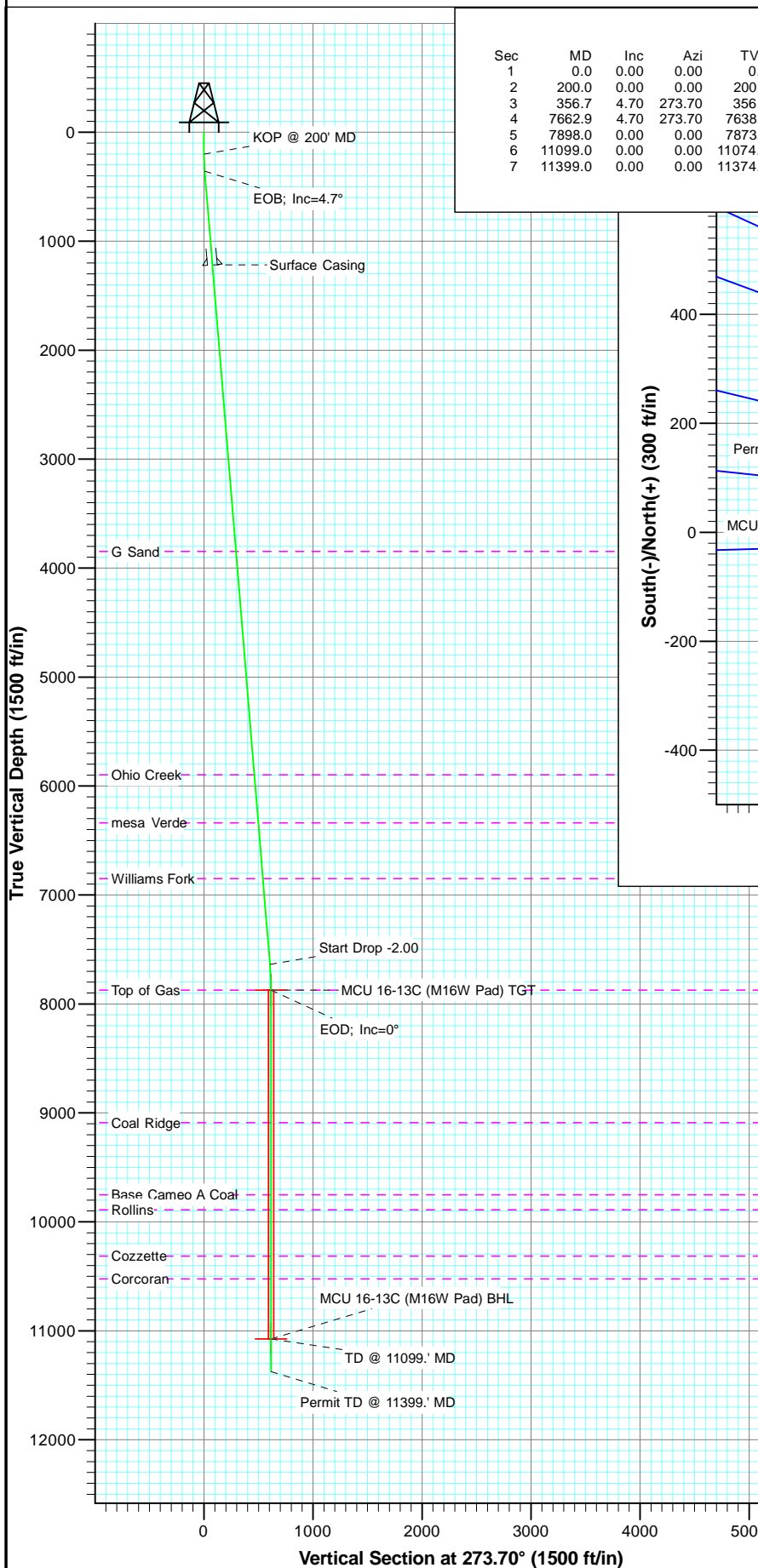
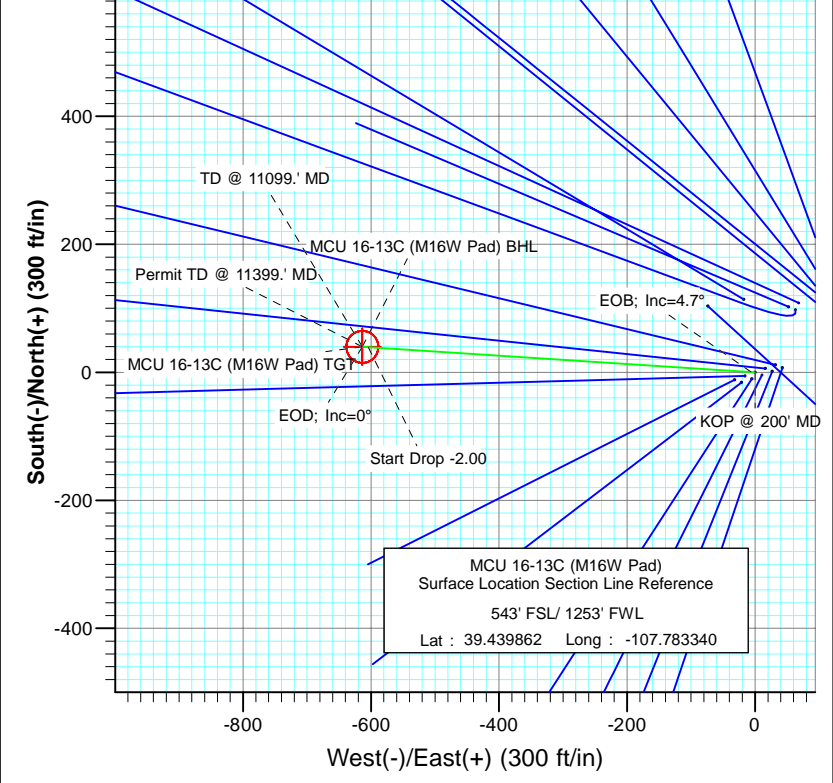




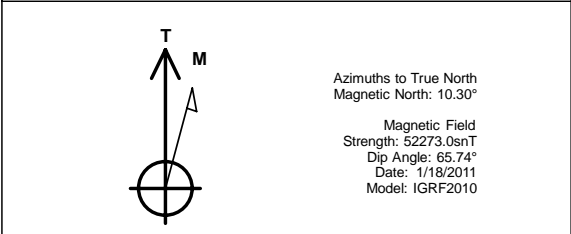
Project: Mamm Creek  
 Site: SWSW S16-T7S-R93W (M16W Pad)  
 Well: MCU 16-13C (M16W Pad)  
 Wellbore: DD  
 Plan: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	356.7	4.70	273.70	356.6	0.4	-6.4	3.00	273.70	6.4	
4	7662.9	4.70	273.70	7638.2	39.1	-604.1	0.00	0.00	605.4	
5	7898.0	0.00	0.00	7873.0	39.7	-613.7	2.00	180.00	615.0	MCU 16-13C (M16W Pad) TGT
6	11099.0	0.00	0.00	11074.0	39.7	-613.7	0.00	0.00	615.0	MCU 16-13C (M16W Pad) BHL
7	11399.0	0.00	0.00	11374.0	39.7	-613.7	0.00	0.00	615.0	



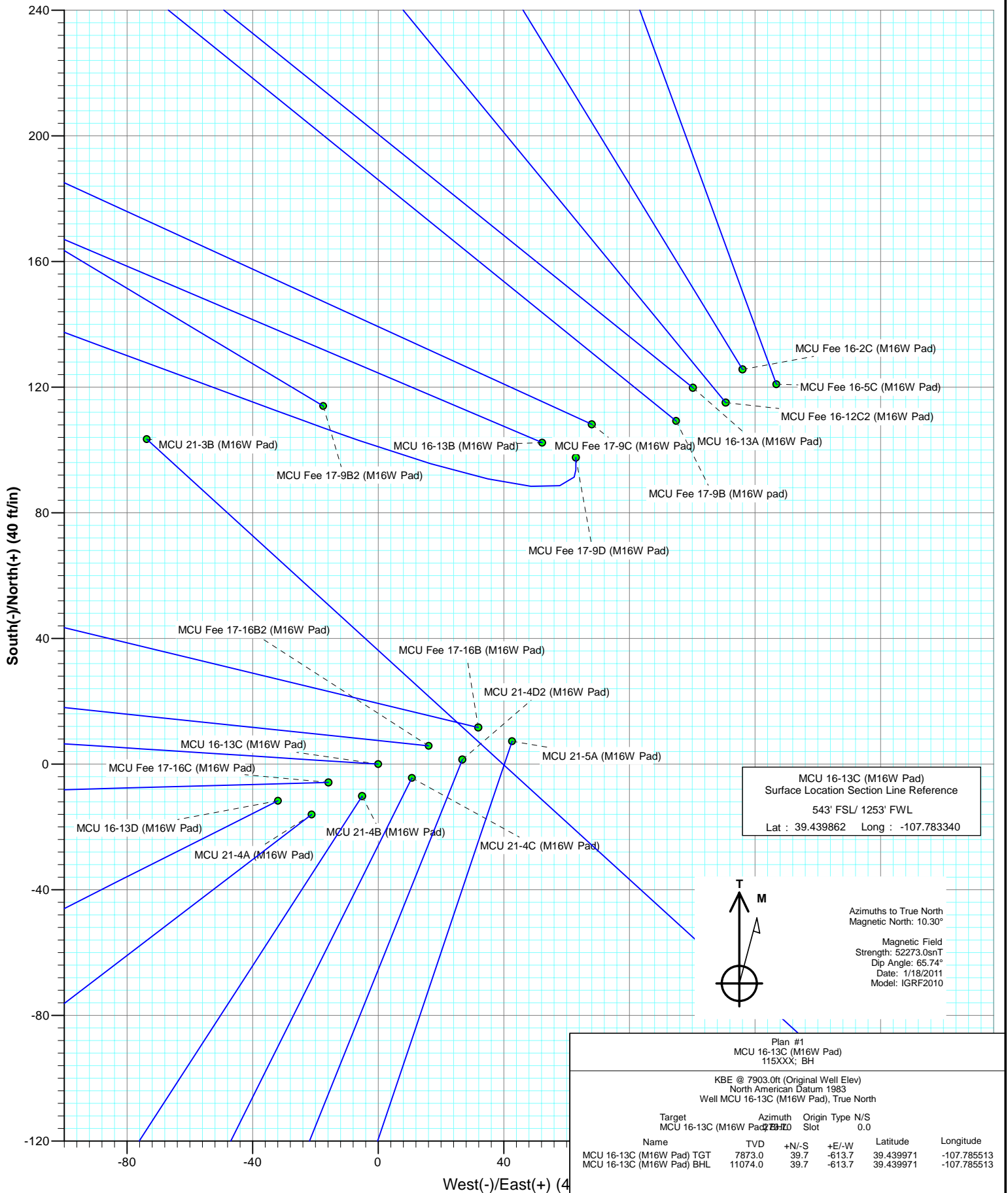
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3847.0	3859.0	G Sand
5897.0	5915.9	Ohio Creek
6338.0	6358.4	mesa Verde
6850.0	6872.1	Williams Fork
7873.0	7898.0	Top of Gas
9089.0	9114.0	Coal Ridge
9753.0	9778.0	Base Cameo A Coal
9889.0	9914.0	Rollins
10315.0	10340.0	Cozzette
10524.0	10549.0	Corcoran



Plan #1					
MCU 16-13C (M16W Pad)					
115XXX; BH					
KBE @ 7903.0ft (Original Well Elev)					
North American Datum 1983					
Well MCU 16-13C (M16W Pad), True North					
Target	Azimuth	Origin	Type	N/S	
MCU 16-13C (M16W Pad) BHL	273.70	Slot		0.0	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 16-13C (M16W Pad) TGT	7873.0	39.7	-613.7	39.439971	-107.785513
MCU 16-13C (M16W Pad) BHL	11074.0	39.7	-613.7	39.439971	-107.785513

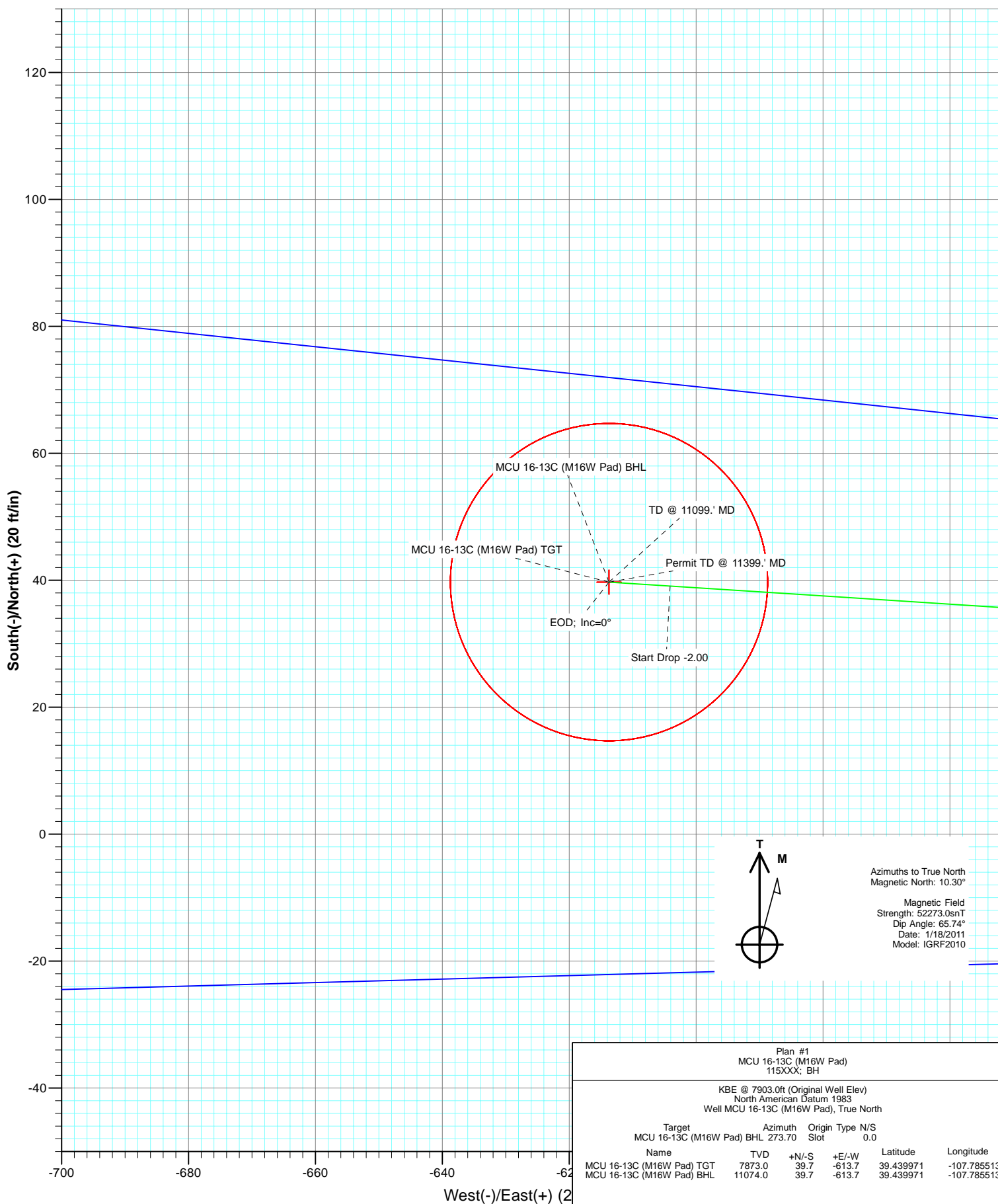


Project: Mamm Creek  
Site: SWSW S16-T7S-R93W (M16W Pad)  
Well: MCU 16-13C (M16W Pad)  
Wellbore: DD  
Plan: Plan #1





Project: Mamm Creek  
Site: SWSW S16-T7S-R93W (M16W Pad)  
Well: MCU 16-13C (M16W Pad)  
Wellbore: DD  
Plan: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>North Reference:</b>	True
<b>Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

<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		SWSW S16-T7S-R93W (M16W Pad)			
Site Position:		Northing:	1,593,196.17 ft	Latitude:	39.439834
From:	Lat/Long	Easting:	2,355,193.71 ft	Longitude:	-107.783358
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.44 °

Well	MCU 16-13C (M16W Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,593,206.23 ft	Latitude:	39.439862
	+E/-W	0.0 ft	Easting:	2,355,199.05 ft	Longitude:	-107.783340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	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	1/18/2011	10.30	65.74	52,273

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	273.70	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
356.7	4.70	273.70	356.6	0.4	-6.4	3.00	3.00	0.00	273.70	
7,662.9	4.70	273.70	7,638.2	39.1	-604.1	0.00	0.00	0.00	0.00	
7,898.0	0.00	0.00	7,873.0	39.7	-613.7	2.00	-2.00	0.00	180.00	MCU 16-13C (M16W)
11,099.0	0.00	0.00	11,074.0	39.7	-613.7	0.00	0.00	0.00	0.00	MCU 16-13C (M16W)
11,399.0	0.00	0.00	11,374.0	39.7	-613.7	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>North Reference:</b>	True
<b>Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200' MD
300.0	3.00	273.70	300.0	0.2	-2.6	2.6	3.00	3.00	
356.7	4.70	273.70	356.6	0.4	-6.4	6.4	3.00	3.00	EOB; Inc=4.7°
400.0	4.70	273.70	399.7	0.6	-10.0	10.0	0.00	0.00	
500.0	4.70	273.70	499.3	1.2	-18.1	18.2	0.00	0.00	
600.0	4.70	273.70	599.0	1.7	-26.3	26.4	0.00	0.00	
700.0	4.70	273.70	698.7	2.2	-34.5	34.6	0.00	0.00	
800.0	4.70	273.70	798.3	2.8	-42.7	42.8	0.00	0.00	
900.0	4.70	273.70	898.0	3.3	-50.9	51.0	0.00	0.00	
1,000.0	4.70	273.70	997.7	3.8	-59.0	59.2	0.00	0.00	
1,100.0	4.70	273.70	1,097.3	4.4	-67.2	67.4	0.00	0.00	
1,200.0	4.70	273.70	1,197.0	4.9	-75.4	75.6	0.00	0.00	
1,221.1	4.70	273.70	1,218.0	5.0	-77.1	77.3	0.00	0.00	Surface Casing
1,300.0	4.70	273.70	1,296.6	5.4	-83.6	83.8	0.00	0.00	
1,400.0	4.70	273.70	1,396.3	5.9	-91.8	91.9	0.00	0.00	
1,500.0	4.70	273.70	1,496.0	6.5	-99.9	100.1	0.00	0.00	
1,600.0	4.70	273.70	1,595.6	7.0	-108.1	108.3	0.00	0.00	
1,700.0	4.70	273.70	1,695.3	7.5	-116.3	116.5	0.00	0.00	
1,800.0	4.70	273.70	1,795.0	8.1	-124.5	124.7	0.00	0.00	
1,900.0	4.70	273.70	1,894.6	8.6	-132.7	132.9	0.00	0.00	
2,000.0	4.70	273.70	1,994.3	9.1	-140.8	141.1	0.00	0.00	
2,100.0	4.70	273.70	2,094.0	9.6	-149.0	149.3	0.00	0.00	
2,200.0	4.70	273.70	2,193.6	10.2	-157.2	157.5	0.00	0.00	
2,300.0	4.70	273.70	2,293.3	10.7	-165.4	165.7	0.00	0.00	
2,400.0	4.70	273.70	2,392.9	11.2	-173.6	173.9	0.00	0.00	
2,500.0	4.70	273.70	2,492.6	11.8	-181.7	182.1	0.00	0.00	
2,600.0	4.70	273.70	2,592.3	12.3	-189.9	190.3	0.00	0.00	
2,700.0	4.70	273.70	2,691.9	12.8	-198.1	198.5	0.00	0.00	
2,800.0	4.70	273.70	2,791.6	13.4	-206.3	206.7	0.00	0.00	
2,900.0	4.70	273.70	2,891.3	13.9	-214.5	214.9	0.00	0.00	
3,000.0	4.70	273.70	2,990.9	14.4	-222.6	223.1	0.00	0.00	
3,100.0	4.70	273.70	3,090.6	14.9	-230.8	231.3	0.00	0.00	
3,200.0	4.70	273.70	3,190.3	15.5	-239.0	239.5	0.00	0.00	
3,300.0	4.70	273.70	3,289.9	16.0	-247.2	247.7	0.00	0.00	
3,400.0	4.70	273.70	3,389.6	16.5	-255.4	255.9	0.00	0.00	
3,500.0	4.70	273.70	3,489.2	17.1	-263.5	264.1	0.00	0.00	
3,600.0	4.70	273.70	3,588.9	17.6	-271.7	272.3	0.00	0.00	
3,700.0	4.70	273.70	3,688.6	18.1	-279.9	280.5	0.00	0.00	
3,800.0	4.70	273.70	3,788.2	18.6	-288.1	288.7	0.00	0.00	
3,859.0	4.70	273.70	3,847.0	19.0	-292.9	293.5	0.00	0.00	G Sand
3,900.0	4.70	273.70	3,887.9	19.2	-296.3	296.9	0.00	0.00	
4,000.0	4.70	273.70	3,987.6	19.7	-304.4	305.1	0.00	0.00	
4,100.0	4.70	273.70	4,087.2	20.2	-312.6	313.3	0.00	0.00	
4,200.0	4.70	273.70	4,186.9	20.8	-320.8	321.5	0.00	0.00	
4,300.0	4.70	273.70	4,286.6	21.3	-329.0	329.7	0.00	0.00	
4,400.0	4.70	273.70	4,386.2	21.8	-337.2	337.9	0.00	0.00	
4,500.0	4.70	273.70	4,485.9	22.4	-345.3	346.1	0.00	0.00	
4,600.0	4.70	273.70	4,585.5	22.9	-353.5	354.3	0.00	0.00	
4,700.0	4.70	273.70	4,685.2	23.4	-361.7	362.5	0.00	0.00	
4,800.0	4.70	273.70	4,784.9	23.9	-369.9	370.7	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>North Reference:</b>	True
<b>Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	4.70	273.70	4,884.5	24.5	-378.1	378.9	0.00	0.00	
5,000.0	4.70	273.70	4,984.2	25.0	-386.3	387.1	0.00	0.00	
5,100.0	4.70	273.70	5,083.9	25.5	-394.4	395.3	0.00	0.00	
5,200.0	4.70	273.70	5,183.5	26.1	-402.6	403.5	0.00	0.00	
5,300.0	4.70	273.70	5,283.2	26.6	-410.8	411.7	0.00	0.00	
5,400.0	4.70	273.70	5,382.9	27.1	-419.0	419.8	0.00	0.00	
5,500.0	4.70	273.70	5,482.5	27.6	-427.2	428.0	0.00	0.00	
5,600.0	4.70	273.70	5,582.2	28.2	-435.3	436.2	0.00	0.00	
5,700.0	4.70	273.70	5,681.8	28.7	-443.5	444.4	0.00	0.00	
5,800.0	4.70	273.70	5,781.5	29.2	-451.7	452.6	0.00	0.00	
5,900.0	4.70	273.70	5,881.2	29.8	-459.9	460.8	0.00	0.00	
5,915.9	4.70	273.70	5,897.0	29.8	-461.2	462.1	0.00	0.00	Ohio Creek
6,000.0	4.70	273.70	5,980.8	30.3	-468.1	469.0	0.00	0.00	
6,100.0	4.70	273.70	6,080.5	30.8	-476.2	477.2	0.00	0.00	
6,200.0	4.70	273.70	6,180.2	31.4	-484.4	485.4	0.00	0.00	
6,300.0	4.70	273.70	6,279.8	31.9	-492.6	493.6	0.00	0.00	
6,358.4	4.70	273.70	6,338.0	32.2	-497.4	498.4	0.00	0.00	mesa Verde
6,400.0	4.70	273.70	6,379.5	32.4	-500.8	501.8	0.00	0.00	
6,500.0	4.70	273.70	6,479.1	32.9	-509.0	510.0	0.00	0.00	
6,600.0	4.70	273.70	6,578.8	33.5	-517.1	518.2	0.00	0.00	
6,700.0	4.70	273.70	6,678.5	34.0	-525.3	526.4	0.00	0.00	
6,800.0	4.70	273.70	6,778.1	34.5	-533.5	534.6	0.00	0.00	
6,872.1	4.70	273.70	6,850.0	34.9	-539.4	540.5	0.00	0.00	Williams Fork
6,900.0	4.70	273.70	6,877.8	35.1	-541.7	542.8	0.00	0.00	
7,000.0	4.70	273.70	6,977.5	35.6	-549.9	551.0	0.00	0.00	
7,100.0	4.70	273.70	7,077.1	36.1	-558.0	559.2	0.00	0.00	
7,200.0	4.70	273.70	7,176.8	36.6	-566.2	567.4	0.00	0.00	
7,300.0	4.70	273.70	7,276.5	37.2	-574.4	575.6	0.00	0.00	
7,400.0	4.70	273.70	7,376.1	37.7	-582.6	583.8	0.00	0.00	
7,500.0	4.70	273.70	7,475.8	38.2	-590.8	592.0	0.00	0.00	
7,600.0	4.70	273.70	7,575.4	38.8	-598.9	600.2	0.00	0.00	
7,662.9	4.70	273.70	7,638.2	39.1	-604.1	605.4	0.00	0.00	Start Drop -2.00
7,700.0	3.96	273.70	7,675.1	39.3	-606.9	608.2	2.00	-2.00	
7,800.0	1.96	273.70	7,775.0	39.6	-612.0	613.3	2.00	-2.00	
7,898.0	0.00	0.00	7,873.0	39.7	-613.7	615.0	2.00	-2.00	EOD; Inc=0° - Top of Gas - MCU 16-13C (M16W Pad)
7,900.0	0.00	0.00	7,875.0	39.7	-613.7	615.0	0.00	0.00	
8,000.0	0.00	0.00	7,975.0	39.7	-613.7	615.0	0.00	0.00	
8,100.0	0.00	0.00	8,075.0	39.7	-613.7	615.0	0.00	0.00	
8,200.0	0.00	0.00	8,175.0	39.7	-613.7	615.0	0.00	0.00	
8,300.0	0.00	0.00	8,275.0	39.7	-613.7	615.0	0.00	0.00	
8,400.0	0.00	0.00	8,375.0	39.7	-613.7	615.0	0.00	0.00	
8,500.0	0.00	0.00	8,475.0	39.7	-613.7	615.0	0.00	0.00	
8,600.0	0.00	0.00	8,575.0	39.7	-613.7	615.0	0.00	0.00	
8,700.0	0.00	0.00	8,675.0	39.7	-613.7	615.0	0.00	0.00	
8,800.0	0.00	0.00	8,775.0	39.7	-613.7	615.0	0.00	0.00	
8,900.0	0.00	0.00	8,875.0	39.7	-613.7	615.0	0.00	0.00	
9,000.0	0.00	0.00	8,975.0	39.7	-613.7	615.0	0.00	0.00	
9,100.0	0.00	0.00	9,075.0	39.7	-613.7	615.0	0.00	0.00	
9,114.0	0.00	0.00	9,089.0	39.7	-613.7	615.0	0.00	0.00	Coal Ridge
9,200.0	0.00	0.00	9,175.0	39.7	-613.7	615.0	0.00	0.00	
9,300.0	0.00	0.00	9,275.0	39.7	-613.7	615.0	0.00	0.00	
9,400.0	0.00	0.00	9,375.0	39.7	-613.7	615.0	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>North Reference:</b>	True
<b>Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,500.0	0.00	0.00	9,475.0	39.7	-613.7	615.0	0.00	0.00	
9,600.0	0.00	0.00	9,575.0	39.7	-613.7	615.0	0.00	0.00	
9,700.0	0.00	0.00	9,675.0	39.7	-613.7	615.0	0.00	0.00	
9,778.0	0.00	0.00	9,753.0	39.7	-613.7	615.0	0.00	0.00	Base Cameo A Coal
9,800.0	0.00	0.00	9,775.0	39.7	-613.7	615.0	0.00	0.00	
9,900.0	0.00	0.00	9,875.0	39.7	-613.7	615.0	0.00	0.00	
9,914.0	0.00	0.00	9,889.0	39.7	-613.7	615.0	0.00	0.00	Rollins
10,000.0	0.00	0.00	9,975.0	39.7	-613.7	615.0	0.00	0.00	
10,100.0	0.00	0.00	10,075.0	39.7	-613.7	615.0	0.00	0.00	
10,200.0	0.00	0.00	10,175.0	39.7	-613.7	615.0	0.00	0.00	
10,300.0	0.00	0.00	10,275.0	39.7	-613.7	615.0	0.00	0.00	
10,340.0	0.00	0.00	10,315.0	39.7	-613.7	615.0	0.00	0.00	Cozzette
10,400.0	0.00	0.00	10,375.0	39.7	-613.7	615.0	0.00	0.00	
10,500.0	0.00	0.00	10,475.0	39.7	-613.7	615.0	0.00	0.00	
10,549.0	0.00	0.00	10,524.0	39.7	-613.7	615.0	0.00	0.00	Corcoran
10,600.0	0.00	0.00	10,575.0	39.7	-613.7	615.0	0.00	0.00	
10,700.0	0.00	0.00	10,675.0	39.7	-613.7	615.0	0.00	0.00	
10,800.0	0.00	0.00	10,775.0	39.7	-613.7	615.0	0.00	0.00	
10,900.0	0.00	0.00	10,875.0	39.7	-613.7	615.0	0.00	0.00	
11,000.0	0.00	0.00	10,975.0	39.7	-613.7	615.0	0.00	0.00	
11,099.0	0.00	0.00	11,074.0	39.7	-613.7	615.0	0.00	0.00	TD @ 11099.' MD - MCU 16-13C (M16W Pad) I
11,100.0	0.00	0.00	11,075.0	39.7	-613.7	615.0	0.00	0.00	
11,200.0	0.00	0.00	11,175.0	39.7	-613.7	615.0	0.00	0.00	
11,300.0	0.00	0.00	11,275.0	39.7	-613.7	615.0	0.00	0.00	
11,399.0	0.00	0.00	11,374.0	39.7	-613.7	615.0	0.00	0.00	Permit TD @ 11399.' MD

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 16-13C (M16W Pa - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,873.0	39.7	-613.7	1,593,261.36	2,354,586.53	39.439971	-107.785513
MCU 16-13C (M16W Pa - plan hits target center - Circle (radius 25.0)	0.00	0.00	11,074.0	39.7	-613.7	1,593,261.36	2,354,586.53	39.439971	-107.785513

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,221.1	1,218.0	Surface Casing	0.000	0.000	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>North Reference:</b>	True
<b>Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,859.0	3,847.0	G Sand		0.00		
5,915.9	5,897.0	Ohio Creek		0.00		
6,358.4	6,338.0	mesa Verde		0.00		
6,872.1	6,850.0	Williams Fork		0.00		
7,898.0	7,873.0	Top of Gas		0.00		
9,114.0	9,089.0	Coal Ridge		0.00		
9,778.0	9,753.0	Base Cameo A Coal		0.00		
9,914.0	9,889.0	Rollins		0.00		
10,340.0	10,315.0	Cozzette		0.00		
10,549.0	10,524.0	Corcoran		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP @ 200' MD	
356.7	356.6	0.4	-6.4	EOB; Inc=4.7°	
7,662.9	7,638.2	39.1	-604.1	Start Drop -2.00	
7,898.0	7,873.0	39.7	-613.7	EOD; Inc=0°	
11,099.0	11,074.0	39.7	-613.7	TD @ 11099.' MD	
11,399.0	11,374.0	39.7	-613.7	Permit TD @ 11399.' MD	



# **EnCana Oil & Gas (USA) Inc**

**Mamm Creek**

**SWSW S16-T7S-R93W (M16W Pad)**

**MCU 16-13C (M16W Pad)**

**DD**

**Plan #1**

## **Anticollision Report**

**19 January, 2011**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	1/19/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,399.0	Plan #1 (DD)	MWD	Geolink MWD

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

### Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
SWSW S16-T7S-R93W (M16W Pad)						
MCU 16-13A (M16W Pad) - DD - Plan #1	200.0	200.0	156.2	155.6	251.464	CC, ES
MCU 16-13A (M16W Pad) - DD - Plan #1	5,400.0	5,385.6	496.6	471.6	19.872	SF
MCU 16-13B (M16W Pad) - DD - Plan #1	200.0	200.0	114.9	114.3	184.948	CC, ES
MCU 16-13B (M16W Pad) - DD - Plan #1	10,300.0	10,310.8	349.8	307.5	8.265	SF
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	34.0	33.4	54.682	CC
MCU 16-13D (M16W Pad) - DD - Plan #1	300.0	298.2	34.2	33.2	35.271	ES
MCU 16-13D (M16W Pad) - DD - Plan #1	10,300.0	10,302.2	339.9	298.4	8.189	SF
MCU 21-3B (M16W Pad) - DD - Plan #1	767.6	776.5	52.5	48.9	14.542	CC, ES
MCU 21-3B (M16W Pad) - DD - Plan #1	800.0	807.1	53.5	49.7	14.092	SF
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	26.6	25.9	42.749	CC, ES
MCU 21-4A (M16W Pad) - DD - Plan #1	10,300.0	10,309.8	496.0	454.4	11.920	SF
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	11.4	10.8	18.327	CC, ES
MCU 21-4B (M16W Pad) - DD - Plan #1	300.0	299.3	13.1	12.2	13.426	SF
MCU 21-4C (M16W Pad) - DD - Plan #1	200.0	200.0	11.6	11.0	18.650	CC, ES
MCU 21-4C (M16W Pad) - DD - Plan #1	300.0	300.0	14.0	13.0	14.274	SF
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	26.9	26.2	43.245	CC, ES
MCU 21-4D2 (M16W Pad) - DD - Plan #1	500.0	499.5	42.1	40.3	22.876	SF
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	43.3	42.6	69.630	CC, ES
MCU 21-5A (M16W Pad) - DD - Plan #1	700.0	695.1	79.9	77.0	27.181	SF
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	200.0	200.0	159.7	159.1	257.028	CC, ES
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	3,500.0	3,474.0	490.9	474.5	29.898	SF
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	171.1	170.4	275.323	CC, ES
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	2,600.0	2,559.0	496.1	483.8	40.336	SF
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	175.2	174.6	282.012	CC, ES
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	1,700.0	1,619.2	482.7	474.6	59.238	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	666.4	670.4	24.3	21.4	8.230	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	700.0	703.5	25.0	21.8	7.846	SF
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	595.2	597.1	8.5	6.0	3.435	CC
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	600.0	601.9	8.5	6.0	3.403	ES, SF
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	16.9	16.2	27.128	CC
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	300.0	299.2	16.9	16.0	17.432	ES
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	500.0	497.3	22.4	20.7	13.193	SF
MCU Fee 17-9B (M16W pad) - DD - Plan #1	200.0	200.0	144.7	144.1	232.918	CC, ES
MCU Fee 17-9B (M16W pad) - DD - Plan #1	1,300.0	1,275.7	232.6	226.0	35.422	SF
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	200.0	200.0	115.3	114.7	185.636	CC, ES
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	900.0	860.2	187.4	183.6	49.391	SF
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	100.0	100.0	127.8	127.5	469.377	CC
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	200.0	200.0	127.8	127.2	205.682	ES
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	1,000.0	986.7	173.5	168.3	33.372	SF
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	878.3	885.6	109.1	105.4	29.355	CC
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	900.0	906.8	109.2	105.3	28.160	ES
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	1,200.0	1,199.0	130.1	124.2	21.785	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13A (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	39.92	119.8	100.3	156.2					
100.0	100.0	100.0	100.0	0.1	0.1	39.92	119.8	100.3	156.2	156.0	0.27	573.854		
200.0	200.0	200.0	200.0	0.3	0.3	39.92	119.8	100.3	156.2	155.6	0.62	251.464	CC, ES	
300.0	300.0	300.1	300.1	0.5	0.5	125.99	121.5	98.2	157.7	156.8	0.98	160.216		
400.0	399.7	400.1	399.7	0.7	0.7	125.27	126.4	92.1	162.0	160.6	1.40	115.593		
500.0	499.3	499.8	498.7	0.9	1.0	123.37	134.0	82.6	166.7	164.9	1.86	89.573		
600.0	599.0	599.6	597.6	1.1	1.2	121.43	141.9	72.8	171.7	169.4	2.34	73.446		
700.0	698.7	699.3	696.5	1.4	1.5	119.60	149.9	63.0	176.9	174.1	2.82	62.666		
800.0	798.3	799.0	795.5	1.6	1.8	117.87	157.8	53.1	182.2	178.9	3.31	55.025		
900.0	898.0	898.7	894.4	1.8	2.1	116.24	165.7	43.3	187.7	183.9	3.80	49.361		
1,000.0	997.7	998.4	993.3	2.0	2.3	114.71	173.6	33.5	193.4	189.1	4.30	45.015		
1,100.0	1,097.3	1,098.1	1,092.2	2.3	2.6	113.26	181.5	23.6	199.2	194.4	4.79	41.588		
1,200.0	1,197.0	1,197.8	1,191.1	2.5	2.9	111.89	189.4	13.8	205.1	199.8	5.28	38.826		
1,300.0	1,296.6	1,297.5	1,290.0	2.7	3.2	110.61	197.3	3.9	211.1	205.3	5.77	36.558		
1,400.0	1,396.3	1,397.2	1,388.9	2.9	3.5	109.39	205.3	-5.9	217.2	210.9	6.26	34.668		
1,500.0	1,496.0	1,496.9	1,487.8	3.2	3.7	108.24	213.2	-15.7	223.4	216.6	6.75	33.073		
1,600.0	1,595.6	1,596.7	1,586.7	3.4	4.0	107.15	221.1	-25.6	229.6	222.4	7.24	31.710		
1,700.0	1,695.3	1,696.4	1,685.6	3.6	4.3	106.13	229.0	-35.4	236.0	228.3	7.73	30.535		
1,800.0	1,795.0	1,796.1	1,784.5	3.8	4.6	105.15	236.9	-45.2	242.4	234.2	8.21	29.514		
1,900.0	1,894.6	1,895.8	1,883.4	4.1	4.9	104.23	244.8	-55.1	248.9	240.2	8.70	28.619		
2,000.0	1,994.3	1,995.5	1,982.3	4.3	5.1	103.35	252.8	-64.9	255.5	246.3	9.18	27.829		
2,100.0	2,094.0	2,095.2	2,081.3	4.5	5.4	102.52	260.7	-74.7	262.1	252.4	9.66	27.128		
2,200.0	2,193.6	2,194.9	2,180.2	4.7	5.7	101.73	268.6	-84.6	268.8	258.6	10.14	26.502		
2,300.0	2,293.3	2,294.6	2,279.1	5.0	6.0	100.97	276.5	-94.4	275.5	264.9	10.62	25.941		
2,400.0	2,392.9	2,394.3	2,378.0	5.2	6.3	100.26	284.4	-104.2	282.2	271.1	11.10	25.436		
2,500.0	2,492.6	2,494.0	2,476.9	5.4	6.5	99.57	292.3	-114.1	289.0	277.5	11.57	24.978		
2,600.0	2,592.3	2,593.8	2,575.8	5.6	6.8	98.92	300.2	-123.9	295.9	283.8	12.05	24.563		
2,700.0	2,691.9	2,693.5	2,674.7	5.9	7.1	98.30	308.2	-133.7	302.8	290.2	12.52	24.184		
2,800.0	2,791.6	2,793.2	2,773.6	6.1	7.4	97.70	316.1	-143.6	309.7	296.7	12.99	23.838		
2,900.0	2,891.3	2,892.9	2,872.5	6.3	7.7	97.13	324.0	-153.4	316.6	303.2	13.46	23.520		
3,000.0	2,990.9	2,992.6	2,971.4	6.5	8.0	96.59	331.9	-163.3	323.6	309.7	13.93	23.227		
3,100.0	3,090.6	3,092.3	3,070.3	6.8	8.2	96.07	339.8	-173.1	330.6	316.2	14.40	22.957		
3,200.0	3,190.3	3,192.0	3,169.2	7.0	8.5	95.57	347.7	-182.9	337.6	322.8	14.87	22.708		
3,300.0	3,289.9	3,291.7	3,268.1	7.2	8.8	95.09	355.6	-192.8	344.7	329.3	15.34	22.476		
3,400.0	3,389.6	3,391.4	3,367.1	7.4	9.1	94.63	363.6	-202.6	351.7	335.9	15.80	22.261		
3,500.0	3,489.2	3,491.2	3,466.0	7.7	9.4	94.18	371.5	-212.4	358.8	342.6	16.27	22.061		
3,600.0	3,588.9	3,590.9	3,564.9	7.9	9.6	93.76	379.4	-222.3	366.0	349.2	16.73	21.874		
3,700.0	3,688.6	3,690.6	3,663.8	8.1	9.9	93.35	387.3	-232.1	373.1	355.9	17.19	21.699		
3,800.0	3,788.2	3,790.3	3,762.7	8.3	10.2	92.96	395.2	-241.9	380.3	362.6	17.66	21.535		
3,900.0	3,887.9	3,890.0	3,861.6	8.6	10.5	92.58	403.1	-251.8	387.4	369.3	18.12	21.382		
4,000.0	3,987.6	3,989.7	3,960.5	8.8	10.8	92.21	411.1	-261.6	394.6	376.0	18.58	21.238		
4,100.0	4,087.2	4,089.4	4,059.4	9.0	11.0	91.86	419.0	-271.4	401.8	382.8	19.04	21.102		
4,200.0	4,186.9	4,189.1	4,158.3	9.2	11.3	91.52	426.9	-281.3	409.0	389.5	19.50	20.974		
4,300.0	4,286.6	4,288.8	4,257.2	9.5	11.6	91.19	434.8	-291.1	416.3	396.3	19.96	20.853		
4,400.0	4,386.2	4,388.5	4,356.1	9.7	11.9	90.88	442.7	-300.9	423.5	403.1	20.42	20.739		
4,500.0	4,485.9	4,488.3	4,455.0	9.9	12.2	90.57	450.6	-310.8	430.8	409.9	20.88	20.631		
4,600.0	4,585.5	4,588.0	4,554.0	10.2	12.5	90.28	458.5	-320.6	438.0	416.7	21.34	20.529		
4,700.0	4,685.2	4,687.7	4,652.9	10.4	12.7	89.99	466.5	-330.5	445.3	423.5	21.80	20.432		
4,800.0	4,784.9	4,787.4	4,751.8	10.6	13.0	89.71	474.4	-340.3	452.6	430.4	22.25	20.340		
4,900.0	4,884.5	4,887.1	4,850.7	10.8	13.3	89.44	482.3	-350.1	459.9	437.2	22.71	20.252		
5,000.0	4,984.2	4,986.8	4,949.6	11.1	13.6	89.19	490.2	-360.0	467.2	444.1	23.17	20.169		
5,100.0	5,083.9	5,086.5	5,048.5	11.3	13.9	88.93	498.1	-369.8	474.6	450.9	23.62	20.089		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13A (M16W Pad) - DD - Plan #1		Offset Site Error:		0.0 ft	
Survey Program: 0-MWD															Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor						
							+N/-S (ft)	+E/-W (ft)										
5,200.0	5,183.5	5,186.2	5,147.4	11.5	14.1	88.69	506.0	-379.6	481.9	457.8	24.08	20.013						
5,300.0	5,283.2	5,285.9	5,246.3	11.7	14.4	88.45	514.0	-389.5	489.2	464.7	24.53	19.941						
5,400.0	5,382.9	5,385.6	5,345.2	12.0	14.7	88.22	521.9	-399.3	496.6	471.6	24.99	19.872 SF						

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13B (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	27.04	102.3	52.2	114.9					
100.0	100.0	100.0	100.0	0.1	0.1	27.04	102.3	52.2	114.9	114.6	0.27	422.060		
200.0	200.0	200.0	200.0	0.3	0.3	27.04	102.3	52.2	114.9	114.3	0.62	184.948	CC, ES	
300.0	300.0	300.4	300.4	0.5	0.5	113.21	103.4	49.8	115.8	114.8	0.99	117.304		
400.0	399.7	400.7	400.4	0.7	0.7	112.66	106.5	42.6	118.1	116.7	1.41	84.016		
500.0	499.3	500.7	499.8	0.9	0.9	111.59	110.3	33.5	120.7	118.9	1.85	65.340		
600.0	599.0	600.6	599.3	1.1	1.2	110.56	114.1	24.5	123.4	121.1	2.30	53.644		
700.0	698.7	700.6	698.7	1.4	1.4	109.58	118.0	15.5	126.1	123.3	2.76	45.712		
800.0	798.3	800.5	798.2	1.6	1.7	108.64	121.8	6.4	128.8	125.6	3.22	40.007		
900.0	898.0	900.4	897.7	1.8	1.9	107.74	125.7	-2.6	131.5	127.8	3.68	35.719		
1,000.0	997.7	1,000.4	997.1	2.0	2.1	106.87	129.5	-11.7	134.3	130.2	4.15	32.385		
1,100.0	1,097.3	1,100.3	1,096.6	2.3	2.4	106.04	133.3	-20.7	137.1	132.5	4.61	29.723		
1,200.0	1,197.0	1,200.3	1,196.0	2.5	2.6	105.25	137.2	-29.8	140.0	134.9	5.08	27.551		
1,300.0	1,296.6	1,300.2	1,295.5	2.7	2.9	104.48	141.0	-38.8	142.8	137.3	5.55	25.747		
1,400.0	1,396.3	1,400.1	1,394.9	2.9	3.1	103.75	144.9	-47.8	145.7	139.7	6.01	24.226		
1,500.0	1,496.0	1,500.1	1,494.4	3.2	3.4	103.04	148.7	-56.9	148.6	142.1	6.48	22.928		
1,600.0	1,595.6	1,600.0	1,593.9	3.4	3.6	102.37	152.5	-65.9	151.5	144.6	6.95	21.807		
1,700.0	1,695.3	1,700.0	1,693.3	3.6	3.9	101.71	156.4	-75.0	154.5	147.1	7.42	20.831		
1,800.0	1,795.0	1,799.9	1,792.8	3.8	4.1	101.09	160.2	-84.0	157.5	149.6	7.88	19.974		
1,900.0	1,894.6	1,899.9	1,892.2	4.1	4.3	100.48	164.1	-93.1	160.5	152.1	8.35	19.215		
2,000.0	1,994.3	1,999.8	1,991.7	4.3	4.6	99.90	167.9	-102.1	163.5	154.7	8.82	18.539		
2,100.0	2,094.0	2,099.7	2,091.1	4.5	4.8	99.34	171.7	-111.2	166.5	157.2	9.28	17.933		
2,200.0	2,193.6	2,199.7	2,190.6	4.7	5.1	98.80	175.6	-120.2	169.5	159.8	9.75	17.387		
2,300.0	2,293.3	2,299.6	2,290.1	5.0	5.3	98.27	179.4	-129.2	172.6	162.4	10.22	16.893		
2,400.0	2,392.9	2,399.6	2,389.5	5.2	5.6	97.77	183.3	-138.3	175.7	165.0	10.68	16.444		
2,500.0	2,492.6	2,499.5	2,489.0	5.4	5.8	97.28	187.1	-147.3	178.7	167.6	11.15	16.035		
2,600.0	2,592.3	2,599.4	2,588.4	5.6	6.1	96.81	191.0	-156.4	181.8	170.2	11.61	15.660		
2,700.0	2,691.9	2,699.4	2,687.9	5.9	6.3	96.36	194.8	-165.4	184.9	172.9	12.08	15.315		
2,800.0	2,791.6	2,799.3	2,787.3	6.1	6.5	95.92	198.6	-174.5	188.0	175.5	12.54	14.997		
2,900.0	2,891.3	2,899.3	2,886.8	6.3	6.8	95.49	202.5	-183.5	191.2	178.2	13.00	14.703		
3,000.0	2,990.9	2,999.2	2,986.3	6.5	7.0	95.08	206.3	-192.5	194.3	180.8	13.47	14.430		
3,100.0	3,090.6	3,099.1	3,085.7	6.8	7.3	94.68	210.2	-201.6	197.5	183.5	13.93	14.177		
3,200.0	3,190.3	3,199.1	3,185.2	7.0	7.5	94.30	214.0	-210.6	200.6	186.2	14.39	13.941		
3,300.0	3,289.9	3,299.0	3,284.6	7.2	7.8	93.92	217.8	-219.7	203.8	188.9	14.85	13.721		
3,400.0	3,389.6	3,399.0	3,384.1	7.4	8.0	93.56	221.7	-228.7	206.9	191.6	15.31	13.514		
3,500.0	3,489.2	3,498.9	3,483.5	7.7	8.3	93.21	225.5	-237.8	210.1	194.4	15.77	13.321		
3,600.0	3,588.9	3,598.9	3,583.0	7.9	8.5	92.87	229.4	-246.8	213.3	197.1	16.23	13.140		
3,700.0	3,688.6	3,698.8	3,682.5	8.1	8.7	92.54	233.2	-255.8	216.5	199.8	16.69	12.969		
3,800.0	3,788.2	3,798.7	3,781.9	8.3	9.0	92.22	237.0	-264.9	219.7	202.6	17.15	12.808		
3,900.0	3,887.9	3,898.7	3,881.4	8.6	9.2	91.91	240.9	-273.9	222.9	205.3	17.61	12.656		
4,000.0	3,987.6	3,998.6	3,980.8	8.8	9.5	91.60	244.7	-283.0	226.1	208.1	18.07	12.513		
4,100.0	4,087.2	4,098.6	4,080.3	9.0	9.7	91.31	248.6	-292.0	229.4	210.8	18.53	12.377		
4,200.0	4,186.9	4,198.5	4,179.7	9.2	10.0	91.02	252.4	-301.1	232.6	213.6	18.99	12.248		
4,300.0	4,286.6	4,298.4	4,279.2	9.5	10.2	90.74	256.2	-310.1	235.8	216.4	19.45	12.126		
4,400.0	4,386.2	4,398.4	4,378.7	9.7	10.5	90.47	260.1	-319.1	239.1	219.2	19.91	12.010		
4,500.0	4,485.9	4,498.3	4,478.1	9.9	10.7	90.21	263.9	-328.2	242.3	221.9	20.36	11.899		
4,600.0	4,585.5	4,598.3	4,577.6	10.2	11.0	89.95	267.8	-337.2	245.6	224.7	20.82	11.794		
4,700.0	4,685.2	4,698.2	4,677.0	10.4	11.2	89.70	271.6	-346.3	248.8	227.5	21.28	11.694		
4,800.0	4,784.9	4,798.1	4,776.5	10.6	11.4	89.46	275.4	-355.3	252.1	230.3	21.73	11.598		
4,900.0	4,884.5	4,898.1	4,875.9	10.8	11.7	89.22	279.3	-364.4	255.3	233.1	22.19	11.507		
5,000.0	4,984.2	4,998.0	4,975.4	11.1	11.9	88.99	283.1	-373.4	258.6	236.0	22.65	11.420		
5,100.0	5,083.9	5,098.0	5,074.9	11.3	12.2	88.76	287.0	-382.4	261.9	238.8	23.10	11.336		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13B (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance								Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
5,200.0	5,183.5	5,197.9	5,174.3	11.5	12.4	88.54	290.8	-391.5	265.1	241.6	23.56	11.256				
5,300.0	5,283.2	5,297.9	5,273.8	11.7	12.7	88.33	294.7	-400.5	268.4	244.4	24.01	11.179				
5,400.0	5,382.9	5,397.8	5,373.2	12.0	12.9	88.12	298.5	-409.6	271.7	247.2	24.47	11.105				
5,500.0	5,482.5	5,497.7	5,472.7	12.2	13.2	87.91	302.3	-418.6	275.0	250.1	24.92	11.035				
5,600.0	5,582.2	5,597.7	5,572.1	12.4	13.4	87.71	306.2	-427.7	278.3	252.9	25.38	10.967				
5,700.0	5,681.8	5,697.6	5,671.6	12.6	13.6	87.52	310.0	-436.7	281.6	255.8	25.83	10.902				
5,800.0	5,781.5	5,797.6	5,771.1	12.9	13.9	87.33	313.9	-445.8	284.9	258.6	26.28	10.839				
5,900.0	5,881.2	5,897.5	5,870.5	13.1	14.1	87.14	317.7	-454.8	288.2	261.4	26.74	10.778				
6,000.0	5,980.8	5,997.4	5,970.0	13.3	14.4	86.96	321.5	-463.8	291.5	264.3	27.19	10.720				
6,100.0	6,080.5	6,097.4	6,069.4	13.5	14.6	86.78	325.4	-472.9	294.8	267.1	27.64	10.664				
6,200.0	6,180.2	6,197.3	6,168.9	13.8	14.9	86.61	329.2	-481.9	298.1	270.0	28.10	10.610				
6,300.0	6,279.8	6,297.3	6,268.3	14.0	15.1	86.44	333.1	-491.0	301.4	272.9	28.55	10.557				
6,400.0	6,379.5	6,397.2	6,367.8	14.2	15.4	86.27	336.9	-500.0	304.7	275.7	29.00	10.507				
6,500.0	6,479.1	6,497.1	6,467.3	14.4	15.6	86.11	340.7	-509.1	308.0	278.6	29.45	10.458				
6,600.0	6,578.8	6,597.1	6,566.7	14.7	15.9	85.95	344.6	-518.1	311.4	281.4	29.91	10.411				
6,700.0	6,678.5	6,697.0	6,666.2	14.9	16.1	85.79	348.4	-527.1	314.7	284.3	30.36	10.365				
6,800.0	6,778.1	6,797.0	6,765.6	15.1	16.3	85.64	352.3	-536.2	318.0	287.2	30.81	10.321				
6,900.0	6,877.8	6,896.9	6,865.1	15.3	16.6	85.49	356.1	-545.2	321.3	290.1	31.26	10.278				
7,000.0	6,977.5	6,996.9	6,964.5	15.6	16.8	85.35	359.9	-554.3	324.6	292.9	31.71	10.237				
7,100.0	7,077.1	7,096.8	7,064.0	15.8	17.1	85.20	363.8	-563.3	328.0	295.8	32.17	10.197				
7,200.0	7,176.8	7,196.7	7,163.5	16.0	17.3	85.06	367.6	-572.4	331.3	298.7	32.62	10.158				
7,300.0	7,276.5	7,296.7	7,262.9	16.3	17.6	84.92	371.5	-581.4	334.6	301.6	33.07	10.120				
7,400.0	7,376.1	7,396.6	7,362.4	16.5	17.8	84.79	375.3	-590.4	338.0	304.5	33.52	10.083				
7,500.0	7,475.8	7,496.6	7,461.8	16.7	18.1	84.66	379.2	-599.5	341.3	307.3	33.97	10.048				
7,600.0	7,575.4	7,596.5	7,561.3	16.9	18.3	84.53	383.0	-608.5	344.7	310.2	34.42	10.013				
7,700.0	7,675.1	7,700.4	7,664.8	17.2	18.5	84.53	386.6	-616.9	347.6	312.7	34.86	9.971				
7,800.0	7,775.0	7,805.8	7,770.0	17.3	18.7	84.63	388.7	-622.0	349.3	314.1	35.22	9.918				
7,900.0	7,875.0	7,910.8	7,875.0	17.5	18.8	-1.62	389.4	-623.6	349.8	314.3	35.50	9.855				
8,000.0	7,975.0	8,010.8	7,975.0	17.6	19.0	-1.62	389.4	-623.6	349.8	314.0	35.77	9.780				
8,100.0	8,075.0	8,110.8	8,075.0	17.7	19.1	-1.62	389.4	-623.6	349.8	313.8	36.04	9.706				
8,200.0	8,175.0	8,210.8	8,175.0	17.9	19.2	-1.62	389.4	-623.6	349.8	313.5	36.31	9.633				
8,300.0	8,275.0	8,310.8	8,275.0	18.0	19.4	-1.62	389.4	-623.6	349.8	313.2	36.59	9.560				
8,400.0	8,375.0	8,410.8	8,375.0	18.2	19.5	-1.62	389.4	-623.6	349.8	312.9	36.87	9.489				
8,500.0	8,475.0	8,510.8	8,475.0	18.3	19.6	-1.62	389.4	-623.6	349.8	312.7	37.14	9.418				
8,600.0	8,575.0	8,610.8	8,575.0	18.4	19.8	-1.62	389.4	-623.6	349.8	312.4	37.42	9.347				
8,700.0	8,675.0	8,710.8	8,675.0	18.6	19.9	-1.62	389.4	-623.6	349.8	312.1	37.70	9.278				
8,800.0	8,775.0	8,810.8	8,775.0	18.7	20.0	-1.62	389.4	-623.6	349.8	311.8	37.98	9.209				
8,900.0	8,875.0	8,910.8	8,875.0	18.9	20.2	-1.62	389.4	-623.6	349.8	311.5	38.27	9.141				
9,000.0	8,975.0	9,010.8	8,975.0	19.0	20.3	-1.62	389.4	-623.6	349.8	311.3	38.55	9.074				
9,100.0	9,075.0	9,110.8	9,075.0	19.2	20.4	-1.62	389.4	-623.6	349.8	311.0	38.83	9.008				
9,200.0	9,175.0	9,210.8	9,175.0	19.3	20.6	-1.62	389.4	-623.6	349.8	310.7	39.12	8.942				
9,300.0	9,275.0	9,310.8	9,275.0	19.4	20.7	-1.62	389.4	-623.6	349.8	310.4	39.41	8.877				
9,400.0	9,375.0	9,410.8	9,375.0	19.6	20.8	-1.62	389.4	-623.6	349.8	310.1	39.69	8.813				
9,500.0	9,475.0	9,510.8	9,475.0	19.7	21.0	-1.62	389.4	-623.6	349.8	309.8	39.98	8.749				
9,600.0	9,575.0	9,610.8	9,575.0	19.9	21.1	-1.62	389.4	-623.6	349.8	309.5	40.27	8.686				
9,700.0	9,675.0	9,710.8	9,675.0	20.0	21.2	-1.62	389.4	-623.6	349.8	309.2	40.56	8.624				
9,800.0	9,775.0	9,810.8	9,775.0	20.2	21.4	-1.62	389.4	-623.6	349.8	309.0	40.85	8.562				
9,900.0	9,875.0	9,910.8	9,875.0	20.3	21.5	-1.62	389.4	-623.6	349.8	308.7	41.15	8.501				
10,000.0	9,975.0	10,010.8	9,975.0	20.5	21.7	-1.62	389.4	-623.6	349.8	308.4	41.44	8.441				
10,100.0	10,075.0	10,110.8	10,075.0	20.6	21.8	-1.62	389.4	-623.6	349.8	308.1	41.73	8.382				
10,200.0	10,175.0	10,210.8	10,175.0	20.8	21.9	-1.62	389.4	-623.6	349.8	307.8	42.03	8.323				
10,300.0	10,275.0	10,310.8	10,275.0	20.9	22.1	-1.62	389.4	-623.6	349.8	307.5	42.32	8.265 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13B (M16W Pad) - DD - Plan #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,400.0	10,375.0	10,319.8	10,284.0	21.1	22.1	-1.62	389.4	-623.6	361.4	319.0	42.49	8.507		
10,500.0	10,475.0	10,319.8	10,284.0	21.2	22.1	-1.62	389.4	-623.6	398.5	355.9	42.64	9.347		
10,600.0	10,575.0	10,319.8	10,284.0	21.4	22.1	-1.62	389.4	-623.6	455.0	412.2	42.79	10.634		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13D (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-110.06	-11.7	-31.9	34.0					
100.0	100.0	100.0	100.0	0.1	0.1	-110.06	-11.7	-31.9	34.0	33.7	0.27	124.787		
200.0	200.0	200.0	200.0	0.3	0.3	-110.06	-11.7	-31.9	34.0	33.4	0.62	54.682 CC		
300.0	300.0	298.2	298.2	0.5	0.5	-25.99	-12.8	-34.2	34.2	33.2	0.97	35.271 ES		
400.0	399.7	397.0	396.7	0.7	0.7	-32.11	-16.1	-40.7	35.2	33.8	1.33	26.526		
500.0	499.3	496.9	496.2	0.9	0.9	-38.48	-19.9	-48.4	37.0	35.3	1.70	21.794		
600.0	599.0	596.8	595.7	1.1	1.1	-44.18	-23.8	-56.0	39.2	37.2	2.08	18.831		
700.0	698.7	696.7	695.3	1.4	1.4	-49.21	-27.6	-63.6	41.8	39.4	2.48	16.837		
800.0	798.3	796.6	794.8	1.6	1.6	-53.63	-31.5	-71.2	44.7	41.8	2.90	15.429		
900.0	898.0	896.5	894.4	1.8	1.8	-57.50	-35.3	-78.9	47.8	44.5	3.32	14.399		
1,000.0	997.7	996.4	993.9	2.0	2.0	-60.88	-39.1	-86.5	51.1	47.4	3.75	13.624		
1,100.0	1,097.3	1,096.3	1,093.4	2.3	2.3	-63.84	-43.0	-94.1	54.6	50.4	4.19	13.027		
1,200.0	1,197.0	1,196.2	1,193.0	2.5	2.5	-66.44	-46.8	-101.8	58.2	53.6	4.63	12.560		
1,300.0	1,296.6	1,296.1	1,292.5	2.7	2.7	-68.74	-50.7	-109.4	61.9	56.8	5.08	12.187		
1,400.0	1,396.3	1,396.0	1,392.0	2.9	3.0	-70.77	-54.5	-117.0	65.7	60.1	5.52	11.885		
1,500.0	1,496.0	1,495.9	1,491.6	3.2	3.2	-72.58	-58.3	-124.7	69.5	63.5	5.97	11.638		
1,600.0	1,595.6	1,595.8	1,591.1	3.4	3.4	-74.20	-62.2	-132.3	73.4	67.0	6.42	11.433		
1,700.0	1,695.3	1,695.7	1,690.7	3.6	3.6	-75.66	-66.0	-139.9	77.4	70.5	6.87	11.261		
1,800.0	1,795.0	1,795.6	1,790.2	3.8	3.9	-76.97	-69.9	-147.6	81.4	74.1	7.32	11.116		
1,900.0	1,894.6	1,895.5	1,889.7	4.1	4.1	-78.16	-73.7	-155.2	85.5	77.7	7.78	10.992		
2,000.0	1,994.3	1,995.4	1,989.3	4.3	4.3	-79.24	-77.6	-162.8	89.6	81.3	8.23	10.886		
2,100.0	2,094.0	2,095.3	2,088.8	4.5	4.6	-80.22	-81.4	-170.5	93.7	85.0	8.68	10.793		
2,200.0	2,193.6	2,195.2	2,188.3	4.7	4.8	-81.12	-85.2	-178.1	97.8	88.7	9.13	10.713		
2,300.0	2,293.3	2,295.1	2,287.9	5.0	5.0	-81.95	-89.1	-185.7	102.0	92.4	9.58	10.642		
2,400.0	2,392.9	2,395.1	2,387.4	5.2	5.3	-82.72	-92.9	-193.4	106.2	96.1	10.03	10.580		
2,500.0	2,492.6	2,495.0	2,486.9	5.4	5.5	-83.42	-96.8	-201.0	110.4	99.9	10.49	10.525		
2,600.0	2,592.3	2,594.9	2,586.5	5.6	5.7	-84.08	-100.6	-208.6	114.6	103.6	10.94	10.476		
2,700.0	2,691.9	2,694.8	2,686.0	5.9	5.9	-84.68	-104.5	-216.3	118.8	107.4	11.39	10.432		
2,800.0	2,791.6	2,794.7	2,785.6	6.1	6.2	-85.25	-108.3	-223.9	123.1	111.2	11.84	10.393		
2,900.0	2,891.3	2,894.6	2,885.1	6.3	6.4	-85.78	-112.1	-231.5	127.3	115.0	12.29	10.357		
3,000.0	2,990.9	2,994.5	2,984.6	6.5	6.6	-86.27	-116.0	-239.2	131.6	118.8	12.74	10.325		
3,100.0	3,090.6	3,094.4	3,084.2	6.8	6.9	-86.73	-119.8	-246.8	135.9	122.7	13.19	10.296		
3,200.0	3,190.3	3,194.3	3,183.7	7.0	7.1	-87.17	-123.7	-254.4	140.1	126.5	13.65	10.270		
3,300.0	3,289.9	3,294.2	3,283.2	7.2	7.3	-87.58	-127.5	-262.1	144.4	130.3	14.10	10.246		
3,400.0	3,389.6	3,394.1	3,382.8	7.4	7.5	-87.96	-131.3	-269.7	148.7	134.2	14.55	10.223		
3,500.0	3,489.2	3,494.0	3,482.3	7.7	7.8	-88.32	-135.2	-277.3	153.0	138.0	15.00	10.203		
3,600.0	3,588.9	3,593.9	3,581.8	7.9	8.0	-88.67	-139.0	-285.0	157.3	141.9	15.45	10.184		
3,700.0	3,688.6	3,693.8	3,681.4	8.1	8.2	-88.99	-142.9	-292.6	161.6	145.7	15.90	10.167		
3,800.0	3,788.2	3,793.7	3,780.9	8.3	8.5	-89.30	-146.7	-300.2	166.0	149.6	16.35	10.151		
3,900.0	3,887.9	3,893.6	3,880.5	8.6	8.7	-89.59	-150.6	-307.9	170.3	153.5	16.80	10.136		
4,000.0	3,987.6	3,993.5	3,980.0	8.8	8.9	-89.87	-154.4	-315.5	174.6	157.4	17.25	10.122		
4,100.0	4,087.2	4,093.4	4,079.5	9.0	9.2	-90.14	-158.2	-323.1	178.9	161.2	17.70	10.110		
4,200.0	4,186.9	4,193.3	4,179.1	9.2	9.4	-90.39	-162.1	-330.7	183.3	165.1	18.15	10.098		
4,300.0	4,286.6	4,293.2	4,278.6	9.5	9.6	-90.63	-165.9	-338.4	187.6	169.0	18.60	10.087		
4,400.0	4,386.2	4,393.1	4,378.1	9.7	9.8	-90.86	-169.8	-346.0	192.0	172.9	19.05	10.076		
4,500.0	4,485.9	4,493.0	4,477.7	9.9	10.1	-91.08	-173.6	-353.6	196.3	176.8	19.50	10.066		
4,600.0	4,585.5	4,592.9	4,577.2	10.2	10.3	-91.29	-177.4	-361.3	200.7	180.7	19.95	10.057		
4,700.0	4,685.2	4,692.8	4,676.8	10.4	10.5	-91.49	-181.3	-368.9	205.0	184.6	20.40	10.049		
4,800.0	4,784.9	4,792.7	4,776.3	10.6	10.8	-91.68	-185.1	-376.5	209.4	188.5	20.85	10.041		
4,900.0	4,884.5	4,892.6	4,875.8	10.8	11.0	-91.87	-189.0	-384.2	213.7	192.4	21.30	10.033		
5,000.0	4,984.2	4,992.5	4,975.4	11.1	11.2	-92.04	-192.8	-391.8	218.1	196.3	21.75	10.026		
5,100.0	5,083.9	5,092.4	5,074.9	11.3	11.5	-92.21	-196.7	-399.4	222.4	200.2	22.20	10.019		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13D (M16W Pad) - DD - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,183.5	5,192.3	5,174.4	11.5	11.7	-92.38	-200.5	-407.1	226.8	204.1	22.65	10.013	
5,300.0	5,283.2	5,292.2	5,274.0	11.7	11.9	-92.54	-204.3	-414.7	231.1	208.0	23.10	10.007	
5,400.0	5,382.9	5,392.1	5,373.5	12.0	12.1	-92.69	-208.2	-422.3	235.5	212.0	23.55	10.001	
5,500.0	5,482.5	5,492.0	5,473.0	12.2	12.4	-92.83	-212.0	-430.0	239.9	215.9	24.00	9.996	
5,600.0	5,582.2	5,591.9	5,572.6	12.4	12.6	-92.98	-215.9	-437.6	244.2	219.8	24.45	9.990	
5,700.0	5,681.8	5,691.8	5,672.1	12.6	12.8	-93.11	-219.7	-445.2	248.6	223.7	24.90	9.986	
5,800.0	5,781.5	5,791.7	5,771.7	12.9	13.1	-93.24	-223.6	-452.9	253.0	227.6	25.35	9.981	
5,900.0	5,881.2	5,891.7	5,871.2	13.1	13.3	-93.37	-227.4	-460.5	257.3	231.6	25.80	9.976	
6,000.0	5,980.8	5,991.6	5,970.7	13.3	13.5	-93.49	-231.2	-468.1	261.7	235.5	26.25	9.972	
6,100.0	6,080.5	6,091.5	6,070.3	13.5	13.7	-93.61	-235.1	-475.8	266.1	239.4	26.69	9.968	
6,200.0	6,180.2	6,191.4	6,169.8	13.8	14.0	-93.73	-238.9	-483.4	270.5	243.3	27.14	9.964	
6,300.0	6,279.8	6,291.3	6,269.3	14.0	14.2	-93.84	-242.8	-491.0	274.8	247.3	27.59	9.961	
6,400.0	6,379.5	6,391.2	6,368.9	14.2	14.4	-93.95	-246.6	-498.7	279.2	251.2	28.04	9.957	
6,500.0	6,479.1	6,491.1	6,468.4	14.4	14.7	-94.05	-250.4	-506.3	283.6	255.1	28.49	9.954	
6,600.0	6,578.8	6,591.0	6,568.0	14.7	14.9	-94.15	-254.3	-513.9	288.0	259.0	28.94	9.951	
6,700.0	6,678.5	6,690.9	6,667.5	14.9	15.1	-94.25	-258.1	-521.6	292.4	263.0	29.39	9.947	
6,800.0	6,778.1	6,790.8	6,767.0	15.1	15.4	-94.35	-262.0	-529.2	296.7	266.9	29.84	9.944	
6,900.0	6,877.8	6,890.7	6,866.6	15.3	15.6	-94.44	-265.8	-536.8	301.1	270.8	30.29	9.942	
7,000.0	6,977.5	6,990.6	6,966.1	15.6	15.8	-94.53	-269.7	-544.5	305.5	274.8	30.74	9.939	
7,100.0	7,077.1	7,090.5	7,065.6	15.8	16.0	-94.62	-273.5	-552.1	309.9	278.7	31.19	9.936	
7,200.0	7,176.8	7,190.4	7,165.2	16.0	16.3	-94.70	-277.3	-559.7	314.3	282.6	31.64	9.934	
7,300.0	7,276.5	7,290.3	7,264.7	16.3	16.5	-94.78	-281.2	-567.3	318.6	286.6	32.08	9.931	
7,400.0	7,376.1	7,390.2	7,364.2	16.5	16.7	-94.86	-285.0	-575.0	323.0	290.5	32.53	9.929	
7,500.0	7,475.8	7,490.1	7,463.8	16.7	17.0	-94.94	-288.9	-582.6	327.4	294.4	32.98	9.927	
7,600.0	7,575.4	7,590.0	7,563.3	16.9	17.2	-95.02	-292.7	-590.2	331.8	298.4	33.43	9.925	
7,700.0	7,675.1	7,691.5	7,664.4	17.2	17.4	-95.11	-296.5	-597.8	336.1	302.2	33.88	9.921	
7,800.0	7,775.0	7,796.7	7,769.5	17.3	17.6	-95.17	-299.2	-603.1	339.0	304.7	34.24	9.899	
7,900.0	7,875.0	7,902.0	7,874.8	17.5	17.8	178.53	-300.1	-605.0	339.9	305.4	34.53	9.846	
8,000.0	7,975.0	8,002.2	7,975.0	17.6	17.9	178.53	-300.1	-605.0	339.9	305.1	34.81	9.767	
8,100.0	8,075.0	8,102.2	8,075.0	17.7	18.0	178.53	-300.1	-605.0	339.9	304.9	35.09	9.689	
8,200.0	8,175.0	8,202.2	8,175.0	17.9	18.2	178.53	-300.1	-605.0	339.9	304.6	35.37	9.612	
8,300.0	8,275.0	8,302.2	8,275.0	18.0	18.3	178.53	-300.1	-605.0	339.9	304.3	35.65	9.536	
8,400.0	8,375.0	8,402.2	8,375.0	18.2	18.4	178.53	-300.1	-605.0	339.9	304.0	35.93	9.460	
8,500.0	8,475.0	8,502.2	8,475.0	18.3	18.6	178.53	-300.1	-605.0	339.9	303.7	36.22	9.386	
8,600.0	8,575.0	8,602.2	8,575.0	18.4	18.7	178.53	-300.1	-605.0	339.9	303.4	36.50	9.313	
8,700.0	8,675.0	8,702.2	8,675.0	18.6	18.9	178.53	-300.1	-605.0	339.9	303.2	36.79	9.240	
8,800.0	8,775.0	8,802.2	8,775.0	18.7	19.0	178.53	-300.1	-605.0	339.9	302.9	37.08	9.168	
8,900.0	8,875.0	8,902.2	8,875.0	18.9	19.1	178.53	-300.1	-605.0	339.9	302.6	37.37	9.097	
9,000.0	8,975.0	9,002.2	8,975.0	19.0	19.3	178.53	-300.1	-605.0	339.9	302.3	37.66	9.027	
9,100.0	9,075.0	9,102.2	9,075.0	19.2	19.4	178.53	-300.1	-605.0	339.9	302.0	37.95	8.958	
9,200.0	9,175.0	9,202.2	9,175.0	19.3	19.6	178.53	-300.1	-605.0	339.9	301.7	38.24	8.889	
9,300.0	9,275.0	9,302.2	9,275.0	19.4	19.7	178.53	-300.1	-605.0	339.9	301.4	38.53	8.822	
9,400.0	9,375.0	9,402.2	9,375.0	19.6	19.8	178.53	-300.1	-605.0	339.9	301.1	38.83	8.755	
9,500.0	9,475.0	9,502.2	9,475.0	19.7	20.0	178.53	-300.1	-605.0	339.9	300.8	39.12	8.689	
9,600.0	9,575.0	9,602.2	9,575.0	19.9	20.1	178.53	-300.1	-605.0	339.9	300.5	39.42	8.624	
9,700.0	9,675.0	9,702.2	9,675.0	20.0	20.3	178.53	-300.1	-605.0	339.9	300.2	39.71	8.560	
9,800.0	9,775.0	9,802.2	9,775.0	20.2	20.4	178.53	-300.1	-605.0	339.9	299.9	40.01	8.496	
9,900.0	9,875.0	9,902.2	9,875.0	20.3	20.6	178.53	-300.1	-605.0	339.9	299.6	40.31	8.433	
10,000.0	9,975.0	10,002.2	9,975.0	20.5	20.7	178.53	-300.1	-605.0	339.9	299.3	40.61	8.371	
10,100.0	10,075.0	10,102.2	10,075.0	20.6	20.9	178.53	-300.1	-605.0	339.9	299.0	40.91	8.310	
10,200.0	10,175.0	10,202.2	10,175.0	20.8	21.0	178.53	-300.1	-605.0	339.9	298.7	41.21	8.249	
10,300.0	10,275.0	10,302.2	10,275.0	20.9	21.2	178.53	-300.1	-605.0	339.9	298.4	41.51	8.189 SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13D (M16W Pad) - DD - Plan #1		Offset Site Error:		0.0 ft
Survey Program: 0-MWD															Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
10,400.0	10,375.0	10,321.2	10,294.0	21.1	21.2	178.53	-300.1	-605.0	349.5	307.8	41.69	8.382					
10,500.0	10,475.0	10,321.2	10,294.0	21.2	21.2	178.53	-300.1	-605.0	385.1	343.3	41.84	9.204					
10,600.0	10,575.0	10,321.2	10,294.0	21.4	21.2	178.53	-300.1	-605.0	441.0	399.0	41.99	10.503					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-3B (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-35.47	103.4	-73.7	127.0					
100.0	100.0	100.0	100.0	0.1	0.1	-35.47	103.4	-73.7	127.0	126.7	0.27	466.518		
200.0	200.0	200.0	200.0	0.3	0.3	-35.47	103.4	-73.7	127.0	126.4	0.62	204.429		
300.0	300.0	306.7	306.6	0.5	0.5	52.23	101.4	-71.5	122.7	121.7	0.99	124.131		
400.0	399.7	411.8	411.3	0.7	0.7	56.67	95.5	-65.0	110.3	109.0	1.38	80.236		
500.0	499.3	514.7	513.3	0.9	1.1	63.76	86.0	-54.6	93.4	91.6	1.80	51.930		
600.0	599.0	615.2	612.0	1.1	1.4	75.94	73.2	-40.5	74.0	71.7	2.32	31.829		
700.0	698.7	712.5	706.4	1.4	1.9	98.43	57.4	-23.2	56.9	53.8	3.08	18.461		
767.6	766.0	776.5	768.2	1.5	2.2	119.89	46.3	-11.1	52.5	48.9	3.61	14.542 CC, ES		
800.0	798.3	807.1	797.8	1.6	2.3	130.57	41.0	-5.2	53.5	49.7	3.80	14.092 SF		
900.0	898.0	901.8	889.3	1.8	2.8	157.50	24.6	12.8	67.7	63.6	4.10	16.524		
1,000.0	997.7	996.4	980.7	2.0	3.2	173.41	8.2	30.8	91.6	87.3	4.28	21.413		
1,100.0	1,097.3	1,091.1	1,072.2	2.3	3.7	-177.44	-8.3	48.9	119.4	114.9	4.50	26.543		
1,200.0	1,197.0	1,185.7	1,163.6	2.5	4.1	-171.78	-24.7	66.9	149.1	144.3	4.77	31.262		
1,300.0	1,296.6	1,280.4	1,255.1	2.7	4.6	-167.99	-41.1	84.9	179.7	174.6	5.07	35.450		
1,400.0	1,396.3	1,375.0	1,346.5	2.9	5.0	-165.30	-57.6	102.9	210.7	205.4	5.39	39.133		
1,500.0	1,496.0	1,469.7	1,438.0	3.2	5.5	-163.31	-74.0	121.0	242.1	236.4	5.71	42.375		
1,600.0	1,595.6	1,564.3	1,529.4	3.4	6.0	-161.76	-90.4	139.0	273.7	267.7	6.05	45.240		
1,700.0	1,695.3	1,659.0	1,620.9	3.6	6.4	-160.54	-106.8	157.0	305.5	299.1	6.39	47.785		
1,800.0	1,795.0	1,753.6	1,712.4	3.8	6.9	-159.55	-123.3	175.0	337.3	330.6	6.74	50.057		
1,900.0	1,894.6	1,848.3	1,803.8	4.1	7.4	-158.73	-139.7	193.0	369.2	362.1	7.09	52.097		
2,000.0	1,994.3	1,942.9	1,895.3	4.3	7.8	-158.04	-156.1	211.1	401.2	393.7	7.44	53.938		
2,100.0	2,094.0	2,037.6	1,986.7	4.5	8.3	-157.45	-172.5	229.1	433.2	425.4	7.79	55.606		
2,200.0	2,193.6	2,132.2	2,078.2	4.7	8.7	-156.94	-189.0	247.1	465.3	457.1	8.14	57.125		
2,300.0	2,293.3	2,226.9	2,169.6	5.0	9.2	-156.50	-205.4	265.1	497.3	488.8	8.50	58.513		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4A (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-127.11	-16.0	-21.2	26.6					
100.0	100.0	100.0	100.0	0.1	0.1	-127.11	-16.0	-21.2	26.6	26.3	0.27	97.555		
200.0	200.0	200.0	200.0	0.3	0.3	-127.11	-16.0	-21.2	26.6	25.9	0.62	42.749 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	-44.38	-17.6	-23.2	27.2	26.2	0.97	28.003		
400.0	399.7	397.2	396.8	0.7	0.7	-53.24	-22.2	-29.2	30.0	28.7	1.34	22.348		
500.0	499.3	497.0	496.2	0.9	0.9	-60.66	-28.0	-36.9	34.9	33.1	1.74	20.064		
600.0	599.0	596.8	595.5	1.1	1.2	-66.20	-33.9	-44.6	40.2	38.0	2.15	18.686		
700.0	698.7	696.6	694.8	1.4	1.4	-70.42	-39.8	-52.3	45.8	43.2	2.58	17.783		
800.0	798.3	796.4	794.1	1.6	1.6	-73.70	-45.7	-60.0	51.6	48.6	3.01	17.156		
900.0	898.0	896.2	893.5	1.8	1.9	-76.32	-51.5	-67.7	57.5	54.1	3.44	16.701		
1,000.0	997.7	995.9	992.8	2.0	2.1	-78.44	-57.4	-75.4	63.5	59.7	3.88	16.359		
1,100.0	1,097.3	1,095.7	1,092.1	2.3	2.4	-80.20	-63.3	-83.1	69.6	65.3	4.33	16.095		
1,200.0	1,197.0	1,195.5	1,191.4	2.5	2.6	-81.67	-69.1	-90.8	75.8	71.0	4.77	15.885		
1,300.0	1,296.6	1,295.3	1,290.7	2.7	2.8	-82.92	-75.0	-98.4	82.0	76.8	5.22	15.716		
1,400.0	1,396.3	1,395.1	1,390.1	2.9	3.1	-83.99	-80.9	-106.1	88.2	82.5	5.66	15.577		
1,500.0	1,496.0	1,494.9	1,489.4	3.2	3.3	-84.92	-86.7	-113.8	94.5	88.3	6.11	15.461		
1,600.0	1,595.6	1,594.7	1,588.7	3.4	3.6	-85.74	-92.6	-121.5	100.7	94.2	6.56	15.363		
1,700.0	1,695.3	1,694.5	1,688.0	3.6	3.8	-86.46	-98.5	-129.2	107.0	100.0	7.00	15.280		
1,800.0	1,795.0	1,794.3	1,787.4	3.8	4.1	-87.10	-104.3	-136.9	113.3	105.9	7.45	15.207		
1,900.0	1,894.6	1,894.1	1,886.7	4.1	4.3	-87.67	-110.2	-144.6	119.7	111.8	7.90	15.145		
2,000.0	1,994.3	1,993.9	1,986.0	4.3	4.5	-88.18	-116.1	-152.3	126.0	117.6	8.35	15.089		
2,100.0	2,094.0	2,093.7	2,085.3	4.5	4.8	-88.65	-121.9	-160.0	132.3	123.5	8.80	15.041		
2,200.0	2,193.6	2,193.5	2,184.7	4.7	5.0	-89.07	-127.8	-167.6	138.7	129.4	9.25	14.997		
2,300.0	2,293.3	2,293.3	2,284.0	5.0	5.3	-89.46	-133.7	-175.3	145.0	135.3	9.70	14.958		
2,400.0	2,392.9	2,393.0	2,383.3	5.2	5.5	-89.81	-139.6	-183.0	151.4	141.2	10.14	14.923		
2,500.0	2,492.6	2,492.8	2,482.6	5.4	5.8	-90.14	-145.4	-190.7	157.8	147.2	10.59	14.892		
2,600.0	2,592.3	2,592.6	2,582.0	5.6	6.0	-90.44	-151.3	-198.4	164.1	153.1	11.04	14.863		
2,700.0	2,691.9	2,692.4	2,681.3	5.9	6.2	-90.72	-157.2	-206.1	170.5	159.0	11.49	14.837		
2,800.0	2,791.6	2,792.2	2,780.6	6.1	6.5	-90.97	-163.0	-213.8	176.9	164.9	11.94	14.813		
2,900.0	2,891.3	2,892.0	2,879.9	6.3	6.7	-91.21	-168.9	-221.5	183.3	170.9	12.39	14.791		
3,000.0	2,990.9	2,991.8	2,979.2	6.5	7.0	-91.44	-174.8	-229.2	189.6	176.8	12.84	14.771		
3,100.0	3,090.6	3,091.6	3,078.6	6.8	7.2	-91.64	-180.6	-236.8	196.0	182.7	13.29	14.753		
3,200.0	3,190.3	3,191.4	3,177.9	7.0	7.5	-91.84	-186.5	-244.5	202.4	188.7	13.74	14.735		
3,300.0	3,289.9	3,291.2	3,277.2	7.2	7.7	-92.02	-192.4	-252.2	208.8	194.6	14.19	14.719		
3,400.0	3,389.6	3,391.0	3,376.5	7.4	7.9	-92.20	-198.2	-259.9	215.2	200.6	14.64	14.704		
3,500.0	3,489.2	3,490.8	3,475.9	7.7	8.2	-92.36	-204.1	-267.6	221.6	206.5	15.09	14.690		
3,600.0	3,588.9	3,590.6	3,575.2	7.9	8.4	-92.51	-210.0	-275.3	228.0	212.5	15.53	14.677		
3,700.0	3,688.6	3,690.4	3,674.5	8.1	8.7	-92.66	-215.8	-283.0	234.4	218.4	15.98	14.665		
3,800.0	3,788.2	3,790.2	3,773.8	8.3	8.9	-92.80	-221.7	-290.7	240.8	224.4	16.43	14.654		
3,900.0	3,887.9	3,889.9	3,873.2	8.6	9.2	-92.93	-227.6	-298.4	247.2	230.3	16.88	14.643		
4,000.0	3,987.6	3,989.7	3,972.5	8.8	9.4	-93.05	-233.5	-306.0	253.6	236.3	17.33	14.633		
4,100.0	4,087.2	4,089.5	4,071.8	9.0	9.6	-93.17	-239.3	-313.7	260.0	242.2	17.78	14.623		
4,200.0	4,186.9	4,189.3	4,171.1	9.2	9.9	-93.28	-245.2	-321.4	266.4	248.2	18.23	14.614		
4,300.0	4,286.6	4,289.1	4,270.4	9.5	10.1	-93.39	-251.1	-329.1	272.8	254.1	18.68	14.605		
4,400.0	4,386.2	4,388.9	4,369.8	9.7	10.4	-93.49	-256.9	-336.8	279.2	260.1	19.13	14.597		
4,500.0	4,485.9	4,488.7	4,469.1	9.9	10.6	-93.59	-262.8	-344.5	285.6	266.1	19.58	14.589		
4,600.0	4,585.5	4,588.5	4,568.4	10.2	10.9	-93.68	-268.7	-352.2	292.1	272.0	20.03	14.582		
4,700.0	4,685.2	4,688.3	4,667.7	10.4	11.1	-93.77	-274.5	-359.9	298.5	278.0	20.48	14.575		
4,800.0	4,784.9	4,788.1	4,767.1	10.6	11.3	-93.85	-280.4	-367.6	304.9	283.9	20.93	14.568		
4,900.0	4,884.5	4,887.9	4,866.4	10.8	11.6	-93.93	-286.3	-375.3	311.3	289.9	21.38	14.562		
5,000.0	4,984.2	4,987.7	4,965.7	11.1	11.8	-94.01	-292.1	-382.9	317.7	295.9	21.83	14.556		
5,100.0	5,083.9	5,087.5	5,065.0	11.3	12.1	-94.09	-298.0	-390.6	324.1	301.8	22.28	14.550		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4A (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,183.5	5,187.3	5,164.4	11.5	12.3	-94.16	-303.9	-398.3	330.5	307.8	22.73	14.544		
5,300.0	5,283.2	5,287.1	5,263.7	11.7	12.6	-94.23	-309.8	-406.0	336.9	313.8	23.17	14.539		
5,400.0	5,382.9	5,386.8	5,363.0	12.0	12.8	-94.30	-315.6	-413.7	343.4	319.7	23.62	14.534		
5,500.0	5,482.5	5,486.6	5,462.3	12.2	13.0	-94.36	-321.5	-421.4	349.8	325.7	24.07	14.529		
5,600.0	5,582.2	5,586.4	5,561.7	12.4	13.3	-94.43	-327.4	-429.1	356.2	331.7	24.52	14.524		
5,700.0	5,681.8	5,686.2	5,661.0	12.6	13.5	-94.49	-333.2	-436.8	362.6	337.6	24.97	14.520		
5,800.0	5,781.5	5,786.0	5,760.3	12.9	13.8	-94.54	-339.1	-444.5	369.0	343.6	25.42	14.516		
5,900.0	5,881.2	5,885.8	5,859.6	13.1	14.0	-94.60	-345.0	-452.1	375.4	349.6	25.87	14.511		
6,000.0	5,980.8	5,985.6	5,958.9	13.3	14.3	-94.65	-350.8	-459.8	381.8	355.5	26.32	14.507		
6,100.0	6,080.5	6,085.4	6,058.3	13.5	14.5	-94.71	-356.7	-467.5	388.3	361.5	26.77	14.504		
6,200.0	6,180.2	6,185.2	6,157.6	13.8	14.7	-94.76	-362.6	-475.2	394.7	367.5	27.22	14.500		
6,300.0	6,279.8	6,285.0	6,256.9	14.0	15.0	-94.81	-368.4	-482.9	401.1	373.4	27.67	14.496		
6,400.0	6,379.5	6,384.8	6,356.2	14.2	15.2	-94.85	-374.3	-490.6	407.5	379.4	28.12	14.493		
6,500.0	6,479.1	6,484.6	6,455.6	14.4	15.5	-94.90	-380.2	-498.3	413.9	385.4	28.57	14.489		
6,600.0	6,578.8	6,584.4	6,554.9	14.7	15.7	-94.94	-386.0	-506.0	420.3	391.3	29.02	14.486		
6,700.0	6,678.5	6,684.2	6,654.2	14.9	16.0	-94.99	-391.9	-513.7	426.8	397.3	29.47	14.483		
6,800.0	6,778.1	6,784.0	6,753.5	15.1	16.2	-95.03	-397.8	-521.3	433.2	403.3	29.92	14.480		
6,900.0	6,877.8	6,883.7	6,852.9	15.3	16.4	-95.07	-403.7	-529.0	439.6	409.2	30.37	14.477		
7,000.0	6,977.5	6,983.5	6,952.2	15.6	16.7	-95.11	-409.5	-536.7	446.0	415.2	30.81	14.474		
7,100.0	7,077.1	7,083.3	7,051.5	15.8	16.9	-95.15	-415.4	-544.4	452.4	421.2	31.26	14.471		
7,200.0	7,176.8	7,183.1	7,150.8	16.0	17.2	-95.19	-421.3	-552.1	458.9	427.1	31.71	14.469		
7,300.0	7,276.5	7,282.9	7,250.2	16.3	17.4	-95.22	-427.1	-559.8	465.3	433.1	32.16	14.466		
7,400.0	7,376.1	7,382.7	7,349.5	16.5	17.7	-95.26	-433.0	-567.5	471.7	439.1	32.61	14.464		
7,500.0	7,475.8	7,482.5	7,448.8	16.7	17.9	-95.29	-438.9	-575.2	478.1	445.1	33.06	14.461		
7,600.0	7,575.4	7,582.3	7,548.1	16.9	18.1	-95.32	-444.7	-582.9	484.5	451.0	33.51	14.459		
7,700.0	7,675.1	7,687.3	7,652.7	17.2	18.4	-95.42	-450.6	-590.6	490.7	456.7	33.96	14.448		
7,800.0	7,775.0	7,798.3	7,763.5	17.3	18.6	-95.54	-454.6	-595.8	494.6	460.3	34.34	14.403		
7,900.0	7,875.0	7,909.5	7,874.6	17.5	18.7	178.14	-456.0	-597.6	496.0	461.3	34.64	14.318		
8,000.0	7,975.0	8,009.8	7,975.0	17.6	18.9	178.14	-456.0	-597.6	496.0	461.1	34.92	14.204		
8,100.0	8,075.0	8,109.8	8,075.0	17.7	19.0	178.14	-456.0	-597.6	496.0	460.8	35.20	14.091		
8,200.0	8,175.0	8,209.8	8,175.0	17.9	19.1	178.14	-456.0	-597.6	496.0	460.5	35.48	13.980		
8,300.0	8,275.0	8,309.8	8,275.0	18.0	19.2	178.14	-456.0	-597.6	496.0	460.2	35.76	13.870		
8,400.0	8,375.0	8,409.8	8,375.0	18.2	19.4	178.14	-456.0	-597.6	496.0	459.9	36.04	13.761		
8,500.0	8,475.0	8,509.8	8,475.0	18.3	19.5	178.14	-456.0	-597.6	496.0	459.7	36.33	13.653		
8,600.0	8,575.0	8,609.8	8,575.0	18.4	19.6	178.14	-456.0	-597.6	496.0	459.4	36.61	13.547		
8,700.0	8,675.0	8,709.8	8,675.0	18.6	19.8	178.14	-456.0	-597.6	496.0	459.1	36.90	13.442		
8,800.0	8,775.0	8,809.8	8,775.0	18.7	19.9	178.14	-456.0	-597.6	496.0	458.8	37.19	13.338		
8,900.0	8,875.0	8,909.8	8,875.0	18.9	20.0	178.14	-456.0	-597.6	496.0	458.5	37.47	13.235		
9,000.0	8,975.0	9,009.8	8,975.0	19.0	20.2	178.14	-456.0	-597.6	496.0	458.2	37.76	13.134		
9,100.0	9,075.0	9,109.8	9,075.0	19.2	20.3	178.14	-456.0	-597.6	496.0	457.9	38.05	13.034		
9,200.0	9,175.0	9,209.8	9,175.0	19.3	20.5	178.14	-456.0	-597.6	496.0	457.6	38.35	12.935		
9,300.0	9,275.0	9,309.8	9,275.0	19.4	20.6	178.14	-456.0	-597.6	496.0	457.3	38.64	12.837		
9,400.0	9,375.0	9,409.8	9,375.0	19.6	20.7	178.14	-456.0	-597.6	496.0	457.1	38.93	12.740		
9,500.0	9,475.0	9,509.8	9,475.0	19.7	20.9	178.14	-456.0	-597.6	496.0	456.8	39.22	12.645		
9,600.0	9,575.0	9,609.8	9,575.0	19.9	21.0	178.14	-456.0	-597.6	496.0	456.5	39.52	12.550		
9,700.0	9,675.0	9,709.8	9,675.0	20.0	21.1	178.14	-456.0	-597.6	496.0	456.2	39.82	12.457		
9,800.0	9,775.0	9,809.8	9,775.0	20.2	21.3	178.14	-456.0	-597.6	496.0	455.9	40.11	12.365		
9,900.0	9,875.0	9,909.8	9,875.0	20.3	21.4	178.14	-456.0	-597.6	496.0	455.6	40.41	12.274		
10,000.0	9,975.0	10,009.8	9,975.0	20.5	21.6	178.14	-456.0	-597.6	496.0	455.3	40.71	12.184		
10,100.0	10,075.0	10,109.8	10,075.0	20.6	21.7	178.14	-456.0	-597.6	496.0	455.0	41.01	12.095		
10,200.0	10,175.0	10,209.8	10,175.0	20.8	21.8	178.14	-456.0	-597.6	496.0	454.7	41.31	12.007		
10,300.0	10,275.0	10,309.8	10,275.0	20.9	22.0	178.14	-456.0	-597.6	496.0	454.4	41.61	11.920 SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

## Cathedral Energy Services

### Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4B (M16W Pad) - DD - Plan #1												Offset Site Error: 0.0 ft			
Survey Program: O-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-153.49	-10.2	-5.1	11.4						
100.0	100.0	100.0	100.0	0.1	0.1	-153.49	-10.2	-5.1	11.4	11.1	0.27	41.824			
200.0	200.0	200.0	200.0	0.3	0.3	-153.49	-10.2	-5.1	11.4	10.8	0.62	18.327 CC, ES			
300.0	300.0	299.3	299.3	0.5	0.5	-76.39	-12.4	-6.5	13.1	12.2	0.98	13.426 SF			
400.0	399.7	398.3	397.9	0.7	0.7	-91.18	-18.8	-10.7	19.6	18.2	1.37	14.265			
500.0	499.3	496.8	495.6	0.9	1.0	-94.23	-29.5	-17.5	30.9	29.1	1.79	17.217			
600.0	599.0	595.9	593.7	1.1	1.3	-94.30	-41.6	-25.4	43.7	41.4	2.22	19.635			
700.0	698.7	695.1	691.8	1.4	1.6	-94.35	-53.8	-33.3	56.5	53.8	2.66	21.222			
800.0	798.3	794.3	789.9	1.6	1.9	-94.38	-66.0	-41.2	69.3	66.2	3.10	22.339			
900.0	898.0	893.5	888.0	1.8	2.2	-94.39	-78.2	-49.0	82.1	78.5	3.54	23.165			
1,000.0	997.7	992.7	986.1	2.0	2.5	-94.41	-90.3	-56.9	94.9	90.9	3.99	23.799			
1,100.0	1,097.3	1,091.8	1,084.3	2.3	2.8	-94.42	-102.5	-64.8	107.7	103.3	4.43	24.301			
1,200.0	1,197.0	1,191.0	1,182.4	2.5	3.1	-94.43	-114.7	-72.7	120.5	115.6	4.88	24.708			
1,300.0	1,296.6	1,290.2	1,280.5	2.7	3.4	-94.43	-126.9	-80.5	133.3	128.0	5.32	25.045			
1,400.0	1,396.3	1,389.4	1,378.6	2.9	3.7	-94.44	-139.1	-88.4	146.1	140.3	5.77	25.328			
1,500.0	1,496.0	1,488.5	1,476.7	3.2	4.0	-94.44	-151.2	-96.3	158.9	152.7	6.22	25.569			
1,600.0	1,595.6	1,587.7	1,574.8	3.4	4.3	-94.45	-163.4	-104.2	171.7	165.1	6.66	25.777			
1,700.0	1,695.3	1,686.9	1,672.9	3.6	4.6	-94.45	-175.6	-112.0	184.5	177.4	7.11	25.958			
1,800.0	1,795.0	1,786.1	1,771.0	3.8	4.9	-94.45	-187.8	-119.9	197.3	189.8	7.56	26.116			
1,900.0	1,894.6	1,885.2	1,869.1	4.1	5.2	-94.46	-199.9	-127.8	210.1	202.1	8.00	26.257			
2,000.0	1,994.3	1,984.4	1,967.2	4.3	5.5	-94.46	-212.1	-135.6	223.0	214.5	8.45	26.383			
2,100.0	2,094.0	2,083.6	2,065.4	4.5	5.8	-94.46	-224.3	-143.5	235.8	226.9	8.90	26.495			
2,200.0	2,193.6	2,182.8	2,163.5	4.7	6.1	-94.46	-236.5	-151.4	248.6	239.2	9.35	26.597			
2,300.0	2,293.3	2,282.0	2,261.6	5.0	6.4	-94.46	-248.7	-159.3	261.4	251.6	9.79	26.689			
2,400.0	2,392.9	2,381.1	2,359.7	5.2	6.7	-94.47	-260.8	-167.1	274.2	263.9	10.24	26.773			
2,500.0	2,492.6	2,480.3	2,457.8	5.4	7.1	-94.47	-273.0	-175.0	287.0	276.3	10.69	26.849			
2,600.0	2,592.3	2,579.5	2,555.9	5.6	7.4	-94.47	-285.2	-182.9	299.8	288.6	11.14	26.920			
2,700.0	2,691.9	2,678.7	2,654.0	5.9	7.7	-94.47	-297.4	-190.8	312.6	301.0	11.58	26.985			
2,800.0	2,791.6	2,777.8	2,752.1	6.1	8.0	-94.47	-309.6	-198.6	325.4	313.4	12.03	27.045			
2,900.0	2,891.3	2,877.0	2,850.2	6.3	8.3	-94.47	-321.7	-206.5	338.2	325.7	12.48	27.100			
3,000.0	2,990.9	2,976.2	2,948.4	6.5	8.6	-94.47	-333.9	-214.4	351.0	338.1	12.93	27.152			
3,100.0	3,090.6	3,075.4	3,046.5	6.8	8.9	-94.47	-346.1	-222.3	363.8	350.4	13.38	27.200			
3,200.0	3,190.3	3,174.5	3,144.6	7.0	9.2	-94.47	-358.3	-230.1	376.6	362.8	13.82	27.245			
3,300.0	3,289.9	3,273.7	3,242.7	7.2	9.5	-94.47	-370.4	-238.0	389.4	375.2	14.27	27.287			
3,400.0	3,389.6	3,372.9	3,340.8	7.4	9.8	-94.47	-382.6	-245.9	402.2	387.5	14.72	27.327			
3,500.0	3,489.2	3,472.1	3,438.9	7.7	10.1	-94.48	-394.8	-253.8	415.0	399.9	15.17	27.364			
3,600.0	3,588.9	3,571.2	3,537.0	7.9	10.4	-94.48	-407.0	-261.6	427.8	412.2	15.62	27.399			
3,700.0	3,688.6	3,670.4	3,635.1	8.1	10.7	-94.48	-419.2	-269.5	440.6	424.6	16.06	27.432			
3,800.0	3,788.2	3,769.6	3,733.2	8.3	11.0	-94.48	-431.3	-277.4	453.5	436.9	16.51	27.463			
3,900.0	3,887.9	3,868.8	3,831.4	8.6	11.4	-94.48	-443.5	-285.3	466.3	449.3	16.96	27.492			
4,000.0	3,987.6	3,968.0	3,929.5	8.8	11.7	-94.48	-455.7	-293.1	479.1	461.7	17.41	27.520			
4,100.0	4,087.2	4,067.1	4,027.6	9.0	12.0	-94.48	-467.9	-301.0	491.9	474.0	17.86	27.547			



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4C (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	112.16	-4.4	10.7	11.6					
100.0	100.0	100.0	100.0	0.1	0.1	112.16	-4.4	10.7	11.6	11.3	0.27	42.561		
200.0	200.0	200.0	200.0	0.3	0.3	112.16	-4.4	10.7	11.6	11.0	0.62	18.650 CC, ES		
300.0	300.0	300.0	299.9	0.5	0.5	-154.20	-6.7	9.6	14.0	13.0	0.98	14.274 SF		
400.0	399.7	399.4	399.1	0.7	0.7	-141.76	-13.7	6.1	21.5	20.1	1.38	15.552		
500.0	499.3	498.1	496.9	0.9	1.0	-128.43	-25.2	0.4	32.3	30.4	1.84	17.523		
600.0	599.0	596.3	593.5	1.1	1.3	-117.33	-40.6	-7.3	46.7	44.3	2.31	20.225		
700.0	698.7	694.8	690.5	1.4	1.7	-111.04	-56.7	-15.4	62.5	59.7	2.76	22.628		
800.0	798.3	793.4	787.4	1.6	2.0	-107.31	-72.8	-23.4	78.8	75.5	3.21	24.522		
900.0	898.0	892.0	884.3	1.8	2.4	-104.87	-88.9	-31.5	95.2	91.6	3.66	26.022		
1,000.0	997.7	990.5	981.2	2.0	2.7	-103.15	-105.1	-39.5	111.8	107.7	4.11	27.230		
1,100.0	1,097.3	1,089.1	1,078.1	2.3	3.1	-101.87	-121.2	-47.5	128.5	124.0	4.55	28.219		
1,200.0	1,197.0	1,187.7	1,175.0	2.5	3.4	-100.89	-137.3	-55.6	145.2	140.2	5.00	29.043		
1,300.0	1,296.6	1,286.2	1,271.9	2.7	3.8	-100.11	-153.4	-63.6	162.0	156.5	5.45	29.738		
1,400.0	1,396.3	1,384.8	1,368.8	2.9	4.1	-99.47	-169.6	-71.7	178.8	172.9	5.89	30.333		
1,500.0	1,496.0	1,483.4	1,465.7	3.2	4.5	-98.95	-185.7	-79.7	195.6	189.2	6.34	30.847		
1,600.0	1,595.6	1,581.9	1,562.6	3.4	4.8	-98.50	-201.8	-87.8	212.4	205.6	6.79	31.295		
1,700.0	1,695.3	1,680.5	1,659.5	3.6	5.2	-98.13	-217.9	-95.8	229.2	222.0	7.23	31.690		
1,800.0	1,795.0	1,779.1	1,756.4	3.8	5.6	-97.80	-234.1	-103.9	246.0	238.4	7.68	32.040		
1,900.0	1,894.6	1,877.6	1,853.3	4.1	5.9	-97.52	-250.2	-111.9	262.9	254.7	8.13	32.353		
2,000.0	1,994.3	1,976.2	1,950.2	4.3	6.3	-97.27	-266.3	-120.0	279.7	271.1	8.57	32.633		
2,100.0	2,094.0	2,074.8	2,047.1	4.5	6.6	-97.05	-282.4	-128.0	296.6	287.5	9.02	32.886		
2,200.0	2,193.6	2,173.3	2,144.0	4.7	7.0	-96.85	-298.6	-136.0	313.4	303.9	9.46	33.116		
2,300.0	2,293.3	2,271.9	2,240.9	5.0	7.4	-96.67	-314.7	-144.1	330.3	320.4	9.91	33.326		
2,400.0	2,392.9	2,370.4	2,337.8	5.2	7.7	-96.51	-330.8	-152.1	347.1	336.8	10.36	33.517		
2,500.0	2,492.6	2,469.0	2,434.7	5.4	8.1	-96.37	-346.9	-160.2	364.0	353.2	10.80	33.694		
2,600.0	2,592.3	2,567.6	2,531.6	5.6	8.4	-96.23	-363.1	-168.2	380.8	369.6	11.25	33.856		
2,700.0	2,691.9	2,666.1	2,628.5	5.9	8.8	-96.11	-379.2	-176.3	397.7	386.0	11.70	34.006		
2,800.0	2,791.6	2,764.7	2,725.4	6.1	9.2	-96.00	-395.3	-184.3	414.6	402.4	12.14	34.145		
2,900.0	2,891.3	2,863.3	2,822.3	6.3	9.5	-95.90	-411.4	-192.4	431.4	418.8	12.59	34.274		
3,000.0	2,990.9	2,961.8	2,919.2	6.5	9.9	-95.80	-427.6	-200.4	448.3	435.3	13.03	34.395		
3,100.0	3,090.6	3,060.4	3,016.1	6.8	10.2	-95.72	-443.7	-208.5	465.2	451.7	13.48	34.508		
3,200.0	3,190.3	3,159.0	3,113.0	7.0	10.6	-95.63	-459.8	-216.5	482.0	468.1	13.93	34.613		
3,300.0	3,289.9	3,257.5	3,209.9	7.2	10.9	-95.56	-475.9	-224.5	498.9	484.5	14.37	34.712		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4D2 (M16W Pad) - DD - Plan #1										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	86.90	1.5	26.8	26.9					
100.0	100.0	100.0	100.0	0.1	0.1	86.90	1.5	26.8	26.9	26.6	0.27	98.687		
200.0	200.0	200.0	200.0	0.3	0.3	86.90	1.5	26.8	26.9	26.2	0.62	43.245	CC, ES	
300.0	300.0	300.5	300.5	0.5	0.5	178.65	-1.0	25.8	28.5	27.5	0.98	29.119		
400.0	399.7	400.5	400.1	0.7	0.7	-168.45	-8.3	22.9	34.1	32.7	1.37	24.795		
500.0	499.3	499.5	498.3	0.9	1.0	-152.92	-20.3	18.1	42.1	40.3	1.84	22.876	SF	
600.0	599.0	597.3	594.4	1.1	1.3	-137.85	-36.8	11.5	54.1	51.8	2.36	22.908		
700.0	698.7	694.6	689.3	1.4	1.7	-125.87	-56.8	3.5	70.8	67.9	2.86	24.718		
800.0	798.3	792.3	784.5	1.6	2.1	-118.39	-77.2	-4.7	89.6	86.2	3.34	26.835		
900.0	898.0	889.9	879.6	1.8	2.6	-113.54	-97.6	-12.9	109.3	105.5	3.80	28.786		
1,000.0	997.7	987.6	974.8	2.0	3.0	-110.18	-118.0	-21.0	129.6	125.3	4.25	30.489		
1,100.0	1,097.3	1,085.3	1,070.0	2.3	3.4	-107.73	-138.3	-29.2	150.2	145.5	4.70	31.955		
1,200.0	1,197.0	1,183.0	1,165.2	2.5	3.8	-105.87	-158.7	-37.4	171.0	165.8	5.15	33.217		
1,300.0	1,296.6	1,280.7	1,260.4	2.7	4.2	-104.41	-179.1	-45.6	191.9	186.3	5.59	34.310		
1,400.0	1,396.3	1,378.4	1,355.5	2.9	4.6	-103.24	-199.5	-53.7	212.9	206.9	6.04	35.262		
1,500.0	1,496.0	1,476.0	1,450.7	3.2	5.0	-102.29	-219.9	-61.9	234.0	227.5	6.48	36.097		
1,600.0	1,595.6	1,573.7	1,545.9	3.4	5.5	-101.49	-240.3	-70.1	255.1	248.2	6.93	36.833		
1,700.0	1,695.3	1,671.4	1,641.1	3.6	5.9	-100.81	-260.7	-78.3	276.3	268.9	7.37	37.488		
1,800.0	1,795.0	1,769.1	1,736.3	3.8	6.3	-100.23	-281.1	-86.5	297.5	289.7	7.81	38.074		
1,900.0	1,894.6	1,866.8	1,831.4	4.1	6.7	-99.72	-301.5	-94.6	318.7	310.5	8.26	38.600		
2,000.0	1,994.3	1,964.5	1,926.6	4.3	7.1	-99.28	-321.9	-102.8	340.0	331.3	8.70	39.075		
2,100.0	2,094.0	2,062.1	2,021.8	4.5	7.6	-98.89	-342.3	-111.0	361.3	352.1	9.14	39.507		
2,200.0	2,193.6	2,159.8	2,117.0	4.7	8.0	-98.55	-362.7	-119.2	382.6	373.0	9.59	39.900		
2,300.0	2,293.3	2,257.5	2,212.2	5.0	8.4	-98.24	-383.1	-127.3	403.9	393.8	10.03	40.260		
2,400.0	2,392.9	2,355.2	2,307.3	5.2	8.8	-97.96	-403.5	-135.5	425.2	414.7	10.47	40.590		
2,500.0	2,492.6	2,452.9	2,402.5	5.4	9.2	-97.71	-423.9	-143.7	446.5	435.6	10.92	40.895		
2,600.0	2,592.3	2,550.6	2,497.7	5.6	9.7	-97.48	-444.3	-151.9	467.8	456.5	11.36	41.176		
2,700.0	2,691.9	2,648.2	2,592.9	5.9	10.1	-97.27	-464.7	-160.1	489.1	477.3	11.80	41.437		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-5A (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	80.31	7.3	42.6	43.3					
100.0	100.0	100.0	100.0	0.1	0.1	80.31	7.3	42.6	43.3	43.0	0.27	158.900	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	80.31	7.3	42.6	43.3	42.6	0.62	69.630		
300.0	300.0	301.0	300.9	0.5	0.5	170.40	4.8	41.8	44.7	43.7	0.98	45.609		
400.0	399.7	401.4	401.0	0.7	0.7	-179.74	-2.8	39.3	49.4	48.0	1.37	35.966		
500.0	499.3	500.8	499.6	0.9	1.0	-166.64	-15.1	35.1	55.7	53.8	1.84	30.319		
600.0	599.0	598.9	596.0	1.1	1.4	-152.32	-32.1	29.4	65.2	62.9	2.37	27.478	SF	
700.0	698.7	695.1	689.5	1.4	1.8	-138.96	-53.2	22.3	79.9	77.0	2.94	27.181		
800.0	798.3	791.2	782.1	1.6	2.2	-128.27	-77.5	14.1	99.7	96.2	3.46	28.824		
900.0	898.0	887.7	875.1	1.8	2.7	-121.12	-102.2	5.9	121.9	117.9	3.94	30.920		
1,000.0	997.7	984.3	968.1	2.0	3.2	-116.19	-126.8	-2.4	145.4	141.0	4.41	32.993		
1,100.0	1,097.3	1,080.8	1,061.1	2.3	3.7	-112.63	-151.4	-10.7	169.6	164.7	4.86	34.897		
1,200.0	1,197.0	1,177.4	1,154.1	2.5	4.1	-109.96	-176.0	-19.0	194.3	188.9	5.31	36.604		
1,300.0	1,296.6	1,273.9	1,247.1	2.7	4.6	-107.90	-200.6	-27.3	219.2	213.5	5.75	38.120		
1,400.0	1,396.3	1,370.5	1,340.1	2.9	5.1	-106.25	-225.2	-35.5	244.4	238.2	6.19	39.465		
1,500.0	1,496.0	1,467.1	1,433.1	3.2	5.6	-104.92	-249.8	-43.8	269.8	263.2	6.64	40.662		
1,600.0	1,595.6	1,563.6	1,526.1	3.4	6.1	-103.81	-274.4	-52.1	295.3	288.2	7.08	41.730		
1,700.0	1,695.3	1,660.2	1,619.1	3.6	6.5	-102.88	-299.1	-60.4	320.8	313.3	7.52	42.687		
1,800.0	1,795.0	1,756.7	1,712.1	3.8	7.0	-102.09	-323.7	-68.6	346.4	338.5	7.96	43.549		
1,900.0	1,894.6	1,853.3	1,805.1	4.1	7.5	-101.40	-348.3	-76.9	372.1	363.7	8.39	44.329		
2,000.0	1,994.3	1,949.9	1,898.1	4.3	8.0	-100.80	-372.9	-85.2	397.8	389.0	8.83	45.036		
2,100.0	2,094.0	2,046.4	1,991.1	4.5	8.5	-100.28	-397.5	-93.5	423.6	414.3	9.27	45.681		
2,200.0	2,193.6	2,143.0	2,084.1	4.7	9.0	-99.82	-422.1	-101.7	449.4	439.7	9.71	46.271		
2,300.0	2,293.3	2,239.5	2,177.1	5.0	9.4	-99.40	-446.7	-110.0	475.2	465.0	10.15	46.812		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	43.89	115.1	110.7	159.7					
100.0	100.0	100.0	100.0	0.1	0.1	43.89	115.1	110.7	159.7	159.4	0.27	586.551		
200.0	200.0	200.0	200.0	0.3	0.3	43.89	115.1	110.7	159.7	159.1	0.62	257.028 CC, ES		
300.0	300.0	299.0	298.9	0.5	0.5	129.94	117.1	109.1	161.7	160.7	0.98	164.715		
400.0	399.7	397.7	397.4	0.7	0.7	129.17	123.0	104.2	167.4	166.0	1.39	120.247		
500.0	499.3	496.0	494.8	0.9	1.0	127.08	132.8	96.2	174.4	172.5	1.87	93.124		
600.0	599.0	595.1	592.6	1.1	1.3	124.18	145.0	86.1	182.3	179.9	2.38	76.638		
700.0	698.7	694.3	690.6	1.4	1.6	121.51	157.3	76.0	190.6	187.7	2.89	65.871		
800.0	798.3	793.6	788.6	1.6	1.9	119.06	169.6	65.9	199.3	195.9	3.41	58.432		
900.0	898.0	892.9	886.6	1.8	2.3	116.83	181.9	55.8	208.3	204.4	3.93	53.047		
1,000.0	997.7	992.2	984.6	2.0	2.6	114.78	194.2	45.7	217.7	213.2	4.44	49.005		
1,100.0	1,097.3	1,091.4	1,082.6	2.3	2.9	112.90	206.5	35.6	227.3	222.3	4.95	45.883		
1,200.0	1,197.0	1,190.7	1,180.5	2.5	3.2	111.17	218.8	25.5	237.1	231.6	5.46	43.413		
1,300.0	1,296.6	1,290.0	1,278.5	2.7	3.6	109.58	231.1	15.4	247.1	241.1	5.97	41.423		
1,400.0	1,396.3	1,389.3	1,376.5	2.9	3.9	108.12	243.4	5.2	257.3	250.8	6.47	39.792		
1,500.0	1,496.0	1,488.5	1,474.5	3.2	4.2	106.76	255.7	-4.9	267.6	260.6	6.96	38.437		
1,600.0	1,595.6	1,587.8	1,572.5	3.4	4.5	105.51	268.0	-15.0	278.1	270.6	7.46	37.298		
1,700.0	1,695.3	1,687.1	1,670.5	3.6	4.9	104.35	280.3	-25.1	288.7	280.7	7.95	36.330		
1,800.0	1,795.0	1,786.3	1,768.5	3.8	5.2	103.27	292.6	-35.2	299.4	291.0	8.43	35.501		
1,900.0	1,894.6	1,885.6	1,866.5	4.1	5.5	102.27	304.9	-45.3	310.2	301.3	8.92	34.784		
2,000.0	1,994.3	1,984.9	1,964.4	4.3	5.8	101.33	317.2	-55.4	321.1	311.7	9.40	34.159		
2,100.0	2,094.0	2,084.2	2,062.4	4.5	6.2	100.46	329.5	-65.5	332.0	322.2	9.88	33.612		
2,200.0	2,193.6	2,183.4	2,160.4	4.7	6.5	99.64	341.8	-75.6	343.1	332.7	10.36	33.129		
2,300.0	2,293.3	2,282.7	2,258.4	5.0	6.8	98.87	354.1	-85.7	354.2	343.4	10.83	32.701		
2,400.0	2,392.9	2,382.0	2,356.4	5.2	7.2	98.15	366.4	-95.8	365.4	354.1	11.30	32.320		
2,500.0	2,492.6	2,481.3	2,454.4	5.4	7.5	97.47	378.7	-105.9	376.6	364.8	11.78	31.978		
2,600.0	2,592.3	2,580.5	2,552.4	5.6	7.8	96.83	391.0	-116.0	387.9	375.6	12.25	31.672		
2,700.0	2,691.9	2,679.8	2,650.4	5.9	8.1	96.23	403.2	-126.2	399.2	386.5	12.71	31.395		
2,800.0	2,791.6	2,779.1	2,748.4	6.1	8.5	95.66	415.5	-136.3	410.5	397.3	13.18	31.144		
2,900.0	2,891.3	2,878.3	2,846.3	6.3	8.8	95.12	427.8	-146.4	421.9	408.3	13.65	30.915		
3,000.0	2,990.9	2,977.6	2,944.3	6.5	9.1	94.61	440.1	-156.5	433.4	419.2	14.11	30.707		
3,100.0	3,090.6	3,076.9	3,042.3	6.8	9.5	94.12	452.4	-166.6	444.8	430.2	14.58	30.517		
3,200.0	3,190.3	3,176.2	3,140.3	7.0	9.8	93.66	464.7	-176.7	456.3	441.3	15.04	30.343		
3,300.0	3,289.9	3,275.4	3,238.3	7.2	10.1	93.23	477.0	-186.8	467.8	452.3	15.50	30.182		
3,400.0	3,389.6	3,374.7	3,336.3	7.4	10.4	92.81	489.3	-196.9	479.4	463.4	15.96	30.034		
3,500.0	3,489.2	3,474.0	3,434.3	7.7	10.8	92.41	501.6	-207.0	490.9	474.5	16.42	29.898 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-2C (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	42.73	125.7	116.1	171.1					
100.0	100.0	100.0	100.0	0.1	0.1	42.73	125.7	116.1	171.1	170.8	0.27	628.302		
200.0	200.0	200.0	200.0	0.3	0.3	42.73	125.7	116.1	171.1	170.4	0.62	275.323 CC, ES		
300.0	300.0	297.6	297.5	0.5	0.5	128.84	127.8	114.8	173.4	172.4	0.98	177.197		
400.0	399.7	394.8	394.5	0.7	0.7	128.25	134.1	110.9	180.1	178.8	1.38	130.295		
500.0	499.3	491.5	490.4	0.9	1.0	126.56	144.6	104.5	188.9	187.1	1.85	102.347		
600.0	599.0	587.2	584.6	1.1	1.3	123.71	159.0	95.7	199.6	197.2	2.36	84.425		
700.0	698.7	685.8	681.2	1.4	1.7	120.49	175.9	85.4	211.7	208.8	2.91	72.862		
800.0	798.3	784.4	777.7	1.6	2.0	117.63	192.7	75.1	224.5	221.0	3.45	65.130		
900.0	898.0	883.0	874.3	1.8	2.4	115.07	209.6	64.8	237.7	233.7	3.98	59.692		
1,000.0	997.7	981.6	970.9	2.0	2.8	112.78	226.4	54.5	251.3	246.8	4.51	55.716		
1,100.0	1,097.3	1,080.2	1,067.5	2.3	3.2	110.73	243.3	44.2	265.3	260.3	5.03	52.718		
1,200.0	1,197.0	1,178.7	1,164.1	2.5	3.6	108.89	260.1	33.9	279.6	274.1	5.55	50.400		
1,300.0	1,296.6	1,277.3	1,260.7	2.7	3.9	107.23	277.0	23.6	294.2	288.1	6.06	48.569		
1,400.0	1,396.3	1,375.9	1,357.3	2.9	4.3	105.72	293.8	13.3	308.9	302.4	6.56	47.098		
1,500.0	1,496.0	1,474.5	1,453.9	3.2	4.7	104.35	310.7	3.0	323.9	316.9	7.06	45.899		
1,600.0	1,595.6	1,573.1	1,550.5	3.4	5.1	103.10	327.5	-7.3	339.0	331.5	7.55	44.908		
1,700.0	1,695.3	1,671.7	1,647.1	3.6	5.5	101.96	344.4	-17.6	354.3	346.3	8.04	44.080		
1,800.0	1,795.0	1,770.3	1,743.7	3.8	5.9	100.91	361.2	-27.9	369.7	361.2	8.52	43.382		
1,900.0	1,894.6	1,868.9	1,840.2	4.1	6.3	99.95	378.1	-38.2	385.2	376.2	9.00	42.788		
2,000.0	1,994.3	1,967.5	1,936.8	4.3	6.6	99.06	394.9	-48.5	400.9	391.4	9.48	42.278		
2,100.0	2,094.0	2,066.0	2,033.4	4.5	7.0	98.23	411.8	-58.8	416.6	406.6	9.96	41.838		
2,200.0	2,193.6	2,164.6	2,130.0	4.7	7.4	97.47	428.6	-69.1	432.3	421.9	10.43	41.455		
2,300.0	2,293.3	2,263.2	2,226.6	5.0	7.8	96.76	445.5	-79.4	448.2	437.3	10.90	41.120		
2,400.0	2,392.9	2,361.8	2,323.2	5.2	8.2	96.10	462.3	-89.7	464.1	452.7	11.37	40.826		
2,500.0	2,492.6	2,460.4	2,419.8	5.4	8.6	95.48	479.2	-100.0	480.1	468.2	11.83	40.567		
2,600.0	2,592.3	2,559.0	2,516.4	5.6	9.0	94.91	496.0	-110.2	496.1	483.8	12.30	40.336 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-5C (M16W Pad) - DD - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	46.36	120.9	126.8	175.2						
100.0	100.0	100.0	100.0	0.1	0.1	46.36	120.9	126.8	175.2	175.0	0.27	643.565			
200.0	200.0	200.0	200.0	0.3	0.3	46.36	120.9	126.8	175.2	174.6	0.62	282.012 CC, ES			
300.0	300.0	296.4	296.3	0.5	0.5	132.48	123.2	126.0	178.0	177.0	0.98	182.534			
400.0	399.7	392.3	392.0	0.7	0.7	131.94	130.0	123.5	186.0	184.7	1.37	135.779			
500.0	499.3	487.6	486.5	0.9	1.0	130.45	141.2	119.4	196.7	194.9	1.82	108.296			
600.0	599.0	581.8	579.2	1.1	1.3	127.97	156.7	113.8	209.8	207.5	2.32	90.600			
700.0	698.7	674.4	669.5	1.4	1.7	124.80	176.0	106.7	225.8	222.9	2.86	78.946			
800.0	798.3	765.1	756.9	1.6	2.2	121.24	198.9	98.4	245.1	241.7	3.43	71.383			
900.0	898.0	855.9	843.2	1.8	2.7	117.47	225.5	88.7	268.1	264.0	4.01	66.885			
1,000.0	997.7	951.3	933.5	2.0	3.2	113.95	254.4	78.1	292.8	288.2	4.58	63.905			
1,100.0	1,097.3	1,046.8	1,023.8	2.3	3.8	110.98	283.3	67.6	318.4	313.3	5.13	62.024			
1,200.0	1,197.0	1,142.2	1,114.1	2.5	4.3	108.45	312.2	57.1	344.7	339.1	5.67	60.830			
1,300.0	1,296.6	1,237.6	1,204.5	2.7	4.9	106.27	341.1	46.5	371.6	365.4	6.19	60.081			
1,400.0	1,396.3	1,333.0	1,294.8	2.9	5.4	104.39	370.0	36.0	398.9	392.2	6.69	59.627			
1,500.0	1,496.0	1,428.4	1,385.1	3.2	6.0	102.74	398.8	25.4	426.6	419.4	7.18	59.374			
1,600.0	1,595.6	1,523.8	1,475.4	3.4	6.5	101.29	427.7	14.9	454.5	446.9	7.67	59.258			
1,700.0	1,695.3	1,619.2	1,565.7	3.6	7.1	100.01	456.6	4.4	482.7	474.6	8.15	59.238 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16B (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	69.94	11.7	31.9	34.0					
100.0	100.0	100.0	100.0	0.1	0.1	69.94	11.7	31.9	34.0	33.7	0.27	124.787		
200.0	200.0	200.0	200.0	0.3	0.3	69.94	11.7	31.9	34.0	33.4	0.62	54.682		
300.0	300.0	301.5	301.5	0.5	0.5	155.52	12.3	29.3	34.2	33.2	0.98	34.971		
400.0	399.7	403.0	402.6	0.7	0.7	153.08	14.2	21.4	34.3	33.0	1.35	25.350		
500.0	499.3	504.2	502.9	0.9	1.0	145.21	17.3	8.4	31.3	29.5	1.79	17.449		
600.0	599.0	604.5	601.5	1.1	1.4	126.56	21.7	-9.6	26.2	23.7	2.41	10.845		
666.4	665.2	670.4	665.7	1.3	1.7	104.60	25.2	-24.1	24.3	21.4	2.96	8.230 CC, ES		
700.0	698.7	703.5	697.7	1.4	1.8	91.29	27.1	-32.2	25.0	21.8	3.19	7.846 SF		
800.0	798.3	800.6	790.8	1.6	2.4	57.41	33.6	-59.1	35.8	32.3	3.50	10.219		
900.0	898.0	896.4	881.2	1.8	3.0	39.52	41.0	-89.8	56.7	53.1	3.63	15.637		
1,000.0	997.7	993.0	972.1	2.0	3.6	31.21	48.6	-121.5	81.0	77.2	3.85	21.057		
1,100.0	1,097.3	1,089.5	1,063.0	2.3	4.2	26.76	56.2	-153.2	106.1	102.0	4.12	25.740		
1,200.0	1,197.0	1,186.0	1,153.8	2.5	4.8	24.02	63.9	-184.9	131.7	127.2	4.43	29.733		
1,300.0	1,296.6	1,282.6	1,244.7	2.7	5.4	22.17	71.5	-216.6	157.4	152.6	4.75	33.151		
1,400.0	1,396.3	1,379.1	1,335.6	2.9	6.0	20.84	79.2	-248.3	183.2	178.1	5.07	36.102		
1,500.0	1,496.0	1,475.7	1,426.4	3.2	6.6	19.84	86.8	-280.0	209.0	203.6	5.41	38.671		
1,600.0	1,595.6	1,572.2	1,517.3	3.4	7.3	19.06	94.4	-311.7	235.0	229.2	5.74	40.926		
1,700.0	1,695.3	1,668.7	1,608.2	3.6	7.9	18.43	102.1	-343.4	260.9	254.8	6.08	42.920		
1,800.0	1,795.0	1,765.3	1,699.0	3.8	8.5	17.92	109.7	-375.0	286.9	280.5	6.42	44.696		
1,900.0	1,894.6	1,861.8	1,789.9	4.1	9.1	17.49	117.3	-406.7	312.9	306.1	6.76	46.287		
2,000.0	1,994.3	1,958.3	1,880.8	4.3	9.7	17.13	125.0	-438.4	338.9	331.8	7.10	47.721		
2,100.0	2,094.0	2,054.9	1,971.6	4.5	10.3	16.82	132.6	-470.1	364.9	357.5	7.44	49.019		
2,200.0	2,193.6	2,151.4	2,062.5	4.7	11.0	16.55	140.2	-501.8	391.0	383.2	7.79	50.201		
2,300.0	2,293.3	2,248.0	2,153.4	5.0	11.6	16.31	147.9	-533.5	417.0	408.9	8.13	51.280		
2,400.0	2,392.9	2,344.5	2,244.2	5.2	12.2	16.11	155.5	-565.2	443.1	434.6	8.48	52.269		
2,500.0	2,492.6	2,441.0	2,335.1	5.4	12.8	15.92	163.1	-596.9	469.1	460.3	8.82	53.180		
2,600.0	2,592.3	2,537.6	2,426.0	5.6	13.5	15.76	170.8	-628.6	495.2	486.0	9.17	54.022		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	70.10	5.8	16.1	17.1					
100.0	100.0	100.0	100.0	0.1	0.1	70.10	5.8	16.1	17.1	16.8	0.27	62.881		
200.0	200.0	200.0	200.0	0.3	0.3	70.10	5.8	16.1	17.1	16.5	0.62	27.555		
300.0	300.0	300.8	300.8	0.5	0.5	156.04	6.1	13.5	17.1	16.2	0.97	17.596		
400.0	399.7	401.6	401.2	0.7	0.7	154.29	6.9	5.5	16.8	15.4	1.34	12.505		
500.0	499.3	502.1	500.9	0.9	1.0	142.35	8.3	-7.6	12.8	11.0	1.78	7.205		
595.2	594.2	597.1	594.2	1.1	1.4	93.79	10.1	-24.8	8.5	6.0	2.48	3.435 CC		
600.0	599.0	601.9	598.9	1.1	1.4	89.71	10.2	-25.8	8.5	6.0	2.51	3.403 ES, SF		
700.0	698.7	700.0	694.3	1.4	1.8	32.09	12.6	-48.6	18.1	15.5	2.61	6.936		
800.0	798.3	796.9	787.2	1.6	2.4	16.87	15.5	-75.9	37.3	34.5	2.82	13.231		
900.0	898.0	892.5	877.6	1.8	2.9	11.40	18.7	-107.0	61.7	58.6	3.12	19.785		
1,000.0	997.7	989.2	968.7	2.0	3.5	8.94	22.1	-139.1	87.1	83.7	3.45	25.287		
1,100.0	1,097.3	1,085.9	1,059.8	2.3	4.1	7.59	25.5	-171.3	112.6	108.9	3.78	29.794		
1,200.0	1,197.0	1,182.5	1,150.9	2.5	4.7	6.74	28.9	-203.5	138.2	134.1	4.12	33.551		
1,300.0	1,296.6	1,279.2	1,242.0	2.7	5.4	6.15	32.2	-235.6	163.8	159.3	4.46	36.729		
1,400.0	1,396.3	1,375.9	1,333.1	2.9	6.0	5.72	35.6	-267.8	189.3	184.5	4.80	39.452		
1,500.0	1,496.0	1,472.5	1,424.2	3.2	6.6	5.40	39.0	-299.9	214.9	209.8	5.14	41.813		
1,600.0	1,595.6	1,569.2	1,515.3	3.4	7.2	5.14	42.4	-332.1	240.5	235.0	5.48	43.877		
1,700.0	1,695.3	1,665.8	1,606.4	3.6	7.8	4.94	45.7	-364.2	266.1	260.3	5.82	45.699		
1,800.0	1,795.0	1,762.5	1,697.5	3.8	8.4	4.76	49.1	-396.4	291.7	285.6	6.17	47.319		
1,900.0	1,894.6	1,859.2	1,788.6	4.1	9.0	4.62	52.5	-428.5	317.3	310.8	6.51	48.767		
2,000.0	1,994.3	1,955.8	1,879.7	4.3	9.7	4.50	55.9	-460.7	342.9	336.1	6.85	50.071		
2,100.0	2,094.0	2,052.5	1,970.8	4.5	10.3	4.39	59.2	-492.8	368.5	361.4	7.19	51.251		
2,200.0	2,193.6	2,149.2	2,061.9	4.7	10.9	4.30	62.6	-525.0	394.2	386.6	7.53	52.323		
2,300.0	2,293.3	2,245.8	2,153.0	5.0	11.5	4.22	66.0	-557.1	419.8	411.9	7.88	53.302		
2,400.0	2,392.9	2,342.5	2,244.1	5.2	12.1	4.15	69.4	-589.3	445.4	437.1	8.22	54.200		
2,500.0	2,492.6	2,439.2	2,335.2	5.4	12.7	4.09	72.7	-621.4	471.0	462.4	8.56	55.026		
2,600.0	2,592.3	2,535.8	2,426.3	5.6	13.4	4.03	76.1	-653.6	496.6	487.7	8.90	55.788		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16C (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-110.23	-5.8	-15.8	16.9					
100.0	100.0	100.0	100.0	0.1	0.1	-110.23	-5.8	-15.8	16.9	16.6	0.27	61.907		
200.0	200.0	200.0	200.0	0.3	0.3	-110.23	-5.8	-15.8	16.9	16.2	0.62	27.128 CC		
300.0	300.0	299.2	299.1	0.5	0.5	-24.70	-5.9	-18.4	16.9	16.0	0.97	17.432 ES		
400.0	399.7	398.3	398.0	0.7	0.7	-26.27	-6.1	-26.1	17.6	16.3	1.33	13.213		
500.0	499.3	497.3	496.1	0.9	1.0	-23.67	-6.5	-38.9	22.4	20.7	1.69	13.193 SF		
600.0	599.0	595.4	592.6	1.1	1.3	-19.38	-6.9	-56.6	32.1	30.1	2.05	15.679		
700.0	698.7	692.3	686.9	1.4	1.8	-15.84	-7.5	-78.9	47.0	44.6	2.40	19.610		
800.0	798.3	787.5	778.3	1.6	2.3	-13.37	-8.3	-105.4	66.8	64.1	2.74	24.417		
900.0	898.0	882.7	868.4	1.8	2.9	-11.70	-9.1	-136.0	90.9	87.9	3.08	29.574		
1,000.0	997.7	979.5	960.0	2.0	3.5	-10.67	-10.0	-167.6	115.8	112.4	3.42	33.871		
1,100.0	1,097.3	1,076.4	1,051.5	2.3	4.0	-10.01	-10.8	-199.3	140.6	136.9	3.76	37.383		
1,200.0	1,197.0	1,173.2	1,143.0	2.5	4.6	-9.54	-11.7	-231.0	165.5	161.4	4.11	40.308		
1,300.0	1,296.6	1,270.1	1,234.5	2.7	5.2	-9.20	-12.6	-262.6	190.4	185.9	4.45	42.782		
1,400.0	1,396.3	1,366.9	1,326.0	2.9	5.8	-8.94	-13.4	-294.3	215.3	210.5	4.79	44.901		
1,500.0	1,496.0	1,463.8	1,417.6	3.2	6.4	-8.73	-14.3	-326.0	240.2	235.0	5.14	46.736		
1,600.0	1,595.6	1,560.6	1,509.1	3.4	7.0	-8.56	-15.1	-357.7	265.0	259.6	5.48	48.341		
1,700.0	1,695.3	1,657.5	1,600.6	3.6	7.6	-8.42	-16.0	-389.3	289.9	284.1	5.83	49.757		
1,800.0	1,795.0	1,754.3	1,692.1	3.8	8.2	-8.30	-16.9	-421.0	314.8	308.7	6.17	51.016		
1,900.0	1,894.6	1,851.2	1,783.7	4.1	8.9	-8.20	-17.7	-452.7	339.7	333.2	6.52	52.141		
2,000.0	1,994.3	1,948.0	1,875.2	4.3	9.5	-8.11	-18.6	-484.3	364.6	357.8	6.86	53.154		
2,100.0	2,094.0	2,044.9	1,966.7	4.5	10.1	-8.04	-19.5	-516.0	389.5	382.3	7.20	54.070		
2,200.0	2,193.6	2,141.7	2,058.2	4.7	10.7	-7.97	-20.3	-547.7	414.4	406.9	7.55	54.903		
2,300.0	2,293.3	2,238.6	2,149.7	5.0	11.3	-7.91	-21.2	-579.3	439.3	431.4	7.89	55.664		
2,400.0	2,392.9	2,335.4	2,241.3	5.2	11.9	-7.86	-22.0	-611.0	464.2	456.0	8.24	56.360		
2,500.0	2,492.6	2,432.3	2,332.8	5.4	12.5	-7.81	-22.9	-642.7	489.1	480.5	8.58	57.001		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9B (M16W pad) - DD - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	40.97	109.3	94.9	144.7							
100.0	100.0	100.0	100.0	0.1	0.1	40.97	109.3	94.9	144.7	144.4	0.27	531.531				
200.0	200.0	200.0	200.0	0.3	0.3	40.97	109.3	94.9	144.7	144.1	0.62	232.918	CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	128.05	109.3	94.9	146.3	145.3	0.98	150.019				
400.0	399.7	399.7	399.7	0.7	0.7	130.19	109.3	94.9	151.0	149.6	1.34	112.496				
500.0	499.3	500.3	500.2	0.9	0.8	131.54	110.9	92.8	156.1	154.4	1.72	90.755				
600.0	599.0	601.1	600.7	1.1	1.0	130.93	115.9	86.7	160.7	158.5	2.13	75.435				
700.0	698.7	701.4	700.2	1.4	1.3	128.53	124.2	76.4	164.9	162.3	2.60	63.400				
800.0	798.3	800.9	797.9	1.6	1.6	124.51	135.6	62.3	169.3	166.2	3.15	53.706				
900.0	898.0	898.8	893.2	1.8	2.1	119.13	150.0	44.5	175.1	171.3	3.79	46.173				
1,000.0	997.7	994.8	985.3	2.0	2.5	112.75	167.1	23.5	183.3	178.8	4.50	40.759				
1,100.0	1,097.3	1,088.5	1,073.7	2.3	3.1	105.80	186.5	-0.5	195.4	190.2	5.23	37.348				
1,200.0	1,197.0	1,181.0	1,159.6	2.5	3.7	98.73	208.2	-27.4	212.2	206.3	5.93	35.799				
1,300.0	1,296.6	1,275.7	1,247.0	2.7	4.4	92.37	230.9	-55.5	232.6	226.0	6.57	35.422	SF			
1,400.0	1,396.3	1,370.4	1,334.5	2.9	5.0	87.02	253.7	-83.6	255.5	248.3	7.14	35.773				
1,500.0	1,496.0	1,465.0	1,422.0	3.2	5.7	82.54	276.4	-111.7	280.2	272.5	7.66	36.553				
1,600.0	1,595.6	1,559.7	1,509.5	3.4	6.4	78.78	299.2	-139.8	306.3	298.1	8.15	37.581				
1,700.0	1,695.3	1,654.3	1,596.9	3.6	7.0	75.60	321.9	-168.0	333.4	324.8	8.61	38.744				
1,800.0	1,795.0	1,749.0	1,684.4	3.8	7.7	72.90	344.7	-196.1	361.5	352.4	9.04	39.974				
1,900.0	1,894.6	1,843.6	1,771.9	4.1	8.4	70.57	367.4	-224.2	390.1	380.7	9.46	41.224				
2,000.0	1,994.3	1,938.3	1,859.4	4.3	9.0	68.57	390.2	-252.3	419.3	409.5	9.87	42.468				
2,100.0	2,094.0	2,033.0	1,946.8	4.5	9.7	66.81	412.9	-280.4	448.9	438.7	10.28	43.688				
2,200.0	2,193.6	2,127.6	2,034.3	4.7	10.4	65.28	435.7	-308.6	478.9	468.2	10.67	44.873				

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-8.73	114.0	-17.5	115.3				
100.0	100.0	100.0	100.0	0.1	0.1	-8.73	114.0	-17.5	115.3	115.1	0.27	423.630	
200.0	200.0	200.0	200.0	0.3	0.3	-8.73	114.0	-17.5	115.3	114.7	0.62	185.636 CC, ES	
300.0	300.0	296.3	296.2	0.5	0.5	77.83	115.3	-19.6	116.4	115.4	0.98	119.129	
400.0	399.7	392.5	392.1	0.7	0.7	78.41	119.0	-25.8	119.6	118.3	1.38	86.880	
500.0	499.3	488.4	487.3	0.9	1.0	77.63	125.2	-36.1	125.9	124.1	1.82	69.161	
600.0	599.0	583.5	581.0	1.1	1.3	75.39	133.8	-50.4	135.4	133.1	2.30	58.892	
700.0	698.7	677.5	672.5	1.4	1.7	72.14	144.6	-68.4	148.6	145.8	2.80	53.072	
800.0	798.3	769.8	761.4	1.6	2.2	68.40	157.4	-89.9	165.9	162.6	3.30	50.204	
900.0	898.0	860.2	847.1	1.8	2.8	64.55	172.1	-114.4	187.4	183.6	3.79	49.391 SF	
1,000.0	997.7	952.1	933.0	2.0	3.4	60.82	189.0	-142.4	213.1	208.8	4.26	50.071	
1,100.0	1,097.3	1,047.7	1,022.1	2.3	4.0	57.69	206.7	-172.0	240.0	235.3	4.70	51.071	
1,200.0	1,197.0	1,143.2	1,111.2	2.5	4.6	55.18	224.5	-201.7	267.4	262.3	5.12	52.189	
1,300.0	1,296.6	1,238.8	1,200.3	2.7	5.3	53.14	242.3	-231.3	295.3	289.7	5.54	53.330	
1,400.0	1,396.3	1,334.4	1,289.4	2.9	5.9	51.46	260.0	-260.9	323.4	317.5	5.94	54.446	
1,500.0	1,496.0	1,429.9	1,378.5	3.2	6.6	50.03	277.8	-290.5	351.7	345.4	6.34	55.515	
1,600.0	1,595.6	1,525.5	1,467.6	3.4	7.2	48.83	295.6	-320.1	380.3	373.5	6.73	56.527	
1,700.0	1,695.3	1,621.0	1,556.7	3.6	7.9	47.78	313.3	-349.7	408.9	401.8	7.11	57.477	
1,800.0	1,795.0	1,716.6	1,645.8	3.8	8.5	46.88	331.1	-379.3	437.7	430.2	7.50	58.366	
1,900.0	1,894.6	1,812.2	1,734.9	4.1	9.2	46.09	348.9	-408.9	466.5	458.6	7.88	59.196	
2,000.0	1,994.3	1,907.7	1,824.0	4.3	9.8	45.38	366.6	-438.6	495.4	487.2	8.26	59.971	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9C (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	32.18	108.2	68.1	127.8					
100.0	100.0	100.0	100.0	0.1	0.1	32.18	108.2	68.1	127.8	127.5	0.27	469.377 CC		
200.0	200.0	200.0	200.0	0.3	0.3	32.18	108.2	68.1	127.8	127.2	0.62	205.682 ES		
300.0	300.0	300.9	300.8	0.5	0.5	118.31	109.3	65.6	128.7	127.7	0.99	130.370		
400.0	399.7	401.7	401.3	0.7	0.7	117.67	112.6	58.4	131.2	129.8	1.41	93.032		
500.0	499.3	502.2	500.9	0.9	1.0	115.16	118.1	46.4	133.5	131.6	1.91	69.995		
600.0	599.0	601.8	598.9	1.1	1.4	110.57	125.7	29.8	136.1	133.6	2.49	54.577		
700.0	698.7	700.0	694.3	1.4	1.8	104.17	135.2	8.9	140.0	136.8	3.16	44.304		
800.0	798.3	796.5	786.9	1.6	2.3	96.43	146.6	-16.0	146.8	142.9	3.88	37.854		
900.0	898.0	890.7	875.8	1.8	2.9	88.04	159.6	-44.3	158.0	153.4	4.58	34.498		
1,000.0	997.7	986.7	965.6	2.0	3.6	80.08	173.6	-75.0	173.5	168.3	5.20	33.372 SF		
1,100.0	1,097.3	1,082.7	1,055.5	2.3	4.2	73.47	187.7	-105.7	192.0	186.2	5.74	33.448		
1,200.0	1,197.0	1,178.7	1,145.3	2.5	4.8	68.03	201.7	-136.5	212.5	206.3	6.22	34.188		
1,300.0	1,296.6	1,274.7	1,235.1	2.7	5.5	63.55	215.8	-167.2	234.6	228.0	6.65	35.291		
1,400.0	1,396.3	1,370.6	1,325.0	2.9	6.1	59.84	229.9	-197.9	257.9	250.8	7.05	36.580		
1,500.0	1,496.0	1,466.6	1,414.8	3.2	6.7	56.74	243.9	-228.6	282.0	274.6	7.43	37.952		
1,600.0	1,595.6	1,562.6	1,504.6	3.4	7.4	54.13	258.0	-259.4	306.8	299.0	7.80	39.343		
1,700.0	1,695.3	1,658.6	1,594.5	3.6	8.0	51.90	272.0	-290.1	332.2	324.0	8.16	40.717		
1,800.0	1,795.0	1,754.6	1,684.3	3.8	8.6	49.99	286.1	-320.8	357.9	349.4	8.51	42.052		
1,900.0	1,894.6	1,850.5	1,774.1	4.1	9.3	48.33	300.1	-351.6	384.0	375.1	8.86	43.336		
2,000.0	1,994.3	1,946.5	1,864.0	4.3	9.9	46.89	314.2	-382.3	410.3	401.1	9.21	44.562		
2,100.0	2,094.0	2,042.5	1,953.8	4.5	10.6	45.61	328.3	-413.0	436.9	427.3	9.55	45.729		
2,200.0	2,193.6	2,138.5	2,043.6	4.7	11.2	44.48	342.3	-443.7	463.6	453.7	9.90	46.835		
2,300.0	2,293.3	2,234.5	2,133.5	5.0	11.8	43.48	356.4	-474.5	490.5	480.2	10.24	47.883		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Reference Site:</b>	SWSW S16-T7S-R93W (M16W Pad)	<b>MD Reference:</b>	KBE @ 7903.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9D (M16W Pad) - DD - Plan #1										Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	32.83	97.6	63.0	116.2				
100.0	100.0	100.0	100.0	0.1	0.1	32.83	97.6	63.0	116.2	115.9	0.27	426.666	
200.0	200.0	200.0	200.0	0.3	0.3	32.83	97.6	63.0	116.2	115.5	0.62	186.966	
300.0	300.0	303.4	303.4	0.5	0.5	120.80	95.7	63.0	116.0	115.0	0.98	117.871	
352.5	352.4	357.4	357.3	0.6	0.6	122.86	93.3	63.0	115.7	114.5	1.18	97.752	
400.0	399.7	405.1	405.0	0.7	0.7	124.97	91.2	62.3	115.9	114.6	1.36	85.291	
500.0	499.3	506.2	505.9	0.9	0.9	127.24	88.6	57.4	115.7	114.0	1.73	66.776	
600.0	599.0	607.5	606.7	1.1	1.1	126.92	88.6	47.8	114.4	112.3	2.13	53.695	
700.0	698.7	708.4	706.5	1.4	1.4	123.93	91.1	33.6	112.2	109.6	2.60	43.185	
800.0	798.3	808.3	804.6	1.6	1.7	118.14	96.2	15.0	109.9	106.8	3.17	34.678	
878.3	876.4	885.6	879.7	1.8	2.0	111.66	101.8	-2.5	109.1	105.4	3.72	29.355 CC	
900.0	898.0	906.8	900.2	1.8	2.1	109.59	103.6	-7.7	109.2	105.3	3.88	28.160 ES	
1,000.0	997.7	1,004.0	993.2	2.0	2.6	98.98	113.1	-34.0	112.2	107.6	4.65	24.133	
1,100.0	1,097.3	1,101.5	1,086.3	2.3	3.1	88.77	123.1	-61.2	119.5	114.1	5.36	22.281	
1,200.0	1,197.0	1,199.0	1,179.4	2.5	3.7	79.92	133.2	-88.4	130.1	124.2	5.97	21.785 SF	
1,300.0	1,296.6	1,296.5	1,272.5	2.7	4.2	72.52	143.2	-115.6	143.5	137.0	6.49	22.096	
1,400.0	1,396.3	1,394.0	1,365.6	2.9	4.7	66.42	153.2	-142.7	158.8	151.9	6.94	22.873	
1,500.0	1,496.0	1,491.5	1,458.7	3.2	5.3	61.42	163.2	-169.9	175.7	168.3	7.35	23.909	
1,600.0	1,595.6	1,588.9	1,551.8	3.4	5.8	57.30	173.2	-197.1	193.6	185.9	7.72	25.075	
1,700.0	1,695.3	1,686.4	1,644.8	3.6	6.4	53.88	183.3	-224.3	212.3	204.3	8.08	26.295	
1,800.0	1,795.0	1,783.9	1,737.9	3.8	6.9	51.02	193.3	-251.5	231.7	223.3	8.42	27.523	
1,900.0	1,894.6	1,881.4	1,831.0	4.1	7.4	48.60	203.3	-278.7	251.5	242.8	8.76	28.729	
2,000.0	1,994.3	1,978.9	1,924.1	4.3	8.0	46.54	213.3	-305.9	271.8	262.7	9.09	29.898	
2,100.0	2,094.0	2,076.4	2,017.2	4.5	8.5	44.76	223.3	-333.0	292.3	282.8	9.42	31.020	
2,200.0	2,193.6	2,173.9	2,110.3	4.7	9.1	43.21	233.3	-360.2	313.0	303.2	9.75	32.092	
2,300.0	2,293.3	2,271.4	2,203.4	5.0	9.6	41.85	243.4	-387.4	333.9	323.8	10.09	33.111	
2,400.0	2,392.9	2,368.9	2,296.5	5.2	10.2	40.66	253.4	-414.6	355.0	344.6	10.42	34.078	
2,500.0	2,492.6	2,466.4	2,389.6	5.4	10.7	39.60	263.4	-441.8	376.2	365.5	10.75	34.994	
2,600.0	2,592.3	2,563.9	2,482.7	5.6	11.3	38.65	273.4	-469.0	397.6	386.5	11.09	35.861	
2,700.0	2,691.9	2,661.4	2,575.8	5.9	11.8	37.80	283.4	-496.2	419.0	407.6	11.42	36.682	
2,800.0	2,791.6	2,758.9	2,668.9	6.1	12.4	37.03	293.5	-523.4	440.5	428.8	11.76	37.459	
2,900.0	2,891.3	2,856.4	2,762.0	6.3	12.9	36.33	303.5	-550.5	462.1	450.0	12.10	38.194	
3,000.0	2,990.9	2,953.9	2,855.0	6.5	13.5	35.69	313.5	-577.7	483.7	471.3	12.44	38.891	

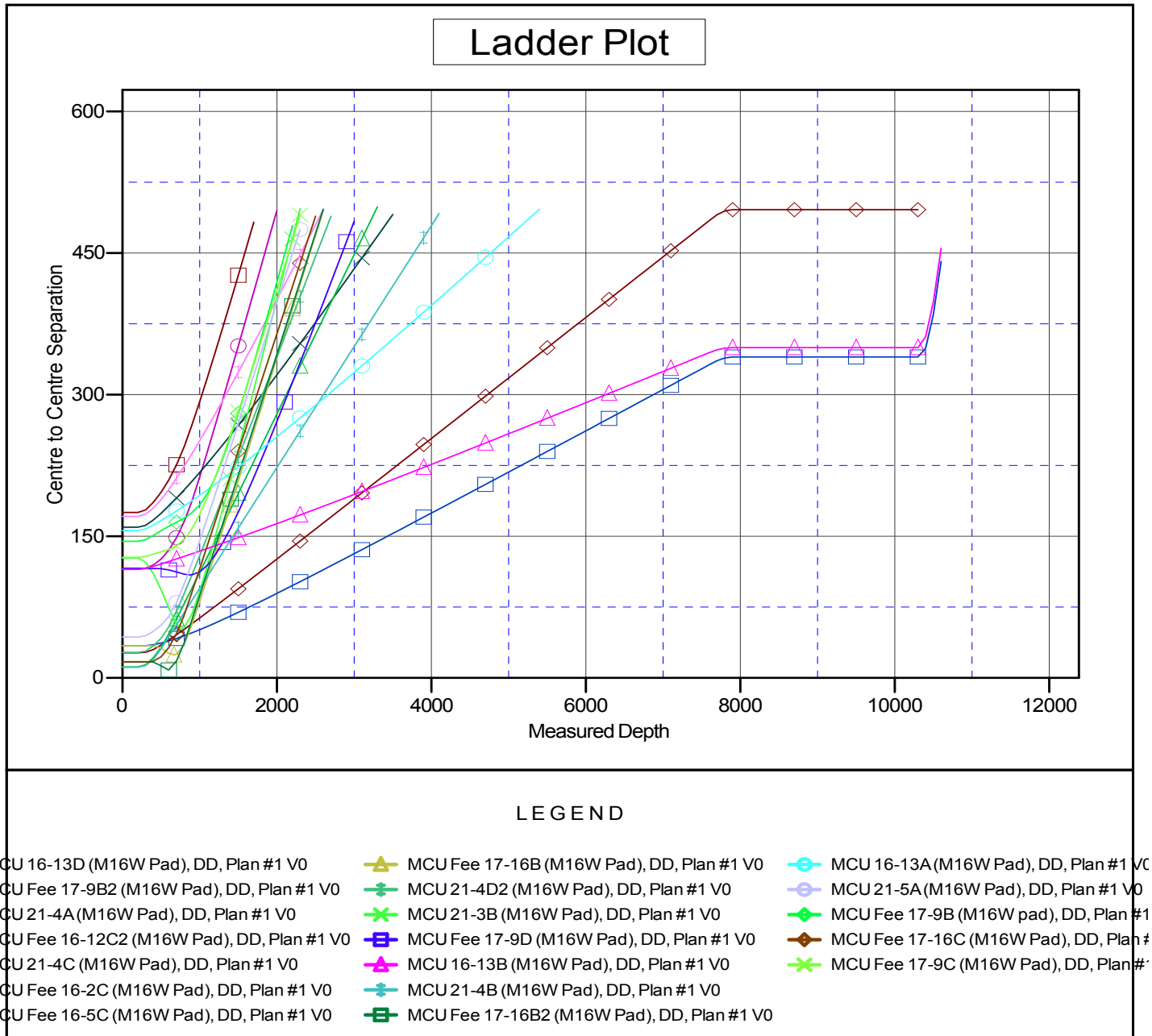
# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU 16-13C (M16W Pad)
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<b>Reference Well:</b>	MCU 16-13C (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 7903.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: MCU 16-13C (M16W Pad)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.44°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation