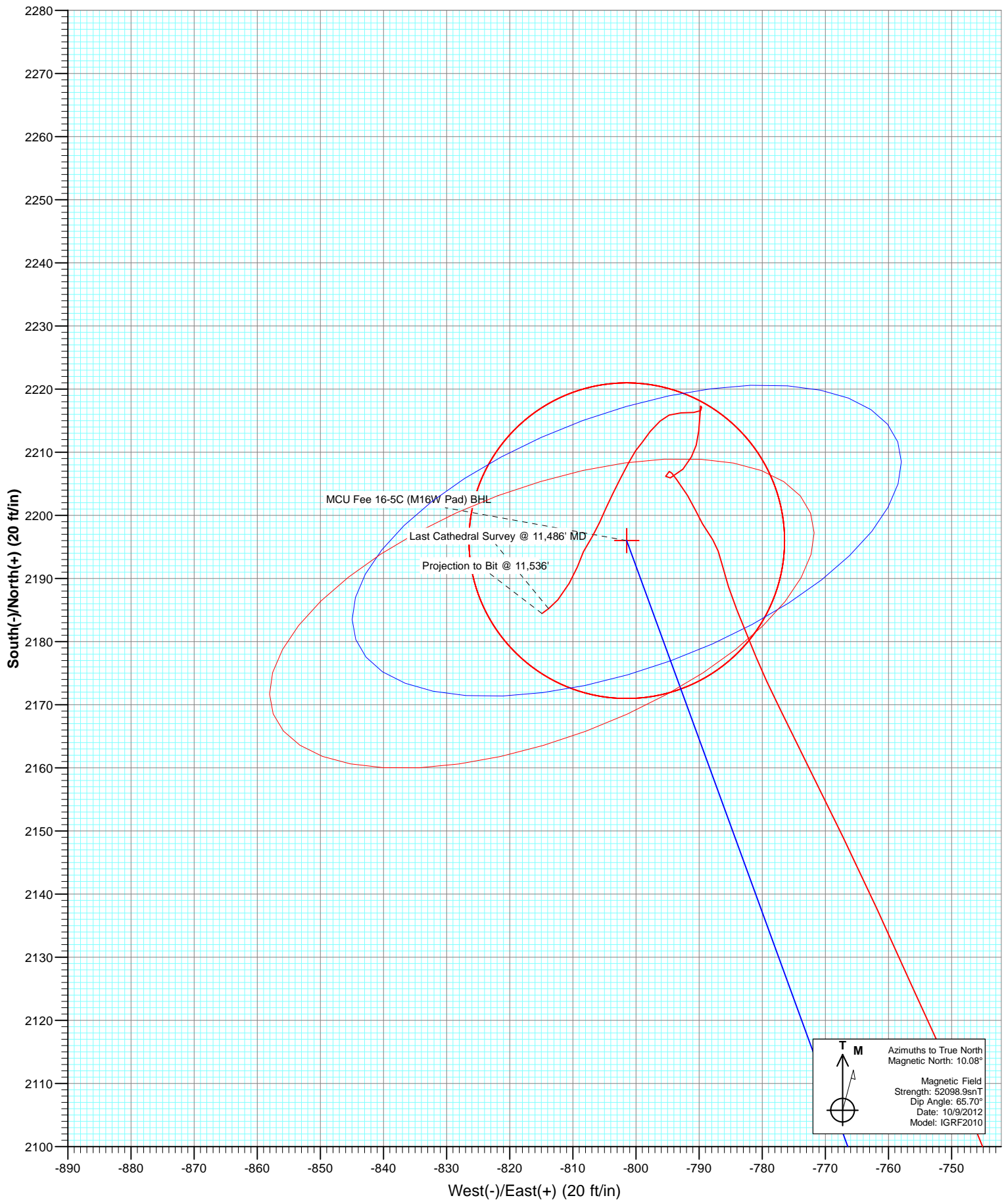
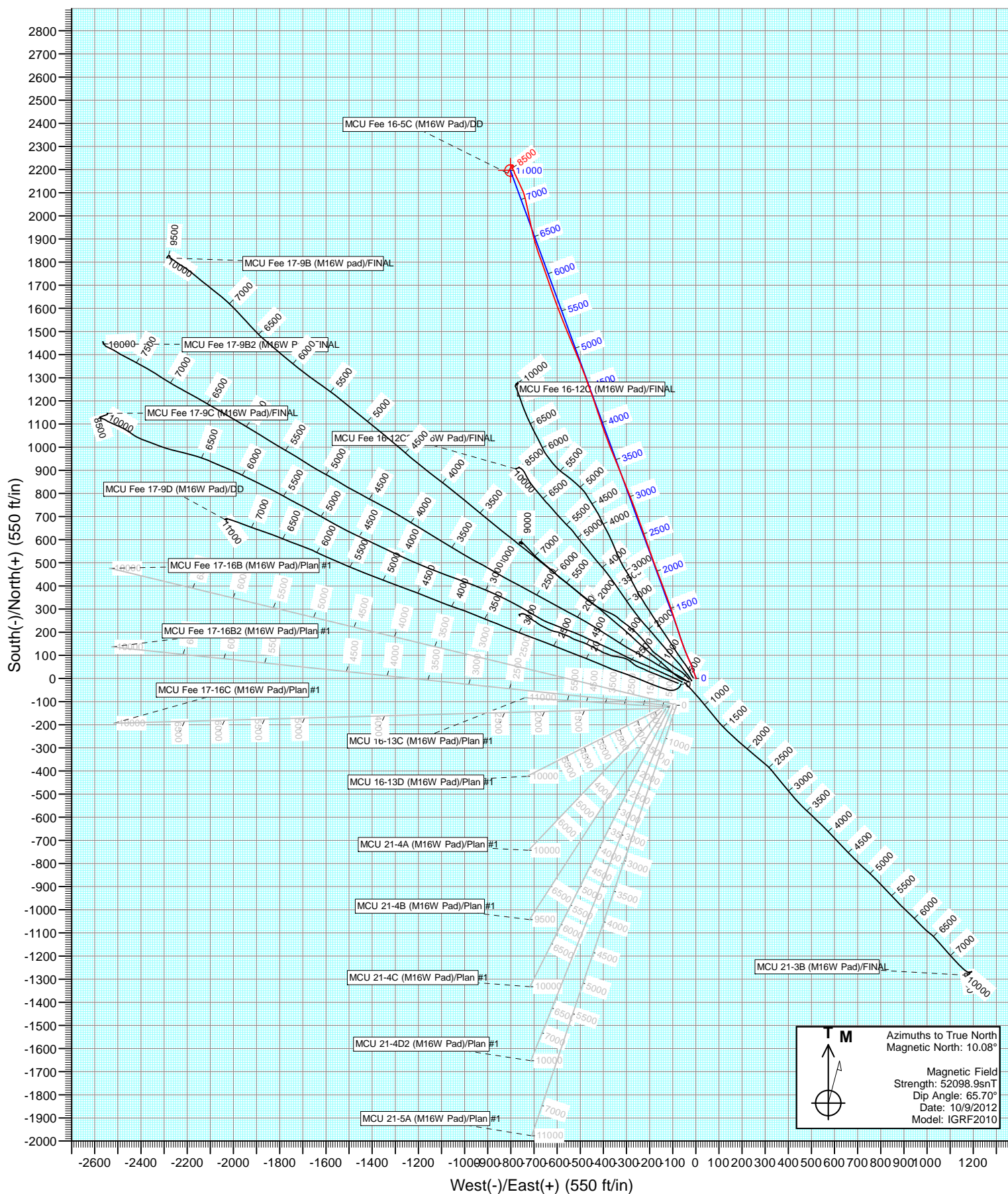


Azimuths to True North  
 Magnetic North: 10.08°

Magnetic Field  
 Strength: 52098.9snT  
 Dip Angle: 65.70°  
 Date: 10/9/2012  
 Model: IGRF2010

DD		MCU Fee 16-5C (M16W Pad)		125452/179455 (SH) 125564/182755 (MH); SC	
KBE @ 7903.0ft (Patterson 308)		North American Datum 1983		Well MCU Fee 16-5C (M16W Pad), True North	
Target	Azimuth	Origin Type	N/S		
MCU Fee 16-5C (M16W Pad) BHL	339.95	Slot	0.0		
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU Fee 16-5C (M16W Pad) TGT	863.0	2196.0	-801.5	39.446229	-107.785730
MCU Fee 16-5C (M16W Pad) BHL	1064.0	2196.0	-801.5	39.446229	-107.785730





# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-5C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Site:</b>	M16W Pad (SWSW S16-T7S-R93W)	<b>MD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Well:</b>	MCU Fee 16-5C (M16W Pad)	<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>	M16W Pad (SWSW S16-T7S-R93W)			
<b>Site Position:</b>		<b>Northing:</b>	1,593,196.15 ft	<b>Latitude:</b> 39.439834
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,355,193.71 ft	<b>Longitude:</b> -107.783358
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.44 °

<b>Well</b>	MCU Fee 16-5C (M16W Pad)			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,593,326.11 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,355,328.63 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b> 7,881.0 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	10/9/2012	10.08	65.70	52,099

<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 (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	339.95

<b>Survey Program</b>	<b>Date</b>	10/21/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
237.0	11,536.0	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	
237.0	0.40	114.60	237.0	-0.3	0.8	-0.6	0.17	0.17	
267.0	0.60	122.50	267.0	-0.5	1.0	-0.8	0.70	0.67	
298.0	0.50	28.70	298.0	-0.4	1.2	-0.8	2.60	-0.32	
328.0	1.10	352.00	328.0	0.0	1.2	-0.5	2.53	2.00	
359.0	2.10	344.90	359.0	0.8	1.0	0.4	3.28	3.23	
389.0	3.40	339.40	388.9	2.2	0.6	1.8	4.42	4.33	
420.0	4.60	344.90	419.9	4.2	-0.1	4.0	4.06	3.87	
450.0	6.00	343.10	449.7	6.9	-0.9	6.8	4.70	4.67	
480.0	7.30	340.30	479.5	10.2	-2.0	10.2	4.46	4.33	
511.0	8.10	339.90	510.3	14.1	-3.4	14.4	2.59	2.58	
541.0	9.40	338.70	539.9	18.4	-5.0	19.0	4.38	4.33	
572.0	10.70	337.90	570.4	23.4	-7.0	24.4	4.22	4.19	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-5C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Site:</b>	M16W Pad (SWSW S16-T7S-R93W)	<b>MD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Well:</b>	MCU Fee 16-5C (M16W Pad)	<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
602.0	11.60	340.10	599.9	28.8	-9.1	30.2	3.32	3.00	
633.0	13.00	339.40	630.2	35.0	-11.4	36.8	4.54	4.52	
663.0	14.20	339.30	659.3	41.6	-13.8	43.8	4.00	4.00	
693.0	15.10	340.20	688.3	48.7	-16.5	51.4	3.09	3.00	
785.0	17.90	336.00	776.5	72.9	-26.3	77.5	3.31	3.04	
876.0	17.80	335.80	863.2	98.4	-37.7	105.3	0.13	-0.11	
968.0	18.90	339.40	950.5	125.1	-48.7	134.2	1.72	1.20	
1,062.0	19.20	340.70	1,039.3	154.0	-59.1	164.9	0.55	0.32	
1,154.0	18.80	342.20	1,126.3	182.4	-68.7	194.9	0.69	-0.43	
1,165.0	18.80	341.90	1,136.7	185.8	-69.8	198.4	0.88	0.00	
1,252.0	18.50	342.80	1,219.2	212.3	-78.2	226.2	0.48	-0.34	
1,344.0	19.70	341.70	1,306.1	240.9	-87.4	256.3	1.36	1.30	
1,435.0	20.30	341.80	1,391.6	270.5	-97.1	287.4	0.66	0.66	
1,527.0	19.40	341.60	1,478.1	300.1	-106.9	318.6	0.98	-0.98	
1,618.0	20.00	339.90	1,563.8	329.1	-117.1	349.3	0.91	0.66	
1,710.0	20.30	339.70	1,650.2	358.8	-128.0	381.0	0.33	0.33	
1,802.0	19.70	340.60	1,736.6	388.4	-138.7	412.4	0.73	-0.65	
1,893.0	19.50	338.70	1,822.4	417.1	-149.3	443.0	0.73	-0.22	
1,985.0	19.30	338.50	1,909.1	445.5	-160.5	473.5	0.23	-0.22	
2,076.0	18.20	338.70	1,995.3	472.7	-171.1	502.8	1.21	-1.21	
2,168.0	19.90	341.50	2,082.3	501.0	-181.3	532.8	2.10	1.85	
2,259.0	19.30	341.10	2,168.0	529.9	-191.1	563.3	0.68	-0.66	
2,351.0	18.50	340.30	2,255.0	558.0	-200.9	593.1	0.91	-0.87	
2,442.0	20.00	340.20	2,341.0	586.3	-211.1	623.1	1.65	1.65	
2,534.0	18.80	340.90	2,427.7	615.1	-221.3	653.6	1.33	-1.30	
2,625.0	21.00	340.30	2,513.3	644.3	-231.6	684.6	2.43	2.42	
2,717.0	19.80	340.50	2,599.5	674.5	-242.3	716.7	1.31	-1.30	
2,809.0	19.50	339.30	2,686.2	703.5	-252.9	747.6	0.55	-0.33	
2,900.0	18.90	339.20	2,772.1	731.5	-263.5	777.5	0.66	-0.66	
2,991.0	18.30	340.20	2,858.3	758.7	-273.6	806.6	0.75	-0.66	
3,083.0	19.50	338.80	2,945.4	786.7	-284.1	836.4	1.39	1.30	
3,174.0	18.50	338.20	3,031.4	814.2	-294.9	866.0	1.12	-1.10	
3,266.0	20.20	337.90	3,118.2	842.5	-306.3	896.4	1.85	1.85	
3,358.0	19.40	337.20	3,204.8	871.3	-318.2	927.6	0.91	-0.87	
3,449.0	18.80	337.40	3,290.8	898.8	-329.7	957.3	0.66	-0.66	
3,541.0	20.50	338.60	3,377.4	927.4	-341.3	988.2	1.90	1.85	
3,632.0	19.70	338.40	3,462.9	956.5	-352.7	1,019.5	0.88	-0.88	
3,724.0	18.90	337.80	3,549.7	984.8	-364.1	1,049.9	0.90	-0.87	
3,815.0	18.20	337.70	3,636.0	1,011.6	-375.0	1,078.8	0.77	-0.77	
3,906.0	19.60	340.60	3,722.1	1,039.1	-385.5	1,108.3	1.85	1.54	
3,998.0	18.50	339.20	3,809.0	1,067.3	-395.8	1,138.3	1.29	-1.20	
4,089.0	18.10	342.00	3,895.4	1,094.2	-405.3	1,166.9	1.06	-0.44	
4,181.0	19.90	341.60	3,982.4	1,122.7	-414.7	1,196.8	1.96	1.96	
4,272.0	19.40	342.20	4,068.1	1,151.8	-424.2	1,227.4	0.59	-0.55	
4,363.0	18.70	340.90	4,154.1	1,180.0	-433.6	1,257.1	0.90	-0.77	
4,455.0	20.80	340.90	4,240.7	1,209.3	-443.7	1,288.2	2.28	2.28	
4,546.0	20.40	340.10	4,325.9	1,239.5	-454.4	1,320.2	0.54	-0.44	
4,638.0	18.60	340.30	4,412.6	1,268.4	-464.8	1,350.9	1.96	-1.96	
4,730.0	20.70	339.00	4,499.2	1,297.4	-475.6	1,381.8	2.33	2.28	
4,821.0	19.40	338.40	4,584.7	1,326.5	-486.9	1,413.0	1.45	-1.43	
4,912.0	19.00	339.60	4,670.7	1,354.4	-497.7	1,442.9	0.62	-0.44	
5,004.0	18.10	340.00	4,757.9	1,381.9	-507.8	1,472.2	0.99	-0.98	
5,096.0	19.60	337.20	4,845.0	1,409.5	-518.6	1,501.9	1.90	1.63	



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-5C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Site:</b>	M16W Pad (SWSW S16-T7S-R93W)	<b>MD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Well:</b>	MCU Fee 16-5C (M16W Pad)	<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
5,186.0	18.90	337.10	4,929.9	1,436.9	-530.2	1,531.5	0.78	-0.78	
5,279.0	17.70	336.60	5,018.2	1,463.7	-541.6	1,560.7	1.30	-1.29	
5,371.0	19.10	337.70	5,105.5	1,490.5	-552.9	1,589.7	1.57	1.52	
5,462.0	18.90	338.90	5,191.6	1,518.0	-563.9	1,619.3	0.48	-0.22	
5,553.0	20.60	339.00	5,277.2	1,546.7	-574.9	1,650.1	1.87	1.87	
5,645.0	20.20	338.40	5,363.4	1,576.6	-586.6	1,682.1	0.49	-0.43	
5,736.0	18.90	340.00	5,449.2	1,605.0	-597.4	1,712.6	1.54	-1.43	
5,828.0	18.80	340.00	5,536.2	1,633.0	-607.5	1,742.3	0.11	-0.11	
5,920.0	18.20	338.30	5,623.5	1,660.3	-617.9	1,771.5	0.88	-0.65	
6,011.0	19.50	342.00	5,709.6	1,687.9	-627.9	1,800.9	1.94	1.43	
6,103.0	19.00	341.00	5,796.5	1,716.7	-637.5	1,831.2	0.65	-0.54	
6,194.0	18.70	340.80	5,882.6	1,744.5	-647.1	1,860.6	0.34	-0.33	
6,286.0	17.50	340.40	5,970.0	1,771.4	-656.6	1,889.2	1.31	-1.30	
6,377.0	18.90	340.90	6,056.5	1,798.2	-666.0	1,917.6	1.55	1.54	
6,469.0	16.30	339.40	6,144.2	1,824.4	-675.4	1,945.4	2.87	-2.83	
6,560.0	19.30	342.80	6,230.8	1,850.7	-684.4	1,973.2	3.49	3.30	
6,652.0	17.90	342.80	6,318.0	1,878.8	-693.1	2,002.5	1.52	-1.52	
6,744.0	18.70	346.00	6,405.3	1,906.6	-700.8	2,031.3	1.40	0.87	
6,836.0	16.10	346.40	6,493.1	1,933.3	-707.4	2,058.6	2.83	-2.83	
6,928.0	16.10	346.50	6,581.5	1,958.1	-713.4	2,084.0	0.03	0.00	
7,019.0	15.60	348.60	6,669.1	1,982.4	-718.7	2,108.6	0.84	-0.55	
7,111.0	14.80	350.00	6,757.8	2,006.1	-723.2	2,132.4	0.96	-0.87	
7,203.0	13.80	347.30	6,847.0	2,028.3	-727.7	2,154.9	1.31	-1.09	
7,294.0	13.20	348.40	6,935.5	2,049.1	-732.1	2,175.9	0.72	-0.66	
7,386.0	11.30	345.70	7,025.4	2,068.1	-736.5	2,195.3	2.16	-2.07	
7,478.0	10.50	347.20	7,115.7	2,085.0	-740.6	2,212.6	0.92	-0.87	
7,569.0	10.00	338.60	7,205.3	2,100.5	-745.3	2,228.7	1.77	-0.55	
7,660.0	8.40	335.00	7,295.1	2,113.9	-751.0	2,243.2	1.87	-1.76	
7,752.0	8.00	335.90	7,386.2	2,125.8	-756.4	2,256.3	0.46	-0.43	
7,843.0	8.20	335.30	7,476.2	2,137.5	-761.7	2,269.1	0.24	0.22	
7,935.0	7.80	334.00	7,567.4	2,149.0	-767.2	2,281.8	0.48	-0.43	
8,027.0	7.00	333.80	7,658.6	2,159.7	-772.4	2,293.6	0.87	-0.87	
8,118.0	6.50	333.70	7,749.0	2,169.3	-777.1	2,304.2	0.55	-0.55	
8,210.0	4.90	337.10	7,840.5	2,177.6	-781.0	2,313.3	1.78	-1.74	
8,302.0	5.20	338.70	7,932.1	2,185.1	-784.0	2,321.4	0.36	0.33	
8,394.0	3.70	346.60	8,023.9	2,191.8	-786.2	2,328.5	1.76	-1.63	
8,485.0	2.20	327.90	8,114.7	2,196.2	-787.8	2,333.2	1.94	-1.65	
8,577.0	1.50	325.80	8,206.7	2,198.7	-789.4	2,336.1	0.76	-0.76	
8,669.0	1.50	338.70	8,298.7	2,200.8	-790.6	2,338.4	0.37	0.00	
8,760.0	1.90	326.70	8,389.6	2,203.2	-791.8	2,341.1	0.59	0.44	
8,851.0	2.00	324.90	8,480.6	2,205.7	-793.6	2,344.1	0.13	0.11	
8,943.0	0.30	254.90	8,572.5	2,207.0	-794.7	2,345.7	2.09	-1.85	
9,034.0	1.00	206.30	8,663.5	2,206.2	-795.3	2,345.1	0.91	0.77	
9,125.0	1.50	66.90	8,754.5	2,205.9	-794.6	2,344.7	2.58	0.55	
9,217.0	1.60	44.90	8,846.5	2,207.3	-792.5	2,345.3	0.65	0.11	
9,309.0	1.40	22.20	8,938.5	2,209.3	-791.2	2,346.6	0.68	-0.22	
9,400.0	1.10	22.40	9,029.4	2,211.1	-790.5	2,348.1	0.33	-0.33	
9,492.0	1.80	2.90	9,121.4	2,213.4	-790.0	2,350.1	0.92	0.76	
9,583.0	1.60	6.20	9,212.4	2,216.1	-789.8	2,352.5	0.24	-0.22	
9,675.0	0.10	263.40	9,304.4	2,217.3	-789.8	2,353.7	1.77	-1.63	
9,766.0	0.40	124.00	9,395.4	2,217.1	-789.6	2,353.5	0.53	0.33	
9,858.0	0.70	227.20	9,487.4	2,216.6	-789.7	2,353.0	0.96	0.33	
9,949.0	0.90	277.50	9,578.4	2,216.3	-790.9	2,353.1	0.77	0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-5C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Site:</b>	M16W Pad (SWSW S16-T7S-R93W)	<b>MD Reference:</b>	KBE @ 7903.0ft (Patterson 308)
<b>Well:</b>	MCU Fee 16-5C (M16W Pad)	<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
10,041.0	1.60	263.90	9,670.3	2,216.3	-792.9	2,353.8	0.82	0.76	
10,133.0	0.80	249.20	9,762.3	2,215.9	-794.7	2,354.1	0.92	-0.87	
10,224.0	1.40	229.70	9,853.3	2,214.9	-796.2	2,353.7	0.77	0.66	
10,316.0	1.40	217.20	9,945.3	2,213.3	-797.7	2,352.7	0.33	0.00	
10,408.0	1.20	216.30	10,037.2	2,211.7	-799.0	2,351.5	0.22	-0.22	
10,499.0	1.10	219.50	10,128.2	2,210.2	-800.1	2,350.6	0.13	-0.11	
10,591.0	1.60	203.40	10,220.2	2,208.4	-801.1	2,349.2	0.68	0.54	
10,683.0	1.90	211.50	10,312.2	2,205.9	-802.5	2,347.3	0.42	0.33	
10,774.0	1.50	200.30	10,403.1	2,203.5	-803.7	2,345.5	0.57	-0.44	
10,866.0	1.70	209.60	10,495.1	2,201.2	-804.7	2,343.7	0.36	0.22	
10,958.0	1.40	197.40	10,587.0	2,198.9	-805.8	2,341.9	0.48	-0.33	
11,049.0	1.70	215.80	10,678.0	2,196.7	-806.9	2,340.2	0.63	0.33	
11,141.0	1.90	204.10	10,770.0	2,194.2	-808.3	2,338.4	0.45	0.22	
11,232.0	1.40	199.90	10,860.9	2,191.8	-809.3	2,336.4	0.56	-0.55	
11,324.0	2.20	210.60	10,952.9	2,189.2	-810.6	2,334.5	0.94	0.87	
11,415.0	1.80	219.30	11,043.8	2,186.6	-812.4	2,332.6	0.55	-0.44	
11,486.0	1.50	234.50	11,114.8	2,185.2	-813.8	2,331.8	0.74	-0.42	Last Cathedral Survey @ 11,486' MD Projection to Bit @ 11,536'
11,536.0	1.50	234.50	11,164.8	2,184.5	-814.9	2,331.5	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
- hit/miss target									
- Shape									
MCU Fee 16-5C (M16W)	0.00	0.00	11,064.0	2,196.0	-801.5	1,595,541.56	2,354,582.61	39.446229	-107.785730
- actual wellpath misses target center by 15.0ft at 11434.8ft MD (11063.6 TVD, 2186.2 N, -812.8 E)									
- Circle (radius 25.0)									
MCU Fee 16-5C (M16W)	0.00	0.00	7,863.0	2,196.0	-801.5	1,595,541.56	2,354,582.61	39.446229	-107.785730
- actual wellpath misses target center by 25.7ft at 8234.6ft MD (7865.0 TVD, 2179.5 N, -781.8 E)									
- Circle (radius 25.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,486.0	11,114.8	2,185.2	-813.8	Last Cathedral Survey @ 11,486' MD	
11,536.0	11,164.8	2,184.5	-814.9	Projection to Bit @ 11,536'	

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