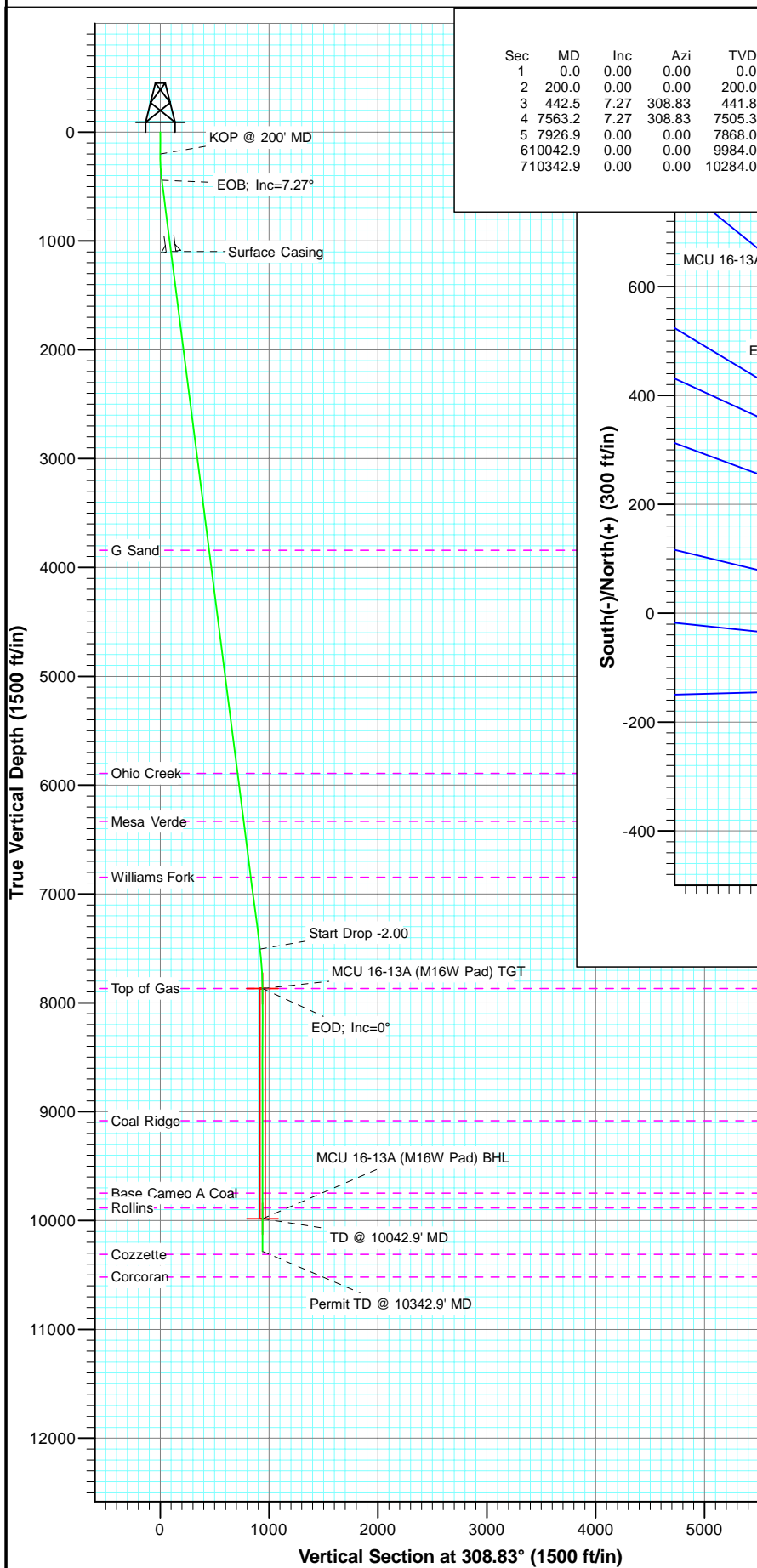
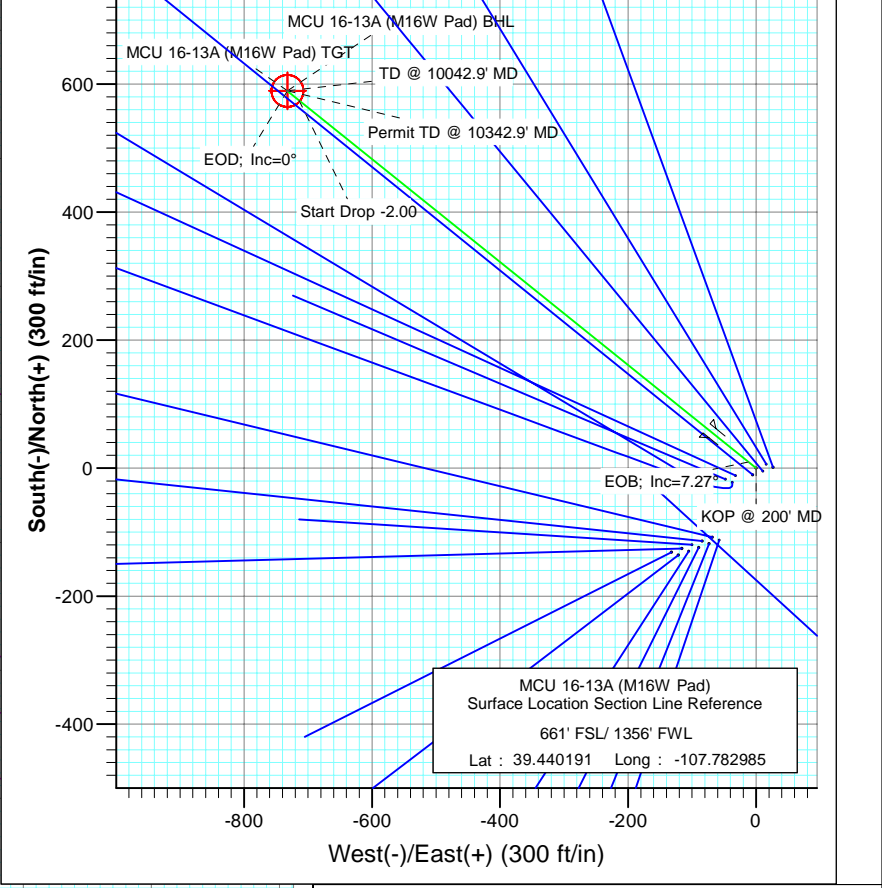




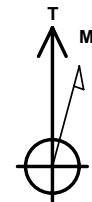
Project: Mamm Creek
 Site: SWSW S16-T7S-R93W (M16W Pad)
 Well: MCU 16-13A (M16W Pad)
 Wellbore: DD
 Plan: Plan #1



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	442.5	7.27	308.83	441.8	9.6	-12.0	3.00	308.83	15.4	
4	7563.2	7.27	308.83	7505.3	574.9	-714.3	0.00	0.00	917.0	
5	7926.9	0.00	0.00	7868.0	589.4	-732.3	2.00	180.00	940.0	MCU 16-13A (M16W Pad) TGT
6	10042.9	0.00	0.00	9984.0	589.4	-732.3	0.00	0.00	940.0	MCU 16-13A (M16W Pad) BHL
7	110342.9	0.00	0.00	10284.0	589.4	-732.3	0.00	0.00	940.0	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3842.0	3870.2	G Sand
5892.0	5936.9	Ohio Creek
6333.0	6381.4	Mesa Verde
6845.0	6897.6	Williams Fork
7868.0	7926.9	Top of Gas
9084.0	9142.9	Coal Ridge
9748.0	9806.9	Base Cameo A Coal
9884.0	9942.9	Rollins

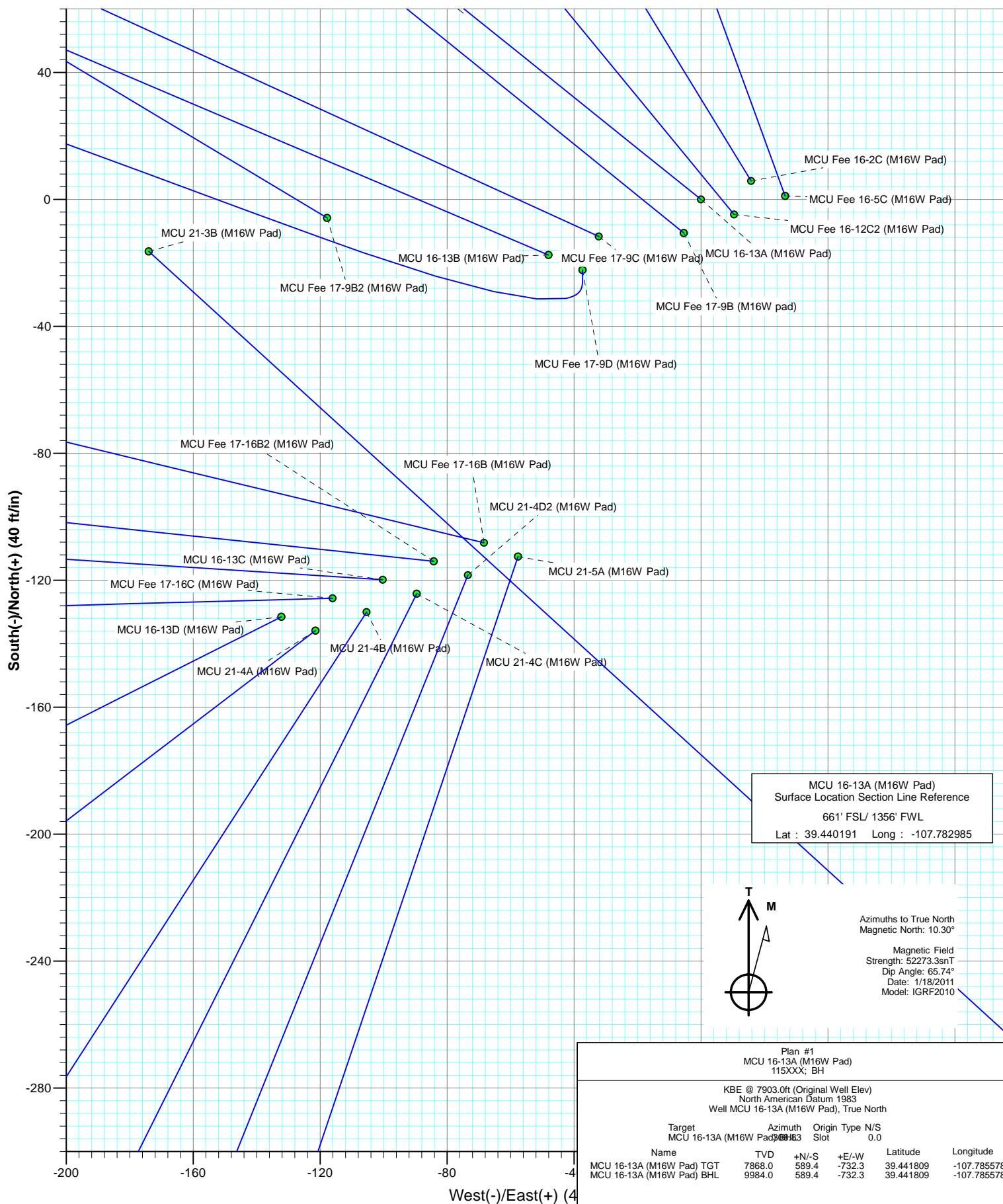


Azimuths to True North
 Magnetic North: 10.30°
 Magnetic Field
 Strength: 52273.3nT
 Dip Angle: 65.74°
 Date: 1/18/2011
 Model: IGRF2010

Plan #1 MCU 16-13A (M16W Pad) 115XXX; BH					
KBE @ 7903.0ft (Original Well Elev) North American Datum 1983 Well MCU 16-13A (M16W Pad), True North					
Target	Azimuth	Origin	Type	N/S	
MCU 16-13A (M16W Pad) BHL	308.83	Slot		0.0	
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 16-13A (M16W Pad) TGT	7868.0	589.4	-732.3	39.441809	-107.785578
MCU 16-13A (M16W Pad) BHL	9984.0	589.4	-732.3	39.441809	-107.785578

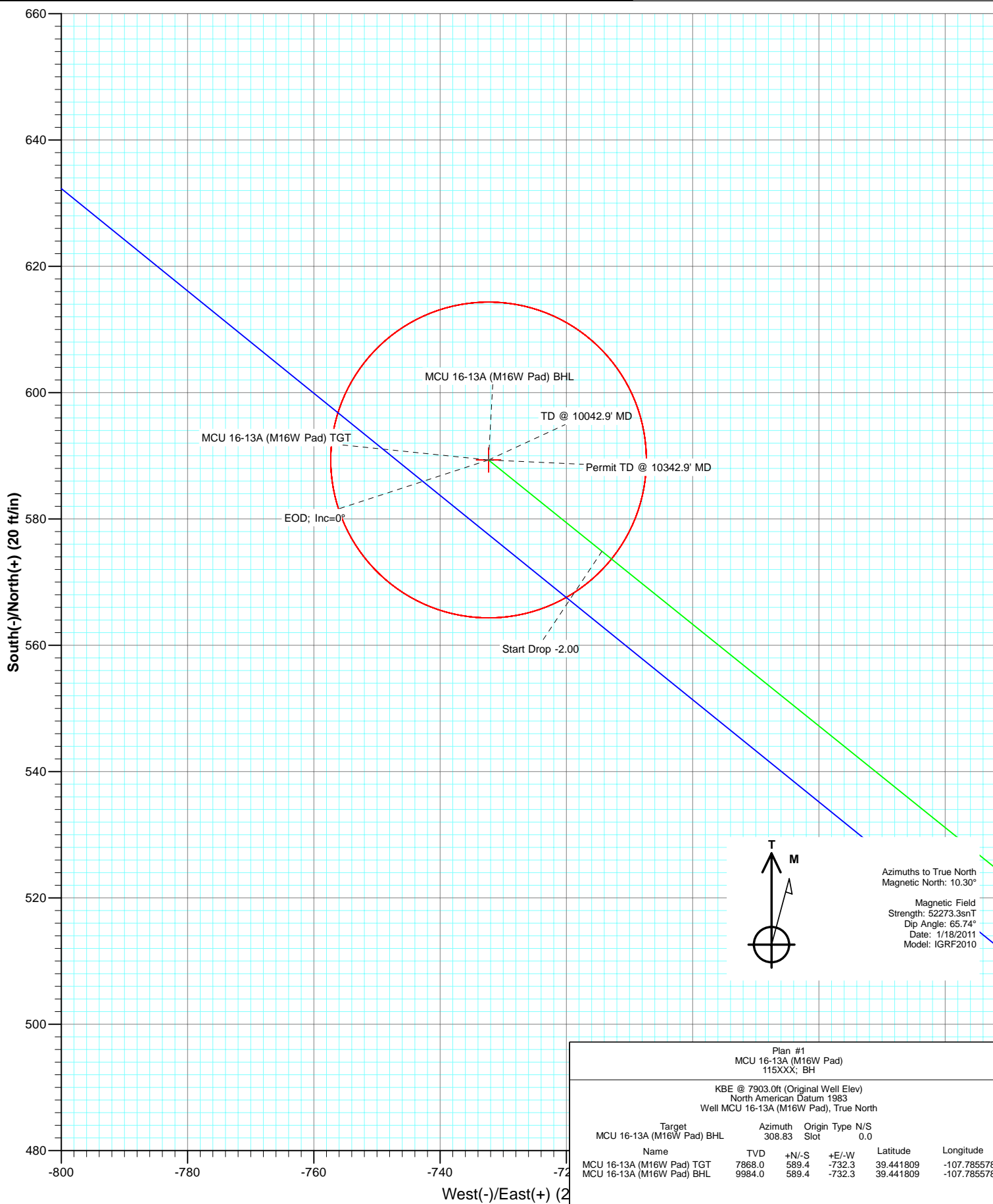


Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU 16-13A (M16W Pad)
Wellbore: DD
Plan: Plan #1





Project: Mamm Creek
 Site: SWSW S16-T7S-R93W (M16W Pad)
 Well: MCU 16-13A (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 16-13A (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 16-13A (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 16-13A (M16W Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,593,323.50 ft	Latitude:	39.440191
	+E/-W	0.0 ft	Easting:	2,355,302.29 ft	Longitude:	-107.782985
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	308.83

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	
442.5	7.27	308.83	441.8	9.6	-12.0	3.00	3.00	0.00	308.83	
7,563.2	7.27	308.83	7,505.3	574.9	-714.3	0.00	0.00	0.00	0.00	
7,926.9	0.00	0.00	7,868.0	589.4	-732.3	2.00	-2.00	0.00	180.00	MCU 16-13A (M16W)
10,042.9	0.00	0.00	9,984.0	589.4	-732.3	0.00	0.00	0.00	0.00	MCU 16-13A (M16W)
10,342.9	0.00	0.00	10,284.0	589.4	-732.3	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 16-13A (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 16-13A (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	308.83	300.0	1.6	-2.0	2.6	3.00	3.00	
400.0	6.00	308.83	399.6	6.6	-8.2	10.5	3.00	3.00	
442.5	7.27	308.83	441.8	9.6	-12.0	15.4	3.00	3.00	EOB; Inc=7.27°
500.0	7.27	308.83	498.9	14.2	-17.6	22.7	0.00	0.00	
600.0	7.27	308.83	598.1	22.1	-27.5	35.3	0.00	0.00	
700.0	7.27	308.83	697.3	30.1	-37.4	48.0	0.00	0.00	
800.0	7.27	308.83	796.5	38.0	-47.2	60.6	0.00	0.00	
900.0	7.27	308.83	895.7	46.0	-57.1	73.3	0.00	0.00	
1,000.0	7.27	308.83	994.9	53.9	-67.0	86.0	0.00	0.00	
1,100.0	7.27	308.83	1,094.1	61.8	-76.8	98.6	0.00	0.00	
1,104.0	7.27	308.83	1,098.0	62.1	-77.2	99.1	0.00	0.00	Surface Casing
1,200.0	7.27	308.83	1,193.3	69.8	-86.7	111.3	0.00	0.00	
1,300.0	7.27	308.83	1,292.4	77.7	-96.6	123.9	0.00	0.00	
1,400.0	7.27	308.83	1,391.6	85.6	-106.4	136.6	0.00	0.00	
1,500.0	7.27	308.83	1,490.8	93.6	-116.3	149.3	0.00	0.00	
1,600.0	7.27	308.83	1,590.0	101.5	-126.2	161.9	0.00	0.00	
1,700.0	7.27	308.83	1,689.2	109.5	-136.0	174.6	0.00	0.00	
1,800.0	7.27	308.83	1,788.4	117.4	-145.9	187.3	0.00	0.00	
1,900.0	7.27	308.83	1,887.6	125.3	-155.7	199.9	0.00	0.00	
2,000.0	7.27	308.83	1,986.8	133.3	-165.6	212.6	0.00	0.00	
2,100.0	7.27	308.83	2,086.0	141.2	-175.5	225.2	0.00	0.00	
2,200.0	7.27	308.83	2,185.2	149.2	-185.3	237.9	0.00	0.00	
2,300.0	7.27	308.83	2,284.4	157.1	-195.2	250.6	0.00	0.00	
2,400.0	7.27	308.83	2,383.6	165.0	-205.1	263.2	0.00	0.00	
2,500.0	7.27	308.83	2,482.8	173.0	-214.9	275.9	0.00	0.00	
2,600.0	7.27	308.83	2,582.0	180.9	-224.8	288.5	0.00	0.00	
2,700.0	7.27	308.83	2,681.2	188.8	-234.7	301.2	0.00	0.00	
2,800.0	7.27	308.83	2,780.4	196.8	-244.5	313.9	0.00	0.00	
2,900.0	7.27	308.83	2,879.6	204.7	-254.4	326.5	0.00	0.00	
3,000.0	7.27	308.83	2,978.8	212.7	-264.2	339.2	0.00	0.00	
3,100.0	7.27	308.83	3,078.0	220.6	-274.1	351.8	0.00	0.00	
3,200.0	7.27	308.83	3,177.2	228.5	-284.0	364.5	0.00	0.00	
3,300.0	7.27	308.83	3,276.4	236.5	-293.8	377.2	0.00	0.00	
3,400.0	7.27	308.83	3,375.5	244.4	-303.7	389.8	0.00	0.00	
3,500.0	7.27	308.83	3,474.7	252.3	-313.6	402.5	0.00	0.00	
3,600.0	7.27	308.83	3,573.9	260.3	-323.4	415.2	0.00	0.00	
3,700.0	7.27	308.83	3,673.1	268.2	-333.3	427.8	0.00	0.00	
3,800.0	7.27	308.83	3,772.3	276.2	-343.2	440.5	0.00	0.00	
3,870.2	7.27	308.83	3,842.0	281.7	-350.1	449.4	0.00	0.00	G Sand
3,900.0	7.27	308.83	3,871.5	284.1	-353.0	453.1	0.00	0.00	
4,000.0	7.27	308.83	3,970.7	292.0	-362.9	465.8	0.00	0.00	
4,100.0	7.27	308.83	4,069.9	300.0	-372.7	478.5	0.00	0.00	
4,200.0	7.27	308.83	4,169.1	307.9	-382.6	491.1	0.00	0.00	
4,300.0	7.27	308.83	4,268.3	315.9	-392.5	503.8	0.00	0.00	
4,400.0	7.27	308.83	4,367.5	323.8	-402.3	516.4	0.00	0.00	
4,500.0	7.27	308.83	4,466.7	331.7	-412.2	529.1	0.00	0.00	
4,600.0	7.27	308.83	4,565.9	339.7	-422.1	541.8	0.00	0.00	
4,700.0	7.27	308.83	4,665.1	347.6	-431.9	554.4	0.00	0.00	
4,800.0	7.27	308.83	4,764.3	355.5	-441.8	567.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	7.27	308.83	4,863.5	363.5	-451.7	579.8	0.00	0.00	
5,000.0	7.27	308.83	4,962.7	371.4	-461.5	592.4	0.00	0.00	
5,100.0	7.27	308.83	5,061.9	379.4	-471.4	605.1	0.00	0.00	
5,200.0	7.27	308.83	5,161.1	387.3	-481.2	617.7	0.00	0.00	
5,300.0	7.27	308.83	5,260.3	395.2	-491.1	630.4	0.00	0.00	
5,400.0	7.27	308.83	5,359.5	403.2	-501.0	643.1	0.00	0.00	
5,500.0	7.27	308.83	5,458.6	411.1	-510.8	655.7	0.00	0.00	
5,600.0	7.27	308.83	5,557.8	419.1	-520.7	668.4	0.00	0.00	
5,700.0	7.27	308.83	5,657.0	427.0	-530.6	681.0	0.00	0.00	
5,800.0	7.27	308.83	5,756.2	434.9	-540.4	693.7	0.00	0.00	
5,900.0	7.27	308.83	5,855.4	442.9	-550.3	706.4	0.00	0.00	
5,936.9	7.27	308.83	5,892.0	445.8	-553.9	711.0	0.00	0.00	Ohio Creek
6,000.0	7.27	308.83	5,954.6	450.8	-560.2	719.0	0.00	0.00	
6,100.0	7.27	308.83	6,053.8	458.7	-570.0	731.7	0.00	0.00	
6,200.0	7.27	308.83	6,153.0	466.7	-579.9	744.3	0.00	0.00	
6,300.0	7.27	308.83	6,252.2	474.6	-589.7	757.0	0.00	0.00	
6,381.4	7.27	308.83	6,333.0	481.1	-597.8	767.3	0.00	0.00	Mesa Verde
6,400.0	7.27	308.83	6,351.4	482.6	-599.6	769.7	0.00	0.00	
6,500.0	7.27	308.83	6,450.6	490.5	-609.5	782.3	0.00	0.00	
6,600.0	7.27	308.83	6,549.8	498.4	-619.3	795.0	0.00	0.00	
6,700.0	7.27	308.83	6,649.0	506.4	-629.2	807.7	0.00	0.00	
6,800.0	7.27	308.83	6,748.2	514.3	-639.1	820.3	0.00	0.00	
6,897.6	7.27	308.83	6,845.0	522.1	-648.7	832.7	0.00	0.00	Williams Fork
6,900.0	7.27	308.83	6,847.4	522.2	-648.9	833.0	0.00	0.00	
7,000.0	7.27	308.83	6,946.6	530.2	-658.8	845.6	0.00	0.00	
7,100.0	7.27	308.83	7,045.8	538.1	-668.7	858.3	0.00	0.00	
7,200.0	7.27	308.83	7,145.0	546.1	-678.5	871.0	0.00	0.00	
7,300.0	7.27	308.83	7,244.2	554.0	-688.4	883.6	0.00	0.00	
7,400.0	7.27	308.83	7,343.4	561.9	-698.2	896.3	0.00	0.00	
7,500.0	7.27	308.83	7,442.6	569.9	-708.1	908.9	0.00	0.00	
7,563.2	7.27	308.83	7,505.3	574.9	-714.3	917.0	0.00	0.00	Start Drop -2.00
7,600.0	6.54	308.83	7,541.8	577.7	-717.8	921.4	2.00	-2.00	
7,700.0	4.54	308.83	7,641.3	583.7	-725.3	931.0	2.00	-2.00	
7,800.0	2.54	308.83	7,741.1	587.6	-730.1	937.2	2.00	-2.00	
7,900.0	0.54	308.83	7,841.1	589.3	-732.2	939.9	2.00	-2.00	
7,926.9	0.00	0.00	7,868.0	589.4	-732.3	940.0	2.00	-2.00	EOD; Inc=0° - Top of Gas - MCU 16-13A (M16W)
8,000.0	0.00	0.00	7,941.1	589.4	-732.3	940.0	0.00	0.00	
8,100.0	0.00	0.00	8,041.1	589.4	-732.3	940.0	0.00	0.00	
8,200.0	0.00	0.00	8,141.1	589.4	-732.3	940.0	0.00	0.00	
8,300.0	0.00	0.00	8,241.1	589.4	-732.3	940.0	0.00	0.00	
8,400.0	0.00	0.00	8,341.1	589.4	-732.3	940.0	0.00	0.00	
8,500.0	0.00	0.00	8,441.1	589.4	-732.3	940.0	0.00	0.00	
8,600.0	0.00	0.00	8,541.1	589.4	-732.3	940.0	0.00	0.00	
8,700.0	0.00	0.00	8,641.1	589.4	-732.3	940.0	0.00	0.00	
8,800.0	0.00	0.00	8,741.1	589.4	-732.3	940.0	0.00	0.00	
8,900.0	0.00	0.00	8,841.1	589.4	-732.3	940.0	0.00	0.00	
9,000.0	0.00	0.00	8,941.1	589.4	-732.3	940.0	0.00	0.00	
9,100.0	0.00	0.00	9,041.1	589.4	-732.3	940.0	0.00	0.00	
9,142.9	0.00	0.00	9,084.0	589.4	-732.3	940.0	0.00	0.00	Coal Ridge
9,200.0	0.00	0.00	9,141.1	589.4	-732.3	940.0	0.00	0.00	
9,300.0	0.00	0.00	9,241.1	589.4	-732.3	940.0	0.00	0.00	
9,400.0	0.00	0.00	9,341.1	589.4	-732.3	940.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	9,441.1	589.4	-732.3	940.0	0.00	0.00	
9,600.0	0.00	0.00	9,541.1	589.4	-732.3	940.0	0.00	0.00	
9,700.0	0.00	0.00	9,641.1	589.4	-732.3	940.0	0.00	0.00	
9,800.0	0.00	0.00	9,741.1	589.4	-732.3	940.0	0.00	0.00	
9,806.9	0.00	0.00	9,748.0	589.4	-732.3	940.0	0.00	0.00	Base Cameo A Coal
9,900.0	0.00	0.00	9,841.1	589.4	-732.3	940.0	0.00	0.00	
9,942.9	0.00	0.00	9,884.0	589.4	-732.3	940.0	0.00	0.00	Rollins
10,000.0	0.00	0.00	9,941.1	589.4	-732.3	940.0	0.00	0.00	
10,042.9	0.00	0.00	9,984.0	589.4	-732.3	940.0	0.00	0.00	TD @ 10042.9' MD - MCU 16-13A (M16W Pad)
10,100.0	0.00	0.00	10,041.1	589.4	-732.3	940.0	0.00	0.00	
10,200.0	0.00	0.00	10,141.1	589.4	-732.3	940.0	0.00	0.00	
10,300.0	0.00	0.00	10,241.1	589.4	-732.3	940.0	0.00	0.00	
10,342.9	0.00	0.00	10,284.0	589.4	-732.3	940.0	0.00	0.00	Permit TD @ 10342.9' MD

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
MCU 16-13A (M16W Pa - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,868.0	589.4	-732.3	1,593,931.07	2,354,585.02	39.441809	-107.785578
MCU 16-13A (M16W Pa - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,984.0	589.4	-732.3	1,593,931.07	2,354,585.02	39.441809	-107.785578

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,104.0	1,098.0	Surface Casing	0.000	0.000	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,870.2	3,842.0	G Sand		0.00		
5,936.9	5,892.0	Ohio Creek		0.00		
6,381.4	6,333.0	Mesa Verde		0.00		
6,897.6	6,845.0	Williams Fork		0.00		
7,926.9	7,868.0	Top of Gas		0.00		
9,142.9	9,084.0	Coal Ridge		0.00		
9,806.9	9,748.0	Base Cameo A Coal		0.00		
9,942.9	9,884.0	Rollins		0.00		

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200' MD
442.5	441.8	9.6	-12.0	EOB; Inc=7.27°
7,563.2	7,505.3	574.9	-714.3	Start Drop -2.00
7,926.9	7,868.0	589.4	-732.3	EOD; Inc=0°
10,042.9	9,984.0	589.4	-732.3	TD @ 10042.9' MD
10,342.9	10,284.0	589.4	-732.3	Permit TD @ 10342.9' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

SWSW S16-T7S-R93W (M16W Pad)

MCU 16-13A (M16W Pad)

DD

Plan #1

Anticollision Report

19 January, 2011

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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 1,234.3ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	1/19/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,342.9	Plan #1 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SWSW S16-T7S-R93W (M16W Pad)						
MCU 16-13B (M16W Pad) - DD - Plan #1	200.0	200.0	51.1	50.5	82.236	CC, ES
MCU 16-13B (M16W Pad) - DD - Plan #1	10,342.9	10,319.8	319.9	276.5	7.372	SF
MCU 16-13C (M16W Pad) - DD - Plan #1	200.0	200.0	156.2	155.6	251.464	CC, ES
MCU 16-13C (M16W Pad) - DD - Plan #1	10,342.9	10,309.0	669.7	626.9	15.627	SF
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	186.4	185.8	300.061	CC, ES
MCU 16-13D (M16W Pad) - DD - Plan #1	10,342.9	10,311.2	1,009.7	967.1	23.713	SF
MCU 21-3B (M16W Pad) - DD - Plan #1	716.6	719.4	126.3	122.8	36.502	CC, ES
MCU 21-3B (M16W Pad) - DD - Plan #1	900.0	889.2	144.0	139.6	32.224	SF
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	182.2	181.6	293.280	CC, ES
MCU 21-4A (M16W Pad) - DD - Plan #1	10,342.9	10,318.9	1,165.7	1,123.0	27.332	SF
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	167.3	166.7	269.326	CC, ES
MCU 21-4B (M16W Pad) - DD - Plan #1	5,800.0	5,662.7	1,227.8	1,201.7	47.019	SF
MCU 21-4C (M16W Pad) - DD - Plan #1	200.0	200.0	153.1	152.5	246.417	CC, ES
MCU 21-4C (M16W Pad) - DD - Plan #1	4,900.0	4,736.6	1,217.7	1,195.8	55.704	SF
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	139.3	138.7	224.203	CC, ES
MCU 21-4D2 (M16W Pad) - DD - Plan #1	4,300.0	4,103.8	1,231.5	1,212.5	64.920	SF
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	126.4	125.8	203.494	CC, ES
MCU 21-5A (M16W Pad) - DD - Plan #1	3,800.0	3,572.5	1,223.0	1,206.4	73.891	SF
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	200.0	200.0	11.5	10.9	18.464	CC
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	300.0	300.5	11.7	10.7	11.974	ES
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	800.0	801.3	17.6	13.8	4.705	SF
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	16.9	16.2	27.127	CC, ES
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	700.0	699.5	35.4	32.2	11.190	SF
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	26.6	25.9	42.763	CC, ES
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	700.0	698.8	52.7	49.4	16.227	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	200.0	200.0	128.0	127.3	205.943	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	1,300.0	1,265.2	257.7	250.7	36.821	SF
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	200.0	200.0	141.7	141.1	228.066	CC, ES
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	1,600.0	1,544.0	361.6	353.1	42.552	SF
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	171.1	170.4	275.323	CC, ES
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	4,300.0	4,142.6	1,074.3	1,051.8	47.728	SF
MCU Fee 17-9B (M16W pad) - DD - Plan #1	965.2	968.7	11.4	6.7	2.442	CC, ES, SF
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	200.0	200.0	117.9	117.3	189.776	CC
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	400.0	390.2	118.4	117.0	88.150	ES
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	900.0	859.1	165.0	161.4	46.451	SF
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	200.0	200.0	34.2	33.6	55.116	CC, ES
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	600.0	594.4	45.4	43.0	19.085	SF
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	232.3	232.1	43.4	42.7	58.928	CC
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	300.0	299.1	43.6	42.6	44.476	ES
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	1,000.0	993.0	89.9	85.3	19.401	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	-110.01	-17.5	-48.0	51.1					
100.0	100.0	100.0	100.0	0.1	0.1	-110.01	-17.5	-48.0	51.1	50.8	0.27	187.667		
200.0	200.0	200.0	200.0	0.3	0.3	-110.01	-17.5	-48.0	51.1	50.5	0.62	82.236	CC, ES	
300.0	300.0	298.1	298.0	0.5	0.5	-59.35	-16.5	-50.3	51.6	50.6	0.98	52.826		
400.0	399.6	396.3	395.9	0.7	0.7	-60.86	-13.6	-57.3	53.2	51.8	1.38	38.566		
500.0	498.9	496.2	495.4	1.0	0.9	-64.75	-9.7	-66.3	54.3	52.5	1.84	29.595		
600.0	598.1	596.1	594.8	1.2	1.2	-68.93	-5.9	-75.4	55.5	53.2	2.32	23.907		
700.0	697.3	696.0	694.2	1.5	1.4	-72.92	-2.0	-84.4	57.0	54.2	2.83	20.146		
800.0	796.5	795.9	793.7	1.8	1.6	-76.68	1.8	-93.4	58.8	55.4	3.35	17.535		
900.0	895.7	895.9	893.1	2.1	1.9	-80.22	5.6	-102.5	60.7	56.9	3.88	15.654		
1,000.0	994.9	995.8	992.5	2.3	2.1	-83.52	9.5	-111.5	62.9	58.5	4.41	14.260		
1,100.0	1,094.1	1,095.7	1,092.0	2.6	2.4	-86.59	13.3	-120.6	65.3	60.4	4.95	13.202		
1,200.0	1,193.3	1,195.6	1,191.4	2.9	2.6	-89.43	17.2	-129.6	67.9	62.4	5.48	12.384		
1,300.0	1,292.4	1,295.5	1,290.8	3.2	2.9	-92.06	21.0	-138.6	70.6	64.6	6.01	11.742		
1,400.0	1,391.6	1,395.4	1,390.2	3.5	3.1	-94.49	24.8	-147.7	73.5	66.9	6.54	11.232		
1,500.0	1,490.8	1,495.3	1,489.7	3.7	3.4	-96.74	28.7	-156.7	76.5	69.4	7.07	10.821		
1,600.0	1,590.0	1,595.2	1,589.1	4.0	3.6	-98.81	32.5	-165.8	79.6	72.0	7.59	10.487		
1,700.0	1,689.2	1,695.2	1,688.5	4.3	3.8	-100.73	36.4	-174.8	82.8	74.7	8.10	10.214		
1,800.0	1,788.4	1,795.1	1,788.0	4.6	4.1	-102.50	40.2	-183.8	86.0	77.4	8.61	9.988		
1,900.0	1,887.6	1,895.0	1,887.4	4.9	4.3	-104.14	44.0	-192.9	89.4	80.3	9.12	9.801		
2,000.0	1,986.8	1,994.9	1,986.8	5.2	4.6	-105.66	47.9	-201.9	92.8	83.2	9.62	9.644		
2,100.0	2,086.0	2,094.8	2,086.2	5.4	4.8	-107.08	51.7	-211.0	96.3	86.2	10.12	9.513		
2,200.0	2,185.2	2,194.7	2,185.7	5.7	5.1	-108.39	55.6	-220.0	99.8	89.2	10.62	9.402		
2,300.0	2,284.4	2,294.6	2,285.1	6.0	5.3	-109.61	59.4	-229.0	103.4	92.3	11.11	9.308		
2,400.0	2,383.6	2,394.5	2,384.5	6.3	5.6	-110.75	63.2	-238.1	107.0	95.4	11.60	9.228		
2,500.0	2,482.8	2,494.5	2,484.0	6.6	5.8	-111.82	67.1	-247.1	110.7	98.6	12.08	9.160		
2,600.0	2,582.0	2,594.4	2,583.4	6.8	6.0	-112.82	70.9	-256.2	114.4	101.8	12.57	9.102		
2,700.0	2,681.2	2,694.3	2,682.8	7.1	6.3	-113.75	74.8	-265.2	118.1	105.1	13.05	9.053		
2,800.0	2,780.4	2,794.2	2,782.2	7.4	6.5	-114.63	78.6	-274.3	121.9	108.4	13.53	9.010		
2,900.0	2,879.6	2,894.1	2,881.7	7.7	6.8	-115.45	82.4	-283.3	125.7	111.7	14.00	8.974		
3,000.0	2,978.8	2,994.0	2,981.1	8.0	7.0	-116.23	86.3	-292.3	129.5	115.0	14.48	8.943		
3,100.0	3,078.0	3,093.9	3,080.5	8.3	7.3	-116.96	90.1	-301.4	133.3	118.4	14.95	8.916		
3,200.0	3,177.2	3,193.8	3,179.9	8.5	7.5	-117.65	94.0	-310.4	137.2	121.8	15.42	8.893		
3,300.0	3,276.4	3,293.8	3,279.4	8.8	7.8	-118.30	97.8	-319.5	141.1	125.2	15.89	8.874		
3,400.0	3,375.5	3,393.7	3,378.8	9.1	8.0	-118.92	101.6	-328.5	144.9	128.6	16.36	8.857		
3,500.0	3,474.7	3,493.6	3,478.2	9.4	8.2	-119.51	105.5	-337.5	148.9	132.0	16.83	8.843		
3,600.0	3,573.9	3,593.5	3,577.7	9.7	8.5	-120.06	109.3	-346.6	152.8	135.5	17.30	8.831		
3,700.0	3,673.1	3,693.4	3,677.1	9.9	8.7	-120.59	113.2	-355.6	156.7	138.9	17.77	8.821		
3,800.0	3,772.3	3,793.3	3,776.5	10.2	9.0	-121.09	117.0	-364.7	160.7	142.4	18.23	8.813		
3,900.0	3,871.5	3,893.2	3,875.9	10.5	9.2	-121.57	120.8	-373.7	164.6	145.9	18.70	8.806		
4,000.0	3,970.7	3,993.1	3,975.4	10.8	9.5	-122.02	124.7	-382.7	168.6	149.4	19.16	8.800		
4,100.0	4,069.9	4,093.1	4,074.8	11.1	9.7	-122.46	128.5	-391.8	172.6	153.0	19.62	8.795		
4,200.0	4,169.1	4,193.0	4,174.2	11.4	10.0	-122.87	132.4	-400.8	176.6	156.5	20.08	8.792		
4,300.0	4,268.3	4,292.9	4,273.7	11.6	10.2	-123.27	136.2	-409.9	180.6	160.0	20.55	8.789		
4,400.0	4,367.5	4,392.8	4,373.1	11.9	10.5	-123.65	140.0	-418.9	184.6	163.6	21.01	8.787		
4,500.0	4,466.7	4,492.7	4,472.5	12.2	10.7	-124.01	143.9	-427.9	188.6	167.1	21.47	8.786		
4,600.0	4,565.9	4,592.6	4,571.9	12.5	10.9	-124.36	147.7	-437.0	192.6	170.7	21.93	8.785		
4,700.0	4,665.1	4,692.5	4,671.4	12.8	11.2	-124.69	151.6	-446.0	196.7	174.3	22.39	8.785		
4,800.0	4,764.3	4,792.4	4,770.8	13.1	11.4	-125.01	155.4	-455.1	200.7	177.9	22.84	8.785		
4,900.0	4,863.5	4,892.4	4,870.2	13.3	11.7	-125.32	159.2	-464.1	204.7	181.4	23.30	8.786		
5,000.0	4,962.7	4,992.3	4,969.7	13.6	11.9	-125.61	163.1	-473.1	208.8	185.0	23.76	8.787		
5,100.0	5,061.9	5,092.2	5,069.1	13.9	12.2	-125.90	166.9	-482.2	212.8	188.6	24.22	8.788		

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 16-13A (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 16-13A (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: O-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,161.1	5,192.1	5,168.5	14.2	12.4	-126.17	170.8	-491.2	216.9	192.2	24.68	8.790	
5,300.0	5,260.3	5,292.0	5,267.9	14.5	12.7	-126.43	174.6	-500.3	221.0	195.8	25.13	8.792	
5,400.0	5,359.5	5,391.9	5,367.4	14.7	12.9	-126.69	178.4	-509.3	225.0	199.4	25.59	8.794	
5,500.0	5,458.6	5,491.8	5,466.8	15.0	13.1	-126.93	182.3	-518.3	229.1	203.1	26.05	8.796	
5,600.0	5,557.8	5,591.7	5,566.2	15.3	13.4	-127.17	186.1	-527.4	233.2	206.7	26.50	8.798	
5,700.0	5,657.0	5,691.7	5,665.7	15.6	13.6	-127.40	190.0	-536.4	237.3	210.3	26.96	8.801	
5,800.0	5,756.2	5,791.6	5,765.1	15.9	13.9	-127.62	193.8	-545.5	241.3	213.9	27.41	8.804	
5,900.0	5,855.4	5,891.5	5,864.5	16.2	14.1	-127.83	197.6	-554.5	245.4	217.6	27.87	8.806	
6,000.0	5,954.6	5,991.4	5,963.9	16.4	14.4	-128.04	201.5	-563.6	249.5	221.2	28.33	8.809	
6,100.0	6,053.8	6,091.3	6,063.4	16.7	14.6	-128.24	205.3	-572.6	253.6	224.8	28.78	8.812	
6,200.0	6,153.0	6,191.2	6,162.8	17.0	14.9	-128.43	209.2	-581.6	257.7	228.5	29.24	8.815	
6,300.0	6,252.2	6,291.1	6,262.2	17.3	15.1	-128.62	213.0	-590.7	261.8	232.1	29.69	8.818	
6,400.0	6,351.4	6,391.0	6,361.7	17.6	15.3	-128.80	216.8	-599.7	265.9	235.8	30.14	8.821	
6,500.0	6,450.6	6,491.0	6,461.1	17.9	15.6	-128.97	220.7	-608.8	270.0	239.4	30.60	8.825	
6,600.0	6,549.8	6,590.9	6,560.5	18.1	15.8	-129.14	224.5	-617.8	274.1	243.1	31.05	8.828	
6,700.0	6,649.0	6,690.8	6,659.9	18.4	16.1	-129.31	228.4	-626.8	278.2	246.7	31.51	8.831	
6,800.0	6,748.2	6,790.7	6,759.4	18.7	16.3	-129.47	232.2	-635.9	282.4	250.4	31.96	8.834	
6,900.0	6,847.4	6,890.6	6,858.8	19.0	16.6	-129.63	236.0	-644.9	286.5	254.1	32.42	8.838	
7,000.0	6,946.6	6,990.5	6,958.2	19.3	16.8	-129.78	239.9	-654.0	290.6	257.7	32.87	8.841	
7,100.0	7,045.8	7,090.4	7,057.7	19.5	17.1	-129.92	243.7	-663.0	294.7	261.4	33.32	8.844	
7,200.0	7,145.0	7,190.3	7,157.1	19.8	17.3	-130.07	247.5	-672.0	298.8	265.1	33.78	8.847	
7,300.0	7,244.2	7,290.2	7,256.5	20.1	17.6	-130.21	251.4	-681.1	303.0	268.7	34.23	8.851	
7,400.0	7,343.4	7,390.2	7,355.9	20.4	17.8	-130.34	255.2	-690.1	307.1	272.4	34.68	8.854	
7,500.0	7,442.6	7,490.1	7,455.4	20.7	18.0	-130.48	259.1	-699.2	311.2	276.1	35.14	8.857	
7,600.0	7,541.8	7,590.0	7,554.8	21.0	18.3	-130.59	262.9	-708.2	315.2	279.6	35.59	8.856	
7,700.0	7,641.3	7,686.9	7,651.3	21.2	18.5	-130.47	266.3	-716.3	317.7	281.6	36.03	8.817	
7,800.0	7,741.1	7,782.5	7,746.7	21.3	18.7	-130.38	268.5	-721.5	319.2	282.8	36.38	8.775	
7,900.0	7,841.1	7,878.1	7,842.3	21.5	18.8	-130.34	269.5	-723.7	319.9	283.2	36.64	8.730	
8,000.0	7,941.1	7,976.9	7,941.1	21.6	18.9	-178.48	269.6	-723.8	319.9	283.0	36.90	8.670	
8,100.0	8,041.1	8,076.9	8,041.1	21.7	19.1	-178.48	269.6	-723.8	319.9	282.7	37.16	8.608	
8,200.0	8,141.1	8,176.9	8,141.1	21.8	19.2	-178.48	269.6	-723.8	319.9	282.5	37.43	8.547	
8,300.0	8,241.1	8,276.9	8,241.1	21.9	19.3	-178.48	269.6	-723.8	319.9	282.2	37.69	8.487	
8,400.0	8,341.1	8,376.9	8,341.1	22.0	19.4	-178.48	269.6	-723.8	319.9	281.9	37.96	8.427	
8,500.0	8,441.1	8,476.9	8,441.1	22.2	19.6	-178.48	269.6	-723.8	319.9	281.7	38.23	8.368	
8,600.0	8,541.1	8,576.9	8,541.1	22.3	19.7	-178.48	269.6	-723.8	319.9	281.4	38.50	8.309	
8,700.0	8,641.1	8,676.9	8,641.1	22.4	19.8	-178.48	269.6	-723.8	319.9	281.1	38.77	8.251	
8,800.0	8,741.1	8,776.9	8,741.1	22.5	20.0	-178.48	269.6	-723.8	319.9	280.9	39.05	8.193	
8,900.0	8,841.1	8,876.9	8,841.1	22.6	20.1	-178.48	269.6	-723.8	319.9	280.6	39.32	8.136	
9,000.0	8,941.1	8,976.9	8,941.1	22.7	20.2	-178.48	269.6	-723.8	319.9	280.3	39.60	8.079	
9,100.0	9,041.1	9,076.9	9,041.1	22.9	20.4	-178.48	269.6	-723.8	319.9	280.0	39.87	8.023	
9,200.0	9,141.1	9,176.9	9,141.1	23.0	20.5	-178.48	269.6	-723.8	319.9	279.8	40.15	7.968	
9,300.0	9,241.1	9,276.9	9,241.1	23.1	20.7	-178.48	269.6	-723.8	319.9	279.5	40.43	7.913	
9,400.0	9,341.1	9,376.9	9,341.1	23.2	20.8	-178.48	269.6	-723.8	319.9	279.2	40.71	7.858	
9,500.0	9,441.1	9,476.9	9,441.1	23.4	20.9	-178.48	269.6	-723.8	319.9	278.9	40.99	7.805	
9,600.0	9,541.1	9,576.9	9,541.1	23.5	21.1	-178.48	269.6	-723.8	319.9	278.6	41.27	7.751	
9,700.0	9,641.1	9,676.9	9,641.1	23.6	21.2	-178.48	269.6	-723.8	319.9	278.4	41.56	7.698	
9,800.0	9,741.1	9,776.9	9,741.1	23.7	21.3	-178.48	269.6	-723.8	319.9	278.1	41.84	7.646	
9,900.0	9,841.1	9,876.9	9,841.1	23.9	21.5	-178.48	269.6	-723.8	319.9	277.8	42.12	7.594	
10,000.0	9,941.1	9,976.9	9,941.1	24.0	21.6	-178.48	269.6	-723.8	319.9	277.5	42.41	7.543	
10,100.0	10,041.1	10,076.9	10,041.1	24.1	21.8	-178.48	269.6	-723.8	319.9	277.2	42.70	7.493	
10,200.0	10,141.1	10,176.9	10,141.1	24.2	21.9	-178.48	269.6	-723.8	319.9	276.9	42.98	7.442	
10,300.0	10,241.1	10,276.9	10,241.1	24.4	22.0	-178.48	269.6	-723.8	319.9	276.6	43.27	7.393	

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 16-13A (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 16-13A (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							
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	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)				
10,342.9	10,284.0	10,319.8	10,284.0	24.4	22.1	178.48	269.6	-723.8	319.9	276.5	43.40	7.372 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: 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	-140.08	-119.8	-100.3	156.2					
100.0	100.0	100.0	100.0	0.1	0.1	-140.08	-119.8	-100.3	156.2	156.0	0.27	573.854		
200.0	200.0	200.0	200.0	0.3	0.3	-140.08	-119.8	-100.3	156.2	155.6	0.62	251.464	CC, ES	
300.0	300.0	295.4	295.3	0.5	0.5	-89.07	-119.7	-102.6	157.7	156.7	0.98	161.516		
400.0	399.6	392.3	392.0	0.7	0.7	-89.66	-119.2	-109.6	161.8	160.4	1.39	116.709		
500.0	498.9	492.0	491.4	1.0	0.9	-91.50	-118.7	-117.7	166.5	164.7	1.85	90.214		
600.0	598.1	591.7	590.8	1.2	1.1	-93.45	-118.2	-125.9	171.5	169.2	2.32	73.853		
700.0	697.3	691.4	690.1	1.5	1.3	-95.29	-117.6	-134.1	176.7	173.9	2.81	62.943		
800.0	796.5	791.1	789.5	1.8	1.6	-97.02	-117.1	-142.2	182.0	178.7	3.30	55.223		
900.0	895.7	890.8	888.9	2.1	1.8	-98.65	-116.6	-150.4	187.5	183.7	3.79	49.508		
1,000.0	994.9	990.6	988.3	2.3	2.0	-100.19	-116.1	-158.5	193.2	188.9	4.28	45.128		
1,100.0	1,094.1	1,090.3	1,087.6	2.6	2.2	-101.64	-115.5	-166.7	198.9	194.2	4.77	41.677		
1,200.0	1,193.3	1,190.0	1,187.0	2.9	2.5	-103.00	-115.0	-174.8	204.8	199.6	5.27	38.897		
1,300.0	1,292.4	1,289.7	1,286.4	3.2	2.7	-104.30	-114.5	-183.0	210.8	205.1	5.76	36.616		
1,400.0	1,391.6	1,389.4	1,385.7	3.5	2.9	-105.51	-114.0	-191.2	216.9	210.7	6.25	34.716		
1,500.0	1,490.8	1,489.1	1,485.1	3.7	3.1	-106.67	-113.4	-199.3	223.1	216.4	6.74	33.112		
1,600.0	1,590.0	1,588.8	1,584.5	4.0	3.4	-107.76	-112.9	-207.5	229.4	222.2	7.23	31.744		
1,700.0	1,689.2	1,688.5	1,683.9	4.3	3.6	-108.79	-112.4	-215.6	235.7	228.0	7.71	30.564		
1,800.0	1,788.4	1,788.2	1,783.2	4.6	3.8	-109.76	-111.8	-223.8	242.2	234.0	8.20	29.538		
1,900.0	1,887.6	1,888.0	1,882.6	4.9	4.0	-110.69	-111.3	-231.9	248.7	240.0	8.68	28.640		
2,000.0	1,986.8	1,987.7	1,982.0	5.2	4.3	-111.57	-110.8	-240.1	255.2	246.1	9.17	27.847		
2,100.0	2,086.0	2,087.4	2,081.4	5.4	4.5	-112.40	-110.3	-248.2	261.8	252.2	9.65	27.144		
2,200.0	2,185.2	2,187.1	2,180.7	5.7	4.7	-113.20	-109.7	-256.4	268.5	258.4	10.13	26.516		
2,300.0	2,284.4	2,286.8	2,280.1	6.0	4.9	-113.95	-109.2	-264.6	275.2	264.6	10.60	25.954		
2,400.0	2,383.6	2,386.5	2,379.5	6.3	5.2	-114.67	-108.7	-272.7	282.0	270.9	11.08	25.447		
2,500.0	2,482.8	2,486.2	2,478.9	6.6	5.4	-115.35	-108.1	-280.9	288.8	277.2	11.56	24.988		
2,600.0	2,582.0	2,585.9	2,578.2	6.8	5.6	-116.01	-107.6	-289.0	295.6	283.6	12.03	24.571		
2,700.0	2,681.2	2,685.6	2,677.6	7.1	5.8	-116.63	-107.1	-297.2	302.5	290.0	12.50	24.191		
2,800.0	2,780.4	2,785.3	2,777.0	7.4	6.1	-117.23	-106.6	-305.3	309.4	296.4	12.98	23.844		
2,900.0	2,879.6	2,885.1	2,876.4	7.7	6.3	-117.80	-106.0	-313.5	316.3	302.9	13.45	23.526		
3,000.0	2,978.8	2,984.8	2,975.7	8.0	6.5	-118.34	-105.5	-321.7	323.3	309.4	13.92	23.232		
3,100.0	3,078.0	3,084.5	3,075.1	8.3	6.7	-118.87	-105.0	-329.8	330.3	315.9	14.39	22.962		
3,200.0	3,177.2	3,184.2	3,174.5	8.5	7.0	-119.37	-104.4	-338.0	337.3	322.5	14.85	22.712		
3,300.0	3,276.4	3,283.9	3,273.9	8.8	7.2	-119.85	-103.9	-346.1	344.4	329.1	15.32	22.480		
3,400.0	3,375.5	3,383.6	3,373.2	9.1	7.4	-120.31	-103.4	-354.3	351.5	335.7	15.79	22.264		
3,500.0	3,474.7	3,483.3	3,472.6	9.4	7.6	-120.75	-102.9	-362.4	358.6	342.3	16.25	22.064		
3,600.0	3,573.9	3,583.0	3,572.0	9.7	7.9	-121.18	-102.3	-370.6	365.7	349.0	16.72	21.877		
3,700.0	3,673.1	3,682.7	3,671.4	9.9	8.1	-121.59	-101.8	-378.8	372.8	355.6	17.18	21.701		
3,800.0	3,772.3	3,782.4	3,770.7	10.2	8.3	-121.98	-101.3	-386.9	380.0	362.3	17.64	21.538		
3,900.0	3,871.5	3,882.2	3,870.1	10.5	8.5	-122.36	-100.8	-395.1	387.1	369.0	18.10	21.384		
4,000.0	3,970.7	3,981.9	3,969.5	10.8	8.8	-122.72	-100.2	-403.2	394.3	375.8	18.57	21.239		
4,100.0	4,069.9	4,081.6	4,068.9	11.1	9.0	-123.08	-99.7	-411.4	401.5	382.5	19.03	21.103		
4,200.0	4,169.1	4,181.3	4,168.2	11.4	9.2	-123.42	-99.2	-419.5	408.8	389.3	19.49	20.975		
4,300.0	4,268.3	4,281.0	4,267.6	11.6	9.4	-123.74	-98.6	-427.7	416.0	396.0	19.95	20.854		
4,400.0	4,367.5	4,380.7	4,367.0	11.9	9.7	-124.06	-98.1	-435.9	423.2	402.8	20.41	20.740		
4,500.0	4,466.7	4,480.4	4,466.4	12.2	9.9	-124.37	-97.6	-444.0	430.5	409.6	20.87	20.632		
4,600.0	4,565.9	4,580.1	4,565.7	12.5	10.1	-124.66	-97.1	-452.2	437.8	416.4	21.32	20.530		
4,700.0	4,665.1	4,679.8	4,665.1	12.8	10.3	-124.95	-96.5	-460.3	445.0	423.3	21.78	20.432		
4,800.0	4,764.3	4,779.6	4,764.5	13.1	10.6	-125.23	-96.0	-468.5	452.3	430.1	22.24	20.340		
4,900.0	4,863.5	4,879.3	4,863.9	13.3	10.8	-125.50	-95.5	-476.6	459.6	436.9	22.70	20.253		
5,000.0	4,962.7	4,979.0	4,963.2	13.6	11.0	-125.76	-94.9	-484.8	466.9	443.8	23.15	20.169		
5,100.0	5,061.9	5,078.7	5,062.6	13.9	11.2	-126.01	-94.4	-492.9	474.3	450.7	23.61	20.090		

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 16-13A (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 16-13A (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: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,161.1	5,178.4	5,162.0	14.2	11.5	-126.25	-93.9	-501.1	481.6	457.5	24.06	20.014		
5,300.0	5,260.3	5,278.1	5,261.4	14.5	11.7	-126.49	-93.4	-509.3	488.9	464.4	24.52	19.941		
5,400.0	5,359.5	5,377.8	5,360.7	14.7	11.9	-126.72	-92.8	-517.4	496.3	471.3	24.97	19.872		
5,500.0	5,458.6	5,477.5	5,460.1	15.0	12.1	-126.94	-92.3	-525.6	503.6	478.2	25.43	19.806		
5,600.0	5,557.8	5,577.2	5,559.5	15.3	12.4	-127.16	-91.8	-533.7	511.0	485.1	25.88	19.743		
5,700.0	5,657.0	5,676.9	5,658.9	15.6	12.6	-127.37	-91.3	-541.9	518.4	492.0	26.34	19.683		
5,800.0	5,756.2	5,776.7	5,758.2	15.9	12.8	-127.58	-90.7	-550.0	525.7	499.0	26.79	19.625		
5,900.0	5,855.4	5,876.4	5,857.6	16.2	13.0	-127.78	-90.2	-558.2	533.1	505.9	27.24	19.569		
6,000.0	5,954.6	5,976.1	5,957.0	16.4	13.3	-127.97	-89.7	-566.4	540.5	512.8	27.70	19.516		
6,100.0	6,053.8	6,075.8	6,056.4	16.7	13.5	-128.16	-89.1	-574.5	547.9	519.8	28.15	19.464		
6,200.0	6,153.0	6,175.5	6,155.7	17.0	13.7	-128.34	-88.6	-582.7	555.3	526.7	28.60	19.415		
6,300.0	6,252.2	6,275.2	6,255.1	17.3	13.9	-128.52	-88.1	-590.8	562.7	533.7	29.05	19.368		
6,400.0	6,351.4	6,374.9	6,354.5	17.6	14.2	-128.69	-87.6	-599.0	570.1	540.6	29.51	19.322		
6,500.0	6,450.6	6,474.6	6,453.9	17.9	14.4	-128.86	-87.0	-607.1	577.5	547.6	29.96	19.278		
6,600.0	6,549.8	6,574.3	6,553.2	18.1	14.6	-129.03	-86.5	-615.3	585.0	554.5	30.41	19.236		
6,700.0	6,649.0	6,674.0	6,652.6	18.4	14.8	-129.19	-86.0	-623.5	592.4	561.5	30.86	19.195		
6,800.0	6,748.2	6,773.8	6,752.0	18.7	15.1	-129.35	-85.4	-631.6	599.8	568.5	31.31	19.156		
6,900.0	6,847.4	6,873.5	6,851.4	19.0	15.3	-129.50	-84.9	-639.8	607.2	575.5	31.76	19.118		
7,000.0	6,946.6	6,973.2	6,950.7	19.3	15.5	-129.65	-84.4	-647.9	614.7	582.5	32.21	19.081		
7,100.0	7,045.8	7,072.9	7,050.1	19.5	15.7	-129.80	-83.9	-656.1	622.1	589.5	32.67	19.046		
7,200.0	7,145.0	7,172.6	7,149.5	19.8	16.0	-129.94	-83.3	-664.2	629.6	596.5	33.12	19.011		
7,300.0	7,244.2	7,272.3	7,248.9	20.1	16.2	-130.08	-82.8	-672.4	637.0	603.5	33.57	18.978		
7,400.0	7,343.4	7,372.0	7,348.2	20.4	16.4	-130.21	-82.3	-680.6	644.5	610.5	34.02	18.946		
7,500.0	7,442.6	7,471.7	7,447.6	20.7	16.6	-130.35	-81.8	-688.7	651.9	617.5	34.47	18.915		
7,600.0	7,541.8	7,571.5	7,547.0	21.0	16.9	-130.50	-81.2	-696.9	659.2	624.3	34.92	18.881		
7,700.0	7,641.3	7,671.1	7,646.3	21.2	17.1	-130.51	-80.7	-705.0	664.7	629.4	35.35	18.804		
7,800.0	7,741.1	7,768.9	7,743.9	21.3	17.3	-130.44	-80.3	-711.1	668.2	632.5	35.72	18.708		
7,900.0	7,841.1	7,866.8	7,841.7	21.5	17.4	-130.40	-80.1	-713.8	669.7	633.7	36.00	18.602		
8,000.0	7,941.1	7,966.1	7,941.1	21.6	17.6	-178.43	-80.1	-714.0	669.7	633.5	36.26	18.469		
8,100.0	8,041.1	8,066.1	8,041.1	21.7	17.7	-178.43	-80.1	-714.0	669.7	633.2	36.53	18.333		
8,200.0	8,141.1	8,166.1	8,141.1	21.8	17.8	-178.43	-80.1	-714.0	669.7	632.9	36.80	18.199		
8,300.0	8,241.1	8,266.1	8,241.1	21.9	18.0	-178.43	-80.1	-714.0	669.7	632.6	37.07	18.066		
8,400.0	8,341.1	8,366.1	8,341.1	22.0	18.1	-178.43	-80.1	-714.0	669.7	632.4	37.34	17.934		
8,500.0	8,441.1	8,466.1	8,441.1	22.2	18.3	-178.43	-80.1	-714.0	669.7	632.1	37.62	17.803		
8,600.0	8,541.1	8,566.1	8,541.1	22.3	18.4	-178.43	-80.1	-714.0	669.7	631.8	37.89	17.674		
8,700.0	8,641.1	8,666.1	8,641.1	22.4	18.5	-178.43	-80.1	-714.0	669.7	631.5	38.17	17.546		
8,800.0	8,741.1	8,766.1	8,741.1	22.5	18.7	-178.43	-80.1	-714.0	669.7	631.3	38.45	17.420		
8,900.0	8,841.1	8,866.1	8,841.1	22.6	18.8	-178.43	-80.1	-714.0	669.7	631.0	38.72	17.295		
9,000.0	8,941.1	8,966.1	8,941.1	22.7	19.0	-178.43	-80.1	-714.0	669.7	630.7	39.00	17.171		
9,100.0	9,041.1	9,066.1	9,041.1	22.9	19.1	-178.43	-80.1	-714.0	669.7	630.4	39.28	17.048		
9,200.0	9,141.1	9,166.1	9,141.1	23.0	19.3	-178.43	-80.1	-714.0	669.7	630.2	39.57	16.926		
9,300.0	9,241.1	9,266.1	9,241.1	23.1	19.4	-178.43	-80.1	-714.0	669.7	629.9	39.85	16.806		
9,400.0	9,341.1	9,366.1	9,341.1	23.2	19.5	-178.43	-80.1	-714.0	669.7	629.6	40.13	16.687		
9,500.0	9,441.1	9,466.1	9,441.1	23.4	19.7	-178.43	-80.1	-714.0	669.7	629.3	40.42	16.570		
9,600.0	9,541.1	9,566.1	9,541.1	23.5	19.8	-178.43	-80.1	-714.0	669.7	629.0	40.70	16.453		
9,700.0	9,641.1	9,666.1	9,641.1	23.6	20.0	-178.43	-80.1	-714.0	669.7	628.7	40.99	16.338		
9,800.0	9,741.1	9,766.1	9,741.1	23.7	20.1	-178.43	-80.1	-714.0	669.7	628.4	41.28	16.224		
9,900.0	9,841.1	9,866.1	9,841.1	23.9	20.3	-178.43	-80.1	-714.0	669.7	628.2	41.57	16.112		
10,000.0	9,941.1	9,966.1	9,941.1	24.0	20.4	-178.43	-80.1	-714.0	669.7	627.9	41.86	16.000		
10,100.0	10,041.1	10,066.1	10,041.1	24.1	20.6	-178.43	-80.1	-714.0	669.7	627.6	42.15	15.890		
10,200.0	10,141.1	10,166.1	10,141.1	24.2	20.7	-178.43	-80.1	-714.0	669.7	627.3	42.44	15.781		
10,300.0	10,241.1	10,266.1	10,241.1	24.4	20.9	-178.43	-80.1	-714.0	669.7	627.0	42.73	15.673		

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 16-13A (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 16-13A (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						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)			
10,342.9	10,284.0	10,309.0	10,284.0	24.4	20.9	178.43	-80.1	-714.0	669.7	626.9	42.86	15.627 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: O-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	-134.85	-131.5	-132.2	186.4							
100.0	100.0	100.0	100.0	0.1	0.1	-134.85	-131.5	-132.2	186.4	186.2	0.27	684.754				
200.0	200.0	200.0	200.0	0.3	0.3	-134.85	-131.5	-132.2	186.4	185.8	0.62	300.061	CC, ES			
300.0	300.0	291.4	291.4	0.5	0.5	-84.13	-132.5	-134.1	188.4	187.5	0.96	195.285				
400.0	399.6	384.3	384.0	0.7	0.7	-85.49	-135.4	-140.0	194.4	193.1	1.35	143.887				
500.0	498.9	483.6	483.0	1.0	0.9	-88.01	-139.3	-147.6	201.7	199.9	1.79	112.775				
600.0	598.1	582.9	581.9	1.2	1.1	-90.56	-143.1	-155.2	209.4	207.2	2.24	93.439				
700.0	697.3	682.2	680.8	1.5	1.3	-92.93	-146.9	-162.8	217.5	214.8	2.70	80.494				
800.0	796.5	781.5	779.7	1.8	1.6	-95.13	-150.7	-170.4	226.0	222.8	3.17	71.317				
900.0	895.7	880.8	878.7	2.1	1.8	-97.16	-154.5	-177.9	234.7	231.1	3.64	64.522				
1,000.0	994.9	980.0	977.6	2.3	2.0	-99.05	-158.3	-185.5	243.7	239.6	4.11	59.317				
1,100.0	1,094.1	1,079.3	1,076.5	2.6	2.2	-100.81	-162.2	-193.1	253.0	248.4	4.58	55.222				
1,200.0	1,193.3	1,178.6	1,175.4	2.9	2.5	-102.44	-166.0	-200.7	262.5	257.4	5.05	51.931				
1,300.0	1,292.4	1,277.9	1,274.3	3.2	2.7	-103.95	-169.8	-208.3	272.2	266.6	5.53	49.236				
1,400.0	1,391.6	1,377.2	1,373.2	3.5	2.9	-105.36	-173.6	-215.9	282.0	276.0	6.00	46.997				
1,500.0	1,490.8	1,476.4	1,472.2	3.7	3.1	-106.68	-177.4	-223.4	292.0	285.6	6.47	45.111				
1,600.0	1,590.0	1,575.7	1,571.1	4.0	3.4	-107.90	-181.3	-231.0	302.2	295.2	6.95	43.506				
1,700.0	1,689.2	1,675.0	1,670.0	4.3	3.6	-109.05	-185.1	-238.6	312.5	305.1	7.42	42.126				
1,800.0	1,788.4	1,774.3	1,768.9	4.6	3.8	-110.12	-188.9	-246.2	322.9	315.0	7.89	40.929				
1,900.0	1,887.6	1,873.6	1,867.8	4.9	4.1	-111.13	-192.7	-253.8	333.4	325.0	8.36	39.884				
2,000.0	1,986.8	1,972.8	1,966.7	5.2	4.3	-112.08	-196.5	-261.4	344.0	335.2	8.83	38.963				
2,100.0	2,086.0	2,072.1	2,065.7	5.4	4.5	-112.97	-200.3	-269.0	354.7	345.4	9.30	38.148				
2,200.0	2,185.2	2,171.4	2,164.6	5.7	4.7	-113.80	-204.2	-276.5	365.5	355.7	9.77	37.422				
2,300.0	2,284.4	2,270.7	2,263.5	6.0	5.0	-114.59	-208.0	-284.1	376.3	366.1	10.23	36.772				
2,400.0	2,383.6	2,370.0	2,362.4	6.3	5.2	-115.34	-211.8	-291.7	387.2	376.5	10.70	36.188				
2,500.0	2,482.8	2,469.2	2,461.3	6.6	5.4	-116.04	-215.6	-299.3	398.2	387.0	11.17	35.660				
2,600.0	2,582.0	2,568.5	2,560.2	6.8	5.6	-116.70	-219.4	-306.9	409.2	397.6	11.63	35.182				
2,700.0	2,681.2	2,667.8	2,659.2	7.1	5.9	-117.34	-223.2	-314.5	420.3	408.2	12.10	34.746				
2,800.0	2,780.4	2,767.1	2,758.1	7.4	6.1	-117.93	-227.1	-322.0	431.5	418.9	12.56	34.348				
2,900.0	2,879.6	2,866.4	2,857.0	7.7	6.3	-118.50	-230.9	-329.6	442.6	429.6	13.03	33.983				
3,000.0	2,978.8	2,965.6	2,955.9	8.0	6.6	-119.04	-234.7	-337.2	453.8	440.4	13.49	33.648				
3,100.0	3,078.0	3,064.9	3,054.8	8.3	6.8	-119.56	-238.5	-344.8	465.1	451.2	13.95	33.339				
3,200.0	3,177.2	3,164.2	3,153.7	8.5	7.0	-120.05	-242.3	-352.4	476.4	462.0	14.41	33.053				
3,300.0	3,276.4	3,263.5	3,252.7	8.8	7.2	-120.51	-246.2	-360.0	487.7	472.8	14.87	32.789				
3,400.0	3,375.5	3,362.8	3,351.6	9.1	7.5	-120.96	-250.0	-367.6	499.1	483.7	15.34	32.543				
3,500.0	3,474.7	3,462.0	3,450.5	9.4	7.7	-121.39	-253.8	-375.1	510.5	494.7	15.80	32.314				
3,600.0	3,573.9	3,561.3	3,549.4	9.7	7.9	-121.79	-257.6	-382.7	521.9	505.6	16.26	32.101				
3,700.0	3,673.1	3,660.6	3,648.3	9.9	8.2	-122.18	-261.4	-390.3	533.3	516.6	16.72	31.902				
3,800.0	3,772.3	3,759.9	3,747.2	10.2	8.4	-122.56	-265.2	-397.9	544.7	527.6	17.18	31.716				
3,900.0	3,871.5	3,859.2	3,846.1	10.5	8.6	-122.92	-269.1	-405.5	556.2	538.6	17.64	31.541				
4,000.0	3,970.7	3,958.4	3,945.1	10.8	8.8	-123.26	-272.9	-413.1	567.7	549.6	18.09	31.376				
4,100.0	4,069.9	4,057.7	4,044.0	11.1	9.1	-123.59	-276.7	-420.7	579.2	560.7	18.55	31.222				
4,200.0	4,169.1	4,157.0	4,142.9	11.4	9.3	-123.91	-280.5	-428.2	590.8	571.8	19.01	31.076				
4,300.0	4,268.3	4,256.3	4,241.8	11.6	9.5	-124.21	-284.3	-435.8	602.3	582.9	19.47	30.939				
4,400.0	4,367.5	4,355.6	4,340.7	11.9	9.8	-124.51	-288.2	-443.4	613.9	594.0	19.93	30.809				
4,500.0	4,466.7	4,454.8	4,439.6	12.2	10.0	-124.79	-292.0	-451.0	625.5	605.1	20.38	30.686				
4,600.0	4,565.9	4,554.1	4,538.6	12.5	10.2	-125.06	-295.8	-458.6	637.1	616.3	20.84	30.570				
4,700.0	4,665.1	4,653.4	4,637.5	12.8	10.4	-125.33	-299.6	-466.2	648.7	627.4	21.30	30.459				
4,800.0	4,764.3	4,752.7	4,736.4	13.1	10.7	-125.58	-303.4	-473.7	660.3	638.6	21.75	30.354				
4,900.0	4,863.5	4,852.0	4,835.3	13.3	10.9	-125.83	-307.2	-481.3	672.0	649.8	22.21	30.254				
5,000.0	4,962.7	4,951.2	4,934.2	13.6	11.1	-126.06	-311.1	-488.9	683.6	661.0	22.67	30.159				
5,100.0	5,061.9	5,050.5	5,033.1	13.9	11.4	-126.29	-314.9	-496.5	695.3	672.2	23.12	30.069				

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 16-13A (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 16-13A (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: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,161.1	5,149.8	5,132.1	14.2	11.6	-126.51	-318.7	-504.1	707.0	683.4	23.58	29.983		
5,300.0	5,260.3	5,249.1	5,231.0	14.5	11.8	-126.73	-322.5	-511.7	718.6	694.6	24.03	29.900		
5,400.0	5,359.5	5,348.4	5,329.9	14.7	12.0	-126.93	-326.3	-519.3	730.3	705.8	24.49	29.822		
5,500.0	5,458.6	5,447.6	5,428.8	15.0	12.3	-127.13	-330.2	-526.8	742.0	717.1	24.95	29.747		
5,600.0	5,557.8	5,546.9	5,527.7	15.3	12.5	-127.33	-334.0	-534.4	753.7	728.3	25.40	29.675		
5,700.0	5,657.0	5,646.2	5,626.6	15.6	12.7	-127.52	-337.8	-542.0	765.5	739.6	25.86	29.606		
5,800.0	5,756.2	5,745.5	5,725.6	15.9	13.0	-127.70	-341.6	-549.6	777.2	750.9	26.31	29.539		
5,900.0	5,855.4	5,844.8	5,824.5	16.2	13.2	-127.88	-345.4	-557.2	788.9	762.2	26.77	29.476		
6,000.0	5,954.6	5,944.0	5,923.4	16.4	13.4	-128.05	-349.2	-564.8	800.7	773.4	27.22	29.415		
6,100.0	6,053.8	6,043.3	6,022.3	16.7	13.6	-128.21	-353.1	-572.3	812.4	784.7	27.67	29.357		
6,200.0	6,153.0	6,142.6	6,121.2	17.0	13.9	-128.38	-356.9	-579.9	824.2	796.0	28.13	29.300		
6,300.0	6,252.2	6,241.9	6,220.1	17.3	14.1	-128.53	-360.7	-587.5	835.9	807.3	28.58	29.246		
6,400.0	6,351.4	6,341.2	6,319.1	17.6	14.3	-128.69	-364.5	-595.1	847.7	818.7	29.04	29.194		
6,500.0	6,450.6	6,440.4	6,418.0	17.9	14.5	-128.84	-368.3	-602.7	859.5	830.0	29.49	29.144		
6,600.0	6,549.8	6,539.7	6,516.9	18.1	14.8	-128.98	-372.1	-610.3	871.2	841.3	29.94	29.095		
6,700.0	6,649.0	6,639.0	6,615.8	18.4	15.0	-129.12	-376.0	-617.9	883.0	852.6	30.40	29.049		
6,800.0	6,748.2	6,738.3	6,714.7	18.7	15.2	-129.26	-379.8	-625.4	894.8	864.0	30.85	29.004		
6,900.0	6,847.4	6,837.6	6,813.6	19.0	15.5	-129.40	-383.6	-633.0	906.6	875.3	31.31	28.960		
7,000.0	6,946.6	6,936.8	6,912.6	19.3	15.7	-129.53	-387.4	-640.6	918.4	886.7	31.76	28.918		
7,100.0	7,045.8	7,036.1	7,011.5	19.5	15.9	-129.65	-391.2	-648.2	930.2	898.0	32.21	28.878		
7,200.0	7,145.0	7,135.4	7,110.4	19.8	16.1	-129.78	-395.1	-655.8	942.0	909.4	32.67	28.838		
7,300.0	7,244.2	7,234.7	7,209.3	20.1	16.4	-129.90	-398.9	-663.4	953.8	920.7	33.12	28.800		
7,400.0	7,343.4	7,334.0	7,308.2	20.4	16.6	-130.02	-402.7	-670.9	965.7	932.1	33.57	28.764		
7,500.0	7,442.6	7,433.2	7,407.1	20.7	16.8	-130.13	-406.5	-678.5	977.5	943.5	34.03	28.728		
7,600.0	7,541.8	7,532.5	7,506.1	21.0	17.1	-130.30	-410.3	-686.1	989.1	954.7	34.48	28.686		
7,700.0	7,641.3	7,632.0	7,605.2	21.2	17.3	-130.43	-414.2	-693.7	999.0	964.1	34.92	28.611		
7,800.0	7,741.1	7,744.3	7,717.1	21.3	17.5	-130.40	-417.9	-701.2	1,006.2	970.9	35.32	28.485		
7,900.0	7,841.1	7,861.8	7,834.6	21.5	17.7	-130.37	-419.8	-704.9	1,009.5	973.8	35.65	28.316		
8,000.0	7,941.1	7,968.3	7,941.1	21.6	17.8	178.46	-419.9	-705.2	1,009.7	973.7	35.93	28.102		
8,100.0	8,041.1	8,068.3	8,041.1	21.7	18.0	178.46	-419.9	-705.2	1,009.7	973.5	36.20	27.892		
8,200.0	8,141.1	8,168.3	8,141.1	21.8	18.1	178.46	-419.9	-705.2	1,009.7	973.2	36.47	27.683		
8,300.0	8,241.1	8,268.3	8,241.1	21.9	18.3	178.46	-419.9	-705.2	1,009.7	972.9	36.75	27.477		
8,400.0	8,341.1	8,368.3	8,341.1	22.0	18.4	178.46	-419.9	-705.2	1,009.7	972.6	37.02	27.273		
8,500.0	8,441.1	8,468.3	8,441.1	22.2	18.5	178.46	-419.9	-705.2	1,009.7	972.4	37.30	27.071		
8,600.0	8,541.1	8,568.3	8,541.1	22.3	18.7	178.46	-419.9	-705.2	1,009.7	972.1	37.57	26.871		
8,700.0	8,641.1	8,668.3	8,641.1	22.4	18.8	178.46	-419.9	-705.2	1,009.7	971.8	37.85	26.673		
8,800.0	8,741.1	8,768.3	8,741.1	22.5	18.9	178.46	-419.9	-705.2	1,009.7	971.5	38.13	26.477		
8,900.0	8,841.1	8,868.3	8,841.1	22.6	19.1	178.46	-419.9	-705.2	1,009.7	971.2	38.41	26.284		
9,000.0	8,941.1	8,968.3	8,941.1	22.7	19.2	178.46	-419.9	-705.2	1,009.7	971.0	38.70	26.092		
9,100.0	9,041.1	9,068.3	9,041.1	22.9	19.4	178.46	-419.9	-705.2	1,009.7	970.7	38.98	25.903		
9,200.0	9,141.1	9,168.3	9,141.1	23.0	19.5	178.46	-419.9	-705.2	1,009.7	970.4	39.26	25.715		
9,300.0	9,241.1	9,268.3	9,241.1	23.1	19.7	178.46	-419.9	-705.2	1,009.7	970.1	39.55	25.530		
9,400.0	9,341.1	9,368.3	9,341.1	23.2	19.8	178.46	-419.9	-705.2	1,009.7	969.8	39.83	25.346		
9,500.0	9,441.1	9,468.3	9,441.1	23.4	19.9	178.46	-419.9	-705.2	1,009.7	969.5	40.12	25.165		
9,600.0	9,541.1	9,568.3	9,541.1	23.5	20.1	178.46	-419.9	-705.2	1,009.7	969.3	40.41	24.986		
9,700.0	9,641.1	9,668.3	9,641.1	23.6	20.2	178.46	-419.9	-705.2	1,009.7	969.0	40.70	24.808		
9,800.0	9,741.1	9,768.3	9,741.1	23.7	20.4	178.46	-419.9	-705.2	1,009.7	968.7	40.99	24.632		
9,900.0	9,841.1	9,868.3	9,841.1	23.9	20.5	178.46	-419.9	-705.2	1,009.7	968.4	41.28	24.459		
10,000.0	9,941.1	9,968.3	9,941.1	24.0	20.7	178.46	-419.9	-705.2	1,009.7	968.1	41.57	24.287		
10,100.0	10,041.1	10,068.3	10,041.1	24.1	20.8	178.46	-419.9	-705.2	1,009.7	967.8	41.86	24.117		
10,200.0	10,141.1	10,168.3	10,141.1	24.2	21.0	178.46	-419.9	-705.2	1,009.7	967.5	42.16	23.949		
10,300.0	10,241.1	10,268.3	10,241.1	24.4	21.1	178.46	-419.9	-705.2	1,009.7	967.2	42.45	23.783		

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 16-13A (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 16-13A (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						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)			
10,342.9	10,284.0	10,311.2	10,284.0	24.4	21.2	178.46	-419.9	-705.2	1,009.7	967.1	42.58	23.713 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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		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	-95.38	-16.4	-174.0	174.7					
100.0	100.0	100.0	100.0	0.1	0.1	-95.38	-16.4	-174.0	174.7	174.5	0.27	641.801		
200.0	200.0	200.0	200.0	0.3	0.3	-95.38	-16.4	-174.0	174.7	174.1	0.62	281.239		
300.0	300.0	306.2	306.2	0.5	0.5	-45.67	-18.4	-171.8	171.0	170.0	0.99	172.462		
400.0	399.6	410.6	410.2	0.7	0.7	-50.36	-24.2	-165.4	160.6	159.2	1.41	113.644		
500.0	498.9	511.7	510.3	1.0	1.0	-58.64	-33.5	-155.2	146.0	144.1	1.94	75.404		
600.0	598.1	609.6	606.5	1.2	1.4	-70.20	-45.9	-141.6	133.1	130.5	2.59	51.346		
700.0	697.3	704.0	698.2	1.5	1.8	-84.97	-60.9	-125.1	126.4	123.1	3.34	37.848		
716.6	713.7	719.4	713.0	1.6	1.9	-87.60	-63.6	-122.2	126.3	122.8	3.46	36.502 CC, ES		
800.0	796.5	796.6	787.7	1.8	2.3	-100.61	-77.0	-107.5	130.1	126.1	3.99	32.586		
900.0	895.7	889.2	877.1	2.1	2.7	-114.54	-93.1	-89.8	144.0	139.6	4.47	32.224 SF		
1,000.0	994.9	981.8	966.6	2.3	3.1	-125.74	-109.1	-72.2	165.5	160.7	4.80	34.508		
1,100.0	1,094.1	1,074.4	1,056.1	2.6	3.6	-134.33	-125.2	-54.6	192.2	187.1	5.05	38.069		
1,200.0	1,193.3	1,167.0	1,145.5	2.9	4.0	-140.85	-141.3	-36.9	222.0	216.8	5.27	42.127		
1,300.0	1,292.4	1,259.6	1,235.0	3.2	4.5	-145.86	-157.3	-19.3	254.0	248.5	5.49	46.259		
1,400.0	1,391.6	1,352.2	1,324.5	3.5	4.9	-149.76	-173.4	-1.7	287.4	281.7	5.72	50.248		
1,500.0	1,490.8	1,444.8	1,413.9	3.7	5.4	-152.86	-189.5	15.9	321.8	315.8	5.96	53.994		
1,600.0	1,590.0	1,537.4	1,503.4	4.0	5.8	-155.38	-205.6	33.6	356.8	350.6	6.21	57.460		
1,700.0	1,689.2	1,629.9	1,592.9	4.3	6.3	-157.44	-221.6	51.2	392.4	385.9	6.47	60.642		
1,800.0	1,788.4	1,722.5	1,682.3	4.6	6.7	-159.17	-237.7	68.8	428.3	421.6	6.74	63.552		
1,900.0	1,887.6	1,815.1	1,771.8	4.9	7.2	-160.64	-253.8	86.5	464.6	457.5	7.02	66.210		
2,000.0	1,986.8	1,907.7	1,861.2	5.2	7.6	-161.89	-269.8	104.1	501.0	493.7	7.30	68.638		
2,100.0	2,086.0	2,000.3	1,950.7	5.4	8.1	-162.98	-285.9	121.7	537.7	530.1	7.59	70.859		
2,200.0	2,185.2	2,092.9	2,040.2	5.7	8.5	-163.92	-302.0	139.4	574.4	566.6	7.88	72.893		
2,300.0	2,284.4	2,185.5	2,129.6	6.0	9.0	-164.76	-318.0	157.0	611.4	603.2	8.18	74.761		
2,400.0	2,383.6	2,278.1	2,219.1	6.3	9.5	-165.50	-334.1	174.6	648.4	639.9	8.48	76.479		
2,500.0	2,482.8	2,370.7	2,308.6	6.6	9.9	-166.16	-350.2	192.3	685.5	676.7	8.78	78.064		
2,600.0	2,582.0	2,463.3	2,398.0	6.8	10.4	-166.75	-366.3	209.9	722.6	713.5	9.09	79.528		
2,700.0	2,681.2	2,555.8	2,487.5	7.1	10.8	-167.29	-382.3	227.5	759.8	750.5	9.39	80.885		
2,800.0	2,780.4	2,648.4	2,577.0	7.4	11.3	-167.77	-398.4	245.2	797.1	787.4	9.70	82.145		
2,900.0	2,879.6	2,741.0	2,666.4	7.7	11.7	-168.21	-414.5	262.8	834.4	824.4	10.02	83.317		
3,000.0	2,978.8	2,833.6	2,755.9	8.0	12.2	-168.62	-430.5	280.4	871.8	861.5	10.33	84.410		
3,100.0	3,078.0	2,926.2	2,845.4	8.3	12.6	-168.99	-446.6	298.1	909.2	898.6	10.64	85.431		
3,200.0	3,177.2	3,018.8	2,934.8	8.5	13.1	-169.33	-462.7	315.7	946.6	935.7	10.96	86.387		
3,300.0	3,276.4	3,111.4	3,024.3	8.8	13.5	-169.65	-478.8	333.3	984.1	972.8	11.27	87.284		
3,400.0	3,375.5	3,204.0	3,113.7	9.1	14.0	-169.94	-494.8	350.9	1,021.6	1,010.0	11.59	88.127		
3,500.0	3,474.7	3,296.6	3,203.2	9.4	14.4	-170.21	-510.9	368.6	1,059.0	1,047.1	11.91	88.920		
3,600.0	3,573.9	3,389.2	3,292.7	9.7	14.9	-170.46	-527.0	386.2	1,096.6	1,084.3	12.23	89.668		
3,700.0	3,673.1	3,481.7	3,382.1	9.9	15.3	-170.70	-543.0	403.8	1,134.1	1,121.6	12.55	90.374		
3,800.0	3,772.3	3,574.3	3,471.6	10.2	15.8	-170.92	-559.1	421.5	1,171.7	1,158.8	12.87	91.041		
3,900.0	3,871.5	3,666.9	3,561.1	10.5	16.3	-171.13	-575.2	439.1	1,209.2	1,196.0	13.19	91.673		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	-138.21	-135.9	-121.4	182.2							
100.0	100.0	100.0	100.0	0.1	0.1	-138.21	-135.9	-121.4	182.2	182.0	0.27	669.279				
200.0	200.0	200.0	200.0	0.3	0.3	-138.21	-135.9	-121.4	182.2	181.6	0.62	293.280	CC, ES			
300.0	300.0	291.3	291.3	0.5	0.5	-87.58	-137.2	-123.2	184.5	183.5	0.96	191.265				
400.0	399.6	385.4	385.1	0.7	0.7	-89.21	-141.3	-128.6	191.3	189.9	1.35	141.565				
500.0	498.9	480.9	480.2	1.0	0.9	-91.84	-146.9	-136.0	200.8	199.0	1.78	112.853				
600.0	598.1	580.0	578.8	1.2	1.1	-94.55	-152.8	-143.6	210.8	208.6	2.23	94.663				
700.0	697.3	679.0	677.3	1.5	1.4	-97.01	-158.6	-151.2	221.2	218.6	2.68	82.491				
800.0	796.5	778.0	775.9	1.8	1.6	-99.24	-164.4	-158.8	232.1	228.9	3.14	73.864				
900.0	895.7	877.0	874.4	2.1	1.8	-101.27	-170.2	-166.5	243.2	239.6	3.60	67.475				
1,000.0	994.9	976.1	973.0	2.3	2.1	-103.13	-176.1	-174.1	254.6	250.6	4.07	62.579				
1,100.0	1,094.1	1,075.1	1,071.5	2.6	2.3	-104.82	-181.9	-181.7	266.3	261.7	4.53	58.724				
1,200.0	1,193.3	1,174.1	1,170.1	2.9	2.6	-106.38	-187.7	-189.4	278.1	273.1	5.00	55.622				
1,300.0	1,292.4	1,273.1	1,268.6	3.2	2.8	-107.80	-193.5	-197.0	290.2	284.7	5.47	53.079				
1,400.0	1,391.6	1,372.1	1,367.2	3.5	3.0	-109.11	-199.3	-204.6	302.4	296.5	5.93	50.962				
1,500.0	1,490.8	1,471.2	1,465.8	3.7	3.3	-110.32	-205.2	-212.3	314.8	308.4	6.40	49.177				
1,600.0	1,590.0	1,570.2	1,564.3	4.0	3.5	-111.44	-211.0	-219.9	327.3	320.4	6.87	47.653				
1,700.0	1,689.2	1,669.2	1,662.9	4.3	3.8	-112.47	-216.8	-227.5	339.9	332.6	7.33	46.341				
1,800.0	1,788.4	1,768.2	1,761.4	4.6	4.0	-113.43	-222.6	-235.1	352.6	344.8	7.80	45.200				
1,900.0	1,887.6	1,867.2	1,860.0	4.9	4.2	-114.33	-228.5	-242.8	365.4	357.1	8.27	44.200				
2,000.0	1,986.8	1,966.3	1,958.5	5.2	4.5	-115.16	-234.3	-250.4	378.3	369.5	8.73	43.318				
2,100.0	2,086.0	2,065.3	2,057.1	5.4	4.7	-115.94	-240.1	-258.0	391.2	382.0	9.20	42.535				
2,200.0	2,185.2	2,164.3	2,155.6	5.7	5.0	-116.67	-245.9	-265.7	404.3	394.6	9.66	41.836				
2,300.0	2,284.4	2,263.3	2,254.2	6.0	5.2	-117.35	-251.8	-273.3	417.3	407.2	10.13	41.208				
2,400.0	2,383.6	2,362.4	2,352.8	6.3	5.4	-118.00	-257.6	-280.9	430.5	419.9	10.59	40.642				
2,500.0	2,482.8	2,461.4	2,451.3	6.6	5.7	-118.60	-263.4	-288.5	443.7	432.6	11.06	40.129				
2,600.0	2,582.0	2,560.4	2,549.9	6.8	5.9	-119.17	-269.2	-296.2	456.9	445.4	11.52	39.662				
2,700.0	2,681.2	2,659.4	2,648.4	7.1	6.2	-119.71	-275.1	-303.8	470.2	458.2	11.98	39.236				
2,800.0	2,780.4	2,758.4	2,747.0	7.4	6.4	-120.21	-280.9	-311.4	483.5	471.0	12.45	38.846				
2,900.0	2,879.6	2,857.5	2,845.5	7.7	6.6	-120.69	-286.7	-319.1	496.8	483.9	12.91	38.488				
3,000.0	2,978.8	2,956.5	2,944.1	8.0	6.9	-121.15	-292.5	-326.7	510.2	496.8	13.37	38.157				
3,100.0	3,078.0	3,055.5	3,042.6	8.3	7.1	-121.58	-298.3	-334.3	523.6	509.8	13.83	37.852				
3,200.0	3,177.2	3,154.5	3,141.2	8.5	7.4	-121.99	-304.2	-342.0	537.1	522.8	14.30	37.568				
3,300.0	3,276.4	3,253.5	3,239.7	8.8	7.6	-122.38	-310.0	-349.6	550.5	535.8	14.76	37.305				
3,400.0	3,375.5	3,352.6	3,338.3	9.1	7.8	-122.75	-315.8	-357.2	564.0	548.8	15.22	37.060				
3,500.0	3,474.7	3,451.6	3,436.9	9.4	8.1	-123.11	-321.6	-364.8	577.5	561.8	15.68	36.832				
3,600.0	3,573.9	3,550.6	3,535.4	9.7	8.3	-123.45	-327.5	-372.5	591.1	574.9	16.14	36.618				
3,700.0	3,673.1	3,649.6	3,634.0	9.9	8.6	-123.77	-333.3	-380.1	604.6	588.0	16.60	36.417				
3,800.0	3,772.3	3,748.6	3,732.5	10.2	8.8	-124.08	-339.1	-387.7	618.2	601.1	17.06	36.229				
3,900.0	3,871.5	3,847.7	3,831.1	10.5	9.1	-124.37	-344.9	-395.4	631.8	614.2	17.52	36.052				
4,000.0	3,970.7	3,946.7	3,929.6	10.8	9.3	-124.66	-350.8	-403.0	645.4	627.4	17.98	35.886				
4,100.0	4,069.9	4,045.7	4,028.2	11.1	9.5	-124.93	-356.6	-410.6	659.0	640.5	18.44	35.729				
4,200.0	4,169.1	4,144.7	4,126.7	11.4	9.8	-125.19	-362.4	-418.3	672.6	653.7	18.90	35.580				
4,300.0	4,268.3	4,243.8	4,225.3	11.6	10.0	-125.44	-368.2	-425.9	686.2	666.9	19.36	35.439				
4,400.0	4,367.5	4,342.8	4,323.9	11.9	10.3	-125.68	-374.1	-433.5	699.9	680.1	19.82	35.306				
4,500.0	4,466.7	4,441.8	4,422.4	12.2	10.5	-125.91	-379.9	-441.1	713.6	693.3	20.28	35.180				
4,600.0	4,565.9	4,540.8	4,521.0	12.5	10.7	-126.13	-385.7	-448.8	727.2	706.5	20.74	35.060				
4,700.0	4,665.1	4,639.8	4,619.5	12.8	11.0	-126.35	-391.5	-456.4	740.9	719.7	21.20	34.946				
4,800.0	4,764.3	4,738.9	4,718.1	13.1	11.2	-126.55	-397.3	-464.0	754.6	733.0	21.66	34.838				
4,900.0	4,863.5	4,837.9	4,816.6	13.3	11.5	-126.75	-403.2	-471.7	768.3	746.2	22.12	34.734				
5,000.0	4,962.7	4,936.9	4,915.2	13.6	11.7	-126.94	-409.0	-479.3	782.1	759.5	22.58	34.635				
5,100.0	5,061.9	5,035.9	5,013.7	13.9	11.9	-127.13	-414.8	-486.9	795.8	772.7	23.04	34.541				

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 16-13A (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 16-13A (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: O-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,200.0	5,161.1	5,134.9	5,112.3	14.2	12.2	-127.31	-420.6	-494.5	809.5	786.0	23.50	34.451	
5,300.0	5,260.3	5,234.0	5,210.8	14.5	12.4	-127.48	-426.5	-502.2	823.3	799.3	23.96	34.365	
5,400.0	5,359.5	5,333.0	5,309.4	14.7	12.7	-127.65	-432.3	-509.8	837.0	812.6	24.42	34.282	
5,500.0	5,458.6	5,432.0	5,408.0	15.0	12.9	-127.81	-438.1	-517.4	850.8	825.9	24.87	34.203	
5,600.0	5,557.8	5,531.0	5,506.5	15.3	13.1	-127.97	-443.9	-525.1	864.5	839.2	25.33	34.127	
5,700.0	5,657.0	5,630.1	5,605.1	15.6	13.4	-128.12	-449.8	-532.7	878.3	852.5	25.79	34.054	
5,800.0	5,756.2	5,729.1	5,703.6	15.9	13.6	-128.27	-455.6	-540.3	892.1	865.8	26.25	33.984	
5,900.0	5,855.4	5,828.1	5,802.2	16.2	13.9	-128.41	-461.4	-548.0	905.8	879.1	26.71	33.917	
6,000.0	5,954.6	5,927.1	5,900.7	16.4	14.1	-128.55	-467.2	-555.6	919.6	892.5	27.17	33.852	
6,100.0	6,053.8	6,026.1	5,999.3	16.7	14.4	-128.69	-473.1	-563.2	933.4	905.8	27.62	33.790	
6,200.0	6,153.0	6,125.2	6,097.8	17.0	14.6	-128.82	-478.9	-570.8	947.2	919.1	28.08	33.730	
6,300.0	6,252.2	6,224.2	6,196.4	17.3	14.8	-128.94	-484.7	-578.5	961.0	932.5	28.54	33.672	
6,400.0	6,351.4	6,323.2	6,295.0	17.6	15.1	-129.07	-490.5	-586.1	974.8	945.8	29.00	33.616	
6,500.0	6,450.6	6,422.2	6,393.5	17.9	15.3	-129.19	-496.3	-593.7	988.6	959.2	29.46	33.562	
6,600.0	6,549.8	6,521.2	6,492.1	18.1	15.6	-129.30	-502.2	-601.4	1,002.4	972.5	29.91	33.510	
6,700.0	6,649.0	6,620.3	6,590.6	18.4	15.8	-129.42	-508.0	-609.0	1,016.2	985.9	30.37	33.460	
6,800.0	6,748.2	6,719.3	6,689.2	18.7	16.0	-129.53	-513.8	-616.6	1,030.1	999.2	30.83	33.411	
6,900.0	6,847.4	6,818.3	6,787.7	19.0	16.3	-129.63	-519.6	-624.3	1,043.9	1,012.6	31.29	33.364	
7,000.0	6,946.6	6,917.3	6,886.3	19.3	16.5	-129.74	-525.5	-631.9	1,057.7	1,026.0	31.75	33.319	
7,100.0	7,045.8	7,016.4	6,984.8	19.5	16.8	-129.84	-531.3	-639.5	1,071.5	1,039.3	32.20	33.275	
7,200.0	7,145.0	7,115.4	7,083.4	19.8	17.0	-129.94	-537.1	-647.1	1,085.4	1,052.7	32.66	33.232	
7,300.0	7,244.2	7,214.4	7,181.9	20.1	17.2	-130.04	-542.9	-654.8	1,099.2	1,066.1	33.12	33.191	
7,400.0	7,343.4	7,313.4	7,280.5	20.4	17.5	-130.13	-548.8	-662.4	1,113.0	1,079.5	33.58	33.151	
7,500.0	7,442.6	7,412.4	7,379.1	20.7	17.7	-130.22	-554.6	-670.0	1,126.9	1,092.9	34.03	33.112	
7,600.0	7,541.8	7,511.5	7,477.6	21.0	18.0	-130.38	-560.4	-677.7	1,140.6	1,106.1	34.50	33.063	
7,700.0	7,641.3	7,610.8	7,576.4	21.2	18.2	-130.54	-566.2	-685.3	1,152.5	1,117.5	34.94	32.983	
7,800.0	7,741.1	7,733.6	7,698.8	21.3	18.5	-130.54	-572.4	-693.4	1,161.4	1,126.0	35.37	32.833	
7,900.0	7,841.1	7,864.4	7,829.6	21.5	18.7	-130.53	-575.6	-697.6	1,165.4	1,129.7	35.72	32.624	
8,000.0	7,941.1	7,975.9	7,941.1	21.6	18.8	178.31	-575.8	-697.9	1,165.7	1,129.7	36.01	32.372	
8,100.0	8,041.1	8,075.9	8,041.1	21.7	18.9	178.31	-575.8	-697.9	1,165.7	1,129.4	36.28	32.130	
8,200.0	8,141.1	8,175.9	8,141.1	21.8	19.1	178.31	-575.8	-697.9	1,165.7	1,129.1	36.55	31.891	
8,300.0	8,241.1	8,275.9	8,241.1	21.9	19.2	178.31	-575.8	-697.9	1,165.7	1,128.9	36.83	31.654	
8,400.0	8,341.1	8,375.9	8,341.1	22.0	19.3	178.31	-575.8	-697.9	1,165.7	1,128.6	37.10	31.420	
8,500.0	8,441.1	8,475.9	8,441.1	22.2	19.5	178.31	-575.8	-697.9	1,165.7	1,128.3	37.38	31.188	
8,600.0	8,541.1	8,575.9	8,541.1	22.3	19.6	178.31	-575.8	-697.9	1,165.7	1,128.0	37.65	30.959	
8,700.0	8,641.1	8,675.9	8,641.1	22.4	19.7	178.31	-575.8	-697.9	1,165.7	1,127.8	37.93	30.732	
8,800.0	8,741.1	8,775.9	8,741.1	22.5	19.9	178.31	-575.8	-697.9	1,165.7	1,127.5	38.21	30.507	
8,900.0	8,841.1	8,875.9	8,841.1	22.6	20.0	178.31	-575.8	-697.9	1,165.7	1,127.2	38.49	30.285	
9,000.0	8,941.1	8,975.9	8,941.1	22.7	20.1	178.31	-575.8	-697.9	1,165.7	1,126.9	38.77	30.065	
9,100.0	9,041.1	9,075.9	9,041.1	22.9	20.3	178.31	-575.8	-697.9	1,165.7	1,126.6	39.06	29.848	
9,200.0	9,141.1	9,175.9	9,141.1	23.0	20.4	178.31	-575.8	-697.9	1,165.7	1,126.4	39.34	29.632	
9,300.0	9,241.1	9,275.9	9,241.1	23.1	20.5	178.31	-575.8	-697.9	1,165.7	1,126.1	39.62	29.419	
9,400.0	9,341.1	9,375.9	9,341.1	23.2	20.7	178.31	-575.8	-697.9	1,165.7	1,125.8	39.91	29.209	
9,500.0	9,441.1	9,475.9	9,441.1	23.4	20.8	178.31	-575.8	-697.9	1,165.7	1,125.5	40.20	29.000	
9,600.0	9,541.1	9,575.9	9,541.1	23.5	21.0	178.31	-575.8	-697.9	1,165.7	1,125.2	40.48	28.794	
9,700.0	9,641.1	9,675.9	9,641.1	23.6	21.1	178.31	-575.8	-697.9	1,165.7	1,124.9	40.77	28.590	
9,800.0	9,741.1	9,775.9	9,741.1	23.7	21.2	178.31	-575.8	-697.9	1,165.7	1,124.6	41.06	28.389	
9,900.0	9,841.1	9,875.9	9,841.1	23.9	21.4	178.31	-575.8	-697.9	1,165.7	1,124.3	41.35	28.189	
10,000.0	9,941.1	9,975.9	9,941.1	24.0	21.5	178.31	-575.8	-697.9	1,165.7	1,124.1	41.64	27.992	
10,100.0	10,041.1	10,075.9	10,041.1	24.1	21.7	178.31	-575.8	-697.9	1,165.7	1,123.8	41.94	27.797	
10,200.0	10,141.1	10,175.9	10,141.1	24.2	21.8	178.31	-575.8	-697.9	1,165.7	1,123.5	42.23	27.604	
10,300.0	10,241.1	10,275.9	10,241.1	24.4	21.9	178.31	-575.8	-697.9	1,165.7	1,123.2	42.52	27.413	

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 16-13A (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 16-13A (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						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)			
10,342.9	10,284.0	10,318.9	10,284.0	24.4	22.0	178.31	-575.8	-697.9	1,165.7	1,123.0	42.65	27.332 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: O-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-140.99	-130.0	-105.3	167.3				
100.0	100.0	100.0	100.0	0.1	0.1	-140.99	-130.0	-105.3	167.3	167.1	0.27	614.615	
200.0	200.0	200.0	200.0	0.3	0.3	-140.99	-130.0	-105.3	167.3	166.7	0.62	269.326 CC, ES	
300.0	300.0	291.9	291.8	0.5	0.5	-90.63	-131.9	-106.5	169.7	168.8	0.97	175.903	
400.0	399.6	383.0	382.7	0.7	0.7	-92.92	-137.4	-110.1	177.2	175.9	1.35	131.712	
500.0	498.9	472.8	471.8	1.0	0.9	-96.27	-146.4	-115.9	190.2	188.4	1.76	108.293	
600.0	598.1	569.9	568.0	1.2	1.2	-99.65	-158.3	-123.6	206.6	204.4	2.19	94.371	
700.0	697.3	667.9	664.9	1.5	1.5	-102.55	-170.3	-131.4	223.7	221.1	2.63	85.119	
800.0	796.5	765.8	761.7	1.8	1.8	-105.04	-182.3	-139.2	241.3	238.2	3.07	78.586	
900.0	895.7	863.8	858.6	2.1	2.1	-107.19	-194.4	-146.9	259.2	255.7	3.51	73.749	
1,000.0	994.9	961.7	955.5	2.3	2.4	-109.06	-206.4	-154.7	277.5	273.5	3.96	70.034	
1,100.0	1,094.1	1,059.6	1,052.4	2.6	2.7	-110.71	-218.4	-162.5	296.0	291.6	4.41	67.097	
1,200.0	1,193.3	1,157.6	1,149.3	2.9	3.0	-112.15	-230.4	-170.3	314.7	309.8	4.86	64.721	
1,300.0	1,292.4	1,255.5	1,246.2	3.2	3.3	-113.44	-242.5	-178.0	333.6	328.3	5.32	62.762	
1,400.0	1,391.6	1,353.4	1,343.1	3.5	3.6	-114.59	-254.5	-185.8	352.6	346.9	5.77	61.120	
1,500.0	1,490.8	1,451.4	1,439.9	3.7	3.9	-115.62	-266.5	-193.6	371.8	365.6	6.23	59.726	
1,600.0	1,590.0	1,549.3	1,536.8	4.0	4.2	-116.55	-278.5	-201.4	391.1	384.4	6.68	58.529	
1,700.0	1,689.2	1,647.3	1,633.7	4.3	4.5	-117.39	-290.6	-209.1	410.4	403.3	7.14	57.491	
1,800.0	1,788.4	1,745.2	1,730.6	4.6	4.8	-118.16	-302.6	-216.9	429.9	422.3	7.60	56.581	
1,900.0	1,887.6	1,843.1	1,827.5	4.9	5.1	-118.86	-314.6	-224.7	449.4	441.3	8.06	55.779	
2,000.0	1,986.8	1,941.1	1,924.4	5.2	5.4	-119.50	-326.6	-232.5	468.9	460.4	8.52	55.067	
2,100.0	2,086.0	2,039.0	2,021.2	5.4	5.7	-120.09	-338.7	-240.2	488.5	479.6	8.98	54.430	
2,200.0	2,185.2	2,136.9	2,118.1	5.7	6.0	-120.64	-350.7	-248.0	508.2	498.8	9.44	53.858	
2,300.0	2,284.4	2,234.9	2,215.0	6.0	6.3	-121.14	-362.7	-255.8	527.9	518.0	9.90	53.341	
2,400.0	2,383.6	2,332.8	2,311.9	6.3	6.6	-121.61	-374.7	-263.6	547.6	537.3	10.36	52.872	
2,500.0	2,482.8	2,430.8	2,408.8	6.6	6.9	-122.05	-386.8	-271.3	567.4	556.6	10.82	52.444	
2,600.0	2,582.0	2,528.7	2,505.7	6.8	7.2	-122.46	-398.8	-279.1	587.2	575.9	11.28	52.053	
2,700.0	2,681.2	2,626.6	2,602.6	7.1	7.5	-122.84	-410.8	-286.9	607.0	595.3	11.74	51.694	
2,800.0	2,780.4	2,724.6	2,699.4	7.4	7.8	-123.19	-422.8	-294.7	626.9	614.7	12.21	51.363	
2,900.0	2,879.6	2,822.5	2,796.3	7.7	8.1	-123.53	-434.9	-302.4	646.8	634.1	12.67	51.057	
3,000.0	2,978.8	2,920.4	2,893.2	8.0	8.4	-123.84	-446.9	-310.2	666.7	653.5	13.13	50.773	
3,100.0	3,078.0	3,018.4	2,990.1	8.3	8.7	-124.14	-458.9	-318.0	686.6	673.0	13.59	50.510	
3,200.0	3,177.2	3,116.3	3,087.0	8.5	9.0	-124.42	-471.0	-325.8	706.5	692.5	14.06	50.265	
3,300.0	3,276.4	3,214.3	3,183.9	8.8	9.3	-124.68	-483.0	-333.5	726.5	711.9	14.52	50.036	
3,400.0	3,375.5	3,312.2	3,280.7	9.1	9.6	-124.93	-495.0	-341.3	746.4	731.4	14.98	49.821	
3,500.0	3,474.7	3,410.1	3,377.6	9.4	9.9	-125.17	-507.0	-349.1	766.4	750.9	15.45	49.620	
3,600.0	3,573.9	3,508.1	3,474.5	9.7	10.2	-125.39	-519.1	-356.9	786.4	770.5	15.91	49.431	
3,700.0	3,673.1	3,606.0	3,571.4	9.9	10.5	-125.61	-531.1	-364.7	806.4	790.0	16.37	49.253	
3,800.0	3,772.3	3,703.9	3,668.3	10.2	10.8	-125.81	-543.1	-372.4	826.4	809.5	16.84	49.086	
3,900.0	3,871.5	3,801.9	3,765.2	10.5	11.1	-126.00	-555.1	-380.2	846.4	829.1	17.30	48.928	
4,000.0	3,970.7	3,899.8	3,862.1	10.8	11.4	-126.19	-567.2	-388.0	866.4	848.6	17.76	48.778	
4,100.0	4,069.9	3,997.8	3,958.9	11.1	11.8	-126.37	-579.2	-395.8	886.4	868.2	18.23	48.636	
4,200.0	4,169.1	4,095.7	4,055.8	11.4	12.1	-126.53	-591.2	-403.5	906.5	887.8	18.69	48.502	
4,300.0	4,268.3	4,193.6	4,152.7	11.6	12.4	-126.70	-603.2	-411.3	926.5	907.4	19.15	48.374	
4,400.0	4,367.5	4,291.6	4,249.6	11.9	12.7	-126.85	-615.3	-419.1	946.6	927.0	19.62	48.252	
4,500.0	4,466.7	4,389.5	4,346.5	12.2	13.0	-127.00	-627.3	-426.9	966.6	946.6	20.08	48.137	
4,600.0	4,565.9	4,487.4	4,443.4	12.5	13.3	-127.14	-639.3	-434.6	986.7	966.2	20.54	48.027	
4,700.0	4,665.1	4,585.4	4,540.2	12.8	13.6	-127.28	-651.3	-442.4	1,006.8	985.8	21.01	47.921	
4,800.0	4,764.3	4,683.3	4,637.1	13.1	13.9	-127.41	-663.4	-450.2	1,026.8	1,005.4	21.47	47.821	
4,900.0	4,863.5	4,781.3	4,734.0	13.3	14.2	-127.53	-675.4	-458.0	1,046.9	1,025.0	21.94	47.725	
5,000.0	4,962.7	4,879.2	4,830.9	13.6	14.5	-127.66	-687.4	-465.7	1,067.0	1,044.6	22.40	47.633	
5,100.0	5,061.9	4,977.1	4,927.8	13.9	14.8	-127.77	-699.4	-473.5	1,087.1	1,064.2	22.86	47.545	

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 16-13A (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 16-13A (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						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,161.1	5,075.1	5,024.7	14.2	15.1	-127.89	-711.5	-481.3	1,107.2	1,083.9	23.33	47.460		
5,300.0	5,260.3	5,173.0	5,121.6	14.5	15.4	-127.99	-723.5	-489.1	1,127.3	1,103.5	23.79	47.379		
5,400.0	5,359.5	5,270.9	5,218.4	14.7	15.7	-128.10	-735.5	-496.8	1,147.4	1,123.1	24.26	47.302		
5,500.0	5,458.6	5,368.9	5,315.3	15.0	16.0	-128.20	-747.5	-504.6	1,167.5	1,142.8	24.72	47.227		
5,600.0	5,557.8	5,466.8	5,412.2	15.3	16.3	-128.30	-759.6	-512.4	1,187.6	1,162.4	25.19	47.155		
5,700.0	5,657.0	5,564.7	5,509.1	15.6	16.6	-128.39	-771.6	-520.2	1,207.7	1,182.1	25.65	47.086		
5,800.0	5,756.2	5,662.7	5,606.0	15.9	16.9	-128.48	-783.6	-527.9	1,227.8	1,201.7	26.11	47.019 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: 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	-144.22	-124.2	-89.5	153.1						
100.0	100.0	100.0	100.0	0.1	0.1	-144.22	-124.2	-89.5	153.1	152.8	0.27	562.335			
200.0	200.0	200.0	200.0	0.3	0.3	-144.22	-124.2	-89.5	153.1	152.5	0.62	246.417	CC, ES		
300.0	300.0	292.5	292.5	0.5	0.5	-93.99	-126.2	-90.5	155.7	154.7	0.97	161.114			
400.0	399.6	384.2	383.9	0.7	0.7	-96.61	-132.1	-93.5	163.6	162.3	1.35	121.462			
500.0	498.9	474.4	473.5	1.0	0.9	-100.36	-141.8	-98.3	177.5	175.7	1.76	101.005			
600.0	598.1	564.3	562.1	1.2	1.2	-103.80	-155.2	-105.0	196.8	194.6	2.17	90.614			
700.0	697.3	661.4	657.5	1.5	1.5	-106.82	-171.0	-112.9	218.5	215.9	2.60	83.938			
800.0	796.5	758.4	752.9	1.8	1.9	-109.30	-186.9	-120.8	240.6	237.6	3.04	79.255			
900.0	895.7	855.4	848.3	2.1	2.2	-111.36	-202.8	-128.7	263.1	259.7	3.47	75.772			
1,000.0	994.9	952.5	943.7	2.3	2.6	-113.10	-218.7	-136.7	285.9	282.0	3.91	73.077			
1,100.0	1,094.1	1,049.5	1,039.1	2.6	2.9	-114.58	-234.5	-144.6	308.9	304.6	4.36	70.927			
1,200.0	1,193.3	1,146.5	1,134.5	2.9	3.3	-115.85	-250.4	-152.5	332.1	327.3	4.80	69.169			
1,300.0	1,292.4	1,243.6	1,229.9	3.2	3.6	-116.96	-266.3	-160.4	355.4	350.2	5.25	67.705			
1,400.0	1,391.6	1,340.6	1,325.3	3.5	4.0	-117.93	-282.2	-168.3	378.8	373.1	5.70	66.467			
1,500.0	1,490.8	1,437.6	1,420.7	3.7	4.3	-118.79	-298.0	-176.3	402.3	396.2	6.15	65.406			
1,600.0	1,590.0	1,534.6	1,516.1	4.0	4.7	-119.56	-313.9	-184.2	425.9	419.3	6.61	64.486			
1,700.0	1,689.2	1,631.7	1,611.5	4.3	5.0	-120.24	-329.8	-192.1	449.6	442.5	7.06	63.682			
1,800.0	1,788.4	1,728.7	1,706.9	4.6	5.4	-120.86	-345.7	-200.0	473.3	465.8	7.52	62.972			
1,900.0	1,887.6	1,825.7	1,802.3	4.9	5.7	-121.42	-361.5	-207.9	497.0	489.1	7.97	62.342			
2,000.0	1,986.8	1,922.8	1,897.7	5.2	6.1	-121.92	-377.4	-215.9	520.8	512.4	8.43	61.778			
2,100.0	2,086.0	2,019.8	1,993.1	5.4	6.4	-122.39	-393.3	-223.8	544.7	535.8	8.89	61.271			
2,200.0	2,185.2	2,116.8	2,088.5	5.7	6.8	-122.81	-409.2	-231.7	568.5	559.2	9.35	60.813			
2,300.0	2,284.4	2,213.8	2,183.8	6.0	7.1	-123.20	-425.0	-239.6	592.4	582.6	9.81	60.396			
2,400.0	2,383.6	2,310.9	2,279.2	6.3	7.5	-123.56	-440.9	-247.5	616.3	606.0	10.27	60.016			
2,500.0	2,482.8	2,407.9	2,374.6	6.6	7.9	-123.89	-456.8	-255.5	640.2	629.5	10.73	59.669			
2,600.0	2,582.0	2,504.9	2,470.0	6.8	8.2	-124.20	-472.6	-263.4	664.2	653.0	11.19	59.349			
2,700.0	2,681.2	2,602.0	2,565.4	7.1	8.6	-124.49	-488.5	-271.3	688.2	676.5	11.65	59.054			
2,800.0	2,780.4	2,699.0	2,660.8	7.4	8.9	-124.76	-504.4	-279.2	712.1	700.0	12.12	58.781			
2,900.0	2,879.6	2,796.0	2,756.2	7.7	9.3	-125.01	-520.3	-287.1	736.1	723.6	12.58	58.528			
3,000.0	2,978.8	2,893.1	2,851.6	8.0	9.6	-125.24	-536.1	-295.1	760.1	747.1	13.04	58.293			
3,100.0	3,078.0	2,990.1	2,947.0	8.3	10.0	-125.46	-552.0	-303.0	784.2	770.7	13.50	58.073			
3,200.0	3,177.2	3,087.1	3,042.4	8.5	10.3	-125.67	-567.9	-310.9	808.2	794.2	13.97	57.868			
3,300.0	3,276.4	3,184.1	3,137.8	8.8	10.7	-125.86	-583.8	-318.8	832.2	817.8	14.43	57.676			
3,400.0	3,375.5	3,281.2	3,233.2	9.1	11.0	-126.05	-599.6	-326.7	856.3	841.4	14.89	57.496			
3,500.0	3,474.7	3,378.2	3,328.6	9.4	11.4	-126.22	-615.5	-334.7	880.3	865.0	15.36	57.327			
3,600.0	3,573.9	3,475.2	3,424.0	9.7	11.7	-126.39	-631.4	-342.6	904.4	888.6	15.82	57.167			
3,700.0	3,673.1	3,572.3	3,519.4	9.9	12.1	-126.54	-647.3	-350.5	928.5	912.2	16.28	57.016			
3,800.0	3,772.3	3,669.3	3,614.8	10.2	12.4	-126.69	-663.1	-358.4	952.5	935.8	16.75	56.874			
3,900.0	3,871.5	3,766.3	3,710.2	10.5	12.8	-126.83	-679.0	-366.3	976.6	959.4	17.21	56.739			
4,000.0	3,970.7	3,863.4	3,805.5	10.8	13.2	-126.97	-694.9	-374.3	1,000.7	983.0	17.68	56.611			
4,100.0	4,069.9	3,960.4	3,900.9	11.1	13.5	-127.10	-710.8	-382.2	1,024.8	1,006.7	18.14	56.490			
4,200.0	4,169.1	4,057.4	3,996.3	11.4	13.9	-127.22	-726.6	-390.1	1,048.9	1,030.3	18.61	56.375			
4,300.0	4,268.3	4,154.4	4,091.7	11.6	14.2	-127.34	-742.5	-398.0	1,073.0	1,053.9	19.07	56.265			
4,400.0	4,367.5	4,251.5	4,187.1	11.9	14.6	-127.45	-758.4	-405.9	1,097.1	1,077.6	19.54	56.160			
4,500.0	4,466.7	4,348.5	4,282.5	12.2	14.9	-127.55	-774.3	-413.9	1,121.2	1,101.2	20.00	56.061			
4,600.0	4,565.9	4,445.5	4,377.9	12.5	15.3	-127.66	-790.1	-421.8	1,145.3	1,124.9	20.46	55.965			
4,700.0	4,665.1	4,542.6	4,473.3	12.8	15.6	-127.75	-806.0	-429.7	1,169.4	1,148.5	20.93	55.874			
4,800.0	4,764.3	4,639.6	4,568.7	13.1	16.0	-127.85	-821.9	-437.6	1,193.6	1,172.2	21.39	55.787			
4,900.0	4,863.5	4,736.6	4,664.1	13.3	16.3	-127.94	-837.7	-445.5	1,217.7	1,195.8	21.86	55.704	SF		

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 16-13A (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 16-13A (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				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	-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	511.642		
200.0	200.0	200.0	200.0	0.3	0.3	-148.19	-118.4	-73.4	139.3	138.7	0.62	224.203 CC, ES		
300.0	300.0	293.1	293.1	0.5	0.5	-98.07	-120.5	-74.3	142.1	141.1	0.97	146.889		
400.0	399.6	385.4	385.1	0.7	0.7	-100.95	-126.7	-76.8	150.6	149.3	1.35	111.764		
500.0	498.9	476.0	475.1	1.0	0.9	-104.98	-136.9	-80.8	165.5	163.7	1.75	94.302		
600.0	598.1	565.0	562.8	1.2	1.2	-108.54	-150.7	-86.4	185.9	183.8	2.16	85.915		
700.0	697.3	654.2	650.0	1.5	1.6	-111.33	-168.2	-93.4	211.4	208.8	2.57	82.090		
800.0	796.5	750.0	743.3	1.8	2.0	-113.66	-188.2	-101.4	238.6	235.6	3.00	79.499		
900.0	895.7	845.9	836.7	2.1	2.4	-115.51	-208.2	-109.4	266.1	262.7	3.43	77.550		
1,000.0	994.9	941.7	930.1	2.3	2.8	-117.02	-228.2	-117.5	293.8	289.9	3.87	76.005		
1,100.0	1,094.1	1,037.5	1,023.4	2.6	3.2	-118.27	-248.2	-125.5	321.7	317.4	4.30	74.739		
1,200.0	1,193.3	1,133.3	1,116.8	2.9	3.6	-119.32	-268.2	-133.5	349.7	344.9	4.75	73.680		
1,300.0	1,292.4	1,229.2	1,210.2	3.2	4.0	-120.21	-288.2	-141.5	377.7	372.6	5.19	72.777		
1,400.0	1,391.6	1,325.0	1,303.5	3.5	4.4	-120.98	-308.2	-149.5	405.9	400.3	5.64	71.998		
1,500.0	1,490.8	1,420.8	1,396.9	3.7	4.8	-121.65	-328.2	-157.6	434.1	428.0	6.09	71.317		
1,600.0	1,590.0	1,516.6	1,490.3	4.0	5.2	-122.24	-348.2	-165.6	462.4	455.8	6.54	70.718		
1,700.0	1,689.2	1,612.4	1,583.6	4.3	5.6	-122.76	-368.2	-173.6	490.7	483.7	6.99	70.187		
1,800.0	1,788.4	1,708.3	1,677.0	4.6	6.0	-123.23	-388.3	-181.6	519.0	511.6	7.45	69.712		
1,900.0	1,887.6	1,804.1	1,770.4	4.9	6.5	-123.64	-408.3	-189.6	547.4	539.5	7.90	69.285		
2,000.0	1,986.8	1,899.9	1,863.7	5.2	6.9	-124.02	-428.3	-197.7	575.8	567.4	8.36	68.899		
2,100.0	2,086.0	1,995.7	1,957.1	5.4	7.3	-124.36	-448.3	-205.7	604.2	595.4	8.81	68.549		
2,200.0	2,185.2	2,091.5	2,050.5	5.7	7.7	-124.67	-468.3	-213.7	632.6	623.3	9.27	68.230		
2,300.0	2,284.4	2,187.4	2,143.8	6.0	8.1	-124.95	-488.3	-221.7	661.0	651.3	9.73	67.938		
2,400.0	2,383.6	2,283.2	2,237.2	6.3	8.5	-125.21	-508.3	-229.8	689.5	679.3	10.19	67.670		
2,500.0	2,482.8	2,379.0	2,330.6	6.6	8.9	-125.45	-528.3	-237.8	718.0	707.3	10.65	67.423		
2,600.0	2,582.0	2,474.8	2,423.9	6.8	9.3	-125.67	-548.3	-245.8	746.4	735.3	11.11	67.194		
2,700.0	2,681.2	2,570.6	2,517.3	7.1	9.7	-125.88	-568.3	-253.8	774.9	763.4	11.57	66.982		
2,800.0	2,780.4	2,666.5	2,610.7	7.4	10.2	-126.07	-588.3	-261.8	803.4	791.4	12.03	66.785		
2,900.0	2,879.6	2,762.3	2,704.0	7.7	10.6	-126.24	-608.3	-269.9	831.9	819.4	12.49	66.601		
3,000.0	2,978.8	2,858.1	2,797.4	8.0	11.0	-126.41	-628.3	-277.9	860.4	847.5	12.95	66.430		
3,100.0	3,078.0	2,953.9	2,890.7	8.3	11.4	-126.57	-648.3	-285.9	889.0	875.5	13.41	66.269		
3,200.0	3,177.2	3,049.8	2,984.1	8.5	11.8	-126.71	-668.3	-293.9	917.5	903.6	13.88	66.118		
3,300.0	3,276.4	3,145.6	3,077.5	8.8	12.2	-126.85	-688.4	-301.9	946.0	931.7	14.34	65.976		
3,400.0	3,375.5	3,241.4	3,170.8	9.1	12.6	-126.98	-708.4	-310.0	974.5	959.7	14.80	65.843		
3,500.0	3,474.7	3,337.2	3,264.2	9.4	13.0	-127.10	-728.4	-318.0	1,003.1	987.8	15.26	65.717		
3,600.0	3,573.9	3,433.0	3,357.6	9.7	13.5	-127.21	-748.4	-326.0	1,031.6	1,015.9	15.73	65.598		
3,700.0	3,673.1	3,528.9	3,450.9	9.9	13.9	-127.32	-768.4	-334.0	1,060.2	1,044.0	16.19	65.486		
3,800.0	3,772.3	3,624.7	3,544.3	10.2	14.3	-127.42	-788.4	-342.0	1,088.7	1,072.0	16.65	65.379		
3,900.0	3,871.5	3,720.5	3,637.7	10.5	14.7	-127.52	-808.4	-350.1	1,117.2	1,100.1	17.12	65.278		
4,000.0	3,970.7	3,816.3	3,731.0	10.8	15.1	-127.61	-828.4	-358.1	1,145.8	1,128.2	17.58	65.182		
4,100.0	4,069.9	3,912.1	3,824.4	11.1	15.5	-127.70	-848.4	-366.1	1,174.4	1,156.3	18.04	65.090		
4,200.0	4,169.1	4,008.0	3,917.8	11.4	15.9	-127.78	-868.4	-374.1	1,202.9	1,184.4	18.51	65.003		
4,300.0	4,268.3	4,103.8	4,011.1	11.6	16.3	-127.86	-888.4	-382.2	1,231.5	1,212.5	18.97	64.920 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	-152.89	-112.5	-57.6	126.4							
100.0	100.0	100.0	100.0	0.1	0.1	-152.89	-112.5	-57.6	126.4	126.2	0.27	464.383				
200.0	200.0	200.0	200.0	0.3	0.3	-152.89	-112.5	-57.6	126.4	125.8	0.62	203.494	CC, ES			
300.0	300.0	293.7	293.7	0.5	0.5	-102.85	-114.7	-58.3	129.4	128.5	0.97	133.748				
400.0	399.6	386.4	386.1	0.7	0.7	-105.89	-121.2	-60.5	138.7	137.4	1.35	102.984				
500.0	498.9	477.5	476.5	1.0	0.9	-110.03	-131.6	-64.0	154.7	152.9	1.75	88.381				
600.0	598.1	566.8	564.6	1.2	1.2	-113.55	-145.8	-68.8	176.2	174.0	2.15	81.783				
700.0	697.3	654.2	649.9	1.5	1.6	-116.14	-163.5	-74.7	202.8	200.2	2.56	79.237				
800.0	796.5	741.6	734.4	1.8	2.0	-118.02	-184.7	-81.9	233.8	230.9	2.97	78.801				
900.0	895.7	836.0	825.3	2.1	2.5	-119.54	-208.8	-90.0	266.3	262.9	3.39	78.479				
1,000.0	994.9	930.4	916.2	2.3	2.9	-120.72	-232.9	-98.1	299.0	295.1	3.83	78.160				
1,100.0	1,094.1	1,024.7	1,007.1	2.6	3.4	-121.68	-256.9	-106.2	331.7	327.4	4.26	77.844				
1,200.0	1,193.3	1,119.1	1,098.0	2.9	3.8	-122.46	-281.0	-114.2	364.5	359.8	4.70	77.539				
1,300.0	1,292.4	1,213.4	1,188.9	3.2	4.3	-123.11	-305.0	-122.3	397.3	392.2	5.14	77.247				
1,400.0	1,391.6	1,307.8	1,279.7	3.5	4.8	-123.67	-329.1	-130.4	430.2	424.6	5.59	76.974				
1,500.0	1,490.8	1,402.2	1,370.6	3.7	5.3	-124.14	-353.1	-138.5	463.1	457.1	6.04	76.718				
1,600.0	1,590.0	1,496.5	1,461.5	4.0	5.7	-124.55	-377.2	-146.6	496.1	489.6	6.49	76.480				
1,700.0	1,689.2	1,590.9	1,552.4	4.3	6.2	-124.91	-401.2	-154.7	529.0	522.1	6.94	76.259				
1,800.0	1,788.4	1,685.3	1,643.3	4.6	6.7	-125.23	-425.3	-162.8	562.0	554.6	7.39	76.054				
1,900.0	1,887.6	1,779.6	1,734.2	4.9	7.1	-125.52	-449.3	-170.9	595.0	587.2	7.84	75.864				
2,000.0	1,986.8	1,874.0	1,825.1	5.2	7.6	-125.77	-473.4	-178.9	628.0	619.7	8.30	75.688				
2,100.0	2,086.0	1,968.3	1,916.0	5.4	8.1	-126.00	-497.4	-187.0	661.0	652.3	8.75	75.524				
2,200.0	2,185.2	2,062.7	2,006.8	5.7	8.6	-126.21	-521.5	-195.1	694.0	684.8	9.21	75.372				
2,300.0	2,284.4	2,157.1	2,097.7	6.0	9.0	-126.39	-545.6	-203.2	727.1	717.4	9.66	75.230				
2,400.0	2,383.6	2,251.4	2,188.6	6.3	9.5	-126.56	-569.6	-211.3	760.1	750.0	10.12	75.098				
2,500.0	2,482.8	2,345.8	2,279.5	6.6	10.0	-126.72	-593.7	-219.4	793.1	782.6	10.58	74.974				
2,600.0	2,582.0	2,440.2	2,370.4	6.8	10.5	-126.87	-617.7	-227.5	826.2	815.1	11.04	74.858				
2,700.0	2,681.2	2,534.5	2,461.3	7.1	10.9	-127.00	-641.8	-235.5	859.2	847.7	11.49	74.749				
2,800.0	2,780.4	2,628.9	2,552.2	7.4	11.4	-127.12	-665.8	-243.6	892.3	880.3	11.95	74.647				
2,900.0	2,879.6	2,723.2	2,643.0	7.7	11.9	-127.24	-689.9	-251.7	925.3	912.9	12.41	74.551				
3,000.0	2,978.8	2,817.6	2,733.9	8.0	12.3	-127.35	-713.9	-259.8	958.4	945.5	12.87	74.461				
3,100.0	3,078.0	2,912.0	2,824.8	8.3	12.8	-127.44	-738.0	-267.9	991.5	978.1	13.33	74.375				
3,200.0	3,177.2	3,006.3	2,915.7	8.5	13.3	-127.54	-762.0	-276.0	1,024.5	1,010.7	13.79	74.295				
3,300.0	3,276.4	3,100.7	3,006.6	8.8	13.8	-127.63	-786.1	-284.1	1,057.6	1,043.3	14.25	74.218				
3,400.0	3,375.5	3,195.1	3,097.5	9.1	14.2	-127.71	-810.1	-292.2	1,090.7	1,076.0	14.71	74.146				
3,500.0	3,474.7	3,289.4	3,188.4	9.4	14.7	-127.79	-834.2	-300.2	1,123.7	1,108.6	15.17	74.078				
3,600.0	3,573.9	3,383.8	3,279.2	9.7	15.2	-127.86	-858.3	-308.3	1,156.8	1,141.2	15.63	74.012				
3,700.0	3,673.1	3,478.1	3,370.1	9.9	15.7	-127.93	-882.3	-316.4	1,189.9	1,173.8	16.09	73.950				
3,800.0	3,772.3	3,572.5	3,461.0	10.2	16.1	-127.99	-906.4	-324.5	1,223.0	1,206.4	16.55	73.891	SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	114.38	-4.7	10.4	11.5				
100.0	100.0	100.0	100.0	0.1	0.1	114.38	-4.7	10.4	11.5	11.2	0.27	42.136	
200.0	200.0	200.0	200.0	0.3	0.3	114.38	-4.7	10.4	11.5	10.9	0.62	18.464 CC	
300.0	300.0	300.5	300.5	0.5	0.5	163.03	-2.7	8.8	11.7	10.7	0.97	11.974 ES	
400.0	399.6	401.1	400.7	0.7	0.7	156.00	3.4	3.7	12.3	11.0	1.35	9.151	
500.0	498.9	501.5	500.3	1.0	1.0	144.00	13.6	-4.6	13.1	11.3	1.82	7.217	
537.1	535.7	538.7	536.9	1.1	1.1	136.74	18.2	-8.4	13.0	11.0	2.04	6.389	
600.0	598.1	601.5	598.9	1.2	1.3	124.51	26.0	-14.8	13.3	10.9	2.44	5.447	
700.0	697.3	701.4	697.5	1.5	1.6	107.44	38.4	-25.0	14.9	11.8	3.11	4.791	
800.0	796.5	801.3	796.1	1.8	2.0	94.57	50.7	-35.1	17.6	13.8	3.73	4.705 SF	
900.0	895.7	901.2	894.7	2.1	2.3	85.39	63.1	-45.3	20.8	16.5	4.29	4.855	
1,000.0	994.9	1,001.1	993.3	2.3	2.6	78.82	75.5	-55.5	24.5	19.7	4.81	5.090	
1,100.0	1,094.1	1,100.9	1,091.9	2.6	2.9	74.01	87.9	-65.7	28.4	23.1	5.31	5.344	
1,200.0	1,193.3	1,200.8	1,190.6	2.9	3.3	70.38	100.2	-75.8	32.4	26.6	5.80	5.591	
1,300.0	1,292.4	1,300.7	1,289.2	3.2	3.6	67.56	112.6	-86.0	36.6	30.3	6.29	5.822	
1,400.0	1,391.6	1,400.6	1,387.8	3.5	3.9	65.32	125.0	-96.2	40.8	34.1	6.77	6.033	
1,500.0	1,490.8	1,500.5	1,486.4	3.7	4.2	63.51	137.3	-106.3	45.1	37.9	7.24	6.225	
1,600.0	1,590.0	1,600.4	1,585.0	4.0	4.6	62.01	149.7	-116.5	49.4	41.7	7.72	6.400	
1,700.0	1,689.2	1,700.3	1,683.6	4.3	4.9	60.75	162.1	-126.7	53.8	45.6	8.20	6.558	
1,800.0	1,788.4	1,800.2	1,782.2	4.6	5.2	59.68	174.5	-136.9	58.1	49.4	8.67	6.701	
1,900.0	1,887.6	1,900.1	1,880.8	4.9	5.6	58.76	186.8	-147.0	62.5	53.3	9.15	6.832	
2,000.0	1,986.8	2,000.0	1,979.4	5.2	5.9	57.96	199.2	-157.2	66.9	57.3	9.62	6.952	
2,100.0	2,086.0	2,099.9	2,078.0	5.4	6.2	57.25	211.6	-167.4	71.3	61.2	10.10	7.061	
2,200.0	2,185.2	2,199.8	2,176.6	5.7	6.6	56.63	224.0	-177.5	75.7	65.1	10.57	7.162	
2,300.0	2,284.4	2,299.7	2,275.2	6.0	6.9	56.08	236.3	-187.7	80.1	69.1	11.05	7.254	
2,400.0	2,383.6	2,399.6	2,373.8	6.3	7.2	55.59	248.7	-197.9	84.6	73.0	11.52	7.340	
2,500.0	2,482.8	2,499.5	2,472.4	6.6	7.5	55.14	261.1	-208.1	89.0	77.0	12.00	7.419	
2,600.0	2,582.0	2,599.4	2,571.0	6.8	7.9	54.74	273.5	-218.2	93.4	81.0	12.47	7.492	
2,700.0	2,681.2	2,699.3	2,669.7	7.1	8.2	54.38	285.8	-228.4	97.9	84.9	12.94	7.561	
2,800.0	2,780.4	2,799.2	2,768.3	7.4	8.5	54.04	298.2	-238.6	102.3	88.9	13.42	7.625	
2,900.0	2,879.6	2,899.1	2,866.9	7.7	8.9	53.74	310.6	-248.7	106.8	92.9	13.89	7.684	
3,000.0	2,978.8	2,999.0	2,965.5	8.0	9.2	53.45	323.0	-258.9	111.2	96.9	14.37	7.740	
3,100.0	3,078.0	3,098.9	3,064.1	8.3	9.5	53.20	335.3	-269.1	115.7	100.8	14.84	7.793	
3,200.0	3,177.2	3,198.8	3,162.7	8.5	9.9	52.95	347.7	-279.3	120.1	104.8	15.32	7.842	
3,300.0	3,276.4	3,298.7	3,261.3	8.8	10.2	52.73	360.1	-289.4	124.6	108.8	15.79	7.889	
3,400.0	3,375.5	3,398.6	3,359.9	9.1	10.5	52.52	372.5	-299.6	129.1	112.8	16.27	7.933	
3,500.0	3,474.7	3,498.5	3,458.5	9.4	10.8	52.33	384.8	-309.8	133.5	116.8	16.74	7.974	
3,600.0	3,573.9	3,598.4	3,557.1	9.7	11.2	52.15	397.2	-319.9	138.0	120.8	17.22	8.013	
3,700.0	3,673.1	3,698.3	3,655.7	9.9	11.5	51.98	409.6	-330.1	142.5	124.8	17.69	8.050	
3,800.0	3,772.3	3,798.2	3,754.3	10.2	11.8	51.82	421.9	-340.3	146.9	128.7	18.17	8.086	
3,900.0	3,871.5	3,898.1	3,852.9	10.5	12.2	51.67	434.3	-350.5	151.4	132.7	18.65	8.119	
4,000.0	3,970.7	3,998.0	3,951.5	10.8	12.5	51.53	446.7	-360.6	155.9	136.7	19.12	8.151	
4,100.0	4,069.9	4,097.9	4,050.2	11.1	12.8	51.39	459.1	-370.8	160.3	140.7	19.60	8.182	
4,200.0	4,169.1	4,197.8	4,148.8	11.4	13.2	51.26	471.4	-381.0	164.8	144.7	20.07	8.211	
4,300.0	4,268.3	4,297.7	4,247.4	11.6	13.5	51.14	483.8	-391.1	169.3	148.7	20.55	8.238	
4,400.0	4,367.5	4,397.6	4,346.0	11.9	13.8	51.03	496.2	-401.3	173.7	152.7	21.02	8.265	
4,500.0	4,466.7	4,497.5	4,444.6	12.2	14.2	50.92	508.6	-411.5	178.2	156.7	21.50	8.290	
4,600.0	4,565.9	4,597.4	4,543.2	12.5	14.5	50.82	520.9	-421.7	182.7	160.7	21.97	8.314	
4,700.0	4,665.1	4,697.3	4,641.8	12.8	14.8	50.72	533.3	-431.8	187.2	164.7	22.45	8.337	
4,800.0	4,764.3	4,797.2	4,740.4	13.1	15.1	50.63	545.7	-442.0	191.6	168.7	22.92	8.360	
4,900.0	4,863.5	4,897.1	4,839.0	13.3	15.5	50.54	558.1	-452.2	196.1	172.7	23.40	8.381	
5,000.0	4,962.7	4,997.0	4,937.6	13.6	15.8	50.46	570.4	-462.3	200.6	176.7	23.87	8.402	

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 16-13A (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 16-13A (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: O-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,061.9	5,096.9	5,036.2	13.9	16.1	50.37	582.8	-472.5	205.1	180.7	24.35	8.421	
5,200.0	5,161.1	5,196.8	5,134.8	14.2	16.5	50.30	595.2	-482.7	209.5	184.7	24.83	8.440	
5,300.0	5,260.3	5,296.7	5,233.4	14.5	16.8	50.22	607.6	-492.9	214.0	188.7	25.30	8.459	
5,400.0	5,359.5	5,396.6	5,332.0	14.7	17.1	50.15	619.9	-503.0	218.5	192.7	25.78	8.476	
5,500.0	5,458.6	5,496.5	5,430.6	15.0	17.5	50.08	632.3	-513.2	223.0	196.7	26.25	8.493	
5,600.0	5,557.8	5,596.4	5,529.3	15.3	17.8	50.02	644.7	-523.4	227.4	200.7	26.73	8.510	
5,700.0	5,657.0	5,696.3	5,627.9	15.6	18.1	49.95	657.1	-533.5	231.9	204.7	27.20	8.526	
5,800.0	5,756.2	5,796.2	5,726.5	15.9	18.4	49.89	669.4	-543.7	236.4	208.7	27.68	8.541	
5,900.0	5,855.4	5,896.1	5,825.1	16.2	18.8	49.83	681.8	-553.9	240.9	212.7	28.15	8.556	
6,000.0	5,954.6	5,996.0	5,923.7	16.4	19.1	49.78	694.2	-564.1	245.4	216.7	28.63	8.570	
6,100.0	6,053.8	6,095.9	6,022.3	16.7	19.4	49.72	706.5	-574.2	249.8	220.7	29.11	8.584	
6,200.0	6,153.0	6,195.8	6,120.9	17.0	19.8	49.67	718.9	-584.4	254.3	224.7	29.58	8.597	
6,300.0	6,252.2	6,295.7	6,219.5	17.3	20.1	49.62	731.3	-594.6	258.8	228.7	30.06	8.610	
6,400.0	6,351.4	6,395.6	6,318.1	17.6	20.4	49.57	743.7	-604.7	263.3	232.7	30.53	8.623	
6,500.0	6,450.6	6,495.5	6,416.7	17.9	20.8	49.52	756.0	-614.9	267.8	236.7	31.01	8.635	
6,600.0	6,549.8	6,595.4	6,515.3	18.1	21.1	49.48	768.4	-625.1	272.2	240.8	31.48	8.647	
6,700.0	6,649.0	6,695.3	6,613.9	18.4	21.4	49.43	780.8	-635.3	276.7	244.8	31.96	8.658	
6,800.0	6,748.2	6,795.2	6,712.5	18.7	21.8	49.39	793.2	-645.4	281.2	248.8	32.43	8.670	
6,900.0	6,847.4	6,895.1	6,811.1	19.0	22.1	49.35	805.5	-655.6	285.7	252.8	32.91	8.680	
7,000.0	6,946.6	6,995.0	6,909.7	19.3	22.4	49.31	817.9	-665.8	290.2	256.8	33.39	8.691	
7,100.0	7,045.8	7,094.9	7,008.4	19.5	22.7	49.27	830.3	-675.9	294.6	260.8	33.86	8.701	
7,200.0	7,145.0	7,194.8	7,107.0	19.8	23.1	49.23	842.7	-686.1	299.1	264.8	34.34	8.711	
7,300.0	7,244.2	7,294.7	7,205.6	20.1	23.4	49.19	855.0	-696.3	303.6	268.8	34.81	8.721	
7,400.0	7,343.4	7,394.6	7,304.2	20.4	23.7	49.16	867.4	-706.5	308.1	272.8	35.29	8.730	
7,500.0	7,442.6	7,494.5	7,402.8	20.7	24.1	49.12	879.8	-716.6	312.6	276.8	35.76	8.739	
7,600.0	7,541.8	7,603.4	7,510.6	21.0	24.4	49.07	891.9	-726.6	315.9	279.6	36.28	8.705	
7,700.0	7,641.3	7,713.0	7,619.5	21.2	24.6	49.47	900.8	-733.9	318.0	281.2	36.74	8.654	
7,800.0	7,741.1	7,822.6	7,728.9	21.3	24.8	49.60	906.5	-738.6	319.3	282.2	37.11	8.605	
7,900.0	7,841.1	7,932.3	7,838.5	21.5	24.9	49.65	909.0	-740.7	319.9	282.5	37.39	8.556	
8,000.0	7,941.1	8,034.9	7,941.1	21.6	25.0	-1.52	909.1	-740.8	319.9	282.3	37.64	8.499	
8,100.0	8,041.1	8,134.9	8,041.1	21.7	25.1	-1.52	909.1	-740.8	319.9	282.0	37.90	8.441	
8,200.0	8,141.1	8,234.9	8,141.1	21.8	25.2	-1.52	909.1	-740.8	319.9	281.7	38.16	8.383	
8,300.0	8,241.1	8,334.9	8,241.1	21.9	25.3	-1.52	909.1	-740.8	319.9	281.5	38.42	8.326	
8,400.0	8,341.1	8,434.9	8,341.1	22.0	25.4	-1.52	909.1	-740.8	319.9	281.2	38.69	8.269	
8,500.0	8,441.1	8,534.9	8,441.1	22.2	25.5	-1.52	909.1	-740.8	319.9	281.0	38.95	8.213	
8,600.0	8,541.1	8,634.9	8,541.1	22.3	25.6	-1.52	909.1	-740.8	319.9	280.7	39.22	8.157	
8,700.0	8,641.1	8,734.9	8,641.1	22.4	25.7	-1.52	909.1	-740.8	319.9	280.4	39.49	8.102	
8,800.0	8,741.1	8,834.9	8,741.1	22.5	25.8	-1.52	909.1	-740.8	319.9	280.2	39.76	8.047	
8,900.0	8,841.1	8,934.9	8,841.1	22.6	25.9	-1.52	909.1	-740.8	319.9	279.9	40.03	7.993	
9,000.0	8,941.1	9,034.9	8,941.1	22.7	26.0	-1.52	909.1	-740.8	319.9	279.6	40.30	7.939	
9,100.0	9,041.1	9,134.9	9,041.1	22.9	26.2	-1.52	909.1	-740.8	319.9	279.3	40.57	7.885	
9,200.0	9,141.1	9,234.9	9,141.1	23.0	26.3	-1.52	909.1	-740.8	319.9	279.1	40.84	7.833	
9,300.0	9,241.1	9,334.9	9,241.1	23.1	26.4	-1.52	909.1	-740.8	319.9	278.8	41.12	7.780	
9,400.0	9,341.1	9,434.9	9,341.1	23.2	26.5	-1.52	909.1	-740.8	319.9	278.5	41.39	7.728	
9,500.0	9,441.1	9,534.9	9,441.1	23.4	26.6	-1.52	909.1	-740.8	319.9	278.2	41.67	7.677	
9,600.0	9,541.1	9,634.9	9,541.1	23.5	26.7	-1.52	909.1	-740.8	319.9	278.0	41.95	7.626	
9,700.0	9,641.1	9,734.9	9,641.1	23.6	26.8	-1.52	909.1	-740.8	319.9	277.7	42.23	7.576	
9,800.0	9,741.1	9,834.9	9,741.1	23.7	26.9	-1.52	909.1	-740.8	319.9	277.4	42.51	7.526	
9,900.0	9,841.1	9,934.9	9,841.1	23.9	27.0	-1.52	909.1	-740.8	319.9	277.1	42.79	7.476	
10,000.0	9,941.1	10,034.9	9,941.1	24.0	27.1	-1.52	909.1	-740.8	319.9	276.8	43.07	7.427	
10,100.0	10,041.1	10,134.9	10,041.1	24.1	27.3	-1.52	909.1	-740.8	319.9	276.6	43.36	7.379	
10,200.0	10,141.1	10,234.9	10,141.1	24.2	27.4	-1.52	909.1	-740.8	319.9	276.3	43.64	7.331	

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 16-13A (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 16-13A (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		
10,300.0	10,241.1	10,334.9	10,241.1	24.4	27.5	-1.52	909.1	-740.8	319.9	276.0	43.93	7.283		
10,342.9	10,284.0	10,377.8	10,284.0	24.4	27.5	-1.52	909.1	-740.8	319.9	275.9	44.05	7.263		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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							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	69.77	5.8	15.8	16.9					
100.0	100.0	100.0	100.0	0.1	0.1	69.77	5.8	15.8	16.9	16.6	0.27	61.906	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	69.77	5.8	15.8	16.9	16.2	0.62	27.127		
300.0	300.0	300.2	300.1	0.5	0.5	119.86	8.1	14.4	17.7	16.7	0.99	17.960		
400.0	399.6	400.3	399.9	0.7	0.7	117.16	14.8	10.3	20.2	18.8	1.42	14.285		
500.0	498.9	500.3	499.1	1.0	1.0	112.09	25.9	3.5	24.2	22.3	1.95	12.413		
600.0	598.1	599.9	597.0	1.2	1.4	99.15	41.4	-5.9	28.9	26.4	2.57	11.247	SF	
700.0	697.3	699.5	694.6	1.5	1.7	87.29	58.4	-16.3	35.4	32.2	3.16	11.190		
800.0	796.5	799.1	792.1	1.8	2.1	79.30	75.4	-26.7	42.9	39.2	3.71	11.562		
900.0	895.7	898.6	889.7	2.1	2.5	73.75	92.4	-37.1	50.9	46.7	4.23	12.052		
1,000.0	994.9	998.2	987.2	2.3	2.9	69.74	109.5	-47.5	59.4	54.6	4.73	12.550		
1,100.0	1,094.1	1,097.8	1,084.8	2.6	3.2	66.74	126.5	-57.9	68.0	62.8	5.22	13.016		
1,200.0	1,193.3	1,197.4	1,182.4	2.9	3.6	64.42	143.5	-68.3	76.8	71.0	5.71	13.439		
1,300.0	1,292.4	1,296.9	1,279.9	3.2	4.0	62.57	160.5	-78.7	85.6	79.4	6.20	13.820		
1,400.0	1,391.6	1,396.5	1,377.5	3.5	4.4	61.08	177.5	-89.1	94.6	87.9	6.68	14.161		
1,500.0	1,490.8	1,496.1	1,475.0	3.7	4.8	59.84	194.5	-99.5	103.6	96.4	7.16	14.467		
1,600.0	1,590.0	1,595.7	1,572.6	4.0	5.2	58.80	211.6	-109.9	112.6	104.9	7.64	14.741		
1,700.0	1,689.2	1,695.2	1,670.1	4.3	5.6	57.92	228.6	-120.3	121.7	113.5	8.12	14.989		
1,800.0	1,788.4	1,794.8	1,767.7	4.6	6.0	57.15	245.6	-130.7	130.7	122.1	8.59	15.212		
1,900.0	1,887.6	1,894.4	1,865.2	4.9	6.4	56.49	262.6	-141.1	139.9	130.8	9.07	15.415		
2,000.0	1,986.8	1,993.9	1,962.8	5.2	6.7	55.91	279.6	-151.5	149.0	139.4	9.55	15.600		
2,100.0	2,086.0	2,093.5	2,060.3	5.4	7.1	55.39	296.6	-161.9	158.1	148.1	10.03	15.770		
2,200.0	2,185.2	2,193.1	2,157.9	5.7	7.5	54.94	313.7	-172.3	167.3	156.8	10.50	15.925		
2,300.0	2,284.4	2,292.7	2,255.5	6.0	7.9	54.52	330.7	-182.7	176.4	165.4	10.98	16.068		
2,400.0	2,383.6	2,392.2	2,353.0	6.3	8.3	54.15	347.7	-193.1	185.6	174.1	11.46	16.199		
2,500.0	2,482.8	2,491.8	2,450.6	6.6	8.7	53.82	364.7	-203.5	194.8	182.8	11.93	16.322		
2,600.0	2,582.0	2,591.4	2,548.1	6.8	9.1	53.51	381.7	-213.9	204.0	191.5	12.41	16.435		
2,700.0	2,681.2	2,690.9	2,645.7	7.1	9.5	53.23	398.7	-224.3	213.1	200.3	12.89	16.540		
2,800.0	2,780.4	2,790.5	2,743.2	7.4	9.9	52.98	415.8	-234.7	222.3	209.0	13.36	16.638		
2,900.0	2,879.6	2,890.1	2,840.8	7.7	10.3	52.74	432.8	-245.1	231.5	217.7	13.84	16.730		
3,000.0	2,978.8	2,989.7	2,938.3	8.0	10.6	52.53	449.8	-255.5	240.7	226.4	14.31	16.816		
3,100.0	3,078.0	3,089.2	3,035.9	8.3	11.0	52.32	466.8	-265.9	249.9	235.1	14.79	16.897		
3,200.0	3,177.2	3,188.8	3,133.4	8.5	11.4	52.14	483.8	-276.3	259.1	243.9	15.27	16.973		
3,300.0	3,276.4	3,288.4	3,231.0	8.8	11.8	51.96	500.9	-286.7	268.3	252.6	15.74	17.045		
3,400.0	3,375.5	3,387.9	3,328.6	9.1	12.2	51.80	517.9	-297.1	277.5	261.3	16.22	17.112		
3,500.0	3,474.7	3,487.5	3,426.1	9.4	12.6	51.65	534.9	-307.5	286.8	270.1	16.70	17.176		
3,600.0	3,573.9	3,587.1	3,523.7	9.7	13.0	51.50	551.9	-317.9	296.0	278.8	17.17	17.236		
3,700.0	3,673.1	3,686.7	3,621.2	9.9	13.4	51.37	568.9	-328.3	305.2	287.5	17.65	17.294		
3,800.0	3,772.3	3,786.2	3,718.8	10.2	13.8	51.24	585.9	-338.7	314.4	296.3	18.12	17.348		
3,900.0	3,871.5	3,885.8	3,816.3	10.5	14.2	51.13	603.0	-349.1	323.6	305.0	18.60	17.400		
4,000.0	3,970.7	3,985.4	3,913.9	10.8	14.5	51.01	620.0	-359.5	332.8	313.8	19.08	17.449		
4,100.0	4,069.9	4,085.0	4,011.4	11.1	14.9	50.91	637.0	-369.9	342.1	322.5	19.55	17.496		
4,200.0	4,169.1	4,184.5	4,109.0	11.4	15.3	50.81	654.0	-380.3	351.3	331.3	20.03	17.540		
4,300.0	4,268.3	4,284.1	4,206.5	11.6	15.7	50.71	671.0	-390.7	360.5	340.0	20.50	17.583		
4,400.0	4,367.5	4,383.7	4,304.1	11.9	16.1	50.62	688.0	-401.1	369.7	348.8	20.98	17.624		
4,500.0	4,466.7	4,483.2	4,401.6	12.2	16.5	50.53	705.1	-411.5	379.0	357.5	21.46	17.663		
4,600.0	4,565.9	4,582.8	4,499.2	12.5	16.9	50.45	722.1	-421.9	388.2	366.3	21.93	17.700		
4,700.0	4,665.1	4,682.4	4,596.8	12.8	17.3	50.37	739.1	-432.3	397.4	375.0	22.41	17.736		
4,800.0	4,764.3	4,782.0	4,694.3	13.1	17.7	50.30	756.1	-442.7	406.6	383.8	22.88	17.770		
4,900.0	4,863.5	4,881.5	4,791.9	13.3	18.1	50.22	773.1	-453.1	415.9	392.5	23.36	17.803		
5,000.0	4,962.7	4,981.1	4,889.4	13.6	18.5	50.16	790.2	-463.5	425.1	401.3	23.83	17.835		
5,100.0	5,061.9	5,080.7	4,987.0	13.9	18.8	50.09	807.2	-473.9	434.3	410.0	24.31	17.865		

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 16-13A (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 16-13A (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: O-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,161.1	5,180.2	5,084.5	14.2	19.2	50.03	824.2	-484.3	443.6	418.8	24.79	17.895		
5,300.0	5,260.3	5,279.8	5,182.1	14.5	19.6	49.97	841.2	-494.7	452.8	427.5	25.26	17.923		
5,400.0	5,359.5	5,379.4	5,279.6	14.7	20.0	49.91	858.2	-505.1	462.0	436.3	25.74	17.950		
5,500.0	5,458.6	5,479.0	5,377.2	15.0	20.4	49.85	875.2	-515.5	471.2	445.0	26.21	17.976		
5,600.0	5,557.8	5,578.5	5,474.7	15.3	20.8	49.80	892.3	-525.9	480.5	453.8	26.69	18.002		
5,700.0	5,657.0	5,678.1	5,572.3	15.6	21.2	49.75	909.3	-536.3	489.7	462.5	27.17	18.026		
5,800.0	5,756.2	5,777.7	5,669.9	15.9	21.6	49.70	926.3	-546.7	498.9	471.3	27.64	18.050		
5,900.0	5,855.4	5,877.3	5,767.4	16.2	22.0	49.65	943.3	-557.1	508.2	480.1	28.12	18.073		
6,000.0	5,954.6	5,976.8	5,865.0	16.4	22.4	49.60	960.3	-567.5	517.4	488.8	28.59	18.095		
6,100.0	6,053.8	6,076.4	5,962.5	16.7	22.8	49.56	977.3	-577.9	526.6	497.6	29.07	18.116		
6,200.0	6,153.0	6,176.0	6,060.1	17.0	23.1	49.52	994.4	-588.3	535.9	506.3	29.55	18.137		
6,300.0	6,252.2	6,275.5	6,157.6	17.3	23.5	49.48	1,011.4	-598.7	545.1	515.1	30.02	18.157		
6,400.0	6,351.4	6,375.1	6,255.2	17.6	23.9	49.44	1,028.4	-609.1	554.3	523.8	30.50	18.176		
6,500.0	6,450.6	6,474.7	6,352.7	17.9	24.3	49.40	1,045.4	-619.5	563.6	532.6	30.97	18.195		
6,600.0	6,549.8	6,574.3	6,450.3	18.1	24.7	49.36	1,062.4	-629.9	572.8	541.4	31.45	18.214		
6,700.0	6,649.0	6,673.8	6,547.8	18.4	25.1	49.32	1,079.4	-640.3	582.0	550.1	31.93	18.231		
6,800.0	6,748.2	6,773.4	6,645.4	18.7	25.5	49.29	1,096.5	-650.7	591.3	558.9	32.40	18.249		
6,900.0	6,847.4	6,873.0	6,743.0	19.0	25.9	49.25	1,113.5	-661.1	600.5	567.6	32.88	18.265		
7,000.0	6,946.6	6,972.5	6,840.5	19.3	26.3	49.22	1,130.5	-671.4	609.7	576.4	33.35	18.282		
7,100.0	7,045.8	7,072.1	6,938.1	19.5	26.7	49.19	1,147.5	-681.8	619.0	585.2	33.83	18.298		
7,200.0	7,145.0	7,171.7	7,035.6	19.8	27.0	49.16	1,164.5	-692.2	628.2	593.9	34.30	18.313		
7,300.0	7,244.2	7,271.3	7,133.2	20.1	27.4	49.13	1,181.6	-702.6	637.5	602.7	34.78	18.328		
7,400.0	7,343.4	7,370.8	7,230.7	20.4	27.8	49.10	1,198.6	-713.0	646.7	611.4	35.26	18.343		
7,500.0	7,442.6	7,479.0	7,336.8	20.7	28.2	49.08	1,216.8	-724.2	655.7	619.9	35.75	18.340		
7,600.0	7,541.8	7,603.8	7,459.9	21.0	28.6	49.25	1,234.2	-734.8	661.9	625.6	36.31	18.227		
7,700.0	7,641.3	7,728.9	7,584.0	21.2	28.9	49.46	1,247.1	-742.7	666.1	629.3	36.80	18.102		
7,800.0	7,741.1	7,854.1	7,708.9	21.3	29.1	49.59	1,255.4	-747.8	668.8	631.6	37.19	17.984		
7,900.0	7,841.1	7,979.5	7,834.2	21.5	29.3	49.65	1,259.0	-750.0	670.0	632.5	37.49	17.873		
8,000.0	7,941.1	8,086.4	7,941.1	21.6	29.4	-1.52	1,259.2	-750.1	670.1	632.3	37.75	17.752		
8,100.0	8,041.1	8,186.4	8,041.1	21.7	29.5	-1.52	1,259.2	-750.1	670.1	632.1	38.01	17.631		
8,200.0	8,141.1	8,286.4	8,141.1	21.8	29.5	-1.52	1,259.2	-750.1	670.1	631.8	38.27	17.510		
8,300.0	8,241.1	8,386.4	8,241.1	21.9	29.6	-1.52	1,259.2	-750.1	670.1	631.5	38.53	17.391		
8,400.0	8,341.1	8,486.4	8,341.1	22.0	29.7	-1.52	1,259.2	-750.1	670.1	631.3	38.79	17.273		
8,500.0	8,441.1	8,586.4	8,441.1	22.2	29.8	-1.52	1,259.2	-750.1	670.1	631.0	39.06	17.156		
8,600.0	8,541.1	8,686.4	8,541.1	22.3	29.9	-1.52	1,259.2	-750.1	670.1	630.7	39.32	17.039		
8,700.0	8,641.1	8,786.4	8,641.1	22.4	30.0	-1.52	1,259.2	-750.1	670.1	630.5	39.59	16.924		
8,800.0	8,741.1	8,886.4	8,741.1	22.5	30.1	-1.52	1,259.2	-750.1	670.1	630.2	39.86	16.810		
8,900.0	8,841.1	8,986.4	8,841.1	22.6	30.2	-1.52	1,259.2	-750.1	670.1	629.9	40.13	16.697		
9,000.0	8,941.1	9,086.4	8,941.1	22.7	30.2	-1.52	1,259.2	-750.1	670.1	629.7	40.40	16.585		
9,100.0	9,041.1	9,186.4	9,041.1	22.9	30.3	-1.52	1,259.2	-750.1	670.1	629.4	40.68	16.473		
9,200.0	9,141.1	9,286.4	9,141.1	23.0	30.4	-1.52	1,259.2	-750.1	670.1	629.1	40.95	16.363		
9,300.0	9,241.1	9,386.4	9,241.1	23.1	30.5	-1.52	1,259.2	-750.1	670.1	628.8	41.22	16.254		
9,400.0	9,341.1	9,486.4	9,341.1	23.2	30.6	-1.52	1,259.2	-750.1	670.1	628.6	41.50	16.146		
9,500.0	9,441.1	9,586.4	9,441.1	23.4	30.7	-1.52	1,259.2	-750.1	670.1	628.3	41.78	16.039		
9,600.0	9,541.1	9,686.4	9,541.1	23.5	30.8	-1.52	1,259.2	-750.1	670.1	628.0	42.06	15.933		
9,700.0	9,641.1	9,786.4	9,641.1	23.6	30.9	-1.52	1,259.2	-750.1	670.1	627.7	42.34	15.828		
9,800.0	9,741.1	9,886.4	9,741.1	23.7	31.0	-1.52	1,259.2	-750.1	670.1	627.4	42.62	15.724		
9,900.0	9,841.1	9,986.4	9,841.1	23.9	31.1	-1.52	1,259.2	-750.1	670.1	627.2	42.90	15.620		
10,000.0	9,941.1	10,086.4	9,941.1	24.0	31.2	-1.52	1,259.2	-750.1	670.1	626.9	43.18	15.518		
10,100.0	10,041.1	10,186.4	10,041.1	24.1	31.3	-1.52	1,259.2	-750.1	670.1	626.6	43.46	15.417		
10,200.0	10,141.1	10,286.4	10,141.1	24.2	31.4	-1.52	1,259.2	-750.1	670.1	626.3	43.75	15.317		
10,300.0	10,241.1	10,386.4	10,241.1	24.4	31.5	-1.52	1,259.2	-750.1	670.1	626.0	44.03	15.218		

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 16-13A (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 16-13A (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						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)			
10,342.9	10,284.0	10,429.3	10,284.0	24.4	31.5	-1.52	1,259.2	-750.1	670.1	625.9	44.15	15.175	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	87.64	1.1	26.5	26.6							
100.0	100.0	100.0	100.0	0.1	0.1	87.64	1.1	26.5	26.6	26.3	0.27	97.588				
200.0	200.0	200.0	200.0	0.3	0.3	87.64	1.1	26.5	26.6	25.9	0.62	42.763	CC, ES			
300.0	300.0	300.4	300.4	0.5	0.5	137.17	3.6	25.6	27.8	26.8	0.98	28.241				
400.0	399.6	400.7	400.3	0.7	0.7	133.00	11.0	22.9	31.4	30.0	1.40	22.406				
500.0	498.9	500.7	499.5	1.0	1.0	126.92	23.3	18.5	37.2	35.3	1.92	19.389				
600.0	598.1	600.3	597.3	1.2	1.4	116.26	40.4	12.2	43.7	41.2	2.55	17.126				
700.0	697.3	698.8	693.1	1.5	1.8	103.16	61.9	4.4	52.7	49.4	3.25	16.227	SF			
800.0	796.5	795.7	786.1	1.8	2.3	90.38	87.7	-5.0	66.0	62.1	3.89	16.943				
900.0	895.7	892.6	877.9	2.1	2.9	80.04	116.8	-15.6	84.0	79.5	4.43	18.945				
1,000.0	994.9	990.0	970.1	2.3	3.4	73.29	146.3	-26.4	103.9	99.0	4.92	21.116				
1,100.0	1,094.1	1,087.3	1,062.3	2.6	4.0	68.74	175.7	-37.2	124.7	119.4	5.39	23.147				
1,200.0	1,193.3	1,184.7	1,154.4	2.9	4.6	65.50	205.2	-47.9	146.2	140.3	5.85	24.971				
1,300.0	1,292.4	1,282.1	1,246.6	3.2	5.1	63.08	234.7	-58.7	167.9	161.6	6.31	26.588				
1,400.0	1,391.6	1,379.5	1,338.8	3.5	5.7	61.22	264.2	-69.4	189.9	183.1	6.78	28.019				
1,500.0	1,490.8	1,476.9	1,431.0	3.7	6.3	59.75	293.7	-80.2	212.0	204.7	7.24	29.286				
1,600.0	1,590.0	1,574.3	1,523.2	4.0	6.8	58.55	323.2	-90.9	234.2	226.5	7.70	30.414				
1,700.0	1,689.2	1,671.7	1,615.4	4.3	7.4	57.57	352.7	-101.7	256.5	248.3	8.16	31.421				
1,800.0	1,788.4	1,769.1	1,707.6	4.6	8.0	56.74	382.2	-112.4	278.8	270.2	8.63	32.326				
1,900.0	1,887.6	1,866.5	1,799.8	4.9	8.6	56.03	411.7	-123.2	301.2	292.2	9.09	33.141				
2,000.0	1,986.8	1,963.9	1,892.0	5.2	9.1	55.42	441.2	-134.0	323.7	314.1	9.55	33.880				
2,100.0	2,086.0	2,061.3	1,984.2	5.4	9.7	54.89	470.6	-144.7	346.2	336.1	10.02	34.552				
2,200.0	2,185.2	2,158.7	2,076.4	5.7	10.3	54.42	500.1	-155.5	368.7	358.2	10.48	35.165				
2,300.0	2,284.4	2,256.1	2,168.6	6.0	10.9	54.01	529.6	-166.2	391.2	380.2	10.95	35.728				
2,400.0	2,383.6	2,353.5	2,260.8	6.3	11.4	53.65	559.1	-177.0	413.7	402.3	11.41	36.245				
2,500.0	2,482.8	2,450.9	2,353.0	6.6	12.0	53.32	588.6	-187.7	436.3	424.4	11.88	36.722				
2,600.0	2,582.0	2,548.3	2,445.2	6.8	12.6	53.02	618.1	-198.5	458.8	446.5	12.35	37.163				
2,700.0	2,681.2	2,645.7	2,537.4	7.1	13.2	52.75	647.6	-209.2	481.4	468.6	12.81	37.573				
2,800.0	2,780.4	2,743.1	2,629.6	7.4	13.7	52.51	677.1	-220.0	504.0	490.7	13.28	37.954				
2,900.0	2,879.6	2,840.5	2,721.8	7.7	14.3	52.28	706.6	-230.8	526.6	512.8	13.75	38.309				
3,000.0	2,978.8	2,937.8	2,814.0	8.0	14.9	52.08	736.1	-241.5	549.2	535.0	14.21	38.641				
3,100.0	3,078.0	3,035.2	2,906.2	8.3	15.5	51.89	765.5	-252.3	571.8	557.1	14.68	38.953				
3,200.0	3,177.2	3,132.6	2,998.4	8.5	16.1	51.71	795.0	-263.0	594.4	579.3	15.15	39.245				
3,300.0	3,276.4	3,230.0	3,090.6	8.8	16.6	51.55	824.5	-273.8	617.0	601.4	15.61	39.519				
3,400.0	3,375.5	3,327.4	3,182.8	9.1	17.2	51.40	854.0	-284.5	639.6	623.6	16.08	39.778				
3,500.0	3,474.7	3,424.8	3,275.0	9.4	17.8	51.26	883.5	-295.3	662.3	645.7	16.55	40.022				
3,600.0	3,573.9	3,522.2	3,367.2	9.7	18.4	51.13	913.0	-306.0	684.9	667.9	17.01	40.253				
3,700.0	3,673.1	3,619.6	3,459.4	9.9	18.9	51.01	942.5	-316.8	707.5	690.0	17.48	40.472				
3,800.0	3,772.3	3,717.0	3,551.6	10.2	19.5	50.89	972.0	-327.6	730.1	712.2	17.95	40.679				
3,900.0	3,871.5	3,814.4	3,643.8	10.5	20.1	50.78	1,001.5	-338.3	752.8	734.4	18.42	40.876				
4,000.0	3,970.7	3,911.8	3,736.0	10.8	20.7	50.68	1,030.9	-349.1	775.4	756.5	18.88	41.063				
4,100.0	4,069.9	4,009.2	3,828.2	11.1	21.2	50.58	1,060.4	-359.8	798.1	778.7	19.35	41.241				
4,200.0	4,169.1	4,106.6	3,920.4	11.4	21.8	50.49	1,089.9	-370.6	820.7	800.9	19.82	41.410				
4,300.0	4,268.3	4,204.0	4,012.6	11.6	22.4	50.41	1,119.4	-381.3	843.3	823.1	20.29	41.572				
4,400.0	4,367.5	4,301.4	4,104.8	11.9	23.0	50.33	1,148.9	-392.1	866.0	845.2	20.75	41.727				
4,500.0	4,466.7	4,398.8	4,197.0	12.2	23.5	50.25	1,178.4	-402.8	888.6	867.4	21.22	41.874				
4,600.0	4,565.9	4,496.2	4,289.2	12.5	24.1	50.18	1,207.9	-413.6	911.3	889.6	21.69	42.016				
4,700.0	4,665.1	4,593.6	4,381.4	12.8	24.7	50.11	1,237.4	-424.4	933.9	911.8	22.16	42.151				
4,800.0	4,764.3	4,691.0	4,473.6	13.1	25.3	50.04	1,266.9	-435.1	956.6	934.0	22.62	42.281				
4,900.0	4,863.5	4,788.4	4,565.8	13.3	25.9	49.98	1,296.4	-445.9	979.2	956.1	23.09	42.405				
5,000.0	4,962.7	4,885.7	4,658.0	13.6	26.4	49.91	1,325.8	-456.6	1,001.9	978.3	23.56	42.525				
5,100.0	5,061.9	4,983.1	4,750.2	13.9	27.0	49.86	1,355.3	-467.4	1,024.5	1,000.5	24.03	42.640				

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 16-13A (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 16-13A (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		
5,200.0	5,161.1	5,080.5	4,842.4	14.2	27.6	49.80	1,384.8	-478.1	1,047.2	1,022.7	24.50	42.750		
5,300.0	5,260.3	5,177.9	4,934.6	14.5	28.2	49.75	1,414.3	-488.9	1,069.9	1,044.9	24.96	42.857		
5,400.0	5,359.5	5,275.3	5,026.8	14.7	28.7	49.70	1,443.8	-499.6	1,092.5	1,067.1	25.43	42.959		
5,500.0	5,458.6	5,372.7	5,119.0	15.0	29.3	49.65	1,473.3	-510.4	1,115.2	1,089.3	25.90	43.058		
5,600.0	5,557.8	5,470.1	5,211.2	15.3	29.9	49.60	1,502.8	-521.2	1,137.8	1,111.5	26.37	43.153		
5,700.0	5,657.0	5,567.5	5,303.4	15.6	30.5	49.56	1,532.3	-531.9	1,160.5	1,133.7	26.84	43.245		
5,800.0	5,756.2	5,664.9	5,395.6	15.9	31.0	49.51	1,561.8	-542.7	1,183.2	1,155.9	27.30	43.334		
5,900.0	5,855.4	5,762.3	5,487.7	16.2	31.6	49.47	1,591.3	-553.4	1,205.8	1,178.0	27.77	43.420		
6,000.0	5,954.6	5,859.7	5,579.9	16.4	32.2	49.43	1,620.7	-564.2	1,228.5	1,200.2	28.24	43.503		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: 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	-147.72	-108.2	-68.3	128.0					
100.0	100.0	100.0	100.0	0.1	0.1	-147.72	-108.2	-68.3	128.0	127.7	0.27	469.971	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	-147.72	-108.2	-68.3	128.0	127.3	0.62	205.943		
300.0	300.0	297.9	297.8	0.5	0.5	-96.58	-107.6	-70.8	129.1	128.1	0.98	131.366		
400.0	399.6	395.7	395.4	0.7	0.7	-96.70	-105.8	-78.1	132.4	131.0	1.41	93.693		
500.0	498.9	493.4	492.2	1.0	1.0	-96.64	-102.9	-90.2	137.9	136.0	1.93	71.305		
600.0	598.1	590.6	587.9	1.2	1.3	-94.96	-98.9	-107.1	145.2	142.6	2.53	57.343		
700.0	697.3	687.0	681.8	1.5	1.8	-91.75	-93.7	-128.4	154.4	151.2	3.19	48.388		
800.0	796.5	782.1	773.1	1.8	2.3	-87.47	-87.6	-153.9	166.4	162.5	3.89	42.776		
900.0	895.7	876.2	862.2	2.1	2.8	-82.54	-80.5	-183.4	181.8	177.2	4.58	39.708		
1,000.0	994.9	973.5	953.7	2.3	3.4	-77.90	-72.8	-215.4	199.4	194.1	5.24	38.061		
1,100.0	1,094.1	1,070.7	1,045.3	2.6	4.1	-74.00	-65.1	-247.3	218.0	212.2	5.86	37.229		
1,200.0	1,193.3	1,167.9	1,136.8	2.9	4.7	-70.73	-57.4	-279.2	237.5	231.1	6.44	36.878		
1,300.0	1,292.4	1,265.2	1,228.3	3.2	5.3	-67.95	-49.7	-311.1	257.7	250.7	7.00	36.821	SF	
1,400.0	1,391.6	1,362.4	1,319.8	3.5	5.9	-65.57	-42.0	-343.1	278.3	270.8	7.53	36.946		
1,500.0	1,490.8	1,459.6	1,411.4	3.7	6.5	-63.52	-34.3	-375.0	299.3	291.3	8.05	37.183		
1,600.0	1,590.0	1,556.9	1,502.9	4.0	7.2	-61.74	-26.6	-406.9	320.7	312.1	8.55	37.488		
1,700.0	1,689.2	1,654.1	1,594.4	4.3	7.8	-60.18	-18.9	-438.8	342.3	333.2	9.05	37.835		
1,800.0	1,788.4	1,751.3	1,685.9	4.6	8.4	-58.80	-11.2	-470.7	364.1	354.6	9.53	38.202		
1,900.0	1,887.6	1,848.6	1,777.5	4.9	9.0	-57.58	-3.6	-502.7	386.1	376.1	10.01	38.580		
2,000.0	1,986.8	1,945.8	1,869.0	5.2	9.6	-56.50	4.1	-534.6	408.3	397.8	10.48	38.959		
2,100.0	2,086.0	2,043.0	1,960.5	5.4	10.3	-55.52	11.8	-566.5	430.6	419.6	10.95	39.333		
2,200.0	2,185.2	2,140.3	2,052.0	5.7	10.9	-54.64	19.5	-598.4	453.0	441.6	11.41	39.701		
2,300.0	2,284.4	2,237.5	2,143.5	6.0	11.5	-53.84	27.2	-630.3	475.5	463.6	11.87	40.058		
2,400.0	2,383.6	2,334.8	2,235.1	6.3	12.1	-53.11	34.9	-662.3	498.0	485.7	12.33	40.404		
2,500.0	2,482.8	2,432.0	2,326.6	6.6	12.8	-52.45	42.6	-694.2	520.7	507.9	12.78	40.738		
2,600.0	2,582.0	2,529.2	2,418.1	6.8	13.4	-51.84	50.3	-726.1	543.4	530.1	13.23	41.060		
2,700.0	2,681.2	2,626.5	2,509.6	7.1	14.0	-51.28	58.0	-758.0	566.1	552.4	13.68	41.369		
2,800.0	2,780.4	2,723.7	2,601.2	7.4	14.6	-50.77	65.6	-789.9	588.9	574.8	14.13	41.667		
2,900.0	2,879.6	2,820.9	2,692.7	7.7	15.3	-50.29	73.3	-821.9	611.7	597.2	14.58	41.952		
3,000.0	2,978.8	2,918.2	2,784.2	8.0	15.9	-49.85	81.0	-853.8	634.6	619.6	15.03	42.226		
3,100.0	3,078.0	3,015.4	2,875.7	8.3	16.5	-49.43	88.7	-885.7	657.5	642.1	15.48	42.489		
3,200.0	3,177.2	3,112.6	2,967.2	8.5	17.2	-49.05	96.4	-917.6	680.5	664.6	15.92	42.741		
3,300.0	3,276.4	3,209.9	3,058.8	8.8	17.8	-48.69	104.1	-949.6	703.4	687.1	16.37	42.983		
3,400.0	3,375.5	3,307.1	3,150.3	9.1	18.4	-48.35	111.8	-981.5	726.4	709.6	16.81	43.215		
3,500.0	3,474.7	3,404.3	3,241.8	9.4	19.0	-48.04	119.5	-1,013.4	749.5	732.2	17.25	43.438		
3,600.0	3,573.9	3,501.6	3,333.3	9.7	19.7	-47.74	127.2	-1,045.3	772.5	754.8	17.70	43.652		
3,700.0	3,673.1	3,598.8	3,424.9	9.9	20.3	-47.46	134.9	-1,077.2	795.5	777.4	18.14	43.857		
3,800.0	3,772.3	3,696.0	3,516.4	10.2	20.9	-47.19	142.5	-1,109.2	818.6	800.0	18.58	44.055		
3,900.0	3,871.5	3,793.3	3,607.9	10.5	21.5	-46.94	150.2	-1,141.1	841.7	822.7	19.02	44.245		
4,000.0	3,970.7	3,890.5	3,699.4	10.8	22.2	-46.71	157.9	-1,173.0	864.8	845.3	19.47	44.428		
4,100.0	4,069.9	3,987.7	3,791.0	11.1	22.8	-46.48	165.6	-1,204.9	887.9	868.0	19.91	44.604		
4,200.0	4,169.1	4,085.0	3,882.5	11.4	23.4	-46.27	173.3	-1,236.8	911.0	890.7	20.35	44.773		
4,300.0	4,268.3	4,182.2	3,974.0	11.6	24.0	-46.07	181.0	-1,268.8	934.2	913.4	20.79	44.936		
4,400.0	4,367.5	4,279.4	4,065.5	11.9	24.7	-45.87	188.7	-1,300.7	957.3	936.1	21.23	45.094		
4,500.0	4,466.7	4,376.7	4,157.0	12.2	25.3	-45.69	196.4	-1,332.6	980.5	958.8	21.67	45.246		
4,600.0	4,565.9	4,473.9	4,248.6	12.5	25.9	-45.51	204.1	-1,364.5	1,003.7	981.5	22.11	45.392		
4,700.0	4,665.1	4,571.1	4,340.1	12.8	26.5	-45.35	211.7	-1,396.5	1,026.8	1,004.3	22.55	45.534		
4,800.0	4,764.3	4,668.4	4,431.6	13.1	27.2	-45.19	219.4	-1,428.4	1,050.0	1,027.0	22.99	45.670		
4,900.0	4,863.5	4,765.6	4,523.1	13.3	27.8	-45.03	227.1	-1,460.3	1,073.2	1,049.8	23.43	45.803		
5,000.0	4,962.7	4,862.8	4,614.7	13.6	28.4	-44.89	234.8	-1,492.2	1,096.4	1,072.5	23.87	45.930		
5,100.0	5,061.9	4,960.1	4,706.2	13.9	29.0	-44.75	242.5	-1,524.1	1,119.6	1,095.3	24.31	46.054		

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 16-13A (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 16-13A (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			Distance							Warning			
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor					
5,200.0	5,161.1	5,057.3	4,797.7	14.2	29.7	-44.61	250.2	-1,556.1	1,142.8	1,118.1	24.75	46.173					
5,300.0	5,260.3	5,154.5	4,889.2	14.5	30.3	-44.48	257.9	-1,588.0	1,166.0	1,140.9	25.19	46.289					
5,400.0	5,359.5	5,251.8	4,980.8	14.7	30.9	-44.36	265.6	-1,619.9	1,189.3	1,163.6	25.63	46.401					
5,500.0	5,458.6	5,349.0	5,072.3	15.0	31.6	-44.24	273.3	-1,651.8	1,212.5	1,186.4	26.07	46.510					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-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	520.458		
200.0	200.0	200.0	200.0	0.3	0.3	-143.56	-114.0	-84.2	141.7	141.1	0.62	228.066 CC, ES		
300.0	300.0	296.4	296.3	0.5	0.5	-92.52	-113.8	-86.6	143.1	142.1	0.98	146.208		
400.0	399.6	392.6	392.3	0.7	0.7	-92.89	-113.0	-93.8	147.3	145.9	1.40	105.172		
500.0	498.9	488.6	487.5	1.0	1.0	-93.27	-111.7	-105.8	154.1	152.2	1.90	81.025		
600.0	598.1	584.2	581.6	1.2	1.3	-92.36	-110.0	-122.5	163.5	161.1	2.47	66.211		
700.0	697.3	678.9	673.9	1.5	1.7	-90.23	-107.8	-143.6	175.6	172.5	3.09	56.803		
800.0	796.5	772.3	763.7	1.8	2.2	-87.24	-105.1	-168.8	190.6	186.9	3.75	50.877		
900.0	895.7	864.7	851.4	2.1	2.8	-83.71	-102.1	-198.0	209.1	204.7	4.40	47.530		
1,000.0	994.9	961.8	942.9	2.3	3.4	-80.28	-98.7	-230.3	229.5	224.4	5.05	45.472		
1,100.0	1,094.1	1,058.8	1,034.3	2.6	4.0	-77.40	-95.3	-262.6	250.5	244.8	5.67	44.210		
1,200.0	1,193.3	1,155.9	1,125.8	2.9	4.6	-74.97	-91.9	-294.8	272.1	265.8	6.26	43.435		
1,300.0	1,292.4	1,252.9	1,217.2	3.2	5.2	-72.90	-88.5	-327.1	294.0	287.2	6.84	42.971		
1,400.0	1,391.6	1,350.0	1,308.7	3.5	5.8	-71.11	-85.1	-359.4	316.3	308.9	7.41	42.710		
1,500.0	1,490.8	1,447.0	1,400.1	3.7	6.4	-69.56	-81.7	-391.7	338.8	330.9	7.96	42.585		
1,600.0	1,590.0	1,544.0	1,491.6	4.0	7.0	-68.20	-78.3	-424.0	361.6	353.1	8.50	42.552 SF		
1,700.0	1,689.2	1,641.1	1,583.0	4.3	7.7	-67.00	-74.9	-456.2	384.5	375.4	9.03	42.582		
1,800.0	1,788.4	1,738.1	1,674.5	4.6	8.3	-65.93	-71.6	-488.5	407.5	398.0	9.55	42.655		
1,900.0	1,887.6	1,835.2	1,766.0	4.9	8.9	-64.98	-68.2	-520.8	430.7	420.6	10.07	42.757		
2,000.0	1,986.8	1,932.2	1,857.4	5.2	9.5	-64.13	-64.8	-553.1	454.0	443.4	10.59	42.878		
2,100.0	2,086.0	2,029.2	1,948.9	5.4	10.1	-63.36	-61.4	-585.3	477.3	466.2	11.10	43.013		
2,200.0	2,185.2	2,126.3	2,040.3	5.7	10.7	-62.66	-58.0	-617.6	500.8	489.2	11.60	43.155		
2,300.0	2,284.4	2,223.3	2,131.8	6.0	11.4	-62.02	-54.6	-649.9	524.3	512.2	12.11	43.301		
2,400.0	2,383.6	2,320.4	2,223.2	6.3	12.0	-61.44	-51.2	-682.2	547.8	535.2	12.61	43.450		
2,500.0	2,482.8	2,417.4	2,314.7	6.6	12.6	-60.91	-47.8	-714.4	571.4	558.3	13.11	43.598		
2,600.0	2,582.0	2,514.4	2,406.1	6.8	13.2	-60.42	-44.5	-746.7	595.1	581.5	13.60	43.746		
2,700.0	2,681.2	2,611.5	2,497.6	7.1	13.8	-59.96	-41.1	-779.0	618.8	604.7	14.10	43.891		
2,800.0	2,780.4	2,708.5	2,589.0	7.4	14.5	-59.54	-37.7	-811.3	642.5	627.9	14.59	44.033		
2,900.0	2,879.6	2,805.6	2,680.5	7.7	15.1	-59.15	-34.3	-843.5	666.2	651.2	15.08	44.172		
3,000.0	2,978.8	2,902.6	2,771.9	8.0	15.7	-58.79	-30.9	-875.8	690.0	674.4	15.57	44.307		
3,100.0	3,078.0	2,999.7	2,863.4	8.3	16.3	-58.45	-27.5	-908.1	713.8	697.8	16.06	44.438		
3,200.0	3,177.2	3,096.7	2,954.9	8.5	16.9	-58.13	-24.1	-940.4	737.7	721.1	16.55	44.566		
3,300.0	3,276.4	3,193.7	3,046.3	8.8	17.6	-57.83	-20.7	-972.7	761.5	744.5	17.04	44.690		
3,400.0	3,375.5	3,290.8	3,137.8	9.1	18.2	-57.55	-17.3	-1,004.9	785.4	767.8	17.53	44.810		
3,500.0	3,474.7	3,387.8	3,229.2	9.4	18.8	-57.29	-14.0	-1,037.2	809.2	791.2	18.01	44.926		
3,600.0	3,573.9	3,484.9	3,320.7	9.7	19.4	-57.04	-10.6	-1,069.5	833.1	814.6	18.50	45.038		
3,700.0	3,673.1	3,581.9	3,412.1	9.9	20.0	-56.80	-7.2	-1,101.8	857.0	838.1	18.98	45.147		
3,800.0	3,772.3	3,678.9	3,503.6	10.2	20.7	-56.58	-3.8	-1,134.0	881.0	861.5	19.47	45.252		
3,900.0	3,871.5	3,776.0	3,595.0	10.5	21.3	-56.37	-0.4	-1,166.3	904.9	885.0	19.95	45.354		
4,000.0	3,970.7	3,873.0	3,686.5	10.8	21.9	-56.17	3.0	-1,198.6	928.8	908.4	20.44	45.452		
4,100.0	4,069.9	3,970.1	3,777.9	11.1	22.5	-55.98	6.4	-1,230.9	952.8	931.9	20.92	45.547		
4,200.0	4,169.1	4,067.1	3,869.4	11.4	23.1	-55.80	9.8	-1,263.1	976.8	955.4	21.40	45.639		
4,300.0	4,268.3	4,164.2	3,960.8	11.6	23.8	-55.63	13.1	-1,295.4	1,000.7	978.9	21.88	45.728		
4,400.0	4,367.5	4,261.2	4,052.3	11.9	24.4	-55.47	16.5	-1,327.7	1,024.7	1,002.4	22.37	45.815		
4,500.0	4,466.7	4,358.2	4,143.7	12.2	25.0	-55.31	19.9	-1,360.0	1,048.7	1,025.9	22.85	45.898		
4,600.0	4,565.9	4,455.3	4,235.2	12.5	25.6	-55.16	23.3	-1,392.3	1,072.7	1,049.4	23.33	45.979		
4,700.0	4,665.1	4,552.3	4,326.7	12.8	26.2	-55.02	26.7	-1,424.5	1,096.7	1,072.9	23.81	46.058		
4,800.0	4,764.3	4,649.4	4,418.1	13.1	26.9	-54.88	30.1	-1,456.8	1,120.7	1,096.4	24.29	46.134		
4,900.0	4,863.5	4,746.4	4,509.6	13.3	27.5	-54.75	33.5	-1,489.1	1,144.7	1,120.0	24.77	46.207		
5,000.0	4,962.7	4,843.4	4,601.0	13.6	28.1	-54.63	36.9	-1,521.4	1,168.8	1,143.5	25.25	46.279		
5,100.0	5,061.9	4,940.5	4,692.5	13.9	28.7	-54.51	40.3	-1,553.6	1,192.8	1,167.0	25.74	46.348		

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 16-13A (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 16-13A (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							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)											
5,200.0	5,161.1	5,037.5	4,783.9	14.2	29.3	-54.39	43.6	-1,585.9	1,216.8	1,190.6	26.22	46.415									

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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	-137.27	-125.7	-116.1	171.1					
100.0	100.0	100.0	100.0	0.1	0.1	-137.27	-125.7	-116.1	171.1	170.8	0.27	628.302		
200.0	200.0	200.0	200.0	0.3	0.3	-137.27	-125.7	-116.1	171.1	170.4	0.62	275.323 CC, ES		
300.0	300.0	294.1	294.0	0.5	0.5	-86.32	-125.7	-118.4	172.6	171.6	0.97	177.443		
400.0	399.6	388.0	387.7	0.7	0.7	-86.95	-125.9	-125.3	177.3	175.9	1.38	128.467		
500.0	498.9	481.6	480.6	1.0	0.9	-87.81	-126.2	-136.8	185.1	183.2	1.85	99.785		
600.0	598.1	574.8	572.4	1.2	1.3	-87.80	-126.7	-152.7	196.2	193.8	2.38	82.389		
700.0	697.3	667.0	662.4	1.5	1.7	-86.88	-127.2	-172.9	210.5	207.6	2.95	71.360		
800.0	796.5	758.0	750.1	1.8	2.1	-85.28	-127.9	-197.0	228.2	224.7	3.55	64.288		
900.0	895.7	848.3	835.9	2.1	2.7	-83.21	-128.6	-225.0	249.5	245.3	4.16	60.036		
1,000.0	994.9	945.2	927.5	2.3	3.2	-81.08	-129.5	-256.7	272.3	267.5	4.78	57.019		
1,100.0	1,094.1	1,042.1	1,019.1	2.6	3.8	-79.28	-130.4	-288.3	295.5	290.1	5.38	54.897		
1,200.0	1,193.3	1,139.0	1,110.6	2.9	4.4	-77.75	-131.2	-320.0	318.9	312.9	5.98	53.353		
1,300.0	1,292.4	1,235.9	1,202.2	3.2	5.0	-76.42	-132.1	-351.7	342.4	335.9	6.56	52.200		
1,400.0	1,391.6	1,332.8	1,293.7	3.5	5.6	-75.26	-132.9	-383.4	366.2	359.0	7.13	51.323		
1,500.0	1,490.8	1,429.7	1,385.3	3.7	6.2	-74.24	-133.8	-415.1	390.0	382.3	7.70	50.642		
1,600.0	1,590.0	1,526.5	1,476.9	4.0	6.8	-73.34	-134.7	-446.8	414.0	405.7	8.26	50.107		
1,700.0	1,689.2	1,623.4	1,568.4	4.3	7.4	-72.54	-135.5	-478.4	438.0	429.2	8.82	49.681		
1,800.0	1,788.4	1,720.3	1,660.0	4.6	8.0	-71.82	-136.4	-510.1	462.2	452.8	9.37	49.338		
1,900.0	1,887.6	1,817.2	1,751.6	4.9	8.6	-71.18	-137.3	-541.8	486.3	476.4	9.91	49.060		
2,000.0	1,986.8	1,914.1	1,843.1	5.2	9.2	-70.59	-138.1	-573.5	510.6	500.1	10.46	48.833		
2,100.0	2,086.0	2,011.0	1,934.7	5.4	9.8	-70.06	-139.0	-605.2	534.9	523.9	10.99	48.645		
2,200.0	2,185.2	2,107.9	2,026.2	5.7	10.5	-69.57	-139.8	-636.9	559.2	547.6	11.53	48.490		
2,300.0	2,284.4	2,204.8	2,117.8	6.0	11.1	-69.12	-140.7	-668.5	583.5	571.5	12.07	48.361		
2,400.0	2,383.6	2,301.7	2,209.4	6.3	11.7	-68.71	-141.6	-700.2	607.9	595.3	12.60	48.253		
2,500.0	2,482.8	2,398.6	2,300.9	6.6	12.3	-68.33	-142.4	-731.9	632.3	619.2	13.13	48.163		
2,600.0	2,582.0	2,495.5	2,392.5	6.8	12.9	-67.98	-143.3	-763.6	656.8	643.1	13.66	48.087		
2,700.0	2,681.2	2,592.4	2,484.0	7.1	13.5	-67.66	-144.2	-795.3	681.2	667.0	14.19	48.023		
2,800.0	2,780.4	2,689.3	2,575.6	7.4	14.1	-67.35	-145.0	-827.0	705.7	691.0	14.71	47.970		
2,900.0	2,879.6	2,786.1	2,667.2	7.7	14.7	-67.07	-145.9	-858.6	730.2	715.0	15.24	47.925		
3,000.0	2,978.8	2,883.0	2,758.7	8.0	15.3	-66.81	-146.8	-890.3	754.7	738.9	15.76	47.887		
3,100.0	3,078.0	2,979.9	2,850.3	8.3	15.9	-66.56	-147.6	-922.0	779.2	762.9	16.28	47.855		
3,200.0	3,177.2	3,076.8	2,941.9	8.5	16.5	-66.33	-148.5	-953.7	803.8	787.0	16.81	47.828		
3,300.0	3,276.4	3,173.7	3,033.4	8.8	17.1	-66.11	-149.3	-985.4	828.3	811.0	17.33	47.806		
3,400.0	3,375.5	3,270.6	3,125.0	9.1	17.7	-65.90	-150.2	-1,017.1	852.9	835.0	17.85	47.788		
3,500.0	3,474.7	3,367.5	3,216.5	9.4	18.3	-65.71	-151.1	-1,048.7	877.4	859.1	18.37	47.773		
3,600.0	3,573.9	3,464.4	3,308.1	9.7	18.9	-65.52	-151.9	-1,080.4	902.0	883.1	18.89	47.761		
3,700.0	3,673.1	3,561.3	3,399.7	9.9	19.5	-65.35	-152.8	-1,112.1	926.6	907.2	19.40	47.751		
3,800.0	3,772.3	3,658.2	3,491.2	10.2	20.1	-65.18	-153.7	-1,143.8	951.2	931.3	19.92	47.743		
3,900.0	3,871.5	3,755.1	3,582.8	10.5	20.7	-65.02	-154.5	-1,175.5	975.8	955.4	20.44	47.738		
4,000.0	3,970.7	3,852.0	3,674.4	10.8	21.3	-64.88	-155.4	-1,207.2	1,000.4	979.5	20.96	47.733		
4,100.0	4,069.9	3,948.9	3,765.9	11.1	22.0	-64.73	-156.2	-1,238.8	1,025.0	1,003.6	21.48	47.731		
4,200.0	4,169.1	4,045.8	3,857.5	11.4	22.6	-64.60	-157.1	-1,270.5	1,049.7	1,027.7	21.99	47.729		
4,300.0	4,268.3	4,142.6	3,949.0	11.6	23.2	-64.47	-158.0	-1,302.2	1,074.3	1,051.8	22.51	47.728 SF		
4,400.0	4,367.5	4,239.5	4,040.6	11.9	23.8	-64.34	-158.8	-1,333.9	1,098.9	1,075.9	23.02	47.729		
4,500.0	4,466.7	4,336.4	4,132.2	12.2	24.4	-64.23	-159.7	-1,365.6	1,123.5	1,100.0	23.54	47.730		
4,600.0	4,565.9	4,433.3	4,223.7	12.5	25.0	-64.11	-160.6	-1,397.3	1,148.2	1,124.1	24.06	47.731		
4,700.0	4,665.1	4,530.2	4,315.3	12.8	25.6	-64.01	-161.4	-1,428.9	1,172.8	1,148.3	24.57	47.734		
4,800.0	4,764.3	4,627.1	4,406.9	13.1	26.2	-63.90	-162.3	-1,460.6	1,197.5	1,172.4	25.08	47.737		
4,900.0	4,863.5	4,724.0	4,498.4	13.3	26.8	-63.80	-163.2	-1,492.3	1,222.1	1,196.5	25.60	47.740		

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 16-13A (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 16-13A (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	-153.08	-10.6	-5.4	11.9					
100.0	100.0	100.0	100.0	0.1	0.1	-153.08	-10.6	-5.4	11.9	11.6	0.27	43.529		
200.0	200.0	200.0	200.0	0.3	0.3	-153.08	-10.6	-5.4	11.9	11.2	0.62	19.074		
300.0	300.0	300.0	300.0	0.5	0.5	-113.55	-10.6	-5.4	12.7	11.7	0.98	12.946		
400.0	399.6	399.6	399.6	0.7	0.7	-137.90	-10.6	-5.4	17.4	16.0	1.34	12.930		
500.0	498.9	500.1	500.1	1.0	0.8	-152.69	-8.9	-7.4	25.3	23.6	1.70	14.930		
600.0	598.1	601.3	601.0	1.2	1.0	-157.04	-3.9	-13.6	29.7	27.6	2.06	14.401		
700.0	697.3	702.8	701.5	1.5	1.3	-156.71	4.5	-24.0	29.2	26.7	2.45	11.932		
800.0	796.5	803.9	800.9	1.8	1.7	-151.24	16.2	-38.4	23.9	21.0	2.90	8.245		
900.0	895.7	904.1	898.3	2.1	2.1	-130.77	31.0	-56.8	15.2	11.4	3.72	4.067		
965.2	960.4	968.7	960.4	2.2	2.4	-89.74	42.3	-70.7	11.4	6.7	4.66	2.442 CC, ES, SF		
1,000.0	994.9	1,002.9	992.9	2.3	2.6	-61.52	48.8	-78.7	13.0	8.3	4.64	2.796		
1,100.0	1,094.1	1,100.0	1,084.4	2.6	3.2	-22.82	69.2	-104.0	29.7	25.6	4.15	7.170		
1,200.0	1,193.3	1,195.6	1,173.0	2.9	3.8	-12.31	91.8	-131.9	54.2	50.0	4.27	12.695		
1,300.0	1,292.4	1,292.1	1,262.2	3.2	4.5	-8.24	115.0	-160.6	80.1	75.5	4.55	17.585		
1,400.0	1,391.6	1,388.6	1,351.3	3.5	5.2	-6.16	138.2	-189.3	106.1	101.2	4.87	21.785		
1,500.0	1,490.8	1,485.1	1,440.5	3.7	5.8	-4.90	161.4	-217.9	132.1	127.0	5.20	25.425		
1,600.0	1,590.0	1,581.6	1,529.7	4.0	6.5	-4.05	184.6	-246.6	158.3	152.7	5.53	28.611		
1,700.0	1,689.2	1,678.1	1,618.9	4.3	7.2	-3.45	207.8	-275.3	184.4	178.6	5.87	31.423		
1,800.0	1,788.4	1,774.6	1,708.1	4.6	7.9	-2.99	231.0	-303.9	210.6	204.4	6.21	33.922		
1,900.0	1,887.6	1,871.1	1,797.2	4.9	8.6	-2.64	254.2	-332.6	236.8	230.2	6.55	36.159		
2,000.0	1,986.8	1,967.6	1,886.4	5.2	9.3	-2.35	277.4	-361.3	262.9	256.0	6.89	38.172		
2,100.0	2,086.0	2,064.1	1,975.6	5.4	9.9	-2.12	300.6	-390.0	289.1	281.9	7.23	39.993		
2,200.0	2,185.2	2,160.6	2,064.8	5.7	10.6	-1.93	323.8	-418.6	315.3	307.7	7.57	41.650		
2,300.0	2,284.4	2,257.1	2,154.0	6.0	11.3	-1.76	347.0	-447.3	341.5	333.6	7.91	43.162		
2,400.0	2,383.6	2,353.6	2,243.2	6.3	12.0	-1.62	370.2	-476.0	367.7	359.4	8.25	44.549		
2,500.0	2,482.8	2,450.1	2,332.3	6.6	12.7	-1.50	393.3	-504.6	393.9	385.3	8.60	45.825		
2,600.0	2,582.0	2,546.6	2,421.5	6.8	13.4	-1.39	416.5	-533.3	420.1	411.1	8.94	47.003		
2,700.0	2,681.2	2,643.1	2,510.7	7.1	14.1	-1.30	439.7	-562.0	446.3	437.0	9.28	48.094		
2,800.0	2,780.4	2,739.7	2,599.9	7.4	14.8	-1.22	462.9	-590.6	472.5	462.8	9.62	49.108		
2,900.0	2,879.6	2,836.2	2,689.1	7.7	15.4	-1.14	486.1	-619.3	498.7	488.7	9.96	50.051		
3,000.0	2,978.8	2,932.7	2,778.2	8.0	16.1	-1.07	509.3	-648.0	524.9	514.6	10.31	50.932		
3,100.0	3,078.0	3,029.2	2,867.4	8.3	16.8	-1.01	532.5	-676.7	551.1	540.4	10.65	51.756		
3,200.0	3,177.2	3,125.7	2,956.6	8.5	17.5	-0.96	555.7	-705.3	577.3	566.3	10.99	52.529		
3,300.0	3,276.4	3,222.2	3,045.8	8.8	18.2	-0.90	578.9	-734.0	603.5	592.1	11.33	53.254		
3,400.0	3,375.5	3,318.7	3,135.0	9.1	18.9	-0.86	602.1	-762.7	629.7	618.0	11.67	53.938		
3,500.0	3,474.7	3,415.2	3,224.2	9.4	19.6	-0.82	625.3	-791.3	655.9	643.8	12.02	54.582		
3,600.0	3,573.9	3,511.7	3,313.3	9.7	20.3	-0.78	648.5	-820.0	682.1	669.7	12.36	55.191		
3,700.0	3,673.1	3,608.2	3,402.5	9.9	21.0	-0.74	671.7	-848.7	708.3	695.6	12.70	55.767		
3,800.0	3,772.3	3,704.7	3,491.7	10.2	21.7	-0.71	694.9	-877.3	734.5	721.4	13.04	56.312		
3,900.0	3,871.5	3,801.2	3,580.9	10.5	22.4	-0.67	718.1	-906.0	760.7	747.3	13.38	56.830		
4,000.0	3,970.7	3,897.7	3,670.1	10.8	23.0	-0.64	741.3	-934.7	786.9	773.1	13.73	57.322		
4,100.0	4,069.9	3,994.2	3,759.2	11.1	23.7	-0.62	764.5	-963.4	813.1	799.0	14.07	57.790		
4,200.0	4,169.1	4,090.7	3,848.4	11.4	24.4	-0.59	787.6	-992.0	839.3	824.9	14.41	58.235		
4,300.0	4,268.3	4,187.2	3,937.6	11.6	25.1	-0.57	810.8	-1,020.7	865.5	850.7	14.75	58.660		
4,400.0	4,367.5	4,283.7	4,026.8	11.9	25.8	-0.54	834.0	-1,049.4	891.7	876.6	15.10	59.066		
4,500.0	4,466.7	4,380.2	4,116.0	12.2	26.5	-0.52	857.2	-1,078.0	917.9	902.4	15.44	59.454		
4,600.0	4,565.9	4,476.7	4,205.2	12.5	27.2	-0.50	880.4	-1,106.7	944.1	928.3	15.78	59.824		
4,700.0	4,665.1	4,573.3	4,294.3	12.8	27.9	-0.48	903.6	-1,135.4	970.3	954.2	16.12	60.180		
4,800.0	4,764.3	4,669.8	4,383.5	13.1	28.6	-0.46	926.8	-1,164.0	996.5	980.0	16.47	60.520		
4,900.0	4,863.5	4,766.3	4,472.7	13.3	29.3	-0.45	950.0	-1,192.7	1,022.7	1,005.9	16.81	60.846		
5,000.0	4,962.7	4,862.8	4,561.9	13.6	30.0	-0.43	973.2	-1,221.4	1,048.9	1,031.7	17.15	61.160		

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 16-13A (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 16-13A (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	
5,100.0	5,061.9	4,959.3	4,651.1	13.9	30.7	-0.41	996.4	-1,250.1	1,075.1	1,057.6	17.49	61.461	
5,200.0	5,161.1	5,055.8	4,740.2	14.2	31.3	-0.40	1,019.6	-1,278.7	1,101.3	1,083.5	17.83	61.751	
5,300.0	5,260.3	5,152.3	4,829.4	14.5	32.0	-0.38	1,042.8	-1,307.4	1,127.5	1,109.3	18.18	62.029	
5,400.0	5,359.5	5,248.8	4,918.6	14.7	32.7	-0.37	1,066.0	-1,336.1	1,153.7	1,135.2	18.52	62.298	
5,500.0	5,458.6	5,345.3	5,007.8	15.0	33.4	-0.36	1,089.2	-1,364.7	1,179.9	1,161.0	18.86	62.557	
5,600.0	5,557.8	5,441.8	5,097.0	15.3	34.1	-0.35	1,112.4	-1,393.4	1,206.1	1,186.9	19.20	62.806	
5,700.0	5,657.0	5,538.3	5,186.2	15.6	34.8	-0.33	1,135.6	-1,422.1	1,232.3	1,212.8	19.55	63.047	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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 17-9B2 (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							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	-92.83	-5.8	-117.8	117.9					
100.0	100.0	100.0	100.0	0.1	0.1	-92.83	-5.8	-117.8	117.9	117.6	0.27	433.079		
200.0	200.0	200.0	200.0	0.3	0.3	-92.83	-5.8	-117.8	117.9	117.3	0.62	189.776	CC	
300.0	300.0	295.1	295.1	0.5	0.5	-41.82	-4.6	-119.8	118.0	117.1	0.97	121.946		
400.0	399.6	390.2	389.9	0.7	0.7	-42.30	-1.0	-125.9	118.4	117.0	1.34	88.150	ES	
500.0	498.9	485.4	484.3	1.0	1.0	-42.84	5.1	-136.0	119.6	117.8	1.76	67.997		
600.0	598.1	580.3	577.8	1.2	1.3	-42.24	13.6	-150.1	124.6	122.4	2.20	56.523		
700.0	697.3	674.5	669.6	1.5	1.7	-40.57	24.3	-168.0	133.7	131.0	2.66	50.232		
800.0	796.5	767.5	759.2	1.8	2.2	-38.19	37.2	-189.5	147.1	144.0	3.11	47.231		
900.0	895.7	859.1	846.1	2.1	2.7	-35.47	52.1	-214.3	165.0	161.4	3.55	46.451	SF	
1,000.0	994.9	952.5	933.4	2.3	3.4	-32.70	69.2	-242.8	186.9	182.9	3.96	47.181		
1,100.0	1,094.1	1,049.5	1,023.8	2.6	4.0	-30.34	87.2	-272.9	209.8	205.4	4.36	48.118		
1,200.0	1,193.3	1,146.5	1,114.3	2.9	4.7	-28.45	105.3	-302.9	232.9	228.2	4.75	49.083		
1,300.0	1,292.4	1,243.6	1,204.8	3.2	5.3	-26.90	123.3	-333.0	256.3	251.1	5.12	50.026		
1,400.0	1,391.6	1,340.6	1,295.2	3.5	6.0	-25.61	141.4	-363.1	279.8	274.3	5.49	50.924		
1,500.0	1,490.8	1,437.6	1,385.7	3.7	6.6	-24.52	159.4	-393.1	303.4	297.5	5.86	51.767		
1,600.0	1,590.0	1,534.6	1,476.2	4.0	7.3	-23.58	177.4	-423.2	327.1	320.8	6.22	52.554		
1,700.0	1,689.2	1,631.6	1,566.6	4.3	7.9	-22.77	195.5	-453.3	350.8	344.2	6.58	53.284		
1,800.0	1,788.4	1,728.7	1,657.1	4.6	8.6	-22.07	213.5	-483.3	374.6	367.7	6.94	53.961		
1,900.0	1,887.6	1,825.7	1,747.6	4.9	9.3	-21.45	231.6	-513.4	398.5	391.2	7.30	54.588		
2,000.0	1,986.8	1,922.7	1,838.0	5.2	9.9	-20.89	249.6	-543.5	422.4	414.8	7.66	55.169		
2,100.0	2,086.0	2,019.7	1,928.5	5.4	10.6	-20.40	267.6	-573.5	446.4	438.4	8.01	55.708		
2,200.0	2,185.2	2,116.8	2,019.0	5.7	11.2	-19.96	285.7	-603.6	470.3	462.0	8.37	56.209		
2,300.0	2,284.4	2,213.8	2,109.4	6.0	11.9	-19.56	303.7	-633.7	494.3	485.6	8.72	56.675		
2,400.0	2,383.6	2,310.8	2,199.9	6.3	12.6	-19.20	321.8	-663.7	518.4	509.3	9.08	57.109		
2,500.0	2,482.8	2,407.8	2,290.4	6.6	13.2	-18.87	339.8	-693.8	542.4	533.0	9.43	57.513		
2,600.0	2,582.0	2,504.9	2,380.8	6.8	13.9	-18.57	357.8	-723.9	566.4	556.7	9.78	57.892		
2,700.0	2,681.2	2,601.9	2,471.3	7.1	14.5	-18.29	375.9	-753.9	590.5	580.4	10.14	58.246		
2,800.0	2,780.4	2,698.9	2,561.8	7.4	15.2	-18.03	393.9	-784.0	614.6	604.1	10.49	58.578		
2,900.0	2,879.6	2,795.9	2,652.2	7.7	15.9	-17.80	412.0	-814.1	638.7	627.8	10.85	58.890		
3,000.0	2,978.8	2,893.0	2,742.7	8.0	16.5	-17.58	430.0	-844.1	662.8	651.6	11.20	59.183		
3,100.0	3,078.0	2,990.0	2,833.2	8.3	17.2	-17.37	448.0	-874.2	686.9	675.3	11.55	59.459		
3,200.0	3,177.2	3,087.0	2,923.6	8.5	17.8	-17.18	466.1	-904.3	711.0	699.1	11.91	59.720		
3,300.0	3,276.4	3,184.0	3,014.1	8.8	18.5	-17.01	484.1	-934.3	735.1	722.8	12.26	59.966		
3,400.0	3,375.5	3,281.1	3,104.6	9.1	19.2	-16.84	502.2	-964.4	759.2	746.6	12.61	60.199		
3,500.0	3,474.7	3,378.1	3,195.0	9.4	19.8	-16.68	520.2	-994.5	783.3	770.4	12.97	60.419		
3,600.0	3,573.9	3,475.1	3,285.5	9.7	20.5	-16.54	538.3	-1,024.5	807.5	794.2	13.32	60.628		
3,700.0	3,673.1	3,572.1	3,376.0	9.9	21.2	-16.40	556.3	-1,054.6	831.6	817.9	13.67	60.827		
3,800.0	3,772.3	3,669.1	3,466.4	10.2	21.8	-16.27	574.3	-1,084.7	855.8	841.7	14.03	61.016		
3,900.0	3,871.5	3,766.2	3,556.9	10.5	22.5	-16.14	592.4	-1,114.7	879.9	865.5	14.38	61.195		
4,000.0	3,970.7	3,863.2	3,647.4	10.8	23.1	-16.03	610.4	-1,144.8	904.1	889.3	14.73	61.367		
4,100.0	4,069.9	3,960.2	3,737.8	11.1	23.8	-15.92	628.5	-1,174.9	928.2	913.1	15.09	61.530		
4,200.0	4,169.1	4,057.2	3,828.3	11.4	24.5	-15.81	646.5	-1,204.9	952.4	936.9	15.44	61.686		
4,300.0	4,268.3	4,154.3	3,918.8	11.6	25.1	-15.71	664.5	-1,235.0	976.5	960.7	15.79	61.835		
4,400.0	4,367.5	4,251.3	4,009.2	11.9	25.8	-15.62	682.6	-1,265.1	1,000.7	984.6	16.15	61.977		
4,500.0	4,466.7	4,348.3	4,099.7	12.2	26.5	-15.53	700.6	-1,295.1	1,024.9	1,008.4	16.50	62.113		
4,600.0	4,565.9	4,445.3	4,190.2	12.5	27.1	-15.44	718.7	-1,325.2	1,049.0	1,032.2	16.85	62.244		
4,700.0	4,665.1	4,542.4	4,280.6	12.8	27.8	-15.36	736.7	-1,355.3	1,073.2	1,056.0	17.21	62.370		
4,800.0	4,764.3	4,639.4	4,371.1	13.1	28.4	-15.28	754.7	-1,385.3	1,097.4	1,079.8	17.56	62.490		
4,900.0	4,863.5	4,736.4	4,461.5	13.3	29.1	-15.20	772.8	-1,415.4	1,121.6	1,103.6	17.91	62.605		
5,000.0	4,962.7	4,833.4	4,552.0	13.6	29.8	-15.13	790.8	-1,445.5	1,145.7	1,127.5	18.27	62.716		
5,100.0	5,061.9	4,930.5	4,642.5	13.9	30.4	-15.06	808.9	-1,475.5	1,169.9	1,151.3	18.62	62.823		

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 16-13A (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 16-13A (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 17-9B2 (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis			Distance						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)			
5,200.0	5,161.1	5,027.5	4,732.9	14.2	31.1	-14.99	826.9	-1,505.6	1,194.1	1,175.1	18.98	62.926	
5,300.0	5,260.3	5,124.5	4,823.4	14.5	31.8	-14.93	844.9	-1,535.7	1,218.3	1,198.9	19.33	63.025	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-109.92	-11.7	-32.2	34.2					
100.0	100.0	100.0	100.0	0.1	0.1	-109.92	-11.7	-32.2	34.2	34.0	0.27	125.778		
200.0	200.0	200.0	200.0	0.3	0.3	-109.92	-11.7	-32.2	34.2	33.6	0.62	55.116 CC, ES		
300.0	300.0	298.7	298.7	0.5	0.5	-59.43	-10.6	-34.5	34.7	33.8	0.98	35.492		
400.0	399.6	397.4	397.1	0.7	0.7	-61.36	-7.4	-41.5	36.2	34.8	1.39	26.128		
500.0	498.9	496.1	494.9	1.0	1.0	-63.14	-2.1	-53.0	39.2	37.3	1.87	20.987		
600.0	598.1	594.4	591.6	1.2	1.3	-60.26	5.2	-69.1	45.4	43.0	2.38	19.085 SF		
700.0	697.3	691.9	686.5	1.5	1.8	-54.47	14.5	-89.5	55.4	52.6	2.87	19.332		
800.0	796.5	788.1	778.8	1.8	2.3	-48.12	25.7	-113.9	70.0	66.7	3.31	21.154		
900.0	895.7	882.5	868.0	2.1	2.9	-42.47	38.5	-141.9	89.5	85.8	3.70	24.169		
1,000.0	994.9	979.4	958.8	2.3	3.5	-38.15	52.7	-172.9	111.9	107.9	4.07	27.498		
1,100.0	1,094.1	1,076.6	1,049.7	2.6	4.1	-35.28	67.0	-204.0	134.8	130.4	4.44	30.361		
1,200.0	1,193.3	1,173.8	1,140.7	2.9	4.8	-33.23	81.2	-235.2	157.9	153.1	4.81	32.820		
1,300.0	1,292.4	1,270.9	1,231.6	3.2	5.4	-31.71	95.4	-266.3	181.1	176.0	5.18	34.944		
1,400.0	1,391.6	1,368.1	1,322.6	3.5	6.1	-30.54	109.6	-297.4	204.5	198.9	5.56	36.791		
1,500.0	1,490.8	1,465.3	1,413.5	3.7	6.7	-29.60	123.9	-328.5	227.9	221.9	5.93	38.411		
1,600.0	1,590.0	1,562.4	1,504.5	4.0	7.4	-28.84	138.1	-359.6	251.3	245.0	6.31	39.841		
1,700.0	1,689.2	1,659.6	1,595.4	4.3	8.0	-28.21	152.3	-390.7	274.8	268.1	6.68	41.111		
1,800.0	1,788.4	1,756.8	1,686.4	4.6	8.7	-27.68	166.6	-421.8	298.3	291.2	7.06	42.247		
1,900.0	1,887.6	1,853.9	1,777.3	4.9	9.3	-27.23	180.8	-452.9	321.8	314.3	7.44	43.268		
2,000.0	1,986.8	1,951.1	1,868.3	5.2	9.9	-26.84	195.0	-484.0	345.3	337.5	7.81	44.191		
2,100.0	2,086.0	2,048.3	1,959.2	5.4	10.6	-26.49	209.3	-515.1	368.9	360.7	8.19	45.029		
2,200.0	2,185.2	2,145.4	2,050.1	5.7	11.2	-26.19	223.5	-546.2	392.4	383.9	8.57	45.793		
2,300.0	2,284.4	2,242.6	2,141.1	6.0	11.9	-25.93	237.7	-577.3	416.0	407.1	8.95	46.493		
2,400.0	2,383.6	2,339.8	2,232.0	6.3	12.5	-25.69	252.0	-608.4	439.6	430.3	9.33	47.136		
2,500.0	2,482.8	2,436.9	2,323.0	6.6	13.2	-25.47	266.2	-639.5	463.2	453.5	9.70	47.728		
2,600.0	2,582.0	2,534.1	2,413.9	6.8	13.8	-25.28	280.4	-670.6	486.8	476.7	10.08	48.277		
2,700.0	2,681.2	2,631.2	2,504.9	7.1	14.5	-25.10	294.7	-701.7	510.3	499.9	10.46	48.785		
2,800.0	2,780.4	2,728.4	2,595.8	7.4	15.1	-24.95	308.9	-732.8	533.9	523.1	10.84	49.258		
2,900.0	2,879.6	2,825.6	2,686.8	7.7	15.8	-24.80	323.1	-764.0	557.5	546.3	11.22	49.699		
3,000.0	2,978.8	2,922.7	2,777.7	8.0	16.4	-24.66	337.4	-795.1	581.2	569.6	11.60	50.111		
3,100.0	3,078.0	3,019.9	2,868.6	8.3	17.1	-24.54	351.6	-826.2	604.8	592.8	11.98	50.497		
3,200.0	3,177.2	3,117.1	2,959.6	8.5	17.7	-24.43	365.8	-857.3	628.4	616.0	12.36	50.859		
3,300.0	3,276.4	3,214.2	3,050.5	8.8	18.4	-24.32	380.0	-888.4	652.0	639.2	12.73	51.199		
3,400.0	3,375.5	3,311.4	3,141.5	9.1	19.0	-24.22	394.3	-919.5	675.6	662.5	13.11	51.520		
3,500.0	3,474.7	3,408.6	3,232.4	9.4	19.7	-24.13	408.5	-950.6	699.2	685.7	13.49	51.823		
3,600.0	3,573.9	3,505.7	3,323.4	9.7	20.3	-24.04	422.7	-981.7	722.8	709.0	13.87	52.109		
3,700.0	3,673.1	3,602.9	3,414.3	9.9	21.0	-23.96	437.0	-1,012.8	746.5	732.2	14.25	52.380		
3,800.0	3,772.3	3,700.1	3,505.3	10.2	21.6	-23.89	451.2	-1,043.9	770.1	755.4	14.63	52.637		
3,900.0	3,871.5	3,797.2	3,596.2	10.5	22.3	-23.81	465.4	-1,075.0	793.7	778.7	15.01	52.881		
4,000.0	3,970.7	3,894.4	3,687.2	10.8	22.9	-23.75	479.7	-1,106.1	817.3	801.9	15.39	53.112		
4,100.0	4,069.9	3,991.6	3,778.1	11.1	23.6	-23.68	493.9	-1,137.2	840.9	825.2	15.77	53.333		
4,200.0	4,169.1	4,088.7	3,869.0	11.4	24.2	-23.62	508.1	-1,168.3	864.6	848.4	16.15	53.543		
4,300.0	4,268.3	4,185.9	3,960.0	11.6	24.9	-23.57	522.4	-1,199.4	888.2	871.7	16.53	53.744		
4,400.0	4,367.5	4,283.1	4,050.9	11.9	25.5	-23.51	536.6	-1,230.5	911.8	894.9	16.91	53.935		
4,500.0	4,466.7	4,380.2	4,141.9	12.2	26.2	-23.46	550.8	-1,261.6	935.4	918.2	17.29	54.118		
4,600.0	4,565.9	4,477.4	4,232.8	12.5	26.8	-23.41	565.1	-1,292.7	959.1	941.4	17.66	54.294		
4,700.0	4,665.1	4,574.6	4,323.8	12.8	27.5	-23.37	579.3	-1,323.9	982.7	964.7	18.04	54.461		
4,800.0	4,764.3	4,671.7	4,414.7	13.1	28.1	-23.32	593.5	-1,355.0	1,006.3	987.9	18.42	54.622		
4,900.0	4,863.5	4,768.9	4,505.7	13.3	28.8	-23.28	607.7	-1,386.1	1,030.0	1,011.2	18.80	54.777		
5,000.0	4,962.7	4,866.1	4,596.6	13.6	29.4	-23.24	622.0	-1,417.2	1,053.6	1,034.4	19.18	54.925		
5,100.0	5,061.9	4,963.2	4,687.5	13.9	30.1	-23.20	636.2	-1,448.3	1,077.2	1,057.7	19.56	55.067		

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 16-13A (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 16-13A (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 +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)						
5,200.0	5,161.1	5,060.4	4,778.5	14.2	30.7	-23.17	650.4	-1,479.4	1,100.9	1,080.9	19.94	55.205				
5,300.0	5,260.3	5,157.5	4,869.4	14.5	31.4	-23.13	664.7	-1,510.5	1,124.5	1,104.2	20.32	55.336				
5,400.0	5,359.5	5,254.7	4,960.4	14.7	32.0	-23.10	678.9	-1,541.6	1,148.1	1,127.4	20.70	55.464				
5,500.0	5,458.6	5,351.9	5,051.3	15.0	32.6	-23.06	693.1	-1,572.7	1,171.7	1,150.7	21.08	55.586				
5,600.0	5,557.8	5,449.0	5,142.3	15.3	33.3	-23.03	707.4	-1,603.8	1,195.4	1,173.9	21.46	55.704				
5,700.0	5,657.0	5,546.2	5,233.2	15.6	33.9	-23.00	721.6	-1,634.9	1,219.0	1,197.2	21.84	55.818				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU 16-13A (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 16-13A (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				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-120.79	-22.2	-37.3	43.4					
100.0	100.0	100.0	100.0	0.1	0.1	-120.79	-22.2	-37.3	43.4	43.1	0.27	159.395		
200.0	200.0	200.0	200.0	0.3	0.3	-120.79	-22.2	-37.3	43.4	42.8	0.62	69.847		
232.3	232.3	232.1	232.1	0.4	0.4	-70.16	-22.4	-37.3	43.4	42.7	0.74	58.928 CC		
300.0	300.0	299.1	299.1	0.5	0.5	-74.75	-23.9	-37.3	43.6	42.6	0.98	44.476 ES		
400.0	399.6	397.7	397.6	0.7	0.7	-88.23	-28.4	-37.8	45.9	44.5	1.37	33.354		
500.0	498.9	496.8	496.5	1.0	0.9	-99.95	-31.1	-42.2	51.6	49.8	1.80	28.729		
600.0	598.1	596.6	595.9	1.2	1.1	-104.56	-31.4	-51.2	58.6	56.3	2.26	25.963		
700.0	697.3	696.6	695.0	1.5	1.3	-103.63	-29.1	-64.8	65.3	62.5	2.78	23.481		
800.0	796.5	796.3	792.9	1.8	1.7	-98.71	-24.4	-82.8	71.9	68.6	3.38	21.305		
900.0	895.7	895.2	888.9	2.1	2.1	-91.00	-17.2	-105.1	79.6	75.6	4.02	19.816		
1,000.0	994.9	993.0	982.7	2.3	2.6	-81.77	-7.8	-131.2	89.9	85.3	4.63	19.401 SF		
1,100.0	1,094.1	1,091.3	1,076.6	2.6	3.1	-73.81	2.3	-158.6	102.7	97.5	5.18	19.820		
1,200.0	1,193.3	1,189.6	1,170.4	2.9	3.6	-67.68	12.4	-186.0	117.0	111.3	5.68	20.604		
1,300.0	1,292.4	1,287.9	1,264.3	3.2	4.1	-62.90	22.5	-213.4	132.3	126.2	6.14	21.542		
1,400.0	1,391.6	1,386.1	1,358.1	3.5	4.7	-59.13	32.6	-240.8	148.3	141.8	6.59	22.525		
1,500.0	1,490.8	1,484.4	1,451.9	3.7	5.2	-56.10	42.7	-268.2	164.9	157.9	7.02	23.496		
1,600.0	1,590.0	1,582.7	1,545.8	4.0	5.8	-53.63	52.8	-295.6	181.8	174.4	7.44	24.429		
1,700.0	1,689.2	1,681.0	1,639.6	4.3	6.3	-51.57	62.9	-323.0	199.0	191.2	7.86	25.313		
1,800.0	1,788.4	1,779.3	1,733.5	4.6	6.9	-49.85	73.0	-350.4	216.4	208.2	8.28	26.141		
1,900.0	1,887.6	1,877.5	1,827.3	4.9	7.4	-48.38	83.1	-377.8	234.0	225.3	8.69	26.915		
2,000.0	1,986.8	1,975.8	1,921.1	5.2	8.0	-47.12	93.2	-405.3	251.7	242.6	9.11	27.637		
2,100.0	2,086.0	2,074.1	2,015.0	5.4	8.5	-46.02	103.3	-432.7	269.5	260.0	9.52	28.309		
2,200.0	2,185.2	2,172.4	2,108.8	5.7	9.1	-45.06	113.4	-460.1	287.4	277.5	9.93	28.935		
2,300.0	2,284.4	2,270.7	2,202.7	6.0	9.6	-44.21	123.5	-487.5	305.3	295.0	10.34	29.519		
2,400.0	2,383.6	2,368.9	2,296.5	6.3	10.2	-43.46	133.6	-514.9	323.4	312.6	10.76	30.064		
2,500.0	2,482.8	2,467.2	2,390.3	6.6	10.7	-42.78	143.7	-542.3	341.4	330.2	11.17	30.573		
2,600.0	2,582.0	2,565.5	2,484.2	6.8	11.3	-42.18	153.8	-569.7	359.5	347.9	11.58	31.050		
2,700.0	2,681.2	2,663.8	2,578.0	7.1	11.8	-41.63	163.9	-597.1	377.7	365.7	11.99	31.497		
2,800.0	2,780.4	2,762.1	2,671.9	7.4	12.4	-41.13	173.9	-624.5	395.8	383.4	12.40	31.917		
2,900.0	2,879.6	2,860.3	2,765.7	7.7	12.9	-40.67	184.0	-651.9	414.0	401.2	12.81	32.311		
3,000.0	2,978.8	2,958.6	2,859.5	8.0	13.5	-40.26	194.1	-679.3	432.2	419.0	13.23	32.683		
3,100.0	3,078.0	3,056.9	2,953.4	8.3	14.1	-39.88	204.2	-706.7	450.5	436.8	13.64	33.033		
3,200.0	3,177.2	3,155.2	3,047.2	8.5	14.6	-39.52	214.3	-734.1	468.7	454.7	14.05	33.364		
3,300.0	3,276.4	3,253.5	3,141.1	8.8	15.2	-39.20	224.4	-761.5	487.0	472.5	14.46	33.677		
3,400.0	3,375.5	3,351.7	3,234.9	9.1	15.7	-38.89	234.5	-788.9	505.3	490.4	14.87	33.973		
3,500.0	3,474.7	3,450.0	3,328.7	9.4	16.3	-38.61	244.6	-816.3	523.6	508.3	15.29	34.254		
3,600.0	3,573.9	3,548.3	3,422.6	9.7	16.8	-38.35	254.7	-843.7	541.9	526.2	15.70	34.521		
3,700.0	3,673.1	3,646.6	3,516.4	9.9	17.4	-38.10	264.8	-871.1	560.2	544.1	16.11	34.774		
3,800.0	3,772.3	3,744.9	3,610.3	10.2	17.9	-37.87	274.9	-898.5	578.5	562.0	16.52	35.016		
3,900.0	3,871.5	3,843.1	3,704.1	10.5	18.5	-37.66	285.0	-925.9	596.9	580.0	16.93	35.246		
4,000.0	3,970.7	3,941.4	3,797.9	10.8	19.1	-37.45	295.1	-953.3	615.2	597.9	17.35	35.465		
4,100.0	4,069.9	4,039.7	3,891.8	11.1	19.6	-37.26	305.2	-980.8	633.6	615.8	17.76	35.674		
4,200.0	4,169.1	4,138.0	3,985.6	11.4	20.2	-37.08	315.3	-1,008.2	651.9	633.8	18.17	35.874		
4,300.0	4,268.3	4,236.3	4,079.5	11.6	20.7	-36.91	325.4	-1,035.6	670.3	651.7	18.59	36.066		
4,400.0	4,367.5	4,334.5	4,173.3	11.9	21.3	-36.75	335.5	-1,063.0	688.7	669.7	19.00	36.249		
4,500.0	4,466.7	4,432.8	4,267.1	12.2	21.8	-36.60	345.6	-1,090.4	707.1	687.6	19.41	36.425		
4,600.0	4,565.9	4,531.1	4,361.0	12.5	22.4	-36.45	355.7	-1,117.8	725.4	705.6	19.82	36.593		
4,700.0	4,665.1	4,629.4	4,454.8	12.8	22.9	-36.31	365.8	-1,145.2	743.8	723.6	20.24	36.755		
4,800.0	4,764.3	4,727.7	4,548.7	13.1	23.5	-36.18	375.9	-1,172.6	762.2	741.6	20.65	36.910		
4,900.0	4,863.5	4,825.9	4,642.5	13.3	24.1	-36.06	386.0	-1,200.0	780.6	759.5	21.06	37.059		
5,000.0	4,962.7	4,924.2	4,736.3	13.6	24.6	-35.94	396.1	-1,227.4	799.0	777.5	21.48	37.203		

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 16-13A (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 16-13A (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				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		
5,100.0	5,061.9	5,022.5	4,830.2	13.9	25.2	-35.82	406.2	-1,254.8	817.4	795.5	21.89	37.341		
5,200.0	5,161.1	5,120.8	4,924.0	14.2	25.7	-35.71	416.3	-1,282.2	835.8	813.5	22.30	37.475		
5,300.0	5,260.3	5,219.1	5,017.9	14.5	26.3	-35.61	426.4	-1,309.6	854.2	831.5	22.72	37.603		
5,400.0	5,359.5	5,317.3	5,111.7	14.7	26.8	-35.51	436.5	-1,337.0	872.6	849.5	23.13	37.727		
5,500.0	5,458.6	5,415.6	5,205.5	15.0	27.4	-35.41	446.6	-1,364.4	891.0	867.5	23.54	37.847		
5,600.0	5,557.8	5,513.9	5,299.4	15.3	27.9	-35.32	456.7	-1,391.8	909.4	885.5	23.96	37.962		
5,700.0	5,657.0	5,612.2	5,393.2	15.6	28.5	-35.23	466.8	-1,419.2	927.8	903.5	24.37	38.074		
5,800.0	5,756.2	5,710.5	5,487.1	15.9	29.1	-35.15	476.9	-1,446.6	946.3	921.5	24.78	38.182		
5,900.0	5,855.4	5,808.7	5,580.9	16.2	29.6	-35.07	487.0	-1,474.0	964.7	939.5	25.20	38.286		
6,000.0	5,954.6	5,907.0	5,674.7	16.4	30.2	-34.99	497.1	-1,501.4	983.1	957.5	25.61	38.388		
6,100.0	6,053.8	6,005.3	5,768.6	16.7	30.7	-34.91	507.2	-1,528.8	1,001.5	975.5	26.02	38.486		
6,200.0	6,153.0	6,103.6	5,862.4	17.0	31.3	-34.84	517.3	-1,556.3	1,020.0	993.5	26.44	38.581		
6,300.0	6,252.2	6,201.9	5,956.3	17.3	31.8	-34.77	527.4	-1,583.7	1,038.4	1,011.5	26.85	38.673		
6,400.0	6,351.4	6,300.1	6,050.1	17.6	32.4	-34.70	537.5	-1,611.1	1,056.8	1,029.5	27.26	38.762		
6,500.0	6,450.6	6,398.4	6,143.9	17.9	32.9	-34.63	547.6	-1,638.5	1,075.2	1,047.6	27.68	38.848		
6,600.0	6,549.8	6,496.7	6,237.8	18.1	33.5	-34.57	557.7	-1,665.9	1,093.7	1,065.6	28.09	38.933		
6,700.0	6,649.0	6,595.0	6,331.6	18.4	34.1	-34.51	567.8	-1,693.3	1,112.1	1,083.6	28.50	39.014		
6,800.0	6,748.2	6,693.3	6,425.5	18.7	34.6	-34.45	577.9	-1,720.7	1,130.5	1,101.6	28.92	39.094		
6,900.0	6,847.4	6,791.5	6,519.3	19.0	35.2	-34.39	588.0	-1,748.1	1,149.0	1,119.6	29.33	39.171		
7,000.0	6,946.6	6,889.8	6,613.1	19.3	35.7	-34.34	598.1	-1,775.5	1,167.4	1,137.6	29.75	39.246		
7,100.0	7,045.8	6,988.1	6,707.0	19.5	36.3	-34.28	608.2	-1,802.9	1,185.8	1,155.7	30.16	39.319		
7,200.0	7,145.0	7,086.4	6,800.8	19.8	36.8	-34.23	618.3	-1,830.3	1,204.3	1,173.7	30.57	39.390		
7,300.0	7,244.2	7,184.7	6,894.7	20.1	37.4	-34.18	628.4	-1,857.7	1,222.7	1,191.7	30.99	39.459		

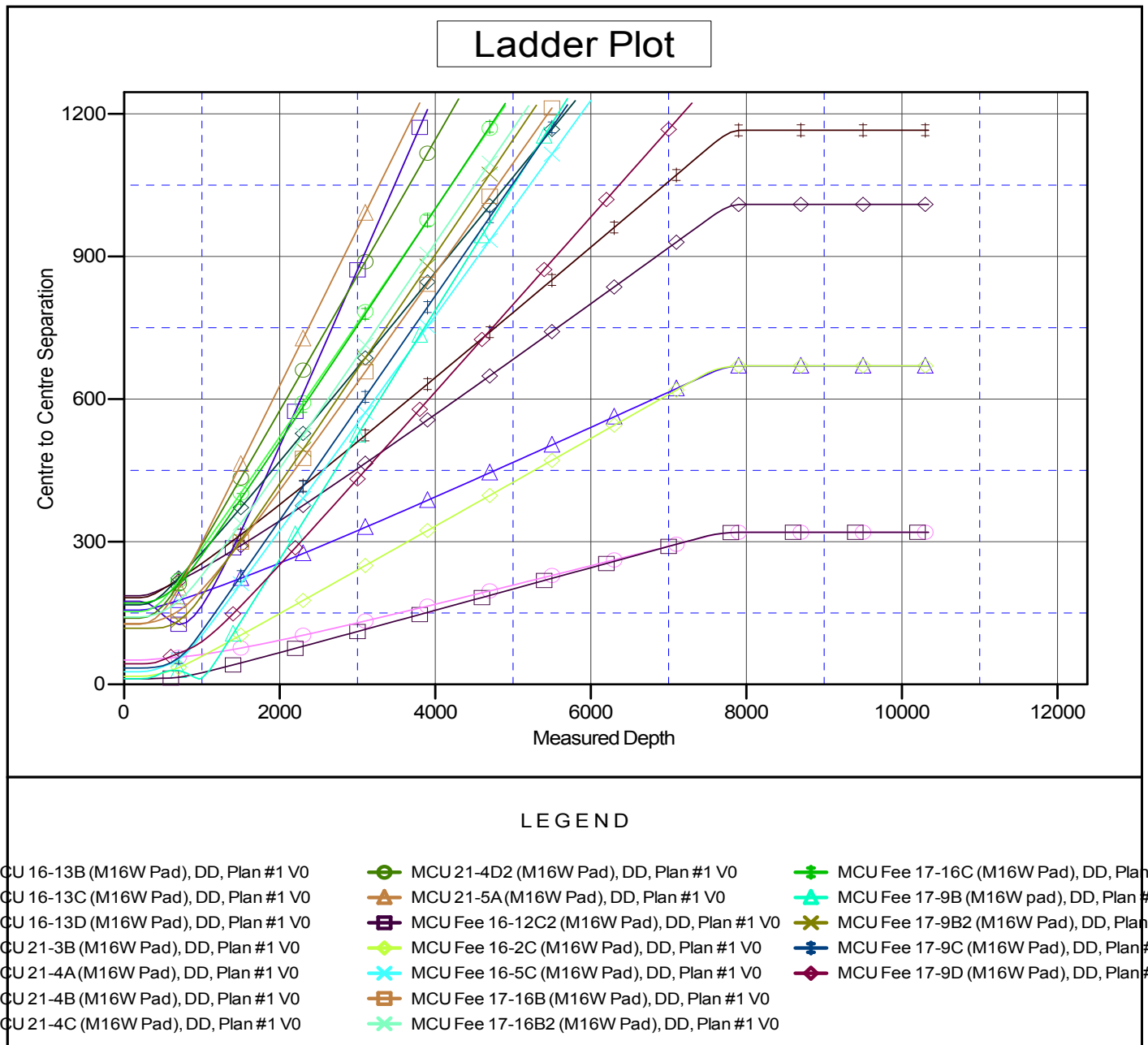
Cathedral Energy Services

Anticollision Report

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Reference Well:	MCU 16-13A (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 16-13A (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