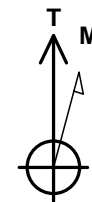
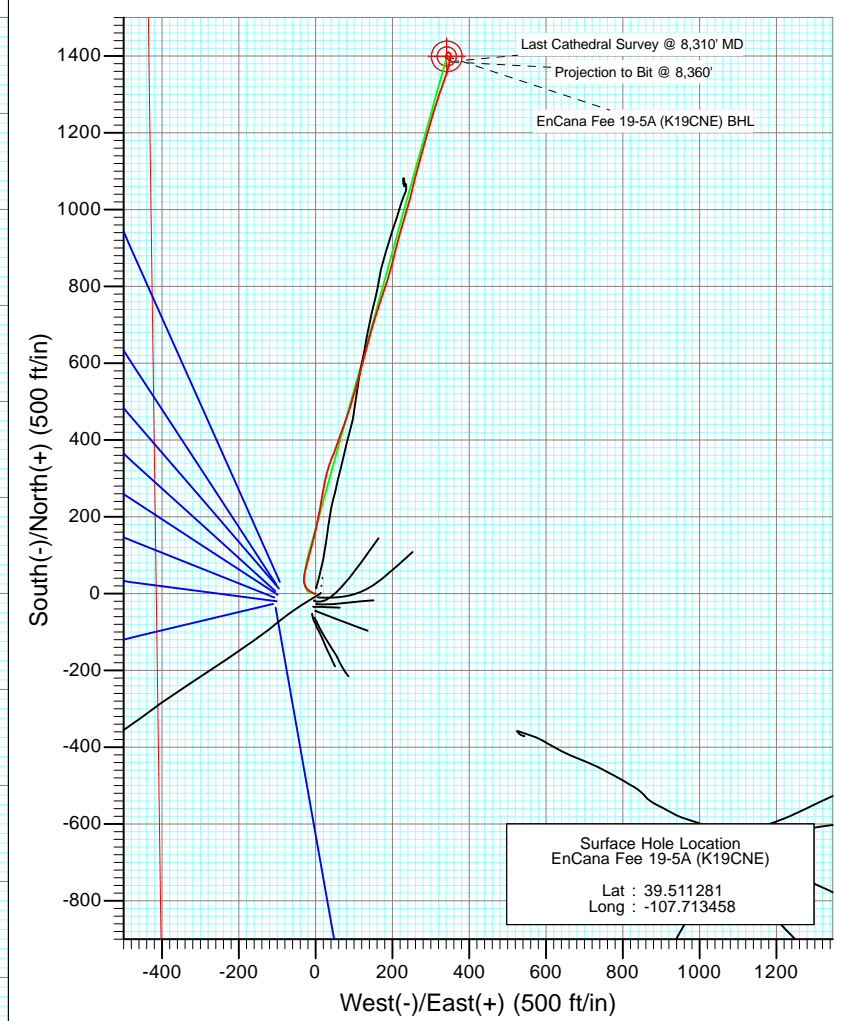
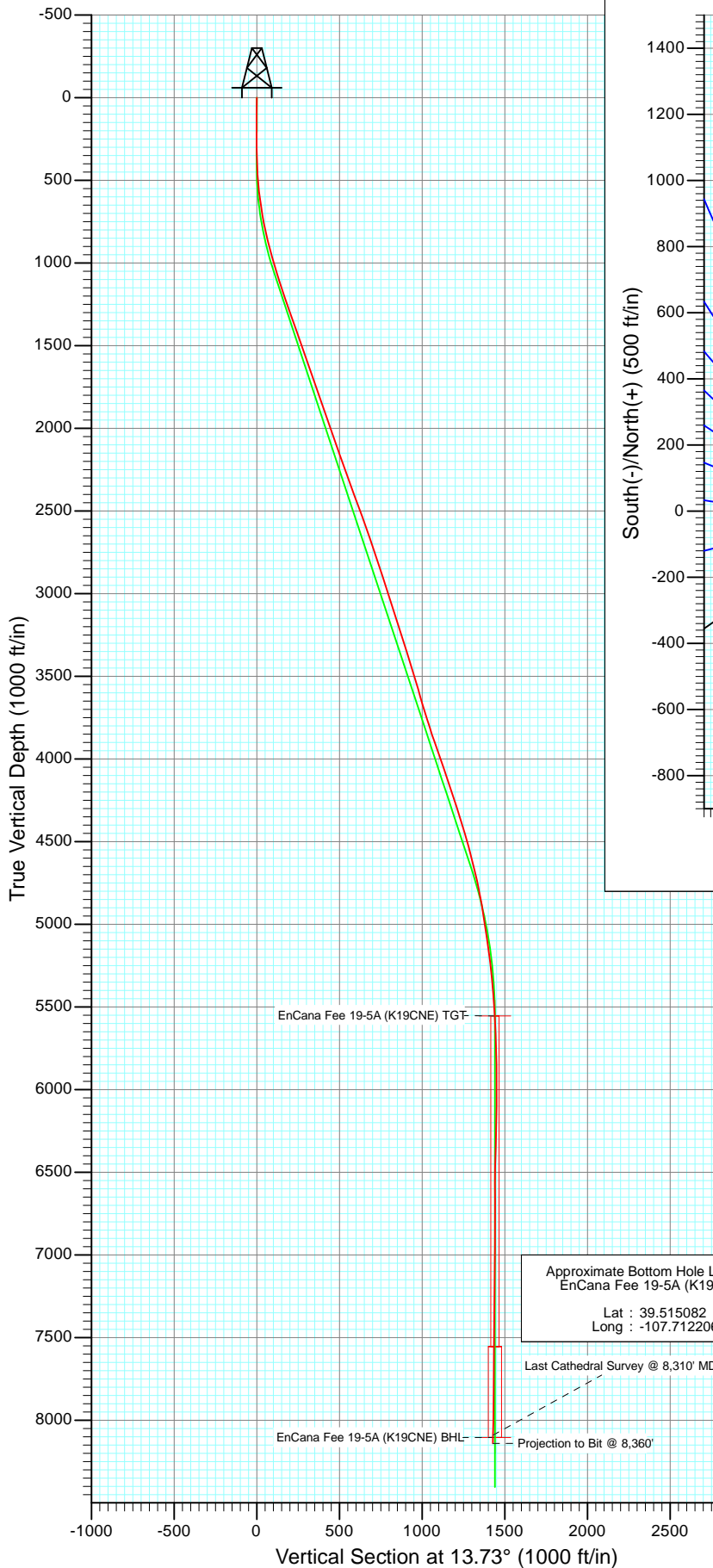




Project: Mamm Creek  
 Site: K19CNE Pad  
 Well: EnCana Fee 19-5A (K19CNE)  
 Wellbore: DD  
 Design: FINAL



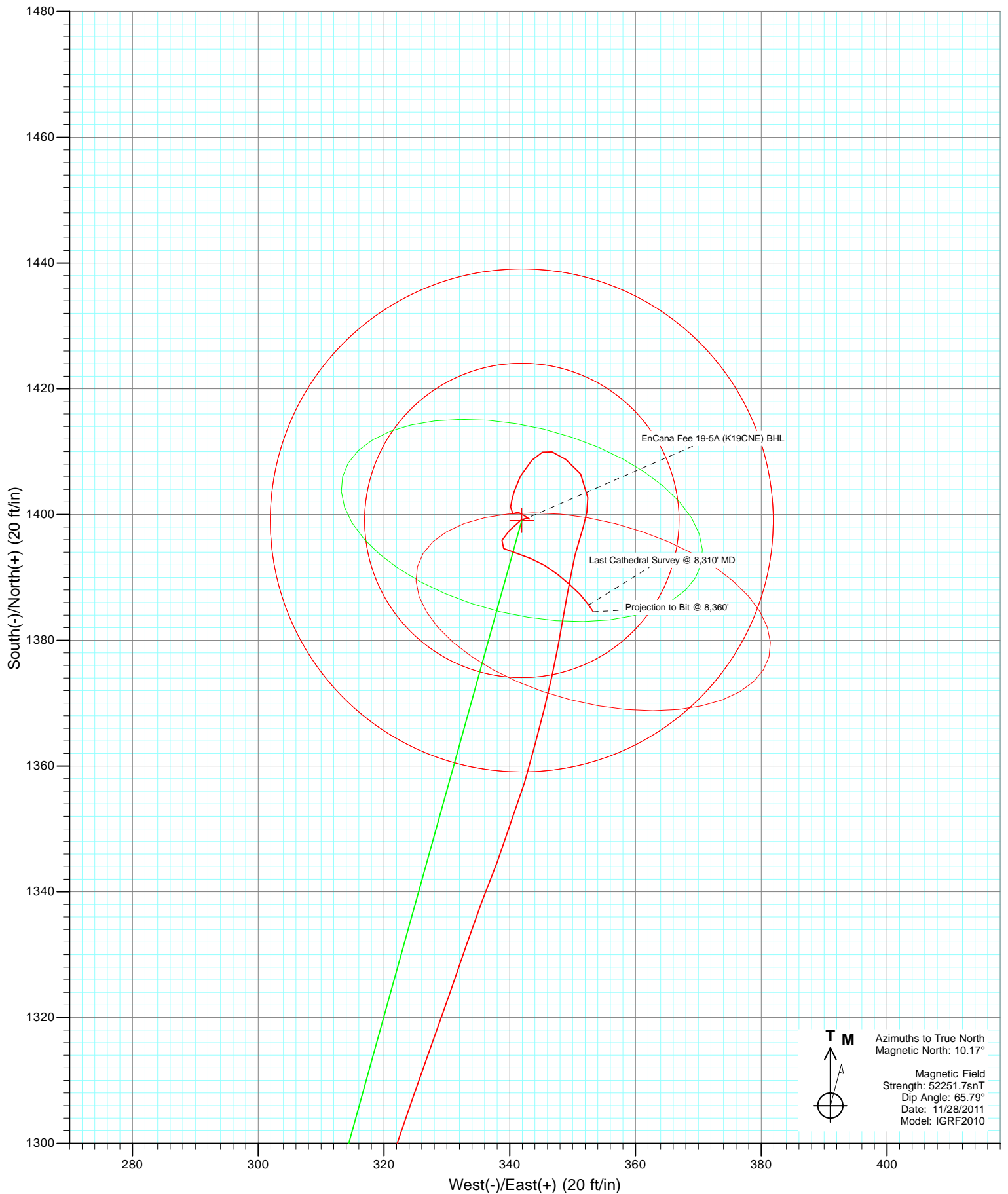
Azimuths to True North  
 Magnetic North: 10.17°

Magnetic Field  
 Strength: 52251.7nT  
 Dip Angle: 65.79°  
 Date: 11/28/2011  
 Model: IGRF2010

DD EnCana Fee 19-5A (K19CNE) 115545 126055 (SH) 115562/126255 (MH); SC					
KBE @ 5688.0ft (Nabors M13) North American Datum 1983 Well EnCana Fee 19-5A (K19CNE), True North					
Target EnCana Fee 19-5A (K19CNE) BHL	Azimuth 13.73	Origin Type Slot	N/S 0.0	E/W 0.0	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
EnCana Fee 19-5A (K19CNE) TGT	5554.0	1399.1	341.9	39.515122	-107.712246
EnCana Fee 19-5A (K19CNE) BHL	8104.0	1399.1	341.9	39.515122	-107.712246

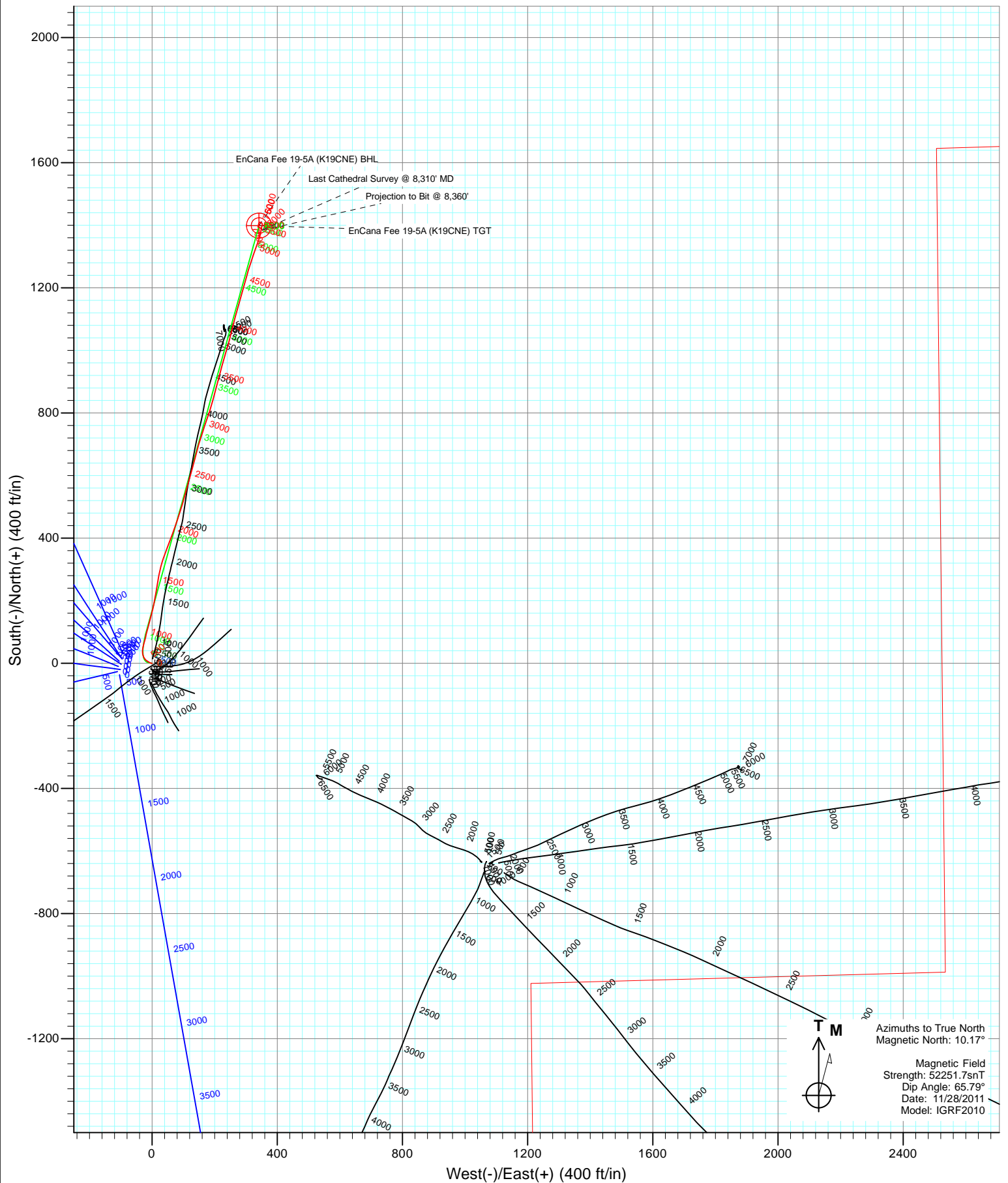


Project: Mamm Creek  
Site: K19CNE Pad  
Well: EnCana Fee 19-5A (K19CNE)  
Wellbore: DD  
Design: FINAL





Project: Mamm Creek  
Site: K19CNE Pad  
Well: EnCana Fee 19-5A (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 19-5A (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Well:</b>	EnCana Fee 19-5A (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		

<b>Site</b>	K19CNE Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,618,725.17 ft	<b>Latitude:</b> 39.511286
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,375,576.53 ft	<b>Longitude:</b> -107.713411
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	0.000 in	<b>Grid Convergence:</b> -1.40 °

<b>Well</b>	EnCana Fee 19-5A (K19CNE)			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,618,723.61 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,375,563.26 ft
<b>Position Uncertainty</b>	0.0 ft		<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	5,666.0 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	11/28/2011	10.17	65.79	52,252

<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	13.73

<b>Survey Program</b>	<b>Date</b>	12/13/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
114.0	1,305.0	Survey #1 (DD)	MWD	Geolink MWD
1,446.0	8,360.0	Survey #2 (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	0.20	201.00	114.0	-0.2	-0.1	-0.2	0.18	0.18	
144.0	0.30	247.00	144.0	-0.3	-0.2	-0.3	0.72	0.33	
175.0	0.80	281.10	175.0	-0.3	-0.4	-0.4	1.86	1.61	
206.0	1.20	280.20	206.0	-0.2	-1.0	-0.4	1.29	1.29	
252.0	2.20	287.40	252.0	0.2	-2.3	-0.4	2.22	2.17	
298.0	3.30	294.10	297.9	1.0	-4.3	-0.1	2.49	2.39	
344.0	4.80	294.80	343.8	2.3	-7.3	0.5	3.26	3.26	
391.0	6.10	299.20	390.6	4.4	-11.3	1.6	2.90	2.77	
437.0	7.00	306.80	436.3	7.3	-15.6	3.3	2.71	1.96	
483.0	7.80	314.00	481.9	11.1	-20.1	6.0	2.66	1.74	
529.0	8.30	325.50	527.5	16.0	-24.3	9.8	3.66	1.09	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Well:</b>	EnCana Fee 19-5A (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
575.0	8.60	337.30	573.0	21.9	-27.5	14.8	3.82	0.65	
621.0	9.00	348.60	618.4	28.6	-29.5	20.8	3.85	0.87	
667.0	9.10	358.30	663.9	35.8	-30.3	27.6	3.32	0.22	
713.0	9.60	7.80	709.2	43.2	-29.9	34.9	3.52	1.09	
759.0	10.70	12.00	754.5	51.2	-28.5	43.0	2.88	2.39	
851.0	12.90	13.50	844.6	69.5	-24.3	61.8	2.41	2.39	
943.0	15.20	14.10	933.8	91.2	-19.0	84.1	2.50	2.50	
1,036.0	17.20	15.60	1,023.1	116.3	-12.3	110.0	2.20	2.15	
1,132.0	17.80	14.30	1,114.7	144.2	-4.9	138.9	0.75	0.62	
1,227.0	18.20	13.50	1,205.0	172.7	2.2	168.3	0.49	0.42	
1,305.0	19.00	11.10	1,279.0	197.0	7.4	193.1	1.42	1.03	
1,446.0	20.00	8.80	1,411.9	243.3	15.6	240.1	0.89	0.71	
1,542.0	19.80	10.30	1,502.1	275.6	21.0	272.7	0.57	-0.21	
1,637.0	19.50	13.80	1,591.6	306.8	27.6	304.6	1.28	-0.32	
1,732.0	18.90	20.40	1,681.3	336.6	36.8	335.7	2.37	-0.63	
1,828.0	18.90	20.00	1,772.2	365.8	47.5	366.6	0.13	0.00	
1,923.0	19.20	20.20	1,862.0	394.9	58.2	397.4	0.32	0.32	
2,019.0	19.40	19.20	1,952.6	424.8	68.9	429.0	0.40	0.21	
2,114.0	19.50	20.00	2,042.1	454.6	79.5	460.5	0.30	0.11	
2,209.0	19.20	18.20	2,131.8	484.3	89.8	491.8	0.70	-0.32	
2,305.0	19.90	16.10	2,222.2	515.0	99.2	523.9	1.03	0.73	
2,400.0	20.20	15.40	2,311.5	546.4	108.1	556.4	0.40	0.32	
2,496.0	20.30	15.00	2,401.5	578.4	116.8	589.6	0.18	0.10	
2,590.0	20.30	14.90	2,489.7	609.9	125.2	622.2	0.04	0.00	
2,685.0	19.10	14.20	2,579.1	640.9	133.3	654.3	1.29	-1.26	
2,781.0	18.80	14.90	2,669.9	671.1	141.1	685.4	0.39	-0.31	
2,876.0	18.50	17.10	2,760.0	700.3	149.5	715.8	0.81	-0.32	
2,972.0	18.10	18.10	2,851.1	729.0	158.6	745.8	0.53	-0.42	
3,067.0	18.30	17.90	2,941.3	757.3	167.7	775.4	0.22	0.21	
3,163.0	18.30	19.40	3,032.5	785.8	177.4	805.5	0.49	0.00	
3,259.0	17.70	16.50	3,123.8	814.0	186.5	835.0	1.12	-0.62	
3,354.0	17.00	16.30	3,214.5	841.2	194.5	863.3	0.74	-0.74	
3,450.0	17.80	14.30	3,306.1	868.9	202.1	892.0	1.04	0.83	
3,545.0	17.30	14.80	3,396.7	896.6	209.3	920.7	0.55	-0.53	
3,640.0	17.50	13.90	3,487.3	924.1	216.3	949.1	0.35	0.21	
3,735.0	15.60	16.50	3,578.4	950.3	223.4	976.1	2.15	-2.00	
3,830.0	16.70	16.90	3,669.6	975.6	231.0	1,002.5	1.16	1.16	
3,926.0	17.40	16.10	3,761.4	1,002.6	239.0	1,030.6	0.77	0.73	
4,021.0	18.60	14.00	3,851.8	1,030.9	246.6	1,060.0	1.44	1.26	
4,117.0	19.60	13.50	3,942.5	1,061.4	254.0	1,091.4	1.06	1.04	
4,212.0	18.50	15.50	4,032.3	1,091.4	261.8	1,122.4	1.35	-1.16	
4,307.0	19.40	15.30	4,122.1	1,121.2	270.0	1,153.2	0.95	0.95	
4,402.0	17.80	16.80	4,212.1	1,150.3	278.3	1,183.5	1.76	-1.68	
4,497.0	18.10	14.90	4,302.5	1,178.5	286.3	1,212.8	0.69	0.32	
4,593.0	17.20	14.60	4,394.0	1,206.6	293.7	1,241.9	0.94	-0.94	
4,688.0	15.50	16.30	4,485.2	1,232.4	300.8	1,268.6	1.86	-1.79	
4,784.0	14.40	17.30	4,577.9	1,256.1	308.0	1,293.3	1.18	-1.15	
4,879.0	14.00	17.80	4,670.0	1,278.3	315.0	1,316.6	0.44	-0.42	
4,974.0	11.80	18.50	4,762.6	1,298.5	321.6	1,337.7	2.32	-2.32	
5,069.0	10.50	19.80	4,855.8	1,315.8	327.6	1,356.0	1.39	-1.37	
5,165.0	9.20	18.70	4,950.4	1,331.3	333.1	1,372.3	1.37	-1.35	
5,260.0	8.20	22.10	5,044.3	1,344.8	338.0	1,386.6	1.18	-1.05	
5,355.0	7.90	15.80	5,138.4	1,357.4	342.4	1,399.8	0.98	-0.32	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Well:</b>	EnCana Fee 19-5A (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
5,451.0	6.70	13.90	5,233.6	1,369.2	345.5	1,412.0	1.27	-1.25	
5,546.0	5.70	10.50	5,328.0	1,379.2	347.7	1,422.3	1.12	-1.05	
5,641.0	4.40	10.00	5,422.7	1,387.4	349.2	1,430.6	1.37	-1.37	
5,736.0	3.10	12.90	5,517.5	1,393.5	350.4	1,436.8	1.38	-1.37	
5,832.0	2.70	19.40	5,613.3	1,398.2	351.7	1,441.7	0.54	-0.42	
5,927.0	2.90	359.00	5,708.2	1,402.7	352.4	1,446.2	1.06	0.21	
6,023.0	2.10	321.60	5,804.1	1,406.5	351.3	1,449.7	1.85	-0.83	
6,119.0	1.90	305.10	5,900.1	1,408.8	348.9	1,451.3	0.63	-0.21	
6,214.0	1.10	288.50	5,995.0	1,410.0	346.7	1,452.0	0.95	-0.84	
6,309.0	0.90	245.10	6,090.0	1,409.9	345.2	1,451.6	0.80	-0.21	
6,404.0	1.70	225.70	6,185.0	1,408.6	343.5	1,449.9	0.95	0.84	
6,500.0	2.00	207.10	6,281.0	1,406.2	341.7	1,447.1	0.69	0.31	
6,595.0	1.20	195.40	6,375.9	1,403.7	340.7	1,444.5	0.91	-0.84	
6,659.0	1.50	193.90	6,439.9	1,402.3	340.3	1,443.0	0.47	0.47	
6,696.0	1.80	186.70	6,476.9	1,401.2	340.2	1,441.9	0.98	0.81	
6,791.0	0.80	53.70	6,571.9	1,400.1	340.5	1,440.9	2.54	-1.05	
6,887.0	0.40	116.20	6,667.9	1,400.4	341.4	1,441.4	0.74	-0.42	
6,982.0	1.20	121.70	6,762.9	1,399.7	342.5	1,441.0	0.85	0.84	
7,078.0	0.30	297.80	6,858.8	1,399.3	343.1	1,440.7	1.56	-0.94	
7,173.0	0.40	270.90	6,953.8	1,399.4	342.6	1,440.7	0.20	0.11	
7,269.0	0.60	236.60	7,049.8	1,399.1	341.8	1,440.3	0.37	0.21	
7,364.0	0.70	222.00	7,144.8	1,398.4	341.0	1,439.4	0.20	0.11	
7,459.0	1.00	231.20	7,239.8	1,397.5	340.0	1,438.2	0.35	0.32	
7,555.0	1.40	207.30	7,335.8	1,395.9	338.8	1,436.4	0.66	0.42	
7,650.0	1.00	109.80	7,430.8	1,394.6	339.0	1,435.2	1.92	-0.42	
7,745.0	1.50	110.20	7,525.8	1,393.9	341.0	1,435.0	0.53	0.53	
7,840.0	1.50	110.90	7,620.7	1,393.0	343.3	1,434.7	0.02	0.00	
7,934.0	1.50	121.10	7,714.7	1,391.9	345.5	1,434.2	0.28	0.00	
8,030.0	1.60	128.70	7,810.7	1,390.5	347.6	1,433.2	0.24	0.10	
8,125.0	1.40	131.50	7,905.6	1,388.9	349.6	1,432.1	0.22	-0.21	
8,219.0	1.30	134.50	7,999.6	1,387.4	351.2	1,431.1	0.13	-0.11	
8,310.0	1.50	146.60	8,090.6	1,385.6	352.6	1,429.7	0.39	0.22	Last Cathedral Survey @ 8,310' MD Projection to Bit @ 8,360'
8,360.0	1.50	146.60	8,140.6	1,384.5	353.3	1,428.8	0.00	0.00	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well EnCana Fee 19-5A (K19CNE)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Site:</b>	K19CNE Pad	<b>MD Reference:</b>	KBE @ 5688.0ft (Nabors M13)
<b>Well:</b>	EnCana Fee 19-5A (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

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
EnCana Fee 19-5A (K19CNE)	0.00	0.00	8,104.0	1,399.1	341.9	1,620,113.94	2,375,939.18	39.515122	-107.712246
- actual wellpath misses target center by 21.8ft at 8310.0ft MD (8090.6 TVD, 1385.6 N, 352.6 E)									
- Circle (radius 40.0)									
EnCana Fee 19-5A (K19CNE)	0.00	0.00	5,554.0	1,399.1	341.9	1,620,113.94	2,375,939.18	39.515122	-107.712246
- actual wellpath misses target center by 9.7ft at 5772.7ft MD (5554.1 TVD, 1395.4 N, 350.9 E)									
- Circle (radius 25.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)	Comment	
8,310.0	8,090.6	1,385.6	352.6	Last Cathedral Survey @ 8,310' MD	
8,360.0	8,140.6	1,384.5	353.3	Projection to Bit @ 8,360'	

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