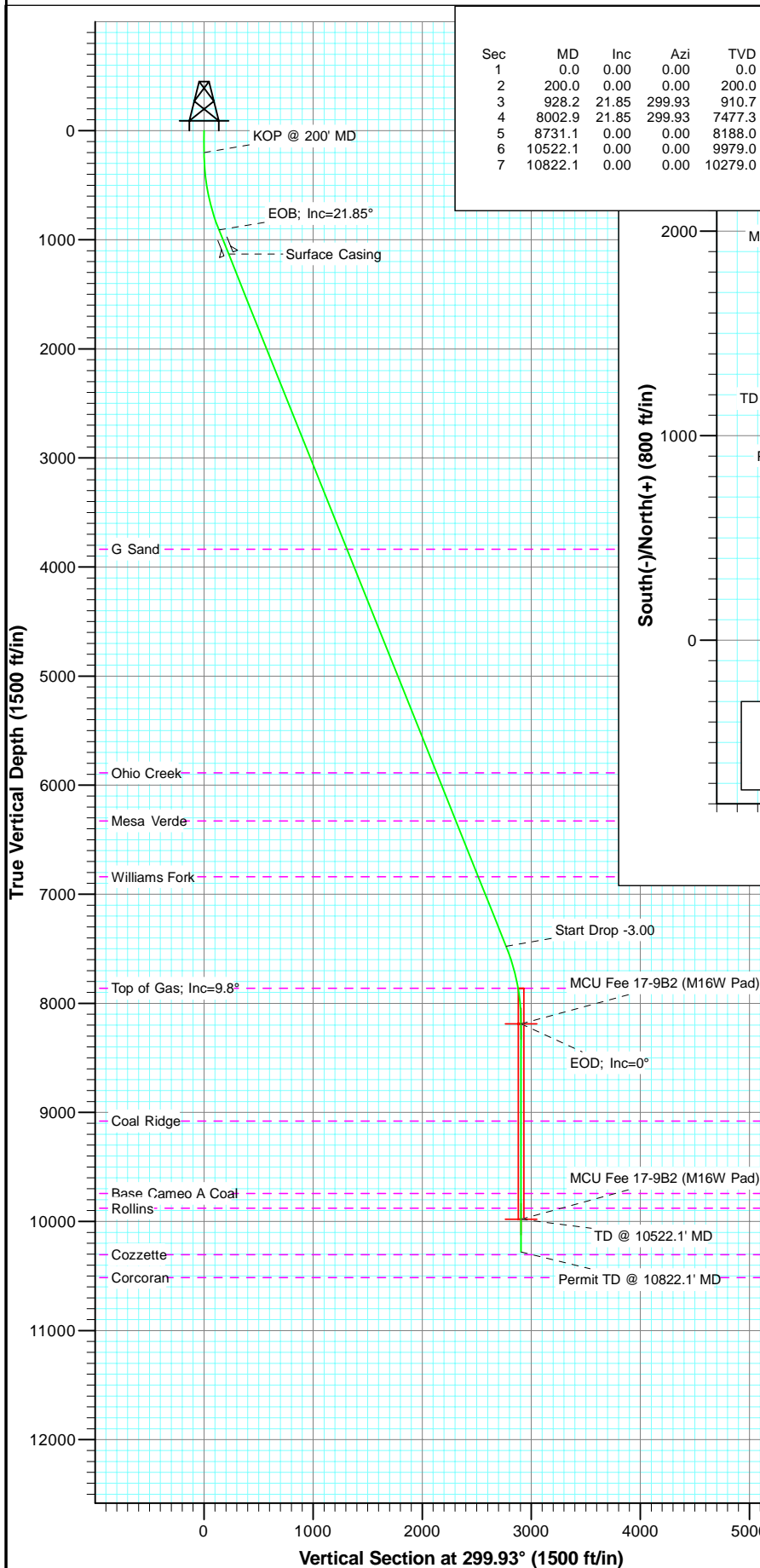
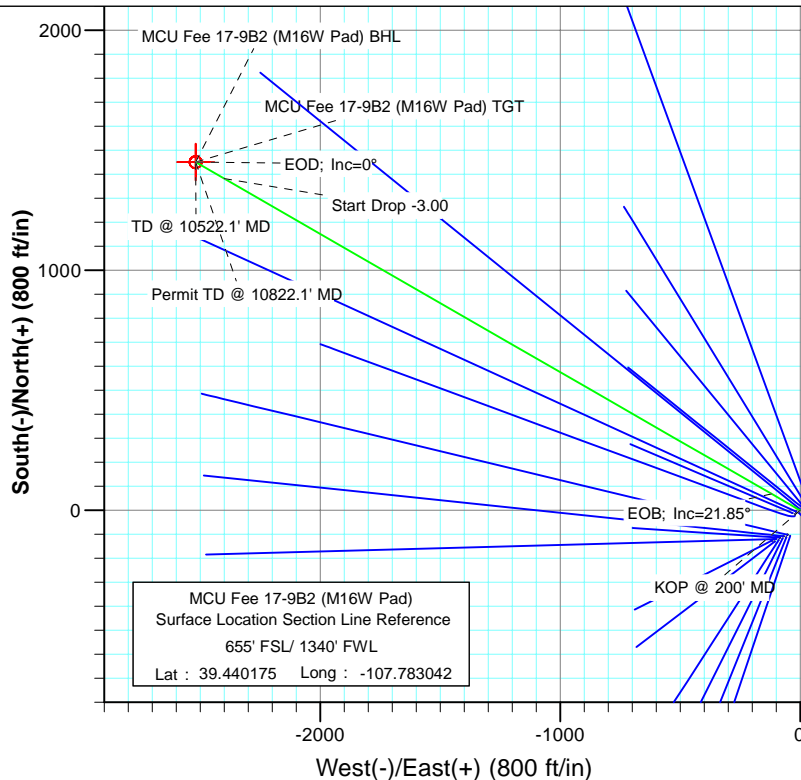




Project: Mamm Creek
 Site: SWSW S16-T7S-R93W (M16W Pad)
 Well: MCU Fee 17-9B2 (M16W Pad)
 Wellbore: DD
 Plan: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	928.2	21.85	299.93	910.7	68.4	-118.9	3.00	299.93	137.1	
4	8002.9	21.85	299.93	7477.3	1382.1	-2400.2	0.00	0.00	2769.7	
5	8731.1	0.00	0.00	8188.0	1450.5	-2519.1	3.00	180.00	2906.9	MCU Fee 17-9B2 (M16W Pad) TGT
6	10522.1	0.00	0.00	9979.0	1450.5	-2519.1	0.00	0.00	2906.9	MCU Fee 17-9B2 (M16W Pad) BHL
7	10822.1	0.00	0.00	10279.0	1450.5	-2519.1	0.00	0.00	2906.9	



MCU Fee 17-9B2 (M16W Pad)
 Surface Location Section Line Reference
 655' FSL/ 1340' FWL
 Lat : 39.440175 Long : -107.783042

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3837.0	4080.9	G Sand
5887.0	6289.5	Ohio Creek
6328.0	6764.6	Mesa Verde
6840.0	7316.3	Williams Fork
7863.0	8404.5	Top of Gas; Inc=9.8°
9079.0	9622.1	Coal Ridge
9743.0	10286.1	Base Cameo A Coal
9879.0	10422.1	Rollins



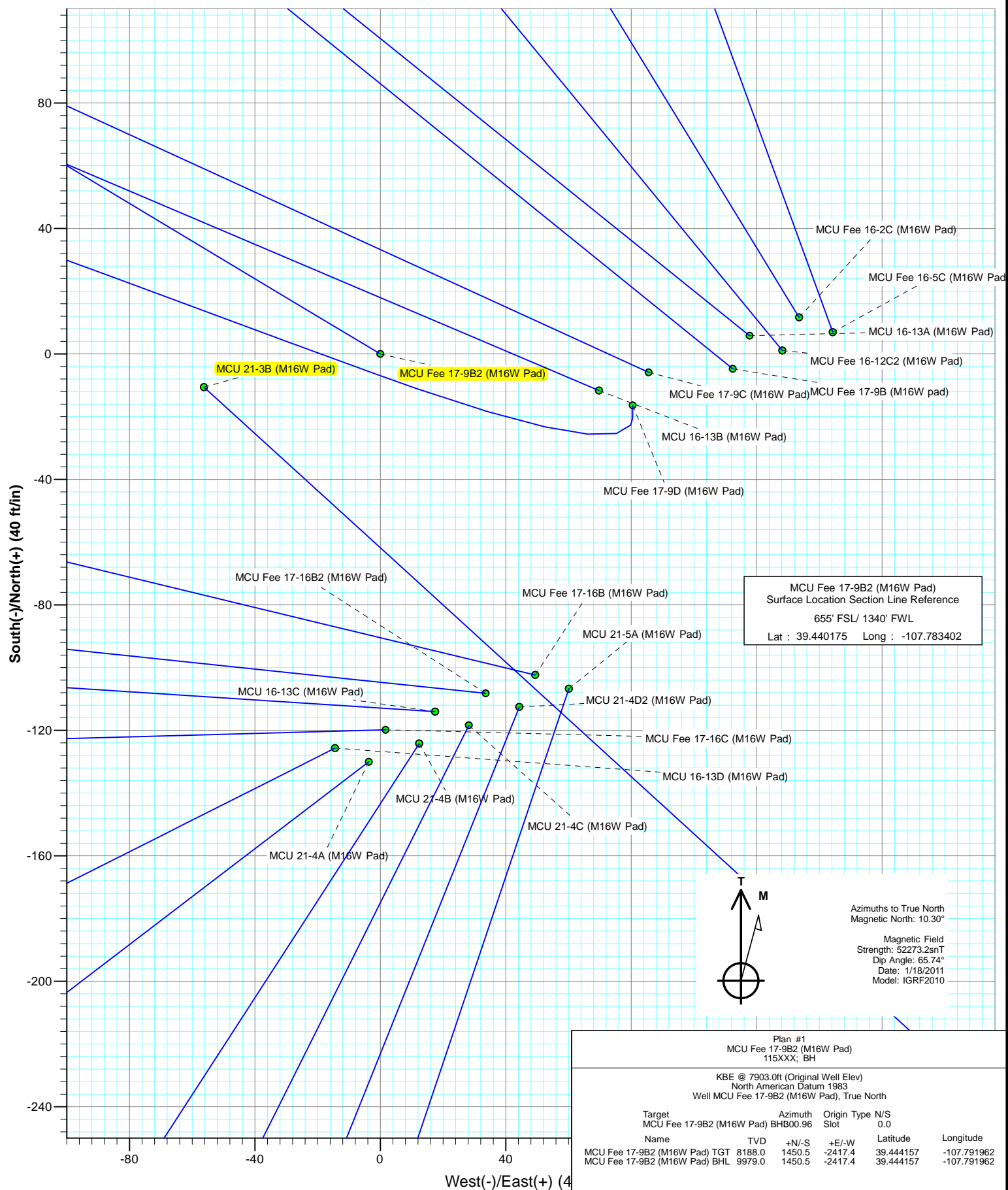
Azimuths to True North
 Magnetic North: 10.30°

Magnetic Field
 Strength: 52273.2snT
 Dip Angle: 65.74°
 Date: 1/18/2011
 Model: IGRF2010

Plan #1 MCU Fee 17-9B2 (M16W Pad) 115XXX; BH					
KBE @ 7903.0ft (Original Well Elev) North American Datum 1983 Well MCU Fee 17-9B2 (M16W Pad), True North					
Target	Azimuth	Origin	Type	N/S	
MCU Fee 17-9B2 (M16W Pad) BHL	299.93	Slot		0.0	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU Fee 17-9B2 (M16W Pad) TGT	8188.0	1450.5	-2519.1	39.444157	-107.791962
MCU Fee 17-9B2 (M16W Pad) BHL	9979.0	1450.5	-2519.1	39.444157	-107.791962



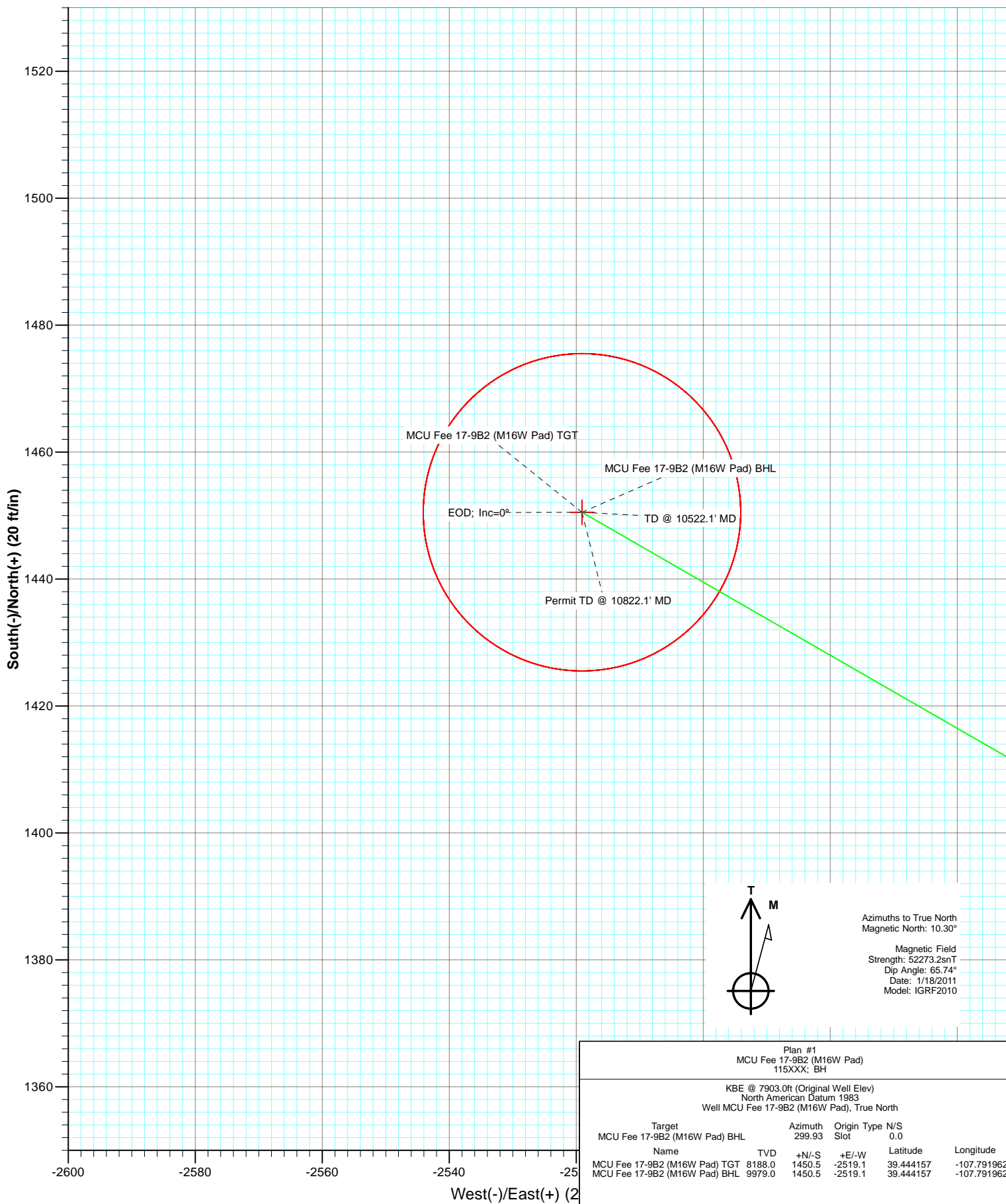
Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU Fee 17-9B2 (M16W Pad)
Wellbore: DD
Plan: Plan #1



Plan #1 MCU Fee 17-9B2 (M16W Pad) 115XXX; BH					
KBE @ 7903.0ft (Original Well Elev) North American Datum 1983 Well MCU Fee 17-9B2 (M16W Pad), True North					
Target	MCU Fee 17-9B2 (M16W Pad)	Azimuth	Origin Type	N/S	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU Fee 17-9B2 (M16W Pad) TGT	8188.0	1450.5	-2417.4	39.444157	-107.791962
MCU Fee 17-9B2 (M16W Pad) BHL	9979.0	1450.5	-2417.4	39.444157	-107.791962



Project: Mamm Creek
 Site: SWSW S16-T7S-R93W (M16W Pad)
 Well: MCU Fee 17-9B2 (M16W Pad)
 Wellbore: DD
 Plan: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	North Reference:	True
Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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 17-9B2 (M16W Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,593,318.07 ft	Latitude:	39.440175
	+E/-W	0.0 ft	Easting:	2,355,286.05 ft	Longitude:	-107.783042
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) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	299.93

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	
928.2	21.85	299.93	910.7	68.4	-118.9	3.00	3.00	0.00	299.93	
8,002.9	21.85	299.93	7,477.3	1,382.1	-2,400.2	0.00	0.00	0.00	0.00	
8,731.1	0.00	0.00	8,188.0	1,450.5	-2,519.1	3.00	-3.00	0.00	180.00	MCU Fee 17-9B2 (M1
10,522.1	0.00	0.00	9,979.0	1,450.5	-2,519.1	0.00	0.00	0.00	0.00	MCU Fee 17-9B2 (M1
10,822.1	0.00	0.00	10,279.0	1,450.5	-2,519.1	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	North Reference:	True
Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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	299.93	300.0	1.3	-2.3	2.6	3.00	3.00	
400.0	6.00	299.93	399.6	5.2	-9.1	10.5	3.00	3.00	
500.0	9.00	299.93	498.8	11.7	-20.4	23.5	3.00	3.00	
600.0	12.00	299.93	597.1	20.8	-36.2	41.7	3.00	3.00	
700.0	15.00	299.93	694.3	32.5	-56.4	65.1	3.00	3.00	
800.0	18.00	299.93	790.2	46.6	-81.0	93.5	3.00	3.00	
900.0	21.00	299.93	884.4	63.3	-109.9	126.9	3.00	3.00	
928.2	21.85	299.93	910.7	68.4	-118.9	137.1	3.00	3.00	EOB; Inc=21.85°
1,000.0	21.85	299.93	977.3	81.8	-142.0	163.9	0.00	0.00	
1,100.0	21.85	299.93	1,070.1	100.3	-174.3	201.1	0.00	0.00	
1,165.6	21.85	299.93	1,131.0	112.5	-195.4	225.5	0.00	0.00	Surface Casing
1,200.0	21.85	299.93	1,163.0	118.9	-206.5	238.3	0.00	0.00	
1,300.0	21.85	299.93	1,255.8	137.5	-238.8	275.5	0.00	0.00	
1,400.0	21.85	299.93	1,348.6	156.0	-271.0	312.7	0.00	0.00	
1,500.0	21.85	299.93	1,441.4	174.6	-303.2	349.9	0.00	0.00	
1,600.0	21.85	299.93	1,534.2	193.2	-335.5	387.1	0.00	0.00	
1,700.0	21.85	299.93	1,627.1	211.7	-367.7	424.3	0.00	0.00	
1,800.0	21.85	299.93	1,719.9	230.3	-400.0	461.6	0.00	0.00	
1,900.0	21.85	299.93	1,812.7	248.9	-432.2	498.8	0.00	0.00	
2,000.0	21.85	299.93	1,905.5	267.5	-464.5	536.0	0.00	0.00	
2,100.0	21.85	299.93	1,998.3	286.0	-496.7	573.2	0.00	0.00	
2,200.0	21.85	299.93	2,091.2	304.6	-529.0	610.4	0.00	0.00	
2,300.0	21.85	299.93	2,184.0	323.2	-561.2	647.6	0.00	0.00	
2,400.0	21.85	299.93	2,276.8	341.7	-593.5	684.8	0.00	0.00	
2,500.0	21.85	299.93	2,369.6	360.3	-625.7	722.0	0.00	0.00	
2,600.0	21.85	299.93	2,462.4	378.9	-658.0	759.2	0.00	0.00	
2,700.0	21.85	299.93	2,555.2	397.4	-690.2	796.5	0.00	0.00	
2,800.0	21.85	299.93	2,648.1	416.0	-722.5	833.7	0.00	0.00	
2,900.0	21.85	299.93	2,740.9	434.6	-754.7	870.9	0.00	0.00	
3,000.0	21.85	299.93	2,833.7	453.1	-787.0	908.1	0.00	0.00	
3,100.0	21.85	299.93	2,926.5	471.7	-819.2	945.3	0.00	0.00	
3,200.0	21.85	299.93	3,019.3	490.3	-851.4	982.5	0.00	0.00	
3,300.0	21.85	299.93	3,112.2	508.8	-883.7	1,019.7	0.00	0.00	
3,400.0	21.85	299.93	3,205.0	527.4	-915.9	1,056.9	0.00	0.00	
3,500.0	21.85	299.93	3,297.8	546.0	-948.2	1,094.1	0.00	0.00	
3,600.0	21.85	299.93	3,390.6	564.5	-980.4	1,131.4	0.00	0.00	
3,700.0	21.85	299.93	3,483.4	583.1	-1,012.7	1,168.6	0.00	0.00	
3,800.0	21.85	299.93	3,576.3	601.7	-1,044.9	1,205.8	0.00	0.00	
3,900.0	21.85	299.93	3,669.1	620.3	-1,077.2	1,243.0	0.00	0.00	
4,000.0	21.85	299.93	3,761.9	638.8	-1,109.4	1,280.2	0.00	0.00	
4,080.9	21.85	299.93	3,837.0	653.8	-1,135.5	1,310.3	0.00	0.00	G Sand
4,100.0	21.85	299.93	3,854.7	657.4	-1,141.7	1,317.4	0.00	0.00	
4,200.0	21.85	299.93	3,947.5	676.0	-1,173.9	1,354.6	0.00	0.00	
4,300.0	21.85	299.93	4,040.4	694.5	-1,206.2	1,391.8	0.00	0.00	
4,400.0	21.85	299.93	4,133.2	713.1	-1,238.4	1,429.0	0.00	0.00	
4,500.0	21.85	299.93	4,226.0	731.7	-1,270.7	1,466.3	0.00	0.00	
4,600.0	21.85	299.93	4,318.8	750.2	-1,302.9	1,503.5	0.00	0.00	
4,700.0	21.85	299.93	4,411.6	768.8	-1,335.2	1,540.7	0.00	0.00	
4,800.0	21.85	299.93	4,504.4	787.4	-1,367.4	1,577.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	North Reference:	True
Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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	21.85	299.93	4,597.3	805.9	-1,399.6	1,615.1	0.00	0.00	
5,000.0	21.85	299.93	4,690.1	824.5	-1,431.9	1,652.3	0.00	0.00	
5,100.0	21.85	299.93	4,782.9	843.1	-1,464.1	1,689.5	0.00	0.00	
5,200.0	21.85	299.93	4,875.7	861.6	-1,496.4	1,726.7	0.00	0.00	
5,300.0	21.85	299.93	4,968.5	880.2	-1,528.6	1,763.9	0.00	0.00	
5,400.0	21.85	299.93	5,061.4	898.8	-1,560.9	1,801.2	0.00	0.00	
5,500.0	21.85	299.93	5,154.2	917.3	-1,593.1	1,838.4	0.00	0.00	
5,600.0	21.85	299.93	5,247.0	935.9	-1,625.4	1,875.6	0.00	0.00	
5,700.0	21.85	299.93	5,339.8	954.5	-1,657.6	1,912.8	0.00	0.00	
5,800.0	21.85	299.93	5,432.6	973.1	-1,689.9	1,950.0	0.00	0.00	
5,900.0	21.85	299.93	5,525.5	991.6	-1,722.1	1,987.2	0.00	0.00	
6,000.0	21.85	299.93	5,618.3	1,010.2	-1,754.4	2,024.4	0.00	0.00	
6,100.0	21.85	299.93	5,711.1	1,028.8	-1,786.6	2,061.6	0.00	0.00	
6,200.0	21.85	299.93	5,803.9	1,047.3	-1,818.9	2,098.8	0.00	0.00	
6,289.5	21.85	299.93	5,887.0	1,063.9	-1,847.7	2,132.2	0.00	0.00	Ohio Creek
6,300.0	21.85	299.93	5,896.7	1,065.9	-1,851.1	2,136.1	0.00	0.00	
6,400.0	21.85	299.93	5,989.5	1,084.5	-1,883.4	2,173.3	0.00	0.00	
6,500.0	21.85	299.93	6,082.4	1,103.0	-1,915.6	2,210.5	0.00	0.00	
6,600.0	21.85	299.93	6,175.2	1,121.6	-1,947.8	2,247.7	0.00	0.00	
6,700.0	21.85	299.93	6,268.0	1,140.2	-1,980.1	2,284.9	0.00	0.00	
6,764.6	21.85	299.93	6,328.0	1,152.2	-2,000.9	2,308.9	0.00	0.00	Mesa Verde
6,800.0	21.85	299.93	6,360.8	1,158.7	-2,012.3	2,322.1	0.00	0.00	
6,900.0	21.85	299.93	6,453.6	1,177.3	-2,044.6	2,359.3	0.00	0.00	
7,000.0	21.85	299.93	6,546.5	1,195.9	-2,076.8	2,396.5	0.00	0.00	
7,100.0	21.85	299.93	6,639.3	1,214.4	-2,109.1	2,433.7	0.00	0.00	
7,200.0	21.85	299.93	6,732.1	1,233.0	-2,141.3	2,471.0	0.00	0.00	
7,300.0	21.85	299.93	6,824.9	1,251.6	-2,173.6	2,508.2	0.00	0.00	
7,316.3	21.85	299.93	6,840.0	1,254.6	-2,178.8	2,514.2	0.00	0.00	Williams Fork
7,400.0	21.85	299.93	6,917.7	1,270.1	-2,205.8	2,545.4	0.00	0.00	
7,500.0	21.85	299.93	7,010.6	1,288.7	-2,238.1	2,582.6	0.00	0.00	
7,600.0	21.85	299.93	7,103.4	1,307.3	-2,270.3	2,619.8	0.00	0.00	
7,700.0	21.85	299.93	7,196.2	1,325.9	-2,302.6	2,657.0	0.00	0.00	
7,800.0	21.85	299.93	7,289.0	1,344.4	-2,334.8	2,694.2	0.00	0.00	
7,900.0	21.85	299.93	7,381.8	1,363.0	-2,367.1	2,731.4	0.00	0.00	
8,000.0	21.85	299.93	7,474.6	1,381.6	-2,399.3	2,768.6	0.00	0.00	
8,002.9	21.85	299.93	7,477.3	1,382.1	-2,400.2	2,769.7	0.00	0.00	Start Drop -3.00
8,100.0	18.93	299.93	7,568.3	1,399.0	-2,429.6	2,803.5	3.00	-3.00	
8,200.0	15.93	299.93	7,663.7	1,413.9	-2,455.5	2,833.5	3.00	-3.00	
8,300.0	12.93	299.93	7,760.6	1,426.4	-2,477.1	2,858.4	3.00	-3.00	
8,400.0	9.93	299.93	7,858.6	1,436.2	-2,494.3	2,878.2	3.00	-3.00	
8,404.5	9.80	299.93	7,863.0	1,436.6	-2,494.9	2,879.0	3.00	-3.00	Top of Gas; Inc=9.8°
8,500.0	6.93	299.93	7,957.5	1,443.6	-2,507.0	2,892.9	3.00	-3.00	
8,600.0	3.93	299.93	8,057.0	1,448.3	-2,515.2	2,902.4	3.00	-3.00	
8,700.0	0.93	299.93	8,156.9	1,450.4	-2,518.9	2,906.6	3.00	-3.00	
8,731.1	0.00	0.00	8,188.0	1,450.5	-2,519.1	2,906.9	3.00	-3.00	EOD; Inc=0° - MCU Fee 17-9B2 (M16W Pad) T
8,800.0	0.00	0.00	8,256.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
8,900.0	0.00	0.00	8,356.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,000.0	0.00	0.00	8,456.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,100.0	0.00	0.00	8,556.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,200.0	0.00	0.00	8,656.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,300.0	0.00	0.00	8,756.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,400.0	0.00	0.00	8,856.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	North Reference:	True
Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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	8,956.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,600.0	0.00	0.00	9,056.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,622.1	0.00	0.00	9,079.0	1,450.5	-2,519.1	2,906.9	0.00	0.00	Coal Ridge
9,700.0	0.00	0.00	9,156.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,800.0	0.00	0.00	9,256.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
9,900.0	0.00	0.00	9,356.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,000.0	0.00	0.00	9,456.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,100.0	0.00	0.00	9,556.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,200.0	0.00	0.00	9,656.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,286.1	0.00	0.00	9,743.0	1,450.5	-2,519.1	2,906.9	0.00	0.00	Base Cameo A Coal
10,300.0	0.00	0.00	9,756.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,400.0	0.00	0.00	9,856.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,422.1	0.00	0.00	9,879.0	1,450.5	-2,519.1	2,906.9	0.00	0.00	Rollins
10,500.0	0.00	0.00	9,956.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,522.1	0.00	0.00	9,979.0	1,450.5	-2,519.1	2,906.9	0.00	0.00	TD @ 10522.1' MD - MCU Fee 17-9B2 (M16W)
10,600.0	0.00	0.00	10,056.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,700.0	0.00	0.00	10,156.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,800.0	0.00	0.00	10,256.9	1,450.5	-2,519.1	2,906.9	0.00	0.00	
10,822.1	0.00	0.00	10,279.0	1,450.5	-2,519.1	2,906.9	0.00	0.00	Permit TD @ 10822.1' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
MCU Fee 17-9B2 (M16V	0.00	0.00	8,188.0	1,450.5	-2,519.1	1,594,831.44	2,352,804.21	39.444157	-107.791962
- plan hits target center									
- Circle (radius 25.0)									
MCU Fee 17-9B2 (M16V	0.00	0.00	9,979.0	1,450.5	-2,519.1	1,594,831.44	2,352,804.21	39.444157	-107.791962
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,165.6	1,131.0	Surface Casing	0.000	0.000	

Cathedral Energy Services

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	North Reference:	True
Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,080.9	3,837.0	G Sand		0.00		
6,289.5	5,887.0	Ohio Creek		0.00		
6,764.6	6,328.0	Mesa Verde		0.00		
7,316.3	6,840.0	Williams Fork		0.00		
8,404.5	7,863.0	Top of Gas; Inc=9.8°		0.00		
9,622.1	9,079.0	Coal Ridge		0.00		
10,286.1	9,743.0	Base Cameo A Coal		0.00		
10,422.1	9,879.0	Rollins		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP @ 200' MD	
928.2	910.7	68.4	-118.9	EOB; Inc=21.85°	
8,002.9	7,477.3	1,382.1	-2,400.2	Start Drop -3.00	
8,731.1	8,188.0	1,450.5	-2,519.1	EOD; Inc=0°	
10,522.1	9,979.0	1,450.5	-2,519.1	TD @ 10522.1' MD	
10,822.1	10,279.0	1,450.5	-2,519.1	Permit TD @ 10822.1' MD	

EnCana Oil & Gas (USA) Inc

Mamm Creek

SWSW S16-T7S-R93W (M16W Pad)

MCU Fee 17-9B2 (M16W Pad)

DD

Plan #1

Anticollision Report

27 January, 2011

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
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	1/27/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,822.1	Plan #1 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

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Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation	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	17.1	16.5	27.562 CC	
MCU 16-13A (M16W Pad) - DD - Plan #1	300.0	300.5	17.5	16.5	17.760 ES	
MCU 16-13A (M16W Pad) - DD - Plan #1	600.0	600.9	25.8	23.4	10.869 SF	
MCU 16-13B (M16W Pad) - DD - Plan #1	657.5	654.1	30.4	27.5	10.404 CC, ES	
MCU 16-13B (M16W Pad) - DD - Plan #1	700.0	696.1	31.0	27.8	9.647 SF	
MCU 16-13C (M16W Pad) - DD - Plan #1	200.0	200.0	141.7	141.1	228.049 CC, ES	
MCU 16-13C (M16W Pad) - DD - Plan #1	1,100.0	1,075.9	211.6	205.7	35.863 SF	
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	171.1	170.4	275.308 CC, ES	
MCU 16-13D (M16W Pad) - DD - Plan #1	1,300.0	1,251.4	304.4	297.1	41.583 SF	
MCU 21-3B (M16W Pad) - DD - Plan #1	200.0	200.0	11.8	11.2	19.068 CC, ES	
MCU 21-3B (M16W Pad) - DD - Plan #1	300.0	299.5	13.8	12.8	14.051 SF	
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	167.3	166.7	269.321 CC, ES	
MCU 21-4A (M16W Pad) - DD - Plan #1	1,300.0	1,245.7	329.4	322.1	45.257 SF	
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	152.9	152.3	246.122 CC, ES	
MCU 21-4B (M16W Pad) - DD - Plan #1	1,300.0	1,225.2	380.8	373.6	52.579 SF	
MCU 21-4C (M16W Pad) - DD - Plan #1	200.0	200.0	139.3	138.7	224.179 CC, ES	
MCU 21-4C (M16W Pad) - DD - Plan #1	1,400.0	1,302.5	447.4	439.5	56.787 SF	
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	126.3	125.7	203.274 CC, ES	
MCU 21-4D2 (M16W Pad) - DD - Plan #1	1,400.0	1,284.7	479.0	471.2	61.019 SF	
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	114.5	113.9	184.279 CC, ES	
MCU 21-5A (M16W Pad) - DD - Plan #1	1,300.0	1,178.0	459.8	452.7	64.877 SF	
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	200.0	200.0	26.6	25.9	42.764 CC, ES	
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	600.0	602.1	39.1	36.6	15.785 SF	
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	34.0	33.4	54.689 CC, ES	
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	800.0	798.6	78.5	74.3	18.758 SF	
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	43.2	42.6	69.537 CC, ES	
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	2,400.0	2,348.8	487.0	464.2	21.322 SF	
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	200.0	200.0	114.9	114.3	184.929 CC, ES	
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	4,200.0	4,170.1	496.0	447.6	10.255 SF	
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	200.0	200.0	127.8	127.2	205.682 CC, ES	
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	3,100.0	3,052.2	499.9	465.9	14.694 SF	
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	156.1	155.4	251.157 CC, ES	
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	2,400.0	2,331.5	489.7	465.4	20.107 SF	
MCU Fee 17-9B (M16W pad) - DD - Plan #1	200.0	200.0	11.7	11.1	18.873 CC	
MCU Fee 17-9B (M16W pad) - DD - Plan #1	400.0	401.2	12.1	10.8	9.078 ES	
MCU Fee 17-9B (M16W pad) - DD - Plan #1	10,822.1	10,822.0	460.5	348.4	4.111 SF	
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	200.0	200.0	17.1	16.5	27.554 CC	
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	300.0	299.4	17.3	16.3	17.671 ES	
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	2,200.0	2,194.5	70.3	47.3	3.058 SF	
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	200.0	200.0	26.8	26.2	43.092 CC	
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	218.9	218.8	26.8	26.1	38.887 ES	
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	5,200.0	5,184.0	494.5	455.9	12.813 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	70.06	5.8	16.1	17.1					
100.0	100.0	100.0	100.0	0.1	0.1	70.06	5.8	16.1	17.1	16.9	0.27	62.897		
200.0	200.0	200.0	200.0	0.3	0.3	70.06	5.8	16.1	17.1	16.5	0.62	27.562 CC		
300.0	300.0	300.5	300.4	0.5	0.5	129.30	7.5	14.0	17.5	16.5	0.98	17.760 ES		
400.0	399.6	400.9	400.5	0.7	0.7	127.01	12.5	7.9	18.4	17.0	1.40	13.184		
500.0	498.8	501.1	500.0	1.0	1.0	125.99	20.1	-1.7	20.6	18.7	1.89	10.875		
600.0	597.1	600.9	599.0	1.4	1.2	133.74	28.1	-11.5	25.8	23.4	2.37	10.869 SF		
700.0	694.3	700.2	697.5	1.8	1.5	144.28	35.9	-21.3	35.4	32.6	2.77	12.779		
800.0	790.2	798.9	795.4	2.4	1.8	153.05	43.8	-31.0	50.3	47.2	3.10	16.228		
900.0	884.4	896.6	892.3	3.0	2.1	159.26	51.5	-40.7	70.7	67.3	3.40	20.778		
1,000.0	977.3	993.3	988.3	3.7	2.3	163.45	59.2	-50.2	95.2	91.5	3.71	25.662		
1,100.0	1,070.1	1,090.1	1,084.2	4.4	2.6	165.99	66.9	-59.8	120.1	116.1	4.04	29.752		
1,200.0	1,163.0	1,186.8	1,180.2	5.1	2.9	167.66	74.6	-69.3	145.2	140.8	4.38	33.183		
1,300.0	1,255.8	1,283.5	1,276.1	5.8	3.1	168.83	82.2	-78.8	170.4	165.7	4.72	36.094		
1,400.0	1,348.6	1,380.3	1,372.1	6.5	3.4	169.71	89.9	-88.4	195.6	190.6	5.07	38.593		
1,500.0	1,441.4	1,477.0	1,468.0	7.2	3.7	170.38	97.6	-97.9	220.9	215.5	5.42	40.761		
1,600.0	1,534.2	1,573.7	1,564.0	7.9	4.0	170.91	105.3	-107.5	246.2	240.4	5.77	42.658		
1,700.0	1,627.1	1,670.4	1,659.9	8.6	4.2	171.35	113.0	-117.0	271.5	265.4	6.12	44.333		
1,800.0	1,719.9	1,767.2	1,755.8	9.3	4.5	171.71	120.6	-126.5	296.8	290.3	6.48	45.821		
1,900.0	1,812.7	1,863.9	1,851.8	10.0	4.8	172.01	128.3	-136.1	322.1	315.3	6.83	47.152		
2,000.0	1,905.5	1,960.6	1,947.7	10.7	5.0	172.27	136.0	-145.6	347.5	340.3	7.19	48.350		
2,100.0	1,998.3	2,057.3	2,043.7	11.4	5.3	172.50	143.7	-155.2	372.8	365.3	7.54	49.434		
2,200.0	2,091.2	2,154.1	2,139.6	12.1	5.6	172.70	151.3	-164.7	398.2	390.3	7.90	50.419		
2,300.0	2,184.0	2,250.8	2,235.6	12.8	5.9	172.87	159.0	-174.2	423.5	415.3	8.25	51.319		
2,400.0	2,276.8	2,347.5	2,331.5	13.5	6.1	173.02	166.7	-183.8	448.9	440.2	8.61	52.143		
2,500.0	2,369.6	2,444.2	2,427.5	14.2	6.4	173.16	174.4	-193.3	474.2	465.2	8.96	52.901		
2,600.0	2,462.4	2,541.0	2,523.4	14.9	6.7	173.28	182.1	-202.9	499.6	490.2	9.32	53.601		

Cathedral Energy Services

Anticollision Report

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Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13B (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-110.04	-11.6	-31.9	34.0					
100.0	100.0	100.0	100.0	0.1	0.1	-110.04	-11.6	-31.9	34.0	33.7	0.27	124.770		
200.0	200.0	200.0	200.0	0.3	0.3	-110.04	-11.6	-31.9	34.0	33.3	0.62	54.674		
300.0	300.0	298.7	298.7	0.5	0.5	-50.37	-10.6	-34.3	34.2	33.2	0.98	34.982		
400.0	399.6	397.6	397.2	0.7	0.7	-51.55	-7.7	-41.3	34.8	33.4	1.37	25.331		
500.0	498.8	497.5	496.6	1.0	0.9	-57.22	-3.8	-50.3	33.8	32.0	1.85	18.318		
600.0	597.1	597.1	595.8	1.4	1.2	-71.76	0.0	-59.3	31.2	28.7	2.48	12.597		
657.5	653.1	654.1	652.5	1.6	1.3	-85.21	2.2	-64.5	30.4	27.5	2.92	10.404	CC, ES	
700.0	694.3	696.1	694.3	1.8	1.4	-97.13	3.8	-68.3	31.0	27.8	3.22	9.647	SF	
800.0	790.2	794.3	792.0	2.4	1.6	-124.87	7.6	-77.2	39.3	35.6	3.66	10.731		
900.0	884.4	891.4	888.6	3.0	1.9	-143.73	11.3	-86.0	57.4	53.6	3.82	15.011		
1,000.0	977.3	987.4	984.2	3.7	2.1	-154.44	15.0	-94.7	82.1	78.2	3.98	20.660		
1,100.0	1,070.1	1,083.4	1,079.7	4.4	2.3	-160.23	18.7	-103.3	108.6	104.4	4.21	25.812		
1,200.0	1,163.0	1,179.4	1,175.3	5.1	2.6	-163.75	22.4	-112.0	135.6	131.1	4.48	30.277		
1,300.0	1,255.8	1,275.4	1,270.8	5.8	2.8	-166.10	26.1	-120.7	163.0	158.2	4.78	34.125		
1,400.0	1,348.6	1,371.4	1,366.4	6.5	3.0	-167.77	29.8	-129.4	190.5	185.5	5.09	37.457		
1,500.0	1,441.4	1,467.4	1,461.9	7.2	3.3	-169.02	33.5	-138.1	218.2	212.8	5.41	40.361		
1,600.0	1,534.2	1,563.4	1,557.4	7.9	3.5	-169.99	37.1	-146.8	246.0	240.2	5.73	42.911		
1,700.0	1,627.1	1,659.4	1,653.0	8.6	3.8	-170.77	40.8	-155.5	273.8	267.7	6.06	45.165		
1,800.0	1,719.9	1,755.4	1,748.5	9.3	4.0	-171.40	44.5	-164.2	301.6	295.2	6.39	47.172		
1,900.0	1,812.7	1,851.4	1,844.0	10.0	4.2	-171.92	48.2	-172.8	329.4	322.7	6.73	48.968		
2,000.0	1,905.5	1,947.4	1,939.6	10.7	4.5	-172.36	51.9	-181.5	357.3	350.3	7.06	50.586		
2,100.0	1,998.3	2,043.4	2,035.1	11.4	4.7	-172.74	55.6	-190.2	385.2	377.8	7.40	52.049		
2,200.0	2,091.2	2,139.4	2,130.6	12.1	4.9	-173.07	59.3	-198.9	413.1	405.4	7.74	53.380		
2,300.0	2,184.0	2,235.4	2,226.2	12.8	5.2	-173.35	63.0	-207.6	441.1	433.0	8.08	54.594		
2,400.0	2,276.8	2,331.4	2,321.7	13.5	5.4	-173.61	66.7	-216.3	469.0	460.6	8.42	55.707		
2,500.0	2,369.6	2,427.4	2,417.2	14.2	5.6	-173.83	70.3	-225.0	496.9	488.2	8.76	56.731		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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			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	-143.56	-114.0	-84.2	141.7					
100.0	100.0	100.0	100.0	0.1	0.1	-143.56	-114.0	-84.2	141.7	141.4	0.27	520.419		
200.0	200.0	200.0	200.0	0.3	0.3	-143.56	-114.0	-84.2	141.7	141.1	0.62	228.049	CC, ES	
300.0	300.0	296.1	296.1	0.5	0.5	-83.65	-113.8	-86.6	142.8	141.8	0.98	145.983		
400.0	399.6	393.6	393.3	0.7	0.7	-84.23	-113.4	-93.6	145.8	144.4	1.39	104.842		
500.0	498.8	493.4	492.8	1.0	0.9	-86.46	-112.9	-101.8	148.9	147.0	1.88	79.149		
600.0	597.1	592.7	591.7	1.4	1.1	-90.53	-112.3	-109.9	152.3	149.8	2.46	61.869		
700.0	694.3	691.3	690.0	1.8	1.3	-96.20	-111.8	-117.9	156.9	153.8	3.13	50.134		
800.0	790.2	789.0	787.3	2.4	1.6	-103.09	-111.3	-125.9	164.2	160.4	3.86	42.496		
900.0	884.4	885.4	883.4	3.0	1.8	-110.67	-110.8	-133.8	175.7	171.1	4.62	38.024		
1,000.0	977.3	980.7	978.4	3.7	2.0	-118.34	-110.3	-141.6	192.0	186.7	5.30	36.207		
1,100.0	1,070.1	1,075.9	1,073.3	4.4	2.2	-124.92	-109.8	-149.4	211.6	205.7	5.90	35.863	SF	
1,200.0	1,163.0	1,171.1	1,168.2	5.1	2.4	-130.39	-109.3	-157.2	233.5	227.1	6.43	36.335		
1,300.0	1,255.8	1,266.4	1,263.1	5.8	2.6	-134.92	-108.8	-165.0	257.2	250.3	6.90	37.264		
1,400.0	1,348.6	1,361.6	1,358.1	6.5	2.8	-138.70	-108.3	-172.8	282.1	274.8	7.34	38.445		
1,500.0	1,441.4	1,456.9	1,453.0	7.2	3.1	-141.87	-107.8	-180.6	308.1	300.3	7.75	39.753		
1,600.0	1,534.2	1,552.1	1,547.9	7.9	3.3	-144.55	-107.2	-188.4	334.8	326.7	8.14	41.113		
1,700.0	1,627.1	1,647.4	1,642.8	8.6	3.5	-146.84	-106.7	-196.2	362.1	353.6	8.52	42.479		
1,800.0	1,719.9	1,742.6	1,737.8	9.3	3.7	-148.81	-106.2	-203.9	389.9	381.0	8.90	43.823		
1,900.0	1,812.7	1,837.8	1,832.7	10.0	3.9	-150.52	-105.7	-211.7	418.1	408.8	9.26	45.127		
2,000.0	1,905.5	1,933.1	1,927.6	10.7	4.1	-152.02	-105.2	-219.5	446.5	436.9	9.63	46.384		
2,100.0	1,998.3	2,028.3	2,022.5	11.4	4.3	-153.34	-104.7	-227.3	475.2	465.2	9.99	47.587		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-137.27	-125.6	-116.1	171.1					
100.0	100.0	100.0	100.0	0.1	0.1	-137.27	-125.6	-116.1	171.1	170.8	0.27	628.266		
200.0	200.0	200.0	200.0	0.3	0.3	-137.27	-125.6	-116.1	171.1	170.4	0.62	275.308 CC, ES		
300.0	300.0	292.2	292.2	0.5	0.5	-77.67	-126.6	-118.1	172.7	171.8	0.97	178.800		
400.0	399.6	385.9	385.6	0.7	0.7	-79.08	-129.7	-124.0	177.8	176.4	1.35	131.348		
500.0	498.8	485.3	484.6	1.0	0.9	-81.88	-133.5	-131.6	183.5	181.7	1.82	100.793		
600.0	597.1	584.1	583.1	1.4	1.1	-86.03	-137.3	-139.2	189.2	186.8	2.38	79.634		
700.0	694.3	682.1	680.7	1.8	1.3	-91.33	-141.0	-146.7	196.1	193.0	3.03	64.725		
800.0	790.2	778.9	777.2	2.4	1.5	-97.49	-144.8	-154.1	205.3	201.5	3.77	54.451		
900.0	884.4	874.4	872.3	3.0	1.8	-104.14	-148.4	-161.4	218.2	213.7	4.57	47.729		
1,000.0	977.3	968.7	966.3	3.7	2.0	-110.99	-152.1	-168.6	235.6	230.3	5.35	44.070		
1,100.0	1,070.1	1,062.9	1,060.1	4.4	2.2	-117.05	-155.7	-175.8	256.2	250.2	6.06	42.288		
1,200.0	1,163.0	1,157.1	1,154.0	5.1	2.4	-122.21	-159.3	-183.0	279.4	272.6	6.71	41.605		
1,300.0	1,255.8	1,251.4	1,247.9	5.8	2.6	-126.59	-162.9	-190.2	304.4	297.1	7.32	41.583 SF		
1,400.0	1,348.6	1,345.6	1,341.8	6.5	2.8	-130.33	-166.6	-197.4	331.0	323.1	7.89	41.961		
1,500.0	1,441.4	1,439.8	1,435.7	7.2	3.1	-133.52	-170.2	-204.6	358.7	350.3	8.42	42.582		
1,600.0	1,534.2	1,534.1	1,529.6	7.9	3.3	-136.26	-173.8	-211.8	387.3	378.4	8.94	43.346		
1,700.0	1,627.1	1,628.3	1,623.4	8.6	3.5	-138.62	-177.4	-219.0	416.7	407.2	9.43	44.190		
1,800.0	1,719.9	1,722.5	1,717.3	9.3	3.7	-140.69	-181.1	-226.1	446.6	436.7	9.91	45.073		
1,900.0	1,812.7	1,816.7	1,811.2	10.0	3.9	-142.49	-184.7	-233.3	477.0	466.6	10.38	45.967		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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					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	-153.07	-10.6	-5.4	11.8					
100.0	100.0	100.0	100.0	0.1	0.1	-153.07	-10.6	-5.4	11.8	11.6	0.27	43.514		
200.0	200.0	200.0	200.0	0.3	0.3	-153.07	-10.6	-5.4	11.8	11.2	0.62	19.068 CC, ES		
300.0	300.0	299.5	299.5	0.5	0.5	-114.46	-12.4	-3.6	13.8	12.8	0.98	14.051 SF		
400.0	399.6	397.5	397.1	0.7	0.7	-144.58	-17.9	1.8	25.6	24.3	1.34	19.155		
500.0	498.8	492.4	491.2	1.0	1.0	-157.83	-26.5	10.2	49.6	47.9	1.67	29.660		
600.0	597.1	582.9	580.4	1.4	1.3	-163.29	-37.9	21.4	83.9	81.9	2.00	42.024		
700.0	694.3	668.1	663.5	1.8	1.7	-165.88	-51.4	34.5	127.5	125.2	2.31	55.198		
800.0	790.2	754.5	747.3	2.4	2.0	-167.41	-66.4	49.2	177.6	175.0	2.62	67.703		
900.0	884.4	838.2	828.4	3.0	2.4	-168.39	-80.9	63.3	232.2	229.3	2.93	79.288		
1,000.0	977.3	919.7	907.5	3.7	2.8	-169.31	-95.0	77.1	290.1	286.8	3.25	89.322		
1,100.0	1,070.1	1,001.0	986.4	4.4	3.1	-170.01	-109.1	90.9	348.1	344.5	3.57	97.396		
1,200.0	1,163.0	1,082.4	1,065.4	5.1	3.5	-170.51	-123.2	104.7	406.2	402.3	3.90	104.101		
1,300.0	1,255.8	1,163.8	1,144.3	5.8	3.9	-170.88	-137.3	118.5	464.2	460.0	4.23	109.770		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-140.98	-130.0	-105.3	167.3					
100.0	100.0	100.0	100.0	0.1	0.1	-140.98	-130.0	-105.3	167.3	167.1	0.27	614.603		
200.0	200.0	200.0	200.0	0.3	0.3	-140.98	-130.0	-105.3	167.3	166.7	0.62	269.321 CC, ES		
300.0	300.0	292.1	292.0	0.5	0.5	-81.49	-131.4	-107.1	169.3	168.3	0.97	175.305		
400.0	399.6	385.4	385.1	0.7	0.7	-83.15	-135.5	-112.5	175.2	173.9	1.35	129.649		
500.0	498.8	482.8	482.0	1.0	0.9	-86.07	-141.2	-120.0	183.3	181.5	1.81	101.069		
600.0	597.1	581.3	580.1	1.4	1.1	-90.27	-147.0	-127.6	191.9	189.5	2.36	81.126		
700.0	694.3	678.9	677.3	1.8	1.4	-95.42	-152.7	-135.1	202.0	199.0	3.01	67.126		
800.0	790.2	775.4	773.3	2.4	1.6	-101.23	-158.4	-142.5	214.8	211.0	3.73	57.506		
900.0	884.4	870.5	867.9	3.0	1.8	-107.32	-164.0	-149.9	231.4	226.9	4.52	51.210		
1,000.0	977.3	964.3	961.3	3.7	2.0	-113.57	-169.5	-157.1	252.3	247.0	5.28	47.788		
1,100.0	1,070.1	1,058.1	1,054.6	4.4	2.3	-119.04	-175.0	-164.3	276.0	270.0	5.99	46.082		
1,200.0	1,163.0	1,151.9	1,148.0	5.1	2.5	-123.67	-180.6	-171.6	301.9	295.2	6.65	45.372		
1,300.0	1,255.8	1,245.7	1,241.3	5.8	2.7	-127.58	-186.1	-178.8	329.4	322.1	7.28	45.257 SF		
1,400.0	1,348.6	1,339.4	1,334.6	6.5	3.0	-130.90	-191.6	-186.0	358.1	350.3	7.87	45.503		
1,500.0	1,441.4	1,433.2	1,428.0	7.2	3.2	-133.73	-197.1	-193.2	387.9	379.4	8.44	45.968		
1,600.0	1,534.2	1,527.0	1,521.3	7.9	3.4	-136.17	-202.6	-200.5	418.4	409.4	8.99	46.562		
1,700.0	1,627.1	1,620.7	1,614.6	8.6	3.6	-138.29	-208.1	-207.7	449.5	440.0	9.52	47.229		
1,800.0	1,719.9	1,714.5	1,708.0	9.3	3.9	-140.13	-213.6	-214.9	481.1	471.1	10.04	47.934		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-144.30	-124.2	-89.2	152.9					
100.0	100.0	100.0	100.0	0.1	0.1	-144.30	-124.2	-89.2	152.9	152.7	0.27	561.664		
200.0	200.0	200.0	200.0	0.3	0.3	-144.30	-124.2	-89.2	152.9	152.3	0.62	246.122 CC, ES		
300.0	300.0	292.5	292.5	0.5	0.5	-85.10	-126.1	-90.5	155.1	154.1	0.97	160.568		
400.0	399.6	384.3	384.0	0.7	0.7	-87.52	-131.6	-94.1	161.9	160.5	1.35	120.112		
500.0	498.8	474.9	473.9	1.0	0.9	-91.05	-140.8	-100.0	173.8	172.0	1.79	97.073		
600.0	597.1	571.8	569.8	1.4	1.2	-95.65	-152.7	-107.7	189.6	187.3	2.33	81.530		
700.0	694.3	668.2	665.1	1.8	1.5	-100.77	-164.5	-115.3	207.6	204.7	2.94	70.514		
800.0	790.2	763.2	759.2	2.4	1.8	-106.08	-176.2	-122.9	228.8	225.2	3.64	62.852		
900.0	884.4	856.7	851.7	3.0	2.1	-111.29	-187.6	-130.3	253.9	249.5	4.40	57.739		
1,000.0	977.3	948.9	942.8	3.7	2.3	-116.60	-199.0	-137.6	282.9	277.7	5.15	54.956		
1,100.0	1,070.1	1,041.0	1,033.9	4.4	2.6	-121.18	-210.3	-144.9	314.1	308.2	5.87	53.507		
1,200.0	1,163.0	1,133.1	1,125.1	5.1	2.9	-124.95	-221.6	-152.2	346.9	340.3	6.57	52.819		
1,300.0	1,255.8	1,225.2	1,216.2	5.8	3.2	-128.08	-232.9	-159.5	380.8	373.6	7.24	52.579 SF		
1,400.0	1,348.6	1,317.3	1,307.3	6.5	3.5	-130.72	-244.2	-166.8	415.6	407.7	7.90	52.611		
1,500.0	1,441.4	1,409.4	1,398.4	7.2	3.7	-132.95	-255.5	-174.2	451.1	442.6	8.54	52.805		
1,600.0	1,534.2	1,501.5	1,489.5	7.9	4.0	-134.87	-266.8	-181.5	487.2	478.0	9.17	53.097		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	-148.19	-118.4	-73.4	139.3				
100.0	100.0	100.0	100.0	0.1	0.1	-148.19	-118.4	-73.4	139.3	139.0	0.27	511.587	
200.0	200.0	200.0	200.0	0.3	0.3	-148.19	-118.4	-73.4	139.3	138.7	0.62	224.179	CC, ES
300.0	300.0	293.1	293.1	0.5	0.5	-89.12	-120.4	-74.4	141.7	140.7	0.97	146.477	
400.0	399.6	385.5	385.2	0.7	0.7	-91.89	-126.4	-77.4	149.0	147.7	1.35	110.441	
500.0	498.8	476.4	475.4	1.0	0.9	-95.82	-136.2	-82.3	162.1	160.3	1.79	90.482	
600.0	597.1	566.6	564.3	1.4	1.2	-100.28	-149.7	-89.1	181.5	179.2	2.31	78.691	
700.0	694.3	661.9	658.0	1.8	1.5	-105.21	-165.3	-96.8	205.1	202.2	2.91	70.446	
800.0	790.2	755.8	750.4	2.4	1.9	-110.06	-180.7	-104.5	231.9	228.4	3.59	64.642	
900.0	884.4	848.1	841.1	3.0	2.2	-114.64	-195.8	-112.0	262.7	258.3	4.33	60.709	
1,000.0	977.3	939.1	930.5	3.7	2.5	-119.35	-210.6	-119.5	297.0	291.9	5.07	58.621	
1,100.0	1,070.1	1,029.9	1,019.9	4.4	2.9	-123.36	-225.5	-126.9	333.1	327.3	5.79	57.529	
1,200.0	1,163.0	1,120.8	1,109.2	5.1	3.2	-126.60	-240.4	-134.3	370.4	363.9	6.50	56.997	
1,300.0	1,255.8	1,211.6	1,198.5	5.8	3.5	-129.27	-255.2	-141.7	408.5	401.3	7.19	56.794	
1,400.0	1,348.6	1,302.5	1,287.8	6.5	3.8	-131.49	-270.1	-149.1	447.4	439.5	7.88	56.787	SF
1,500.0	1,441.4	1,393.3	1,377.1	7.2	4.2	-133.36	-284.9	-156.5	486.7	478.1	8.55	56.898	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	-153.00	-112.5	-57.3	126.3				
100.0	100.0	100.0	100.0	0.1	0.1	-153.00	-112.5	-57.3	126.3	126.0	0.27	463.882	
200.0	200.0	200.0	200.0	0.3	0.3	-153.00	-112.5	-57.3	126.3	125.7	0.62	203.274	CC, ES
300.0	300.0	293.7	293.6	0.5	0.5	-94.04	-114.7	-58.2	128.9	127.9	0.97	133.167	
400.0	399.6	386.6	386.3	0.7	0.7	-97.05	-121.0	-60.7	137.0	135.7	1.35	101.473	
500.0	498.8	477.9	476.9	1.0	0.9	-101.23	-131.3	-64.8	151.3	149.6	1.79	84.587	
600.0	597.1	566.9	564.6	1.4	1.2	-105.70	-145.1	-70.4	172.5	170.3	2.29	75.190	
700.0	694.3	655.0	650.7	1.8	1.6	-109.96	-162.5	-77.4	200.9	198.0	2.87	69.918	
800.0	790.2	747.5	740.9	2.4	2.0	-114.18	-181.8	-85.1	233.8	230.2	3.53	66.171	
900.0	884.4	838.3	829.3	3.0	2.3	-118.02	-200.8	-92.7	270.3	266.0	4.25	63.538	
1,000.0	977.3	927.6	916.4	3.7	2.7	-122.07	-219.4	-100.2	310.1	305.1	4.99	62.208	
1,100.0	1,070.1	1,016.9	1,003.4	4.4	3.1	-125.50	-238.1	-107.7	351.3	345.6	5.71	61.513	
1,200.0	1,163.0	1,106.2	1,090.3	5.1	3.5	-128.22	-256.7	-115.1	393.3	386.9	6.43	61.171	
1,300.0	1,255.8	1,195.4	1,177.3	5.8	3.8	-130.43	-275.3	-122.6	436.0	428.8	7.14	61.034	
1,400.0	1,348.6	1,284.7	1,264.3	6.5	4.2	-132.25	-294.0	-130.1	479.0	471.2	7.85	61.019	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	-158.74	-106.7	-41.5	114.5					
100.0	100.0	100.0	100.0	0.1	0.1	-158.74	-106.7	-41.5	114.5	114.2	0.27	420.534		
200.0	200.0	200.0	200.0	0.3	0.3	-158.74	-106.7	-41.5	114.5	113.9	0.62	184.279	CC, ES	
300.0	300.0	294.2	294.2	0.5	0.5	-99.83	-108.9	-42.3	117.4	116.4	0.97	121.189		
400.0	399.6	387.6	387.3	0.7	0.7	-102.94	-115.4	-44.4	126.3	125.0	1.35	93.591		
500.0	498.8	479.2	478.2	1.0	0.9	-107.12	-126.0	-48.0	142.0	140.2	1.78	79.585		
600.0	597.1	568.5	566.2	1.4	1.2	-111.45	-140.3	-52.8	164.9	162.6	2.28	72.311		
700.0	694.3	654.7	650.4	1.8	1.6	-115.28	-157.8	-58.7	195.3	192.4	2.84	68.678		
800.0	790.2	739.1	732.0	2.4	2.0	-118.46	-178.3	-65.6	232.8	229.3	3.48	66.998		
900.0	884.4	828.1	817.8	3.0	2.4	-121.46	-201.0	-73.2	275.0	270.8	4.18	65.748		
1,000.0	977.3	915.7	902.1	3.7	2.8	-124.82	-223.3	-80.7	320.1	315.2	4.91	65.240		
1,100.0	1,070.1	1,003.1	986.3	4.4	3.3	-127.66	-245.6	-88.2	366.2	360.5	5.63	64.997		
1,200.0	1,163.0	1,090.5	1,070.5	5.1	3.7	-129.88	-267.8	-95.7	412.8	406.4	6.36	64.896		
1,300.0	1,255.8	1,178.0	1,154.7	5.8	4.1	-131.66	-290.1	-103.2	459.8	452.7	7.09	64.877	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	87.61	1.1	26.5	26.6					
100.0	100.0	100.0	100.0	0.1	0.1	87.61	1.1	26.5	26.6	26.3	0.27	97.590		
200.0	200.0	200.0	200.0	0.3	0.3	87.61	1.1	26.5	26.6	25.9	0.62	42.764 CC, ES		
300.0	300.0	300.8	300.8	0.5	0.5	146.17	3.2	24.9	27.2	26.2	0.98	27.759		
400.0	399.6	401.6	401.2	0.7	0.7	142.04	9.3	19.8	29.2	27.8	1.38	21.108		
500.0	498.8	502.3	501.0	1.0	1.0	136.32	19.5	11.4	32.8	30.9	1.89	17.333		
600.0	597.1	602.1	599.5	1.4	1.3	133.48	31.9	1.2	39.1	36.6	2.48	15.785 SF		
700.0	694.3	701.6	697.7	1.8	1.6	135.91	44.2	-8.9	49.1	46.0	3.07	15.990		
800.0	790.2	800.5	795.3	2.4	2.0	140.60	56.5	-19.0	63.0	59.4	3.62	17.406		
900.0	884.4	898.5	892.1	3.0	2.3	145.62	68.6	-28.9	81.5	77.4	4.12	19.791		
1,000.0	977.3	995.8	988.1	3.7	2.6	150.00	80.7	-38.8	103.7	99.2	4.57	22.711		
1,100.0	1,070.1	1,093.0	1,084.1	4.4	2.9	152.94	92.7	-48.7	126.5	121.5	5.02	25.215		
1,200.0	1,163.0	1,190.2	1,180.0	5.1	3.2	154.99	104.7	-58.6	149.5	144.0	5.47	27.330		
1,300.0	1,255.8	1,287.4	1,275.9	5.8	3.5	156.49	116.8	-68.5	172.6	166.7	5.93	29.132		
1,400.0	1,348.6	1,384.6	1,371.9	6.5	3.9	157.63	128.8	-78.4	195.9	189.5	6.38	30.681		
1,500.0	1,441.4	1,481.8	1,467.8	7.2	4.2	158.53	140.9	-88.3	219.1	212.3	6.84	32.025		
1,600.0	1,534.2	1,579.0	1,563.8	7.9	4.5	159.26	152.9	-98.2	242.5	235.2	7.30	33.201		
1,700.0	1,627.1	1,676.2	1,659.7	8.6	4.8	159.86	164.9	-108.1	265.8	258.0	7.76	34.238		
1,800.0	1,719.9	1,773.4	1,755.7	9.3	5.1	160.37	177.0	-118.0	289.2	281.0	8.22	35.160		
1,900.0	1,812.7	1,870.6	1,851.6	10.0	5.5	160.79	189.0	-127.9	312.6	303.9	8.69	35.983		
2,000.0	1,905.5	1,967.8	1,947.5	10.7	5.8	161.16	201.1	-137.8	336.0	326.8	9.15	36.723		
2,100.0	1,998.3	2,065.0	2,043.5	11.4	6.1	161.48	213.1	-147.7	359.4	349.8	9.61	37.392		
2,200.0	2,091.2	2,162.2	2,139.4	12.1	6.4	161.76	225.1	-157.6	382.8	372.8	10.07	37.999		
2,300.0	2,184.0	2,259.4	2,235.4	12.8	6.7	162.01	237.2	-167.5	406.3	395.7	10.54	38.553		
2,400.0	2,276.8	2,356.6	2,331.3	13.5	7.1	162.24	249.2	-177.4	429.7	418.7	11.00	39.060		
2,500.0	2,369.6	2,453.8	2,427.3	14.2	7.4	162.43	261.3	-187.3	453.1	441.7	11.46	39.526		
2,600.0	2,462.4	2,551.0	2,523.2	14.9	7.7	162.61	273.3	-197.2	476.6	464.7	11.93	39.955		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-2C (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	69.92	11.7	31.9	34.0					
100.0	100.0	100.0	100.0	0.1	0.1	69.92	11.7	31.9	34.0	33.7	0.27	124.803		
200.0	200.0	200.0	200.0	0.3	0.3	69.92	11.7	31.9	34.0	33.4	0.62	54.689 CC, ES		
300.0	300.0	300.3	300.3	0.5	0.5	129.02	13.9	30.5	35.2	34.2	0.98	35.713		
400.0	399.6	400.6	400.2	0.7	0.7	126.50	20.6	26.4	38.7	37.3	1.41	27.464		
500.0	498.8	500.6	499.4	1.0	1.0	123.17	31.8	19.6	44.7	42.8	1.95	22.962		
600.0	597.1	600.3	597.4	1.4	1.4	119.84	47.3	10.1	53.3	50.7	2.63	20.277		
700.0	694.3	699.7	694.7	1.8	1.7	119.78	64.3	-0.2	64.5	61.2	3.39	19.037		
800.0	790.2	798.6	791.7	2.4	2.1	122.92	81.2	-10.6	78.5	74.3	4.18	18.758 SF		
900.0	884.4	896.8	887.9	3.0	2.5	127.51	98.0	-20.8	95.7	90.7	4.97	19.263		
1,000.0	977.3	994.3	983.4	3.7	2.8	132.31	114.6	-31.0	115.9	110.2	5.69	20.379		
1,100.0	1,070.1	1,091.8	1,078.9	4.4	3.2	135.83	131.3	-41.2	136.9	130.5	6.39	21.441		
1,200.0	1,163.0	1,189.3	1,174.4	5.1	3.6	138.42	147.9	-51.4	158.3	151.2	7.07	22.387		
1,300.0	1,255.8	1,286.8	1,269.9	5.8	4.0	140.39	164.6	-61.5	179.8	172.1	7.74	23.220		
1,400.0	1,348.6	1,384.2	1,365.4	6.5	4.4	141.93	181.3	-71.7	201.6	193.2	8.42	23.951		
1,500.0	1,441.4	1,481.7	1,460.9	7.2	4.7	143.18	197.9	-81.9	223.4	214.3	9.08	24.596		
1,600.0	1,534.2	1,579.2	1,556.5	7.9	5.1	144.20	214.6	-92.1	245.4	235.6	9.75	25.167		
1,700.0	1,627.1	1,676.7	1,652.0	8.6	5.5	145.06	231.2	-102.3	267.4	256.9	10.41	25.674		
1,800.0	1,719.9	1,774.2	1,747.5	9.3	5.9	145.78	247.9	-112.4	289.4	278.3	11.08	26.128		
1,900.0	1,812.7	1,871.6	1,843.0	10.0	6.3	146.41	264.6	-122.6	311.5	299.7	11.74	26.536		
2,000.0	1,905.5	1,969.1	1,938.5	10.7	6.6	146.95	281.2	-132.8	333.6	321.2	12.40	26.904		
2,100.0	1,998.3	2,066.6	2,034.0	11.4	7.0	147.42	297.9	-143.0	355.7	342.7	13.06	27.238		
2,200.0	2,091.2	2,164.1	2,129.5	12.1	7.4	147.84	314.5	-153.2	377.9	364.2	13.72	27.542		
2,300.0	2,184.0	2,261.6	2,225.0	12.8	7.8	148.21	331.2	-163.3	400.1	385.7	14.38	27.820		
2,400.0	2,276.8	2,359.0	2,320.5	13.5	8.2	148.54	347.9	-173.5	422.3	407.2	15.04	28.075		
2,500.0	2,369.6	2,456.5	2,416.0	14.2	8.6	148.84	364.5	-183.7	444.5	428.8	15.70	28.310		
2,600.0	2,462.4	2,554.0	2,511.5	14.9	8.9	149.11	381.2	-193.9	466.7	450.3	16.36	28.526		
2,700.0	2,555.2	2,651.5	2,607.0	15.6	9.3	149.36	397.8	-204.1	488.9	471.9	17.02	28.727		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	80.77	6.9	42.6	43.2					
100.0	100.0	100.0	100.0	0.1	0.1	80.77	6.9	42.6	43.2	42.9	0.27	158.688		
200.0	200.0	200.0	200.0	0.3	0.3	80.77	6.9	42.6	43.2	42.6	0.62	69.537 CC, ES		
300.0	300.0	300.4	300.3	0.5	0.5	139.61	9.4	41.7	44.8	43.8	0.98	45.540		
400.0	399.6	400.6	400.2	0.7	0.7	136.40	16.8	39.0	49.5	48.1	1.40	35.358		
500.0	498.8	500.4	499.2	1.0	1.0	132.23	29.1	34.6	57.6	55.7	1.92	29.982		
600.0	597.1	599.7	596.7	1.4	1.4	128.04	46.1	28.4	69.3	66.7	2.59	26.785		
700.0	694.3	698.2	692.5	1.8	1.8	124.31	67.6	20.5	84.6	81.2	3.41	24.771		
800.0	790.2	795.8	786.1	2.4	2.3	121.18	93.5	11.1	103.4	99.0	4.41	23.469		
900.0	884.4	893.0	878.3	3.0	2.9	119.12	122.7	0.4	125.5	120.0	5.51	22.789		
1,000.0	977.3	990.1	970.2	3.7	3.4	119.16	152.1	-10.3	149.5	142.9	6.63	22.535		
1,100.0	1,070.1	1,087.1	1,062.1	4.4	4.0	119.37	181.5	-21.0	173.6	165.8	7.77	22.332		
1,200.0	1,163.0	1,184.2	1,153.9	5.1	4.6	119.54	210.9	-31.7	197.7	188.8	8.92	22.164		
1,300.0	1,255.8	1,281.2	1,245.8	5.8	5.1	119.67	240.3	-42.5	221.8	211.7	10.07	22.023		
1,400.0	1,348.6	1,378.3	1,337.7	6.5	5.7	119.77	269.7	-53.2	245.9	234.7	11.23	21.906		
1,500.0	1,441.4	1,475.3	1,429.5	7.2	6.3	119.85	299.1	-63.9	270.0	257.6	12.38	21.806		
1,600.0	1,534.2	1,572.4	1,521.4	7.9	6.8	119.93	328.4	-74.6	294.1	280.6	13.54	21.721		
1,700.0	1,627.1	1,669.4	1,613.3	8.6	7.4	119.99	357.8	-85.3	318.2	303.5	14.70	21.647		
1,800.0	1,719.9	1,766.5	1,705.1	9.3	8.0	120.04	387.2	-96.1	342.4	326.5	15.86	21.583		
1,900.0	1,812.7	1,863.5	1,797.0	10.0	8.6	120.08	416.6	-106.8	366.5	349.4	17.02	21.526		
2,000.0	1,905.5	1,960.6	1,888.9	10.7	9.1	120.12	446.0	-117.5	390.6	372.4	18.19	21.476		
2,100.0	1,998.3	2,057.6	1,980.8	11.4	9.7	120.16	475.4	-128.2	414.7	395.3	19.35	21.431		
2,200.0	2,091.2	2,154.7	2,072.6	12.1	10.3	120.19	504.8	-138.9	438.8	418.3	20.51	21.391		
2,300.0	2,184.0	2,251.7	2,164.5	12.8	10.8	120.22	534.1	-149.6	462.9	441.2	21.68	21.355		
2,400.0	2,276.8	2,348.8	2,256.4	13.5	11.4	120.24	563.5	-160.4	487.0	464.2	22.84	21.322 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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		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	-152.95	-102.3	-52.2	114.9					
100.0	100.0	100.0	100.0	0.1	0.1	-152.95	-102.3	-52.2	114.9	114.6	0.27	422.016		
200.0	200.0	200.0	200.0	0.3	0.3	-152.95	-102.3	-52.2	114.9	114.3	0.62	184.929 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	-92.92	-101.7	-54.7	115.6	114.7	0.98	117.464		
400.0	399.6	397.2	396.8	0.7	0.7	-93.00	-100.0	-62.1	117.8	116.4	1.42	82.983		
500.0	498.8	495.7	494.5	1.0	1.0	-93.13	-97.0	-74.5	121.5	119.5	1.98	61.424		
600.0	597.1	594.2	591.4	1.4	1.3	-93.29	-92.8	-91.7	126.6	123.9	2.69	47.054		
700.0	694.3	692.5	687.0	1.8	1.8	-93.48	-87.5	-113.6	133.2	129.6	3.58	37.239		
800.0	790.2	790.7	781.3	2.4	2.3	-93.66	-81.1	-140.3	141.1	136.5	4.64	30.401		
900.0	884.4	889.2	874.4	3.0	2.9	-93.94	-73.6	-171.6	150.5	144.6	5.87	25.640		
1,000.0	977.3	988.6	968.0	3.7	3.5	-95.32	-65.7	-204.2	160.4	153.2	7.16	22.404		
1,100.0	1,070.1	1,088.0	1,061.6	4.4	4.2	-96.68	-57.9	-236.9	170.4	161.9	8.46	20.139		
1,200.0	1,163.0	1,187.5	1,155.2	5.1	4.8	-97.89	-50.0	-269.5	180.4	170.7	9.77	18.476		
1,300.0	1,255.8	1,286.9	1,248.8	5.8	5.4	-98.97	-42.1	-302.2	190.6	179.5	11.08	17.209		
1,400.0	1,348.6	1,386.3	1,342.3	6.5	6.1	-99.94	-34.3	-334.8	200.8	188.4	12.38	16.215		
1,500.0	1,441.4	1,485.7	1,435.9	7.2	6.7	-100.82	-26.4	-367.4	211.1	197.4	13.69	15.416		
1,600.0	1,534.2	1,585.2	1,529.5	7.9	7.3	-101.62	-18.5	-400.1	221.4	206.4	15.00	14.761		
1,700.0	1,627.1	1,684.6	1,623.1	8.6	8.0	-102.34	-10.7	-432.7	231.8	215.5	16.30	14.215		
1,800.0	1,719.9	1,784.0	1,716.7	9.3	8.6	-103.01	-2.8	-465.4	242.2	224.5	17.61	13.754		
1,900.0	1,812.7	1,883.4	1,810.2	10.0	9.2	-103.61	5.0	-498.0	252.6	233.7	18.91	13.360		
2,000.0	1,905.5	1,982.8	1,903.8	10.7	9.9	-104.18	12.9	-530.6	263.0	242.8	20.20	13.018		
2,100.0	1,998.3	2,082.3	1,997.4	11.4	10.5	-104.69	20.8	-563.3	273.5	252.0	21.50	12.721		
2,200.0	2,091.2	2,181.7	2,091.0	12.1	11.2	-105.17	28.6	-595.9	284.0	261.2	22.79	12.459		
2,300.0	2,184.0	2,281.1	2,184.6	12.8	11.8	-105.62	36.5	-628.6	294.5	270.4	24.08	12.227		
2,400.0	2,276.8	2,380.5	2,278.2	13.5	12.4	-106.03	44.4	-661.2	305.0	279.6	25.37	12.021		
2,500.0	2,369.6	2,480.0	2,371.7	14.2	13.1	-106.42	52.2	-693.8	315.5	288.9	26.66	11.835		
2,600.0	2,462.4	2,579.4	2,465.3	14.9	13.7	-106.78	60.1	-726.5	326.1	298.1	27.95	11.668		
2,700.0	2,555.2	2,678.8	2,558.9	15.6	14.4	-107.12	67.9	-759.1	336.6	307.4	29.23	11.517		
2,800.0	2,648.1	2,778.2	2,652.5	16.3	15.0	-107.44	75.8	-791.8	347.2	316.7	30.51	11.379		
2,900.0	2,740.9	2,877.6	2,746.1	17.0	15.6	-107.74	83.7	-824.4	357.8	326.0	31.80	11.253		
3,000.0	2,833.7	2,977.1	2,839.6	17.7	16.3	-108.02	91.5	-857.0	368.4	335.3	33.08	11.138		
3,100.0	2,926.5	3,076.5	2,933.2	18.4	16.9	-108.29	99.4	-889.7	379.0	344.6	34.35	11.031		
3,200.0	3,019.3	3,175.9	3,026.8	19.1	17.6	-108.54	107.3	-922.3	389.6	354.0	35.63	10.933		
3,300.0	3,112.2	3,275.3	3,120.4	19.8	18.2	-108.78	115.1	-954.9	400.2	363.3	36.91	10.843		
3,400.0	3,205.0	3,374.7	3,214.0	20.5	18.8	-109.01	123.0	-987.6	410.8	372.6	38.19	10.759		
3,500.0	3,297.8	3,474.2	3,307.6	21.2	19.5	-109.22	130.8	-1,020.2	421.5	382.0	39.46	10.680		
3,600.0	3,390.6	3,573.6	3,401.1	21.9	20.1	-109.43	138.7	-1,052.9	432.1	391.3	40.73	10.607		
3,700.0	3,483.4	3,673.0	3,494.7	22.6	20.8	-109.62	146.6	-1,085.5	442.7	400.7	42.01	10.539		
3,800.0	3,576.3	3,772.4	3,588.3	23.3	21.4	-109.81	154.4	-1,118.1	453.4	410.1	43.28	10.475		
3,900.0	3,669.1	3,871.9	3,681.9	24.0	22.0	-109.98	162.3	-1,150.8	464.0	419.5	44.55	10.415		
4,000.0	3,761.9	3,971.3	3,775.5	24.7	22.7	-110.15	170.2	-1,183.4	474.7	428.8	45.82	10.358		
4,100.0	3,854.7	4,070.7	3,869.0	25.4	23.3	-110.31	178.0	-1,216.1	485.3	438.2	47.09	10.305		
4,200.0	3,947.5	4,170.1	3,962.6	26.1	24.0	-110.47	185.9	-1,248.7	496.0	447.6	48.36	10.255 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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				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	-147.82	-108.2	-68.1	127.8					
100.0	100.0	100.0	100.0	0.1	0.1	-147.82	-108.2	-68.1	127.8	127.5	0.27	469.377		
200.0	200.0	200.0	200.0	0.3	0.3	-147.82	-108.2	-68.1	127.8	127.2	0.62	205.682	CC, ES	
300.0	300.0	297.1	297.1	0.5	0.5	-87.87	-107.9	-70.5	128.8	127.8	0.98	131.365		
400.0	399.6	394.2	393.8	0.7	0.7	-88.20	-107.1	-77.9	131.9	130.5	1.41	93.744		
500.0	498.8	491.1	490.0	1.0	1.0	-88.71	-105.9	-90.1	137.0	135.0	1.95	70.351		
600.0	597.1	587.9	585.2	1.4	1.3	-89.35	-104.1	-107.1	144.1	141.5	2.63	54.721		
700.0	694.3	684.4	679.3	1.8	1.8	-90.07	-101.8	-128.8	153.3	149.8	3.49	43.979		
800.0	790.2	780.7	771.8	2.4	2.3	-90.81	-99.0	-155.2	164.5	160.0	4.51	36.449		
900.0	884.4	877.5	863.4	3.0	2.8	-91.60	-95.8	-186.2	177.6	171.9	5.70	31.179		
1,000.0	977.3	976.3	966.6	3.7	3.5	-93.31	-92.3	-219.0	191.5	184.5	6.96	27.495		
1,100.0	1,070.1	1,075.2	1,049.7	4.4	4.1	-94.96	-88.9	-251.9	205.5	197.3	8.25	24.914		
1,200.0	1,163.0	1,174.0	1,142.9	5.1	4.7	-96.39	-85.4	-284.8	219.7	210.2	9.54	23.025		
1,300.0	1,255.8	1,272.9	1,236.1	5.8	5.3	-97.65	-82.0	-317.7	234.0	223.2	10.84	21.590		
1,400.0	1,348.6	1,371.7	1,329.2	6.5	5.9	-98.76	-78.5	-350.5	248.4	236.3	12.14	20.467		
1,500.0	1,441.4	1,470.6	1,422.4	7.2	6.6	-99.75	-75.1	-383.4	262.9	249.5	13.44	19.568		
1,600.0	1,534.2	1,569.4	1,515.5	7.9	7.2	-100.64	-71.6	-416.3	277.5	262.7	14.73	18.833		
1,700.0	1,627.1	1,668.3	1,608.7	8.6	7.8	-101.44	-68.2	-449.2	292.1	276.1	16.03	18.222		
1,800.0	1,719.9	1,767.1	1,701.8	9.3	8.5	-102.16	-64.7	-482.1	306.8	289.4	17.32	17.706		
1,900.0	1,812.7	1,866.0	1,795.0	10.0	9.1	-102.82	-61.3	-514.9	321.5	302.8	18.62	17.267		
2,000.0	1,905.5	1,964.8	1,888.2	10.7	9.7	-103.42	-57.8	-547.8	336.2	316.3	19.91	16.887		
2,100.0	1,998.3	2,063.7	1,981.3	11.4	10.3	-103.97	-54.4	-580.7	351.0	329.8	21.20	16.557		
2,200.0	2,091.2	2,162.5	2,074.5	12.1	11.0	-104.47	-50.9	-613.6	365.8	343.3	22.49	16.267		
2,300.0	2,184.0	2,261.4	2,167.6	12.8	11.6	-104.94	-47.4	-646.4	380.6	356.9	23.77	16.010		
2,400.0	2,276.8	2,360.2	2,260.8	13.5	12.2	-105.37	-44.0	-679.3	395.5	370.4	25.06	15.782		
2,500.0	2,369.6	2,459.1	2,353.9	14.2	12.9	-105.77	-40.5	-712.2	410.4	384.0	26.34	15.578		
2,600.0	2,462.4	2,557.9	2,447.1	14.9	13.5	-106.14	-37.1	-745.1	425.3	397.6	27.63	15.393		
2,700.0	2,555.2	2,656.8	2,540.3	15.6	14.1	-106.48	-33.6	-778.0	440.2	411.3	28.91	15.227		
2,800.0	2,648.1	2,755.6	2,633.4	16.3	14.8	-106.81	-30.2	-810.8	455.1	424.9	30.19	15.075		
2,900.0	2,740.9	2,854.5	2,726.6	17.0	15.4	-107.11	-26.7	-843.7	470.0	438.6	31.47	14.937		
3,000.0	2,833.7	2,953.3	2,819.7	17.7	16.0	-107.39	-23.3	-876.6	485.0	452.2	32.75	14.810		
3,100.0	2,926.5	3,052.2	2,912.9	18.4	16.7	-107.66	-19.8	-909.5	499.9	465.9	34.02	14.694	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	-140.16	-119.8	-100.0	156.1					
100.0	100.0	100.0	100.0	0.1	0.1	-140.16	-119.8	-100.0	156.1	155.8	0.27	573.152		
200.0	200.0	200.0	200.0	0.3	0.3	-140.16	-119.8	-100.0	156.1	155.4	0.62	251.157 CC, ES		
300.0	300.0	294.9	294.8	0.5	0.5	-80.30	-119.9	-102.3	157.2	156.3	0.97	161.387		
400.0	399.6	389.6	389.3	0.7	0.7	-80.92	-120.1	-109.4	160.8	159.5	1.38	116.183		
500.0	498.8	484.2	483.1	1.0	1.0	-81.88	-120.4	-121.1	166.9	165.0	1.89	88.103		
600.0	597.1	578.5	576.0	1.4	1.3	-83.09	-120.8	-137.3	175.4	172.8	2.54	69.158		
700.0	694.3	672.4	667.6	1.8	1.7	-84.46	-121.4	-158.1	186.4	183.0	3.33	55.942		
800.0	790.2	765.8	757.6	2.4	2.2	-85.89	-122.1	-183.2	199.9	195.6	4.29	46.551		
900.0	884.4	860.1	847.1	3.0	2.7	-87.35	-122.9	-212.7	215.9	210.5	5.41	39.883		
1,000.0	977.3	958.2	939.8	3.7	3.3	-89.63	-123.8	-244.8	232.9	226.2	6.64	35.069		
1,100.0	1,070.1	1,056.3	1,032.5	4.4	3.9	-91.77	-124.6	-276.9	250.1	242.2	7.89	31.700		
1,200.0	1,163.0	1,154.4	1,125.2	5.1	4.5	-93.64	-125.5	-309.0	267.7	258.6	9.15	29.245		
1,300.0	1,255.8	1,252.5	1,217.9	5.8	5.1	-95.27	-126.4	-341.1	285.5	275.1	10.42	27.393		
1,400.0	1,348.6	1,350.6	1,310.6	6.5	5.7	-96.72	-127.3	-373.1	303.5	291.8	11.70	25.954		
1,500.0	1,441.4	1,448.7	1,403.3	7.2	6.3	-98.00	-128.1	-405.2	321.7	308.8	12.97	24.809		
1,600.0	1,534.2	1,546.8	1,496.0	7.9	7.0	-99.14	-129.0	-437.3	340.0	325.8	14.24	23.879		
1,700.0	1,627.1	1,644.9	1,588.7	8.6	7.6	-100.17	-129.9	-469.4	358.5	343.0	15.51	23.111		
1,800.0	1,719.9	1,743.0	1,681.4	9.3	8.2	-101.10	-130.8	-501.4	377.0	360.2	16.78	22.468		
1,900.0	1,812.7	1,841.1	1,774.1	10.0	8.8	-101.94	-131.6	-533.5	395.7	377.6	18.05	21.922		
2,000.0	1,905.5	1,939.1	1,866.8	10.7	9.4	-102.70	-132.5	-565.6	414.4	395.0	19.31	21.454		
2,100.0	1,998.3	2,037.2	1,959.5	11.4	10.0	-103.40	-133.4	-597.7	433.1	412.5	20.58	21.048		
2,200.0	2,091.2	2,135.3	2,052.2	12.1	10.6	-104.04	-134.3	-629.7	451.9	430.1	21.84	20.694		
2,300.0	2,184.0	2,233.4	2,144.8	12.8	11.2	-104.63	-135.1	-661.8	470.8	447.7	23.10	20.383		
2,400.0	2,276.8	2,331.5	2,237.5	13.5	11.8	-105.18	-136.0	-693.9	489.7	465.4	24.36	20.107 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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							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	113.77	-4.7	10.7	11.7					
100.0	100.0	100.0	100.0	0.1	0.1	113.77	-4.7	10.7	11.7	11.5	0.27	43.070		
200.0	200.0	200.0	200.0	0.3	0.3	113.77	-4.7	10.7	11.7	11.1	0.62	18.873 CC		
300.0	300.0	300.6	300.5	0.5	0.5	171.83	-3.1	8.7	11.8	10.8	0.97	12.138		
400.0	399.6	401.2	400.8	0.7	0.7	166.00	1.9	2.5	12.1	10.8	1.33	9.078 ES		
500.0	498.8	501.7	500.5	1.0	1.0	157.06	10.2	-7.8	12.8	11.1	1.74	7.355		
600.0	597.1	602.3	599.3	1.4	1.4	146.49	21.8	-22.1	14.3	12.0	2.31	6.186		
700.0	694.3	702.7	696.9	1.8	1.8	136.10	36.7	-40.4	16.7	13.6	3.14	5.335		
800.0	790.2	803.2	793.2	2.4	2.4	127.16	54.7	-62.7	20.2	16.0	4.23	4.774		
900.0	884.4	903.5	887.7	3.0	3.0	120.04	75.9	-88.9	24.7	19.2	5.57	4.442		
1,000.0	977.3	1,003.5	980.5	3.7	3.7	115.07	99.1	-117.7	30.1	23.1	6.98	4.309		
1,100.0	1,070.1	1,103.3	1,073.2	4.4	4.4	111.71	122.5	-146.5	35.6	27.2	8.39	4.244		
1,200.0	1,163.0	1,203.1	1,165.9	5.1	5.1	109.26	145.9	-175.4	41.3	31.4	9.81	4.207		
1,300.0	1,255.8	1,302.9	1,258.5	5.8	5.7	107.40	169.2	-204.3	46.9	35.7	11.22	4.185		
1,400.0	1,348.6	1,402.8	1,351.2	6.5	6.4	105.95	192.6	-233.2	52.7	40.0	12.62	4.172		
1,500.0	1,441.4	1,502.6	1,443.8	7.2	7.1	104.78	216.0	-262.1	58.4	44.4	14.03	4.164		
1,600.0	1,534.2	1,602.4	1,536.5	7.9	7.8	103.82	239.3	-290.9	64.2	48.8	15.44	4.159		
1,700.0	1,627.1	1,702.2	1,629.2	8.6	8.5	103.02	262.7	-319.8	70.0	53.1	16.84	4.156		
1,800.0	1,719.9	1,802.1	1,721.8	9.3	9.2	102.34	286.1	-348.7	75.8	57.5	18.24	4.154		
1,900.0	1,812.7	1,901.9	1,814.5	10.0	9.9	101.76	309.4	-377.6	81.6	61.9	19.64	4.153		
2,000.0	1,905.5	2,001.7	1,907.1	10.7	10.6	101.25	332.8	-406.4	87.4	66.4	21.05	4.153		
2,100.0	1,998.3	2,101.6	1,999.8	11.4	11.3	100.81	356.1	-435.3	93.2	70.8	22.45	4.153		
2,200.0	2,091.2	2,201.4	2,092.5	12.1	12.0	100.42	379.5	-464.2	99.0	75.2	23.85	4.153		
2,300.0	2,184.0	2,301.2	2,185.1	12.8	12.7	100.08	402.9	-493.1	104.9	79.6	25.25	4.154		
2,400.0	2,276.8	2,401.0	2,277.8	13.5	13.4	99.77	426.2	-522.0	110.7	84.1	26.65	4.155		
2,500.0	2,369.6	2,500.9	2,370.4	14.2	14.1	99.49	449.6	-550.8	116.5	88.5	28.05	4.155		
2,600.0	2,462.4	2,600.7	2,463.1	14.9	14.8	99.23	473.0	-579.7	122.4	92.9	29.44	4.156		
2,700.0	2,555.2	2,700.5	2,555.8	15.6	15.5	99.01	496.3	-608.6	128.2	97.4	30.84	4.157		
2,800.0	2,648.1	2,800.4	2,648.4	16.3	16.2	98.80	519.7	-637.5	134.1	101.8	32.24	4.158		
2,900.0	2,740.9	2,900.2	2,741.1	17.0	16.9	98.60	543.0	-666.4	139.9	106.3	33.64	4.159		
3,000.0	2,833.7	3,000.0	2,833.7	17.7	17.6	98.43	566.4	-695.2	145.8	110.7	35.04	4.160		
3,100.0	2,926.5	3,099.8	2,926.4	18.4	18.2	98.26	589.8	-724.1	151.6	115.2	36.44	4.161		
3,200.0	3,019.3	3,199.7	3,019.1	19.1	18.9	98.11	613.1	-753.0	157.4	119.6	37.84	4.161		
3,300.0	3,112.2	3,299.5	3,111.7	19.8	19.6	97.97	636.5	-781.9	163.3	124.1	39.23	4.162		
3,400.0	3,205.0	3,399.3	3,204.4	20.5	20.3	97.84	659.9	-810.7	169.1	128.5	40.63	4.163		
3,500.0	3,297.8	3,499.2	3,297.0	21.2	21.0	97.72	683.2	-839.6	175.0	133.0	42.03	4.164		
3,600.0	3,390.6	3,599.0	3,389.7	21.9	21.7	97.61	706.6	-868.5	180.8	137.4	43.43	4.164		
3,700.0	3,483.4	3,698.8	3,482.4	22.6	22.4	97.50	729.9	-897.4	186.7	141.9	44.83	4.165		
3,800.0	3,576.3	3,798.6	3,575.0	23.3	23.1	97.40	753.3	-926.3	192.6	146.3	46.22	4.166		
3,900.0	3,669.1	3,898.5	3,667.7	24.0	23.8	97.31	776.7	-955.1	198.4	150.8	47.62	4.166		
4,000.0	3,761.9	3,998.3	3,760.3	24.7	24.5	97.22	800.0	-984.0	204.3	155.2	49.02	4.167		
4,100.0	3,854.7	4,098.1	3,853.0	25.4	25.2	97.14	823.4	-1,012.9	210.1	159.7	50.42	4.168		
4,200.0	3,947.5	4,198.0	3,945.7	26.1	25.9	97.06	846.8	-1,041.8	216.0	164.2	51.81	4.168		
4,300.0	4,040.4	4,297.8	4,038.3	26.8	26.6	96.98	870.1	-1,070.6	221.8	168.6	53.21	4.169		
4,400.0	4,133.2	4,397.6	4,131.0	27.5	27.3	96.91	893.5	-1,099.5	227.7	173.1	54.61	4.169		
4,500.0	4,226.0	4,497.4	4,223.6	28.2	28.0	96.84	916.8	-1,128.4	233.5	177.5	56.01	4.170		
4,600.0	4,318.8	4,597.3	4,316.3	29.0	28.7	96.78	940.2	-1,157.3	239.4	182.0	57.40	4.170		
4,700.0	4,411.6	4,697.1	4,409.0	29.7	29.4	96.72	963.6	-1,186.2	245.2	186.4	58.80	4.171		
4,800.0	4,504.4	4,796.9	4,501.6	30.4	30.1	96.66	986.9	-1,215.0	251.1	190.9	60.20	4.171		
4,900.0	4,597.3	4,896.7	4,594.3	31.1	30.8	96.60	1,010.3	-1,243.9	257.0	195.4	61.59	4.172		
5,000.0	4,690.1	4,996.6	4,686.9	31.8	31.5	96.55	1,033.7	-1,272.8	262.8	199.8	62.99	4.172		
5,100.0	4,782.9	5,096.4	4,779.6	32.5	32.2	96.50	1,057.0	-1,301.7	268.7	204.3	64.39	4.173		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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						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	4,875.7	5,196.2	4,872.2	33.2	32.9	96.45	1,080.4	-1,330.6	274.5	208.7	65.79	4.173	
5,300.0	4,968.5	5,296.1	4,964.9	33.9	33.6	96.40	1,103.8	-1,359.4	280.4	213.2	67.18	4.174	
5,400.0	5,061.4	5,395.9	5,057.6	34.6	34.3	96.36	1,127.1	-1,388.3	286.3	217.7	68.58	4.174	
5,500.0	5,154.2	5,495.7	5,150.2	35.3	35.0	96.31	1,150.5	-1,417.2	292.1	222.1	69.98	4.174	
5,600.0	5,247.0	5,595.5	5,242.9	36.0	35.7	96.27	1,173.8	-1,446.1	298.0	226.6	71.37	4.175	
5,700.0	5,339.8	5,695.4	5,335.5	36.7	36.4	96.23	1,197.2	-1,474.9	303.8	231.1	72.77	4.175	
5,800.0	5,432.6	5,795.2	5,428.2	37.4	37.1	96.20	1,220.6	-1,503.8	309.7	235.5	74.17	4.175	
5,900.0	5,525.5	5,895.0	5,520.9	38.1	37.8	96.16	1,243.9	-1,532.7	315.5	240.0	75.57	4.176	
6,000.0	5,618.3	5,994.9	5,613.5	38.8	38.5	96.12	1,267.3	-1,561.6	321.4	244.4	76.96	4.176	
6,100.0	5,711.1	6,094.7	5,706.2	39.5	39.1	96.09	1,290.7	-1,590.5	327.3	248.9	78.36	4.176	
6,200.0	5,803.9	6,194.5	5,798.8	40.2	39.8	96.06	1,314.0	-1,619.3	333.1	253.4	79.76	4.177	
6,300.0	5,896.7	6,294.3	5,891.5	40.9	40.5	96.02	1,337.4	-1,648.2	339.0	257.8	81.15	4.177	
6,400.0	5,989.5	6,394.2	5,984.2	41.6	41.2	95.99	1,360.7	-1,677.1	344.8	262.3	82.55	4.177	
6,500.0	6,082.4	6,494.0	6,076.8	42.3	41.9	95.96	1,384.1	-1,706.0	350.7	266.7	83.95	4.178	
6,600.0	6,175.2	6,593.8	6,169.5	43.0	42.6	95.93	1,407.5	-1,734.8	356.6	271.2	85.35	4.178	
6,700.0	6,268.0	6,693.7	6,262.1	43.7	43.3	95.91	1,430.8	-1,763.7	362.4	275.7	86.74	4.178	
6,800.0	6,360.8	6,793.5	6,354.8	44.4	44.0	95.88	1,454.2	-1,792.6	368.3	280.1	88.14	4.178	
6,900.0	6,453.6	6,893.3	6,447.5	45.1	44.7	95.85	1,477.6	-1,821.5	374.1	284.6	89.54	4.179	
7,000.0	6,546.5	6,993.1	6,540.1	45.9	45.4	95.83	1,500.9	-1,850.4	380.0	289.1	90.93	4.179	
7,100.0	6,639.3	7,093.0	6,632.8	46.6	46.1	95.80	1,524.3	-1,879.2	385.9	293.5	92.33	4.179	
7,200.0	6,732.1	7,192.8	6,725.4	47.3	46.8	95.78	1,547.6	-1,908.1	391.7	298.0	93.73	4.179	
7,300.0	6,824.9	7,292.6	6,818.1	48.0	47.5	95.76	1,571.0	-1,937.0	397.6	302.5	95.12	4.180	
7,400.0	6,917.7	7,392.4	6,910.8	48.7	48.2	95.73	1,594.4	-1,965.9	403.4	306.9	96.52	4.180	
7,500.0	7,010.6	7,492.3	7,003.4	49.4	48.9	95.71	1,617.7	-1,994.8	409.3	311.4	97.92	4.180	
7,600.0	7,103.4	7,592.1	7,096.1	50.1	49.6	95.69	1,641.1	-2,023.6	415.2	315.8	99.31	4.180	
7,700.0	7,196.2	7,691.9	7,188.7	50.8	50.3	95.67	1,664.5	-2,052.5	421.0	320.3	100.71	4.180	
7,800.0	7,289.0	7,791.8	7,281.4	51.5	51.0	95.65	1,687.8	-2,081.4	426.9	324.8	102.11	4.181	
7,900.0	7,381.8	7,891.6	7,374.1	52.2	51.7	95.63	1,711.2	-2,110.3	432.7	329.2	103.51	4.181	
8,000.0	7,474.7	7,991.4	7,466.7	52.9	52.4	95.61	1,734.5	-2,139.1	438.6	333.7	104.90	4.181	
8,100.0	7,568.3	8,092.3	7,561.1	53.5	53.0	95.70	1,756.9	-2,166.8	444.1	338.0	106.15	4.184	
8,200.0	7,663.7	8,193.4	7,657.4	54.0	53.5	95.78	1,776.2	-2,190.6	448.8	341.6	107.20	4.187	
8,300.0	7,760.6	8,294.5	7,755.3	54.5	54.0	95.85	1,792.2	-2,210.5	452.8	344.7	108.07	4.190	
8,400.0	7,858.6	8,395.7	7,854.4	54.8	54.3	95.90	1,805.0	-2,226.2	455.9	347.2	108.76	4.192	
8,500.0	7,957.5	8,497.0	7,954.5	55.0	54.6	95.93	1,814.5	-2,237.9	458.2	349.0	109.27	4.194	
8,600.0	8,057.0	8,598.2	8,055.3	55.2	54.7	95.96	1,820.6	-2,245.5	459.7	350.2	109.59	4.195	
8,700.0	8,156.9	8,699.5	8,156.5	55.3	54.8	95.97	1,823.3	-2,248.9	460.4	350.7	109.74	4.195	
8,800.0	8,256.9	8,800.0	8,256.9	55.3	54.9	35.90	1,823.5	-2,249.1	460.5	350.6	109.84	4.192	
8,900.0	8,356.9	8,900.0	8,356.9	55.4	54.9	35.90	1,823.5	-2,249.1	460.5	350.5	109.94	4.188	
9,000.0	8,456.9	9,000.0	8,456.9	55.4	55.0	35.90	1,823.5	-2,249.1	460.5	350.4	110.04	4.185	
9,100.0	8,556.9	9,100.0	8,556.9	55.5	55.0	35.90	1,823.5	-2,249.1	460.5	350.3	110.14	4.181	
9,200.0	8,656.9	9,200.0	8,656.9	55.5	55.1	35.90	1,823.5	-2,249.1	460.5	350.2	110.24	4.177	
9,300.0	8,756.9	9,300.0	8,756.9	55.6	55.1	35.90	1,823.5	-2,249.1	460.5	350.1	110.34	4.173	
9,400.0	8,856.9	9,400.0	8,856.9	55.6	55.2	35.90	1,823.5	-2,249.1	460.5	350.0	110.44	4.169	
9,500.0	8,956.9	9,500.0	8,956.9	55.7	55.2	35.90	1,823.5	-2,249.1	460.5	349.9	110.55	4.165	
9,600.0	9,056.9	9,600.0	9,056.9	55.7	55.3	35.90	1,823.5	-2,249.1	460.5	349.8	110.65	4.161	
9,700.0	9,156.9	9,700.0	9,156.9	55.8	55.3	35.90	1,823.5	-2,249.1	460.5	349.7	110.76	4.157	
9,800.0	9,256.9	9,800.0	9,256.9	55.8	55.4	35.90	1,823.5	-2,249.1	460.5	349.6	110.87	4.153	
9,900.0	9,356.9	9,900.0	9,356.9	55.9	55.4	35.90	1,823.5	-2,249.1	460.5	349.5	110.97	4.149	
10,000.0	9,456.9	10,000.0	9,456.9	55.9	55.5	35.90	1,823.5	-2,249.1	460.5	349.4	111.08	4.145	
10,100.0	9,556.9	10,100.0	9,556.9	56.0	55.5	35.90	1,823.5	-2,249.1	460.5	349.3	111.19	4.141	
10,200.0	9,656.9	10,200.0	9,656.9	56.0	55.6	35.90	1,823.5	-2,249.1	460.5	349.2	111.30	4.137	
10,300.0	9,756.9	10,300.0	9,756.9	56.1	55.7	35.90	1,823.5	-2,249.1	460.5	349.0	111.41	4.133	

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)						
10,400.0	9,856.9	10,400.0	9,856.9	56.2	55.7	35.90	1,823.5	-2,249.1	460.5	348.9	111.53	4.129				
10,500.0	9,956.9	10,500.0	9,956.9	56.2	55.8	35.90	1,823.5	-2,249.1	460.5	348.8	111.64	4.124				
10,600.0	10,056.9	10,600.0	10,056.9	56.3	55.8	35.90	1,823.5	-2,249.1	460.5	348.7	111.76	4.120				
10,700.0	10,156.9	10,700.0	10,156.9	56.3	55.9	35.90	1,823.5	-2,249.1	460.5	348.6	111.87	4.116				
10,800.0	10,256.9	10,800.0	10,256.9	56.4	55.9	35.90	1,823.5	-2,249.1	460.5	348.5	111.99	4.112				
10,822.1	10,279.0	10,822.0	10,279.0	56.4	56.0	35.90	1,823.5	-2,249.1	460.5	348.4	112.01	4.111 SF				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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-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		
0.0	0.0	0.0	0.0	0.0	0.0	-109.90	-5.8	-16.1	17.1					
100.0	100.0	100.0	100.0	0.1	0.1	-109.90	-5.8	-16.1	17.1	16.8	0.27	62.881		
200.0	200.0	200.0	200.0	0.3	0.3	-109.90	-5.8	-16.1	17.1	16.5	0.62	27.554 CC		
300.0	300.0	299.4	299.3	0.5	0.5	-50.42	-4.8	-18.4	17.3	16.3	0.98	17.671 ES		
400.0	399.6	398.7	398.4	0.7	0.7	-52.09	-1.5	-25.5	17.8	16.4	1.38	12.898		
500.0	498.8	498.1	496.9	1.0	1.0	-54.67	3.8	-37.2	18.7	16.8	1.87	9.975		
600.0	597.1	597.4	594.6	1.4	1.4	-57.87	11.3	-53.6	20.0	17.5	2.51	7.967		
700.0	694.3	696.8	691.2	1.8	1.8	-61.40	20.9	-74.5	21.7	18.4	3.33	6.531		
800.0	790.2	796.1	786.5	2.4	2.3	-64.97	32.6	-100.0	23.9	19.6	4.36	5.497		
900.0	884.4	895.5	880.2	3.0	3.0	-68.43	46.3	-130.0	26.6	21.0	5.60	4.759		
1,000.0	977.3	995.4	973.8	3.7	3.6	-74.62	60.9	-162.0	29.1	22.1	7.03	4.140		
1,100.0	1,070.1	1,095.3	1,067.3	4.4	4.3	-80.18	75.5	-194.0	31.8	23.3	8.48	3.750		
1,200.0	1,163.0	1,195.3	1,160.8	5.1	4.9	-84.84	90.2	-225.9	34.8	24.8	9.91	3.506		
1,300.0	1,255.8	1,295.2	1,254.3	5.8	5.6	-88.74	104.8	-257.9	37.9	26.6	11.32	3.349		
1,400.0	1,348.6	1,395.1	1,347.9	6.5	6.2	-92.03	119.4	-289.9	41.2	28.5	12.69	3.246		
1,500.0	1,441.4	1,495.0	1,441.4	7.2	6.9	-94.83	134.1	-321.9	44.6	30.6	14.04	3.177		
1,600.0	1,534.2	1,594.9	1,534.9	7.9	7.6	-97.22	148.7	-353.9	48.1	32.8	15.37	3.132		
1,700.0	1,627.1	1,694.9	1,628.4	8.6	8.2	-99.29	163.4	-385.9	51.7	35.0	16.67	3.101		
1,800.0	1,719.9	1,794.8	1,722.0	9.3	8.9	-101.08	178.0	-417.9	55.3	37.4	17.96	3.081		
1,900.0	1,812.7	1,894.7	1,815.5	10.0	9.6	-102.66	192.6	-449.9	59.0	39.8	19.23	3.069		
2,000.0	1,905.5	1,994.6	1,909.0	10.7	10.2	-104.04	207.3	-481.8	62.7	42.3	20.49	3.062		
2,100.0	1,998.3	2,094.5	2,002.5	11.4	10.9	-105.28	221.9	-513.8	66.5	44.8	21.74	3.059		
2,200.0	2,091.2	2,194.5	2,096.0	12.1	11.6	-106.37	236.5	-545.8	70.3	47.3	22.98	3.058 SF		
2,300.0	2,184.0	2,294.4	2,189.6	12.8	12.2	-107.36	251.2	-577.8	74.1	49.9	24.21	3.060		
2,400.0	2,276.8	2,394.3	2,283.1	13.5	12.9	-108.25	265.8	-609.8	77.9	52.5	25.44	3.063		
2,500.0	2,369.6	2,494.2	2,376.6	14.2	13.6	-109.06	280.4	-641.8	81.8	55.1	26.66	3.067		
2,600.0	2,462.4	2,594.1	2,470.1	14.9	14.2	-109.79	295.1	-673.8	85.6	57.7	27.88	3.071		
2,700.0	2,555.2	2,694.1	2,563.7	15.6	14.9	-110.46	309.7	-705.8	89.5	60.4	29.09	3.076		
2,800.0	2,648.1	2,794.0	2,657.2	16.3	15.6	-111.08	324.3	-737.7	93.4	63.1	30.30	3.082		
2,900.0	2,740.9	2,893.9	2,750.7	17.0	16.2	-111.64	339.0	-769.7	97.3	65.8	31.51	3.087		
3,000.0	2,833.7	2,993.8	2,844.2	17.7	16.9	-112.17	353.6	-801.7	101.2	68.5	32.71	3.093		
3,100.0	2,926.5	3,093.7	2,937.8	18.4	17.6	-112.65	368.2	-833.7	105.1	71.2	33.91	3.099		
3,200.0	3,019.3	3,193.7	3,031.3	19.1	18.2	-113.10	382.9	-865.7	109.0	73.9	35.11	3.105		
3,300.0	3,112.2	3,293.6	3,124.8	19.8	18.9	-113.52	397.5	-897.7	112.9	76.6	36.30	3.110		
3,400.0	3,205.0	3,393.5	3,218.3	20.5	19.6	-113.91	412.1	-929.7	116.8	79.3	37.50	3.116		
3,500.0	3,297.8	3,493.4	3,311.8	21.2	20.2	-114.27	426.8	-961.7	120.8	82.1	38.69	3.122		
3,600.0	3,390.6	3,593.3	3,405.4	21.9	20.9	-114.61	441.4	-993.6	124.7	84.8	39.88	3.127		
3,700.0	3,483.4	3,693.3	3,498.9	22.6	21.6	-114.93	456.0	-1,025.6	128.7	87.6	41.07	3.133		
3,800.0	3,576.3	3,793.2	3,592.4	23.3	22.2	-115.23	470.7	-1,057.6	132.6	90.3	42.26	3.138		
3,900.0	3,669.1	3,893.1	3,685.9	24.0	22.9	-115.52	485.3	-1,089.6	136.5	93.1	43.45	3.143		
4,000.0	3,761.9	3,993.0	3,779.5	24.7	23.6	-115.79	500.0	-1,121.6	140.5	95.9	44.63	3.148		
4,100.0	3,854.7	4,092.9	3,873.0	25.4	24.2	-116.04	514.6	-1,153.6	144.5	98.6	45.82	3.153		
4,200.0	3,947.5	4,192.9	3,966.5	26.1	24.9	-116.28	529.2	-1,185.6	148.4	101.4	47.00	3.157		
4,300.0	4,040.4	4,292.8	4,060.0	26.8	25.6	-116.51	543.9	-1,217.6	152.4	104.2	48.19	3.162		
4,400.0	4,133.2	4,392.7	4,153.6	27.5	26.2	-116.72	558.5	-1,249.5	156.3	107.0	49.37	3.167		
4,500.0	4,226.0	4,492.6	4,247.1	28.2	26.9	-116.93	573.1	-1,281.5	160.3	109.7	50.55	3.171		
4,600.0	4,318.8	4,592.5	4,340.6	29.0	27.6	-117.12	587.8	-1,313.5	164.3	112.5	51.73	3.175		
4,700.0	4,411.6	4,692.5	4,434.1	29.7	28.2	-117.31	602.4	-1,345.5	168.2	115.3	52.92	3.179		
4,800.0	4,504.4	4,792.4	4,527.6	30.4	28.9	-117.49	617.0	-1,377.5	172.2	118.1	54.10	3.183		
4,900.0	4,597.3	4,892.3	4,621.2	31.1	29.6	-117.65	631.7	-1,409.5	176.2	120.9	55.28	3.187		
5,000.0	4,690.1	4,992.2	4,714.7	31.8	30.2	-117.82	646.3	-1,441.5	180.1	123.7	56.46	3.191		
5,100.0	4,782.9	5,092.1	4,808.2	32.5	30.9	-117.97	660.9	-1,473.5	184.1	126.5	57.64	3.194		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,200.0	4,875.7	5,192.1	4,901.7	33.2	31.6	-118.12	675.6	-1,505.4	188.1	129.3	58.82	3.198		
5,300.0	4,968.5	5,292.0	4,995.3	33.9	32.2	-118.26	690.2	-1,537.4	192.1	132.1	60.00	3.201		
5,400.0	5,061.4	5,391.9	5,088.8	34.6	32.9	-118.40	704.8	-1,569.4	196.0	134.9	61.17	3.205		
5,500.0	5,154.2	5,491.8	5,182.3	35.3	33.6	-118.53	719.5	-1,601.4	200.0	137.7	62.35	3.208		
5,600.0	5,247.0	5,591.7	5,275.8	36.0	34.3	-118.66	734.1	-1,633.4	204.0	140.5	63.53	3.211		
5,700.0	5,339.8	5,691.7	5,369.4	36.7	34.9	-118.78	748.7	-1,665.4	208.0	143.3	64.71	3.214		
5,800.0	5,432.6	5,791.6	5,462.9	37.4	35.6	-118.89	763.4	-1,697.4	212.0	146.1	65.88	3.217		
5,900.0	5,525.5	5,891.5	5,556.4	38.1	36.3	-119.01	778.0	-1,729.4	215.9	148.9	67.06	3.220		
6,000.0	5,618.3	5,991.4	5,649.9	38.8	36.9	-119.11	792.6	-1,761.3	219.9	151.7	68.24	3.223		
6,100.0	5,711.1	6,091.3	5,743.5	39.5	37.6	-119.22	807.3	-1,793.3	223.9	154.5	69.42	3.226		
6,200.0	5,803.9	6,191.3	5,837.0	40.2	38.3	-119.32	821.9	-1,825.3	227.9	157.3	70.59	3.228		
6,300.0	5,896.7	6,291.2	5,930.5	40.9	38.9	-119.42	836.5	-1,857.3	231.9	160.1	71.77	3.231		
6,400.0	5,989.5	6,391.1	6,024.0	41.6	39.6	-119.51	851.2	-1,889.3	235.9	162.9	72.94	3.234		
6,500.0	6,082.4	6,491.0	6,117.5	42.3	40.3	-119.60	865.8	-1,921.3	239.9	165.7	74.12	3.236		
6,600.0	6,175.2	6,590.9	6,211.1	43.0	40.9	-119.69	880.5	-1,953.3	243.8	168.6	75.30	3.239		
6,700.0	6,268.0	6,690.9	6,304.6	43.7	41.6	-119.77	895.1	-1,985.3	247.8	171.4	76.47	3.241		
6,800.0	6,360.8	6,790.8	6,398.1	44.4	42.3	-119.86	909.7	-2,017.2	251.8	174.2	77.65	3.243		
6,900.0	6,453.6	6,890.7	6,491.6	45.1	42.9	-119.94	924.4	-2,049.2	255.8	177.0	78.82	3.245		
7,000.0	6,546.5	6,990.6	6,585.2	45.9	43.6	-120.01	939.0	-2,081.2	259.8	179.8	80.00	3.248		
7,100.0	6,639.3	7,090.5	6,678.7	46.6	44.3	-120.09	953.6	-2,113.2	263.8	182.6	81.17	3.250		
7,200.0	6,732.1	7,190.5	6,772.2	47.3	44.9	-120.16	968.3	-2,145.2	267.8	185.4	82.35	3.252		
7,300.0	6,824.9	7,290.4	6,865.7	48.0	45.6	-120.23	982.9	-2,177.2	271.8	188.2	83.52	3.254		
7,400.0	6,917.7	7,390.3	6,959.3	48.7	46.3	-120.30	997.5	-2,209.2	275.8	191.1	84.70	3.256		
7,500.0	7,010.6	7,490.2	7,052.8	49.4	46.9	-120.37	1,012.2	-2,241.2	279.8	193.9	85.87	3.258		
7,600.0	7,103.4	7,590.1	7,146.3	50.1	47.6	-120.43	1,026.8	-2,273.1	283.7	196.7	87.05	3.260		
7,700.0	7,196.2	7,690.1	7,239.8	50.8	48.3	-120.49	1,041.4	-2,305.1	287.7	199.5	88.22	3.262		
7,800.0	7,289.0	7,790.0	7,333.3	51.5	48.9	-120.56	1,056.1	-2,337.1	291.7	202.3	89.39	3.263		
7,900.0	7,381.8	7,889.9	7,426.9	52.2	49.6	-120.62	1,070.7	-2,369.1	295.7	205.2	90.57	3.265		
8,000.0	7,474.7	7,989.5	7,520.1	52.9	50.3	-120.67	1,085.3	-2,401.0	299.7	208.0	91.74	3.267		
8,100.0	7,568.3	8,083.0	7,608.5	53.5	50.8	-120.88	1,098.0	-2,428.8	303.6	211.0	92.64	3.277		
8,200.0	7,663.7	8,176.4	7,698.1	54.0	51.3	-121.05	1,108.9	-2,452.5	307.0	213.6	93.40	3.286		
8,300.0	7,760.6	8,269.8	7,788.9	54.5	51.6	-121.20	1,117.9	-2,472.3	309.8	215.7	94.03	3.294		
8,400.0	7,858.6	8,363.1	7,880.6	54.8	51.9	-121.31	1,125.1	-2,488.0	312.0	217.4	94.52	3.301		
8,500.0	7,957.5	8,456.4	7,973.0	55.0	52.1	-121.39	1,130.4	-2,499.6	313.6	218.7	94.88	3.305		
8,600.0	8,057.0	8,549.6	8,065.9	55.2	52.3	-121.44	1,133.8	-2,507.1	314.7	219.5	95.11	3.308		
8,700.0	8,156.9	8,642.9	8,159.0	55.3	52.4	-121.47	1,135.4	-2,510.4	315.1	219.9	95.23	3.309		
8,800.0	8,256.9	8,740.8	8,256.9	55.3	52.4	178.46	1,135.5	-2,510.6	315.2	219.8	95.33	3.306		
8,900.0	8,356.9	8,840.8	8,356.9	55.4	52.5	178.46	1,135.5	-2,510.6	315.2	219.7	95.44	3.302		
9,000.0	8,456.9	8,940.8	8,456.9	55.4	52.5	178.46	1,135.5	-2,510.6	315.2	219.6	95.56	3.298		
9,100.0	8,556.9	9,040.8	8,556.9	55.5	52.6	178.46	1,135.5	-2,510.6	315.2	219.5	95.67	3.294		
9,200.0	8,656.9	9,140.8	8,656.9	55.5	52.6	178.46	1,135.5	-2,510.6	315.2	219.4	95.79	3.290		
9,300.0	8,756.9	9,240.8	8,756.9	55.6	52.7	178.46	1,135.5	-2,510.6	315.2	219.3	95.90	3.286		
9,400.0	8,856.9	9,340.8	8,856.9	55.6	52.7	178.46	1,135.5	-2,510.6	315.2	219.1	96.02	3.282		
9,500.0	8,956.9	9,440.8	8,956.9	55.7	52.8	178.46	1,135.5	-2,510.6	315.2	219.0	96.14	3.278		
9,600.0	9,056.9	9,540.8	9,056.9	55.7	52.8	178.46	1,135.5	-2,510.6	315.2	218.9	96.26	3.274		
9,700.0	9,156.9	9,640.8	9,156.9	55.8	52.9	178.46	1,135.5	-2,510.6	315.2	218.8	96.38	3.270		
9,800.0	9,256.9	9,740.8	9,256.9	55.8	52.9	178.46	1,135.5	-2,510.6	315.2	218.7	96.51	3.266		
9,900.0	9,356.9	9,840.8	9,356.9	55.9	53.0	178.46	1,135.5	-2,510.6	315.2	218.5	96.63	3.262		
10,000.0	9,456.9	9,940.8	9,456.9	55.9	53.1	178.46	1,135.5	-2,510.6	315.2	218.4	96.75	3.257		
10,100.0	9,556.9	10,040.8	9,556.9	56.0	53.1	178.46	1,135.5	-2,510.6	315.2	218.3	96.88	3.253		
10,200.0	9,656.9	10,140.8	9,656.9	56.0	53.2	178.46	1,135.5	-2,510.6	315.2	218.2	97.01	3.249		
10,300.0	9,756.9	10,240.8	9,756.9	56.1	53.2	178.46	1,135.5	-2,510.6	315.2	218.0	97.13	3.245		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
10,400.0	9,856.9	10,340.8	9,856.9	56.2	53.3	178.46	1,135.5	-2,510.6	315.2	217.9	97.26	3.240					
10,500.0	9,956.9	10,440.8	9,956.9	56.2	53.3	178.46	1,135.5	-2,510.6	315.2	217.8	97.39	3.236					
10,600.0	10,056.9	10,540.8	10,056.9	56.3	53.4	178.46	1,135.5	-2,510.6	315.2	217.6	97.52	3.232					
10,700.0	10,156.9	10,640.8	10,156.9	56.3	53.5	178.46	1,135.5	-2,510.6	315.2	217.5	97.66	3.227					
10,800.0	10,256.9	10,740.8	10,256.9	56.4	53.5	178.46	1,135.5	-2,510.6	315.2	217.4	97.79	3.223					
10,822.1	10,279.0	10,762.8	10,279.0	56.4	53.5	178.46	1,135.5	-2,510.6	315.2	217.3	97.82	3.222					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-127.71	-16.4	-21.2	26.8					
100.0	100.0	100.0	100.0	0.1	0.1	-127.71	-16.4	-21.2	26.8	26.5	0.27	98.338		
200.0	200.0	200.0	200.0	0.3	0.3	-127.71	-16.4	-21.2	26.8	26.2	0.62	43.092 CC		
218.9	218.9	218.8	218.8	0.3	0.3	-67.93	-16.4	-21.2	26.8	26.1	0.69	38.887 ES		
300.0	300.0	299.3	299.3	0.5	0.5	-75.61	-18.1	-21.2	27.1	26.1	0.98	27.686		
400.0	399.6	398.4	398.2	0.7	0.7	-95.13	-22.5	-21.7	30.5	29.2	1.37	22.255		
500.0	498.8	498.1	497.8	1.0	0.9	-110.52	-25.3	-26.2	37.5	35.7	1.82	20.641		
600.0	597.1	598.4	597.7	1.4	1.1	-120.54	-25.5	-35.3	46.4	44.0	2.34	19.846		
700.0	694.3	699.2	697.5	1.8	1.3	-127.12	-23.2	-49.1	56.3	53.3	2.94	19.147		
800.0	790.2	800.6	797.1	2.4	1.7	-131.58	-18.3	-67.6	66.7	63.1	3.62	18.400		
900.0	884.4	902.5	896.0	3.0	2.1	-134.73	-10.8	-90.8	77.4	73.0	4.40	17.601		
1,000.0	977.3	1,004.0	993.2	3.7	2.6	-136.70	-0.9	-118.2	87.5	82.2	5.23	16.734		
1,100.0	1,070.1	1,103.5	1,088.2	4.4	3.2	-137.92	9.4	-145.9	97.0	90.9	6.07	15.990		
1,200.0	1,163.0	1,203.0	1,183.2	5.1	3.7	-138.93	19.6	-173.7	106.6	99.7	6.90	15.445		
1,300.0	1,255.8	1,302.5	1,278.3	5.8	4.2	-139.77	29.8	-201.4	116.2	108.4	7.73	15.032		
1,400.0	1,348.6	1,402.1	1,373.3	6.5	4.8	-140.48	40.0	-229.2	125.8	117.2	8.55	14.711		
1,500.0	1,441.4	1,501.6	1,468.3	7.2	5.3	-141.09	50.3	-256.9	135.4	126.0	9.37	14.455		
1,600.0	1,534.2	1,601.1	1,563.4	7.9	5.9	-141.62	60.5	-284.7	145.0	134.9	10.18	14.248		
1,700.0	1,627.1	1,700.6	1,658.4	8.6	6.4	-142.09	70.7	-312.4	154.7	143.7	10.99	14.077		
1,800.0	1,719.9	1,800.2	1,753.4	9.3	7.0	-142.50	80.9	-340.2	164.4	152.6	11.80	13.934		
1,900.0	1,812.7	1,899.7	1,848.5	10.0	7.5	-142.86	91.2	-367.9	174.0	161.4	12.60	13.813		
2,000.0	1,905.5	1,999.2	1,943.5	10.7	8.1	-143.18	101.4	-395.7	183.7	170.3	13.40	13.709		
2,100.0	1,998.3	2,098.7	2,038.5	11.4	8.7	-143.48	111.6	-423.4	193.4	179.2	14.20	13.619		
2,200.0	2,091.2	2,198.3	2,133.5	12.1	9.2	-143.74	121.9	-451.2	203.1	188.1	15.00	13.541		
2,300.0	2,184.0	2,297.8	2,228.6	12.8	9.8	-143.98	132.1	-478.9	212.8	197.0	15.79	13.472		
2,400.0	2,276.8	2,397.3	2,323.6	13.5	10.3	-144.20	142.3	-506.7	222.5	205.9	16.59	13.411		
2,500.0	2,369.6	2,496.8	2,418.6	14.2	10.9	-144.40	152.5	-534.4	232.2	214.8	17.38	13.357		
2,600.0	2,462.4	2,596.4	2,513.7	14.9	11.5	-144.59	162.8	-562.2	241.9	223.7	18.17	13.308		
2,700.0	2,555.2	2,695.9	2,608.7	15.6	12.0	-144.76	173.0	-589.9	251.6	232.6	18.96	13.265		
2,800.0	2,648.1	2,795.4	2,703.7	16.3	12.6	-144.92	183.2	-617.7	261.3	241.5	19.75	13.225		
2,900.0	2,740.9	2,894.9	2,798.7	17.0	13.1	-145.07	193.4	-645.4	271.0	250.4	20.54	13.190		
3,000.0	2,833.7	2,994.5	2,893.8	17.7	13.7	-145.20	203.7	-673.2	280.7	259.3	21.33	13.157		
3,100.0	2,926.5	3,094.0	2,988.8	18.4	14.3	-145.33	213.9	-700.9	290.4	268.3	22.12	13.127		
3,200.0	3,019.3	3,193.5	3,083.8	19.1	14.8	-145.45	224.1	-728.7	300.1	277.2	22.91	13.100		
3,300.0	3,112.2	3,293.0	3,178.9	19.8	15.4	-145.56	234.4	-756.5	309.8	286.1	23.70	13.074		
3,400.0	3,205.0	3,392.6	3,273.9	20.5	16.0	-145.67	244.6	-784.2	319.5	295.0	24.48	13.051		
3,500.0	3,297.8	3,492.1	3,368.9	21.2	16.5	-145.77	254.8	-812.0	329.2	304.0	25.27	13.029		
3,600.0	3,390.6	3,591.6	3,463.9	21.9	17.1	-145.86	265.0	-839.7	338.9	312.9	26.05	13.009		
3,700.0	3,483.4	3,691.1	3,559.0	22.6	17.6	-145.95	275.3	-867.5	348.7	321.8	26.84	12.991		
3,800.0	3,576.3	3,790.7	3,654.0	23.3	18.2	-146.03	285.5	-895.2	358.4	330.8	27.62	12.973		
3,900.0	3,669.1	3,890.2	3,749.0	24.0	18.8	-146.11	295.7	-923.0	368.1	339.7	28.41	12.957		
4,000.0	3,761.9	3,989.7	3,844.1	24.7	19.3	-146.18	305.9	-950.7	377.8	348.6	29.19	12.942		
4,100.0	3,854.7	4,089.2	3,939.1	25.4	19.9	-146.25	316.2	-978.5	387.5	357.6	29.98	12.927		
4,200.0	3,947.5	4,188.8	4,034.1	26.1	20.5	-146.32	326.4	-1,006.2	397.2	366.5	30.76	12.914		
4,300.0	4,040.4	4,288.3	4,129.2	26.8	21.0	-146.39	336.6	-1,034.0	407.0	375.4	31.54	12.901		
4,400.0	4,133.2	4,387.8	4,224.2	27.5	21.6	-146.45	346.9	-1,061.7	416.7	384.4	32.33	12.889		
4,500.0	4,226.0	4,487.3	4,319.2	28.2	22.1	-146.51	357.1	-1,089.5	426.4	393.3	33.11	12.878		
4,600.0	4,318.8	4,586.9	4,414.2	29.0	22.7	-146.56	367.3	-1,117.2	436.1	402.2	33.89	12.867		
4,700.0	4,411.6	4,686.4	4,509.3	29.7	23.3	-146.62	377.5	-1,145.0	445.8	411.2	34.68	12.857		
4,800.0	4,504.4	4,785.9	4,604.3	30.4	23.8	-146.67	387.8	-1,172.7	455.6	420.1	35.46	12.847		
4,900.0	4,597.3	4,885.4	4,699.3	31.1	24.4	-146.72	398.0	-1,200.5	465.3	429.0	36.24	12.838		
5,000.0	4,690.1	4,985.0	4,794.4	31.8	25.0	-146.76	408.2	-1,228.2	475.0	438.0	37.02	12.830		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9D (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)			
5,100.0	4,782.9	5,084.5	4,889.4	32.5	25.5	-146.81	418.4	-1,256.0	484.7	446.9	37.81	12.821	
5,200.0	4,875.7	5,184.0	4,984.4	33.2	26.1	-146.85	428.7	-1,283.7	494.5	455.9	38.59	12.813 SF	

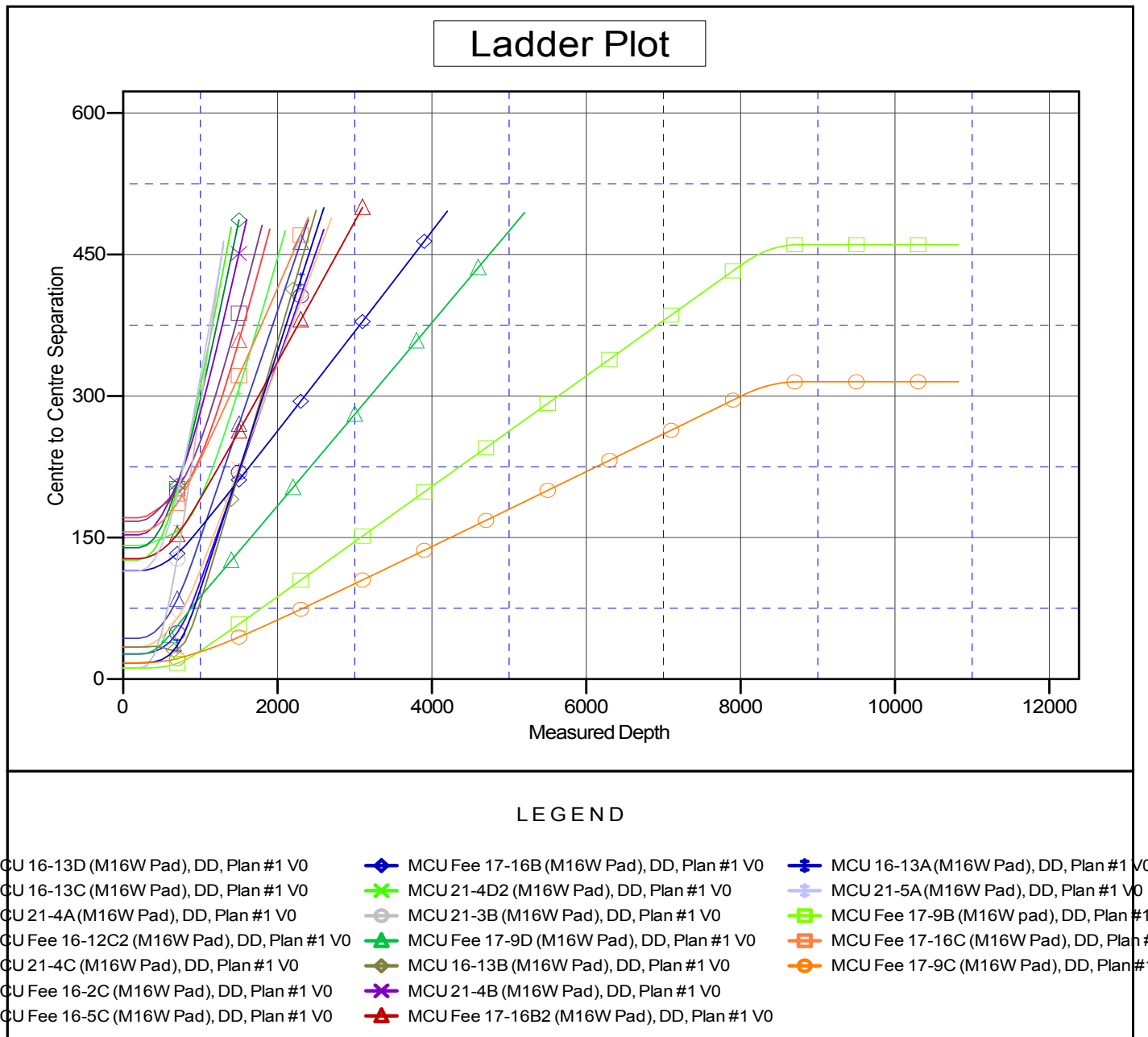
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-9B2 (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	MD Reference:	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-9B2 (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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 17-9B2 (M16W Pad)
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.44°



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