

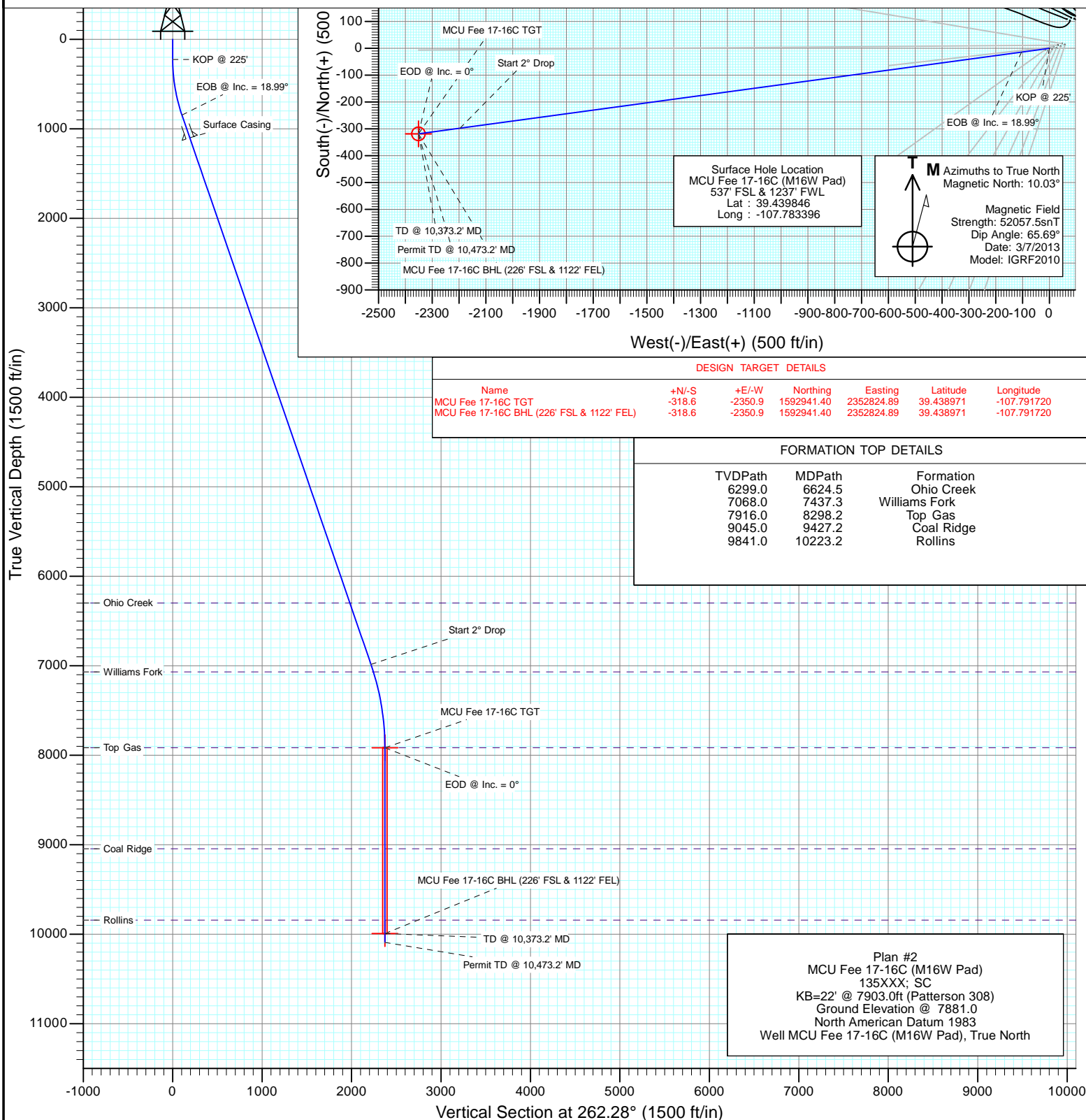


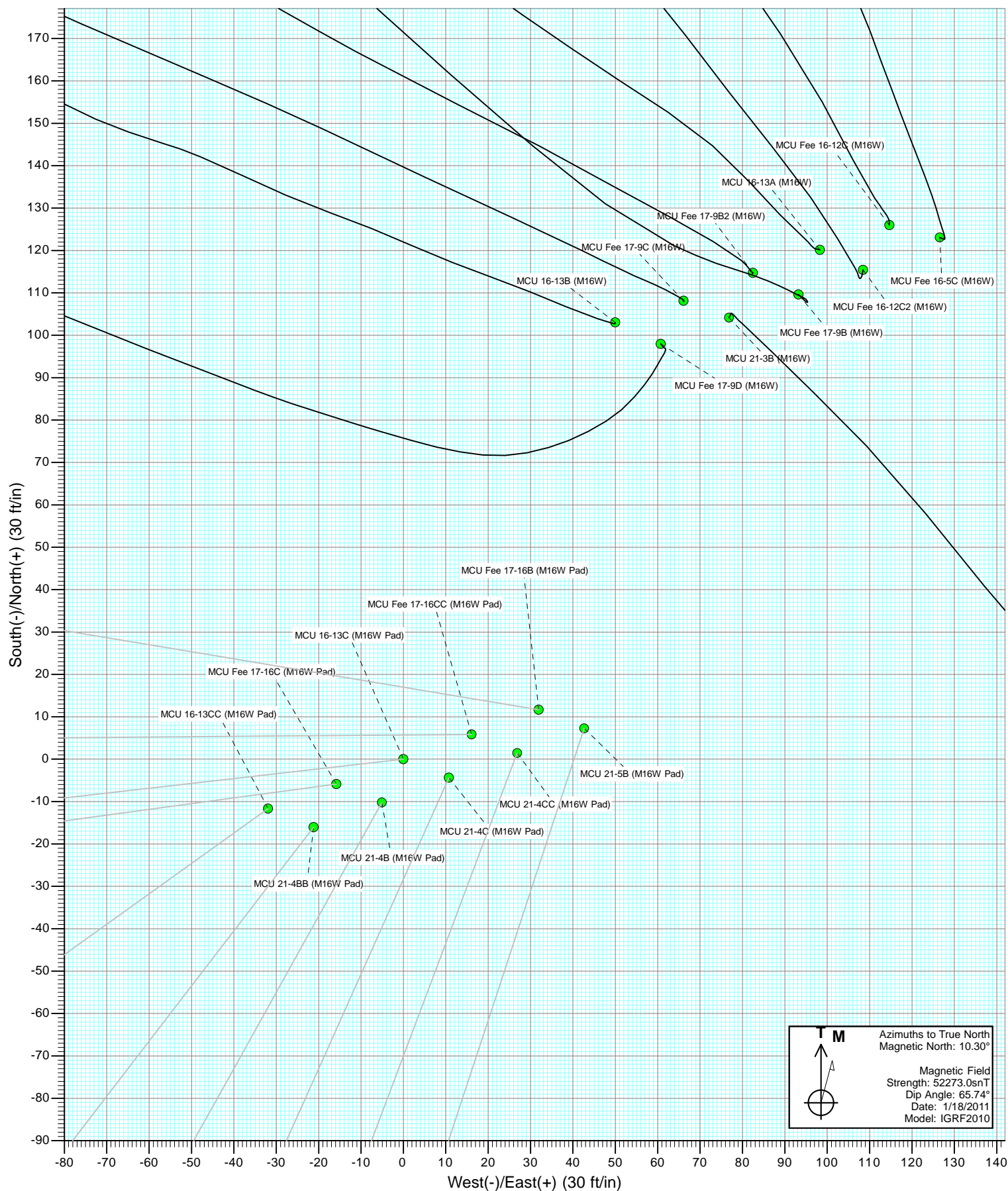
Project: Mamm Creek
Site: M16W Pad (SWSW S16-T7S-R93W)
Well: MCU Fee 17-16C (M16W Pad)
Wellbore: DD
Design: Plan #2

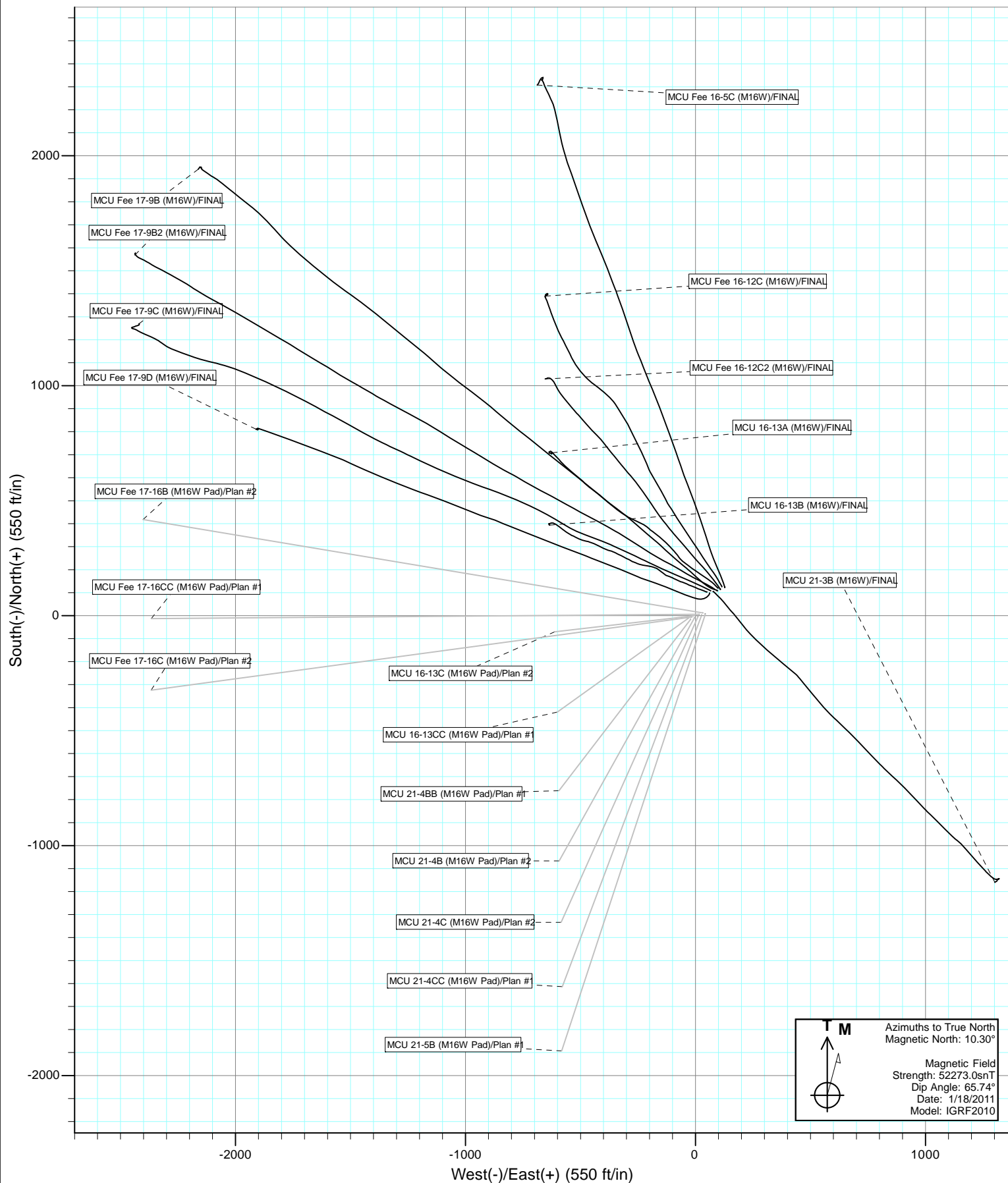


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-/S	+E-/W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	225.0	0.00	0.00	225.0	0.0	0.0	0.00	0.00	0.0	
3	858.1	18.99	262.28	846.6	-14.0	-103.0	3.00	262.28	104.0	
4	7348.5	18.99	262.28	6983.6	-297.6	-2196.4	0.00	0.00	2216.4	
5	8298.2	0.00	0.00	7916.0	-318.6	-2350.9	2.00	180.00	2372.4	MCU Fee 17-16C TGT
6	10373.2	0.00	0.00	9991.0	-318.6	-2350.9	0.00	0.00	2372.4	MCU Fee 17-16C BHL (226' FSL & 1122' FEL)
7	10473.2	0.00	0.00	10091.0	-318.6	-2350.9	0.00	0.00	2372.4	

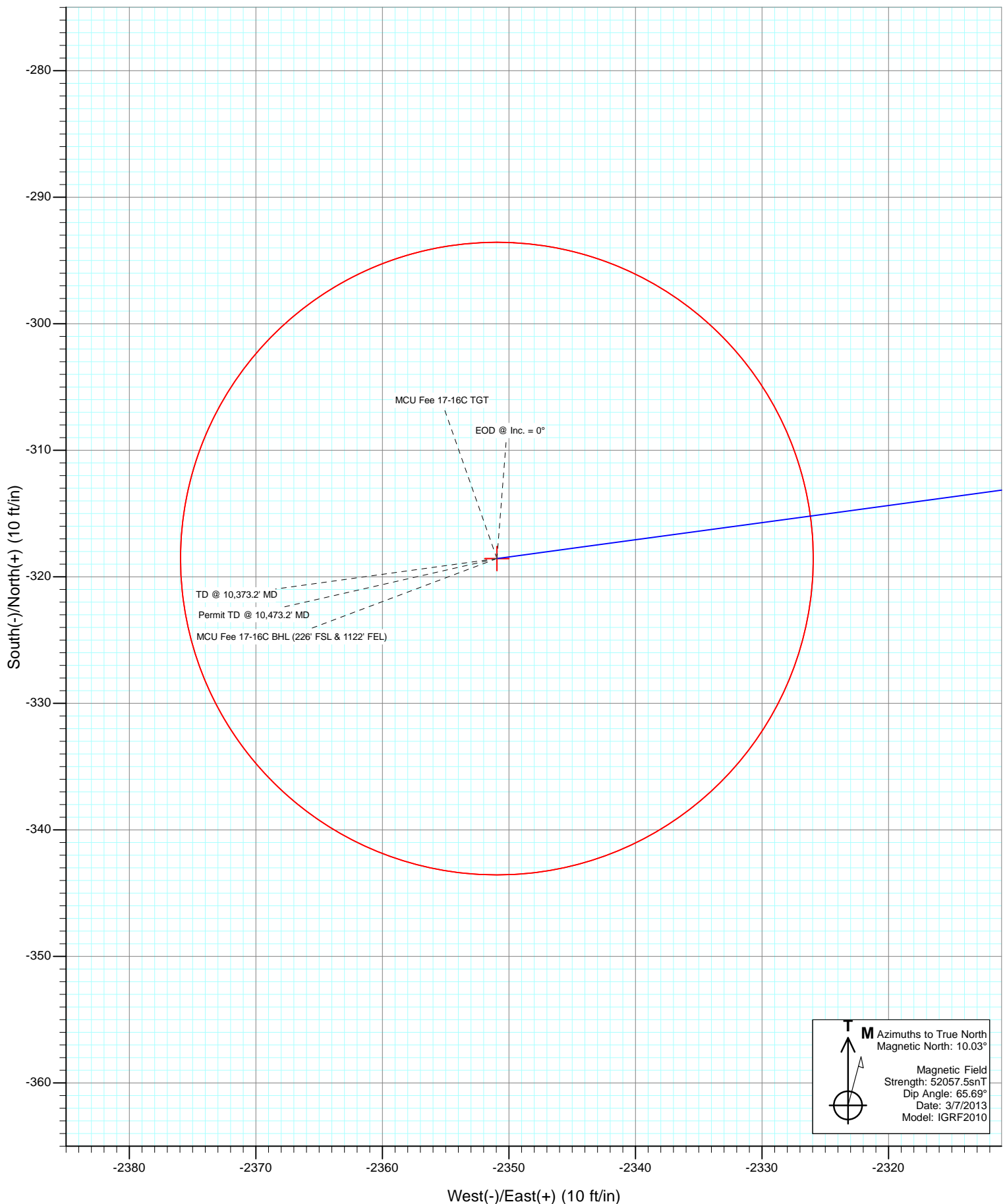








Project: Mamm Creek
Site: M16W Pad (SWSW S16-T7S-R93W)
Well: MCU Fee 17-16C (M16W Pad)
Wellbore: DD
Design: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site:	M16W Pad (SWSW S16-T7S-R93W)	North Reference:	True
Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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	M16W Pad (SWSW S16-T7S-R93W)				
Site Position:		Northing:	1,593,196.15 ft	Latitude:	39.439834
From:	Lat/Long	Easting:	2,355,193.71 ft	Longitude:	-107.783358
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.44 °

Well	MCU Fee 17-16C (M16W Pad)					
Well Position	+N/-S	0.0 ft	Northing:	1,593,200.77 ft	Latitude:	39.439846
	+E/-W	0.0 ft	Easting:	2,355,183.09 ft	Longitude:	-107.783396
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	3/7/2013	10.03	65.69	52,057

Design	Plan #2			
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	262.28

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	
225.0	0.00	0.00	225.0	0.0	0.0	0.00	0.00	0.00	0.00	
858.1	18.99	262.28	846.6	-14.0	-103.0	3.00	3.00	0.00	262.28	
7,348.5	18.99	262.28	6,983.6	-297.6	-2,196.4	0.00	0.00	0.00	0.00	
8,298.2	0.00	0.00	7,916.0	-318.6	-2,350.9	2.00	-2.00	0.00	180.00	MCU Fee 17-16C TG
10,373.2	0.00	0.00	9,991.0	-318.6	-2,350.9	0.00	0.00	0.00	0.00	MCU Fee 17-16C BH
10,473.2	0.00	0.00	10,091.0	-318.6	-2,350.9	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site:	M16W Pad (SWSW S16-T7S-R93W)	North Reference:	True
Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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	
225.0	0.00	0.00	225.0	0.0	0.0	0.0	0.00	0.00	KOP @ 225'
300.0	2.25	262.28	300.0	-0.2	-1.5	1.5	3.00	3.00	
400.0	5.25	262.28	399.8	-1.1	-7.9	8.0	3.00	3.00	
500.0	8.25	262.28	499.1	-2.7	-19.6	19.8	3.00	3.00	
600.0	11.25	262.28	597.6	-4.9	-36.4	36.7	3.00	3.00	
700.0	14.25	262.28	695.1	-7.9	-58.2	58.8	3.00	3.00	
800.0	17.25	262.28	791.4	-11.5	-85.1	85.9	3.00	3.00	
858.1	18.99	262.28	846.6	-14.0	-103.0	104.0	3.00	3.00	EOB @ Inc. = 18.99°
900.0	18.99	262.28	886.2	-15.8	-116.5	117.6	0.00	0.00	
1,000.0	18.99	262.28	980.7	-20.2	-148.8	150.2	0.00	0.00	
1,100.0	18.99	262.28	1,075.3	-24.5	-181.1	182.7	0.00	0.00	
1,126.1	18.99	262.28	1,100.0	-25.7	-189.5	191.2	0.00	0.00	Surface Casing
1,200.0	18.99	262.28	1,169.9	-28.9	-213.3	215.3	0.00	0.00	
1,300.0	18.99	262.28	1,264.4	-33.3	-245.6	247.8	0.00	0.00	
1,400.0	18.99	262.28	1,359.0	-37.6	-277.8	280.4	0.00	0.00	
1,500.0	18.99	262.28	1,453.5	-42.0	-310.1	312.9	0.00	0.00	
1,600.0	18.99	262.28	1,548.1	-46.4	-342.3	345.4	0.00	0.00	
1,700.0	18.99	262.28	1,642.6	-50.8	-374.6	378.0	0.00	0.00	
1,800.0	18.99	262.28	1,737.2	-55.1	-406.8	410.5	0.00	0.00	
1,900.0	18.99	262.28	1,831.7	-59.5	-439.1	443.1	0.00	0.00	
2,000.0	18.99	262.28	1,926.3	-63.9	-471.3	475.6	0.00	0.00	
2,100.0	18.99	262.28	2,020.8	-68.2	-503.6	508.2	0.00	0.00	
2,200.0	18.99	262.28	2,115.4	-72.6	-535.8	540.7	0.00	0.00	
2,300.0	18.99	262.28	2,210.0	-77.0	-568.1	573.3	0.00	0.00	
2,400.0	18.99	262.28	2,304.5	-81.3	-600.3	605.8	0.00	0.00	
2,500.0	18.99	262.28	2,399.1	-85.7	-632.6	638.4	0.00	0.00	
2,600.0	18.99	262.28	2,493.6	-90.1	-664.8	670.9	0.00	0.00	
2,700.0	18.99	262.28	2,588.2	-94.5	-697.1	703.5	0.00	0.00	
2,800.0	18.99	262.28	2,682.7	-98.8	-729.4	736.0	0.00	0.00	
2,900.0	18.99	262.28	2,777.3	-103.2	-761.6	768.6	0.00	0.00	
3,000.0	18.99	262.28	2,871.8	-107.6	-793.9	801.1	0.00	0.00	
3,100.0	18.99	262.28	2,966.4	-111.9	-826.1	833.7	0.00	0.00	
3,200.0	18.99	262.28	3,061.0	-116.3	-858.4	866.2	0.00	0.00	
3,300.0	18.99	262.28	3,155.5	-120.7	-890.6	898.8	0.00	0.00	
3,400.0	18.99	262.28	3,250.1	-125.1	-922.9	931.3	0.00	0.00	
3,500.0	18.99	262.28	3,344.6	-129.4	-955.1	963.8	0.00	0.00	
3,600.0	18.99	262.28	3,439.2	-133.8	-987.4	996.4	0.00	0.00	
3,700.0	18.99	262.28	3,533.7	-138.2	-1,019.6	1,028.9	0.00	0.00	
3,800.0	18.99	262.28	3,628.3	-142.5	-1,051.9	1,061.5	0.00	0.00	
3,900.0	18.99	262.28	3,722.8	-146.9	-1,084.1	1,094.0	0.00	0.00	
4,000.0	18.99	262.28	3,817.4	-151.3	-1,116.4	1,126.6	0.00	0.00	
4,100.0	18.99	262.28	3,911.9	-155.6	-1,148.6	1,159.1	0.00	0.00	
4,200.0	18.99	262.28	4,006.5	-160.0	-1,180.9	1,191.7	0.00	0.00	
4,300.0	18.99	262.28	4,101.1	-164.4	-1,213.1	1,224.2	0.00	0.00	
4,400.0	18.99	262.28	4,195.6	-168.8	-1,245.4	1,256.8	0.00	0.00	
4,500.0	18.99	262.28	4,290.2	-173.1	-1,277.6	1,289.3	0.00	0.00	
4,600.0	18.99	262.28	4,384.7	-177.5	-1,309.9	1,321.9	0.00	0.00	
4,700.0	18.99	262.28	4,479.3	-181.9	-1,342.2	1,354.4	0.00	0.00	
4,800.0	18.99	262.28	4,573.8	-186.2	-1,374.4	1,387.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site:	M16W Pad (SWSW S16-T7S-R93W)	North Reference:	True
Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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	18.99	262.28	4,668.4	-190.6	-1,406.7	1,419.5	0.00	0.00	
5,000.0	18.99	262.28	4,762.9	-195.0	-1,438.9	1,452.1	0.00	0.00	
5,100.0	18.99	262.28	4,857.5	-199.3	-1,471.2	1,484.6	0.00	0.00	
5,200.0	18.99	262.28	4,952.1	-203.7	-1,503.4	1,517.2	0.00	0.00	
5,300.0	18.99	262.28	5,046.6	-208.1	-1,535.7	1,549.7	0.00	0.00	
5,400.0	18.99	262.28	5,141.2	-212.5	-1,567.9	1,582.3	0.00	0.00	
5,500.0	18.99	262.28	5,235.7	-216.8	-1,600.2	1,614.8	0.00	0.00	
5,600.0	18.99	262.28	5,330.3	-221.2	-1,632.4	1,647.3	0.00	0.00	
5,700.0	18.99	262.28	5,424.8	-225.6	-1,664.7	1,679.9	0.00	0.00	
5,800.0	18.99	262.28	5,519.4	-229.9	-1,696.9	1,712.4	0.00	0.00	
5,900.0	18.99	262.28	5,613.9	-234.3	-1,729.2	1,745.0	0.00	0.00	
6,000.0	18.99	262.28	5,708.5	-238.7	-1,761.4	1,777.5	0.00	0.00	
6,100.0	18.99	262.28	5,803.1	-243.0	-1,793.7	1,810.1	0.00	0.00	
6,200.0	18.99	262.28	5,897.6	-247.4	-1,825.9	1,842.6	0.00	0.00	
6,300.0	18.99	262.28	5,992.2	-251.8	-1,858.2	1,875.2	0.00	0.00	
6,400.0	18.99	262.28	6,086.7	-256.2	-1,890.4	1,907.7	0.00	0.00	
6,500.0	18.99	262.28	6,181.3	-260.5	-1,922.7	1,940.3	0.00	0.00	
6,600.0	18.99	262.28	6,275.8	-264.9	-1,955.0	1,972.8	0.00	0.00	
6,624.5	18.99	262.28	6,299.0	-266.0	-1,962.9	1,980.8	0.00	0.00	Ohio Creek
6,700.0	18.99	262.28	6,370.4	-269.3	-1,987.2	2,005.4	0.00	0.00	
6,800.0	18.99	262.28	6,464.9	-273.6	-2,019.5	2,037.9	0.00	0.00	
6,900.0	18.99	262.28	6,559.5	-278.0	-2,051.7	2,070.5	0.00	0.00	
7,000.0	18.99	262.28	6,654.0	-282.4	-2,084.0	2,103.0	0.00	0.00	
7,100.0	18.99	262.28	6,748.6	-286.8	-2,116.2	2,135.6	0.00	0.00	
7,200.0	18.99	262.28	6,843.2	-291.1	-2,148.5	2,168.1	0.00	0.00	
7,300.0	18.99	262.28	6,937.7	-295.5	-2,180.7	2,200.7	0.00	0.00	
7,348.5	18.99	262.28	6,983.6	-297.6	-2,196.4	2,216.4	0.00	0.00	Start 2° Drop
7,400.0	17.96	262.28	7,032.4	-299.8	-2,212.5	2,232.8	2.00	-2.00	
7,437.3	17.22	262.28	7,068.0	-301.3	-2,223.7	2,244.0	2.00	-2.00	Williams Fork
7,500.0	15.96	262.28	7,128.1	-303.7	-2,241.5	2,261.9	2.00	-2.00	
7,600.0	13.96	262.28	7,224.7	-307.2	-2,267.0	2,287.8	2.00	-2.00	
7,700.0	11.96	262.28	7,322.1	-310.2	-2,289.3	2,310.2	2.00	-2.00	
7,800.0	9.96	262.28	7,420.3	-312.8	-2,308.1	2,329.2	2.00	-2.00	
7,900.0	7.96	262.28	7,519.1	-314.8	-2,323.6	2,344.8	2.00	-2.00	
8,000.0	5.96	262.28	7,618.3	-316.5	-2,335.6	2,356.9	2.00	-2.00	
8,100.0	3.96	262.28	7,717.9	-317.6	-2,344.2	2,365.6	2.00	-2.00	
8,200.0	1.96	262.28	7,817.8	-318.3	-2,349.3	2,370.7	2.00	-2.00	
8,298.2	0.00	0.00	7,916.0	-318.6	-2,350.9	2,372.4	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
8,300.0	0.00	0.00	7,917.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,400.0	0.00	0.00	8,017.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,500.0	0.00	0.00	8,117.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,600.0	0.00	0.00	8,217.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,700.0	0.00	0.00	8,317.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,800.0	0.00	0.00	8,417.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
8,900.0	0.00	0.00	8,517.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,000.0	0.00	0.00	8,617.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,100.0	0.00	0.00	8,717.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,200.0	0.00	0.00	8,817.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,300.0	0.00	0.00	8,917.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,400.0	0.00	0.00	9,017.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,427.2	0.00	0.00	9,045.0	-318.6	-2,350.9	2,372.4	0.00	0.00	Coal Ridge
9,500.0	0.00	0.00	9,117.8	-318.6	-2,350.9	2,372.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site:	M16W Pad (SWSW S16-T7S-R93W)	North Reference:	True
Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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
9,600.0	0.00	0.00	9,217.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,700.0	0.00	0.00	9,317.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,800.0	0.00	0.00	9,417.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
9,900.0	0.00	0.00	9,517.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,000.0	0.00	0.00	9,617.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,100.0	0.00	0.00	9,717.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,200.0	0.00	0.00	9,817.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,223.2	0.00	0.00	9,841.0	-318.6	-2,350.9	2,372.4	0.00	0.00	Rollins
10,300.0	0.00	0.00	9,917.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,373.2	0.00	0.00	9,991.0	-318.6	-2,350.9	2,372.4	0.00	0.00	TD @ 10,373.2' MD
10,400.0	0.00	0.00	10,017.8	-318.6	-2,350.9	2,372.4	0.00	0.00	
10,473.2	0.00	0.00	10,091.0	-318.6	-2,350.9	2,372.4	0.00	0.00	Permit TD @ 10,473.2' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
MCU Fee 17-16C TGT - plan hits target center - Point	0.00	0.00	7,916.0	-318.6	-2,350.9	1,592,941.40	2,352,824.89	39.438971	-107.791720
MCU Fee 17-16C BHL (: - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,991.0	-318.6	-2,350.9	1,592,941.40	2,352,824.89	39.438971	-107.791720

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,126.1	1,100.0	Surface Casing		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,624.5	6,299.0	Ohio Creek			
7,437.3	7,068.0	Williams Fork			
8,298.2	7,916.0	Top Gas			
9,427.2	9,045.0	Coal Ridge			
10,223.2	9,841.0	Rollins			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site:	M16W Pad (SWSW S16-T7S-R93W)	North Reference:	True
Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
225.0	225.0	0.0	0.0	KOP @ 225'
858.1	846.6	-14.0	-103.0	EOB @ Inc. = 18.99°
7,348.5	6,983.6	-297.6	-2,196.4	Start 2° Drop
8,298.2	7,916.0	-318.6	-2,350.9	EOD @ Inc. = 0°
10,373.2	9,991.0	-318.6	-2,350.9	TD @ 10,373.2' MD
10,473.2	10,091.0	-318.6	-2,350.9	Permit TD @ 10,473.2' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

M16W Pad (SWSW S16-T7S-R93W)

MCU Fee 17-16C (M16W Pad)

DD

Plan #2

Anticollision Report

07 March, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,250.9ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	3/7/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,473.2	Plan #2 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
M16W Pad (SWSW S16-T7S-R93W)						
MCU 16-13A (M16W) - DD - FINAL	224.6	225.4	169.7	168.9	239.061	CC, ES
MCU 16-13A (M16W) - DD - FINAL	4,600.0	4,484.3	1,181.4	1,156.4	47.198	SF
MCU 16-13B (M16W) - DD - FINAL	200.0	200.4	126.9	126.3	203.961	CC
MCU 16-13B (M16W) - DD - FINAL	222.6	222.9	126.9	126.2	180.935	ES
MCU 16-13B (M16W) - DD - FINAL	1,300.0	1,284.9	278.3	272.1	44.351	SF
MCU 16-13C (M16W Pad) - DD - Plan #2	200.0	200.0	16.9	16.2	27.142	CC, ES
MCU 16-13C (M16W Pad) - DD - Plan #2	500.0	501.4	22.5	20.8	13.445	SF
MCU 16-13CC (M16W Pad) - DD - Plan #1	200.0	200.0	17.1	16.5	27.542	CC
MCU 16-13CC (M16W Pad) - DD - Plan #1	600.0	597.6	17.9	15.5	7.605	ES
MCU 16-13CC (M16W Pad) - DD - Plan #1	700.0	696.5	23.0	19.9	7.552	SF
MCU 21-3B (M16W) - DD - FINAL	0.0	0.0	143.8			
MCU 21-3B (M16W) - DD - FINAL	100.0	99.5	144.0	143.7	493.697	ES
MCU 21-3B (M16W) - DD - FINAL	700.0	684.3	205.2	202.5	76.381	SF
MCU 21-4B (M16W Pad) - DD - Plan #2	200.0	200.0	11.6	11.0	18.640	CC, ES
MCU 21-4B (M16W Pad) - DD - Plan #2	300.0	300.0	12.9	11.9	13.240	SF
MCU 21-4BB (M16W Pad) - DD - Plan #1	343.5	343.3	10.3	9.1	9.032	CC, ES
MCU 21-4BB (M16W Pad) - DD - Plan #1	400.0	399.4	11.2	9.8	8.268	SF
MCU 21-4C (M16W Pad) - DD - Plan #2	200.0	200.0	26.6	26.0	42.794	CC, ES
MCU 21-4C (M16W Pad) - DD - Plan #2	500.0	500.6	40.9	39.1	23.157	SF
MCU 21-4CC (M16W Pad) - DD - Plan #1	200.0	200.0	43.3	42.6	69.635	CC, ES
MCU 21-4CC (M16W Pad) - DD - Plan #1	700.0	697.9	89.5	86.5	29.594	SF
MCU 21-5B (M16W Pad) - DD - Plan #1	200.0	200.0	59.9	59.3	96.436	CC
MCU 21-5B (M16W Pad) - DD - Plan #1	300.0	301.6	60.1	59.1	61.305	ES
MCU 21-5B (M16W Pad) - DD - Plan #1	800.0	794.3	130.8	126.9	33.546	SF
MCU Fee 16-12C (M16W) - DD - FINAL	0.0	0.0	185.5			
MCU Fee 16-12C (M16W) - DD - FINAL	100.0	99.6	185.6	185.3	636.825	ES
MCU Fee 16-12C (M16W) - DD - FINAL	3,900.0	3,697.4	1,228.4	1,200.9	44.681	SF
MCU Fee 16-12C2 (M16W) - DD - FINAL	246.0	247.8	172.3	171.5	219.123	CC, ES
MCU Fee 16-12C2 (M16W) - DD - FINAL	4,300.0	4,158.7	1,225.0	1,197.3	44.311	SF
MCU Fee 16-5C (M16W) - DD - FINAL	0.0	0.0	192.1			
MCU Fee 16-5C (M16W) - DD - FINAL	200.0	199.6	192.3	191.7	306.767	ES
MCU Fee 16-5C (M16W) - DD - FINAL	3,100.0	2,867.7	1,216.2	1,191.9	49.946	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #2	200.0	200.0	50.8	50.2	81.824	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #2	10,473.2	10,509.2	743.2	648.4	7.836	SF
MCU Fee 17-16CC (M16W Pad) - DD - Plan #1	200.0	200.0	34.0	33.4	54.694	CC, ES
MCU Fee 17-16CC (M16W Pad) - DD - Plan #1	10,473.2	10,476.9	311.8	217.8	3.318	SF
MCU Fee 17-9B (M16W) - DD - FINAL	201.0	201.1	158.8	158.1	251.762	CC, ES
MCU Fee 17-9B (M16W) - DD - FINAL	4,500.0	4,365.0	1,223.9	1,176.4	25.798	SF
MCU Fee 17-9B2 (M16W) - DD - FINAL	205.7	206.0	155.4	154.7	242.042	CC, ES
MCU Fee 17-9B2 (M16W) - DD - FINAL	5,400.0	5,274.2	1,233.9	1,173.4	20.403	SF
MCU Fee 17-9C (M16W) - DD - FINAL	205.7	205.9	140.2	139.6	218.461	CC, ES
MCU Fee 17-9C (M16W) - DD - FINAL	5,200.0	5,121.5	1,011.8	953.4	17.329	SF
MCU Fee 17-9D (M16W) - DD - FINAL	587.4	606.3	124.1	122.0	59.146	CC
MCU Fee 17-9D (M16W) - DD - FINAL	600.0	618.7	124.2	122.0	57.794	ES
MCU Fee 17-9D (M16W) - DD - FINAL	10,473.2	10,398.7	1,225.6	1,142.1	14.682	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 Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13A (M16W) - DD - FINAL													Offset Site Error:	0.0 ft
Survey Program: 206-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)		Between Centres (ft)	Between Ellipses (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	42.16	126.0	114.1	170.0					
100.0	100.0	100.3	100.3	0.1	0.2	42.11	126.0	113.9	169.9	0.29	580.690			
200.0	200.0	200.5	200.5	0.3	0.3	41.96	126.2	113.4	169.7	0.62	272.084			
224.6	224.6	225.4	225.4	0.4	0.4	139.65	126.2	113.3	169.7	0.71	239.061	CC, ES		
300.0	300.0	300.2	300.2	0.5	0.5	139.66	126.5	112.5	170.4	0.97	175.120			
400.0	399.8	400.0	399.9	0.7	0.7	139.64	129.4	109.7	175.6	1.35	130.566			
500.0	499.1	497.6	497.1	1.0	0.9	138.95	135.8	103.3	185.1	1.77	104.334			
600.0	597.6	597.0	595.7	1.3	1.1	138.43	144.5	95.1	199.0	2.27	87.580			
700.0	695.1	699.2	697.1	1.7	1.4	138.42	153.8	84.9	215.9	2.85	75.808			
800.0	791.4	800.4	797.1	2.2	1.7	138.88	162.2	72.4	234.6	3.48	67.369			
900.0	886.2	897.2	892.7	2.8	2.0	139.97	170.4	60.2	256.7	4.13	62.209			
1,000.0	980.7	993.5	988.0	3.4	2.3	141.30	178.2	48.5	279.9	4.76	58.746			
1,100.0	1,075.3	1,090.0	1,083.5	4.0	2.6	142.47	186.3	37.1	303.4	5.39	56.250			
1,200.0	1,169.9	1,185.6	1,178.2	4.7	2.9	143.51	194.2	26.2	327.4	6.01	54.485			
1,300.0	1,264.4	1,285.0	1,276.5	5.3	3.2	144.49	202.1	14.9	351.3	6.62	53.047			
1,400.0	1,359.0	1,381.0	1,371.7	5.9	3.5	145.36	209.3	3.8	374.8	7.21	51.974			
1,500.0	1,453.5	1,473.6	1,463.6	6.5	3.7	146.21	216.3	-5.6	399.4	7.77	51.388			
1,600.0	1,548.1	1,571.8	1,560.9	7.1	4.0	146.98	224.1	-15.4	424.4	8.35	50.845			
1,700.0	1,642.6	1,669.0	1,657.3	7.7	4.3	147.63	231.5	-25.8	449.0	8.92	50.344			
1,800.0	1,737.2	1,765.4	1,752.9	8.3	4.5	148.25	239.0	-35.5	473.9	9.48	50.017			
1,900.0	1,831.7	1,854.7	1,841.5	9.0	4.8	148.80	245.7	-44.3	499.1	10.00	49.894			
2,000.0	1,926.3	1,940.8	1,927.0	9.6	5.0	149.33	253.1	-50.8	526.6	10.52	50.080			
2,100.0	2,020.8	2,035.3	2,020.9	10.2	5.3	149.81	262.3	-57.5	555.2	11.06	50.206			
2,200.0	2,115.4	2,134.4	2,119.1	10.8	5.6	150.15	272.5	-65.4	583.4	11.64	50.107			
2,300.0	2,210.0	2,235.7	2,219.3	11.4	5.9	150.29	284.0	-75.1	611.1	12.27	49.809			
2,400.0	2,304.5	2,335.5	2,318.1	12.1	6.2	150.47	294.3	-85.0	637.9	12.87	49.551			
2,500.0	2,399.1	2,429.9	2,411.5	12.7	6.5	150.64	303.9	-94.3	664.6	13.46	49.380			
2,600.0	2,493.6	2,520.1	2,500.9	13.3	6.7	150.84	312.9	-102.5	691.9	14.01	49.372			
2,700.0	2,588.2	2,631.4	2,611.1	13.9	7.0	151.06	324.0	-112.9	718.9	14.64	49.104			
2,800.0	2,682.7	2,729.1	2,707.9	14.6	7.3	151.20	333.2	-123.4	744.6	15.23	48.897			
2,900.0	2,777.3	2,825.0	2,802.8	15.2	7.6	151.38	341.7	-133.4	770.2	15.80	48.746			
3,000.0	2,871.8	2,920.3	2,897.3	15.8	7.9	151.55	350.3	-143.1	796.1	16.37	48.642			
3,100.0	2,966.4	3,023.6	2,999.6	16.4	8.2	151.74	359.1	-153.9	821.6	16.95	48.478			
3,200.0	3,061.0	3,123.2	3,098.3	17.0	8.5	151.93	367.0	-164.6	846.3	17.51	48.341			
3,300.0	3,155.5	3,216.2	3,190.5	17.7	8.8	152.14	374.1	-174.2	871.3	18.04	48.304			
3,400.0	3,250.1	3,308.7	3,282.3	18.3	9.0	152.34	381.2	-183.4	896.7	18.57	48.298			
3,500.0	3,344.6	3,399.3	3,372.2	18.9	9.3	152.52	388.5	-192.0	922.7	19.09	48.340			
3,600.0	3,439.2	3,512.6	3,484.6	19.5	9.6	152.75	397.5	-202.6	948.8	19.66	48.259			
3,700.0	3,533.7	3,630.8	3,601.7	20.1	9.9	152.92	405.7	-216.9	972.0	20.26	47.981			
3,800.0	3,628.3	3,730.8	3,700.7	20.8	10.2	153.08	411.8	-229.6	994.3	20.81	47.774			
3,900.0	3,722.8	3,829.3	3,798.2	21.4	10.5	153.23	417.7	-242.3	1,016.5	21.35	47.607			
4,000.0	3,817.4	3,919.5	3,887.6	22.0	10.8	153.41	422.5	-253.1	1,038.9	21.85	47.557			
4,100.0	3,911.9	4,008.3	3,975.7	22.6	11.0	153.60	427.4	-263.1	1,062.2	22.33	47.563			
4,200.0	4,006.5	4,107.9	4,074.6	23.2	11.3	153.83	432.6	-273.8	1,085.6	22.82	47.567			
4,300.0	4,101.1	4,200.4	4,166.2	23.9	11.6	153.94	439.0	-284.6	1,109.3	23.37	47.474			
4,400.0	4,195.6	4,297.9	4,262.7	24.5	11.9	154.01	446.4	-296.3	1,133.0	23.93	47.349			
4,500.0	4,290.2	4,388.1	4,352.0	25.1	12.1	154.08	453.5	-306.8	1,157.2	24.47	47.286			
4,600.0	4,384.7	4,484.3	4,447.3	25.7	12.4	154.15	461.1	-317.9	1,181.4	25.03	47.198	SF		
4,700.0	4,479.3	4,569.1	4,531.3	26.4	12.7	154.21	468.0	-327.1	1,206.4	25.56	47.208			
4,800.0	4,573.8	4,661.3	4,622.7	27.0	12.9	154.29	475.6	-336.4	1,232.0	26.09	47.230			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13B (M16W) - DD - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 175-MWD, 1703-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	31.15	108.9	65.8	127.2					
100.0	100.0	100.2	100.2	0.1	0.2	31.17	108.8	65.8	127.1	126.8	0.29	439.720		
200.0	200.0	200.4	200.4	0.3	0.3	31.20	108.5	65.7	126.9	126.3	0.62	203.961 CC		
222.6	222.6	222.9	222.9	0.4	0.4	128.89	108.6	65.6	126.9	126.2	0.70	180.935 ES		
300.0	300.0	301.7	301.7	0.5	0.5	128.32	109.3	63.3	127.2	126.2	0.98	129.193		
400.0	399.8	401.6	401.2	0.7	0.7	127.08	111.9	55.8	129.7	128.3	1.39	93.347		
500.0	499.1	501.8	501.0	1.0	0.9	126.73	115.8	46.6	135.7	133.8	1.85	73.275		
600.0	597.6	601.7	600.3	1.3	1.2	127.83	119.4	36.9	144.3	142.0	2.37	60.894		
700.0	695.1	700.8	698.8	1.7	1.4	129.97	123.3	26.6	156.3	153.3	2.94	53.172		
800.0	791.4	798.1	795.5	2.2	1.7	132.80	127.7	16.4	172.3	168.8	3.54	48.727		
900.0	886.2	896.5	893.2	2.8	1.9	136.28	131.9	6.0	192.1	188.0	4.12	46.568		
1,000.0	980.7	993.9	990.0	3.4	2.2	139.45	135.9	-4.4	212.8	208.1	4.69	45.416		
1,100.0	1,075.3	1,090.3	1,085.7	4.0	2.5	141.91	140.2	-15.0	234.1	228.9	5.23	44.741		
1,200.0	1,169.9	1,187.1	1,181.7	4.7	2.7	143.90	145.1	-25.6	256.2	250.5	5.77	44.414		
1,300.0	1,264.4	1,284.9	1,278.9	5.3	3.0	145.67	149.6	-36.2	278.3	272.1	6.28	44.351 SF		
1,400.0	1,359.0	1,380.3	1,373.8	5.9	3.2	147.57	152.4	-44.9	300.9	294.2	6.72	44.792		
1,500.0	1,453.5	1,475.6	1,468.8	6.5	3.4	149.28	155.3	-53.0	324.4	317.3	7.15	45.389		
1,600.0	1,548.1	1,571.0	1,563.7	7.1	3.7	150.70	158.6	-61.0	348.4	340.9	7.58	45.997		
1,700.0	1,642.6	1,665.4	1,657.8	7.7	3.9	151.93	162.3	-68.5	373.2	365.2	8.00	46.674		
1,800.0	1,737.2	1,762.6	1,754.7	8.3	4.1	153.06	166.1	-75.9	398.4	390.0	8.41	47.383		
1,900.0	1,831.7	1,858.2	1,849.9	9.0	4.3	154.09	169.3	-83.2	423.5	414.7	8.81	48.073		
2,000.0	1,926.3	1,959.4	1,950.8	9.6	4.5	155.00	173.2	-91.1	448.7	439.5	9.23	48.601		
2,100.0	2,020.8	2,060.9	2,051.7	10.2	4.8	155.73	176.9	-100.6	472.7	463.0	9.66	48.930		
2,200.0	2,115.4	2,153.1	2,143.5	10.8	5.0	156.41	179.7	-108.9	496.7	486.6	10.06	49.378		
2,300.0	2,210.0	2,243.3	2,233.3	11.4	5.3	156.85	184.2	-116.8	521.9	511.4	10.51	49.652		
2,400.0	2,304.5	2,339.8	2,329.1	12.1	5.5	157.05	191.2	-125.7	547.9	536.8	11.01	49.765		
2,500.0	2,399.1	2,436.6	2,425.2	12.7	5.8	157.30	197.6	-134.4	573.7	562.2	11.49	49.941		
2,600.0	2,493.6	2,543.2	2,530.9	13.3	6.1	157.32	206.4	-145.6	599.1	587.0	12.07	49.625		
2,700.0	2,588.2	2,664.1	2,650.3	13.9	6.5	157.23	215.1	-162.9	620.6	607.9	12.70	48.871		
2,800.0	2,682.7	2,763.1	2,748.2	14.6	6.8	157.45	219.0	-176.5	641.0	627.8	13.18	48.627		
2,900.0	2,777.3	2,862.5	2,846.6	15.2	7.0	157.74	221.8	-190.0	661.2	647.6	13.64	48.482		
3,000.0	2,871.8	2,953.0	2,936.3	15.8	7.3	158.09	223.6	-201.5	681.7	667.6	14.04	48.542		
3,100.0	2,966.4	3,042.9	3,025.7	16.4	7.5	158.51	224.9	-211.3	703.5	689.1	14.42	48.793		
3,200.0	3,061.0	3,130.9	3,113.3	17.0	7.7	158.90	226.7	-220.2	726.4	711.6	14.79	49.103		
3,300.0	3,155.5	3,215.7	3,197.7	17.7	7.9	159.24	229.1	-227.6	750.8	735.6	15.16	49.518		
3,400.0	3,250.1	3,306.8	3,288.5	18.3	8.1	159.62	231.8	-234.2	776.6	761.1	15.52	50.032		
3,500.0	3,344.6	3,401.5	3,382.9	18.9	8.3	160.03	234.3	-240.8	802.5	786.7	15.88	50.549		
3,600.0	3,439.2	3,497.2	3,478.5	19.5	8.5	160.42	237.0	-247.1	828.9	812.6	16.23	51.076		
3,700.0	3,533.7	3,596.3	3,577.3	20.1	8.7	160.83	239.2	-253.7	855.0	838.4	16.57	51.594		
3,800.0	3,628.3	3,688.6	3,669.3	20.8	8.9	161.15	241.7	-260.0	881.2	864.2	16.94	52.019		
3,900.0	3,722.8	3,787.6	3,767.9	21.4	9.2	161.35	246.5	-267.4	907.7	890.3	17.36	52.298		
4,000.0	3,817.4	3,881.3	3,861.3	22.0	9.4	161.58	250.0	-274.2	933.9	916.2	17.73	52.671		
4,100.0	3,911.9	3,986.0	3,965.7	22.6	9.6	161.87	253.2	-281.5	960.2	942.1	18.12	52.995		
4,200.0	4,006.5	4,091.8	4,071.0	23.2	9.9	162.00	258.2	-291.0	985.4	966.8	18.58	53.043		
4,300.0	4,101.1	4,191.3	4,169.8	23.9	10.1	162.06	263.5	-300.9	1,010.0	990.9	19.04	53.047		
4,400.0	4,195.6	4,282.1	4,260.1	24.5	10.4	162.15	267.8	-309.4	1,034.9	1,015.4	19.46	53.174		
4,500.0	4,290.2	4,377.6	4,355.2	25.1	10.6	162.29	271.8	-317.8	1,060.0	1,040.1	19.87	53.335		
4,600.0	4,384.7	4,468.2	4,445.4	25.7	10.8	162.42	275.5	-325.2	1,085.6	1,065.3	20.27	53.550		
4,700.0	4,479.3	4,567.1	4,543.9	26.4	11.0	162.58	279.3	-333.2	1,111.2	1,090.6	20.67	53.752		
4,800.0	4,573.8	4,660.9	4,637.3	27.0	11.2	162.75	282.5	-340.6	1,136.9	1,115.8	21.06	53.993		
4,900.0	4,668.4	4,759.2	4,735.3	27.6	11.5	162.92	285.9	-347.9	1,163.0	1,141.5	21.44	54.241		
5,000.0	4,762.9	4,866.1	4,841.8	28.2	11.7	163.13	288.7	-356.7	1,187.9	1,166.1	21.82	54.431		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design												M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13B (M16W) - DD - FINAL		Offset Site Error:		0.0 ft	
Survey Program:												175-MWD, 1703-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)							
5,100.0	4,857.5	4,964.5	4,939.9	28.8	11.9	163.32	290.9	-364.8	1,212.9	1,190.7	22.19	54.647					
5,200.0	4,952.1	5,060.1	5,035.1	29.5	12.2	163.47	293.5	-373.2	1,237.6	1,215.0	22.58	54.808					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13C (M16W Pad) - DD - Plan #2													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	69.69	5.9	15.8	16.9					
100.0	100.0	100.0	100.0	0.1	0.1	69.69	5.9	15.8	16.9	16.6	0.27	61.940		
200.0	200.0	200.0	200.0	0.3	0.3	69.69	5.9	15.8	16.9	16.2	0.62	27.142 CC, ES		
300.0	300.0	300.4	300.4	0.5	0.5	167.93	5.8	15.2	17.7	16.7	0.97	18.191		
400.0	399.8	401.4	401.2	0.7	0.7	168.40	5.2	9.9	18.9	17.6	1.32	14.312		
500.0	499.1	501.4	500.9	1.0	0.9	169.79	4.2	1.7	22.5	20.8	1.67	13.445 SF		
600.0	597.6	601.0	600.1	1.3	1.1	172.31	3.3	-6.4	31.2	29.2	2.01	15.483		
700.0	695.1	700.0	698.8	1.7	1.3	174.43	2.4	-14.5	45.1	42.8	2.35	19.199		
800.0	791.4	798.1	796.6	2.2	1.5	175.90	1.5	-22.5	64.2	61.5	2.68	23.982		
900.0	886.2	895.2	893.4	2.8	1.8	176.87	0.6	-30.4	88.0	85.0	3.01	29.253		
1,000.0	980.7	992.1	990.0	3.4	2.0	177.47	-0.3	-38.3	112.7	109.3	3.35	33.613		
1,100.0	1,075.3	1,089.0	1,086.5	4.0	2.2	177.85	-1.2	-46.2	137.3	133.6	3.69	37.164		
1,200.0	1,169.9	1,185.9	1,183.1	4.7	2.4	178.12	-2.1	-54.1	162.0	158.0	4.04	40.113		
1,300.0	1,264.4	1,282.8	1,279.7	5.3	2.6	178.32	-3.0	-62.0	186.7	182.3	4.38	42.601		
1,400.0	1,359.0	1,379.7	1,376.3	5.9	2.8	178.47	-3.9	-69.9	211.3	206.6	4.72	44.729		
1,500.0	1,453.5	1,476.6	1,472.9	6.5	3.1	178.58	-4.8	-77.8	236.0	231.0	5.07	46.569		
1,600.0	1,548.1	1,573.6	1,569.4	7.1	3.3	178.68	-5.7	-85.7	260.7	255.3	5.41	48.176		
1,700.0	1,642.6	1,670.5	1,666.0	7.7	3.5	178.76	-6.6	-93.6	285.4	279.6	5.75	49.593		
1,800.0	1,737.2	1,767.4	1,762.6	8.3	3.7	178.83	-7.5	-101.5	310.1	304.0	6.10	50.850		
1,900.0	1,831.7	1,864.3	1,859.2	9.0	3.9	178.88	-8.4	-109.4	334.7	328.3	6.44	51.974		
2,000.0	1,926.3	1,961.2	1,955.8	9.6	4.2	178.93	-9.4	-117.3	359.4	352.6	6.78	52.984		
2,100.0	2,020.8	2,058.1	2,052.3	10.2	4.4	178.98	-10.3	-125.2	384.1	377.0	7.13	53.897		
2,200.0	2,115.4	2,155.0	2,148.9	10.8	4.6	179.01	-11.2	-133.1	408.8	401.3	7.47	54.727		
2,300.0	2,210.0	2,251.9	2,245.5	11.4	4.8	179.05	-12.1	-141.0	433.5	425.6	7.81	55.484		
2,400.0	2,304.5	2,348.8	2,342.1	12.1	5.0	179.08	-13.0	-148.9	458.1	450.0	8.16	56.177		
2,500.0	2,399.1	2,445.7	2,438.7	12.7	5.2	179.10	-13.9	-156.8	482.8	474.3	8.50	56.815		
2,600.0	2,493.6	2,542.6	2,535.2	13.3	5.5	179.13	-14.8	-164.7	507.5	498.7	8.84	57.403		
2,700.0	2,588.2	2,639.5	2,631.8	13.9	5.7	179.15	-15.7	-172.6	532.2	523.0	9.18	57.948		
2,800.0	2,682.7	2,736.4	2,728.4	14.6	5.9	179.17	-16.6	-180.5	556.9	547.3	9.53	58.453		
2,900.0	2,777.3	2,833.3	2,825.0	15.2	6.1	179.19	-17.5	-188.4	581.5	571.7	9.87	58.923		
3,000.0	2,871.8	2,930.2	2,921.6	15.8	6.3	179.21	-18.4	-196.3	606.2	596.0	10.21	59.362		
3,100.0	2,966.4	3,027.2	3,018.1	16.4	6.6	179.22	-19.3	-204.2	630.9	620.3	10.56	59.772		
3,200.0	3,061.0	3,124.1	3,114.7	17.0	6.8	179.24	-20.2	-212.1	655.6	644.7	10.90	60.157		
3,300.0	3,155.5	3,221.0	3,211.3	17.7	7.0	179.25	-21.1	-220.0	680.3	669.0	11.24	60.518		
3,400.0	3,250.1	3,317.9	3,307.9	18.3	7.2	179.26	-22.0	-227.9	704.9	693.4	11.58	60.858		
3,500.0	3,344.6	3,414.8	3,404.5	18.9	7.4	179.27	-22.9	-235.8	729.6	717.7	11.93	61.178		
3,600.0	3,439.2	3,511.7	3,501.0	19.5	7.7	179.28	-23.8	-243.7	754.3	742.0	12.27	61.480		
3,700.0	3,533.7	3,608.6	3,597.6	20.1	7.9	179.29	-24.7	-251.6	779.0	766.4	12.61	61.766		
3,800.0	3,628.3	3,705.5	3,694.2	20.8	8.1	179.30	-25.6	-259.5	803.7	790.7	12.95	62.037		
3,900.0	3,722.8	3,802.4	3,790.8	21.4	8.3	179.31	-26.5	-267.4	828.3	815.0	13.30	62.294		
4,000.0	3,817.4	3,899.3	3,887.4	22.0	8.5	179.32	-27.4	-275.3	853.0	839.4	13.64	62.538		
4,100.0	3,911.9	3,996.2	3,983.9	22.6	8.8	179.33	-28.3	-283.2	877.7	863.7	13.98	62.770		
4,200.0	4,006.5	4,093.1	4,080.5	23.2	9.0	179.34	-29.2	-291.1	902.4	888.1	14.33	62.991		
4,300.0	4,101.1	4,190.0	4,177.1	23.9	9.2	179.34	-30.1	-299.0	927.1	912.4	14.67	63.202		
4,400.0	4,195.6	4,286.9	4,273.7	24.5	9.4	179.35	-31.0	-306.9	951.8	936.7	15.01	63.403		
4,500.0	4,290.2	4,383.8	4,370.3	25.1	9.6	179.36	-31.9	-314.8	976.4	961.1	15.35	63.595		
4,600.0	4,384.7	4,480.7	4,466.8	25.7	9.8	179.36	-32.8	-322.7	1,001.1	985.4	15.70	63.779		
4,700.0	4,479.3	4,577.7	4,563.4	26.4	10.1	179.37	-33.7	-330.6	1,025.8	1,009.8	16.04	63.955		
4,800.0	4,573.8	4,674.6	4,660.0	27.0	10.3	179.37	-34.6	-338.5	1,050.5	1,034.1	16.38	64.123		
4,900.0	4,668.4	4,771.5	4,756.6	27.6	10.5	179.38	-35.5	-346.4	1,075.2	1,058.4	16.72	64.285		
5,000.0	4,762.9	4,868.4	4,853.1	28.2	10.7	179.38	-36.4	-354.3	1,099.8	1,082.8	17.07	64.440		
5,100.0	4,857.5	4,965.3	4,949.7	28.8	10.9	179.39	-37.3	-362.2	1,124.5	1,107.1	17.41	64.589		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13C (M16W Pad) - DD - Plan #2		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	Centre +E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)								
5,200.0	4,952.1	5,062.2	5,046.3	29.5	11.2	179.39	-38.2	-370.1	1,149.2	1,131.4	17.75	64.733						
5,300.0	5,046.6	5,159.1	5,142.9	30.1	11.4	179.40	-39.1	-378.0	1,173.9	1,155.8	18.10	64.870						
5,400.0	5,141.2	5,256.0	5,239.5	30.7	11.6	179.40	-40.0	-385.9	1,198.6	1,180.1	18.44	65.003						
5,500.0	5,235.7	5,352.9	5,336.0	31.3	11.8	179.40	-40.9	-393.8	1,223.2	1,204.5	18.78	65.131						
5,600.0	5,330.3	5,449.8	5,432.6	31.9	12.0	179.41	-41.8	-401.7	1,247.9	1,228.8	19.12	65.254						

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13CC (M16W Pad) - DD - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-109.83	-5.8	-16.1	17.1						
100.0	100.0	100.0	100.0	0.1	0.1	-109.83	-5.8	-16.1	17.1	16.8	0.27	62.853			
200.0	200.0	200.0	200.0	0.3	0.3	-109.83	-5.8	-16.1	17.1	16.5	0.62	27.542 CC			
300.0	300.0	299.1	299.1	0.5	0.5	-15.28	-7.3	-18.2	18.2	17.2	0.97	18.779			
400.0	399.8	398.3	397.9	0.7	0.7	-25.13	-11.7	-24.4	19.7	18.3	1.32	14.885			
500.0	499.1	498.1	497.3	1.0	0.9	-41.69	-17.1	-31.9	19.1	17.4	1.72	11.070			
589.7	587.5	587.4	586.3	1.3	1.1	-68.16	-22.0	-38.6	17.9	15.6	2.28	7.841			
600.0	597.6	597.6	596.4	1.3	1.2	-72.06	-22.5	-39.4	17.9	15.5	2.35	7.605 ES			
700.0	695.1	696.5	694.9	1.7	1.4	-111.16	-27.9	-46.9	23.0	19.9	3.04	7.552 SF			
800.0	791.4	794.6	792.5	2.2	1.6	-136.31	-33.2	-54.3	37.7	34.3	3.40	11.080			
900.0	886.2	891.6	889.1	2.8	1.8	-149.00	-38.4	-61.6	59.5	55.8	3.68	16.164			
1,000.0	980.7	988.4	985.5	3.4	2.1	-155.16	-43.6	-68.9	83.4	79.4	4.00	20.832			
1,100.0	1,075.3	1,085.2	1,081.9	4.0	2.3	-158.56	-48.9	-76.2	107.8	103.5	4.36	24.747			
1,200.0	1,169.9	1,182.1	1,178.3	4.7	2.5	-160.71	-54.1	-83.5	132.5	127.8	4.73	28.035			
1,300.0	1,264.4	1,278.9	1,274.7	5.3	2.8	-162.18	-59.3	-90.8	157.2	152.1	5.10	30.821			
1,400.0	1,359.0	1,375.7	1,371.1	5.9	3.0	-163.25	-64.6	-98.1	182.1	176.6	5.48	33.207			
1,500.0	1,453.5	1,472.5	1,467.5	6.5	3.2	-164.07	-69.8	-105.4	207.0	201.1	5.87	35.271			
1,600.0	1,548.1	1,569.3	1,563.9	7.1	3.5	-164.71	-75.1	-112.8	231.9	225.6	6.25	37.074			
1,700.0	1,642.6	1,666.1	1,660.3	7.7	3.7	-165.22	-80.3	-120.1	256.8	250.2	6.64	38.661			
1,800.0	1,737.2	1,763.0	1,756.7	8.3	3.9	-165.65	-85.5	-127.4	281.8	274.7	7.03	40.068			
1,900.0	1,831.7	1,859.8	1,853.1	9.0	4.1	-166.00	-90.8	-134.7	306.7	299.3	7.42	41.325			
2,000.0	1,926.3	1,956.6	1,949.5	9.6	4.4	-166.30	-96.0	-142.0	331.7	323.9	7.81	42.453			
2,100.0	2,020.8	2,053.4	2,045.9	10.2	4.6	-166.56	-101.2	-149.3	356.7	348.5	8.21	43.473			
2,200.0	2,115.4	2,150.2	2,142.3	10.8	4.8	-166.79	-106.5	-156.6	381.7	373.1	8.60	44.398			
2,300.0	2,210.0	2,247.0	2,238.7	11.4	5.1	-166.98	-111.7	-163.9	406.7	397.7	8.99	45.241			
2,400.0	2,304.5	2,343.9	2,335.1	12.1	5.3	-167.16	-116.9	-171.2	431.7	422.3	9.38	46.013			
2,500.0	2,399.1	2,440.7	2,431.5	12.7	5.5	-167.32	-122.2	-178.5	456.7	446.9	9.77	46.722			
2,600.0	2,493.6	2,537.5	2,527.9	13.3	5.8	-167.45	-127.4	-185.8	481.7	471.5	10.17	47.375			
2,700.0	2,588.2	2,634.3	2,624.3	13.9	6.0	-167.58	-132.6	-193.1	506.7	496.1	10.56	47.980			
2,800.0	2,682.7	2,731.1	2,720.7	14.6	6.2	-167.69	-137.9	-200.5	531.7	520.7	10.95	48.541			
2,900.0	2,777.3	2,827.9	2,817.1	15.2	6.5	-167.80	-143.1	-207.8	556.7	545.4	11.35	49.062			
3,000.0	2,871.8	2,924.8	2,913.5	15.8	6.7	-167.89	-148.4	-215.1	581.7	570.0	11.74	49.548			
3,100.0	2,966.4	3,021.6	3,009.9	16.4	6.9	-167.98	-153.6	-222.4	606.7	594.6	12.13	50.002			
3,200.0	3,061.0	3,118.4	3,106.3	17.0	7.1	-168.06	-158.8	-229.7	631.7	619.2	12.53	50.428			
3,300.0	3,155.5	3,215.2	3,202.7	17.7	7.4	-168.13	-164.1	-237.0	656.8	643.8	12.92	50.827			
3,400.0	3,250.1	3,312.0	3,299.1	18.3	7.6	-168.20	-169.3	-244.3	681.8	668.5	13.32	51.203			
3,500.0	3,344.6	3,408.9	3,395.5	18.9	7.8	-168.27	-174.5	-251.6	706.8	693.1	13.71	51.557			
3,600.0	3,439.2	3,505.7	3,491.9	19.5	8.1	-168.33	-179.8	-258.9	731.8	717.7	14.10	51.891			
3,700.0	3,533.7	3,602.5	3,588.3	20.1	8.3	-168.38	-185.0	-266.2	756.8	742.3	14.50	52.207			
3,800.0	3,628.3	3,699.3	3,684.7	20.8	8.5	-168.43	-190.2	-273.5	781.8	767.0	14.89	52.505			
3,900.0	3,722.8	3,796.1	3,781.1	21.4	8.8	-168.48	-195.5	-280.8	806.9	791.6	15.28	52.789			
4,000.0	3,817.4	3,892.9	3,877.5	22.0	9.0	-168.53	-200.7	-288.1	831.9	816.2	15.68	53.058			
4,100.0	3,911.9	3,989.8	3,973.9	22.6	9.2	-168.57	-205.9	-295.5	856.9	840.8	16.07	53.314			
4,200.0	4,006.5	4,086.6	4,070.3	23.2	9.5	-168.61	-211.2	-302.8	881.9	865.5	16.47	53.557			
4,300.0	4,101.1	4,183.4	4,166.7	23.9	9.7	-168.65	-216.4	-310.1	906.9	890.1	16.86	53.789			
4,400.0	4,195.6	4,280.2	4,263.1	24.5	9.9	-168.69	-221.6	-317.4	932.0	914.7	17.26	54.011			
4,500.0	4,290.2	4,377.0	4,359.5	25.1	10.1	-168.72	-226.9	-324.7	957.0	939.3	17.65	54.222			
4,600.0	4,384.7	4,473.8	4,455.9	25.7	10.4	-168.75	-232.1	-332.0	982.0	964.0	18.04	54.424			
4,700.0	4,479.3	4,570.7	4,552.3	26.4	10.6	-168.78	-237.4	-339.3	1,007.0	988.6	18.44	54.618			
4,800.0	4,573.8	4,667.5	4,648.7	27.0	10.8	-168.81	-242.6	-346.6	1,032.1	1,013.2	18.83	54.803			
4,900.0	4,668.4	4,764.3	4,745.1	27.6	11.1	-168.84	-247.8	-353.9	1,057.1	1,037.9	19.23	54.981			
5,000.0	4,762.9	4,861.1	4,841.5	28.2	11.3	-168.87	-253.1	-361.2	1,082.1	1,062.5	19.62	55.151			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													M16W Pad (SWSW S16-T7S-R93W) - MCU 16-13CC (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	Separation						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor					
5,100.0	4,857.5	4,957.9	4,937.9	28.8	11.5	-168.89	-258.3	-368.5	1,107.1	1,087.1	20.02	55.315					
5,200.0	4,952.1	5,054.7	5,034.3	29.5	11.8	-168.92	-263.5	-375.8	1,132.2	1,111.7	20.41	55.472					
5,300.0	5,046.6	5,151.6	5,130.7	30.1	12.0	-168.94	-268.8	-383.1	1,157.2	1,136.4	20.80	55.624					
5,400.0	5,141.2	5,248.4	5,227.1	30.7	12.2	-168.96	-274.0	-390.5	1,182.2	1,161.0	21.20	55.770					
5,500.0	5,235.7	5,345.2	5,323.5	31.3	12.5	-168.99	-279.2	-397.8	1,207.2	1,185.6	21.59	55.910					
5,600.0	5,330.3	5,442.0	5,419.9	31.9	12.7	-169.01	-284.5	-405.1	1,232.3	1,210.3	21.99	56.045					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-3B (M16W) - DD - FINAL													Offset Site Error:	0.0 ft
Survey Program: 206-MWD, 1161-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	40.10	110.0	92.6	143.8					
100.0	100.0	99.5	99.5	0.1	0.2	40.08	110.2	92.7	144.0	143.7	0.29	493.697 ES		
200.0	200.0	199.1	199.1	0.3	0.3	40.03	110.6	92.9	144.5	143.8	0.62	232.385		
300.0	300.0	299.5	299.5	0.5	0.5	138.12	111.0	93.3	146.1	145.1	0.97	150.549		
400.0	399.8	399.5	399.4	0.7	0.7	141.60	107.5	96.9	151.0	149.6	1.34	112.665		
500.0	499.1	497.6	496.9	1.0	0.9	147.78	100.1	104.6	161.2	159.4	1.76	91.589		
600.0	597.6	591.9	590.0	1.3	1.2	155.07	89.8	115.1	178.9	176.7	2.22	80.679		
700.0	695.1	684.3	680.5	1.7	1.5	162.61	76.3	128.3	205.2	202.5	2.69	76.381 SF		
800.0	791.4	776.0	769.6	2.2	1.9	169.53	59.9	142.2	239.3	236.1	3.13	76.442		
900.0	886.2	863.1	854.1	2.8	2.3	174.95	43.5	155.5	280.3	276.7	3.54	79.147		
1,000.0	980.7	947.3	935.6	3.4	2.7	179.05	27.8	169.1	324.6	320.7	3.96	81.898		
1,100.0	1,075.3	1,036.3	1,021.9	4.0	3.1	-177.64	11.2	183.6	370.3	365.8	4.41	83.991		
1,200.0	1,169.9	1,128.0	1,110.9	4.7	3.5	-175.05	-5.4	197.9	416.1	411.2	4.87	85.417		
1,300.0	1,264.4	1,219.9	1,200.3	5.3	3.9	-172.95	-22.4	211.0	461.2	455.9	5.35	86.186		
1,400.0	1,359.0	1,308.5	1,286.5	5.9	4.3	-171.32	-38.4	223.5	506.5	500.7	5.83	86.881		
1,500.0	1,453.5	1,387.8	1,363.7	6.5	4.6	-170.10	-52.8	235.0	552.5	546.2	6.30	87.767		
1,600.0	1,548.1	1,458.9	1,432.4	7.1	5.0	-169.07	-66.3	247.0	600.9	594.2	6.75	89.048		
1,700.0	1,642.6	1,528.2	1,499.0	7.7	5.4	-168.13	-80.2	260.5	651.8	644.6	7.21	90.449		
1,800.0	1,737.2	1,618.4	1,585.4	8.3	5.8	-167.09	-98.2	278.9	703.6	695.9	7.73	91.010		
1,900.0	1,831.7	1,702.5	1,666.2	9.0	6.3	-166.29	-114.5	295.8	755.3	747.1	8.24	91.700		
2,000.0	1,926.3	1,791.7	1,751.9	9.6	6.7	-165.58	-131.4	313.7	807.0	798.2	8.75	92.187		
2,100.0	2,020.8	1,878.0	1,835.0	10.2	7.1	-165.03	-147.1	330.7	858.4	849.1	9.25	92.769		
2,200.0	2,115.4	1,967.4	1,921.4	10.8	7.6	-164.59	-162.5	348.3	909.7	899.9	9.75	93.325		
2,300.0	2,210.0	2,057.8	2,008.8	11.4	8.0	-164.25	-177.2	365.8	960.5	950.3	10.24	93.792		
2,400.0	2,304.5	2,147.1	2,095.3	12.1	8.4	-163.95	-191.7	382.7	1,011.1	1,000.4	10.73	94.243		
2,500.0	2,399.1	2,243.0	2,188.3	12.7	8.9	-163.72	-206.4	400.5	1,061.2	1,050.0	11.22	94.587		
2,600.0	2,493.6	2,331.4	2,274.4	13.3	9.2	-163.57	-219.0	416.4	1,110.8	1,099.1	11.68	95.081		
2,700.0	2,588.2	2,417.7	2,358.4	13.9	9.6	-163.43	-231.4	432.0	1,160.4	1,148.2	12.15	95.475		
2,800.0	2,682.7	2,499.4	2,437.7	14.6	10.0	-163.25	-244.3	446.7	1,210.1	1,197.5	12.63	95.791		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4B (M16W Pad) - DD - Plan #2													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	112.08	-4.4	10.7	11.6					
100.0	100.0	100.0	100.0	0.1	0.1	112.08	-4.4	10.7	11.6	11.3	0.27	42.536		
200.0	200.0	200.0	200.0	0.3	0.3	112.08	-4.4	10.7	11.6	11.0	0.62	18.640 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-152.73	-4.5	10.7	12.9	11.9	0.97	13.240 SF		
400.0	399.8	400.0	399.9	0.7	0.7	-149.88	-7.9	8.7	18.0	16.7	1.34	13.497		
500.0	499.1	499.6	499.1	1.0	0.9	-143.05	-15.9	4.3	27.3	25.6	1.77	15.452		
600.0	597.6	598.5	596.9	1.3	1.2	-137.06	-28.2	-2.5	41.1	38.8	2.31	17.772		
700.0	695.1	696.9	694.0	1.7	1.5	-135.47	-42.3	-10.4	59.0	56.0	2.92	20.186		
800.0	791.4	794.5	790.3	2.2	1.8	-137.05	-56.3	-18.2	80.6	77.0	3.56	22.617		
900.0	886.2	891.1	885.6	2.8	2.1	-139.70	-70.2	-25.9	105.7	101.5	4.20	25.148		
1,000.0	980.7	987.6	980.8	3.4	2.4	-141.77	-84.0	-33.5	131.7	126.9	4.85	27.168		
1,100.0	1,075.3	1,084.1	1,075.9	4.0	2.7	-143.15	-97.8	-41.2	157.9	152.4	5.50	28.721		
1,200.0	1,169.9	1,180.5	1,171.1	4.7	3.0	-144.14	-111.6	-48.9	184.0	177.9	6.15	29.946		
1,300.0	1,264.4	1,277.0	1,266.3	5.3	3.4	-144.88	-125.4	-56.6	210.3	203.5	6.80	30.937		
1,400.0	1,359.0	1,373.5	1,361.4	5.9	3.7	-145.46	-139.3	-64.3	236.5	229.0	7.45	31.753		
1,500.0	1,453.5	1,469.9	1,456.6	6.5	4.0	-145.92	-153.1	-72.0	262.8	254.7	8.10	32.436		
1,600.0	1,548.1	1,566.4	1,551.8	7.1	4.3	-146.30	-166.9	-79.7	289.0	280.3	8.75	33.017		
1,700.0	1,642.6	1,662.9	1,646.9	7.7	4.7	-146.62	-180.7	-87.3	315.3	305.9	9.41	33.516		
1,800.0	1,737.2	1,759.4	1,742.1	8.3	5.0	-146.89	-194.6	-95.0	341.6	331.5	10.06	33.949		
1,900.0	1,831.7	1,855.8	1,837.3	9.0	5.3	-147.12	-208.4	-102.7	367.9	357.2	10.72	34.329		
2,000.0	1,926.3	1,952.3	1,932.4	9.6	5.6	-147.31	-222.2	-110.4	394.2	382.8	11.37	34.665		
2,100.0	2,020.8	2,048.8	2,027.6	10.2	5.9	-147.49	-236.0	-118.1	420.5	408.5	12.03	34.963		
2,200.0	2,115.4	2,145.2	2,122.8	10.8	6.3	-147.64	-249.9	-125.8	446.8	434.1	12.68	35.231		
2,300.0	2,210.0	2,241.7	2,217.9	11.4	6.6	-147.78	-263.7	-133.5	473.1	459.8	13.34	35.471		
2,400.0	2,304.5	2,338.2	2,313.1	12.1	6.9	-147.90	-277.5	-141.1	499.4	485.4	13.99	35.689		
2,500.0	2,399.1	2,434.7	2,408.3	12.7	7.2	-148.01	-291.3	-148.8	525.7	511.1	14.65	35.888		
2,600.0	2,493.6	2,531.1	2,503.4	13.3	7.6	-148.11	-305.2	-156.5	552.0	536.7	15.31	36.069		
2,700.0	2,588.2	2,627.6	2,598.6	13.9	7.9	-148.20	-319.0	-164.2	578.4	562.4	15.96	36.235		
2,800.0	2,682.7	2,724.1	2,693.8	14.6	8.2	-148.28	-332.8	-171.9	604.7	588.1	16.62	36.388		
2,900.0	2,777.3	2,820.5	2,788.9	15.2	8.5	-148.36	-346.6	-179.6	631.0	613.7	17.27	36.529		
3,000.0	2,871.8	2,917.0	2,884.1	15.8	8.8	-148.42	-360.5	-187.3	657.3	639.4	17.93	36.659		
3,100.0	2,966.4	3,013.5	2,979.3	16.4	9.2	-148.49	-374.3	-194.9	683.6	665.0	18.59	36.781		
3,200.0	3,061.0	3,110.0	3,074.4	17.0	9.5	-148.55	-388.1	-202.6	710.0	690.7	19.24	36.894		
3,300.0	3,155.5	3,206.4	3,169.6	17.7	9.8	-148.60	-401.9	-210.3	736.3	716.4	19.90	36.999		
3,400.0	3,250.1	3,302.9	3,264.8	18.3	10.1	-148.65	-415.8	-218.0	762.6	742.0	20.56	37.098		
3,500.0	3,344.6	3,399.4	3,359.9	18.9	10.5	-148.70	-429.6	-225.7	788.9	767.7	21.21	37.190		
3,600.0	3,439.2	3,495.8	3,455.1	19.5	10.8	-148.75	-443.4	-233.4	815.2	793.4	21.87	37.277		
3,700.0	3,533.7	3,592.3	3,550.3	20.1	11.1	-148.79	-457.2	-241.1	841.6	819.0	22.53	37.359		
3,800.0	3,628.3	3,688.8	3,645.4	20.8	11.4	-148.83	-471.0	-248.7	867.9	844.7	23.18	37.436		
3,900.0	3,722.8	3,785.3	3,740.6	21.4	11.8	-148.87	-484.9	-256.4	894.2	870.4	23.84	37.509		
4,000.0	3,817.4	3,881.7	3,835.8	22.0	12.1	-148.90	-498.7	-264.1	920.5	896.0	24.50	37.578		
4,100.0	3,911.9	3,978.2	3,930.9	22.6	12.4	-148.93	-512.5	-271.8	946.9	921.7	25.15	37.643		
4,200.0	4,006.5	4,074.7	4,026.1	23.2	12.7	-148.96	-526.3	-279.5	973.2	947.4	25.81	37.705		
4,300.0	4,101.1	4,171.1	4,121.3	23.9	13.1	-148.99	-540.2	-287.2	999.5	973.0	26.47	37.764		
4,400.0	4,195.6	4,267.6	4,216.4	24.5	13.4	-149.02	-554.0	-294.9	1,025.8	998.7	27.12	37.820		
4,500.0	4,290.2	4,364.1	4,311.6	25.1	13.7	-149.05	-567.8	-302.5	1,052.2	1,024.4	27.78	37.873		
4,600.0	4,384.7	4,460.6	4,406.8	25.7	14.0	-149.07	-581.6	-310.2	1,078.5	1,050.1	28.44	37.924		
4,700.0	4,479.3	4,557.0	4,501.9	26.4	14.4	-149.10	-595.5	-317.9	1,104.8	1,075.7	29.10	37.973		
4,800.0	4,573.8	4,653.5	4,597.1	27.0	14.7	-149.12	-609.3	-325.6	1,131.1	1,101.4	29.75	38.019		
4,900.0	4,668.4	4,750.0	4,692.3	27.6	15.0	-149.14	-623.1	-333.3	1,157.5	1,127.1	30.41	38.063		
5,000.0	4,762.9	4,846.4	4,787.4	28.2	15.3	-149.16	-636.9	-341.0	1,183.8	1,152.7	31.07	38.106		
5,100.0	4,857.5	4,942.9	4,882.6	28.8	15.6	-149.18	-650.8	-348.7	1,210.1	1,178.4	31.72	38.146		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4B (M16W Pad) - DD - Plan #2													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	4,952.1	5,039.4	4,977.8	29.5	16.0	-149.20	-664.6	-356.3	1,236.5	1,204.1	32.38	38.185	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4BB (M16W Pad) - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-152.19	-10.2	-5.4	11.5					
100.0	100.0	100.0	100.0	0.1	0.1	-152.19	-10.2	-5.4	11.5	11.2	0.27	42.240		
200.0	200.0	200.0	200.0	0.3	0.3	-152.19	-10.2	-5.4	11.5	10.9	0.62	18.510		
300.0	300.0	300.0	300.0	0.5	0.5	-60.91	-10.2	-5.4	10.7	9.7	0.97	11.017		
343.5	343.5	343.3	343.2	0.6	0.6	-70.90	-10.6	-5.7	10.3	9.1	1.14	9.032 CC, ES		
400.0	399.8	399.4	399.3	0.7	0.7	-87.21	-12.2	-6.9	11.2	9.8	1.35	8.268 SF		
500.0	499.1	498.6	498.3	1.0	0.9	-108.55	-18.4	-11.7	17.6	15.8	1.81	9.731		
600.0	597.6	597.7	596.6	1.3	1.1	-118.51	-27.9	-19.0	28.8	26.5	2.34	12.320		
700.0	695.1	696.4	694.5	1.7	1.4	-127.73	-37.9	-26.7	43.5	40.6	2.90	15.016		
800.0	791.4	794.3	791.6	2.2	1.6	-135.59	-47.7	-34.3	62.4	59.0	3.45	18.099		
900.0	886.2	891.3	887.8	2.8	1.9	-141.80	-57.5	-41.8	85.6	81.7	3.97	21.583		
1,000.0	980.7	988.0	983.7	3.4	2.2	-145.78	-67.3	-49.3	110.2	105.7	4.48	24.589		
1,100.0	1,075.3	1,084.7	1,079.7	4.0	2.4	-148.30	-77.0	-56.8	135.0	130.0	4.99	27.031		
1,200.0	1,169.9	1,181.5	1,175.6	4.7	2.7	-150.04	-86.8	-64.3	160.0	154.5	5.51	29.038		
1,300.0	1,264.4	1,278.2	1,271.6	5.3	3.0	-151.31	-96.5	-71.8	185.1	179.1	6.03	30.709		
1,400.0	1,359.0	1,374.9	1,367.5	5.9	3.2	-152.28	-106.2	-79.2	210.3	203.7	6.55	32.119		
1,500.0	1,453.5	1,471.6	1,463.4	6.5	3.5	-153.04	-116.0	-86.7	235.5	228.4	7.07	33.324		
1,600.0	1,548.1	1,568.4	1,559.4	7.1	3.8	-153.65	-125.7	-94.2	260.7	253.1	7.59	34.365		
1,700.0	1,642.6	1,665.1	1,655.3	7.7	4.1	-154.16	-135.5	-101.7	286.0	277.9	8.11	35.272		
1,800.0	1,737.2	1,761.8	1,751.3	8.3	4.3	-154.58	-145.2	-109.2	311.3	302.6	8.63	36.069		
1,900.0	1,831.7	1,858.6	1,847.2	9.0	4.6	-154.94	-155.0	-116.7	336.6	327.4	9.15	36.776		
2,000.0	1,926.3	1,955.3	1,943.2	9.6	4.9	-155.25	-164.7	-124.2	361.9	352.2	9.67	37.406		
2,100.0	2,020.8	2,052.0	2,039.1	10.2	5.1	-155.52	-174.5	-131.7	387.2	377.0	10.20	37.971		
2,200.0	2,115.4	2,148.7	2,135.1	10.8	5.4	-155.75	-184.2	-139.2	412.5	401.8	10.72	38.481		
2,300.0	2,210.0	2,245.5	2,231.0	11.4	5.7	-155.96	-194.0	-146.7	437.8	426.6	11.24	38.943		
2,400.0	2,304.5	2,342.2	2,326.9	12.1	6.0	-156.15	-203.7	-154.2	463.2	451.4	11.77	39.364		
2,500.0	2,399.1	2,438.9	2,422.9	12.7	6.2	-156.32	-213.5	-161.7	488.5	476.2	12.29	39.749		
2,600.0	2,493.6	2,535.6	2,518.8	13.3	6.5	-156.47	-223.2	-169.2	513.8	501.0	12.81	40.103		
2,700.0	2,588.2	2,632.4	2,614.8	13.9	6.8	-156.60	-233.0	-176.7	539.2	525.8	13.34	40.428		
2,800.0	2,682.7	2,729.1	2,710.7	14.6	7.1	-156.72	-242.7	-184.2	564.5	550.7	13.86	40.729		
2,900.0	2,777.3	2,825.8	2,806.7	15.2	7.3	-156.84	-252.5	-191.7	589.9	575.5	14.38	41.008		
3,000.0	2,871.8	2,922.6	2,902.6	15.8	7.6	-156.94	-262.2	-199.2	615.2	600.3	14.91	41.267		
3,100.0	2,966.4	3,019.3	2,998.5	16.4	7.9	-157.04	-272.0	-206.7	640.6	625.1	15.43	41.509		
3,200.0	3,061.0	3,116.0	3,094.5	17.0	8.1	-157.13	-281.7	-214.2	665.9	650.0	15.96	41.734		
3,300.0	3,155.5	3,212.7	3,190.4	17.7	8.4	-157.21	-291.5	-221.7	691.3	674.8	16.48	41.946		
3,400.0	3,250.1	3,309.5	3,286.4	18.3	8.7	-157.28	-301.2	-229.2	716.6	699.6	17.00	42.144		
3,500.0	3,344.6	3,406.2	3,382.3	18.9	9.0	-157.35	-311.0	-236.7	742.0	724.5	17.53	42.330		
3,600.0	3,439.2	3,502.9	3,478.3	19.5	9.2	-157.42	-320.7	-244.2	767.3	749.3	18.05	42.505		
3,700.0	3,533.7	3,599.7	3,574.2	20.1	9.5	-157.48	-330.4	-251.7	792.7	774.1	18.58	42.671		
3,800.0	3,628.3	3,696.4	3,670.1	20.8	9.8	-157.54	-340.2	-259.2	818.1	799.0	19.10	42.827		
3,900.0	3,722.8	3,793.1	3,766.1	21.4	10.1	-157.59	-349.9	-266.6	843.4	823.8	19.63	42.975		
4,000.0	3,817.4	3,889.8	3,862.0	22.0	10.3	-157.65	-359.7	-274.1	868.8	848.6	20.15	43.115		
4,100.0	3,911.9	3,986.6	3,958.0	22.6	10.6	-157.69	-369.4	-281.6	894.2	873.5	20.67	43.248		
4,200.0	4,006.5	4,083.3	4,053.9	23.2	10.9	-157.74	-379.2	-289.1	919.5	898.3	21.20	43.374		
4,300.0	4,101.1	4,180.0	4,149.9	23.9	11.1	-157.78	-388.9	-296.6	944.9	923.2	21.72	43.495		
4,400.0	4,195.6	4,276.7	4,245.8	24.5	11.4	-157.82	-398.7	-304.1	970.2	948.0	22.25	43.609		
4,500.0	4,290.2	4,373.5	4,341.7	25.1	11.7	-157.86	-408.4	-311.6	995.6	972.8	22.77	43.719		
4,600.0	4,384.7	4,470.2	4,437.7	25.7	12.0	-157.90	-418.2	-319.1	1,021.0	997.7	23.30	43.823		
4,700.0	4,479.3	4,566.9	4,533.6	26.4	12.2	-157.94	-427.9	-326.6	1,046.3	1,022.5	23.82	43.923		
4,800.0	4,573.8	4,663.7	4,629.6	27.0	12.5	-157.97	-437.7	-334.1	1,071.7	1,047.4	24.35	44.018		
4,900.0	4,668.4	4,760.4	4,725.5	27.6	12.8	-158.00	-447.4	-341.6	1,097.1	1,072.2	24.87	44.110		
5,000.0	4,762.9	4,857.1	4,821.5	28.2	13.1	-158.03	-457.2	-349.1	1,122.4	1,097.0	25.40	44.197		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design										M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4BB (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	Centre +E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)							
5,100.0	4,857.5	4,953.8	4,917.4	28.8	13.3	-158.06	-466.9	-356.6	1,147.8	1,121.9	25.92	44.281					
5,200.0	4,952.1	5,050.6	5,013.3	29.5	13.6	-158.09	-476.7	-364.1	1,173.2	1,146.7	26.45	44.362					
5,300.0	5,046.6	5,147.3	5,109.3	30.1	13.9	-158.12	-486.4	-371.6	1,198.5	1,171.6	26.97	44.440					
5,400.0	5,141.2	5,244.0	5,205.2	30.7	14.2	-158.14	-496.2	-379.1	1,223.9	1,196.4	27.49	44.514					
5,500.0	5,235.7	5,340.8	5,301.2	31.3	14.4	-158.17	-505.9	-386.6	1,249.3	1,221.2	28.02	44.586					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4C (M16W Pad) - DD - Plan #2													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			
0.0	0.0	0.0	0.0	0.0	0.0	86.80	1.5	26.5	26.6					
100.0	100.0	100.0	100.0	0.1	0.1	86.80	1.5	26.5	26.6	26.3	0.27	97.658		
200.0	200.0	200.0	200.0	0.3	0.3	86.80	1.5	26.5	26.6	26.0	0.62	42.794 CC, ES		
300.0	300.0	300.3	300.3	0.5	0.5	-174.50	0.9	26.3	27.8	26.8	0.97	28.588		
400.0	399.8	400.7	400.6	0.7	0.7	-167.15	-3.9	24.1	32.2	30.9	1.34	24.079		
500.0	499.1	500.6	499.9	1.0	0.9	-156.75	-13.5	19.8	40.9	39.1	1.77	23.157 SF		
600.0	597.6	599.5	597.5	1.3	1.2	-147.31	-27.6	13.5	54.8	52.5	2.31	23.696		
700.0	695.1	697.4	693.5	1.7	1.6	-141.04	-45.1	5.7	74.0	71.0	2.96	24.998		
800.0	791.4	794.5	788.8	2.2	1.9	-139.06	-62.6	-2.1	97.5	93.8	3.66	26.645		
900.0	886.2	890.8	883.1	2.8	2.3	-139.34	-80.0	-9.9	124.5	120.1	4.38	28.424		
1,000.0	980.7	986.9	977.3	3.4	2.7	-139.94	-97.4	-17.7	152.2	147.1	5.12	29.751		
1,100.0	1,075.3	1,083.0	1,071.5	4.0	3.0	-140.36	-114.7	-25.5	179.9	174.0	5.86	30.711		
1,200.0	1,169.9	1,179.0	1,165.7	4.7	3.4	-140.66	-132.1	-33.2	207.6	201.0	6.60	31.435		
1,300.0	1,264.4	1,275.1	1,259.9	5.3	3.8	-140.90	-149.4	-41.0	235.3	227.9	7.35	31.999		
1,400.0	1,359.0	1,371.2	1,354.0	5.9	4.1	-141.08	-166.8	-48.8	263.0	254.9	8.10	32.450		
1,500.0	1,453.5	1,467.3	1,448.2	6.5	4.5	-141.23	-184.2	-56.5	290.7	281.9	8.86	32.819		
1,600.0	1,548.1	1,563.4	1,542.4	7.1	4.9	-141.36	-201.5	-64.3	318.4	308.8	9.61	33.126		
1,700.0	1,642.6	1,659.5	1,636.6	7.7	5.2	-141.46	-218.9	-72.1	346.1	335.8	10.37	33.385		
1,800.0	1,737.2	1,755.5	1,730.8	8.3	5.6	-141.55	-236.2	-79.8	373.8	362.7	11.12	33.606		
1,900.0	1,831.7	1,851.6	1,825.0	9.0	6.0	-141.62	-253.6	-87.6	401.6	389.7	11.88	33.798		
2,000.0	1,926.3	1,947.7	1,919.1	9.6	6.3	-141.69	-270.9	-95.4	429.3	416.6	12.64	33.966		
2,100.0	2,020.8	2,043.8	2,013.3	10.2	6.7	-141.75	-288.3	-103.1	457.0	443.6	13.40	34.113		
2,200.0	2,115.4	2,139.9	2,107.5	10.8	7.1	-141.80	-305.7	-110.9	484.7	470.6	14.15	34.244		
2,300.0	2,210.0	2,235.9	2,201.7	11.4	7.5	-141.85	-323.0	-118.7	512.4	497.5	14.91	34.361		
2,400.0	2,304.5	2,332.0	2,295.9	12.1	7.8	-141.89	-340.4	-126.4	540.1	524.5	15.67	34.466		
2,500.0	2,399.1	2,428.1	2,390.0	12.7	8.2	-141.93	-357.7	-134.2	567.9	551.4	16.43	34.561		
2,600.0	2,493.6	2,524.2	2,484.2	13.3	8.6	-141.96	-375.1	-142.0	595.6	578.4	17.19	34.647		
2,700.0	2,588.2	2,620.3	2,578.4	13.9	8.9	-141.99	-392.4	-149.7	623.3	605.3	17.95	34.725		
2,800.0	2,682.7	2,716.4	2,672.6	14.6	9.3	-142.02	-409.8	-157.5	651.0	632.3	18.71	34.797		
2,900.0	2,777.3	2,812.4	2,766.8	15.2	9.7	-142.04	-427.2	-165.3	678.7	659.3	19.47	34.863		
3,000.0	2,871.8	2,908.5	2,860.9	15.8	10.1	-142.07	-444.5	-173.0	706.4	686.2	20.23	34.924		
3,100.0	2,966.4	3,004.6	2,955.1	16.4	10.4	-142.09	-461.9	-180.8	734.2	713.2	20.99	34.980		
3,200.0	3,061.0	3,100.7	3,049.3	17.0	10.8	-142.11	-479.2	-188.6	761.9	740.1	21.75	35.032		
3,300.0	3,155.5	3,196.8	3,143.5	17.7	11.2	-142.13	-496.6	-196.3	789.6	767.1	22.51	35.081		
3,400.0	3,250.1	3,292.8	3,237.7	18.3	11.5	-142.15	-513.9	-204.1	817.3	794.0	23.27	35.126		
3,500.0	3,344.6	3,388.9	3,331.9	18.9	11.9	-142.16	-531.3	-211.9	845.0	821.0	24.03	35.169		
3,600.0	3,439.2	3,485.0	3,426.0	19.5	12.3	-142.18	-548.7	-219.6	872.7	848.0	24.79	35.208		
3,700.0	3,533.7	3,581.1	3,520.2	20.1	12.7	-142.19	-566.0	-227.4	900.5	874.9	25.55	35.246		
3,800.0	3,628.3	3,677.2	3,614.4	20.8	13.0	-142.21	-583.4	-235.2	928.2	901.9	26.31	35.280		
3,900.0	3,722.8	3,773.3	3,708.6	21.4	13.4	-142.22	-600.7	-242.9	955.9	928.8	27.07	35.313		
4,000.0	3,817.4	3,869.3	3,802.8	22.0	13.8	-142.23	-618.1	-250.7	983.6	955.8	27.83	35.345		
4,100.0	3,911.9	3,965.4	3,896.9	22.6	14.2	-142.24	-635.4	-258.5	1,011.3	982.7	28.59	35.374		
4,200.0	4,006.5	4,061.5	3,991.1	23.2	14.5	-142.26	-652.8	-266.2	1,039.1	1,009.7	29.35	35.402		
4,300.0	4,101.1	4,157.6	4,085.3	23.9	14.9	-142.27	-670.1	-274.0	1,066.8	1,036.7	30.11	35.428		
4,400.0	4,195.6	4,253.7	4,179.5	24.5	15.3	-142.28	-687.5	-281.8	1,094.5	1,063.6	30.87	35.453		
4,500.0	4,290.2	4,349.7	4,273.7	25.1	15.6	-142.28	-704.9	-289.5	1,122.2	1,090.6	31.63	35.477		
4,600.0	4,384.7	4,445.8	4,367.8	25.7	16.0	-142.29	-722.2	-297.3	1,149.9	1,117.5	32.39	35.500		
4,700.0	4,479.3	4,541.9	4,462.0	26.4	16.4	-142.30	-739.6	-305.1	1,177.6	1,144.5	33.15	35.521		
4,800.0	4,573.8	4,638.0	4,556.2	27.0	16.8	-142.31	-756.9	-312.9	1,205.4	1,171.5	33.91	35.542		
4,900.0	4,668.4	4,734.1	4,650.4	27.6	17.1	-142.32	-774.3	-320.6	1,233.1	1,198.4	34.67	35.562		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-4CC (M16W Pad) - DD - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	80.28	7.3	42.6	43.3							
100.0	100.0	100.0	100.0	0.1	0.1	80.28	7.3	42.6	43.3	43.0	0.27	158.911				
200.0	200.0	200.0	200.0	0.3	0.3	80.28	7.3	42.6	43.3	42.6	0.62	69.635 CC, ES				
300.0	300.0	300.8	300.8	0.5	0.5	179.76	5.9	42.1	44.0	43.0	0.97	45.196				
400.0	399.8	401.6	401.4	0.7	0.7	-173.16	-0.3	39.8	47.8	46.4	1.35	35.377				
500.0	499.1	501.6	500.7	1.0	1.0	-163.16	-11.4	35.6	55.9	54.1	1.79	31.225				
600.0	597.6	600.5	598.1	1.3	1.3	-153.29	-27.1	29.7	69.7	67.4	2.34	29.743				
700.0	695.1	697.9	693.1	1.7	1.7	-145.27	-47.1	22.2	89.5	86.5	3.03	29.594 SF				
800.0	791.4	794.4	787.0	2.2	2.1	-140.84	-68.3	14.3	114.5	110.8	3.78	30.340				
900.0	886.2	890.2	880.0	2.8	2.5	-139.28	-89.3	6.4	143.4	138.8	4.56	31.413				
1,000.0	980.7	985.7	972.9	3.4	2.9	-138.66	-110.3	-1.5	172.9	167.5	5.38	32.158				
1,100.0	1,075.3	1,081.2	1,065.7	4.0	3.3	-138.22	-131.3	-9.4	202.4	196.2	6.20	32.653				
1,200.0	1,169.9	1,176.8	1,158.6	4.7	3.8	-137.90	-152.2	-17.2	231.9	224.9	7.03	33.001				
1,300.0	1,264.4	1,272.3	1,251.5	5.3	4.2	-137.65	-173.2	-25.1	261.4	253.6	7.86	33.257				
1,400.0	1,359.0	1,367.8	1,344.4	5.9	4.6	-137.44	-194.2	-33.0	291.0	282.3	8.70	33.451				
1,500.0	1,453.5	1,463.4	1,437.2	6.5	5.0	-137.28	-215.2	-40.9	320.5	311.0	9.54	33.603				
1,600.0	1,548.1	1,558.9	1,530.1	7.1	5.4	-137.14	-236.1	-48.7	350.0	339.6	10.38	33.725				
1,700.0	1,642.6	1,654.4	1,623.0	7.7	5.9	-137.03	-257.1	-56.6	379.6	368.3	11.22	33.824				
1,800.0	1,737.2	1,750.0	1,715.9	8.3	6.3	-136.93	-278.1	-64.5	409.1	397.0	12.07	33.906				
1,900.0	1,831.7	1,845.5	1,808.7	9.0	6.7	-136.85	-299.0	-72.4	438.6	425.7	12.91	33.976				
2,000.0	1,926.3	1,941.1	1,901.6	9.6	7.1	-136.77	-320.0	-80.2	468.2	454.4	13.76	34.035				
2,100.0	2,020.8	2,036.6	1,994.5	10.2	7.6	-136.71	-341.0	-88.1	497.7	483.1	14.60	34.086				
2,200.0	2,115.4	2,132.1	2,087.3	10.8	8.0	-136.65	-362.0	-96.0	527.2	511.8	15.45	34.130				
2,300.0	2,210.0	2,227.7	2,180.2	11.4	8.4	-136.60	-382.9	-103.8	556.8	540.5	16.30	34.169				
2,400.0	2,304.5	2,323.2	2,273.1	12.1	8.8	-136.55	-403.9	-111.7	586.3	569.2	17.14	34.203				
2,500.0	2,399.1	2,418.7	2,366.0	12.7	9.3	-136.51	-424.9	-119.6	615.9	597.9	17.99	34.234				
2,600.0	2,493.6	2,514.3	2,458.8	13.3	9.7	-136.47	-445.8	-127.5	645.4	626.6	18.84	34.261				
2,700.0	2,588.2	2,609.8	2,551.7	13.9	10.1	-136.43	-466.8	-135.3	675.0	655.3	19.69	34.285				
2,800.0	2,682.7	2,705.3	2,644.6	14.6	10.5	-136.40	-487.8	-143.2	704.5	684.0	20.53	34.308				
2,900.0	2,777.3	2,800.9	2,737.5	15.2	11.0	-136.37	-508.8	-151.1	734.0	712.7	21.38	34.328				
3,000.0	2,871.8	2,896.4	2,830.3	15.8	11.4	-136.34	-529.7	-159.0	763.6	741.3	22.23	34.346				
3,100.0	2,966.4	2,991.9	2,923.2	16.4	11.8	-136.32	-550.7	-166.8	793.1	770.0	23.08	34.363				
3,200.0	3,061.0	3,087.5	3,016.1	17.0	12.2	-136.29	-571.7	-174.7	822.7	798.7	23.93	34.378				
3,300.0	3,155.5	3,183.0	3,109.0	17.7	12.7	-136.27	-592.7	-182.6	852.2	827.4	24.78	34.393				
3,400.0	3,250.1	3,278.6	3,201.8	18.3	13.1	-136.25	-613.6	-190.4	881.7	856.1	25.63	34.406				
3,500.0	3,344.6	3,374.1	3,294.7	18.9	13.5	-136.23	-634.6	-198.3	911.3	884.8	26.48	34.418				
3,600.0	3,439.2	3,469.6	3,387.6	19.5	14.0	-136.22	-655.6	-206.2	940.8	913.5	27.33	34.429				
3,700.0	3,533.7	3,565.2	3,480.4	20.1	14.4	-136.20	-676.5	-214.1	970.4	942.2	28.18	34.440				
3,800.0	3,628.3	3,660.7	3,573.3	20.8	14.8	-136.18	-697.5	-221.9	999.9	970.9	29.03	34.450				
3,900.0	3,722.8	3,756.2	3,666.2	21.4	15.2	-136.17	-718.5	-229.8	1,029.5	999.6	29.87	34.459				
4,000.0	3,817.4	3,851.8	3,759.1	22.0	15.7	-136.15	-739.5	-237.7	1,059.0	1,028.3	30.72	34.468				
4,100.0	3,911.9	3,947.3	3,851.9	22.6	16.1	-136.14	-760.4	-245.6	1,088.5	1,057.0	31.57	34.476				
4,200.0	4,006.5	4,042.8	3,944.8	23.2	16.5	-136.13	-781.4	-253.4	1,118.1	1,085.7	32.42	34.483				
4,300.0	4,101.1	4,138.4	4,037.7	23.9	16.9	-136.12	-802.4	-261.3	1,147.6	1,114.4	33.27	34.491				
4,400.0	4,195.6	4,233.9	4,130.6	24.5	17.4	-136.11	-823.3	-269.2	1,177.2	1,143.0	34.12	34.497				
4,500.0	4,290.2	4,329.5	4,223.4	25.1	17.8	-136.09	-844.3	-277.0	1,206.7	1,171.7	34.97	34.504				
4,600.0	4,384.7	4,425.0	4,316.3	25.7	18.2	-136.08	-865.3	-284.9	1,236.3	1,200.4	35.82	34.510				

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU 21-5B (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	77.34	13.1	58.5	59.9					
100.0	100.0	100.0	100.0	0.1	0.1	77.34	13.1	58.5	59.9	59.6	0.27	220.072		
200.0	200.0	200.0	200.0	0.3	0.3	77.34	13.1	58.5	59.9	59.3	0.62	96.436 CC		
257.3	257.3	258.2	258.2	0.4	0.4	175.83	12.3	58.2	60.1	59.3	0.83	72.714		
300.0	300.0	301.6	301.5	0.5	0.5	177.39	10.6	57.6	60.1	59.1	0.98	61.305 ES		
400.0	399.8	402.6	402.3	0.7	0.7	-175.92	2.9	55.1	63.2	61.9	1.37	46.113		
500.0	499.1	502.8	501.5	1.0	1.0	-166.58	-9.6	51.0	71.0	69.1	1.83	38.727		
600.0	597.6	601.6	598.6	1.3	1.4	-156.94	-26.8	45.3	84.6	82.2	2.40	35.234		
700.0	695.1	698.5	692.9	1.7	1.8	-148.60	-48.3	38.3	104.6	101.5	3.10	33.727		
800.0	791.4	794.3	785.1	2.2	2.3	-142.51	-72.9	30.2	130.8	126.9	3.90	33.546 SF		
900.0	886.2	889.3	876.5	2.8	2.7	-139.49	-97.4	22.1	161.2	156.5	4.74	33.982		
1,000.0	980.7	984.2	967.8	3.4	3.2	-137.84	-121.9	14.1	192.5	186.9	5.62	34.251		
1,100.0	1,075.3	1,079.0	1,059.1	4.0	3.7	-136.66	-146.4	6.0	223.9	217.3	6.51	34.395		
1,200.0	1,169.9	1,173.9	1,150.4	4.7	4.1	-135.76	-170.9	-2.0	255.3	247.9	7.41	34.475		
1,300.0	1,264.4	1,268.7	1,241.7	5.3	4.6	-135.06	-195.4	-10.1	286.8	278.5	8.31	34.520		
1,400.0	1,359.0	1,363.6	1,333.0	5.9	5.1	-134.50	-219.9	-18.1	318.3	309.1	9.21	34.545		
1,500.0	1,453.5	1,458.5	1,424.3	6.5	5.6	-134.05	-244.3	-26.2	349.8	339.7	10.12	34.559		
1,600.0	1,548.1	1,553.3	1,515.6	7.1	6.0	-133.66	-268.8	-34.2	381.4	370.4	11.03	34.566		
1,700.0	1,642.6	1,648.2	1,606.9	7.7	6.5	-133.34	-293.3	-42.3	413.0	401.0	11.95	34.569		
1,800.0	1,737.2	1,743.0	1,698.1	8.3	7.0	-133.06	-317.8	-50.3	444.5	431.7	12.86	34.568		
1,900.0	1,831.7	1,837.9	1,789.4	9.0	7.5	-132.82	-342.3	-58.4	476.1	462.4	13.77	34.566		
2,000.0	1,926.3	1,932.8	1,880.7	9.6	8.0	-132.61	-366.8	-66.4	507.7	493.0	14.69	34.563		
2,100.0	2,020.8	2,027.6	1,972.0	10.2	8.4	-132.42	-391.3	-74.5	539.3	523.7	15.61	34.559		
2,200.0	2,115.4	2,122.5	2,063.3	10.8	8.9	-132.25	-415.8	-82.5	570.9	554.4	16.52	34.554		
2,300.0	2,210.0	2,217.4	2,154.6	11.4	9.4	-132.10	-440.3	-90.6	602.5	585.1	17.44	34.550		
2,400.0	2,304.5	2,312.2	2,245.9	12.1	9.9	-131.97	-464.8	-98.6	634.2	615.8	18.36	34.545		
2,500.0	2,399.1	2,407.1	2,337.2	12.7	10.4	-131.85	-489.3	-106.7	665.8	646.5	19.28	34.540		
2,600.0	2,493.6	2,501.9	2,428.5	13.3	10.8	-131.74	-513.7	-114.7	697.4	677.2	20.19	34.536		
2,700.0	2,588.2	2,596.8	2,519.8	13.9	11.3	-131.64	-538.2	-122.8	729.0	707.9	21.11	34.531		
2,800.0	2,682.7	2,691.7	2,611.1	14.6	11.8	-131.55	-562.7	-130.8	760.6	738.6	22.03	34.527		
2,900.0	2,777.3	2,786.5	2,702.4	15.2	12.3	-131.46	-587.2	-138.9	792.3	769.3	22.95	34.523		
3,000.0	2,871.8	2,881.4	2,793.6	15.8	12.8	-131.38	-611.7	-146.9	823.9	800.0	23.87	34.519		
3,100.0	2,966.4	2,976.3	2,884.9	16.4	13.2	-131.31	-636.2	-155.0	855.5	830.7	24.79	34.515		
3,200.0	3,061.0	3,071.1	2,976.2	17.0	13.7	-131.24	-660.7	-163.0	887.1	861.4	25.71	34.511		
3,300.0	3,155.5	3,166.0	3,067.5	17.7	14.2	-131.18	-685.2	-171.1	918.8	892.1	26.63	34.507		
3,400.0	3,250.1	3,260.8	3,158.8	18.3	14.7	-131.12	-709.7	-179.1	950.4	922.9	27.54	34.504		
3,500.0	3,344.6	3,355.7	3,250.1	18.9	15.2	-131.07	-734.2	-187.2	982.0	953.6	28.46	34.501		
3,600.0	3,439.2	3,450.6	3,341.4	19.5	15.6	-131.02	-758.7	-195.2	1,013.7	984.3	29.38	34.497		
3,700.0	3,533.7	3,545.4	3,432.7	20.1	16.1	-130.97	-783.1	-203.3	1,045.3	1,015.0	30.30	34.494		
3,800.0	3,628.3	3,640.3	3,524.0	20.8	16.6	-130.92	-807.6	-211.3	1,076.9	1,045.7	31.22	34.491		
3,900.0	3,722.8	3,735.1	3,615.3	21.4	17.1	-130.88	-832.1	-219.4	1,108.6	1,076.4	32.14	34.489		
4,000.0	3,817.4	3,830.0	3,706.6	22.0	17.6	-130.84	-856.6	-227.4	1,140.2	1,107.1	33.06	34.486		
4,100.0	3,911.9	3,924.9	3,797.9	22.6	18.0	-130.80	-881.1	-235.5	1,171.8	1,137.8	33.98	34.483		
4,200.0	4,006.5	4,019.7	3,889.1	23.2	18.5	-130.76	-905.6	-243.5	1,203.5	1,168.6	34.90	34.481		
4,300.0	4,101.1	4,114.6	3,980.4	23.9	19.0	-130.73	-930.1	-251.6	1,235.1	1,199.3	35.82	34.478		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 16-12C (M16W) - DD - FINAL														Offset Site Error:	0.0 ft
Survey Program: 206-MWD, 1347-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	44.70	131.9	130.5	185.5						
100.0	100.0	99.6	99.6	0.1	0.2	44.66	132.0	130.5	185.6	185.3	0.29	636.825 ES			
200.0	200.0	199.1	199.1	0.3	0.3	44.55	132.5	130.5	186.0	185.4	0.62	299.317			
300.0	300.0	298.2	298.2	0.5	0.5	142.16	133.7	130.0	187.7	186.7	0.97	193.553			
400.0	399.8	396.4	396.2	0.7	0.7	141.45	138.7	126.6	194.1	192.7	1.35	144.234			
500.0	499.1	489.0	488.1	1.0	0.9	140.14	148.4	121.3	206.9	205.1	1.78	115.998			
600.0	597.6	585.9	583.5	1.3	1.2	138.32	163.4	113.2	225.6	223.3	2.34	96.520			
700.0	695.1	684.9	680.3	1.7	1.6	136.61	180.8	102.2	248.1	245.1	2.99	82.885			
800.0	791.4	783.0	776.2	2.2	2.0	135.62	198.1	90.1	273.6	269.9	3.72	73.529			
900.0	886.2	877.8	868.6	2.8	2.4	135.45	215.1	78.0	302.4	297.9	4.49	67.308			
1,000.0	980.7	972.3	960.7	3.4	2.8	135.66	232.5	66.0	332.2	327.0	5.29	62.824			
1,100.0	1,075.3	1,067.6	1,053.5	4.0	3.2	135.82	250.3	53.7	362.1	356.0	6.09	59.480			
1,200.0	1,169.9	1,161.3	1,145.1	4.7	3.6	136.20	266.9	43.1	392.2	385.4	6.86	57.213			
1,300.0	1,264.4	1,257.5	1,239.3	5.3	3.9	136.62	283.7	32.8	422.6	415.0	7.63	55.391			
1,400.0	1,359.0	1,356.9	1,336.6	5.9	4.3	137.00	300.6	21.7	452.3	443.9	8.41	53.761			
1,500.0	1,453.5	1,452.7	1,430.5	6.5	4.7	137.36	316.1	10.8	481.4	472.2	9.18	52.433			
1,600.0	1,548.1	1,539.8	1,515.6	7.1	5.1	137.53	331.7	0.8	511.6	501.7	9.95	51.430			
1,700.0	1,642.6	1,643.4	1,616.7	7.7	5.5	137.62	350.6	-11.7	541.6	530.9	10.78	50.252			
1,800.0	1,737.2	1,740.1	1,711.2	8.3	5.9	137.77	367.1	-23.5	570.8	559.3	11.57	49.347			
1,900.0	1,831.7	1,833.0	1,802.2	9.0	6.2	137.97	382.7	-34.2	600.2	587.9	12.32	48.702			
2,000.0	1,926.3	1,926.1	1,893.5	9.6	6.6	138.27	397.8	-43.8	630.1	617.0	13.06	48.253			
2,100.0	2,020.8	2,022.7	1,988.4	10.2	7.0	138.59	413.4	-53.3	660.1	646.4	13.79	47.856			
2,200.0	2,115.4	2,124.0	2,088.1	10.8	7.3	138.92	428.9	-63.4	689.5	675.0	14.54	47.429			
2,300.0	2,210.0	2,213.8	2,176.3	11.4	7.7	139.20	442.5	-72.6	718.6	703.4	15.26	47.097			
2,400.0	2,304.5	2,302.9	2,263.5	12.1	8.0	139.30	458.2	-82.2	749.2	733.2	16.01	46.791			
2,500.0	2,399.1	2,405.2	2,363.5	12.7	8.4	139.37	476.2	-93.7	779.4	762.6	16.81	46.371			
2,600.0	2,493.6	2,490.3	2,446.9	13.3	8.8	139.48	490.6	-103.0	809.4	791.8	17.54	46.131			
2,700.0	2,588.2	2,571.4	2,525.9	13.9	9.1	139.45	506.8	-111.7	841.4	823.1	18.30	45.986			
2,800.0	2,682.7	2,670.3	2,622.1	14.6	9.6	139.41	526.8	-122.3	873.9	854.8	19.11	45.719			
2,900.0	2,777.3	2,770.9	2,720.4	15.2	10.0	139.45	545.9	-132.7	905.6	885.7	19.91	45.486			
3,000.0	2,871.8	2,864.8	2,812.3	15.8	10.3	139.55	562.9	-142.0	937.0	916.4	20.66	45.353			
3,100.0	2,966.4	2,973.6	2,918.9	16.4	10.8	139.70	581.9	-152.3	968.3	946.8	21.45	45.145			
3,200.0	3,061.0	3,074.3	3,017.8	17.0	11.1	139.86	597.9	-162.5	998.1	975.9	22.19	44.970			
3,300.0	3,155.5	3,155.8	3,097.8	17.7	11.4	140.00	611.0	-170.4	1,028.3	1,005.4	22.88	44.944			
3,400.0	3,250.1	3,255.8	3,196.0	18.3	11.8	140.16	627.8	-179.6	1,059.4	1,035.8	23.62	44.854			
3,500.0	3,344.6	3,321.1	3,260.0	18.9	12.1	140.23	639.3	-185.6	1,091.0	1,066.7	24.28	44.930			
3,600.0	3,439.2	3,394.7	3,331.4	19.5	12.4	140.18	655.5	-192.3	1,125.5	1,100.5	25.01	45.006			
3,700.0	3,533.7	3,493.6	3,427.5	20.1	12.9	140.11	677.4	-201.6	1,160.0	1,134.2	25.84	44.897			
3,800.0	3,628.3	3,589.1	3,520.2	20.8	13.3	140.05	698.4	-210.4	1,194.6	1,167.9	26.65	44.832			
3,900.0	3,722.8	3,697.4	3,625.5	21.4	13.8	140.02	721.3	-220.5	1,228.4	1,200.9	27.49	44.681 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 16-12C2 (M16W) - DD - FINAL													Offset Site Error:	0.0 ft
Survey Program: 206-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	45.69	121.3	124.3	173.6					
100.0	100.0	101.0	101.0	0.1	0.2	45.76	121.0	124.2	173.4	173.1	0.29	588.959		
200.0	200.0	201.9	201.9	0.3	0.3	45.96	119.9	124.0	172.5	171.9	0.63	275.126		
246.0	246.0	247.8	247.8	0.4	0.4	143.83	119.4	123.8	172.3	171.5	0.79	219.123 CC, ES		
300.0	300.0	300.2	300.2	0.5	0.5	143.95	119.3	123.4	172.8	171.8	0.97	177.799		
400.0	399.8	397.2	397.1	0.7	0.7	144.01	122.4	121.9	179.2	177.9	1.33	135.051		
500.0	499.1	494.6	494.1	1.0	0.9	143.15	130.2	117.3	190.8	189.1	1.74	109.914		
600.0	597.6	594.3	592.9	1.3	1.1	142.07	141.1	109.9	206.8	204.5	2.23	92.657		
700.0	695.1	692.7	689.9	1.7	1.4	140.89	154.2	99.7	226.4	223.6	2.82	80.265		
800.0	791.4	788.9	784.4	2.2	1.8	140.18	168.2	88.8	250.2	246.7	3.47	72.000		
900.0	886.2	886.0	879.8	2.8	2.1	140.27	182.6	77.7	277.7	273.6	4.17	66.592		
1,000.0	980.7	984.2	976.5	3.4	2.4	140.88	195.9	66.5	305.1	300.2	4.87	62.584		
1,100.0	1,075.3	1,082.3	1,073.0	4.0	2.8	141.42	208.9	55.2	332.1	326.5	5.58	59.533		
1,200.0	1,169.9	1,178.7	1,168.0	4.7	3.1	141.90	221.2	43.8	358.7	352.4	6.28	57.089		
1,300.0	1,264.4	1,274.4	1,262.1	5.3	3.4	142.20	234.0	32.2	385.5	378.5	7.00	55.090		
1,400.0	1,359.0	1,370.6	1,356.6	5.9	3.8	142.43	247.1	20.3	412.3	404.6	7.72	53.415		
1,500.0	1,453.5	1,464.8	1,449.3	6.5	4.1	142.62	260.2	8.9	439.4	431.0	8.43	52.103		
1,600.0	1,548.1	1,560.8	1,543.6	7.1	4.5	142.77	273.8	-2.7	466.8	457.6	9.17	50.931		
1,700.0	1,642.6	1,657.3	1,638.2	7.7	4.9	142.76	288.2	-15.1	494.1	484.2	9.92	49.790		
1,800.0	1,737.2	1,752.8	1,731.7	8.3	5.2	142.70	302.9	-27.7	521.5	510.8	10.69	48.788		
1,900.0	1,831.7	1,849.2	1,826.2	9.0	5.6	142.67	317.6	-40.2	549.0	537.5	11.44	47.975		
2,000.0	1,926.3	1,946.2	1,921.4	9.6	6.0	142.78	331.4	-52.0	576.3	564.1	12.17	47.348		
2,100.0	2,020.8	2,044.3	2,018.0	10.2	6.3	142.96	344.6	-63.5	603.5	590.6	12.89	46.822		
2,200.0	2,115.4	2,138.6	2,110.8	10.8	6.6	143.13	357.1	-74.6	630.4	616.8	13.59	46.396		
2,300.0	2,210.0	2,233.5	2,204.3	11.4	7.0	143.35	369.6	-85.0	657.9	643.6	14.27	46.110		
2,400.0	2,304.5	2,328.7	2,298.2	12.1	7.3	143.62	381.4	-94.8	685.4	670.5	14.93	45.907		
2,500.0	2,399.1	2,425.2	2,393.5	12.7	7.6	143.91	393.2	-104.4	713.0	697.4	15.58	45.757		
2,600.0	2,493.6	2,520.1	2,487.3	13.3	7.9	144.25	404.2	-113.3	740.6	724.4	16.20	45.706		
2,700.0	2,588.2	2,615.2	2,581.4	13.9	8.2	144.60	414.9	-121.8	768.5	751.6	16.82	45.677		
2,800.0	2,682.7	2,711.4	2,676.6	14.6	8.5	144.92	425.9	-130.3	796.3	778.9	17.44	45.672		
2,900.0	2,777.3	2,805.9	2,770.2	15.2	8.8	145.24	436.4	-138.5	824.3	806.2	18.04	45.680		
3,000.0	2,871.8	2,896.5	2,859.8	15.8	9.0	145.52	446.8	-146.1	852.6	834.0	18.64	45.753		
3,100.0	2,966.4	2,989.4	2,951.8	16.4	9.3	145.78	458.0	-153.8	881.5	862.2	19.25	45.787		
3,200.0	3,061.0	3,083.0	3,044.2	17.0	9.6	145.96	470.1	-161.8	910.7	890.8	19.89	45.790		
3,300.0	3,155.5	3,179.9	3,139.9	17.7	9.9	146.12	482.8	-170.2	939.9	919.3	20.53	45.776		
3,400.0	3,250.1	3,276.9	3,235.7	18.3	10.2	146.29	495.2	-178.7	968.9	947.7	21.17	45.772		
3,500.0	3,344.6	3,370.7	3,328.6	18.9	10.5	146.47	506.8	-186.5	997.9	976.1	21.79	45.807		
3,600.0	3,439.2	3,464.5	3,421.0	19.5	10.9	146.54	520.0	-195.3	1,027.2	1,004.7	22.47	45.721		
3,700.0	3,533.7	3,565.5	3,520.4	20.1	11.2	146.57	534.5	-205.2	1,056.4	1,033.2	23.18	45.580		
3,800.0	3,628.3	3,665.6	3,618.7	20.8	11.6	146.51	549.8	-216.8	1,084.8	1,060.9	23.94	45.322		
3,900.0	3,722.8	3,755.1	3,706.4	21.4	12.0	146.42	564.1	-227.2	1,113.6	1,088.9	24.66	45.158		
4,000.0	3,817.4	3,852.9	3,802.4	22.0	12.3	146.34	579.6	-238.3	1,142.6	1,117.2	25.41	44.968		
4,100.0	3,911.9	3,964.7	3,912.1	22.6	12.8	146.29	596.4	-251.1	1,170.9	1,144.7	26.20	44.697		
4,200.0	4,006.5	4,069.5	4,015.0	23.2	13.1	146.26	611.0	-264.1	1,197.9	1,171.0	26.95	44.446		
4,300.0	4,101.1	4,158.7	4,102.7	23.9	13.5	146.25	623.2	-275.0	1,225.0	1,197.3	27.64	44.311 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 Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 16-5C (M16W) - DD - FINAL													Offset Site Error:	0.0 ft
Survey Program: 237-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	47.83	128.9	142.3	192.1					
100.0	100.0	99.8	99.8	0.1	0.2	47.87	128.9	142.5	192.1	191.8	0.29	652.975		
200.0	200.0	199.6	199.6	0.3	0.3	47.99	128.7	142.9	192.3	191.7	0.63	306.767 ES		
300.0	300.0	298.4	298.4	0.5	0.5	146.09	128.5	143.5	193.9	192.9	0.97	200.094		
400.0	399.8	395.0	395.0	0.7	0.7	146.21	131.5	142.8	200.8	199.4	1.32	152.065		
500.0	499.1	489.0	488.4	1.0	0.8	145.37	140.2	140.0	214.5	212.7	1.71	125.637		
600.0	597.6	582.6	580.8	1.3	1.1	143.77	154.2	134.6	234.2	232.0	2.18	107.518		
700.0	695.1	672.2	668.2	1.7	1.4	141.78	172.7	127.7	260.6	257.8	2.75	94.692		
800.0	791.4	764.4	756.9	2.2	1.9	139.53	196.2	118.6	292.9	289.4	3.48	84.060		
900.0	886.2	857.8	845.8	2.8	2.4	137.73	222.2	107.0	329.0	324.7	4.31	76.373		
1,000.0	980.7	943.7	927.4	3.4	2.8	136.77	246.8	96.5	366.4	361.3	5.14	71.295		
1,100.0	1,075.3	1,030.5	1,009.6	4.0	3.3	135.89	273.2	86.7	405.7	399.7	6.00	67.678		
1,200.0	1,169.9	1,119.7	1,093.9	4.7	3.8	135.15	300.8	77.1	445.9	439.0	6.86	64.960		
1,300.0	1,264.4	1,210.8	1,180.1	5.3	4.4	134.62	328.7	68.1	486.3	478.6	7.74	62.849		
1,400.0	1,359.0	1,300.1	1,264.7	5.9	4.9	134.20	356.0	59.5	526.9	518.3	8.62	61.148		
1,500.0	1,453.5	1,387.9	1,347.4	6.5	5.4	133.70	384.0	50.3	568.0	558.5	9.51	59.717		
1,600.0	1,548.1	1,479.7	1,433.6	7.1	6.0	133.17	414.0	40.4	609.5	599.1	10.43	58.453		
1,700.0	1,642.6	1,574.8	1,523.2	7.7	6.6	132.76	444.2	30.2	650.5	639.1	11.36	57.245		
1,800.0	1,737.2	1,666.2	1,609.1	8.3	7.2	132.32	473.6	19.6	691.2	678.9	12.30	56.208		
1,900.0	1,831.7	1,757.2	1,694.5	9.0	7.7	131.91	503.1	8.8	732.0	718.8	13.23	55.349		
2,000.0	1,926.3	1,853.9	1,785.5	9.6	8.3	131.58	533.8	-2.3	772.6	758.5	14.18	54.501		
2,100.0	2,020.8	1,950.7	1,876.8	10.2	8.9	131.28	563.9	-14.0	812.4	797.3	15.13	53.693		
2,200.0	2,115.4	2,049.0	1,969.7	10.8	9.5	131.04	593.8	-25.7	851.8	835.7	16.08	52.985		
2,300.0	2,210.0	2,128.5	2,045.0	11.4	9.9	130.91	617.4	-34.7	891.0	874.1	16.93	52.620		
2,400.0	2,304.5	2,211.6	2,123.3	12.1	10.5	130.74	643.9	-43.7	932.0	914.2	17.81	52.327		
2,500.0	2,399.1	2,313.5	2,219.5	12.7	11.1	130.58	675.7	-54.6	972.6	953.9	18.77	51.825		
2,600.0	2,493.6	2,401.8	2,303.1	13.3	11.6	130.48	702.5	-64.2	1,012.5	992.9	19.67	51.474		
2,700.0	2,588.2	2,491.5	2,387.6	13.9	12.1	130.31	730.9	-74.3	1,053.2	1,032.6	20.58	51.174		
2,800.0	2,682.7	2,577.3	2,468.6	14.6	12.7	130.21	757.5	-83.7	1,093.7	1,072.2	21.48	50.912		
2,900.0	2,777.3	2,662.1	2,548.0	15.2	13.2	130.01	785.6	-93.6	1,135.2	1,112.8	22.39	50.699		
3,000.0	2,871.8	2,766.3	2,646.0	15.8	13.9	129.84	819.1	-105.6	1,176.2	1,152.8	23.38	50.303		
3,100.0	2,966.4	2,867.7	2,741.6	16.4	14.5	129.70	850.6	-117.5	1,216.2	1,191.9	24.35	49.946 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16B (M16W Pad) - DD - Plan #2													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	69.85	17.5	47.7	50.8					
100.0	100.0	100.0	100.0	0.1	0.1	69.85	17.5	47.7	50.8	50.6	0.27	186.727	81.824 CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	69.85	17.5	47.7	50.8	50.2	0.62	81.824		
300.0	300.0	300.0	300.0	0.5	0.5	167.91	17.5	47.7	52.3	51.3	0.97	53.893		
400.0	399.8	399.8	399.8	0.7	0.7	169.21	17.5	47.7	58.7	57.4	1.32	44.553		
500.0	499.1	500.7	500.7	1.0	0.8	170.73	17.6	47.1	69.7	68.0	1.66	41.861		
600.0	597.6	603.7	603.5	1.3	1.0	170.94	18.5	41.6	81.7	79.6	2.02	40.480		
700.0	695.1	707.1	706.4	1.7	1.3	170.09	20.4	30.7	94.0	91.6	2.38	39.422		
800.0	791.4	811.2	809.0	2.2	1.6	168.54	23.1	14.1	106.6	103.8	2.78	38.320		
900.0	886.2	915.7	911.1	2.8	2.0	166.51	26.8	-8.0	119.2	116.0	3.25	36.673		
1,000.0	980.7	1,020.9	1,012.5	3.4	2.5	163.66	31.5	-35.8	128.2	124.4	3.85	33.329		
1,100.0	1,075.3	1,126.4	1,112.3	4.0	3.1	159.76	37.0	-69.2	133.0	128.3	4.62	28.756		
1,200.0	1,169.9	1,226.3	1,205.9	4.7	3.7	155.49	42.8	-103.7	135.8	130.3	5.56	24.418		
1,300.0	1,264.4	1,325.7	1,299.0	5.3	4.4	151.43	48.5	-138.1	139.4	132.8	6.63	21.021		
1,400.0	1,359.0	1,425.2	1,392.2	5.9	5.0	147.58	54.3	-172.5	143.7	135.9	7.81	18.395		
1,500.0	1,453.5	1,524.7	1,485.3	6.5	5.6	143.98	60.0	-206.9	148.5	139.5	9.07	16.372		
1,600.0	1,548.1	1,624.1	1,578.5	7.1	6.3	140.61	65.7	-241.3	154.0	143.6	10.40	14.808		
1,700.0	1,642.6	1,723.6	1,671.6	7.7	6.9	137.48	71.5	-275.7	159.9	148.1	11.77	13.588		
1,800.0	1,737.2	1,823.0	1,764.8	8.3	7.6	134.58	77.2	-310.1	166.3	153.1	13.17	12.628		
1,900.0	1,831.7	1,922.5	1,857.9	9.0	8.3	131.90	83.0	-344.5	173.0	158.4	14.58	11.864		
2,000.0	1,926.3	2,021.9	1,951.0	9.6	8.9	129.42	88.7	-378.8	180.1	164.1	16.01	11.250		
2,100.0	2,020.8	2,121.4	2,044.2	10.2	9.6	127.14	94.5	-413.2	187.5	170.1	17.44	10.753		
2,200.0	2,115.4	2,220.8	2,137.3	10.8	10.2	125.03	100.2	-447.6	195.2	176.4	18.87	10.345		
2,300.0	2,210.0	2,320.3	2,230.5	11.4	10.9	123.08	105.9	-482.0	203.2	182.9	20.30	10.010		
2,400.0	2,304.5	2,419.7	2,323.6	12.1	11.6	121.28	111.7	-516.4	211.3	189.6	21.72	9.730		
2,500.0	2,399.1	2,519.2	2,416.7	12.7	12.2	119.61	117.4	-550.8	219.7	196.6	23.13	9.496		
2,600.0	2,493.6	2,618.7	2,509.9	13.3	12.9	118.07	123.2	-585.2	228.2	203.7	24.54	9.300		
2,700.0	2,588.2	2,718.1	2,603.0	13.9	13.6	116.64	128.9	-619.6	236.9	210.9	25.94	9.133		
2,800.0	2,682.7	2,817.6	2,696.2	14.6	14.2	115.31	134.6	-654.0	245.7	218.4	27.33	8.991		
2,900.0	2,777.3	2,917.0	2,789.3	15.2	14.9	114.08	140.4	-688.4	254.6	225.9	28.71	8.869		
3,000.0	2,871.8	3,016.5	2,882.5	15.8	15.6	112.92	146.1	-722.8	263.7	233.6	30.08	8.765		
3,100.0	2,966.4	3,115.9	2,975.6	16.4	16.2	111.85	151.9	-757.2	272.8	241.4	31.45	8.675		
3,200.0	3,061.0	3,215.4	3,068.7	17.0	16.9	110.84	157.6	-791.6	282.0	249.2	32.81	8.597		
3,300.0	3,155.5	3,314.8	3,161.9	17.7	17.6	109.90	163.3	-825.9	291.4	257.2	34.16	8.529		
3,400.0	3,250.1	3,414.3	3,255.0	18.3	18.2	109.01	169.1	-860.3	300.7	265.2	35.50	8.471		
3,500.0	3,344.6	3,513.7	3,348.2	18.9	18.9	108.18	174.8	-894.7	310.2	273.3	36.84	8.419		
3,600.0	3,439.2	3,613.2	3,441.3	19.5	19.5	107.40	180.6	-929.1	319.7	281.5	38.18	8.374		
3,700.0	3,533.7	3,712.7	3,534.5	20.1	20.2	106.67	186.3	-963.5	329.3	289.8	39.51	8.335		
3,800.0	3,628.3	3,812.1	3,627.6	20.8	20.9	105.97	192.0	-997.9	338.9	298.1	40.83	8.300		
3,900.0	3,722.8	3,911.6	3,720.7	21.4	21.5	105.32	197.8	-1,032.3	348.6	306.4	42.15	8.270		
4,000.0	3,817.4	4,011.0	3,813.9	22.0	22.2	104.70	203.5	-1,066.7	358.3	314.8	43.46	8.243		
4,100.0	3,911.9	4,110.5	3,907.0	22.6	22.9	104.11	209.3	-1,101.1	368.0	323.2	44.77	8.220		
4,200.0	4,006.5	4,209.9	4,000.2	23.2	23.5	103.55	215.0	-1,135.5	377.8	331.7	46.08	8.199		
4,300.0	4,101.1	4,309.4	4,093.3	23.9	24.2	103.02	220.7	-1,169.9	387.6	340.2	47.38	8.181		
4,400.0	4,195.6	4,408.8	4,186.4	24.5	24.9	102.52	226.5	-1,204.3	397.5	348.8	48.68	8.165		
4,500.0	4,290.2	4,508.3	4,279.6	25.1	25.5	102.04	232.2	-1,238.7	407.4	357.4	49.98	8.151		
4,600.0	4,384.7	4,607.7	4,372.7	25.7	26.2	101.58	238.0	-1,273.0	417.3	366.0	51.27	8.139		
4,700.0	4,479.3	4,707.2	4,465.9	26.4	26.9	101.15	243.7	-1,307.4	427.2	374.6	52.56	8.128		
4,800.0	4,573.8	4,806.7	4,559.0	27.0	27.5	100.73	249.4	-1,341.8	437.1	383.3	53.85	8.118		
4,900.0	4,668.4	4,906.1	4,652.2	27.6	28.2	100.34	255.2	-1,376.2	447.1	392.0	55.13	8.110		
5,000.0	4,762.9	5,005.6	4,745.3	28.2	28.9	99.96	260.9	-1,410.6	457.1	400.7	56.42	8.102		
5,100.0	4,857.5	5,105.0	4,838.4	28.8	29.5	99.60	266.7	-1,445.0	467.1	409.4	57.70	8.096		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16B (M16W Pad) - DD - Plan #2													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	4,952.1	5,204.5	4,931.6	29.5	30.2	99.25	272.4	-1,479.4	477.2	418.2	58.98	8.091		
5,300.0	5,046.6	5,303.9	5,024.7	30.1	30.9	98.91	278.1	-1,513.8	487.2	427.0	60.26	8.086		
5,400.0	5,141.2	5,403.4	5,117.9	30.7	31.5	98.59	283.9	-1,548.2	497.3	435.7	61.53	8.082		
5,500.0	5,235.7	5,502.8	5,211.0	31.3	32.2	98.29	289.6	-1,582.6	507.4	444.6	62.81	8.078		
5,600.0	5,330.3	5,602.3	5,304.1	31.9	32.9	97.99	295.4	-1,617.0	517.5	453.4	64.08	8.075		
5,700.0	5,424.8	5,701.7	5,397.3	32.6	33.5	97.71	301.1	-1,651.4	527.6	462.2	65.35	8.073		
5,800.0	5,519.4	5,801.2	5,490.4	33.2	34.2	97.43	306.8	-1,685.8	537.7	471.1	66.62	8.071		
5,900.0	5,613.9	5,900.6	5,583.6	33.8	34.9	97.17	312.6	-1,720.1	547.8	479.9	67.89	8.070		
6,000.0	5,708.5	6,000.1	5,676.7	34.4	35.5	96.92	318.3	-1,754.5	558.0	488.8	69.15	8.068		
6,100.0	5,803.1	6,099.6	5,769.9	35.1	36.2	96.67	324.1	-1,788.9	568.1	497.7	70.42	8.068		
6,200.0	5,897.6	6,199.0	5,863.0	35.7	36.9	96.44	329.8	-1,823.3	578.3	506.6	71.68	8.067		
6,300.0	5,992.2	6,298.5	5,956.1	36.3	37.5	96.21	335.5	-1,857.7	588.4	515.5	72.95	8.067		
6,400.0	6,086.7	6,397.9	6,049.3	36.9	38.2	95.99	341.3	-1,892.1	598.6	524.4	74.21	8.067		
6,500.0	6,181.3	6,497.4	6,142.4	37.5	38.9	95.77	347.0	-1,926.5	608.8	533.3	75.47	8.067		
6,600.0	6,275.8	6,596.8	6,235.6	38.2	39.5	95.57	352.8	-1,960.9	619.0	542.3	76.73	8.067		
6,700.0	6,370.4	6,696.3	6,328.7	38.8	40.2	95.37	358.5	-1,995.3	629.2	551.2	77.99	8.068		
6,800.0	6,464.9	6,795.7	6,421.9	39.4	40.9	95.18	364.3	-2,029.7	639.4	560.2	79.25	8.069		
6,900.0	6,559.5	6,895.2	6,515.0	40.0	41.5	94.99	370.0	-2,064.1	649.6	569.1	80.51	8.069		
7,000.0	6,654.0	6,994.6	6,608.1	40.7	42.2	94.81	375.7	-2,098.5	659.9	578.1	81.76	8.070		
7,100.0	6,748.6	7,094.1	6,701.3	41.3	42.9	94.63	381.5	-2,132.8	670.1	587.1	83.02	8.072		
7,200.0	6,843.2	7,193.6	6,794.4	41.9	43.5	94.46	387.2	-2,167.2	680.3	596.1	84.28	8.073		
7,300.0	6,937.7	7,293.0	6,887.6	42.5	44.2	94.30	393.0	-2,201.6	690.6	605.1	85.53	8.074		
7,400.0	7,032.4	7,397.0	6,985.4	43.1	44.8	94.30	398.7	-2,236.3	700.5	613.8	86.77	8.073		
7,500.0	7,128.1	7,502.0	7,085.5	43.7	45.4	94.43	404.0	-2,267.8	709.5	621.6	87.88	8.073		
7,600.0	7,224.7	7,607.2	7,186.8	44.1	45.9	94.54	408.6	-2,295.7	717.4	628.6	88.86	8.074		
7,700.0	7,322.1	7,712.5	7,289.2	44.5	46.4	94.64	412.7	-2,319.9	724.3	634.6	89.71	8.074		
7,800.0	7,420.3	7,818.0	7,392.6	44.9	46.7	94.73	416.1	-2,340.4	730.1	639.7	90.43	8.074		
7,900.0	7,519.1	7,923.6	7,496.8	45.1	47.0	94.80	418.9	-2,357.2	734.9	643.9	91.02	8.073		
8,000.0	7,618.3	8,029.3	7,601.7	45.4	47.3	94.87	421.1	-2,370.2	738.6	647.1	91.49	8.072		
8,100.0	7,717.9	8,135.1	7,707.0	45.5	47.5	94.92	422.6	-2,379.4	741.2	649.3	91.84	8.070		
8,200.0	7,817.8	8,240.9	7,812.7	45.6	47.6	94.97	423.5	-2,384.7	742.7	650.6	92.07	8.067		
8,300.0	7,917.8	8,346.0	7,917.8	45.7	47.6	-2.72	423.8	-2,386.2	743.1	651.0	92.20	8.061		
8,400.0	8,017.8	8,446.0	8,017.8	45.8	47.7	-2.72	423.8	-2,386.2	743.1	650.8	92.31	8.051		
8,500.0	8,117.8	8,546.0	8,117.8	45.8	47.7	-2.72	423.8	-2,386.2	743.1	650.7	92.42	8.041		
8,600.0	8,217.8	8,646.0	8,217.8	45.9	47.8	-2.72	423.8	-2,386.2	743.1	650.6	92.53	8.031		
8,700.0	8,317.8	8,746.0	8,317.8	45.9	47.9	-2.72	423.8	-2,386.2	743.1	650.5	92.64	8.022		
8,800.0	8,417.8	8,846.0	8,417.8	46.0	47.9	-2.72	423.8	-2,386.2	743.1	650.4	92.76	8.012		
8,900.0	8,517.8	8,946.0	8,517.8	46.0	48.0	-2.72	423.8	-2,386.2	743.1	650.3	92.88	8.002		
9,000.0	8,617.8	9,046.0	8,617.8	46.1	48.0	-2.72	423.8	-2,386.2	743.1	650.2	92.99	7.991		
9,100.0	8,717.8	9,146.0	8,717.8	46.2	48.1	-2.72	423.8	-2,386.2	743.1	650.0	93.11	7.981		
9,200.0	8,817.8	9,246.0	8,817.8	46.2	48.1	-2.72	423.8	-2,386.2	743.1	649.9	93.23	7.971		
9,300.0	8,917.8	9,346.0	8,917.8	46.3	48.2	-2.72	423.8	-2,386.2	743.1	649.8	93.35	7.961		
9,400.0	9,017.8	9,446.0	9,017.8	46.3	48.3	-2.72	423.8	-2,386.2	743.1	649.7	93.47	7.950		
9,500.0	9,117.8	9,546.0	9,117.8	46.4	48.3	-2.72	423.8	-2,386.2	743.1	649.6	93.60	7.940		
9,600.0	9,217.8	9,646.0	9,217.8	46.5	48.4	-2.72	423.8	-2,386.2	743.1	649.4	93.72	7.929		
9,700.0	9,317.8	9,746.0	9,317.8	46.5	48.4	-2.72	423.8	-2,386.2	743.1	649.3	93.85	7.919		
9,800.0	9,417.8	9,846.0	9,417.8	46.6	48.5	-2.72	423.8	-2,386.2	743.1	649.2	93.97	7.908		
9,900.0	9,517.8	9,946.0	9,517.8	46.7	48.6	-2.72	423.8	-2,386.2	743.1	649.0	94.10	7.897		
10,000.0	9,617.8	10,046.0	9,617.8	46.7	48.6	-2.72	423.8	-2,386.2	743.1	648.9	94.23	7.887		
10,100.0	9,717.8	10,146.0	9,717.8	46.8	48.7	-2.72	423.8	-2,386.2	743.1	648.8	94.36	7.876		
10,200.0	9,817.8	10,246.0	9,817.8	46.8	48.7	-2.72	423.8	-2,386.2	743.1	648.7	94.49	7.865		
10,300.0	9,917.8	10,346.0	9,917.8	46.9	48.8	-2.72	423.8	-2,386.2	743.1	648.5	94.62	7.854		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16B (M16W Pad) - DD - Plan #2													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
10,400.0	10,017.8	10,446.0	10,017.8	47.0	48.9	-2.72	423.8	-2,386.2	743.1	648.4	94.76	7.843	
10,445.0	10,062.7	10,490.9	10,062.7	47.0	48.9	-2.72	423.8	-2,386.2	743.1	648.3	94.82	7.838	
10,473.2	10,091.0	10,509.2	10,081.0	47.0	48.9	-2.72	423.8	-2,386.2	743.2	648.4	94.85	7.836 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16CC (M16W Pad) - DD - Plan #1														Offset Site Error:	0.0 ft
Survey Program: O-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	69.90	11.7	31.9	34.0						
100.0	100.0	100.0	100.0	0.1	0.1	69.90	11.7	31.9	34.0	33.7	0.27	124.815			
200.0	200.0	200.0	200.0	0.3	0.3	69.90	11.7	31.9	34.0	33.4	0.62	54.694 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	168.12	11.7	31.9	35.4	34.5	0.97	36.517			
400.0	399.8	401.8	401.7	0.7	0.7	168.80	11.7	29.2	39.3	38.0	1.32	29.742			
500.0	499.1	503.8	503.4	1.0	0.9	168.45	11.6	21.1	43.3	41.6	1.68	25.789			
600.0	597.6	606.0	604.7	1.3	1.2	167.32	11.5	7.5	47.3	45.3	2.05	23.101			
700.0	695.1	708.4	705.3	1.7	1.5	165.60	11.3	-11.6	51.5	49.0	2.45	21.005			
800.0	791.4	810.9	804.9	2.2	2.0	163.43	11.2	-36.0	55.8	52.8	2.91	19.141			
900.0	886.2	913.6	903.1	2.8	2.6	160.80	10.9	-65.8	59.8	56.3	3.48	17.168			
1,000.0	980.7	1,014.4	998.3	3.4	3.2	157.07	10.7	-98.9	61.2	57.0	4.21	14.528			
1,100.0	1,075.3	1,114.3	1,092.6	4.0	3.8	153.44	10.4	-132.0	62.7	57.6	5.07	12.376			
1,200.0	1,169.9	1,214.2	1,186.9	4.7	4.4	149.99	10.2	-165.0	64.4	58.4	6.03	10.686			
1,300.0	1,264.4	1,314.1	1,281.2	5.3	5.0	146.73	9.9	-198.0	66.4	59.3	7.08	9.369			
1,400.0	1,359.0	1,414.0	1,375.5	5.9	5.6	143.66	9.6	-231.1	68.5	60.3	8.21	8.339			
1,500.0	1,453.5	1,514.0	1,469.8	6.5	6.2	140.79	9.4	-264.1	70.8	61.4	9.41	7.529			
1,600.0	1,548.1	1,613.9	1,564.1	7.1	6.9	138.11	9.1	-297.1	73.3	62.7	10.65	6.886			
1,700.0	1,642.6	1,713.8	1,658.3	7.7	7.5	135.61	8.9	-330.2	76.0	64.1	11.93	6.371			
1,800.0	1,737.2	1,813.7	1,752.6	8.3	8.1	133.28	8.6	-363.2	78.8	65.5	13.23	5.952			
1,900.0	1,831.7	1,913.6	1,846.9	9.0	8.7	131.11	8.4	-396.3	81.7	67.1	14.56	5.610			
2,000.0	1,926.3	2,013.5	1,941.2	9.6	9.4	129.10	8.1	-429.3	84.7	68.8	15.90	5.326			
2,100.0	2,020.8	2,113.4	2,035.5	10.2	10.0	127.22	7.9	-462.3	87.8	70.5	17.25	5.090			
2,200.0	2,115.4	2,213.3	2,129.8	10.8	10.6	125.48	7.6	-495.4	91.0	72.4	18.60	4.891			
2,300.0	2,210.0	2,313.3	2,224.1	11.4	11.3	123.85	7.3	-528.4	94.2	74.3	19.96	4.722			
2,400.0	2,304.5	2,413.2	2,318.4	12.1	11.9	122.34	7.1	-561.5	97.6	76.3	21.32	4.578			
2,500.0	2,399.1	2,513.1	2,412.7	12.7	12.5	120.92	6.8	-594.5	101.0	78.3	22.68	4.454			
2,600.0	2,493.6	2,613.0	2,507.0	13.3	13.2	119.60	6.6	-627.5	104.5	80.4	24.04	4.346			
2,700.0	2,588.2	2,712.9	2,601.3	13.9	13.8	118.37	6.3	-660.6	108.0	82.6	25.39	4.253			
2,800.0	2,682.7	2,812.8	2,695.5	14.6	14.4	117.21	6.1	-693.6	111.5	84.8	26.74	4.171			
2,900.0	2,777.3	2,912.7	2,789.8	15.2	15.0	116.13	5.8	-726.6	115.2	87.1	28.09	4.099			
3,000.0	2,871.8	3,012.6	2,884.1	15.8	15.7	115.11	5.5	-759.7	118.8	89.4	29.44	4.035			
3,100.0	2,966.4	3,112.6	2,978.4	16.4	16.3	114.15	5.3	-792.7	122.5	91.7	30.78	3.979			
3,200.0	3,061.0	3,212.5	3,072.7	17.0	16.9	113.25	5.0	-825.8	126.2	94.1	32.12	3.929			
3,300.0	3,155.5	3,312.4	3,167.0	17.7	17.6	112.40	4.8	-858.8	129.9	96.5	33.46	3.884			
3,400.0	3,250.1	3,412.3	3,261.3	18.3	18.2	111.59	4.5	-891.8	133.7	98.9	34.79	3.844			
3,500.0	3,344.6	3,512.2	3,355.6	18.9	18.8	110.84	4.3	-924.9	137.5	101.4	36.12	3.807			
3,600.0	3,439.2	3,612.1	3,449.9	19.5	19.5	110.12	4.0	-957.9	141.3	103.9	37.44	3.775			
3,700.0	3,533.7	3,712.0	3,544.2	20.1	20.1	109.44	3.8	-991.0	145.2	106.4	38.76	3.745			
3,800.0	3,628.3	3,811.9	3,638.4	20.8	20.7	108.79	3.5	-1,024.0	149.0	108.9	40.08	3.718			
3,900.0	3,722.8	3,911.8	3,732.7	21.4	21.4	108.18	3.2	-1,057.0	152.9	111.5	41.39	3.694			
4,000.0	3,817.4	4,011.8	3,827.0	22.0	22.0	107.60	3.0	-1,090.1	156.8	114.1	42.71	3.671			
4,100.0	3,911.9	4,111.7	3,921.3	22.6	22.6	107.05	2.7	-1,123.1	160.7	116.7	44.02	3.651			
4,200.0	4,006.5	4,211.6	4,015.6	23.2	23.2	106.52	2.5	-1,156.2	164.6	119.3	45.32	3.632			
4,300.0	4,101.1	4,311.5	4,109.9	23.9	23.9	106.02	2.2	-1,189.2	168.5	121.9	46.63	3.615			
4,400.0	4,195.6	4,411.4	4,204.2	24.5	24.5	105.54	2.0	-1,222.2	172.5	124.6	47.93	3.599			
4,500.0	4,290.2	4,511.3	4,298.5	25.1	25.1	105.08	1.7	-1,255.3	176.5	127.2	49.23	3.585			
4,600.0	4,384.7	4,611.2	4,392.8	25.7	25.8	104.64	1.5	-1,288.3	180.4	129.9	50.52	3.571			
4,700.0	4,479.3	4,711.1	4,487.1	26.4	26.4	104.22	1.2	-1,321.3	184.4	132.6	51.82	3.559			
4,800.0	4,573.8	4,811.1	4,581.4	27.0	27.0	103.82	0.9	-1,354.4	188.4	135.3	53.11	3.547			
4,900.0	4,668.4	4,911.0	4,675.6	27.6	27.7	103.44	0.7	-1,387.4	192.4	138.0	54.40	3.537			
5,000.0	4,762.9	5,010.9	4,769.9	28.2	28.3	103.07	0.4	-1,420.5	196.4	140.7	55.69	3.527			
5,100.0	4,857.5	5,110.8	4,864.2	28.8	28.9	102.71	0.2	-1,453.5	200.4	143.4	56.98	3.517			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16CC (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	4,952.1	5,210.7	4,958.5	29.5	29.6	102.37	-0.1	-1,486.5	204.4	146.2	58.26	3.509		
5,300.0	5,046.6	5,310.6	5,052.8	30.1	30.2	102.05	-0.3	-1,519.6	208.5	148.9	59.55	3.501		
5,400.0	5,141.2	5,410.5	5,147.1	30.7	30.8	101.73	-0.6	-1,552.6	212.5	151.7	60.83	3.493		
5,500.0	5,235.7	5,510.4	5,241.4	31.3	31.5	101.43	-0.8	-1,585.7	216.5	154.4	62.11	3.486		
5,600.0	5,330.3	5,610.3	5,335.7	31.9	32.1	101.14	-1.1	-1,618.7	220.6	157.2	63.39	3.480		
5,700.0	5,424.8	5,710.3	5,430.0	32.6	32.7	100.86	-1.4	-1,651.7	224.6	160.0	64.67	3.474		
5,800.0	5,519.4	5,810.2	5,524.3	33.2	33.4	100.58	-1.6	-1,684.8	228.7	162.8	65.95	3.468		
5,900.0	5,613.9	5,910.1	5,618.6	33.8	34.0	100.32	-1.9	-1,717.8	232.8	165.5	67.22	3.463		
6,000.0	5,708.5	6,010.0	5,712.8	34.4	34.6	100.07	-2.1	-1,750.8	236.8	168.3	68.50	3.458		
6,100.0	5,803.1	6,109.9	5,807.1	35.1	35.2	99.83	-2.4	-1,783.9	240.9	171.1	69.77	3.453		
6,200.0	5,897.6	6,209.8	5,901.4	35.7	35.9	99.59	-2.6	-1,816.9	245.0	173.9	71.04	3.448		
6,300.0	5,992.2	6,309.7	5,995.7	36.3	36.5	99.36	-2.9	-1,850.0	249.1	176.7	72.31	3.444		
6,400.0	6,086.7	6,409.6	6,090.0	36.9	37.1	99.14	-3.2	-1,883.0	253.1	179.6	73.59	3.440		
6,500.0	6,181.3	6,509.6	6,184.3	37.5	37.8	98.93	-3.4	-1,916.0	257.2	182.4	74.86	3.436		
6,600.0	6,275.8	6,609.5	6,278.6	38.2	38.4	98.72	-3.7	-1,949.1	261.3	185.2	76.12	3.433		
6,700.0	6,370.4	6,709.4	6,372.9	38.8	39.0	98.52	-3.9	-1,982.1	265.4	188.0	77.39	3.429		
6,800.0	6,464.9	6,809.3	6,467.2	39.4	39.7	98.32	-4.2	-2,015.2	269.5	190.8	78.66	3.426		
6,900.0	6,559.5	6,909.2	6,561.5	40.0	40.3	98.13	-4.4	-2,048.2	273.6	193.7	79.93	3.423		
7,000.0	6,654.0	7,009.1	6,655.8	40.7	40.9	97.95	-4.7	-2,081.2	277.7	196.5	81.19	3.420		
7,100.0	6,748.6	7,109.0	6,750.0	41.3	41.6	97.77	-4.9	-2,114.3	281.8	199.4	82.46	3.418		
7,200.0	6,843.2	7,208.9	6,844.3	41.9	42.2	97.60	-5.2	-2,147.3	285.9	202.2	83.72	3.415		
7,300.0	6,937.7	7,308.8	6,938.6	42.5	42.8	97.43	-5.5	-2,180.3	290.0	205.1	84.99	3.413		
7,400.0	7,032.4	7,408.7	7,033.2	43.1	43.4	97.40	-5.7	-2,212.5	294.1	207.9	86.19	3.412		
7,500.0	7,128.1	7,508.6	7,128.7	43.7	43.9	97.45	-5.9	-2,241.5	297.8	210.6	87.24	3.414		
7,600.0	7,224.7	7,608.4	7,225.2	44.1	44.4	97.51	-6.1	-2,267.1	301.1	212.9	88.16	3.415		
7,700.0	7,322.1	7,708.3	7,322.6	44.5	44.8	97.56	-6.3	-2,289.3	303.9	214.9	88.96	3.416		
7,800.0	7,420.3	7,808.2	7,420.7	44.9	45.1	97.60	-6.4	-2,308.2	306.3	216.7	89.64	3.417		
7,900.0	7,519.1	7,908.1	7,519.4	45.1	45.4	97.64	-6.6	-2,323.6	308.3	218.1	90.20	3.418		
8,000.0	7,618.3	8,008.0	7,618.6	45.4	45.6	97.68	-6.7	-2,335.6	309.8	219.2	90.64	3.418		
8,100.0	7,717.9	8,107.9	7,718.1	45.5	45.8	97.72	-6.7	-2,344.1	310.9	219.9	90.97	3.418		
8,200.0	7,817.8	8,207.8	7,817.9	45.6	45.9	97.75	-6.8	-2,349.1	311.6	220.4	91.18	3.417		
8,300.0	7,917.8	8,307.7	7,917.8	45.7	46.0	0.06	-6.8	-2,350.6	311.8	220.5	91.29	3.415		
8,400.0	8,017.8	8,407.7	8,017.8	45.8	46.0	0.06	-6.8	-2,350.6	311.8	220.4	91.40	3.411		
8,500.0	8,117.8	8,507.7	8,117.8	45.8	46.1	0.06	-6.8	-2,350.6	311.8	220.3	91.51	3.407		
8,600.0	8,217.8	8,607.7	8,217.8	45.9	46.1	0.06	-6.8	-2,350.6	311.8	220.2	91.62	3.403		
8,700.0	8,317.8	8,707.7	8,317.8	45.9	46.2	0.06	-6.8	-2,350.6	311.8	220.0	91.74	3.399		
8,800.0	8,417.8	8,807.7	8,417.8	46.0	46.3	0.06	-6.8	-2,350.6	311.8	219.9	91.85	3.394		
8,900.0	8,517.8	8,907.7	8,517.8	46.0	46.3	0.06	-6.8	-2,350.6	311.8	219.8	91.97	3.390		
9,000.0	8,617.8	9,007.7	8,617.8	46.1	46.4	0.06	-6.8	-2,350.6	311.8	219.7	92.09	3.386		
9,100.0	8,717.8	9,107.7	8,717.8	46.2	46.4	0.06	-6.8	-2,350.6	311.8	219.6	92.21	3.381		
9,200.0	8,817.8	9,207.7	8,817.8	46.2	46.5	0.06	-6.8	-2,350.6	311.8	219.5	92.33	3.377		
9,300.0	8,917.8	9,307.7	8,917.8	46.3	46.6	0.06	-6.8	-2,350.6	311.8	219.3	92.45	3.372		
9,400.0	9,017.8	9,407.7	9,017.8	46.3	46.6	0.06	-6.8	-2,350.6	311.8	219.2	92.57	3.368		
9,500.0	9,117.8	9,507.7	9,117.8	46.4	46.7	0.06	-6.8	-2,350.6	311.8	219.1	92.70	3.363		
9,600.0	9,217.8	9,607.7	9,217.8	46.5	46.7	0.06	-6.8	-2,350.6	311.8	219.0	92.82	3.359		
9,700.0	9,317.8	9,707.7	9,317.8	46.5	46.8	0.06	-6.8	-2,350.6	311.8	218.8	92.95	3.354		
9,800.0	9,417.8	9,807.7	9,417.8	46.6	46.9	0.06	-6.8	-2,350.6	311.8	218.7	93.08	3.350		
9,900.0	9,517.8	9,907.7	9,517.8	46.7	46.9	0.06	-6.8	-2,350.6	311.8	218.6	93.21	3.345		
10,000.0	9,617.8	10,007.7	9,617.8	46.7	47.0	0.06	-6.8	-2,350.6	311.8	218.4	93.34	3.340		
10,100.0	9,717.8	10,107.7	9,717.8	46.8	47.1	0.06	-6.8	-2,350.6	311.8	218.3	93.47	3.336		
10,200.0	9,817.8	10,207.7	9,817.8	46.8	47.1	0.06	-6.8	-2,350.6	311.8	218.2	93.60	3.331		
10,300.0	9,917.8	10,307.7	9,917.8	46.9	47.2	0.06	-6.8	-2,350.6	311.8	218.1	93.73	3.326		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-16CC (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)			
10,400.0	10,017.8	10,407.7	10,017.8	47.0	47.3	0.06	-6.8	-2,350.6	311.8	217.9	93.87	3.322	
10,447.4	10,065.2	10,455.1	10,065.2	47.0	47.3	0.06	-6.8	-2,350.6	311.8	217.9	93.93	3.319	
10,473.2	10,091.0	10,476.9	10,087.0	47.0	47.3	0.06	-6.8	-2,350.6	311.8	217.8	93.96	3.318 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9B (M16W) - DD - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 206-MWD, 1163-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	43.36	115.5	109.0	158.8					
100.0	100.0	100.0	100.0	0.1	0.2	43.51	115.2	109.3	158.8	158.5	0.29	543.544		
200.0	200.0	200.1	200.0	0.3	0.3	43.97	114.3	110.2	158.8	158.1	0.62	254.974		
201.0	201.0	201.1	201.0	0.3	0.3	141.69	114.3	110.2	158.8	158.1	0.63	251.762	CC, ES	
300.0	300.0	299.5	299.5	0.5	0.5	142.38	113.6	111.2	160.1	159.2	0.98	164.244		
400.0	399.8	402.4	402.4	0.7	0.7	142.98	115.0	109.5	165.2	163.8	1.33	123.797		
500.0	499.1	506.8	506.4	1.0	0.9	142.80	118.5	102.2	172.0	170.2	1.73	99.342		
600.0	597.6	611.4	609.9	1.3	1.1	141.82	123.3	88.2	179.2	177.0	2.21	80.964		
700.0	695.1	706.6	703.5	1.7	1.4	140.39	131.1	72.0	190.7	187.9	2.80	67.992		
800.0	791.4	800.2	794.6	2.2	1.8	138.77	143.3	55.2	209.0	205.4	3.53	59.232		
900.0	886.2	895.2	886.3	2.8	2.2	137.21	159.3	36.1	232.3	227.9	4.39	52.866		
1,000.0	980.7	990.1	976.7	3.4	2.8	135.30	178.5	14.4	257.2	251.8	5.39	47.755		
1,100.0	1,075.3	1,086.6	1,067.4	4.0	3.3	132.94	200.6	-10.1	282.8	276.3	6.49	43.596		
1,200.0	1,169.9	1,186.2	1,160.1	4.7	4.0	130.37	224.0	-38.2	307.7	300.1	7.69	40.009		
1,300.0	1,264.4	1,277.0	1,243.8	5.3	4.6	128.04	246.8	-64.9	333.9	325.0	8.88	37.624		
1,400.0	1,359.0	1,372.6	1,332.3	5.9	5.3	126.09	270.6	-92.1	360.9	350.8	10.08	35.821		
1,500.0	1,453.5	1,464.4	1,417.0	6.5	5.9	124.41	294.3	-118.2	388.9	377.7	11.26	34.531		
1,600.0	1,548.1	1,561.7	1,506.9	7.1	6.6	122.89	319.7	-145.5	417.7	405.2	12.48	33.456		
1,700.0	1,642.6	1,662.9	1,600.2	7.7	7.3	121.41	345.1	-175.2	445.2	431.5	13.74	32.395		
1,800.0	1,737.2	1,756.7	1,687.0	8.3	8.0	120.28	368.2	-202.4	472.8	457.8	14.95	31.633		
1,900.0	1,831.7	1,850.2	1,772.9	9.0	8.7	119.13	392.2	-230.3	501.0	484.9	16.16	31.009		
2,000.0	1,926.3	1,946.3	1,861.4	9.6	9.4	118.11	416.8	-258.7	529.6	512.2	17.38	30.471		
2,100.0	2,020.8	2,051.3	1,958.0	10.2	10.2	117.08	443.1	-290.2	557.6	538.9	18.67	29.866		
2,200.0	2,115.4	2,149.2	2,048.1	10.8	10.9	116.15	466.4	-320.8	584.2	564.3	19.93	29.319		
2,300.0	2,210.0	2,246.4	2,137.3	11.4	11.6	115.27	489.7	-351.4	611.1	589.9	21.17	28.870		
2,400.0	2,304.5	2,339.8	2,223.5	12.1	12.3	114.61	511.8	-379.7	638.0	615.6	22.35	28.552		
2,500.0	2,399.1	2,432.8	2,309.6	12.7	12.9	114.08	534.0	-407.1	665.5	641.9	23.53	28.281		
2,600.0	2,493.6	2,531.7	2,401.3	13.3	13.6	113.58	557.5	-435.9	693.0	668.3	24.72	28.037		
2,700.0	2,588.2	2,620.6	2,483.7	13.9	14.2	113.19	578.7	-461.5	720.8	695.0	25.87	27.861		
2,800.0	2,682.7	2,716.3	2,572.0	14.6	14.9	112.72	602.4	-489.8	749.2	722.2	27.06	27.683		
2,900.0	2,777.3	2,819.3	2,667.0	15.2	15.7	112.22	627.4	-520.7	777.2	748.9	28.32	27.444		
3,000.0	2,871.8	2,918.8	2,758.9	15.8	16.4	111.79	650.8	-550.7	804.4	774.8	29.54	27.232		
3,100.0	2,966.4	3,008.7	2,841.7	16.4	17.0	111.38	672.4	-578.2	832.0	801.3	30.71	27.091		
3,200.0	3,061.0	3,109.5	2,934.8	17.0	17.8	110.98	696.5	-608.8	859.6	827.7	31.93	26.924		
3,300.0	3,155.5	3,206.8	3,025.3	17.7	18.4	110.76	718.9	-636.4	886.9	853.8	33.10	26.793		
3,400.0	3,250.1	3,298.9	3,110.6	18.3	19.1	110.50	740.5	-663.4	914.3	880.0	34.26	26.686		
3,500.0	3,344.6	3,393.7	3,198.5	18.9	19.8	110.26	763.2	-690.9	942.3	906.8	35.44	26.591		
3,600.0	3,439.2	3,494.9	3,292.1	19.5	20.5	109.96	787.0	-721.2	969.7	933.1	36.66	26.454		
3,700.0	3,533.7	3,580.2	3,371.0	20.1	21.1	109.73	807.2	-746.6	997.3	959.6	37.80	26.388		
3,800.0	3,628.3	3,662.8	3,446.4	20.8	21.7	109.39	828.6	-772.8	1,026.7	987.8	38.94	26.369		
3,900.0	3,722.8	3,765.6	3,540.2	21.4	22.5	109.01	854.9	-805.2	1,055.9	1,015.7	40.19	26.275		
4,000.0	3,817.4	3,864.3	3,631.0	22.0	23.2	108.75	879.8	-835.0	1,084.9	1,043.5	41.38	26.218		
4,100.0	3,911.9	3,961.4	3,721.0	22.6	23.9	108.59	903.4	-862.8	1,113.4	1,070.9	42.56	26.162		
4,200.0	4,006.5	4,062.9	3,814.7	23.2	24.6	108.39	928.3	-892.8	1,142.0	1,098.2	43.79	26.081		
4,300.0	4,101.1	4,165.9	3,909.7	23.9	25.4	108.15	953.0	-924.2	1,169.9	1,124.8	45.02	25.985		
4,400.0	4,195.6	4,274.0	4,009.8	24.5	26.1	107.97	977.9	-956.3	1,197.0	1,150.8	46.27	25.873		
4,500.0	4,290.2	4,365.0	4,094.1	25.1	26.8	107.81	998.6	-983.8	1,223.9	1,176.4	47.44	25.798	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 Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9B2 (M16W) - DD - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 206-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	39.19	120.6	98.3	155.5					
100.0	100.0	100.1	100.1	0.1	0.2	39.18	120.5	98.3	155.5	155.2	0.29	532.088		
200.0	200.0	200.3	200.3	0.3	0.3	39.18	120.5	98.2	155.4	154.8	0.62	249.444		
205.7	205.7	206.0	206.0	0.3	0.3	136.89	120.4	98.1	155.4	154.7	0.64	242.042 CC, ES		
300.0	300.0	299.5	299.4	0.5	0.5	137.06	120.9	97.9	156.6	155.7	0.97	161.383		
400.0	399.8	400.4	400.3	0.7	0.7	137.03	124.0	94.9	161.9	160.6	1.34	120.475		
500.0	499.1	502.6	502.0	1.0	0.9	136.37	129.3	86.7	169.5	167.7	1.79	94.717		
600.0	597.6	604.3	602.6	1.3	1.2	135.40	136.3	74.0	179.3	176.9	2.34	76.748		
700.0	695.1	704.6	701.1	1.7	1.5	134.22	145.3	57.5	192.1	189.1	3.01	63.903		
800.0	791.4	806.0	799.9	2.2	2.0	133.06	156.0	37.2	207.7	203.8	3.82	54.346		
900.0	886.2	904.9	895.1	2.8	2.5	131.88	168.2	13.2	225.3	220.5	4.77	47.221		
1,000.0	980.7	1,001.7	986.8	3.4	3.1	130.09	183.0	-13.8	244.0	238.2	5.85	41.704		
1,100.0	1,075.3	1,096.9	1,075.8	4.0	3.7	127.70	200.3	-43.2	263.7	256.7	7.02	37.565		
1,200.0	1,169.9	1,197.5	1,169.4	4.7	4.4	125.38	219.0	-74.7	284.1	275.8	8.25	34.451		
1,300.0	1,264.4	1,298.4	1,263.8	5.3	5.0	123.59	235.9	-106.1	303.2	293.7	9.47	31.998		
1,400.0	1,359.0	1,393.4	1,352.5	5.9	5.6	122.00	251.9	-136.2	322.4	311.7	10.68	30.178		
1,500.0	1,453.5	1,486.0	1,438.8	6.5	6.3	120.56	268.9	-165.2	343.3	331.4	11.89	28.872		
1,600.0	1,548.1	1,580.2	1,526.1	7.1	6.9	119.11	287.5	-195.1	365.5	352.4	13.14	27.823		
1,700.0	1,642.6	1,675.1	1,613.6	7.7	7.6	117.59	307.2	-226.3	388.6	374.1	14.41	26.956		
1,800.0	1,737.2	1,772.7	1,703.1	8.3	8.4	116.06	328.1	-259.0	412.1	396.4	15.73	26.200		
1,900.0	1,831.7	1,867.8	1,790.0	9.0	9.1	114.61	348.5	-291.9	435.7	418.7	17.03	25.586		
2,000.0	1,926.3	1,972.2	1,885.6	9.6	9.9	113.23	370.6	-327.7	459.4	441.1	18.38	24.991		
2,100.0	2,020.8	2,072.7	1,978.1	10.2	10.6	112.16	390.0	-361.7	481.6	461.9	19.67	24.481		
2,200.0	2,115.4	2,176.5	2,073.9	10.8	11.4	111.20	409.1	-396.8	503.1	482.1	21.00	23.955		
2,300.0	2,210.0	2,271.8	2,162.1	11.4	12.0	110.46	426.2	-428.6	524.3	502.1	22.23	23.590		
2,400.0	2,304.5	2,373.9	2,257.1	12.1	12.7	109.88	443.7	-461.4	545.2	521.7	23.49	23.212		
2,500.0	2,399.1	2,467.2	2,343.9	12.7	13.4	109.37	459.9	-491.6	566.3	541.6	24.69	22.930		
2,600.0	2,493.6	2,564.0	2,433.9	13.3	14.1	108.87	477.2	-522.8	587.9	561.9	25.93	22.675		
2,700.0	2,588.2	2,661.6	2,524.4	13.9	14.8	108.35	494.6	-554.9	609.3	582.2	27.18	22.419		
2,800.0	2,682.7	2,754.2	2,609.8	14.6	15.5	107.77	511.9	-586.4	631.4	603.0	28.42	22.214		
2,900.0	2,777.3	2,852.8	2,700.0	15.2	16.2	107.04	530.9	-621.3	654.1	624.3	29.72	22.009		
3,000.0	2,871.8	2,955.8	2,794.8	15.8	17.0	106.42	549.8	-657.1	675.8	644.8	31.01	21.791		
3,100.0	2,966.4	3,049.8	2,881.7	16.4	17.6	105.99	566.6	-688.6	697.5	665.3	32.23	21.642		
3,200.0	3,061.0	3,139.8	2,965.0	17.0	18.3	105.64	583.5	-718.3	720.1	686.7	33.42	21.549		
3,300.0	3,155.5	3,234.5	3,052.4	17.7	19.0	105.28	602.0	-749.5	743.6	708.9	34.65	21.462		
3,400.0	3,250.1	3,342.4	3,151.7	18.3	19.8	104.79	622.9	-786.4	766.6	730.6	35.98	21.306		
3,500.0	3,344.6	3,441.2	3,242.6	18.9	20.5	104.36	640.8	-820.4	788.5	751.3	37.23	21.181		
3,600.0	3,439.2	3,523.4	3,318.5	19.5	21.1	104.08	656.3	-847.9	811.3	773.0	38.37	21.143		
3,700.0	3,533.7	3,620.3	3,407.7	20.1	21.8	103.76	675.9	-880.2	835.5	795.9	39.59	21.103		
3,800.0	3,628.3	3,717.7	3,497.8	20.8	22.5	103.50	695.2	-912.1	859.3	818.5	40.83	21.046		
3,900.0	3,722.8	3,818.0	3,590.3	21.4	23.2	103.22	715.0	-945.4	883.0	840.9	42.07	20.988		
4,000.0	3,817.4	3,910.0	3,675.3	22.0	23.9	103.00	733.1	-975.6	906.7	863.4	43.27	20.955		
4,100.0	3,911.9	4,001.0	3,759.0	22.6	24.6	102.75	751.7	-1,006.0	931.1	886.6	44.46	20.940		
4,200.0	4,006.5	4,114.2	3,863.9	23.2	25.4	102.54	773.7	-1,042.6	954.7	908.9	45.76	20.861		
4,300.0	4,101.1	4,197.9	3,941.5	23.9	26.0	102.42	790.2	-1,069.3	978.5	931.6	46.90	20.865		
4,400.0	4,195.6	4,296.1	4,032.0	24.5	26.7	102.22	810.3	-1,101.5	1,003.0	954.9	48.12	20.842		
4,500.0	4,290.2	4,407.4	4,135.3	25.1	27.5	102.07	831.9	-1,137.0	1,026.6	977.2	49.41	20.778		
4,600.0	4,384.7	4,508.4	4,229.2	25.7	28.2	101.96	850.5	-1,169.1	1,049.2	998.5	50.65	20.713		
4,700.0	4,479.3	4,611.7	4,324.7	26.4	28.9	101.76	869.6	-1,203.6	1,071.8	1,019.9	51.93	20.639		
4,800.0	4,573.8	4,705.0	4,410.6	27.0	29.6	101.53	886.4	-1,235.8	1,093.8	1,040.7	53.15	20.581		
4,900.0	4,668.4	4,796.5	4,494.6	27.6	30.3	101.28	903.7	-1,267.7	1,116.7	1,062.3	54.37	20.540		
5,000.0	4,762.9	4,895.6	4,585.4	28.2	31.1	101.01	922.5	-1,302.6	1,139.7	1,084.1	55.61	20.495		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design											M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9B2 (M16W) - DD - FINAL			Offset Site Error:		0.0 ft
Survey Program:											206-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 +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
5,100.0	4,857.5	5,002.3	4,683.8	28.8	31.9	100.80	942.2	-1,338.9	1,162.2	1,105.3	56.91	20.423				
5,200.0	4,952.1	5,070.9	4,746.7	29.5	32.4	100.63	955.3	-1,362.8	1,185.4	1,127.4	57.97	20.448				
5,300.0	5,046.6	5,175.9	4,842.7	30.1	33.2	100.38	977.1	-1,399.4	1,210.3	1,151.0	59.24	20.428				
5,400.0	5,141.2	5,274.2	4,933.4	30.7	33.9	100.23	996.2	-1,432.3	1,233.9	1,173.4	60.48	20.403 SF				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9C (M16W) - DD - FINAL													Offset Site Error:	0.0 ft
Survey Program: 206-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	35.70	114.0	81.9	140.4					
100.0	100.0	100.1	100.1	0.1	0.2	35.71	113.9	81.9	140.3	140.0	0.29	480.194		
200.0	200.0	200.2	200.2	0.3	0.3	35.73	113.8	81.9	140.2	139.6	0.62	225.114		
205.7	205.7	205.9	205.9	0.3	0.3	133.45	113.8	81.9	140.2	139.6	0.64	218.461	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	133.71	114.3	81.8	141.5	140.5	0.97	145.634		
400.0	399.8	401.5	401.3	0.7	0.7	133.65	116.6	77.6	145.5	144.2	1.35	108.019		
500.0	499.1	503.3	502.6	1.0	0.9	132.75	121.1	67.7	151.5	149.7	1.79	84.458		
600.0	597.6	604.1	602.0	1.3	1.2	131.20	128.4	52.9	160.5	158.1	2.37	67.612		
700.0	695.1	705.2	700.5	1.7	1.6	129.02	137.8	32.2	171.6	168.4	3.13	54.822		
800.0	791.4	804.6	796.2	2.2	2.1	126.84	149.3	7.9	185.9	181.8	4.05	45.850		
900.0	886.2	905.3	891.9	2.8	2.7	124.91	162.4	-20.7	202.4	197.3	5.13	39.419		
1,000.0	980.7	1,004.6	985.2	3.4	3.3	122.94	175.7	-51.7	218.6	212.3	6.29	34.746		
1,100.0	1,075.3	1,102.2	1,076.7	4.0	3.9	121.05	189.2	-82.9	235.2	227.8	7.48	31.459		
1,200.0	1,169.9	1,201.2	1,169.4	4.7	4.6	119.34	202.5	-114.9	251.4	242.7	8.70	28.905		
1,300.0	1,264.4	1,295.4	1,257.5	5.3	5.2	117.80	216.7	-145.2	269.5	259.6	9.90	27.234		
1,400.0	1,359.0	1,393.4	1,349.5	5.9	5.8	116.60	231.4	-175.8	287.9	276.8	11.11	25.908		
1,500.0	1,453.5	1,492.0	1,441.5	6.5	6.5	115.31	246.8	-207.5	306.7	294.3	12.37	24.786		
1,600.0	1,548.1	1,589.0	1,531.7	7.1	7.2	113.97	262.0	-239.9	325.3	311.7	13.63	23.871		
1,700.0	1,642.6	1,689.5	1,625.2	7.7	7.9	112.78	277.9	-273.2	344.4	329.4	14.93	23.066		
1,800.0	1,737.2	1,788.4	1,716.7	8.3	8.6	111.50	293.0	-307.4	362.6	346.4	16.22	22.363		
1,900.0	1,831.7	1,884.0	1,805.8	9.0	9.2	110.64	307.6	-339.0	381.3	363.9	17.44	21.867		
2,000.0	1,926.3	1,989.1	1,903.6	9.6	10.0	109.72	323.2	-374.2	399.8	381.0	18.78	21.287		
2,100.0	2,020.8	2,090.9	1,997.7	10.2	10.7	108.62	337.4	-410.4	416.8	396.7	20.11	20.730		
2,200.0	2,115.4	2,189.9	2,089.5	10.8	11.4	107.81	350.4	-444.7	433.5	412.1	21.38	20.279		
2,300.0	2,210.0	2,285.9	2,178.9	11.4	12.1	107.14	363.1	-477.4	450.4	427.7	22.63	19.901		
2,400.0	2,304.5	2,375.4	2,262.0	12.1	12.7	106.49	375.9	-508.2	468.4	444.5	23.83	19.651		
2,500.0	2,399.1	2,458.2	2,339.0	12.7	13.3	106.11	390.0	-535.0	489.3	464.3	24.96	19.605		
2,600.0	2,493.6	2,552.2	2,426.5	13.3	13.9	105.71	407.5	-564.9	512.0	485.8	26.16	19.568		
2,700.0	2,588.2	2,651.1	2,518.6	13.9	14.6	105.41	426.0	-595.7	534.8	507.5	27.38	19.532		
2,800.0	2,682.7	2,754.2	2,614.2	14.6	15.3	104.97	444.9	-629.3	557.1	528.4	28.66	19.435		
2,900.0	2,777.3	2,855.8	2,708.5	15.2	16.0	104.55	462.4	-662.7	578.3	548.3	29.94	19.317		
3,000.0	2,871.8	2,956.4	2,801.5	15.8	16.8	104.05	479.6	-697.1	599.2	568.0	31.21	19.202		
3,100.0	2,966.4	3,063.9	2,901.4	16.4	17.5	103.66	496.7	-732.8	619.1	586.6	32.51	19.048		
3,200.0	3,061.0	3,176.2	3,006.4	17.0	18.2	103.39	512.3	-769.3	637.2	603.4	33.80	18.849		
3,300.0	3,155.5	3,271.8	3,096.1	17.7	18.9	103.21	524.6	-800.2	654.3	619.3	35.03	18.680		
3,400.0	3,250.1	3,372.0	3,189.0	18.3	19.6	102.79	537.9	-835.2	671.5	635.1	36.33	18.485		
3,500.0	3,344.6	3,468.1	3,278.0	18.9	20.3	102.37	550.9	-869.1	689.0	651.4	37.57	18.339		
3,600.0	3,439.2	3,572.7	3,375.3	19.5	21.0	102.02	564.0	-905.1	705.6	666.7	38.87	18.152		
3,700.0	3,533.7	3,665.2	3,460.8	20.1	21.7	101.61	576.5	-938.2	723.0	682.9	40.10	18.028		
3,800.0	3,628.3	3,767.4	3,555.7	20.8	22.4	101.27	589.6	-973.8	739.8	698.5	41.39	17.876		
3,900.0	3,722.8	3,856.1	3,637.7	21.4	23.1	100.93	601.7	-1,005.3	757.5	714.9	42.60	17.784		
4,000.0	3,817.4	3,947.5	3,722.1	22.0	23.7	100.58	615.2	-1,037.8	776.4	732.6	43.80	17.723		
4,100.0	3,911.9	4,055.9	3,822.8	22.6	24.5	100.34	631.2	-1,074.5	795.3	750.3	45.09	17.638		
4,200.0	4,006.5	4,148.9	3,909.9	23.2	25.1	100.24	643.7	-1,104.6	813.0	766.8	46.28	17.569		
4,300.0	4,101.1	4,240.8	3,995.8	23.9	25.7	100.16	657.5	-1,134.2	832.3	784.8	47.46	17.536		
4,400.0	4,195.6	4,332.8	4,081.6	24.5	26.4	100.04	671.5	-1,164.3	851.8	803.2	48.65	17.510		
4,500.0	4,290.2	4,432.4	4,174.2	25.1	27.1	99.89	687.4	-1,197.4	872.0	822.1	49.90	17.475		
4,600.0	4,384.7	4,525.5	4,260.5	25.7	27.7	99.70	702.1	-1,228.9	892.0	840.9	51.09	17.459		
4,700.0	4,479.3	4,628.9	4,356.7	26.4	28.4	99.56	718.7	-1,263.1	912.3	859.9	52.37	17.421		
4,800.0	4,573.8	4,733.0	4,453.6	27.0	29.1	99.42	734.5	-1,297.7	931.7	878.1	53.61	17.378		
4,900.0	4,668.4	4,813.9	4,529.0	27.6	29.7	99.33	747.3	-1,324.2	951.8	897.0	54.74	17.386		
5,000.0	4,762.9	4,922.8	4,630.2	28.2	30.5	99.22	765.0	-1,360.0	972.3	916.3	56.02	17.357		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9C (M16W) - DD - FINAL		Offset Site Error:		0.0 ft
Survey Program: 206-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	4,857.5	5,018.9	4,720.5	28.8	31.1	99.25	780.1	-1,389.4	992.3	935.1	57.18	17.354					
5,200.0	4,952.1	5,121.5	4,817.4	29.5	31.7	99.39	795.5	-1,419.4	1,011.8	953.4	58.39	17.329	SF				
5,300.0	5,046.6	5,199.8	4,891.1	30.1	32.2	99.45	808.2	-1,442.8	1,032.3	972.8	59.47	17.359					
5,400.0	5,141.2	5,282.0	4,967.8	30.7	32.8	99.44	822.9	-1,468.4	1,054.5	993.9	60.59	17.406					
5,500.0	5,235.7	5,396.5	5,074.7	31.3	33.5	99.43	843.2	-1,503.9	1,076.5	1,014.7	61.87	17.400					
5,600.0	5,330.3	5,495.7	5,167.9	31.9	34.2	99.50	860.0	-1,533.5	1,097.8	1,034.7	63.07	17.405					
5,700.0	5,424.8	5,597.8	5,262.9	32.6	34.9	99.43	877.2	-1,566.6	1,118.9	1,054.6	64.32	17.395					
5,800.0	5,519.4	5,699.1	5,357.8	33.2	35.6	99.42	893.6	-1,598.3	1,139.4	1,073.9	65.52	17.392					
5,900.0	5,613.9	5,802.4	5,455.4	33.8	36.2	99.56	910.2	-1,627.7	1,159.8	1,093.1	66.71	17.387					
6,000.0	5,708.5	5,896.7	5,544.5	34.4	36.8	99.69	924.9	-1,654.7	1,179.9	1,112.0	67.88	17.382					
6,100.0	5,803.1	5,979.5	5,621.8	35.1	37.4	99.66	938.6	-1,681.0	1,200.8	1,131.8	69.03	17.394					
6,200.0	5,897.6	6,070.9	5,705.8	35.7	38.1	99.47	955.0	-1,712.9	1,222.9	1,152.6	70.24	17.409					
6,300.0	5,992.2	6,183.5	5,809.5	36.3	38.9	99.25	974.7	-1,752.2	1,244.5	1,173.0	71.58	17.387					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9D (M16W) - DD - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 206-MWD, 1298-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	36.40	103.8	76.5	129.0					
100.0	100.0	100.2	100.2	0.1	0.2	36.51	103.6	76.7	128.9	128.6	0.29	440.961		
200.0	200.0	200.4	200.3	0.3	0.3	36.84	103.0	77.2	128.7	128.1	0.62	206.566		
208.0	208.0	208.3	208.3	0.3	0.3	134.59	102.9	77.2	128.7	128.0	0.65	197.510		
300.0	300.0	302.4	302.4	0.5	0.5	135.40	102.3	77.7	129.5	128.5	0.98	132.441		
400.0	399.8	411.1	410.9	0.7	0.7	137.99	97.4	74.9	129.2	127.8	1.36	95.271		
500.0	499.1	518.5	517.5	1.0	0.9	141.82	87.6	66.5	126.0	124.3	1.75	72.065		
587.4	585.2	606.3	604.2	1.3	1.2	144.12	80.8	54.2	124.1	122.0	2.10	59.146 CC		
600.0	597.6	618.7	616.4	1.3	1.2	144.38	80.1	52.2	124.2	122.0	2.15	57.794 ES		
700.0	695.1	714.9	711.2	1.7	1.5	145.77	77.5	36.2	128.3	125.7	2.59	49.632		
800.0	791.4	812.5	807.1	2.2	1.8	145.78	80.9	18.2	139.5	136.4	3.12	44.764		
900.0	886.2	914.8	906.4	2.8	2.2	144.71	88.0	-5.1	153.6	149.8	3.81	40.332		
1,000.0	980.7	1,014.4	1,001.8	3.4	2.7	142.46	97.6	-31.8	167.4	162.7	4.71	35.567		
1,100.0	1,075.3	1,113.4	1,096.0	4.0	3.2	139.72	108.8	-60.3	181.1	175.4	5.69	31.840		
1,200.0	1,169.9	1,210.8	1,188.5	4.7	3.7	137.20	120.5	-88.7	195.4	188.6	6.77	28.867		
1,300.0	1,264.4	1,311.1	1,283.7	5.3	4.3	135.03	132.4	-117.7	210.2	202.3	7.90	26.615		
1,400.0	1,359.0	1,411.2	1,378.8	5.9	4.8	133.22	143.3	-147.0	224.1	215.1	9.03	24.818		
1,500.0	1,453.5	1,511.2	1,473.9	6.5	5.4	131.74	153.7	-176.2	238.0	227.8	10.17	23.407		
1,600.0	1,548.1	1,610.4	1,568.3	7.1	6.0	130.48	163.5	-205.1	251.6	240.3	11.30	22.258		
1,700.0	1,642.6	1,703.0	1,656.4	7.7	6.5	129.38	173.7	-231.8	266.4	253.9	12.41	21.456		
1,800.0	1,737.2	1,802.2	1,750.9	8.3	7.0	128.33	185.6	-259.6	282.5	268.9	13.56	20.834		
1,900.0	1,831.7	1,901.4	1,845.5	9.0	7.6	127.52	196.9	-287.1	298.4	283.7	14.69	20.314		
2,000.0	1,926.3	2,000.0	1,939.7	9.6	8.1	126.87	207.9	-314.1	314.2	298.4	15.80	19.887		
2,100.0	2,020.8	2,099.6	2,034.7	10.2	8.7	126.24	219.0	-341.7	330.1	313.1	16.93	19.493		
2,200.0	2,115.4	2,199.5	2,130.2	10.8	9.3	125.73	229.6	-369.2	345.4	327.4	18.04	19.142		
2,300.0	2,210.0	2,297.6	2,224.1	11.4	9.8	125.40	239.7	-395.5	361.0	341.8	19.13	18.873		
2,400.0	2,304.5	2,396.0	2,318.2	12.1	10.3	124.98	250.2	-422.5	376.4	356.2	20.24	18.602		
2,500.0	2,399.1	2,492.8	2,410.9	12.7	10.8	124.69	260.6	-448.4	392.4	371.1	21.30	18.421		
2,600.0	2,493.6	2,593.8	2,507.8	13.3	11.4	124.53	271.1	-474.7	408.4	386.0	22.40	18.233		
2,700.0	2,588.2	2,694.8	2,603.8	13.9	12.0	123.96	282.3	-503.9	423.7	400.1	23.58	17.965		
2,800.0	2,682.7	2,793.2	2,697.7	14.6	12.6	123.56	292.7	-531.7	438.8	414.1	24.71	17.757		
2,900.0	2,777.3	2,892.7	2,792.5	15.2	13.1	123.17	303.2	-559.9	454.0	428.1	25.88	17.544		
3,000.0	2,871.8	2,989.5	2,884.4	15.8	13.7	122.69	314.0	-588.1	469.3	442.2	27.04	17.354		
3,100.0	2,966.4	3,088.3	2,978.7	16.4	14.3	122.37	324.8	-615.9	484.8	456.6	28.17	17.209		
3,200.0	3,061.0	3,187.0	3,072.6	17.0	14.9	122.00	335.7	-644.1	500.3	471.0	29.35	17.049		
3,300.0	3,155.5	3,282.7	3,163.6	17.7	15.4	121.61	346.8	-671.8	516.2	485.7	30.50	16.926		
3,400.0	3,250.1	3,381.4	3,257.6	18.3	16.0	121.33	358.1	-699.4	532.4	500.8	31.63	16.831		
3,500.0	3,344.6	3,482.3	3,354.1	18.9	16.5	121.16	369.1	-726.9	548.4	515.7	32.76	16.739		
3,600.0	3,439.2	3,581.5	3,448.5	19.5	17.1	120.86	380.2	-755.3	564.0	530.1	33.93	16.622		
3,700.0	3,533.7	3,678.9	3,541.2	20.1	17.7	120.60	391.2	-783.0	579.9	544.8	35.07	16.535		
3,800.0	3,628.3	3,777.0	3,634.9	20.8	18.2	120.42	402.0	-810.1	595.8	559.7	36.19	16.464		
3,900.0	3,722.8	3,873.1	3,726.8	21.4	18.7	120.31	412.6	-836.1	612.1	574.8	37.27	16.420		
4,000.0	3,817.4	3,983.2	3,832.2	22.0	19.4	120.25	424.3	-865.5	628.0	589.6	38.43	16.341		
4,100.0	3,911.9	4,084.2	3,928.9	22.6	19.9	120.18	433.5	-893.2	642.3	602.8	39.53	16.250		
4,200.0	4,006.5	4,181.0	4,021.7	23.2	20.4	120.16	442.4	-919.4	656.9	616.3	40.60	16.177		
4,300.0	4,101.1	4,272.0	4,108.3	23.9	21.0	119.95	452.2	-945.5	672.2	630.5	41.74	16.104		
4,400.0	4,195.6	4,371.6	4,202.8	24.5	21.6	119.66	463.8	-974.8	688.1	645.1	42.93	16.029		
4,500.0	4,290.2	4,469.0	4,295.6	25.1	22.1	119.48	474.6	-1,002.3	703.9	659.8	44.06	15.975		
4,600.0	4,384.7	4,565.0	4,387.2	25.7	22.7	119.37	485.3	-1,028.7	720.0	674.8	45.16	15.942		
4,700.0	4,479.3	4,667.3	4,485.2	26.4	23.2	119.33	496.5	-1,056.1	736.3	690.0	46.28	15.908		
4,800.0	4,573.8	4,772.4	4,585.2	27.0	23.9	119.12	507.6	-1,086.5	751.3	703.8	47.49	15.818		
4,900.0	4,668.4	4,868.0	4,676.2	27.6	24.4	118.96	517.8	-1,113.9	766.5	717.9	48.62	15.766		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9D (M16W) - DD - FINAL													Offset Site Error: 0.0 ft	
Survey Program: 206-MWD, 1298-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		
5,000.0	4,762.9	4,966.4	4,770.2	28.2	24.9	118.89	528.0	-1,141.1	781.9	732.2	49.72	15.726		
5,100.0	4,857.5	5,066.4	4,865.8	28.8	25.5	118.83	538.3	-1,168.4	797.4	746.5	50.86	15.676		
5,200.0	4,952.1	5,163.4	4,957.8	29.5	26.1	118.59	549.1	-1,197.3	812.7	760.7	52.05	15.615		
5,300.0	5,046.6	5,264.1	5,053.5	30.1	26.7	118.42	560.2	-1,226.5	828.2	775.0	53.22	15.562		
5,400.0	5,141.2	5,362.9	5,147.7	30.7	27.3	118.30	570.6	-1,254.6	843.5	789.1	54.36	15.516		
5,500.0	5,235.7	5,457.8	5,238.3	31.3	27.8	118.22	580.7	-1,281.0	859.0	803.5	55.47	15.487		
5,600.0	5,330.3	5,549.9	5,326.3	31.9	28.3	118.17	590.9	-1,306.3	875.1	818.6	56.54	15.478		
5,700.0	5,424.8	5,648.6	5,420.7	32.6	28.9	118.14	602.0	-1,332.7	891.6	834.0	57.63	15.470		
5,800.0	5,519.4	5,744.2	5,512.4	33.2	29.4	118.17	612.6	-1,357.5	908.3	849.6	58.68	15.479		
5,900.0	5,613.9	5,845.1	5,609.3	33.8	29.9	118.23	623.7	-1,383.4	925.1	865.3	59.76	15.480		
6,000.0	5,708.5	5,946.3	5,706.0	34.4	30.5	118.15	635.1	-1,411.3	941.3	880.4	60.91	15.454		
6,100.0	5,803.1	6,036.7	5,791.9	35.1	31.0	118.03	646.1	-1,436.9	958.1	896.1	62.02	15.448		
6,200.0	5,897.6	6,130.7	5,881.4	35.7	31.6	117.93	658.0	-1,463.0	975.6	912.4	63.14	15.452		
6,300.0	5,992.2	6,226.0	5,972.3	36.3	32.1	117.84	670.1	-1,489.1	993.3	929.0	64.26	15.458		
6,400.0	6,086.7	6,335.2	6,076.3	36.9	32.7	117.75	684.4	-1,519.0	1,011.3	945.8	65.45	15.451		
6,500.0	6,181.3	6,445.8	6,182.0	37.5	33.4	117.69	696.4	-1,549.6	1,027.1	960.4	66.65	15.410		
6,600.0	6,275.8	6,556.1	6,286.8	38.2	34.0	117.56	708.2	-1,581.5	1,042.4	974.5	67.88	15.356		
6,700.0	6,370.4	6,642.5	6,369.0	38.8	34.5	117.46	717.4	-1,606.5	1,057.6	988.6	68.97	15.333		
6,800.0	6,464.9	6,736.8	6,459.0	39.4	35.0	117.39	728.0	-1,632.9	1,073.6	1,003.6	70.07	15.323		
6,900.0	6,559.5	6,844.4	6,561.6	40.0	35.7	117.33	739.7	-1,662.9	1,089.4	1,018.2	71.26	15.287		
7,000.0	6,654.0	6,935.7	6,648.6	40.7	36.2	117.25	749.8	-1,688.8	1,105.3	1,032.9	72.36	15.275		
7,100.0	6,748.6	7,051.1	6,759.0	41.3	36.8	117.25	761.1	-1,720.2	1,120.2	1,046.7	73.53	15.234		
7,200.0	6,843.2	7,145.4	6,849.8	41.9	37.3	117.34	769.7	-1,744.4	1,135.2	1,060.6	74.53	15.231		
7,300.0	6,937.7	7,244.8	6,946.0	42.5	37.7	117.56	777.8	-1,767.7	1,150.0	1,074.6	75.47	15.239		
7,400.0	7,032.4	7,338.6	7,037.5	43.1	38.1	117.98	785.0	-1,787.6	1,165.0	1,088.7	76.31	15.267		
7,500.0	7,128.1	7,434.8	7,131.6	43.7	38.5	118.47	791.9	-1,806.1	1,179.0	1,101.9	77.06	15.299		
7,600.0	7,224.7	7,534.3	7,229.3	44.1	38.9	118.88	798.6	-1,823.6	1,191.4	1,113.6	77.77	15.319		
7,700.0	7,322.1	7,636.4	7,329.8	44.5	39.2	119.17	804.8	-1,840.6	1,202.0	1,123.5	78.44	15.323		
7,800.0	7,420.3	7,741.2	7,433.3	44.9	39.5	119.36	810.2	-1,856.2	1,210.5	1,131.5	79.05	15.314		
7,900.0	7,519.1	7,836.3	7,527.6	45.1	39.8	119.52	813.9	-1,867.8	1,217.3	1,137.8	79.52	15.308		
8,000.0	7,618.3	7,935.0	7,625.7	45.4	40.0	119.61	817.3	-1,877.5	1,222.8	1,142.9	79.95	15.296		
8,100.0	7,717.9	8,034.8	7,725.2	45.5	40.1	119.67	819.6	-1,884.8	1,226.5	1,146.3	80.26	15.281		
8,200.0	7,817.8	8,141.4	7,831.8	45.6	40.2	119.71	820.3	-1,889.5	1,228.0	1,147.6	80.47	15.261		
8,300.0	7,917.8	8,232.9	7,923.2	45.7	40.3	22.07	819.6	-1,889.5	1,228.2	1,147.6	80.53	15.250		
8,400.0	8,017.8	8,335.0	8,025.3	45.8	40.3	22.13	818.6	-1,888.6	1,227.6	1,147.0	80.62	15.226		
8,500.0	8,117.8	8,433.5	8,123.8	45.8	40.4	22.17	817.8	-1,887.9	1,227.1	1,146.4	80.72	15.202		
8,600.0	8,217.8	8,537.2	8,227.5	45.9	40.4	22.23	816.7	-1,887.0	1,226.5	1,145.7	80.81	15.178		
8,689.7	8,307.4	8,617.1	8,307.4	45.9	40.5	22.27	815.9	-1,886.4	1,225.9	1,145.0	80.89	15.155		
8,700.0	8,317.8	8,625.2	8,315.5	45.9	40.5	22.27	815.9	-1,886.3	1,225.9	1,145.0	80.90	15.153		
8,800.0	8,417.8	8,712.1	8,402.4	46.0	40.5	22.29	816.5	-1,885.6	1,226.8	1,145.8	81.01	15.144		
8,900.0	8,517.8	8,813.1	8,503.4	46.0	40.6	22.31	817.6	-1,884.8	1,228.1	1,147.0	81.13	15.137		
9,000.0	8,617.8	8,921.0	8,611.3	46.1	40.7	22.31	818.5	-1,884.5	1,229.0	1,147.7	81.28	15.121		
9,100.0	8,717.8	9,028.1	8,718.4	46.2	40.7	22.27	819.0	-1,885.1	1,229.2	1,147.8	81.45	15.093		
9,200.0	8,817.8	9,132.6	8,822.9	46.2	40.8	22.21	819.3	-1,886.4	1,229.0	1,147.4	81.63	15.056		
9,300.0	8,917.8	9,241.0	8,931.3	46.3	40.9	22.19	818.5	-1,887.1	1,228.1	1,146.3	81.77	15.018		
9,400.0	9,017.8	9,342.6	9,032.9	46.3	41.0	22.18	817.6	-1,887.7	1,227.1	1,145.2	81.93	14.978		
9,500.0	9,117.8	9,442.5	9,132.7	46.4	41.1	22.15	816.5	-1,889.0	1,225.6	1,143.5	82.08	14.931		
9,600.0	9,217.8	9,536.4	9,226.6	46.5	41.1	22.19	815.5	-1,888.3	1,224.8	1,142.6	82.18	14.904		
9,700.0	9,317.8	9,636.8	9,327.0	46.5	41.2	22.24	814.4	-1,887.8	1,224.0	1,141.7	82.30	14.872		
9,800.0	9,417.8	9,734.9	9,425.1	46.6	41.2	22.25	813.7	-1,887.8	1,223.3	1,140.9	82.44	14.839		
9,873.9	9,491.6	9,801.4	9,491.6	46.6	41.3	22.24	813.5	-1,888.1	1,223.0	1,140.5	82.55	14.816		
9,900.0	9,517.8	9,823.1	9,513.3	46.7	41.3	22.23	813.6	-1,888.2	1,223.1	1,140.5	82.59	14.810		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													M16W Pad (SWSW S16-T7S-R93W) - MCU Fee 17-9D (M16W) - DD - FINAL		Offset Site Error:		0.0 ft
Survey Program:													206-MWD, 1298-MWD		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
10,000.0	9,617.8	9,924.6	9,614.8	46.7	41.4	22.20	814.4	-1,888.7	1,223.7	1,140.9	82.77	14.785					
10,100.0	9,717.8	10,021.8	9,712.0	46.8	41.5	22.15	815.0	-1,889.6	1,223.9	1,141.0	82.93	14.758					
10,200.0	9,817.8	10,123.0	9,813.2	46.8	41.5	22.16	815.4	-1,889.1	1,224.4	1,141.3	83.07	14.739					
10,300.0	9,917.8	10,217.6	9,907.8	46.9	41.6	22.18	815.7	-1,888.6	1,224.9	1,141.7	83.21	14.722					
10,400.0	10,017.8	10,325.5	10,015.7	47.0	41.7	22.18	816.2	-1,888.2	1,225.4	1,142.1	83.36	14.701					
10,473.2	10,091.0	10,398.7	10,088.9	47.0	41.7	22.18	816.3	-1,888.3	1,225.6	1,142.1	83.48	14.682 SF					

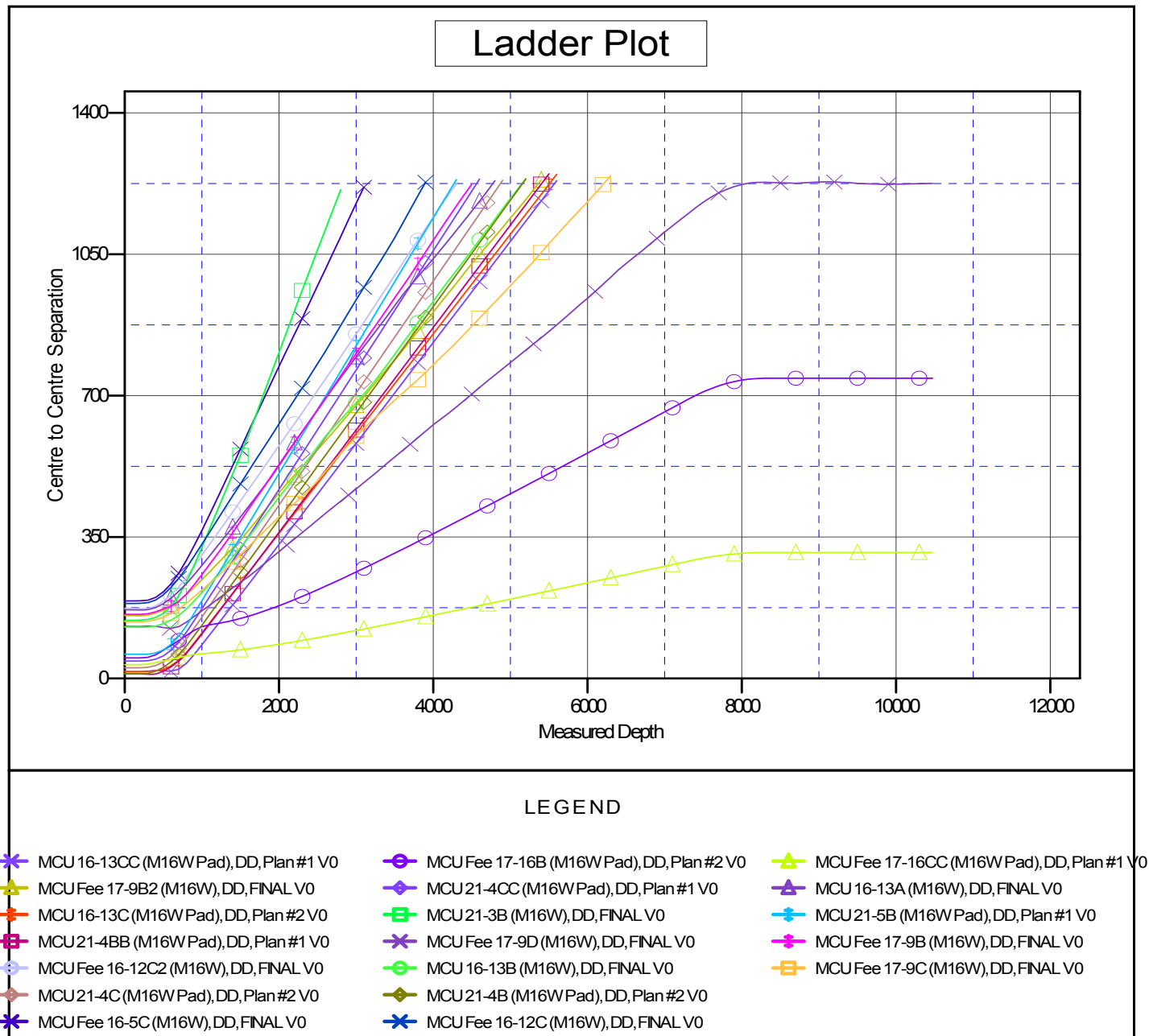
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well MCU Fee 17-16C (M16W Pad)
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Reference Site:	M16W Pad (SWSW S16-T7S-R93W)	MD Reference:	KB=22' @ 7903.0ft (Patterson 308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	MCU Fee 17-16C (M16W Pad)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=22' @ 7903.0ft (Patterson 308)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: MCU Fee 17-16C (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