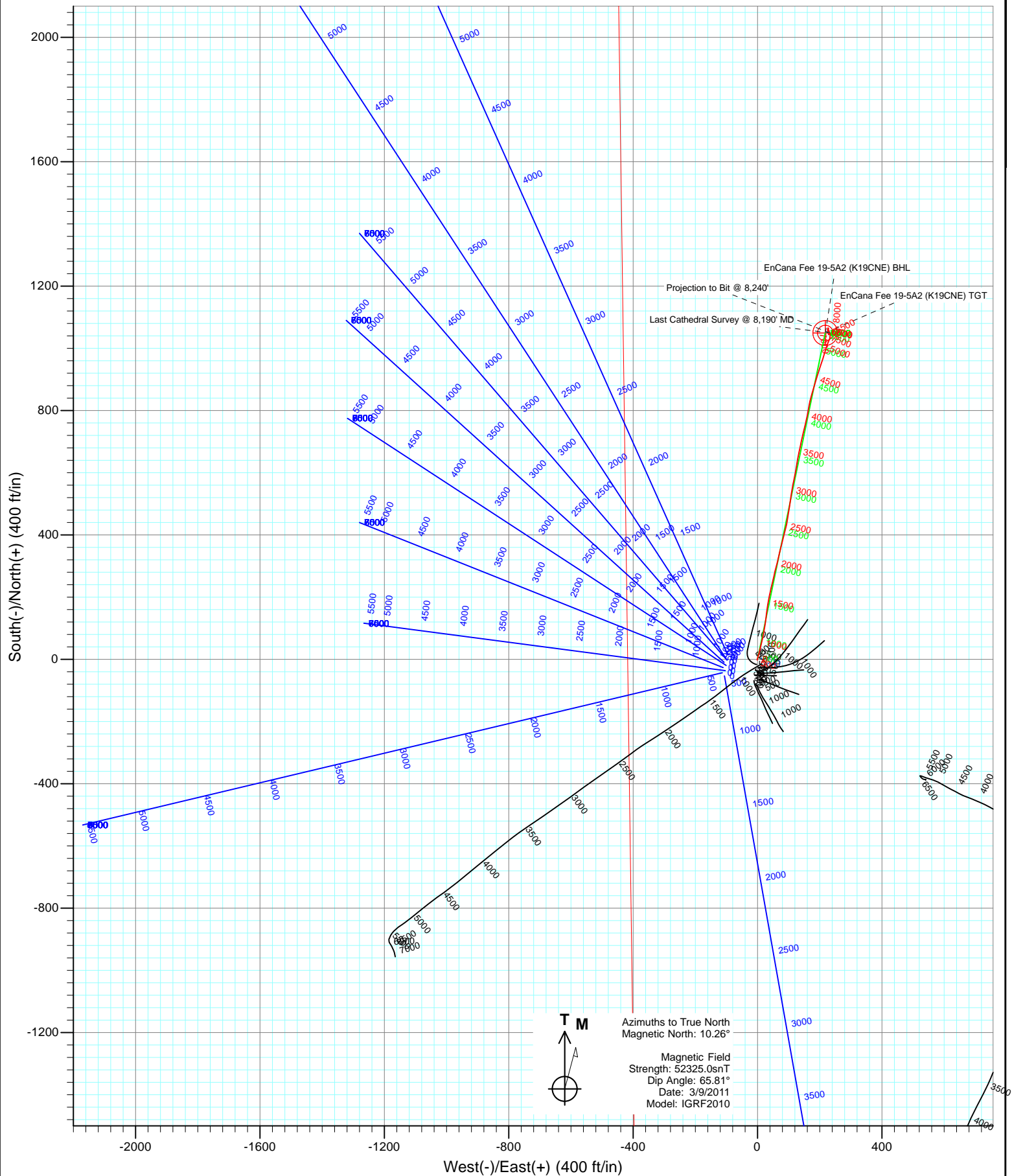


Project: Mamm Creek  
Site: K19CNE Pad  
Well: EnCana Fee 19-5A2 (K19CNE)  
Wellbore: DD  
Design: FINAL





Project: Mamm Creek  
Site: K19CNE Pad  
Well: EnCana Fee 19-5A2 (K19CNE)  
Wellbore: DD  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A2 (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Well:</b>	EnCana Fee 19-5A2 (K19CNE)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Mamm Creek		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 19-5A2 (K19CNE)					
Well Position	+N/-S	0.0 ft	Northing:	1,618,739.94 ft	Latitude:	39.511326
	+E/-W	0.0 ft	Easting:	2,375,566.20 ft	Longitude:	-107.713449
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,665.0 ft

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

<b>Design</b>	DD				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	11.74	

<b>Survey Program</b>	<b>Date</b>	12/6/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
114.0	8,240.0	Survey #1 (DD)	MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
114.0	0.30	207.90	114.0	-0.3	-0.1	-0.3	0.26	0.26		
160.0	0.30	204.10	160.0	-0.5	-0.2	-0.5	0.04	0.00		
206.0	0.20	211.30	206.0	-0.7	-0.3	-0.7	0.23	-0.22		
298.0	0.40	187.10	298.0	-1.1	-0.5	-1.2	0.25	0.22		
390.0	0.70	215.10	390.0	-1.9	-0.8	-2.0	0.43	0.33		
483.0	0.50	15.60	483.0	-2.0	-1.0	-2.1	1.27	-0.22		
575.0	2.70	15.40	574.9	0.5	-0.4	0.4	2.39	2.39		
667.0	5.10	15.70	666.7	6.5	1.3	6.7	2.61	2.61		
759.0	7.70	15.30	758.1	16.4	4.1	16.9	2.83	2.83		
851.0	10.20	14.70	849.0	30.2	7.8	31.2	2.72	2.72		
942.0	12.10	12.70	938.3	47.3	11.9	48.8	2.13	2.09		
1,036.0	13.30	11.30	1,030.0	67.6	16.2	69.4	1.32	1.28		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A2 (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Well:</b>	EnCana Fee 19-5A2 (K19CNE)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	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
1,132.0	13.80	10.60	1,123.3	89.6	20.4	91.9	0.55	0.52	
1,227.0	14.40	9.10	1,215.5	112.4	24.4	115.1	0.74	0.63	
1,305.0	14.90	8.40	1,290.9	131.9	27.4	134.8	0.68	0.64	
1,451.0	15.90	6.20	1,431.7	170.4	32.3	173.4	0.79	0.68	
1,547.0	16.40	13.00	1,523.9	196.7	36.8	200.0	2.04	0.52	
1,642.0	14.60	12.50	1,615.4	221.4	42.4	225.4	1.90	-1.89	
1,737.0	14.70	13.50	1,707.4	244.8	47.8	249.4	0.29	0.11	
1,833.0	15.10	12.10	1,800.1	268.9	53.3	274.1	0.56	0.42	
1,928.0	13.40	14.50	1,892.2	291.7	58.6	297.5	1.89	-1.79	
2,024.0	13.80	13.30	1,985.5	313.6	64.0	320.1	0.51	0.42	
2,119.0	13.70	13.90	2,077.8	335.5	69.3	342.6	0.18	-0.11	
2,214.0	14.10	13.20	2,170.0	357.7	74.7	365.4	0.46	0.42	
2,310.0	14.40	13.70	2,263.1	380.7	80.2	389.0	0.34	0.31	
2,405.0	13.00	14.40	2,355.3	402.5	85.6	411.5	1.48	-1.47	
2,501.0	13.00	15.60	2,448.9	423.4	91.2	433.1	0.28	0.00	
2,595.0	12.80	8.00	2,540.5	443.9	95.5	454.0	1.82	-0.21	
2,690.0	13.20	9.10	2,633.1	465.0	98.7	475.4	0.50	0.42	
2,786.0	13.30	8.70	2,726.5	486.8	102.1	497.3	0.14	0.10	
2,881.0	13.20	8.60	2,819.0	508.3	105.4	519.1	0.11	-0.11	
2,977.0	13.20	7.50	2,912.5	530.0	108.4	541.0	0.26	0.00	
3,072.0	14.20	11.40	3,004.8	552.2	112.2	563.4	1.43	1.05	
3,168.0	14.50	11.80	3,097.8	575.5	116.9	587.2	0.33	0.31	
3,264.0	14.90	10.90	3,190.6	599.4	121.7	611.6	0.48	0.42	
3,359.0	13.50	9.10	3,282.7	622.3	125.8	634.9	1.55	-1.47	
3,455.0	13.40	10.50	3,376.1	644.3	129.6	657.2	0.35	-0.10	
3,550.0	13.50	11.10	3,468.5	666.0	133.7	679.3	0.18	0.11	
3,645.0	13.10	11.40	3,560.9	687.4	138.0	701.1	0.43	-0.42	
3,740.0	13.60	13.30	3,653.4	708.9	142.7	723.1	0.70	0.53	
3,835.0	13.20	13.60	3,745.8	730.3	147.8	745.1	0.43	-0.42	
3,931.0	12.70	13.90	3,839.3	751.2	152.9	766.6	0.53	-0.52	
4,026.0	14.20	11.30	3,931.7	772.7	157.7	788.7	1.70	1.58	
4,122.0	14.00	10.50	4,024.8	795.7	162.1	812.0	0.29	-0.21	
4,217.0	13.80	9.80	4,117.1	818.2	166.2	834.9	0.28	-0.21	
4,312.0	14.00	16.10	4,209.3	840.4	171.3	857.6	1.61	0.21	
4,407.0	14.00	16.60	4,301.5	862.4	177.8	880.5	0.13	0.00	
4,502.0	14.10	15.80	4,393.6	884.6	184.2	903.5	0.23	0.11	
4,598.0	13.10	16.90	4,486.9	906.2	190.5	926.0	1.08	-1.04	
4,693.0	13.10	18.40	4,579.5	926.7	197.1	947.5	0.36	0.00	
4,789.0	12.60	18.10	4,673.0	947.0	203.7	968.7	0.53	-0.52	
4,884.0	12.30	18.00	4,765.8	966.5	210.1	989.0	0.32	-0.32	
4,979.0	10.80	17.20	4,858.9	984.6	215.9	1,007.9	1.59	-1.58	
5,074.0	9.40	17.60	4,952.4	1,000.5	220.8	1,024.5	1.48	-1.47	
5,170.0	8.20	20.00	5,047.3	1,014.4	225.5	1,039.1	1.31	-1.25	
5,265.0	6.80	23.50	5,141.5	1,026.0	230.1	1,051.3	1.55	-1.47	
5,360.0	5.10	12.30	5,236.0	1,035.2	233.2	1,061.0	2.16	-1.79	
5,455.0	3.70	354.20	5,330.7	1,042.4	233.8	1,068.2	2.06	-1.47	
5,551.0	2.30	332.70	5,426.5	1,047.2	232.6	1,072.6	1.85	-1.46	
5,646.0	2.00	331.30	5,521.5	1,050.4	231.0	1,075.4	0.32	-0.32	
5,741.0	1.80	346.50	5,616.4	1,053.3	229.8	1,078.0	0.57	-0.21	
5,837.0	1.60	341.40	5,712.4	1,056.0	229.0	1,080.5	0.26	-0.21	
5,932.0	1.50	347.20	5,807.4	1,058.5	228.3	1,082.8	0.20	-0.11	
6,028.0	1.60	2.10	5,903.3	1,061.0	228.1	1,085.2	0.43	0.10	
6,123.0	1.00	13.90	5,998.3	1,063.2	228.4	1,087.4	0.69	-0.63	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A2 (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5687.0ft (Original Well Elev)
<b>Well:</b>	EnCana Fee 19-5A2 (K19CNE)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	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
6,219.0	0.90	317.60	6,094.3	1,064.5	228.1	1,088.7	0.94	-0.10	
6,314.0	0.60	322.00	6,189.3	1,065.5	227.2	1,089.4	0.32	-0.32	
6,409.0	0.20	220.10	6,284.3	1,065.7	226.8	1,089.6	0.71	-0.42	
6,505.0	0.90	207.00	6,380.3	1,064.9	226.4	1,088.7	0.74	0.73	
6,600.0	0.90	200.40	6,475.3	1,063.6	225.8	1,087.3	0.11	0.00	
6,696.0	1.40	175.10	6,571.2	1,061.7	225.6	1,085.4	0.73	0.52	
6,791.0	2.10	175.60	6,666.2	1,058.8	225.9	1,082.6	0.74	0.74	
6,887.0	2.50	178.70	6,762.1	1,055.0	226.0	1,078.9	0.44	0.42	
6,982.0	2.20	174.30	6,857.0	1,051.1	226.3	1,075.1	0.37	-0.32	
7,078.0	0.70	64.40	6,953.0	1,049.5	227.0	1,073.7	2.63	-1.56	
7,173.0	0.40	111.80	7,048.0	1,049.6	227.8	1,074.0	0.55	-0.32	
7,269.0	0.50	100.30	7,144.0	1,049.4	228.5	1,074.0	0.14	0.10	
7,364.0	0.80	190.40	7,239.0	1,048.7	228.8	1,073.3	0.99	0.32	
7,459.0	1.40	208.60	7,334.0	1,047.0	228.1	1,071.5	0.72	0.63	
7,555.0	1.90	156.50	7,429.9	1,044.5	228.2	1,069.1	1.58	0.52	
7,650.0	1.40	1.50	7,524.9	1,044.3	228.9	1,069.0	3.39	-0.53	
7,745.0	1.50	9.80	7,619.9	1,046.6	229.1	1,071.4	0.24	0.11	
7,840.0	1.10	24.10	7,714.9	1,048.7	229.7	1,073.5	0.54	-0.42	
7,934.0	0.80	68.40	7,808.9	1,049.8	230.7	1,074.7	0.82	-0.32	
8,030.0	0.50	94.60	7,904.9	1,050.0	231.7	1,075.2	0.43	-0.31	
8,125.0	0.50	94.50	7,999.9	1,049.9	232.6	1,075.3	0.00	0.00	
8,190.0	0.50	134.70	8,064.9	1,049.7	233.0	1,075.1	0.53	0.00	Last Cathedral Survey @ 8,190' MD
8,240.0	0.50	134.70	8,114.9	1,049.4	233.3	1,074.9	0.00	0.00	Projection to Bit @ 8,240'

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									
EnCana Fee 19-5A2 (K1	0.00	0.00	5,541.0	1,049.4	218.1	1,619,783.71	2,375,809.79	39.514207	-107.712676
- actual wellpath misses target center by 12.7ft at 5665.6ft MD (5541.1 TVD, 1051.0 N, 230.7 E)									
- Circle (radius 25.0)									
EnCana Fee 19-5A2 (K1	0.00	0.00	8,091.0	1,049.4	218.1	1,619,783.71	2,375,809.79	39.514207	-107.712676
- actual wellpath misses target center by 15.1ft at 8216.1ft MD (8090.9 TVD, 1049.5 N, 233.2 E)									
- Circle (radius 40.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
8,190.0	8,064.9	1,049.7	233.0	Last Cathedral Survey @ 8,190' MD	
8,240.0	8,114.9	1,049.4	233.3	Projection to Bit @ 8,240'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_