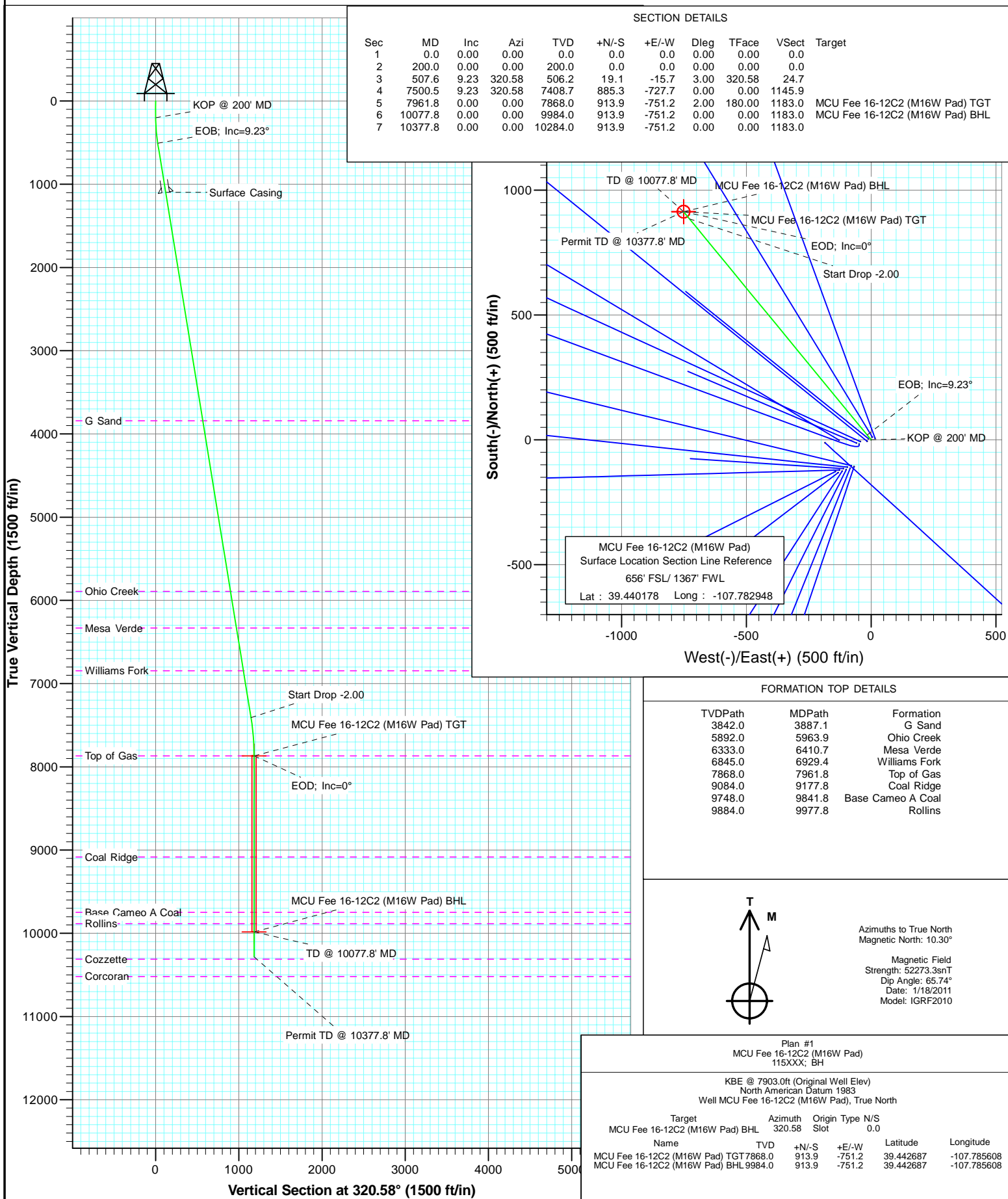
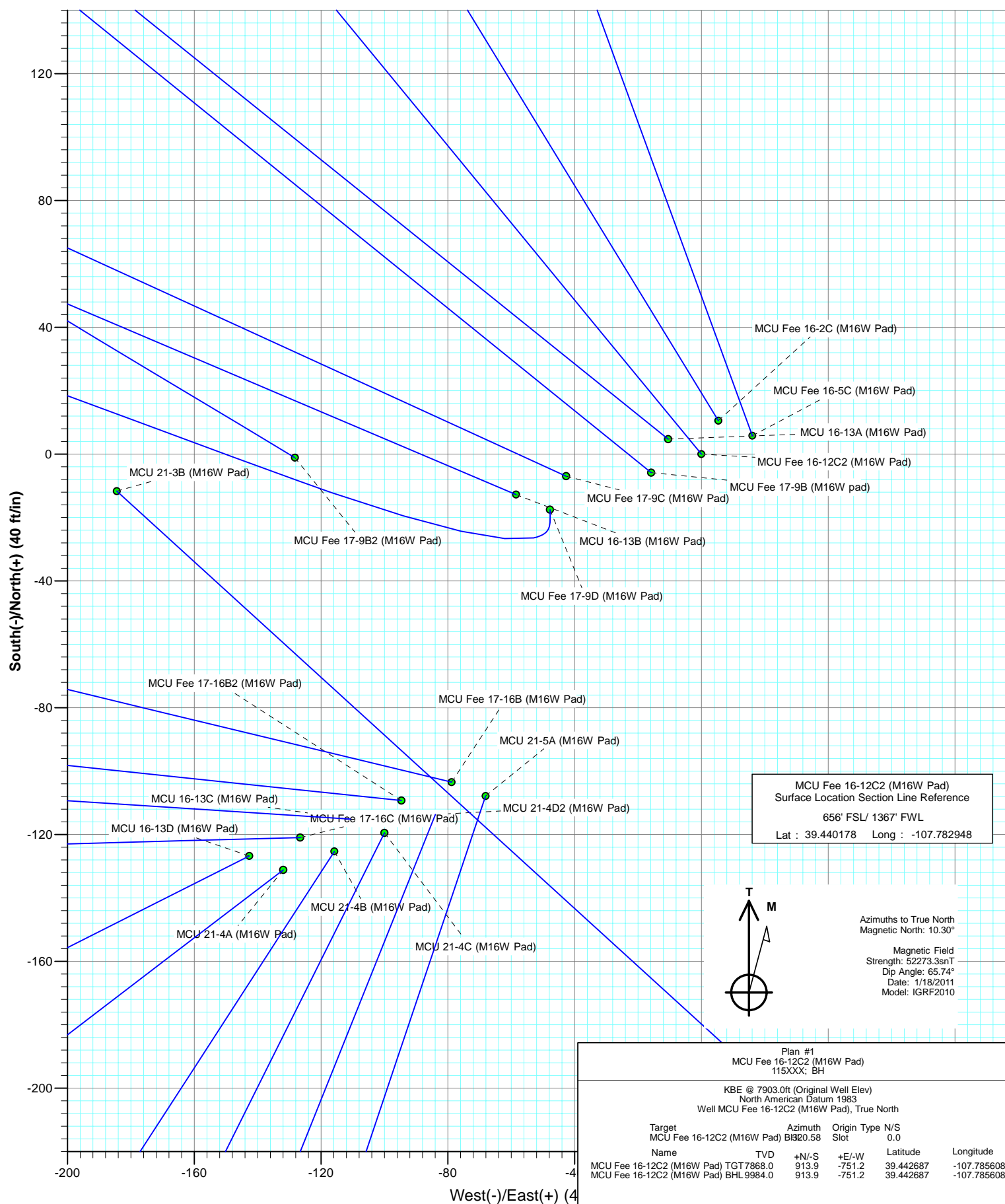




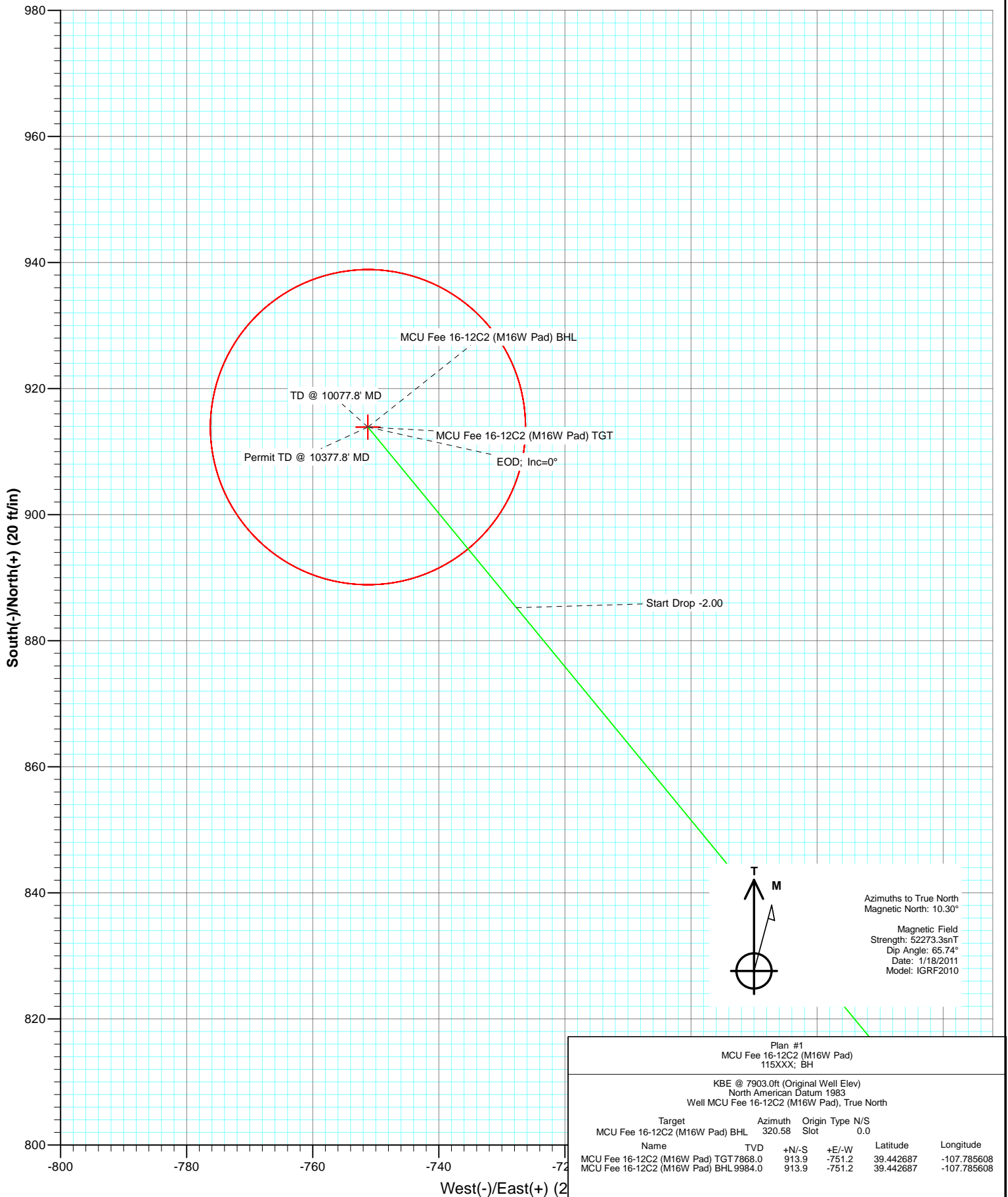
Project: Mamm Creek  
Site: SWSW S16-T7S-R93W (M16W Pad)  
Well: MCU Fee 16-12C2 (M16W Pad)  
Wellbore: DD  
Plan: Plan #1







Project: Mamm Creek  
Site: SWSW S16-T7S-R93W (M16W Pad)  
Well: MCU Fee 16-12C2 (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 Fee 16-12C2 (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 Fee 16-12C2 (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		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 Fee 16-12C2 (M16W Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,593,318.51 ft	Latitude:	39.440178
	+E/-W	0.0 ft	Easting:	2,355,312.62 ft	Longitude:	-107.782948
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,881.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/18/2011	10.30	65.74	52,273

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	320.58

Plan Sections										
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	
507.6	9.23	320.58	506.2	19.1	-15.7	3.00	3.00	0.00	320.58	
7,500.5	9.23	320.58	7,408.7	885.3	-727.7	0.00	0.00	0.00	0.00	
7,961.8	0.00	0.00	7,868.0	913.9	-751.2	2.00	-2.00	0.00	180.00	MCU Fee 16-12C2 (N
10,077.8	0.00	0.00	9,984.0	913.9	-751.2	0.00	0.00	0.00	0.00	MCU Fee 16-12C2 (N
10,377.8	0.00	0.00	10,284.0	913.9	-751.2	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 Fee 16-12C2 (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 Fee 16-12C2 (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	320.58	300.0	2.0	-1.7	2.6	3.00	3.00	
400.0	6.00	320.58	399.6	8.1	-6.6	10.5	3.00	3.00	
500.0	9.00	320.58	498.8	18.2	-14.9	23.5	3.00	3.00	
507.6	9.23	320.58	506.2	19.1	-15.7	24.7	3.00	3.00	EOB; Inc=9.23°
600.0	9.23	320.58	597.5	30.5	-25.1	39.5	0.00	0.00	
700.0	9.23	320.58	696.2	42.9	-35.3	55.6	0.00	0.00	
800.0	9.23	320.58	794.9	55.3	-45.5	71.6	0.00	0.00	
900.0	9.23	320.58	893.6	67.7	-55.6	87.6	0.00	0.00	
1,000.0	9.23	320.58	992.3	80.1	-65.8	103.7	0.00	0.00	
1,100.0	9.23	320.58	1,091.0	92.5	-76.0	119.7	0.00	0.00	
1,107.1	9.23	320.58	1,098.0	93.3	-76.7	120.8	0.00	0.00	Surface Casing
1,200.0	9.23	320.58	1,189.7	104.9	-86.2	135.7	0.00	0.00	
1,300.0	9.23	320.58	1,288.4	117.2	-96.4	151.8	0.00	0.00	
1,400.0	9.23	320.58	1,387.1	129.6	-106.6	167.8	0.00	0.00	
1,500.0	9.23	320.58	1,485.8	142.0	-116.7	183.8	0.00	0.00	
1,600.0	9.23	320.58	1,584.5	154.4	-126.9	199.9	0.00	0.00	
1,700.0	9.23	320.58	1,683.2	166.8	-137.1	215.9	0.00	0.00	
1,800.0	9.23	320.58	1,782.0	179.2	-147.3	231.9	0.00	0.00	
1,900.0	9.23	320.58	1,880.7	191.6	-157.5	248.0	0.00	0.00	
2,000.0	9.23	320.58	1,979.4	203.9	-167.6	264.0	0.00	0.00	
2,100.0	9.23	320.58	2,078.1	216.3	-177.8	280.0	0.00	0.00	
2,200.0	9.23	320.58	2,176.8	228.7	-188.0	296.1	0.00	0.00	
2,300.0	9.23	320.58	2,275.5	241.1	-198.2	312.1	0.00	0.00	
2,400.0	9.23	320.58	2,374.2	253.5	-208.4	328.1	0.00	0.00	
2,500.0	9.23	320.58	2,472.9	265.9	-218.6	344.2	0.00	0.00	
2,600.0	9.23	320.58	2,571.6	278.3	-228.7	360.2	0.00	0.00	
2,700.0	9.23	320.58	2,670.3	290.7	-238.9	376.2	0.00	0.00	
2,800.0	9.23	320.58	2,769.0	303.0	-249.1	392.3	0.00	0.00	
2,900.0	9.23	320.58	2,867.7	315.4	-259.3	408.3	0.00	0.00	
3,000.0	9.23	320.58	2,966.4	327.8	-269.5	424.3	0.00	0.00	
3,100.0	9.23	320.58	3,065.1	340.2	-279.6	440.4	0.00	0.00	
3,200.0	9.23	320.58	3,163.8	352.6	-289.8	456.4	0.00	0.00	
3,300.0	9.23	320.58	3,262.5	365.0	-300.0	472.4	0.00	0.00	
3,400.0	9.23	320.58	3,361.2	377.4	-310.2	488.5	0.00	0.00	
3,500.0	9.23	320.58	3,460.0	389.7	-320.4	504.5	0.00	0.00	
3,600.0	9.23	320.58	3,558.7	402.1	-330.6	520.6	0.00	0.00	
3,700.0	9.23	320.58	3,657.4	414.5	-340.7	536.6	0.00	0.00	
3,800.0	9.23	320.58	3,756.1	426.9	-350.9	552.6	0.00	0.00	
3,887.1	9.23	320.58	3,842.0	437.7	-359.8	566.6	0.00	0.00	G Sand
3,900.0	9.23	320.58	3,854.8	439.3	-361.1	568.7	0.00	0.00	
4,000.0	9.23	320.58	3,953.5	451.7	-371.3	584.7	0.00	0.00	
4,100.0	9.23	320.58	4,052.2	464.1	-381.5	600.7	0.00	0.00	
4,200.0	9.23	320.58	4,150.9	476.4	-391.6	616.8	0.00	0.00	
4,300.0	9.23	320.58	4,249.6	488.8	-401.8	632.8	0.00	0.00	
4,400.0	9.23	320.58	4,348.3	501.2	-412.0	648.8	0.00	0.00	
4,500.0	9.23	320.58	4,447.0	513.6	-422.2	664.9	0.00	0.00	
4,600.0	9.23	320.58	4,545.7	526.0	-432.4	680.9	0.00	0.00	
4,700.0	9.23	320.58	4,644.4	538.4	-442.6	696.9	0.00	0.00	
4,800.0	9.23	320.58	4,743.1	550.8	-452.7	713.0	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 Fee 16-12C2 (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 Fee 16-12C2 (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	9.23	320.58	4,841.8	563.2	-462.9	729.0	0.00	0.00	
5,000.0	9.23	320.58	4,940.5	575.5	-473.1	745.0	0.00	0.00	
5,100.0	9.23	320.58	5,039.3	587.9	-483.3	761.1	0.00	0.00	
5,200.0	9.23	320.58	5,138.0	600.3	-493.5	777.1	0.00	0.00	
5,300.0	9.23	320.58	5,236.7	612.7	-503.6	793.1	0.00	0.00	
5,400.0	9.23	320.58	5,335.4	625.1	-513.8	809.2	0.00	0.00	
5,500.0	9.23	320.58	5,434.1	637.5	-524.0	825.2	0.00	0.00	
5,600.0	9.23	320.58	5,532.8	649.9	-534.2	841.2	0.00	0.00	
5,700.0	9.23	320.58	5,631.5	662.2	-544.4	857.3	0.00	0.00	
5,800.0	9.23	320.58	5,730.2	674.6	-554.6	873.3	0.00	0.00	
5,900.0	9.23	320.58	5,828.9	687.0	-564.7	889.3	0.00	0.00	
5,963.9	9.23	320.58	5,892.0	694.9	-571.2	899.6	0.00	0.00	Ohio Creek
6,000.0	9.23	320.58	5,927.6	699.4	-574.9	905.4	0.00	0.00	
6,100.0	9.23	320.58	6,026.3	711.8	-585.1	921.4	0.00	0.00	
6,200.0	9.23	320.58	6,125.0	724.2	-595.3	937.4	0.00	0.00	
6,300.0	9.23	320.58	6,223.7	736.6	-605.5	953.5	0.00	0.00	
6,400.0	9.23	320.58	6,322.4	748.9	-615.6	969.5	0.00	0.00	
6,410.7	9.23	320.58	6,333.0	750.3	-616.7	971.2	0.00	0.00	Mesa Verde
6,500.0	9.23	320.58	6,421.1	761.3	-625.8	985.5	0.00	0.00	
6,600.0	9.23	320.58	6,519.8	773.7	-636.0	1,001.6	0.00	0.00	
6,700.0	9.23	320.58	6,618.6	786.1	-646.2	1,017.6	0.00	0.00	
6,800.0	9.23	320.58	6,717.3	798.5	-656.4	1,033.6	0.00	0.00	
6,900.0	9.23	320.58	6,816.0	810.9	-666.5	1,049.7	0.00	0.00	
6,929.4	9.23	320.58	6,845.0	814.5	-669.5	1,054.4	0.00	0.00	Williams Fork
7,000.0	9.23	320.58	6,914.7	823.3	-676.7	1,065.7	0.00	0.00	
7,100.0	9.23	320.58	7,013.4	835.6	-686.9	1,081.7	0.00	0.00	
7,200.0	9.23	320.58	7,112.1	848.0	-697.1	1,097.8	0.00	0.00	
7,300.0	9.23	320.58	7,210.8	860.4	-707.3	1,113.8	0.00	0.00	
7,400.0	9.23	320.58	7,309.5	872.8	-717.5	1,129.8	0.00	0.00	
7,500.0	9.23	320.58	7,408.2	885.2	-727.6	1,145.9	0.00	0.00	
7,500.5	9.23	320.58	7,408.7	885.3	-727.7	1,145.9	0.00	0.00	Start Drop -2.00
7,600.0	7.24	320.58	7,507.2	896.3	-736.7	1,160.2	2.00	-2.00	
7,700.0	5.24	320.58	7,606.6	904.7	-743.6	1,171.1	2.00	-2.00	
7,800.0	3.24	320.58	7,706.3	910.4	-748.3	1,178.4	2.00	-2.00	
7,900.0	1.24	320.58	7,806.2	913.4	-750.8	1,182.3	2.00	-2.00	
7,961.8	0.00	0.00	7,868.0	913.9	-751.2	1,183.0	2.00	-2.00	EOD; Inc=0° - Top of Gas - MCU Fee 16-12C2
8,000.0	0.00	0.00	7,906.2	913.9	-751.2	1,183.0	0.00	0.00	
8,100.0	0.00	0.00	8,006.2	913.9	-751.2	1,183.0	0.00	0.00	
8,200.0	0.00	0.00	8,106.2	913.9	-751.2	1,183.0	0.00	0.00	
8,300.0	0.00	0.00	8,206.2	913.9	-751.2	1,183.0	0.00	0.00	
8,400.0	0.00	0.00	8,306.2	913.9	-751.2	1,183.0	0.00	0.00	
8,500.0	0.00	0.00	8,406.2	913.9	-751.2	1,183.0	0.00	0.00	
8,600.0	0.00	0.00	8,506.2	913.9	-751.2	1,183.0	0.00	0.00	
8,700.0	0.00	0.00	8,606.2	913.9	-751.2	1,183.0	0.00	0.00	
8,800.0	0.00	0.00	8,706.2	913.9	-751.2	1,183.0	0.00	0.00	
8,900.0	0.00	0.00	8,806.2	913.9	-751.2	1,183.0	0.00	0.00	
9,000.0	0.00	0.00	8,906.2	913.9	-751.2	1,183.0	0.00	0.00	
9,100.0	0.00	0.00	9,006.2	913.9	-751.2	1,183.0	0.00	0.00	
9,177.8	0.00	0.00	9,084.0	913.9	-751.2	1,183.0	0.00	0.00	Coal Ridge
9,200.0	0.00	0.00	9,106.2	913.9	-751.2	1,183.0	0.00	0.00	
9,300.0	0.00	0.00	9,206.2	913.9	-751.2	1,183.0	0.00	0.00	
9,400.0	0.00	0.00	9,306.2	913.9	-751.2	1,183.0	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 Fee 16-12C2 (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 Fee 16-12C2 (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	9,406.2	913.9	-751.2	1,183.0	0.00	0.00	
9,600.0	0.00	0.00	9,506.2	913.9	-751.2	1,183.0	0.00	0.00	
9,700.0	0.00	0.00	9,606.2	913.9	-751.2	1,183.0	0.00	0.00	
9,800.0	0.00	0.00	9,706.2	913.9	-751.2	1,183.0	0.00	0.00	
9,841.8	0.00	0.00	9,748.0	913.9	-751.2	1,183.0	0.00	0.00	Base Cameo A Coal
9,900.0	0.00	0.00	9,806.2	913.9	-751.2	1,183.0	0.00	0.00	
9,977.8	0.00	0.00	9,884.0	913.9	-751.2	1,183.0	0.00	0.00	Rollins
10,000.0	0.00	0.00	9,906.2	913.9	-751.2	1,183.0	0.00	0.00	
10,077.8	0.00	0.00	9,984.0	913.9	-751.2	1,183.0	0.00	0.00	TD @ 10077.8' MD - MCU Fee 16-12C2 (M16W)
10,100.0	0.00	0.00	10,006.2	913.9	-751.2	1,183.0	0.00	0.00	
10,200.0	0.00	0.00	10,106.2	913.9	-751.2	1,183.0	0.00	0.00	
10,300.0	0.00	0.00	10,206.2	913.9	-751.2	1,183.0	0.00	0.00	
10,377.8	0.00	0.00	10,284.0	913.9	-751.2	1,183.0	0.00	0.00	Permit TD @ 10377.8' MD

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
MCU Fee 16-12C2 (M16W) - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,868.0	913.9	-751.2	1,594,250.98	2,354,584.60	39.442687	-107.785608
MCU Fee 16-12C2 (M16W) - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,984.0	913.9	-751.2	1,594,250.98	2,354,584.60	39.442687	-107.785608

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,107.1	1,098.0	Surface Casing	0.000	0.000

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,887.1	3,842.0	G Sand		0.00	
5,963.9	5,892.0	Ohio Creek		0.00	
6,410.7	6,333.0	Mesa Verde		0.00	
6,929.4	6,845.0	Williams Fork		0.00	
7,961.8	7,868.0	Top of Gas		0.00	
9,177.8	9,084.0	Coal Ridge		0.00	
9,841.8	9,748.0	Base Cameo A Coal		0.00	
9,977.8	9,884.0	Rollins		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 Fee 16-12C2 (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 Fee 16-12C2 (M16W Pad)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200' MD
507.6	506.2	19.1	-15.7	EOB; Inc=9.23°
7,500.5	7,408.7	885.3	-727.7	Start Drop -2.00
7,961.8	7,868.0	913.9	-751.2	EOD; Inc=0°
10,077.8	9,984.0	913.9	-751.2	TD @ 10077.8' MD
10,377.8	10,284.0	913.9	-751.2	Permit TD @ 10377.8' MD



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

**Mamm Creek**

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

**MCU Fee 16-12C2 (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 Fee 16-12C2 (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 Fee 16-12C2 (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		

Survey Tool Program		Date	1/19/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	10,377.8	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 Fee 16-12C2 (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 Fee 16-12C2 (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	11.5	10.9	18.464	CC
MCU 16-13A (M16W Pad) - DD - Plan #1	300.0	299.4	11.7	10.7	11.996	ES
MCU 16-13A (M16W Pad) - DD - Plan #1	800.0	798.2	17.5	13.8	4.704	SF
MCU 16-13B (M16W Pad) - DD - Plan #1	200.0	200.0	59.8	59.2	96.302	CC, ES
MCU 16-13B (M16W Pad) - DD - Plan #1	1,900.0	1,889.6	150.0	140.7	16.126	SF
MCU 16-13C (M16W Pad) - DD - Plan #1	200.0	200.0	159.7	159.1	257.028	CC, ES
MCU 16-13C (M16W Pad) - DD - Plan #1	3,500.0	3,469.0	490.6	474.2	29.885	SF
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	190.8	190.2	307.095	CC, ES
MCU 16-13D (M16W Pad) - DD - Plan #1	2,500.0	2,455.5	485.3	473.9	42.554	SF
MCU 21-3B (M16W Pad) - DD - Plan #1	699.2	703.3	141.0	137.6	40.894	CC
MCU 21-3B (M16W Pad) - DD - Plan #1	700.0	704.0	141.0	137.6	40.827	ES
MCU 21-3B (M16W Pad) - DD - Plan #1	900.0	886.5	163.1	158.5	35.503	SF
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	186.0	185.4	299.325	CC, ES
MCU 21-4A (M16W Pad) - DD - Plan #1	2,300.0	2,249.2	495.8	485.5	48.014	SF
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	170.6	170.0	274.574	CC, ES
MCU 21-4B (M16W Pad) - DD - Plan #1	1,800.0	1,731.1	486.2	478.5	62.935	SF
MCU 21-4C (M16W Pad) - DD - Plan #1	200.0	200.0	155.8	155.2	250.723	CC, ES
MCU 21-4C (M16W Pad) - DD - Plan #1	1,600.0	1,520.6	473.3	466.6	70.754	SF
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	141.2	140.6	227.330	CC, ES
MCU 21-4D2 (M16W Pad) - DD - Plan #1	1,500.0	1,406.0	476.5	470.3	77.724	SF
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	127.5	126.9	205.204	CC, ES
MCU 21-5A (M16W Pad) - DD - Plan #1	700.0	650.7	212.8	210.2	82.184	SF
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	11.8	11.2	19.068	CC
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	300.0	299.7	12.2	11.2	12.375	ES
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	600.0	598.6	17.8	15.3	6.989	SF
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	17.1	16.5	27.554	CC, ES
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	700.0	698.6	37.8	34.4	11.211	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	200.0	200.0	130.0	129.4	209.284	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	2,000.0	1,941.3	438.9	426.6	35.547	SF
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	200.0	200.0	144.5	143.9	232.626	CC, ES
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	2,000.0	1,924.7	491.1	479.0	40.303	SF
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	175.0	174.4	281.683	CC, ES
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	1,700.0	1,614.3	474.8	465.0	48.401	SF
MCU Fee 17-9B (M16W pad) - DD - Plan #1	345.5	345.3	15.9	14.8	13.761	CC, ES
MCU Fee 17-9B (M16W pad) - DD - Plan #1	1,000.0	1,001.8	35.4	30.2	6.845	SF
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	200.0	200.0	128.2	127.6	206.370	CC, ES
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	1,300.0	1,243.0	261.1	255.0	42.999	SF
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	200.0	200.0	43.2	42.6	69.537	CC, ES
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	700.0	688.9	69.5	66.4	22.640	SF
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	290.3	289.7	50.7	49.8	53.659	CC
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	300.0	299.2	50.7	49.7	51.755	ES
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	1,200.0	1,186.3	142.2	135.9	22.447	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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		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	-65.62	4.7	-10.4	11.5					
100.0	100.0	100.0	100.0	0.1	0.1	-65.62	4.7	-10.4	11.5	11.2	0.27	42.136		
200.0	200.0	200.0	200.0	0.3	0.3	-65.62	4.7	-10.4	11.5	10.9	0.62	18.464 CC		
300.0	300.0	299.4	299.4	0.5	0.5	-28.68	6.4	-12.5	11.7	10.7	0.97	11.996 ES		
400.0	399.6	398.8	398.5	0.7	0.7	-35.59	11.2	-18.5	12.3	11.0	1.34	9.170		
500.0	498.8	498.5	497.4	1.0	1.0	-47.36	18.8	-28.0	13.1	11.3	1.81	7.253		
534.0	532.4	532.5	531.1	1.1	1.1	-53.64	21.5	-31.3	13.1	11.1	2.01	6.514		
600.0	597.5	598.4	596.5	1.3	1.2	-66.83	26.8	-37.8	13.3	10.9	2.43	5.463		
700.0	696.2	698.3	695.6	1.6	1.5	-83.97	34.7	-47.7	14.9	11.8	3.10	4.795		
800.0	794.9	798.2	794.7	1.9	1.8	-96.90	42.6	-57.5	17.5	13.8	3.72	4.704 SF		
900.0	893.6	898.1	893.8	2.3	2.1	-106.13	50.5	-67.4	20.8	16.5	4.28	4.853		
1,000.0	992.3	998.0	992.9	2.6	2.3	-112.73	58.5	-77.2	24.4	19.6	4.80	5.087		
1,100.0	1,091.0	1,097.9	1,092.0	2.9	2.6	-117.56	66.4	-87.1	28.3	23.0	5.31	5.341		
1,200.0	1,189.7	1,197.8	1,191.1	3.3	2.9	-121.21	74.3	-96.9	32.4	26.6	5.80	5.588		
1,300.0	1,288.4	1,297.7	1,290.2	3.6	3.2	-124.03	82.3	-106.8	36.5	30.3	6.28	5.820		
1,400.0	1,387.1	1,397.6	1,389.3	3.9	3.5	-126.28	90.2	-116.6	40.8	34.0	6.76	6.031		
1,500.0	1,485.8	1,497.5	1,488.4	4.2	3.7	-128.10	98.1	-126.5	45.0	37.8	7.24	6.224		
1,600.0	1,584.5	1,597.4	1,587.5	4.6	4.0	-129.61	106.1	-136.3	49.3	41.6	7.71	6.399		
1,700.0	1,683.2	1,697.3	1,686.6	4.9	4.3	-130.87	114.0	-146.2	53.7	45.5	8.19	6.557		
1,800.0	1,782.0	1,797.2	1,785.7	5.2	4.6	-131.94	121.9	-156.1	58.0	49.4	8.66	6.701		
1,900.0	1,880.7	1,897.1	1,884.8	5.6	4.9	-132.87	129.8	-165.9	62.4	53.3	9.14	6.832		
2,000.0	1,979.4	1,997.0	1,983.9	5.9	5.1	-133.67	137.8	-175.8	66.8	57.2	9.61	6.951		
2,100.0	2,078.1	2,096.9	2,082.9	6.2	5.4	-134.37	145.7	-185.6	71.2	61.1	10.09	7.061		
2,200.0	2,176.8	2,196.8	2,182.0	6.6	5.7	-134.99	153.6	-195.5	75.6	65.1	10.56	7.162		
2,300.0	2,275.5	2,296.7	2,281.1	6.9	6.0	-135.54	161.6	-205.3	80.1	69.0	11.04	7.254		
2,400.0	2,374.2	2,396.6	2,380.2	7.2	6.3	-136.04	169.5	-215.2	84.5	73.0	11.51	7.340		
2,500.0	2,472.9	2,496.5	2,479.3	7.5	6.6	-136.48	177.4	-225.0	88.9	76.9	11.99	7.419		
2,600.0	2,571.6	2,596.4	2,578.4	7.9	6.8	-136.89	185.4	-234.9	93.4	80.9	12.46	7.493		
2,700.0	2,670.3	2,696.3	2,677.5	8.2	7.1	-137.25	193.3	-244.7	97.8	84.9	12.94	7.561		
2,800.0	2,769.0	2,796.2	2,776.6	8.5	7.4	-137.59	201.2	-254.6	102.3	88.8	13.41	7.625		
2,900.0	2,867.7	2,896.1	2,875.7	8.9	7.7	-137.89	209.1	-264.4	106.7	92.8	13.88	7.685		
3,000.0	2,966.4	2,996.0	2,974.8	9.2	8.0	-138.17	217.1	-274.3	111.2	96.8	14.36	7.741		
3,100.0	3,065.1	3,095.9	3,073.9	9.5	8.2	-138.43	225.0	-284.2	115.6	100.8	14.83	7.793		
3,200.0	3,163.8	3,195.8	3,173.0	9.9	8.5	-138.68	232.9	-294.0	120.1	104.8	15.31	7.843		
3,300.0	3,262.5	3,295.7	3,272.1	10.2	8.8	-138.90	240.9	-303.9	124.5	108.7	15.78	7.889		
3,400.0	3,361.2	3,395.6	3,371.2	10.5	9.1	-139.11	248.8	-313.7	129.0	112.7	16.26	7.933		
3,500.0	3,460.0	3,495.5	3,470.3	10.9	9.4	-139.30	256.7	-323.6	133.5	116.7	16.73	7.975		
3,600.0	3,558.7	3,595.4	3,569.4	11.2	9.7	-139.48	264.7	-333.4	137.9	120.7	17.21	8.014		
3,700.0	3,657.4	3,695.3	3,668.5	11.5	9.9	-139.65	272.6	-343.3	142.4	124.7	17.69	8.051		
3,800.0	3,756.1	3,795.2	3,767.6	11.8	10.2	-139.81	280.5	-353.1	146.9	128.7	18.16	8.086		
3,900.0	3,854.8	3,895.1	3,866.7	12.2	10.5	-139.96	288.4	-363.0	151.3	132.7	18.64	8.120		
4,000.0	3,953.5	3,995.0	3,965.8	12.5	10.8	-140.11	296.4	-372.8	155.8	136.7	19.11	8.152		
4,100.0	4,052.2	4,094.9	4,064.9	12.8	11.1	-140.24	304.3	-382.7	160.3	140.7	19.59	8.182		
4,200.0	4,150.9	4,194.8	4,164.0	13.2	11.3	-140.37	312.2	-392.5	164.7	144.7	20.06	8.211		
4,300.0	4,249.6	4,294.7	4,263.0	13.5	11.6	-140.49	320.2	-402.4	169.2	148.7	20.54	8.239		
4,400.0	4,348.3	4,394.6	4,362.1	13.8	11.9	-140.60	328.1	-412.3	173.7	152.7	21.01	8.265		
4,500.0	4,447.0	4,494.5	4,461.2	14.2	12.2	-140.71	336.0	-422.1	178.1	156.7	21.49	8.291		
4,600.0	4,545.7	4,594.4	4,560.3	14.5	12.5	-140.81	344.0	-432.0	182.6	160.7	21.96	8.315		
4,700.0	4,644.4	4,694.3	4,659.4	14.8	12.8	-140.91	351.9	-441.8	187.1	164.7	22.44	8.338		
4,800.0	4,743.1	4,794.2	4,758.5	15.2	13.0	-141.00	359.8	-451.7	191.6	168.7	22.91	8.360		
4,900.0	4,841.8	4,894.1	4,857.6	15.5	13.3	-141.09	367.7	-461.5	196.0	172.7	23.39	8.382		
5,000.0	4,940.5	4,994.0	4,956.7	15.8	13.6	-141.18	375.7	-471.4	200.5	176.7	23.86	8.402		

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 Fee 16-12C2 (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 Fee 16-12C2 (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-MWDD															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				
5,100.0	5,039.3	5,093.9	5,055.8	16.1	13.9	-141.26	383.6	-481.2	205.0	180.7	24.34	8.422				
5,200.0	5,138.0	5,193.8	5,154.9	16.5	14.2	-141.34	391.5	-491.1	209.5	184.7	24.82	8.441				
5,300.0	5,236.7	5,293.7	5,254.0	16.8	14.4	-141.41	399.5	-500.9	213.9	188.7	25.29	8.459				
5,400.0	5,335.4	5,393.6	5,353.1	17.1	14.7	-141.48	407.4	-510.8	218.4	192.7	25.77	8.477				
5,500.0	5,434.1	5,493.5	5,452.2	17.5	15.0	-141.55	415.3	-520.6	222.9	196.7	26.24	8.494				
5,600.0	5,532.8	5,593.4	5,551.3	17.8	15.3	-141.62	423.3	-530.5	227.4	200.7	26.72	8.510				
5,700.0	5,631.5	5,693.3	5,650.4	18.1	15.6	-141.68	431.2	-540.4	231.9	204.7	27.19	8.526				
5,800.0	5,730.2	5,793.2	5,749.5	18.5	15.9	-141.74	439.1	-550.2	236.3	208.7	27.67	8.541				
5,900.0	5,828.9	5,893.1	5,848.6	18.8	16.1	-141.80	447.1	-560.1	240.8	212.7	28.14	8.556				
6,000.0	5,927.6	5,993.0	5,947.7	19.1	16.4	-141.86	455.0	-569.9	245.3	216.7	28.62	8.571				
6,100.0	6,026.3	6,092.9	6,046.8	19.5	16.7	-141.91	462.9	-579.8	249.8	220.7	29.10	8.584				
6,200.0	6,125.0	6,192.8	6,145.9	19.8	17.0	-141.96	470.8	-589.6	254.2	224.7	29.57	8.598				
6,300.0	6,223.7	6,292.7	6,245.0	20.1	17.3	-142.02	478.8	-599.5	258.7	228.7	30.05	8.611				
6,400.0	6,322.4	6,392.6	6,344.0	20.4	17.6	-142.06	486.7	-609.3	263.2	232.7	30.52	8.623				
6,500.0	6,421.1	6,492.5	6,443.1	20.8	17.8	-142.11	494.6	-619.2	267.7	236.7	31.00	8.636				
6,600.0	6,519.8	6,592.4	6,542.2	21.1	18.1	-142.16	502.6	-629.0	272.2	240.7	31.47	8.647				
6,700.0	6,618.6	6,692.3	6,641.3	21.4	18.4	-142.20	510.5	-638.9	276.6	244.7	31.95	8.659				
6,800.0	6,717.3	6,792.2	6,740.4	21.8	18.7	-142.25	518.4	-648.7	281.1	248.7	32.43	8.670				
6,900.0	6,816.0	6,892.1	6,839.5	22.1	19.0	-142.29	526.4	-658.6	285.6	252.7	32.90	8.681				
7,000.0	6,914.7	6,992.0	6,938.6	22.4	19.2	-142.33	534.3	-668.5	290.1	256.7	33.38	8.691				
7,100.0	7,013.4	7,091.9	7,037.7	22.8	19.5	-142.37	542.2	-678.3	294.6	260.7	33.85	8.702				
7,200.0	7,112.1	7,191.8	7,136.8	23.1	19.8	-142.40	550.1	-688.2	299.0	264.7	34.33	8.712				
7,300.0	7,210.8	7,291.7	7,235.9	23.4	20.1	-142.44	558.1	-698.0	303.5	268.7	34.80	8.721				
7,400.0	7,309.5	7,391.6	7,335.0	23.8	20.4	-142.48	566.0	-707.9	308.0	272.7	35.28	8.731				
7,500.0	7,408.2	7,491.5	7,434.1	24.1	20.7	-142.51	573.9	-717.7	312.5	276.7	35.75	8.740				
7,600.0	7,507.2	7,589.5	7,531.4	24.4	20.9	-142.52	581.6	-727.3	315.7	279.4	36.25	8.708				
7,700.0	7,606.6	7,682.8	7,624.2	24.6	21.1	-142.56	587.6	-734.7	317.7	281.0	36.69	8.660				
7,800.0	7,706.3	7,776.0	7,717.2	24.8	21.3	-142.56	591.6	-739.7	319.1	282.0	37.04	8.614				
7,900.0	7,806.2	7,869.3	7,810.4	24.9	21.4	-142.50	593.7	-742.3	319.8	282.5	37.31	8.570				
8,000.0	7,906.2	7,965.1	7,906.2	25.0	21.5	178.48	594.1	-742.8	319.9	282.4	37.55	8.519				
8,100.0	8,006.2	8,065.1	8,006.2	25.1	21.7	178.48	594.1	-742.8	319.9	282.1	37.81	8.461				
8,200.0	8,106.2	8,165.1	8,106.2	25.2	21.8	178.48	594.1	-742.8	319.9	281.8	38.07	8.403				
8,300.0	8,206.2	8,265.1	8,206.2	25.3	21.9	178.48	594.1	-742.8	319.9	281.6	38.33	8.346				
8,400.0	8,306.2	8,365.1	8,306.2	25.4	22.0	178.48	594.1	-742.8	319.9	281.3	38.60	8.289				
8,500.0	8,406.2	8,465.1	8,406.2	25.5	22.1	178.48	594.1	-742.8	319.9	281.1	38.86	8.232				
8,600.0	8,506.2	8,565.1	8,506.2	25.6	22.2	178.48	594.1	-742.8	319.9	280.8	39.13	8.176				
8,700.0	8,606.2	8,665.1	8,606.2	25.7	22.3	178.48	594.1	-742.8	319.9	280.5	39.39	8.121				
8,800.0	8,706.2	8,765.1	8,706.2	25.8	22.5	178.48	594.1	-742.8	319.9	280.2	39.66	8.066				
8,900.0	8,806.2	8,865.1	8,806.2	25.9	22.6	178.48	594.1	-742.8	319.9	280.0	39.93	8.011				
9,000.0	8,906.2	8,965.1	8,906.2	26.0	22.7	178.48	594.1	-742.8	319.9	279.7	40.20	7.957				
9,100.0	9,006.2	9,065.1	9,006.2	26.1	22.8	178.48	594.1	-742.8	319.9	279.4	40.47	7.904				
9,200.0	9,106.2	9,165.1	9,106.2	26.2	22.9	178.48	594.1	-742.8	319.9	279.2	40.75	7.851				
9,300.0	9,206.2	9,265.1	9,206.2	26.3	23.1	178.48	594.1	-742.8	319.9	278.9	41.02	7.798				
9,400.0	9,306.2	9,365.1	9,306.2	26.4	23.2	178.48	594.1	-742.8	319.9	278.6	41.30	7.746				
9,500.0	9,406.2	9,465.1	9,406.2	26.5	23.3	178.48	594.1	-742.8	319.9	278.3	41.57	7.695				
9,600.0	9,506.2	9,565.1	9,506.2	26.7	23.4	178.48	594.1	-742.8	319.9	278.1	41.85	7.644				
9,700.0	9,606.2	9,665.1	9,606.2	26.8	23.6	178.48	594.1	-742.8	319.9	277.8	42.13	7.593				
9,800.0	9,706.2	9,765.1	9,706.2	26.9	23.7	178.48	594.1	-742.8	319.9	277.5	42.41	7.543				
9,900.0	9,806.2	9,865.1	9,806.2	27.0	23.8	178.48	594.1	-742.8	319.9	277.2	42.69	7.493				
10,000.0	9,906.2	9,965.1	9,906.2	27.1	23.9	178.48	594.1	-742.8	319.9	276.9	42.97	7.444				
10,100.0	10,006.2	10,065.1	10,006.2	27.2	24.1	178.48	594.1	-742.8	319.9	276.7	43.26	7.396				
10,200.0	10,106.2	10,165.1	10,106.2	27.3	24.2	178.48	594.1	-742.8	319.9	276.4	43.54	7.347				

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 Fee 16-12C2 (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 Fee 16-12C2 (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	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)							
10,300.0	10,206.2	10,265.1	10,206.2	27.4	24.3	178.48	594.1	-742.8	319.9	276.1	43.83	7.300					
10,377.8	10,284.0	10,342.9	10,284.0	27.5	24.4	178.48	594.1	-742.8	319.9	275.9	44.05	7.263					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-102.30	-12.7	-58.5	59.8					
100.0	100.0	100.0	100.0	0.1	0.1	-102.30	-12.7	-58.5	59.8	59.6	0.27	219.765	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	-102.30	-12.7	-58.5	59.8	59.2	0.62	96.302		
300.0	300.0	297.5	297.5	0.5	0.5	-63.64	-11.8	-60.8	60.7	59.8	0.98	62.245		
400.0	399.6	395.1	394.7	0.7	0.7	-65.80	-8.9	-67.6	63.5	62.1	1.38	46.146		
500.0	498.8	494.9	494.1	1.0	0.9	-70.79	-5.0	-76.6	66.1	64.2	1.86	35.503		
600.0	597.5	594.5	593.2	1.3	1.2	-77.82	-1.2	-85.7	68.5	66.1	2.40	28.551		
700.0	696.2	694.1	692.3	1.6	1.4	-84.32	2.6	-94.7	71.9	68.9	2.96	24.258		
800.0	794.9	793.8	791.5	1.9	1.6	-90.16	6.5	-103.7	76.1	72.5	3.54	21.521		
900.0	893.6	893.4	890.6	2.3	1.9	-95.35	10.3	-112.7	81.0	76.9	4.11	19.729		
1,000.0	992.3	993.0	989.8	2.6	2.1	-99.91	14.1	-121.7	86.5	81.8	4.67	18.531		
1,100.0	1,091.0	1,092.6	1,088.9	2.9	2.4	-103.91	17.9	-130.7	92.5	87.3	5.22	17.719		
1,200.0	1,189.7	1,192.3	1,188.1	3.3	2.6	-107.41	21.8	-139.7	98.9	93.1	5.76	17.165		
1,300.0	1,288.4	1,291.9	1,287.2	3.6	2.9	-110.48	25.6	-148.8	105.6	99.3	6.29	16.785		
1,400.0	1,387.1	1,391.5	1,386.3	3.9	3.1	-113.17	29.4	-157.8	112.5	105.7	6.81	16.527		
1,500.0	1,485.8	1,491.1	1,485.5	4.2	3.3	-115.55	33.3	-166.8	119.7	112.4	7.32	16.354		
1,600.0	1,584.5	1,590.8	1,584.6	4.6	3.6	-117.66	37.1	-175.8	127.1	119.3	7.82	16.242		
1,700.0	1,683.2	1,690.4	1,683.8	4.9	3.8	-119.53	40.9	-184.8	134.6	126.3	8.32	16.174		
1,800.0	1,782.0	1,790.0	1,782.9	5.2	4.1	-121.20	44.7	-193.8	142.3	133.4	8.82	16.138		
1,900.0	1,880.7	1,889.6	1,882.1	5.6	4.3	-122.70	48.6	-202.8	150.0	140.7	9.30	16.126	SF	
2,000.0	1,979.4	1,989.3	1,981.2	5.9	4.6	-124.06	52.4	-211.9	157.9	148.1	9.79	16.130		
2,100.0	2,078.1	2,088.9	2,080.3	6.2	4.8	-125.28	56.2	-220.9	165.8	155.5	10.27	16.147		
2,200.0	2,176.8	2,188.5	2,179.5	6.6	5.0	-126.39	60.1	-229.9	173.8	163.1	10.75	16.173		
2,300.0	2,275.5	2,288.1	2,278.6	6.9	5.3	-127.41	63.9	-238.9	181.9	170.6	11.22	16.205		
2,400.0	2,374.2	2,387.8	2,377.8	7.2	5.5	-128.33	67.7	-247.9	190.0	178.3	11.70	16.243		
2,500.0	2,472.9	2,487.4	2,476.9	7.5	5.8	-129.19	71.5	-256.9	198.1	186.0	12.17	16.283		
2,600.0	2,571.6	2,587.0	2,576.1	7.9	6.0	-129.97	75.4	-266.0	206.3	193.7	12.64	16.326		
2,700.0	2,670.3	2,686.6	2,675.2	8.2	6.3	-130.70	79.2	-275.0	214.6	201.4	13.11	16.369		
2,800.0	2,769.0	2,786.3	2,774.3	8.5	6.5	-131.37	83.0	-284.0	222.8	209.2	13.57	16.414		
2,900.0	2,867.7	2,885.9	2,873.5	8.9	6.8	-131.99	86.9	-293.0	231.1	217.1	14.04	16.459		
3,000.0	2,966.4	2,985.5	2,972.6	9.2	7.0	-132.57	90.7	-302.0	239.4	224.9	14.51	16.504		
3,100.0	3,065.1	3,085.1	3,071.8	9.5	7.2	-133.11	94.5	-311.0	247.8	232.8	14.97	16.548		
3,200.0	3,163.8	3,184.8	3,170.9	9.9	7.5	-133.61	98.3	-320.0	256.1	240.7	15.44	16.592		
3,300.0	3,262.5	3,284.4	3,270.1	10.2	7.7	-134.09	102.2	-329.1	264.5	248.6	15.90	16.635		
3,400.0	3,361.2	3,384.0	3,369.2	10.5	8.0	-134.53	106.0	-338.1	272.9	256.5	16.36	16.677		
3,500.0	3,460.0	3,483.6	3,468.3	10.9	8.2	-134.95	109.8	-347.1	281.3	264.5	16.83	16.719		
3,600.0	3,558.7	3,583.3	3,567.5	11.2	8.5	-135.34	113.7	-356.1	289.7	272.4	17.29	16.759		
3,700.0	3,657.4	3,682.9	3,666.6	11.5	8.7	-135.71	117.5	-365.1	298.2	280.4	17.75	16.799		
3,800.0	3,756.1	3,782.5	3,765.8	11.8	9.0	-136.07	121.3	-374.1	306.6	288.4	18.21	16.837		
3,900.0	3,854.8	3,882.1	3,864.9	12.2	9.2	-136.40	125.1	-383.1	315.1	296.4	18.67	16.874		
4,000.0	3,953.5	3,981.8	3,964.1	12.5	9.4	-136.71	129.0	-392.2	323.5	304.4	19.13	16.911		
4,100.0	4,052.2	4,081.4	4,063.2	12.8	9.7	-137.01	132.8	-401.2	332.0	312.4	19.59	16.946		
4,200.0	4,150.9	4,181.0	4,162.3	13.2	9.9	-137.29	136.6	-410.2	340.5	320.5	20.05	16.981		
4,300.0	4,249.6	4,280.6	4,261.5	13.5	10.2	-137.56	140.5	-419.2	349.0	328.5	20.51	17.014		
4,400.0	4,348.3	4,380.3	4,360.6	13.8	10.4	-137.82	144.3	-428.2	357.5	336.5	20.97	17.046		
4,500.0	4,447.0	4,479.9	4,459.8	14.2	10.7	-138.07	148.1	-437.2	366.0	344.6	21.43	17.078		
4,600.0	4,545.7	4,579.5	4,558.9	14.5	10.9	-138.30	151.9	-446.2	374.5	352.6	21.89	17.109		
4,700.0	4,644.4	4,679.1	4,658.0	14.8	11.2	-138.52	155.8	-455.3	383.1	360.7	22.35	17.139		
4,800.0	4,743.1	4,778.8	4,757.2	15.2	11.4	-138.74	159.6	-464.3	391.6	368.8	22.81	17.167		
4,900.0	4,841.8	4,878.4	4,856.3	15.5	11.6	-138.94	163.4	-473.3	400.1	376.8	23.27	17.196		
5,000.0	4,940.5	4,978.0	4,955.5	15.8	11.9	-139.14	167.3	-482.3	408.7	384.9	23.73	17.223		
5,100.0	5,039.3	5,077.6	5,054.6	16.1	12.1	-139.33	171.1	-491.3	417.2	393.0	24.19	17.250		

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 Fee 16-12C2 (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 Fee 16-12C2 (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	5,138.0	5,177.3	5,153.8	16.5	12.4	-139.51	174.9	-500.3	425.7	401.1	24.64	17.275					
5,300.0	5,236.7	5,276.9	5,252.9	16.8	12.6	-139.68	178.7	-509.4	434.3	409.2	25.10	17.301					
5,400.0	5,335.4	5,376.5	5,352.0	17.1	12.9	-139.85	182.6	-518.4	442.8	417.3	25.56	17.325					
5,500.0	5,434.1	5,476.1	5,451.2	17.5	13.1	-140.01	186.4	-527.4	451.4	425.4	26.02	17.349					
5,600.0	5,532.8	5,575.8	5,550.3	17.8	13.4	-140.16	190.2	-536.4	460.0	433.5	26.48	17.372					
5,700.0	5,631.5	5,675.4	5,649.5	18.1	13.6	-140.31	194.1	-545.4	468.5	441.6	26.94	17.395					
5,800.0	5,730.2	5,775.0	5,748.6	18.5	13.8	-140.46	197.9	-554.4	477.1	449.7	27.39	17.417					
5,900.0	5,828.9	5,874.6	5,847.8	18.8	14.1	-140.59	201.7	-563.4	485.7	457.8	27.85	17.438					
6,000.0	5,927.6	5,974.3	5,946.9	19.1	14.3	-140.73	205.5	-572.5	494.2	465.9	28.31	17.459					



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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 16-13C (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	-136.11	-115.1	-110.7	159.7					
100.0	100.0	100.0	100.0	0.1	0.1	-136.11	-115.1	-110.7	159.7	159.4	0.27	586.551		
200.0	200.0	200.0	200.0	0.3	0.3	-136.11	-115.1	-110.7	159.7	159.1	0.62	257.028 CC, ES		
300.0	300.0	294.8	294.8	0.5	0.5	-96.87	-114.9	-113.1	161.6	160.6	0.97	165.828		
400.0	399.6	391.3	391.0	0.7	0.7	-97.48	-114.5	-120.0	167.2	165.8	1.38	121.078		
500.0	498.8	490.8	490.2	1.0	0.9	-99.45	-114.0	-128.1	174.2	172.3	1.87	93.339		
600.0	597.5	590.1	589.1	1.3	1.1	-102.35	-113.4	-136.2	182.1	179.7	2.37	76.721		
700.0	696.2	689.4	688.1	1.6	1.3	-105.03	-112.9	-144.3	190.4	187.5	2.89	65.905		
800.0	794.9	788.6	787.0	1.9	1.6	-107.48	-112.4	-152.5	199.1	195.7	3.41	58.441		
900.0	893.6	887.9	885.9	2.3	1.8	-109.72	-111.9	-160.6	208.1	204.2	3.92	53.043		
1,000.0	992.3	987.2	984.9	2.6	2.0	-111.77	-111.3	-168.7	217.4	213.0	4.44	48.994		
1,100.0	1,091.0	1,086.4	1,083.8	2.9	2.2	-113.66	-110.8	-176.8	227.0	222.1	4.95	45.867		
1,200.0	1,189.7	1,185.7	1,182.8	3.3	2.4	-115.39	-110.3	-184.9	236.8	231.4	5.46	43.395		
1,300.0	1,288.4	1,285.0	1,281.7	3.6	2.7	-116.98	-109.8	-193.1	246.8	240.9	5.96	41.403		
1,400.0	1,387.1	1,384.3	1,380.6	3.9	2.9	-118.45	-109.2	-201.2	257.0	250.6	6.46	39.772		
1,500.0	1,485.8	1,483.5	1,479.6	4.2	3.1	-119.81	-108.7	-209.3	267.3	260.4	6.96	38.417		
1,600.0	1,584.5	1,582.8	1,578.5	4.6	3.3	-121.06	-108.2	-217.4	277.8	270.4	7.45	37.278		
1,700.0	1,683.2	1,682.1	1,677.4	4.9	3.6	-122.22	-107.7	-225.5	288.4	280.5	7.94	36.310		
1,800.0	1,782.0	1,781.4	1,776.4	5.2	3.8	-123.30	-107.1	-233.7	299.1	290.7	8.43	35.481		
1,900.0	1,880.7	1,880.6	1,875.3	5.6	4.0	-124.31	-106.6	-241.8	309.9	301.0	8.91	34.764		
2,000.0	1,979.4	1,979.9	1,974.3	5.9	4.2	-125.25	-106.1	-249.9	320.8	311.4	9.40	34.141		
2,100.0	2,078.1	2,079.2	2,073.2	6.2	4.5	-126.12	-105.6	-258.0	331.8	321.9	9.88	33.594		
2,200.0	2,176.8	2,178.4	2,172.1	6.6	4.7	-126.94	-105.0	-266.1	342.8	332.5	10.35	33.112		
2,300.0	2,275.5	2,277.7	2,271.1	6.9	4.9	-127.71	-104.5	-274.3	353.9	343.1	10.83	32.684		
2,400.0	2,374.2	2,377.0	2,370.0	7.2	5.1	-128.43	-104.0	-282.4	365.1	353.8	11.30	32.303		
2,500.0	2,472.9	2,476.3	2,468.9	7.5	5.4	-129.11	-103.5	-290.5	376.3	364.5	11.77	31.962		
2,600.0	2,571.6	2,575.5	2,567.9	7.9	5.6	-129.75	-102.9	-298.6	387.6	375.3	12.24	31.656		
2,700.0	2,670.3	2,674.8	2,666.8	8.2	5.8	-130.36	-102.4	-306.8	398.9	386.2	12.71	31.379		
2,800.0	2,769.0	2,774.1	2,765.8	8.5	6.0	-130.93	-101.9	-314.9	410.2	397.1	13.18	31.129		
2,900.0	2,867.7	2,873.3	2,864.7	8.9	6.3	-131.47	-101.4	-323.0	421.6	408.0	13.64	30.901		
3,000.0	2,966.4	2,972.6	2,963.6	9.2	6.5	-131.98	-100.8	-331.1	433.1	419.0	14.11	30.693		
3,100.0	3,065.1	3,071.9	3,062.6	9.5	6.7	-132.46	-100.3	-339.2	444.5	430.0	14.57	30.504		
3,200.0	3,163.8	3,171.2	3,161.5	9.9	6.9	-132.93	-99.8	-347.4	456.0	441.0	15.04	30.329		
3,300.0	3,262.5	3,270.4	3,260.5	10.2	7.1	-133.36	-99.3	-355.5	467.5	452.0	15.50	30.169		
3,400.0	3,361.2	3,369.7	3,359.4	10.5	7.4	-133.78	-98.7	-363.6	479.1	463.1	15.96	30.022		
3,500.0	3,460.0	3,469.0	3,458.3	10.9	7.6	-134.18	-98.2	-371.7	490.6	474.2	16.42	29.885 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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				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	-131.63	-126.8	-142.6	190.8					
100.0	100.0	100.0	100.0	0.1	0.1	-131.63	-126.8	-142.6	190.8	190.5	0.27	700.806		
200.0	200.0	200.0	200.0	0.3	0.3	-131.63	-126.8	-142.6	190.8	190.2	0.62	307.095 CC, ES		
300.0	300.0	291.1	291.1	0.5	0.5	-92.68	-127.7	-144.6	193.2	192.3	0.96	200.409		
400.0	399.6	383.5	383.3	0.7	0.7	-94.05	-130.7	-150.4	200.5	199.1	1.35	148.682		
500.0	498.8	482.5	481.9	1.0	0.9	-96.63	-134.5	-158.0	209.9	208.1	1.81	115.743		
600.0	597.5	581.2	580.2	1.3	1.1	-99.98	-138.3	-165.5	220.2	217.9	2.30	95.884		
700.0	696.2	679.8	678.5	1.6	1.3	-103.05	-142.1	-173.0	231.3	228.5	2.79	82.938		
800.0	794.9	778.5	776.8	1.9	1.5	-105.83	-145.9	-180.6	243.0	239.7	3.28	74.004		
900.0	893.6	877.1	875.0	2.3	1.8	-108.35	-149.7	-188.1	255.2	251.4	3.78	67.547		
1,000.0	992.3	975.8	973.3	2.6	2.0	-110.65	-153.4	-195.6	267.9	263.6	4.27	62.710		
1,100.0	1,091.0	1,074.4	1,071.6	2.9	2.2	-112.73	-157.2	-203.2	280.9	276.1	4.76	58.982		
1,200.0	1,189.7	1,173.1	1,169.9	3.3	2.4	-114.63	-161.0	-210.7	294.3	289.0	5.25	56.041		
1,300.0	1,288.4	1,271.7	1,268.2	3.6	2.7	-116.36	-164.8	-218.3	307.9	302.2	5.74	53.675		
1,400.0	1,387.1	1,370.4	1,366.5	3.9	2.9	-117.95	-168.6	-225.8	321.9	315.6	6.22	51.741		
1,500.0	1,485.8	1,469.0	1,464.8	4.2	3.1	-119.41	-172.4	-233.3	336.0	329.3	6.70	50.138		
1,600.0	1,584.5	1,567.7	1,563.0	4.6	3.4	-120.74	-176.2	-240.9	350.4	343.2	7.18	48.793		
1,700.0	1,683.2	1,666.3	1,661.3	4.9	3.6	-121.98	-180.0	-248.4	364.9	357.2	7.66	47.653		
1,800.0	1,782.0	1,764.9	1,759.6	5.2	3.8	-123.11	-183.8	-255.9	379.5	371.4	8.13	46.677		
1,900.0	1,880.7	1,863.6	1,857.9	5.6	4.0	-124.17	-187.6	-263.5	394.3	385.7	8.60	45.835		
2,000.0	1,979.4	1,962.2	1,956.2	5.9	4.3	-125.14	-191.4	-271.0	409.3	400.2	9.07	45.103		
2,100.0	2,078.1	2,060.9	2,054.5	6.2	4.5	-126.05	-195.2	-278.5	424.3	414.8	9.54	44.462		
2,200.0	2,176.8	2,159.5	2,152.7	6.6	4.7	-126.90	-199.0	-286.1	439.4	429.4	10.01	43.897		
2,300.0	2,275.5	2,258.2	2,251.0	6.9	4.9	-127.69	-202.8	-293.6	454.7	444.2	10.48	43.398		
2,400.0	2,374.2	2,356.8	2,349.3	7.2	5.2	-128.43	-206.6	-301.2	470.0	459.0	10.94	42.953		
2,500.0	2,472.9	2,455.5	2,447.6	7.5	5.4	-129.12	-210.3	-308.7	485.3	473.9	11.41	42.554 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	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	-93.62	-11.7	-184.4	184.8					
100.0	100.0	100.0	100.0	0.1	0.1	-93.62	-11.7	-184.4	184.8	184.5	0.27	678.702		
200.0	200.0	200.0	200.0	0.3	0.3	-93.62	-11.7	-184.4	184.8	184.2	0.62	297.409		
300.0	300.0	306.9	306.8	0.5	0.5	-55.68	-13.7	-182.2	181.4	180.4	0.99	182.396		
400.0	399.6	411.9	411.5	0.7	0.7	-60.36	-19.6	-175.7	171.8	170.3	1.42	120.641		
500.0	498.8	513.3	511.9	1.0	1.0	-68.90	-28.9	-165.5	158.3	156.3	1.99	79.707		
600.0	597.5	610.5	607.4	1.3	1.4	-80.84	-41.3	-151.9	146.1	143.4	2.68	54.447		
699.2	695.4	703.3	697.5	1.6	1.8	-95.18	-56.1	-135.7	141.0	137.6	3.45	40.894 CC		
700.0	696.2	704.0	698.1	1.6	1.8	-95.30	-56.2	-135.6	141.0	137.6	3.45	40.827 ES		
800.0	794.9	795.3	786.3	1.9	2.3	-110.10	-72.0	-118.2	146.9	142.8	4.11	35.715		
900.0	893.6	886.5	874.6	2.3	2.7	-123.14	-87.9	-100.8	163.1	158.5	4.59	35.503 SF		
1,000.0	992.3	977.8	962.8	2.6	3.1	-133.67	-103.7	-83.4	187.0	182.1	4.93	37.921		
1,100.0	1,091.0	1,069.1	1,051.0	2.9	3.6	-141.83	-119.6	-66.0	216.0	210.8	5.19	41.623		
1,200.0	1,189.7	1,160.4	1,139.2	3.3	4.0	-148.11	-135.4	-48.7	248.4	243.0	5.42	45.841		
1,300.0	1,288.4	1,251.7	1,227.4	3.6	4.4	-152.98	-151.2	-31.3	282.9	277.3	5.64	50.151		
1,400.0	1,387.1	1,343.0	1,315.6	3.9	4.9	-156.82	-167.1	-13.9	319.0	313.1	5.87	54.331		
1,500.0	1,485.8	1,434.2	1,403.8	4.2	5.3	-159.90	-182.9	3.5	356.1	350.0	6.11	58.274		
1,600.0	1,584.5	1,525.5	1,492.0	4.6	5.8	-162.40	-198.8	20.9	393.9	387.5	6.36	61.937		
1,700.0	1,683.2	1,616.8	1,580.2	4.9	6.2	-164.48	-214.6	38.3	432.3	425.6	6.62	65.312		
1,800.0	1,782.0	1,708.1	1,668.4	5.2	6.7	-166.22	-230.5	55.6	471.0	464.2	6.89	68.409		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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-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	-134.83	-131.1	-131.9	186.0				
100.0	100.0	100.0	100.0	0.1	0.1	-134.83	-131.1	-131.9	186.0	185.7	0.27	683.075	
200.0	200.0	200.0	200.0	0.3	0.3	-134.83	-131.1	-131.9	186.0	185.4	0.62	299.325	CC, ES
300.0	300.0	291.1	291.1	0.5	0.5	-95.97	-132.4	-133.6	188.6	187.6	0.96	195.716	
400.0	399.6	385.4	385.1	0.7	0.7	-97.63	-136.6	-139.0	196.6	195.3	1.35	145.776	
500.0	498.8	479.9	479.1	1.0	0.9	-100.27	-142.1	-146.3	208.2	206.4	1.80	115.608	
600.0	597.5	578.2	577.0	1.3	1.1	-103.75	-147.9	-153.9	221.0	218.8	2.28	97.105	
700.0	696.2	676.5	674.8	1.6	1.4	-106.87	-153.7	-161.5	234.6	231.8	2.76	85.057	
800.0	794.9	774.8	772.6	1.9	1.6	-109.64	-159.5	-169.0	248.8	245.6	3.24	76.746	
900.0	893.6	873.1	870.5	2.3	1.8	-112.12	-165.3	-176.6	263.5	259.8	3.73	70.739	
1,000.0	992.3	971.3	968.3	2.6	2.1	-114.33	-171.0	-184.2	278.7	274.4	4.21	66.235	
1,100.0	1,091.0	1,069.6	1,066.1	2.9	2.3	-116.32	-176.8	-191.8	294.2	289.5	4.69	62.759	
1,200.0	1,189.7	1,167.9	1,164.0	3.3	2.5	-118.10	-182.6	-199.3	310.0	304.8	5.17	60.010	
1,300.0	1,288.4	1,266.2	1,261.8	3.6	2.8	-119.71	-188.4	-206.9	326.1	320.4	5.64	57.794	
1,400.0	1,387.1	1,364.5	1,359.6	3.9	3.0	-121.17	-194.2	-214.5	342.4	336.3	6.12	55.976	
1,500.0	1,485.8	1,462.8	1,457.5	4.2	3.3	-122.50	-199.9	-222.1	358.9	352.3	6.59	54.465	
1,600.0	1,584.5	1,561.1	1,555.3	4.6	3.5	-123.71	-205.7	-229.6	375.6	368.6	7.06	53.193	
1,700.0	1,683.2	1,659.4	1,653.1	4.9	3.7	-124.82	-211.5	-237.2	392.5	384.9	7.53	52.110	
1,800.0	1,782.0	1,757.7	1,751.0	5.2	4.0	-125.84	-217.3	-244.8	409.4	401.4	8.00	51.179	
1,900.0	1,880.7	1,856.0	1,848.8	5.6	4.2	-126.78	-223.1	-252.4	426.5	418.1	8.47	50.373	
2,000.0	1,979.4	1,954.3	1,946.6	5.9	4.4	-127.64	-228.8	-259.9	443.7	434.8	8.93	49.669	
2,100.0	2,078.1	2,052.6	2,044.5	6.2	4.7	-128.44	-234.6	-267.5	461.0	451.6	9.40	49.049	
2,200.0	2,176.8	2,150.9	2,142.3	6.6	4.9	-129.18	-240.4	-275.1	478.4	468.5	9.86	48.501	
2,300.0	2,275.5	2,249.2	2,240.1	6.9	5.2	-129.87	-246.2	-282.7	495.8	485.5	10.33	48.014	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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: 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	-137.25	-125.3	-115.8	170.6					
100.0	100.0	100.0	100.0	0.1	0.1	-137.25	-125.3	-115.8	170.6	170.3	0.27	626.591		
200.0	200.0	200.0	200.0	0.3	0.3	-137.25	-125.3	-115.8	170.6	170.0	0.62	274.574	CC, ES	
300.0	300.0	291.8	291.7	0.5	0.5	-98.66	-127.1	-117.0	173.4	172.4	0.96	179.685		
400.0	399.6	382.6	382.4	0.7	0.7	-100.97	-132.6	-120.5	181.8	180.5	1.34	135.371		
500.0	498.8	471.8	470.9	1.0	0.9	-104.26	-141.5	-126.3	196.6	194.9	1.78	110.592		
600.0	597.5	567.9	565.9	1.3	1.2	-108.43	-153.3	-133.9	215.9	213.7	2.23	96.656		
700.0	696.2	664.8	661.8	1.6	1.5	-111.99	-165.2	-141.6	236.2	233.5	2.69	87.742		
800.0	794.9	761.7	757.7	1.9	1.8	-114.99	-177.1	-149.3	257.2	254.1	3.15	81.673		
900.0	893.6	858.7	853.6	2.3	2.1	-117.54	-189.0	-157.0	278.9	275.2	3.61	77.314		
1,000.0	992.3	955.6	949.5	2.6	2.4	-119.72	-200.9	-164.7	300.9	296.9	4.06	74.052		
1,100.0	1,091.0	1,052.5	1,045.4	2.9	2.6	-121.60	-212.8	-172.4	323.4	318.8	4.52	71.529		
1,200.0	1,189.7	1,149.5	1,141.3	3.3	2.9	-123.24	-224.7	-180.1	346.1	341.1	4.98	69.525		
1,300.0	1,288.4	1,246.4	1,237.2	3.6	3.2	-124.68	-236.6	-187.8	369.0	363.6	5.44	67.899		
1,400.0	1,387.1	1,343.3	1,333.1	3.9	3.5	-125.95	-248.5	-195.5	392.2	386.3	5.89	66.556		
1,500.0	1,485.8	1,440.3	1,428.9	4.2	3.8	-127.08	-260.4	-203.2	415.5	409.2	6.35	65.429		
1,600.0	1,584.5	1,537.2	1,524.8	4.6	4.1	-128.09	-272.3	-210.9	439.0	432.2	6.81	64.472		
1,700.0	1,683.2	1,634.1	1,620.7	4.9	4.4	-129.00	-284.2	-218.5	462.5	455.3	7.27	63.649		
1,800.0	1,782.0	1,731.1	1,716.6	5.2	4.7	-129.82	-296.1	-226.2	486.2	478.5	7.73	62.935	SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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							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	-140.08	-119.5	-100.0	155.8						
100.0	100.0	100.0	100.0	0.1	0.1	-140.08	-119.5	-100.0	155.8	155.5	0.27	572.163			
200.0	200.0	200.0	200.0	0.3	0.3	-140.08	-119.5	-100.0	155.8	155.2	0.62	250.723	CC, ES		
300.0	300.0	292.5	292.5	0.5	0.5	-101.62	-121.5	-101.0	158.7	157.7	0.97	164.241			
400.0	399.6	384.0	383.7	0.7	0.7	-104.26	-127.4	-103.9	167.5	166.2	1.34	124.591			
500.0	498.8	473.6	472.7	1.0	0.9	-107.98	-137.0	-108.7	183.2	181.4	1.78	103.042			
600.0	597.5	562.1	559.9	1.3	1.2	-112.19	-150.1	-115.2	205.3	203.1	2.21	92.843			
700.0	696.2	657.9	654.2	1.6	1.5	-115.92	-165.7	-123.1	230.2	227.6	2.66	86.660			
800.0	794.9	753.8	748.4	1.9	1.9	-118.92	-181.4	-130.9	255.9	252.8	3.10	82.547			
900.0	893.6	849.6	842.6	2.3	2.2	-121.38	-197.1	-138.7	282.2	278.6	3.54	79.612			
1,000.0	992.3	945.5	936.9	2.6	2.5	-123.42	-212.8	-146.5	308.8	304.8	3.99	77.411			
1,100.0	1,091.0	1,041.3	1,031.1	2.9	2.9	-125.13	-228.5	-154.4	335.8	331.3	4.44	75.697			
1,200.0	1,189.7	1,137.2	1,125.3	3.3	3.2	-126.60	-244.1	-162.2	362.9	358.1	4.88	74.321			
1,300.0	1,288.4	1,233.0	1,219.6	3.6	3.6	-127.86	-259.8	-170.0	390.3	385.0	5.33	73.192			
1,400.0	1,387.1	1,328.9	1,313.8	3.9	3.9	-128.95	-275.5	-177.8	417.8	412.1	5.78	72.247			
1,500.0	1,485.8	1,424.7	1,408.0	4.2	4.3	-129.91	-291.2	-185.7	445.5	439.3	6.24	71.445			
1,600.0	1,584.5	1,520.6	1,502.3	4.6	4.6	-130.76	-306.9	-193.5	473.3	466.6	6.69	70.754	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	-143.57	-113.6	-83.9	141.2					
100.0	100.0	100.0	100.0	0.1	0.1	-143.57	-113.6	-83.9	141.2	141.0	0.27	518.779		
200.0	200.0	200.0	200.0	0.3	0.3	-143.57	-113.6	-83.9	141.2	140.6	0.62	227.330	CC, ES	
300.0	300.0	293.1	293.1	0.5	0.5	-105.23	-115.8	-84.7	144.3	143.3	0.97	149.222		
400.0	399.6	385.3	385.0	0.7	0.7	-108.16	-122.0	-87.2	153.7	152.4	1.34	114.278		
500.0	498.8	475.4	474.4	1.0	0.9	-112.18	-132.0	-91.3	170.2	168.5	1.77	96.048		
600.0	597.5	563.1	560.9	1.3	1.2	-116.56	-145.6	-96.7	193.6	191.4	2.20	88.099		
700.0	696.2	650.4	646.3	1.6	1.6	-120.04	-162.6	-103.5	222.3	219.7	2.62	84.902		
800.0	794.9	744.9	738.3	1.9	1.9	-122.94	-182.4	-111.4	253.1	250.0	3.05	82.996		
900.0	893.6	839.3	830.3	2.3	2.3	-125.22	-202.1	-119.3	284.3	280.8	3.48	81.673		
1,000.0	992.3	933.7	922.3	2.6	2.7	-127.04	-221.8	-127.2	315.9	312.0	3.92	80.670		
1,100.0	1,091.0	1,028.2	1,014.4	2.9	3.1	-128.54	-241.5	-135.1	347.7	343.4	4.35	79.869		
1,200.0	1,189.7	1,122.6	1,106.4	3.3	3.5	-129.78	-261.2	-143.1	379.7	374.9	4.79	79.205		
1,300.0	1,288.4	1,217.1	1,198.4	3.6	3.9	-130.84	-281.0	-151.0	411.9	406.6	5.24	78.640		
1,400.0	1,387.1	1,311.5	1,290.4	3.9	4.3	-131.74	-300.7	-158.9	444.1	438.4	5.68	78.152		
1,500.0	1,485.8	1,406.0	1,382.4	4.2	4.7	-132.52	-320.4	-166.8	476.5	470.3	6.13	77.724	SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	-147.73	-107.8	-68.1	127.5					
100.0	100.0	100.0	100.0	0.1	0.1	-147.73	-107.8	-68.1	127.5	127.2	0.27	468.286		
200.0	200.0	200.0	200.0	0.3	0.3	-147.73	-107.8	-68.1	127.5	126.9	0.62	205.204	CC, ES	
300.0	300.0	293.7	293.7	0.5	0.5	-109.48	-110.0	-68.8	130.7	129.8	0.97	135.145		
400.0	399.6	386.4	386.1	0.7	0.7	-112.61	-116.4	-71.0	140.8	139.4	1.34	104.795		
500.0	498.8	476.9	475.9	1.0	0.9	-116.79	-126.8	-74.5	158.4	156.6	1.76	89.792		
600.0	597.5	565.0	562.7	1.3	1.2	-121.20	-140.8	-79.1	183.0	180.8	2.18	83.938		
700.0	696.2	650.7	646.6	1.6	1.6	-124.52	-158.0	-84.9	212.8	210.2	2.59	82.184	SF	
800.0	794.9	735.9	728.9	1.9	2.0	-126.95	-178.5	-91.8	247.4	244.4	3.00	82.515		
900.0	893.6	828.6	818.2	2.3	2.4	-128.94	-202.2	-99.8	283.7	280.2	3.42	82.902		
1,000.0	992.3	921.4	907.6	2.6	2.9	-130.48	-225.8	-107.7	320.2	316.3	3.85	83.178		
1,100.0	1,091.0	1,014.2	997.0	2.9	3.3	-131.70	-249.5	-115.7	356.9	352.6	4.28	83.355		
1,200.0	1,189.7	1,107.0	1,086.3	3.3	3.8	-132.70	-273.1	-123.7	393.7	389.0	4.72	83.458		
1,300.0	1,288.4	1,199.8	1,175.7	3.6	4.2	-133.52	-296.8	-131.6	430.6	425.4	5.16	83.509		
1,400.0	1,387.1	1,292.6	1,265.1	3.9	4.7	-134.22	-320.5	-139.6	467.5	461.9	5.60	83.523		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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		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	26.93	10.6	5.4	11.8					
100.0	100.0	100.0	100.0	0.1	0.1	26.93	10.6	5.4	11.8	11.6	0.27	43.514		
200.0	200.0	200.0	200.0	0.3	0.3	26.93	10.6	5.4	11.8	11.2	0.62	19.068 CC		
300.0	300.0	299.7	299.6	0.5	0.5	67.17	12.8	4.0	12.2	11.2	0.98	12.375 ES		
400.0	399.6	399.3	399.0	0.7	0.7	69.39	19.4	-0.1	13.1	11.7	1.41	9.329		
500.0	498.8	499.0	497.8	1.0	1.0	72.41	30.5	-6.8	14.8	12.8	1.96	7.567		
600.0	597.5	598.6	595.7	1.3	1.3	68.88	45.9	-16.2	17.8	15.3	2.55	6.989 SF		
700.0	696.2	698.5	693.6	1.6	1.7	62.07	63.0	-26.7	22.0	18.9	3.09	7.098		
800.0	794.9	798.4	791.5	1.9	2.1	57.46	80.0	-37.1	26.3	22.7	3.62	7.275		
900.0	893.6	898.3	889.3	2.3	2.5	54.18	97.1	-47.5	30.8	26.7	4.13	7.459		
1,000.0	992.3	998.2	987.2	2.6	2.9	51.74	114.2	-58.0	35.4	30.7	4.63	7.633		
1,100.0	1,091.0	1,098.1	1,085.1	2.9	3.2	49.85	131.2	-68.4	40.0	34.8	5.13	7.792		
1,200.0	1,189.7	1,197.9	1,182.9	3.3	3.6	48.36	148.3	-78.8	44.6	39.0	5.62	7.933		
1,300.0	1,288.4	1,297.8	1,280.8	3.6	4.0	47.15	165.4	-89.2	49.3	43.2	6.11	8.060		
1,400.0	1,387.1	1,397.7	1,378.6	3.9	4.4	46.15	182.5	-99.7	53.9	47.3	6.60	8.173		
1,500.0	1,485.8	1,497.6	1,476.5	4.2	4.8	45.31	199.5	-110.1	58.6	51.6	7.09	8.274		
1,600.0	1,584.5	1,597.5	1,574.4	4.6	5.2	44.59	216.6	-120.5	63.3	55.8	7.57	8.364		
1,700.0	1,683.2	1,697.4	1,672.2	4.9	5.6	43.98	233.7	-131.0	68.1	60.0	8.06	8.446		
1,800.0	1,782.0	1,797.3	1,770.1	5.2	6.0	43.44	250.7	-141.4	72.8	64.2	8.54	8.520		
1,900.0	1,880.7	1,897.1	1,868.0	5.6	6.4	42.97	267.8	-151.8	77.5	68.5	9.03	8.587		
2,000.0	1,979.4	1,997.0	1,965.8	5.9	6.8	42.55	284.9	-162.3	82.2	72.7	9.51	8.649		
2,100.0	2,078.1	2,096.9	2,063.7	6.2	7.1	42.18	302.0	-172.7	87.0	77.0	9.99	8.705		
2,200.0	2,176.8	2,196.8	2,161.5	6.6	7.5	41.84	319.0	-183.1	91.7	81.2	10.47	8.756		
2,300.0	2,275.5	2,296.7	2,259.4	6.9	7.9	41.54	336.1	-193.6	96.5	85.5	10.96	8.804		
2,400.0	2,374.2	2,396.6	2,357.3	7.2	8.3	41.27	353.2	-204.0	101.2	89.8	11.44	8.847		
2,500.0	2,472.9	2,496.5	2,455.1	7.5	8.7	41.02	370.2	-214.4	105.9	94.0	11.92	8.888		
2,600.0	2,571.6	2,596.3	2,553.0	7.9	9.1	40.80	387.3	-224.9	110.7	98.3	12.40	8.926		
2,700.0	2,670.3	2,696.2	2,650.9	8.2	9.5	40.59	404.4	-235.3	115.4	102.6	12.88	8.961		
2,800.0	2,769.0	2,796.1	2,748.7	8.5	9.9	40.40	421.5	-245.7	120.2	106.8	13.36	8.994		
2,900.0	2,867.7	2,896.0	2,846.6	8.9	10.3	40.22	438.5	-256.2	124.9	111.1	13.85	9.025		
3,000.0	2,966.4	2,995.9	2,944.4	9.2	10.7	40.05	455.6	-266.6	129.7	115.4	14.33	9.053		
3,100.0	3,065.1	3,095.8	3,042.3	9.5	11.1	39.90	472.7	-277.0	134.5	119.6	14.81	9.080		
3,200.0	3,163.8	3,195.7	3,140.2	9.9	11.5	39.76	489.7	-287.5	139.2	123.9	15.29	9.106		
3,300.0	3,262.5	3,295.6	3,238.0	10.2	11.8	39.63	506.8	-297.9	144.0	128.2	15.77	9.130		
3,400.0	3,361.2	3,395.4	3,335.9	10.5	12.2	39.50	523.9	-308.3	148.7	132.5	16.25	9.152		
3,500.0	3,460.0	3,495.3	3,433.8	10.9	12.6	39.39	541.0	-318.7	153.5	136.7	16.73	9.174		
3,600.0	3,558.7	3,595.2	3,531.6	11.2	13.0	39.28	558.0	-329.2	158.2	141.0	17.21	9.194		
3,700.0	3,657.4	3,695.1	3,629.5	11.5	13.4	39.17	575.1	-339.6	163.0	145.3	17.69	9.213		
3,800.0	3,756.1	3,795.0	3,727.3	11.8	13.8	39.08	592.2	-350.0	167.8	149.6	18.17	9.232		
3,900.0	3,854.8	3,894.9	3,825.2	12.2	14.2	38.98	609.2	-360.5	172.5	153.9	18.65	9.249		
4,000.0	3,953.5	3,994.8	3,923.1	12.5	14.6	38.90	626.3	-370.9	177.3	158.1	19.13	9.266		
4,100.0	4,052.2	4,094.6	4,020.9	12.8	15.0	38.81	643.4	-381.3	182.0	162.4	19.61	9.281		
4,200.0	4,150.9	4,194.5	4,118.8	13.2	15.4	38.74	660.5	-391.8	186.8	166.7	20.09	9.296		
4,300.0	4,249.6	4,294.4	4,216.6	13.5	15.8	38.66	677.5	-402.2	191.6	171.0	20.57	9.311		
4,400.0	4,348.3	4,394.3	4,314.5	13.8	16.2	38.59	694.6	-412.6	196.3	175.3	21.05	9.324		
4,500.0	4,447.0	4,494.2	4,412.4	14.2	16.5	38.52	711.7	-423.1	201.1	179.5	21.53	9.338		
4,600.0	4,545.7	4,594.1	4,510.2	14.5	16.9	38.46	728.7	-433.5	205.8	183.8	22.01	9.350		
4,700.0	4,644.4	4,694.0	4,608.1	14.8	17.3	38.40	745.8	-443.9	210.6	188.1	22.49	9.362		
4,800.0	4,743.1	4,793.8	4,706.0	15.2	17.7	38.34	762.9	-454.4	215.4	192.4	22.97	9.374		
4,900.0	4,841.8	4,893.7	4,803.8	15.5	18.1	38.28	780.0	-464.8	220.1	196.7	23.45	9.385		
5,000.0	4,940.5	4,993.6	4,901.7	15.8	18.5	38.23	797.0	-475.2	224.9	200.9	23.93	9.396		
5,100.0	5,039.3	5,093.5	4,999.5	16.1	18.9	38.18	814.1	-485.7	229.6	205.2	24.41	9.406		

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 Fee 16-12C2 (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 Fee 16-12C2 (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					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	5,138.0	5,193.4	5,097.4	16.5	19.3	38.13	831.2	-496.1	234.4	209.5	24.89	9.416	
5,300.0	5,236.7	5,293.3	5,195.3	16.8	19.7	38.08	848.2	-506.5	239.2	213.8	25.37	9.426	
5,400.0	5,335.4	5,393.2	5,293.1	17.1	20.1	38.04	865.3	-517.0	243.9	218.1	25.85	9.435	
5,500.0	5,434.1	5,493.1	5,391.0	17.5	20.5	37.99	882.4	-527.4	248.7	222.4	26.33	9.444	
5,600.0	5,532.8	5,592.9	5,488.9	17.8	20.9	37.95	899.5	-537.8	253.5	226.6	26.82	9.452	
5,700.0	5,631.5	5,692.8	5,586.7	18.1	21.2	37.91	916.5	-548.2	258.2	230.9	27.30	9.460	
5,800.0	5,730.2	5,792.7	5,684.6	18.5	21.6	37.87	933.6	-558.7	263.0	235.2	27.78	9.468	
5,900.0	5,828.9	5,892.6	5,782.4	18.8	22.0	37.83	950.7	-569.1	267.8	239.5	28.26	9.476	
6,000.0	5,927.6	5,992.5	5,880.3	19.1	22.4	37.80	967.7	-579.5	272.5	243.8	28.74	9.484	
6,100.0	6,026.3	6,092.4	5,978.2	19.5	22.8	37.76	984.8	-590.0	277.3	248.1	29.22	9.491	
6,200.0	6,125.0	6,192.3	6,076.0	19.8	23.2	37.73	1,001.9	-600.4	282.0	252.3	29.70	9.498	
6,300.0	6,223.7	6,292.1	6,173.9	20.1	23.6	37.69	1,019.0	-610.8	286.8	256.6	30.18	9.505	
6,400.0	6,322.4	6,392.0	6,271.8	20.4	24.0	37.66	1,036.0	-621.3	291.6	260.9	30.65	9.511	
6,500.0	6,421.1	6,491.9	6,369.6	20.8	24.4	37.63	1,053.1	-631.7	296.3	265.2	31.13	9.518	
6,600.0	6,519.8	6,591.8	6,467.5	21.1	24.8	37.60	1,070.2	-642.1	301.1	269.5	31.61	9.524	
6,700.0	6,618.6	6,691.7	6,565.3	21.4	25.2	37.57	1,087.2	-652.6	305.9	273.8	32.09	9.530	
6,800.0	6,717.3	6,791.6	6,663.2	21.8	25.6	37.54	1,104.3	-663.0	310.6	278.1	32.57	9.536	
6,900.0	6,816.0	6,891.5	6,761.1	22.1	25.9	37.52	1,121.4	-673.4	315.4	282.3	33.05	9.542	
7,000.0	6,914.7	6,991.3	6,858.9	22.4	26.3	37.49	1,138.5	-683.9	320.2	286.6	33.53	9.547	
7,100.0	7,013.4	7,091.2	6,956.8	22.8	26.7	37.47	1,155.5	-694.3	324.9	290.9	34.01	9.552	
7,200.0	7,112.1	7,191.1	7,054.7	23.1	27.1	37.44	1,172.6	-704.7	329.7	295.2	34.49	9.558	
7,300.0	7,210.8	7,291.0	7,152.5	23.4	27.5	37.42	1,189.7	-715.2	334.5	299.5	34.97	9.563	
7,400.0	7,309.5	7,390.9	7,250.4	23.8	27.9	37.39	1,206.7	-725.6	339.2	303.8	35.45	9.568	
7,500.0	7,408.2	7,497.2	7,354.7	24.1	28.3	37.42	1,224.4	-736.4	343.5	307.5	35.97	9.550	
7,600.0	7,507.2	7,608.8	7,464.9	24.4	28.6	37.61	1,239.6	-745.7	346.0	309.6	36.48	9.485	
7,700.0	7,606.6	7,720.6	7,575.8	24.6	28.9	37.75	1,251.2	-752.7	348.0	311.1	36.92	9.425	
7,800.0	7,706.3	7,832.4	7,687.2	24.8	29.1	37.84	1,259.0	-757.6	349.3	312.0	37.29	9.369	
7,900.0	7,806.2	7,944.2	7,798.9	24.9	29.2	37.89	1,263.2	-760.1	350.0	312.5	37.57	9.317	
8,000.0	7,906.2	8,051.5	7,906.2	25.0	29.3	-1.52	1,263.9	-760.5	350.2	312.3	37.81	9.261	
8,100.0	8,006.2	8,151.5	8,006.2	25.1	29.4	-1.52	1,263.9	-760.5	350.2	312.1	38.07	9.198	
8,200.0	8,106.2	8,251.5	8,106.2	25.2	29.5	-1.52	1,263.9	-760.5	350.2	311.8	38.33	9.136	
8,300.0	8,206.2	8,351.5	8,206.2	25.3	29.6	-1.52	1,263.9	-760.5	350.2	311.6	38.59	9.074	
8,400.0	8,306.2	8,451.5	8,306.2	25.4	29.7	-1.52	1,263.9	-760.5	350.2	311.3	38.85	9.012	
8,500.0	8,406.2	8,551.5	8,406.2	25.5	29.8	-1.52	1,263.9	-760.5	350.2	311.0	39.12	8.952	
8,600.0	8,506.2	8,651.5	8,506.2	25.6	29.9	-1.52	1,263.9	-760.5	350.2	310.8	39.38	8.891	
8,700.0	8,606.2	8,751.5	8,606.2	25.7	29.9	-1.52	1,263.9	-760.5	350.2	310.5	39.65	8.831	
8,800.0	8,706.2	8,851.5	8,706.2	25.8	30.0	-1.52	1,263.9	-760.5	350.2	310.2	39.92	8.772	
8,900.0	8,806.2	8,951.5	8,806.2	25.9	30.1	-1.52	1,263.9	-760.5	350.2	310.0	40.19	8.713	
9,000.0	8,906.2	9,051.5	8,906.2	26.0	30.2	-1.52	1,263.9	-760.5	350.2	309.7	40.46	8.655	
9,100.0	9,006.2	9,151.5	9,006.2	26.1	30.3	-1.52	1,263.9	-760.5	350.2	309.4	40.73	8.597	
9,200.0	9,106.2	9,251.5	9,106.2	26.2	30.4	-1.52	1,263.9	-760.5	350.2	309.2	41.00	8.540	
9,300.0	9,206.2	9,351.5	9,206.2	26.3	30.5	-1.52	1,263.9	-760.5	350.2	308.9	41.28	8.483	
9,400.0	9,306.2	9,451.5	9,306.2	26.4	30.6	-1.52	1,263.9	-760.5	350.2	308.6	41.55	8.427	
9,500.0	9,406.2	9,551.5	9,406.2	26.5	30.7	-1.52	1,263.9	-760.5	350.2	308.3	41.83	8.371	
9,600.0	9,506.2	9,651.5	9,506.2	26.7	30.8	-1.52	1,263.9	-760.5	350.2	308.0	42.10	8.316	
9,700.0	9,606.2	9,751.5	9,606.2	26.8	30.9	-1.52	1,263.9	-760.5	350.2	307.8	42.38	8.262	
9,800.0	9,706.2	9,851.5	9,706.2	26.9	31.0	-1.52	1,263.9	-760.5	350.2	307.5	42.66	8.207	
9,900.0	9,806.2	9,951.5	9,806.2	27.0	31.1	-1.52	1,263.9	-760.5	350.2	307.2	42.94	8.154	
10,000.0	9,906.2	10,051.5	9,906.2	27.1	31.2	-1.52	1,263.9	-760.5	350.2	306.9	43.22	8.101	
10,100.0	10,006.2	10,151.5	10,006.2	27.2	31.3	-1.52	1,263.9	-760.5	350.2	306.6	43.51	8.048	
10,200.0	10,106.2	10,251.5	10,106.2	27.3	31.4	-1.52	1,263.9	-760.5	350.2	306.4	43.79	7.996	
10,300.0	10,206.2	10,351.5	10,206.2	27.4	31.5	-1.52	1,263.9	-760.5	350.2	306.1	44.08	7.945	

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 Fee 16-12C2 (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 Fee 16-12C2 (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																				
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			Warning												
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)																	
10,377.8	10,284.0	10,429.3	10,284.0	27.5	31.5	-1.52	1,263.9	-760.5	350.2	305.9	44.30	7.905															

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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							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	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	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	70.10	5.8	16.1	17.1	16.5	0.62	27.554		
300.0	300.0	300.0	299.9	0.5	0.5	109.02	8.3	15.2	18.0	17.0	0.99	18.236		
400.0	399.6	399.9	399.6	0.7	0.7	107.76	15.7	12.5	20.6	19.2	1.42	14.473		
500.0	498.8	499.8	498.6	1.0	1.0	106.23	27.9	8.1	25.0	23.0	1.99	12.564		
600.0	597.5	599.5	596.6	1.3	1.4	100.89	44.9	1.8	30.6	27.9	2.65	11.528	SF	
700.0	696.2	698.6	692.9	1.6	1.8	89.58	66.6	-6.1	37.8	34.4	3.37	11.211		
800.0	794.9	796.5	786.9	1.9	2.3	76.77	92.6	-15.6	48.5	44.5	4.01	12.087		
900.0	893.6	894.4	879.6	2.3	2.9	66.14	122.1	-26.3	63.3	58.8	4.52	14.029		
1,000.0	992.3	992.7	972.7	2.6	3.4	59.50	151.8	-37.2	79.7	74.7	4.98	16.013		
1,100.0	1,091.0	1,091.1	1,065.8	2.9	4.0	55.15	181.6	-48.0	96.8	91.3	5.43	17.810		
1,200.0	1,189.7	1,189.4	1,158.8	3.3	4.6	52.12	211.4	-58.9	114.2	108.3	5.89	19.393		
1,300.0	1,288.4	1,287.7	1,251.9	3.6	5.2	49.89	241.1	-69.7	131.9	125.5	6.35	20.777		
1,400.0	1,387.1	1,386.0	1,345.0	3.9	5.7	48.18	270.9	-80.6	149.7	142.9	6.81	21.988		
1,500.0	1,485.8	1,484.3	1,438.0	4.2	6.3	46.84	300.7	-91.4	167.6	160.4	7.27	23.054		
1,600.0	1,584.5	1,582.6	1,531.1	4.6	6.9	45.76	330.4	-102.3	185.6	177.9	7.74	23.996		
1,700.0	1,683.2	1,680.9	1,624.2	4.9	7.5	44.87	360.2	-113.2	203.7	195.5	8.20	24.834		
1,800.0	1,782.0	1,779.3	1,717.2	5.2	8.1	44.13	390.0	-124.0	221.7	213.1	8.67	25.582		
1,900.0	1,880.7	1,877.6	1,810.3	5.6	8.6	43.50	419.7	-134.9	239.9	230.7	9.14	26.255		
2,000.0	1,979.4	1,975.9	1,903.4	5.9	9.2	42.95	449.5	-145.7	258.0	248.4	9.60	26.863		
2,100.0	2,078.1	2,074.2	1,996.4	6.2	9.8	42.48	479.3	-156.6	276.1	266.1	10.07	27.414		
2,200.0	2,176.8	2,172.5	2,089.5	6.6	10.4	42.07	509.1	-167.4	294.3	283.8	10.54	27.917		
2,300.0	2,275.5	2,270.8	2,182.6	6.9	11.0	41.70	538.8	-178.3	312.5	301.5	11.01	28.376		
2,400.0	2,374.2	2,369.1	2,275.6	7.2	11.5	41.37	568.6	-189.2	330.7	319.2	11.48	28.798		
2,500.0	2,472.9	2,467.5	2,368.7	7.5	12.1	41.08	598.4	-200.0	348.9	337.0	11.95	29.186		
2,600.0	2,571.6	2,565.8	2,461.8	7.9	12.7	40.82	628.1	-210.9	367.1	354.7	12.43	29.545		
2,700.0	2,670.3	2,664.1	2,554.8	8.2	13.3	40.58	657.9	-221.7	385.3	372.4	12.90	29.878		
2,800.0	2,769.0	2,762.4	2,647.9	8.5	13.9	40.37	687.7	-232.6	403.6	390.2	13.37	30.187		
2,900.0	2,867.7	2,860.7	2,741.0	8.9	14.4	40.17	717.4	-243.4	421.8	408.0	13.84	30.475		
3,000.0	2,966.4	2,959.0	2,834.1	9.2	15.0	39.99	747.2	-254.3	440.0	425.7	14.31	30.744		
3,100.0	3,065.1	3,057.3	2,927.1	9.5	15.6	39.82	777.0	-265.2	458.3	443.5	14.79	30.995		
3,200.0	3,163.8	3,155.6	3,020.2	9.9	16.2	39.66	806.7	-276.0	476.5	461.3	15.26	31.231		
3,300.0	3,262.5	3,254.0	3,113.3	10.2	16.8	39.52	836.5	-286.9	494.8	479.0	15.73	31.453		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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					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)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-142.70	-103.4	-78.8	130.0					
100.0	100.0	100.0	100.0	0.1	0.1	-142.70	-103.4	-78.8	130.0	129.8	0.27	477.596		
200.0	200.0	200.0	200.0	0.3	0.3	-142.70	-103.4	-78.8	130.0	129.4	0.62	209.284 CC, ES		
300.0	300.0	297.3	297.3	0.5	0.5	-103.33	-102.9	-81.2	131.7	130.7	0.98	134.256		
400.0	399.6	394.5	394.1	0.7	0.7	-103.45	-101.1	-88.4	136.5	135.1	1.41	97.150		
500.0	498.8	491.3	490.2	1.0	1.0	-103.62	-98.2	-100.4	144.6	142.7	1.94	74.381		
600.0	597.5	587.8	585.1	1.3	1.3	-103.34	-94.3	-116.9	155.4	152.9	2.57	60.556		
700.0	696.2	683.5	678.4	1.6	1.7	-101.60	-89.2	-138.0	168.3	165.0	3.26	51.581		
800.0	794.9	778.1	769.3	1.9	2.3	-98.79	-83.1	-163.2	183.5	179.5	4.01	45.717		
900.0	893.6	871.7	858.0	2.3	2.8	-95.28	-76.1	-192.4	201.6	196.8	4.78	42.167		
1,000.0	992.3	969.0	949.5	2.6	3.4	-91.85	-68.4	-224.3	221.4	215.8	5.55	39.899		
1,100.0	1,091.0	1,066.2	1,041.0	2.9	4.0	-88.98	-60.7	-256.3	241.8	235.5	6.29	38.430		
1,200.0	1,189.7	1,163.4	1,132.5	3.3	4.6	-86.56	-53.0	-288.2	262.7	255.6	7.01	37.451		
1,300.0	1,288.4	1,260.6	1,224.0	3.6	5.3	-84.50	-45.3	-320.1	283.9	276.2	7.72	36.789		
1,400.0	1,387.1	1,357.9	1,315.6	3.9	5.9	-82.72	-37.6	-352.0	305.5	297.1	8.41	36.338		
1,500.0	1,485.8	1,455.1	1,407.1	4.2	6.5	-81.18	-29.9	-383.9	327.4	318.3	9.09	36.031		
1,600.0	1,584.5	1,552.3	1,498.6	4.6	7.1	-79.83	-22.2	-415.9	349.4	339.6	9.75	35.825		
1,700.0	1,683.2	1,649.6	1,590.1	4.9	7.7	-78.64	-14.6	-447.8	371.6	361.2	10.41	35.691		
1,800.0	1,782.0	1,746.8	1,681.6	5.2	8.4	-77.58	-6.9	-479.7	393.9	382.9	11.06	35.609		
1,900.0	1,880.7	1,844.0	1,773.2	5.6	9.0	-76.64	0.8	-511.6	416.4	404.7	11.71	35.564		
2,000.0	1,979.4	1,941.3	1,864.7	5.9	9.6	-75.79	8.5	-543.5	438.9	426.6	12.35	35.547 SF		
2,100.0	2,078.1	2,038.5	1,956.2	6.2	10.2	-75.02	16.2	-575.5	461.5	448.5	12.98	35.550		
2,200.0	2,176.8	2,135.7	2,047.7	6.6	10.9	-74.33	23.9	-607.4	484.2	470.6	13.61	35.568		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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			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	-139.11	-109.3	-94.6	144.5					
100.0	100.0	100.0	100.0	0.1	0.1	-139.11	-109.3	-94.6	144.5	144.3	0.27	530.863		
200.0	200.0	200.0	200.0	0.3	0.3	-139.11	-109.3	-94.6	144.5	143.9	0.62	232.626 CC, ES		
300.0	300.0	295.8	295.8	0.5	0.5	-99.83	-109.0	-97.0	146.4	145.4	0.98	149.880		
400.0	399.6	391.4	391.1	0.7	0.7	-100.23	-108.3	-104.1	152.0	150.7	1.39	109.196		
500.0	498.8	486.6	485.6	1.0	1.0	-100.81	-107.0	-116.0	161.4	159.5	1.91	84.343		
600.0	597.5	581.3	578.8	1.3	1.3	-101.16	-105.3	-132.3	174.1	171.6	2.51	69.429		
700.0	696.2	675.2	670.3	1.6	1.7	-100.29	-103.1	-153.1	189.4	186.3	3.16	59.875		
800.0	794.9	767.8	759.5	1.9	2.2	-98.51	-100.5	-177.9	207.6	203.7	3.87	53.653		
900.0	893.6	859.4	846.4	2.3	2.7	-96.11	-97.5	-206.7	228.8	224.2	4.59	49.842		
1,000.0	992.3	956.3	937.7	2.6	3.3	-93.65	-94.1	-238.9	251.6	246.2	5.33	47.212		
1,100.0	1,091.0	1,053.1	1,028.9	2.9	3.9	-91.60	-90.7	-271.1	274.7	268.7	6.05	45.389		
1,200.0	1,189.7	1,149.9	1,120.2	3.3	4.5	-89.87	-87.4	-303.3	298.2	291.4	6.77	44.077		
1,300.0	1,288.4	1,246.8	1,211.5	3.6	5.2	-88.39	-84.0	-335.5	321.9	314.4	7.47	43.107		
1,400.0	1,387.1	1,343.6	1,302.7	3.9	5.8	-87.11	-80.6	-367.7	345.7	337.6	8.16	42.372		
1,500.0	1,485.8	1,440.5	1,394.0	4.2	6.4	-85.99	-77.2	-400.0	369.7	360.9	8.84	41.806		
1,600.0	1,584.5	1,537.3	1,485.3	4.6	7.0	-85.02	-73.8	-432.2	393.9	384.3	9.52	41.361		
1,700.0	1,683.2	1,634.2	1,576.5	4.9	7.6	-84.15	-70.5	-464.4	418.1	407.9	10.19	41.008		
1,800.0	1,782.0	1,731.0	1,667.8	5.2	8.2	-83.38	-67.1	-496.6	442.4	431.5	10.86	40.723		
1,900.0	1,880.7	1,827.8	1,759.1	5.6	8.8	-82.69	-63.7	-528.8	466.7	455.2	11.53	40.492		
2,000.0	1,979.4	1,924.7	1,850.3	5.9	9.5	-82.06	-60.3	-561.0	491.1	479.0	12.19	40.303 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	-133.70	-120.9	-126.5	175.0					
100.0	100.0	100.0	100.0	0.1	0.1	-133.70	-120.9	-126.5	175.0	174.7	0.27	642.814		
200.0	200.0	200.0	200.0	0.3	0.3	-133.70	-120.9	-126.5	175.0	174.4	0.62	281.683 CC, ES		
300.0	300.0	293.6	293.6	0.5	0.5	-94.52	-121.0	-128.8	177.0	176.1	0.97	182.253		
400.0	399.6	386.9	386.6	0.7	0.7	-95.18	-121.2	-135.7	183.1	181.7	1.37	133.244		
500.0	498.8	479.7	478.7	1.0	0.9	-96.17	-121.5	-147.0	193.2	191.4	1.87	103.249		
600.0	597.5	571.9	569.5	1.3	1.3	-97.18	-121.9	-162.6	207.2	204.8	2.43	85.366		
700.0	696.2	663.2	658.7	1.6	1.7	-97.26	-122.4	-182.4	224.5	221.5	3.03	74.014		
800.0	794.9	753.3	745.6	1.9	2.1	-96.60	-123.1	-206.1	245.1	241.4	3.68	66.591		
900.0	893.6	842.3	830.3	2.3	2.6	-95.39	-123.8	-233.5	268.9	264.6	4.34	61.898		
1,000.0	992.3	938.8	921.4	2.6	3.2	-94.02	-124.7	-265.0	294.3	289.3	5.04	58.371		
1,100.0	1,091.0	1,035.3	1,012.6	2.9	3.8	-92.86	-125.6	-296.6	319.9	314.2	5.74	55.770		
1,200.0	1,189.7	1,131.8	1,103.8	3.3	4.4	-91.88	-126.4	-328.1	345.5	339.1	6.42	53.785		
1,300.0	1,288.4	1,228.3	1,195.0	3.6	5.0	-91.03	-127.3	-359.7	371.3	364.2	7.11	52.229		
1,400.0	1,387.1	1,324.8	1,286.2	3.9	5.6	-90.29	-128.1	-391.2	397.1	389.3	7.79	50.981		
1,500.0	1,485.8	1,421.3	1,377.4	4.2	6.2	-89.64	-129.0	-422.8	422.9	414.5	8.47	49.961		
1,600.0	1,584.5	1,517.8	1,468.6	4.6	6.8	-89.07	-129.9	-454.3	448.8	439.7	9.14	49.114		
1,700.0	1,683.2	1,614.3	1,559.7	4.9	7.4	-88.55	-130.7	-485.9	474.8	465.0	9.81	48.401 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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				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	-110.24	-5.8	-15.8	16.9					
100.0	100.0	100.0	100.0	0.1	0.1	-110.24	-5.8	-15.8	16.9	16.6	0.27	61.912		
200.0	200.0	200.0	200.0	0.3	0.3	-110.24	-5.8	-15.8	16.9	16.2	0.62	27.130		
300.0	300.0	300.0	300.0	0.5	0.5	-79.62	-5.8	-15.8	16.2	15.2	0.98	16.542		
345.5	345.3	345.3	345.3	0.6	0.6	-90.00	-5.8	-15.8	15.9	14.8	1.16	13.761 CC, ES		
400.0	399.6	399.6	399.6	0.7	0.7	-107.10	-5.8	-15.8	16.7	15.3	1.37	12.176		
500.0	498.8	499.4	499.4	1.0	0.8	-133.03	-4.2	-17.8	22.6	20.8	1.76	12.815		
600.0	597.5	599.9	599.5	1.3	1.0	-142.84	0.7	-23.9	29.9	27.7	2.15	13.892		
700.0	696.2	700.9	699.7	1.6	1.3	-142.62	9.0	-34.2	34.1	31.5	2.62	13.030		
800.0	794.9	802.0	799.0	1.9	1.6	-135.83	20.7	-48.6	35.0	31.8	3.23	10.843		
900.0	893.6	902.5	896.7	2.3	2.1	-121.69	35.5	-66.9	34.2	30.1	4.11	8.333		
926.4	919.6	928.8	922.1	2.4	2.2	-116.55	39.9	-72.4	34.2	29.8	4.40	7.771		
1,000.0	992.3	1,001.8	991.9	2.6	2.6	-99.56	53.3	-88.9	35.4	30.2	5.17	6.845 SF		
1,100.0	1,091.0	1,100.0	1,084.4	2.9	3.2	-75.11	74.0	-114.4	43.2	37.3	5.85	7.380		
1,200.0	1,189.7	1,196.3	1,173.7	3.3	3.8	-56.92	96.7	-142.6	59.2	53.2	6.04	9.799		
1,300.0	1,288.4	1,293.6	1,263.5	3.6	4.5	-46.55	120.1	-171.5	79.2	73.0	6.19	12.798		
1,400.0	1,387.1	1,390.8	1,353.4	3.9	5.2	-40.42	143.5	-200.4	100.7	94.3	6.40	15.728		
1,500.0	1,485.8	1,488.0	1,443.2	4.2	5.9	-36.46	166.8	-229.2	122.8	116.2	6.67	18.429		
1,600.0	1,584.5	1,585.2	1,533.0	4.6	6.5	-33.72	190.2	-258.1	145.4	138.5	6.97	20.873		
1,700.0	1,683.2	1,682.4	1,622.9	4.9	7.2	-31.72	213.6	-287.0	168.2	160.9	7.29	23.073		
1,800.0	1,782.0	1,779.6	1,712.7	5.2	7.9	-30.19	236.9	-315.9	191.2	183.6	7.63	25.055		
1,900.0	1,880.7	1,876.9	1,802.6	5.6	8.6	-28.99	260.3	-344.8	214.3	206.3	7.98	26.845		
2,000.0	1,979.4	1,974.1	1,892.4	5.9	9.3	-28.03	283.7	-373.7	237.4	229.1	8.34	28.467		
2,100.0	2,078.1	2,071.3	1,982.2	6.2	10.0	-27.23	307.0	-402.5	260.6	251.9	8.70	29.941		
2,200.0	2,176.8	2,168.5	2,072.1	6.6	10.7	-26.57	330.4	-431.4	283.8	274.7	9.07	31.286		
2,300.0	2,275.5	2,265.7	2,161.9	6.9	11.4	-26.01	353.8	-460.3	307.1	297.6	9.44	32.518		
2,400.0	2,374.2	2,362.9	2,251.8	7.2	12.1	-25.52	377.1	-489.2	330.3	320.5	9.82	33.650		
2,500.0	2,472.9	2,460.2	2,341.6	7.5	12.8	-25.10	400.5	-518.1	353.6	343.4	10.19	34.694		
2,600.0	2,571.6	2,557.4	2,431.4	7.9	13.5	-24.73	423.9	-546.9	377.0	366.4	10.57	35.659		
2,700.0	2,670.3	2,654.6	2,521.3	8.2	14.2	-24.41	447.2	-575.8	400.3	389.3	10.95	36.554		
2,800.0	2,769.0	2,751.8	2,611.1	8.5	14.8	-24.12	470.6	-604.7	423.6	412.3	11.33	37.386		
2,900.0	2,867.7	2,849.0	2,701.0	8.9	15.5	-23.86	494.0	-633.6	447.0	435.3	11.71	38.161		
3,000.0	2,966.4	2,946.2	2,790.8	9.2	16.2	-23.62	517.3	-662.5	470.3	458.2	12.10	38.885		
3,100.0	3,065.1	3,043.5	2,880.6	9.5	16.9	-23.41	540.7	-691.4	493.7	481.2	12.48	39.563		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	-90.49	-1.1	-128.2	128.2					
100.0	100.0	100.0	100.0	0.1	0.1	-90.49	-1.1	-128.2	128.2	128.0	0.27	470.947		
200.0	200.0	200.0	200.0	0.3	0.3	-90.49	-1.1	-128.2	128.2	127.6	0.62	206.370 CC, ES		
300.0	300.0	294.6	294.5	0.5	0.5	-51.37	0.1	-130.2	128.7	127.7	0.97	132.925		
400.0	399.6	389.1	388.8	0.7	0.7	-52.26	3.7	-136.2	130.1	128.8	1.35	96.440		
500.0	498.8	483.6	482.6	1.0	1.0	-53.70	9.7	-146.2	132.6	130.8	1.80	73.627		
600.0	597.5	578.0	575.5	1.3	1.3	-54.97	18.1	-160.2	137.4	135.1	2.31	59.617		
700.0	696.2	671.9	667.2	1.6	1.7	-55.06	28.8	-178.0	146.3	143.4	2.85	51.401		
800.0	794.9	765.0	766.8	1.9	2.2	-54.18	41.6	-199.4	159.1	155.7	3.40	46.737		
900.0	893.6	856.8	843.9	2.3	2.7	-52.60	56.4	-224.1	176.0	172.0	3.96	44.392		
1,000.0	992.3	950.5	931.5	2.6	3.3	-50.62	73.6	-252.6	196.6	192.0	4.51	43.624		
1,100.0	1,091.0	1,048.0	1,022.4	2.9	4.0	-48.86	91.7	-282.8	217.9	212.9	5.04	43.244		
1,200.0	1,189.7	1,145.5	1,113.3	3.3	4.6	-47.41	109.8	-313.1	239.4	233.9	5.56	43.062		
1,300.0	1,288.4	1,243.0	1,204.2	3.6	5.3	-46.20	127.9	-343.3	261.1	255.0	6.07	42.999 SF		
1,400.0	1,387.1	1,340.5	1,295.1	3.9	6.0	-45.17	146.1	-373.5	282.8	276.2	6.58	43.012		
1,500.0	1,485.8	1,438.0	1,386.0	4.2	6.6	-44.29	164.2	-403.7	304.6	297.6	7.07	43.071		
1,600.0	1,584.5	1,535.5	1,476.9	4.6	7.3	-43.53	182.3	-433.9	326.5	318.9	7.56	43.159		
1,700.0	1,683.2	1,632.9	1,567.8	4.9	7.9	-42.87	200.5	-464.1	348.4	340.4	8.05	43.265		
1,800.0	1,782.0	1,730.4	1,658.7	5.2	8.6	-42.28	218.6	-494.3	370.4	361.8	8.54	43.380		
1,900.0	1,880.7	1,827.9	1,749.7	5.6	9.3	-41.76	236.7	-524.5	392.4	383.3	9.02	43.501		
2,000.0	1,979.4	1,925.4	1,840.6	5.9	9.9	-41.29	254.8	-554.8	414.4	404.9	9.50	43.623		
2,100.0	2,078.1	2,022.9	1,931.5	6.2	10.6	-40.87	273.0	-585.0	436.4	426.4	9.98	43.744		
2,200.0	2,176.8	2,120.4	2,022.4	6.6	11.3	-40.49	291.1	-615.2	458.5	448.0	10.45	43.864		
2,300.0	2,275.5	2,217.9	2,113.3	6.9	11.9	-40.15	309.2	-645.4	480.6	469.6	10.93	43.981		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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	-99.23	-6.9	-42.6	43.2					
100.0	100.0	100.0	100.0	0.1	0.1	-99.23	-6.9	-42.6	43.2	42.9	0.27	158.688		
200.0	200.0	200.0	200.0	0.3	0.3	-99.23	-6.9	-42.6	43.2	42.6	0.62	69.537 CC, ES		
300.0	300.0	298.1	298.1	0.5	0.5	-60.86	-5.9	-44.9	44.0	43.1	0.98	45.101		
400.0	399.6	396.2	395.9	0.7	0.7	-63.75	-2.7	-51.8	46.6	45.2	1.38	33.829		
500.0	498.8	494.1	493.0	1.0	1.0	-67.88	2.5	-63.2	51.1	49.2	1.88	27.190		
600.0	597.5	591.8	589.1	1.3	1.3	-70.63	9.7	-79.1	58.4	56.0	2.46	23.791		
700.0	696.2	688.9	683.6	1.6	1.8	-69.76	19.0	-99.2	69.5	66.4	3.07	22.640 SF		
800.0	794.9	784.9	775.8	1.9	2.3	-66.82	30.0	-123.5	84.2	80.5	3.68	22.899		
900.0	893.6	879.3	865.1	2.3	2.9	-63.08	42.8	-151.4	102.9	98.7	4.25	24.205		
1,000.0	992.3	976.5	956.0	2.6	3.5	-59.65	57.0	-182.4	124.3	119.5	4.80	25.914		
1,100.0	1,091.0	1,073.9	1,047.2	2.9	4.1	-57.21	71.3	-213.6	146.0	140.6	5.33	27.381		
1,200.0	1,189.7	1,171.4	1,138.5	3.3	4.8	-55.41	85.6	-244.8	167.8	162.0	5.86	28.637		
1,300.0	1,288.4	1,268.9	1,229.7	3.6	5.4	-54.02	99.8	-276.0	189.8	183.4	6.39	29.720		
1,400.0	1,387.1	1,366.3	1,320.9	3.9	6.1	-52.93	114.1	-307.2	211.9	205.0	6.91	30.660		
1,500.0	1,485.8	1,463.8	1,412.1	4.2	6.7	-52.03	128.4	-338.4	234.0	226.6	7.43	31.481		
1,600.0	1,584.5	1,561.2	1,503.4	4.6	7.4	-51.30	142.7	-369.6	256.2	248.3	7.96	32.205		
1,700.0	1,683.2	1,658.7	1,594.6	4.9	8.0	-50.68	156.9	-400.8	278.4	269.9	8.48	32.846		
1,800.0	1,782.0	1,756.2	1,685.8	5.2	8.6	-50.15	171.2	-432.0	300.7	291.7	9.00	33.419		
1,900.0	1,880.7	1,853.6	1,777.0	5.6	9.3	-49.69	185.5	-463.2	322.9	313.4	9.52	33.932		
2,000.0	1,979.4	1,951.1	1,868.2	5.9	9.9	-49.29	199.8	-494.4	345.2	335.2	10.04	34.395		
2,100.0	2,078.1	2,048.5	1,959.5	6.2	10.6	-48.95	214.0	-525.6	367.5	356.9	10.56	34.815		
2,200.0	2,176.8	2,146.0	2,050.7	6.6	11.2	-48.64	228.3	-556.8	389.8	378.7	11.07	35.198		
2,300.0	2,275.5	2,243.5	2,141.9	6.9	11.9	-48.36	242.6	-588.0	412.1	400.5	11.59	35.547		
2,400.0	2,374.2	2,340.9	2,233.1	7.2	12.5	-48.11	256.9	-619.2	434.4	422.3	12.11	35.868		
2,500.0	2,472.9	2,438.4	2,324.4	7.5	13.2	-47.89	271.1	-650.4	456.8	444.1	12.63	36.163		
2,600.0	2,571.6	2,535.8	2,415.6	7.9	13.8	-47.69	285.4	-681.6	479.1	465.9	13.15	36.436		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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				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	-110.12	-17.5	-47.7	50.8					
100.0	100.0	100.0	100.0	0.1	0.1	-110.12	-17.5	-47.7	50.8	50.6	0.27	186.693		
200.0	200.0	200.0	200.0	0.3	0.3	-110.12	-17.5	-47.7	50.8	50.2	0.62	81.809		
290.3	290.3	289.7	289.6	0.5	0.5	-74.45	-18.9	-47.7	50.7	49.8	0.95	53.659 CC		
300.0	300.0	299.2	299.2	0.5	0.5	-75.29	-19.2	-47.7	50.7	49.7	0.98	51.755 ES		
400.0	399.6	397.6	397.4	0.7	0.7	-87.64	-23.6	-48.2	52.4	51.0	1.38	38.003		
500.0	498.8	495.8	495.5	1.0	0.9	-99.73	-26.4	-52.6	58.4	56.6	1.83	32.010		
600.0	597.5	594.6	593.9	1.3	1.1	-107.47	-26.7	-61.5	67.9	65.6	2.30	29.471		
700.0	696.2	693.9	692.2	1.6	1.3	-109.53	-24.5	-74.8	78.3	75.4	2.85	27.489		
800.0	794.9	793.1	789.7	1.9	1.7	-107.75	-19.9	-92.6	88.9	85.4	3.47	25.581		
900.0	893.6	891.7	885.6	2.3	2.1	-103.43	-12.8	-114.7	100.1	96.0	4.18	23.951		
1,000.0	992.3	989.5	979.4	2.6	2.6	-97.56	-3.5	-140.7	112.9	108.0	4.92	22.940		
1,100.0	1,091.0	1,087.9	1,073.3	2.9	3.1	-92.22	6.6	-168.1	127.1	121.5	5.64	22.533		
1,200.0	1,189.7	1,186.3	1,167.3	3.3	3.6	-87.98	16.8	-195.5	142.2	135.9	6.34	22.447 SF		
1,300.0	1,288.4	1,284.6	1,261.2	3.6	4.1	-84.55	26.9	-223.0	157.9	150.9	7.01	22.536		
1,400.0	1,387.1	1,383.0	1,355.1	3.9	4.7	-81.75	37.0	-250.4	174.1	166.4	7.66	22.719		
1,500.0	1,485.8	1,481.3	1,449.0	4.2	5.2	-79.43	47.1	-277.8	190.6	182.3	8.30	22.951		
1,600.0	1,584.5	1,579.7	1,542.9	4.6	5.8	-77.48	57.2	-305.2	207.3	198.4	8.93	23.206		
1,700.0	1,683.2	1,678.1	1,636.8	4.9	6.3	-75.82	67.3	-332.7	224.3	214.7	9.56	23.467		
1,800.0	1,782.0	1,776.4	1,730.8	5.2	6.9	-74.39	77.4	-360.1	241.4	231.2	10.17	23.727		
1,900.0	1,880.7	1,874.8	1,824.7	5.6	7.4	-73.15	87.5	-387.5	258.6	247.8	10.78	23.981		
2,000.0	1,979.4	1,973.1	1,918.6	5.9	8.0	-72.07	97.6	-415.0	276.0	264.6	11.39	24.225		
2,100.0	2,078.1	2,071.5	2,012.5	6.2	8.5	-71.11	107.7	-442.4	293.4	281.4	12.00	24.458		
2,200.0	2,176.8	2,169.9	2,106.4	6.6	9.1	-70.27	117.8	-469.8	310.9	298.3	12.60	24.680		
2,300.0	2,275.5	2,268.2	2,200.3	6.9	9.6	-69.51	127.9	-497.2	328.5	315.3	13.20	24.890		
2,400.0	2,374.2	2,366.6	2,294.2	7.2	10.2	-68.83	138.0	-524.7	346.1	332.3	13.79	25.089		
2,500.0	2,472.9	2,464.9	2,388.2	7.5	10.7	-68.21	148.2	-552.1	363.7	349.3	14.39	25.278		
2,600.0	2,571.6	2,563.3	2,482.1	7.9	11.3	-67.65	158.3	-579.5	381.4	366.4	14.98	25.456		
2,700.0	2,670.3	2,661.6	2,576.0	8.2	11.8	-67.15	168.4	-606.9	399.1	383.5	15.57	25.625		
2,800.0	2,769.0	2,760.0	2,669.9	8.5	12.4	-66.68	178.5	-634.4	416.9	400.7	16.17	25.785		
2,900.0	2,867.7	2,858.4	2,763.8	8.9	12.9	-66.25	188.6	-661.8	434.6	417.9	16.76	25.936		
3,000.0	2,966.4	2,956.7	2,857.7	9.2	13.5	-65.86	198.7	-689.2	452.4	435.1	17.35	26.080		
3,100.0	3,065.1	3,055.1	2,951.7	9.5	14.0	-65.50	208.8	-716.6	470.2	452.3	17.94	26.216		
3,200.0	3,163.8	3,153.4	3,045.6	9.9	14.6	-65.16	218.9	-744.1	488.1	469.5	18.53	26.345		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well MCU Fee 16-12C2 (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 Fee 16-12C2 (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 Fee 16-12C2 (M16W Pad)  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.44°

