

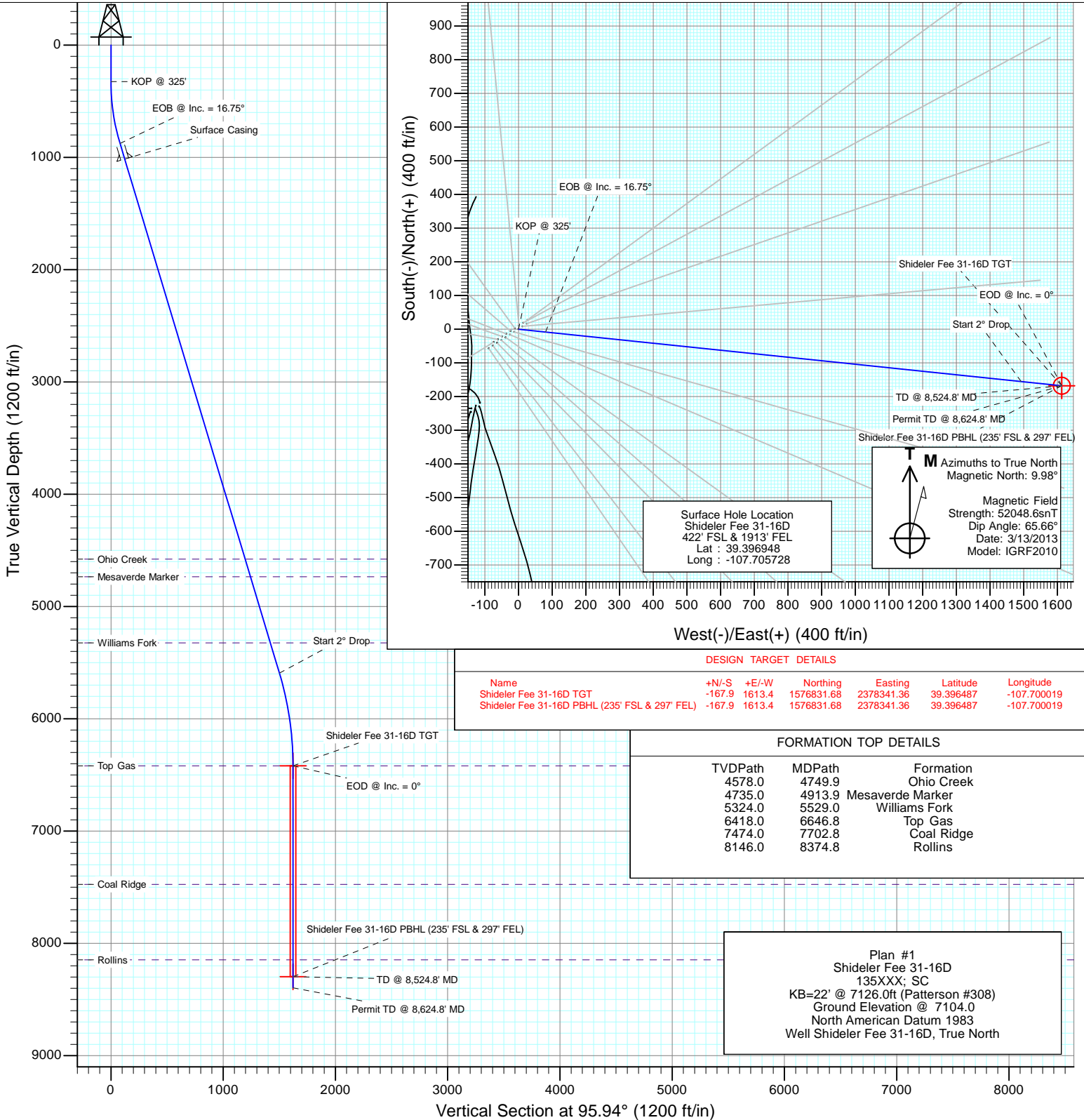


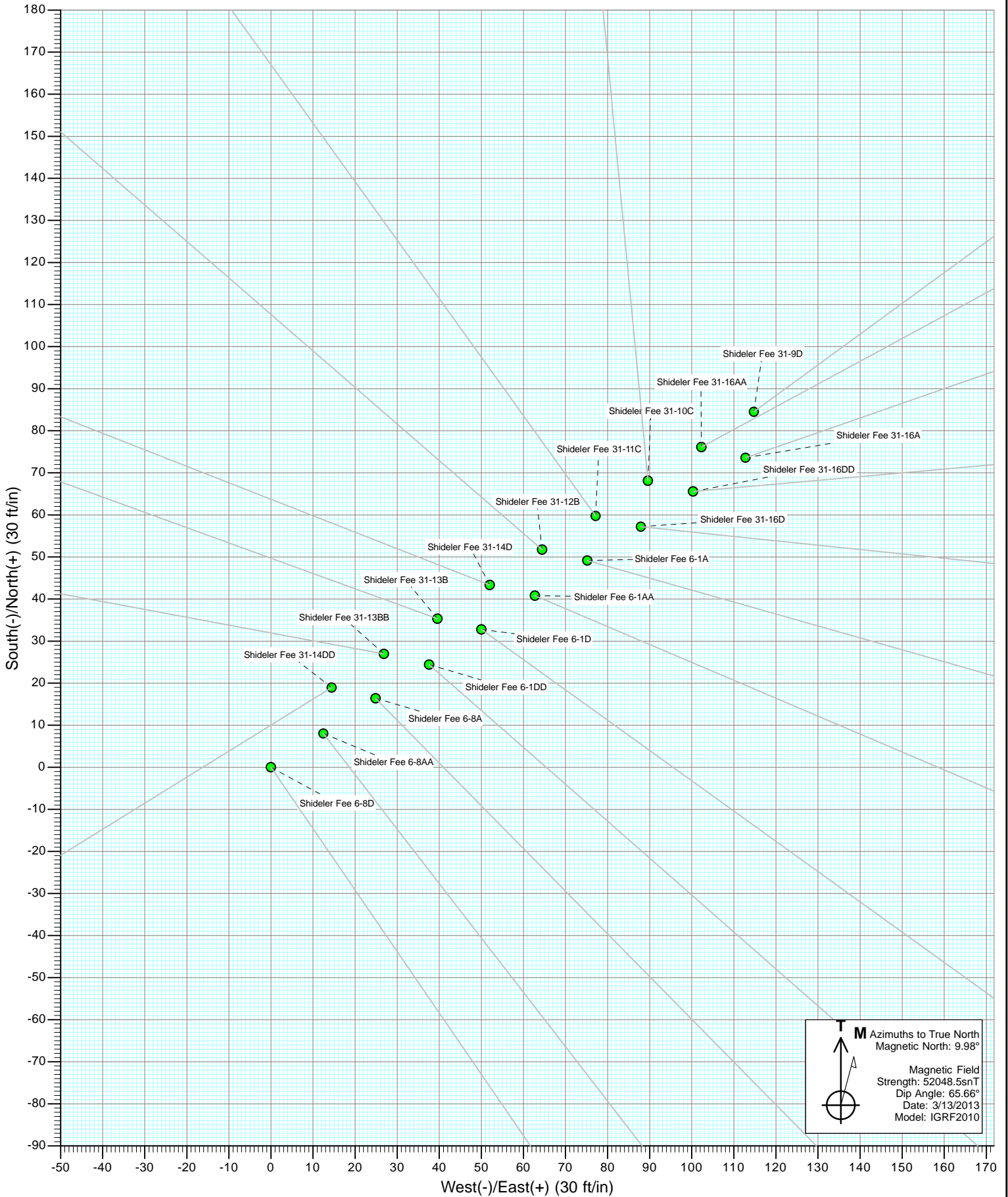
Project: Mamm Creek
 Site: O31E Pad (2nd Occupation)
 Well: Shideler Fee 31-16D
 Wellbore: OH
 Design: Plan #1

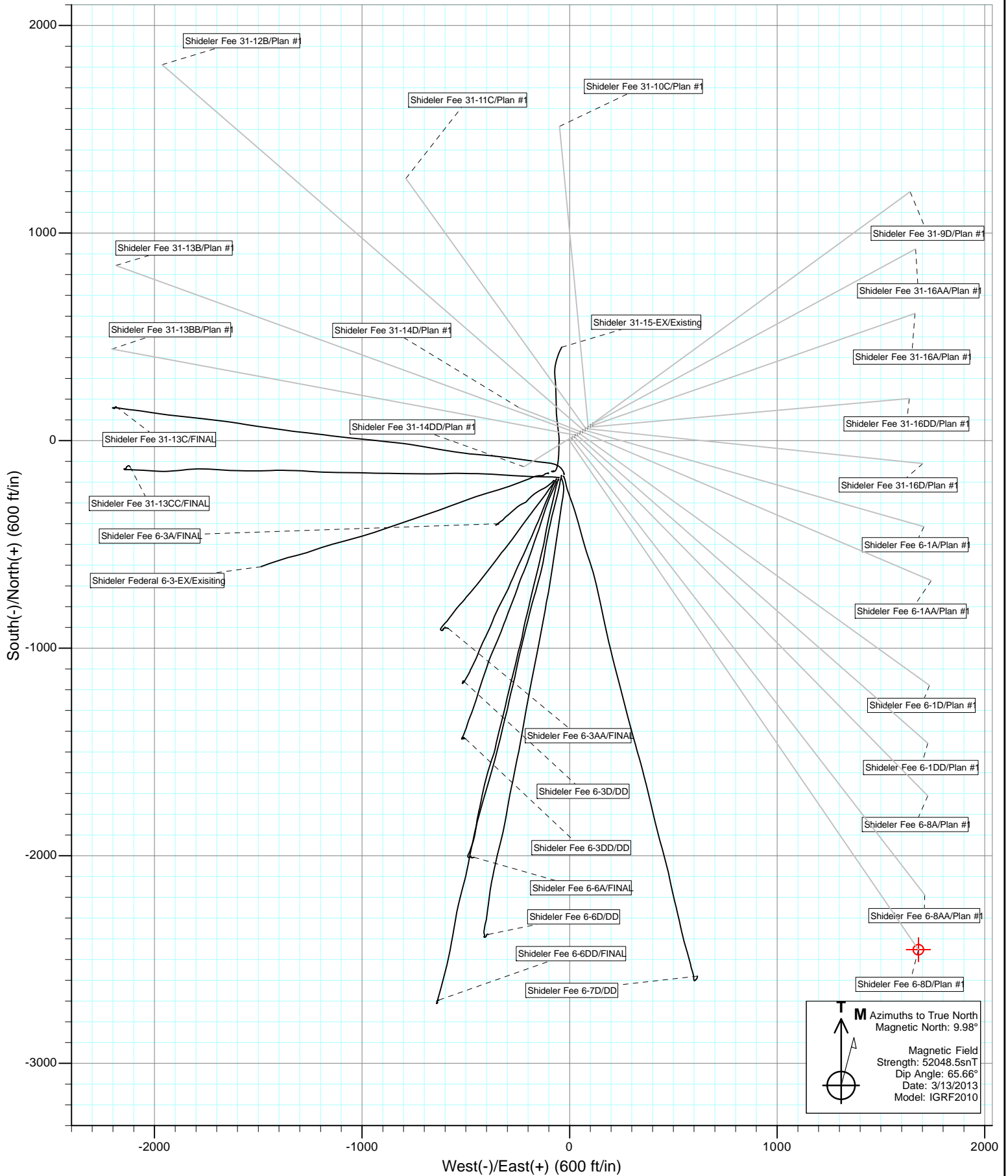


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	325.0	0.00	0.00	325.0	0.0	0.0	0.00	0.00	0.0	
3	883.3	16.75	95.94	875.4	-8.4	80.6	3.00	95.94	81.0	
4	5809.3	16.75	95.94	5592.5	-155.3	1492.5	0.00	0.00	1500.5	
5	6646.8	0.00	0.00	6418.0	-167.9	1613.4	2.00	180.00	1622.1	Shideler Fee 31-16D TGT
6	8524.8	0.00	0.00	8296.0	-167.9	1613.4	0.00	0.00	1622.1	Shideler Fee 31-16D PBHL (235' FSL & 297' FEL)
7	8624.8	0.00	0.00	8396.0	-167.9	1613.4	0.00	0.00	1622.1	

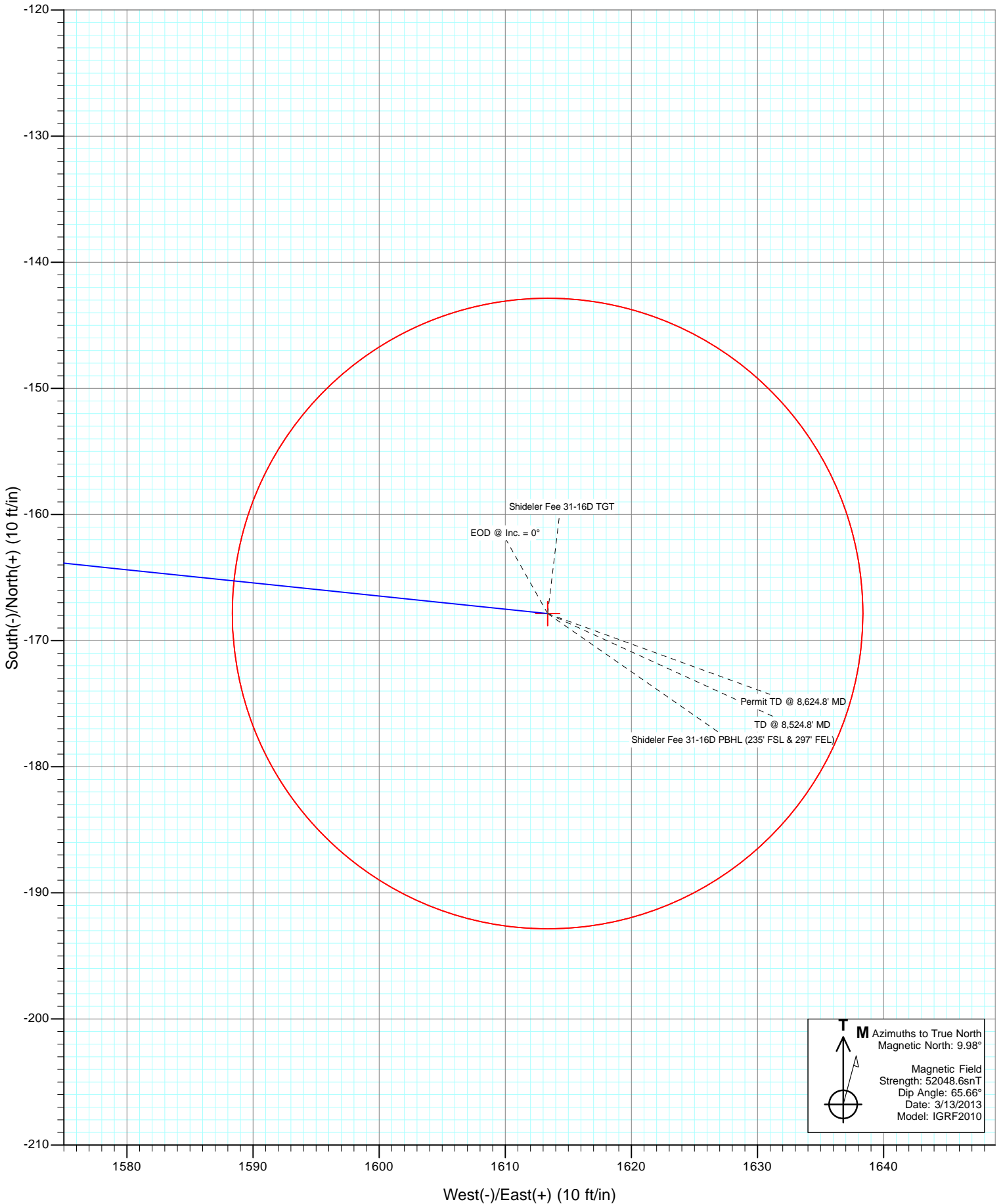








Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-16D
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-16D
Company: EnCana Oil & Gas (USA) Inc	TVD Reference: KB=22' @ 7126.0ft (Patterson #308)
Project: Mamm Creek	MD Reference: KB=22' @ 7126.0ft (Patterson #308)
Site: O31E Pad (2nd Occupation)	North Reference: True
Well: Shideler Fee 31-16D	Survey Calculation Method: Minimum Curvature
Wellbore: OH	
Design: Plan #1	

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

Site O31E Pad (2nd Occupation)					
Site Position:		Northing:	1,577,065.31 ft	Latitude:	39.397023
From:	Lat/Long	Easting:	2,376,760.05 ft	Longitude:	-107.705633
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well Shideler Fee 31-16D						
Well Position	+N/-S	0.0 ft	Northing:	1,577,038.65 ft	Latitude:	39.396948
	+E/-W	0.0 ft	Easting:	2,376,732.54 ft	Longitude:	-107.705728
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,104.0 ft

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	3/13/2013	(°) 9.98	(°) 65.66	(nT) 52,049

Design Plan #1					
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	95.94	

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	
325.0	0.00	0.00	325.0	0.0	0.0	0.00	0.00	0.00	0.00	
883.3	16.75	95.94	875.4	-8.4	80.6	3.00	3.00	0.00	95.94	
5,809.3	16.75	95.94	5,592.5	-155.3	1,492.5	0.00	0.00	0.00	0.00	
6,646.8	0.00	0.00	6,418.0	-167.9	1,613.4	2.00	-2.00	0.00	180.00	Shideler Fee 31-16D
8,524.8	0.00	0.00	8,296.0	-167.9	1,613.4	0.00	0.00	0.00	0.00	Shideler Fee 31-16D
8,624.8	0.00	0.00	8,396.0	-167.9	1,613.4	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 Shideler Fee 31-16D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Project:	Mamm Creek	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site:	O31E Pad (2nd Occupation)	North Reference:	True
Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
325.0	0.00	0.00	325.0	0.0	0.0	0.0	0.00	0.00	KOP @ 325'
400.0	2.25	95.94	400.0	-0.2	1.5	1.5	3.00	3.00	
500.0	5.25	95.94	499.8	-0.8	8.0	8.0	3.00	3.00	
600.0	8.25	95.94	599.1	-2.0	19.7	19.8	3.00	3.00	
700.0	11.25	95.94	697.6	-3.8	36.5	36.7	3.00	3.00	
800.0	14.25	95.94	795.1	-6.1	58.4	58.8	3.00	3.00	
883.3	16.75	95.94	875.4	-8.4	80.6	81.0	3.00	3.00	EOB @ Inc. = 16.75°
900.0	16.75	95.94	891.4	-8.9	85.4	85.8	0.00	0.00	
1,000.0	16.75	95.94	987.1	-11.9	114.0	114.7	0.00	0.00	
1,029.1	16.75	95.94	1,015.0	-12.7	122.4	123.0	0.00	0.00	Surface Casing
1,100.0	16.75	95.94	1,082.9	-14.8	142.7	143.5	0.00	0.00	
1,200.0	16.75	95.94	1,178.6	-17.8	171.4	172.3	0.00	0.00	
1,300.0	16.75	95.94	1,274.4	-20.8	200.0	201.1	0.00	0.00	
1,400.0	16.75	95.94	1,370.2	-23.8	228.7	229.9	0.00	0.00	
1,500.0	16.75	95.94	1,465.9	-26.8	257.3	258.7	0.00	0.00	
1,600.0	16.75	95.94	1,561.7	-29.8	286.0	287.6	0.00	0.00	
1,700.0	16.75	95.94	1,657.4	-32.7	314.7	316.4	0.00	0.00	
1,800.0	16.75	95.94	1,753.2	-35.7	343.3	345.2	0.00	0.00	
1,900.0	16.75	95.94	1,849.0	-38.7	372.0	374.0	0.00	0.00	
2,000.0	16.75	95.94	1,944.7	-41.7	400.7	402.8	0.00	0.00	
2,100.0	16.75	95.94	2,040.5	-44.7	429.3	431.6	0.00	0.00	
2,200.0	16.75	95.94	2,136.2	-47.6	458.0	460.5	0.00	0.00	
2,300.0	16.75	95.94	2,232.0	-50.6	486.6	489.3	0.00	0.00	
2,400.0	16.75	95.94	2,327.7	-53.6	515.3	518.1	0.00	0.00	
2,500.0	16.75	95.94	2,423.5	-56.6	544.0	546.9	0.00	0.00	
2,600.0	16.75	95.94	2,519.3	-59.6	572.6	575.7	0.00	0.00	
2,700.0	16.75	95.94	2,615.0	-62.6	601.3	604.5	0.00	0.00	
2,800.0	16.75	95.94	2,710.8	-65.5	630.0	633.4	0.00	0.00	
2,900.0	16.75	95.94	2,806.5	-68.5	658.6	662.2	0.00	0.00	
3,000.0	16.75	95.94	2,902.3	-71.5	687.3	691.0	0.00	0.00	
3,100.0	16.75	95.94	2,998.1	-74.5	715.9	719.8	0.00	0.00	
3,200.0	16.75	95.94	3,093.8	-77.5	744.6	748.6	0.00	0.00	
3,300.0	16.75	95.94	3,189.6	-80.4	773.3	777.4	0.00	0.00	
3,400.0	16.75	95.94	3,285.3	-83.4	801.9	806.3	0.00	0.00	
3,500.0	16.75	95.94	3,381.1	-86.4	830.6	835.1	0.00	0.00	
3,600.0	16.75	95.94	3,476.8	-89.4	859.2	863.9	0.00	0.00	
3,700.0	16.75	95.94	3,572.6	-92.4	887.9	892.7	0.00	0.00	
3,800.0	16.75	95.94	3,668.4	-95.4	916.6	921.5	0.00	0.00	
3,900.0	16.75	95.94	3,764.1	-98.3	945.2	950.3	0.00	0.00	
4,000.0	16.75	95.94	3,859.9	-101.3	973.9	979.2	0.00	0.00	
4,100.0	16.75	95.94	3,955.6	-104.3	1,002.6	1,008.0	0.00	0.00	
4,200.0	16.75	95.94	4,051.4	-107.3	1,031.2	1,036.8	0.00	0.00	
4,300.0	16.75	95.94	4,147.1	-110.3	1,059.9	1,065.6	0.00	0.00	
4,400.0	16.75	95.94	4,242.9	-113.2	1,088.5	1,094.4	0.00	0.00	
4,500.0	16.75	95.94	4,338.7	-116.2	1,117.2	1,123.2	0.00	0.00	
4,600.0	16.75	95.94	4,434.4	-119.2	1,145.9	1,152.1	0.00	0.00	
4,700.0	16.75	95.94	4,530.2	-122.2	1,174.5	1,180.9	0.00	0.00	
4,749.9	16.75	95.94	4,578.0	-123.7	1,188.8	1,195.3	0.00	0.00	Ohio Creek

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-16D
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-16D
TVD Reference: KB=22' @ 7126.0ft (Patterson #308)
MD Reference: KB=22' @ 7126.0ft (Patterson #308)
North Reference: True
Survey Calculation Method: Minimum Curvature

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
4,800.0	16.75	95.94	4,625.9	-125.2	1,203.2	1,209.7	0.00	0.00	
4,900.0	16.75	95.94	4,721.7	-128.2	1,231.9	1,238.5	0.00	0.00	
4,913.9	16.75	95.94	4,735.0	-128.6	1,235.8	1,242.5	0.00	0.00	Mesaverde Marker
5,000.0	16.75	95.94	4,817.5	-131.1	1,260.5	1,267.3	0.00	0.00	
5,100.0	16.75	95.94	4,913.2	-134.1	1,289.2	1,296.1	0.00	0.00	
5,200.0	16.75	95.94	5,009.0	-137.1	1,317.8	1,325.0	0.00	0.00	
5,300.0	16.75	95.94	5,104.7	-140.1	1,346.5	1,353.8	0.00	0.00	
5,400.0	16.75	95.94	5,200.5	-143.1	1,375.2	1,382.6	0.00	0.00	
5,500.0	16.75	95.94	5,296.2	-146.1	1,403.8	1,411.4	0.00	0.00	
5,529.0	16.75	95.94	5,324.0	-146.9	1,412.1	1,419.8	0.00	0.00	Williams Fork
5,600.0	16.75	95.94	5,392.0	-149.0	1,432.5	1,440.2	0.00	0.00	
5,700.0	16.75	95.94	5,487.8	-152.0	1,461.2	1,469.0	0.00	0.00	
5,809.3	16.75	95.94	5,592.5	-155.3	1,492.5	1,500.5	0.00	0.00	Start 2° Drop
5,900.0	14.94	95.94	5,679.7	-157.8	1,517.1	1,525.3	2.00	-2.00	
6,000.0	12.94	95.94	5,776.7	-160.3	1,541.1	1,549.4	2.00	-2.00	
6,100.0	10.94	95.94	5,874.6	-162.5	1,561.6	1,570.1	2.00	-2.00	
6,200.0	8.94	95.94	5,973.1	-164.3	1,578.8	1,587.3	2.00	-2.00	
6,300.0	6.94	95.94	6,072.1	-165.7	1,592.5	1,601.1	2.00	-2.00	
6,400.0	4.94	95.94	6,171.6	-166.8	1,602.8	1,611.5	2.00	-2.00	
6,500.0	2.94	95.94	6,271.3	-167.5	1,609.6	1,618.3	2.00	-2.00	
6,600.0	0.94	95.94	6,371.2	-167.8	1,613.0	1,621.7	2.00	-2.00	
6,646.8	0.00	0.00	6,418.0	-167.9	1,613.4	1,622.1	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,700.0	0.00	0.00	6,471.2	-167.9	1,613.4	1,622.1	0.00	0.00	
6,800.0	0.00	0.00	6,571.2	-167.9	1,613.4	1,622.1	0.00	0.00	
6,900.0	0.00	0.00	6,671.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,000.0	0.00	0.00	6,771.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,100.0	0.00	0.00	6,871.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,200.0	0.00	0.00	6,971.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,300.0	0.00	0.00	7,071.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,400.0	0.00	0.00	7,171.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,500.0	0.00	0.00	7,271.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,600.0	0.00	0.00	7,371.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,700.0	0.00	0.00	7,471.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,702.8	0.00	0.00	7,474.0	-167.9	1,613.4	1,622.1	0.00	0.00	Coal Ridge
7,800.0	0.00	0.00	7,571.2	-167.9	1,613.4	1,622.1	0.00	0.00	
7,900.0	0.00	0.00	7,671.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,000.0	0.00	0.00	7,771.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,100.0	0.00	0.00	7,871.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,200.0	0.00	0.00	7,971.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,300.0	0.00	0.00	8,071.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,374.8	0.00	0.00	8,146.0	-167.9	1,613.4	1,622.1	0.00	0.00	Rollins
8,400.0	0.00	0.00	8,171.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,500.0	0.00	0.00	8,271.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,524.8	0.00	0.00	8,296.0	-167.9	1,613.4	1,622.1	0.00	0.00	TD @ 8,524.8' MD
8,600.0	0.00	0.00	8,371.2	-167.9	1,613.4	1,622.1	0.00	0.00	
8,624.8	0.00	0.00	8,396.0	-167.9	1,613.4	1,622.1	0.00	0.00	Permit TD @ 8,624.8' MD

Cathedral Energy Services

Planning Report

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Company: EnCana Oil & Gas (USA) Inc	TVD Reference: KB=22' @ 7126.0ft (Patterson #308)
Project: Mamm Creek	MD Reference: KB=22' @ 7126.0ft (Patterson #308)
Site: O31E Pad (2nd Occupation)	North Reference: True
Well: Shideler Fee 31-16D	Survey Calculation Method: Minimum Curvature
Wellbore: OH	
Design: Plan #1	

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Shideler Fee 31-16D TG - plan hits target center - Point	0.00	0.00	6,418.0	-167.9	1,613.4	1,576,831.68	2,378,341.36	39.396487	-107.700019
Shideler Fee 31-16D PB - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,296.0	-167.9	1,613.4	1,576,831.68	2,378,341.36	39.396487	-107.700019

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,029.1	1,015.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,749.9	4,578.0	Ohio Creek			
4,913.9	4,735.0	Mesaverde Marker			
5,529.0	5,324.0	Williams Fork			
6,646.8	6,418.0	Top Gas			
7,702.8	7,474.0	Coal Ridge			
8,374.8	8,146.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
325.0	325.0	0.0	0.0	KOP @ 325'	
883.3	875.4	-8.4	80.6	EOB @ Inc. = 16.75°	
5,809.3	5,592.5	-155.3	1,492.5	Start 2° Drop	
6,646.8	6,418.0	-167.9	1,613.4	EOD @ Inc. = 0°	
8,524.8	8,296.0	-167.9	1,613.4	TD @ 8,524.8' MD	
8,624.8	8,396.0	-167.9	1,613.4	Permit TD @ 8,624.8' MD	

EnCana Oil & Gas (USA) Inc

Mamm Creek

O31E Pad (2nd Occupation)

Shideler Fee 31-16D

OH

Plan #1

Anticollision Report

21 March, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	3/14/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,624.8	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O31E Pad						
Shideler 31-15-EX - Existing - Existing	331.6	310.7	268.4	267.6	329.993	CC, ES
Shideler 31-15-EX - Existing - Existing	1,600.0	1,547.4	480.8	475.6	93.605	SF
Shideler Federal 6-3-EX - Existing - Existing	287.2	265.2	286.1	285.4	412.050	CC
Shideler Federal 6-3-EX - Existing - Existing	300.0	277.7	286.1	285.4	393.209	ES
Shideler Federal 6-3-EX - Existing - Existing	1,400.0	1,336.6	481.9	477.4	107.119	SF
Shideler Fee 31-13C - OH - FINAL	544.9	561.2	240.8	238.8	123.692	CC, ES
Shideler Fee 31-13C - OH - FINAL	900.0	856.2	297.1	293.3	77.946	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	273.1			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.2	273.3	273.0	978.790	ES
Shideler Fee 31-13CC - OH - FINAL	1,000.0	893.3	432.5	428.3	102.680	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	299.0			
Shideler Fee 6-3A - DD - FINAL	100.0	102.1	299.1	298.9	1,072.096	ES
Shideler Fee 6-3A - DD - FINAL	1,300.0	1,254.0	488.4	483.0	89.438	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	309.1			
Shideler Fee 6-3AA - DD - FINAL	1,000.0	925.2	483.5	479.4	119.128	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	286.2			
Shideler Fee 6-3D - DD - DD	200.0	201.9	286.6	286.0	458.751	ES
Shideler Fee 6-3D - DD - DD	1,100.0	1,011.2	474.3	469.6	100.792	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	296.2			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	296.4	296.1	1,061.395	ES
Shideler Fee 6-3DD - DD - DD	1,000.0	904.6	466.5	462.4	111.700	SF
Shideler Fee 6-6A - DD - FINAL	319.2	323.1	282.9	281.8	270.647	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,200.0	1,071.7	478.1	472.8	89.301	SF
Shideler Fee 6-6D - DD - DD	134.5	137.6	269.3	268.9	676.088	CC, ES
Shideler Fee 6-6D - DD - DD	1,100.0	952.4	477.3	472.1	91.584	SF
Shideler Fee 6-6DD - DD - FINAL	153.3	156.3	259.2	258.8	559.244	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.5	259.4	258.8	416.871	ES
Shideler Fee 6-6DD - DD - FINAL	1,100.0	944.6	490.9	486.0	99.493	SF
Shideler Fee 6-7D - DD - DD	141.0	141.0	257.0	256.5	610.669	CC, ES
Shideler Fee 6-7D - DD - DD	1,200.0	1,060.6	487.5	480.7	71.308	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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	200.0	200.0	11.1	10.4	17.790	CC, ES
Shideler Fee 31-10C - OH - Plan #1	300.0	299.5	12.5	11.5	12.833	SF
Shideler Fee 31-11C - OH - Plan #1	234.3	234.3	11.0	10.3	14.893	CC, ES
Shideler Fee 31-11C - OH - Plan #1	300.0	299.8	11.5	10.6	11.891	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	24.1	23.5	38.761	CC, ES
Shideler Fee 31-12B - OH - Plan #1	400.0	397.7	32.8	31.4	24.535	SF
Shideler Fee 31-13B - OH - Plan #1	200.0	200.0	53.0	52.4	85.358	CC, ES
Shideler Fee 31-13B - OH - Plan #1	500.0	490.5	78.9	77.2	46.664	SF
Shideler Fee 31-13BB - OH - Plan #1	300.0	300.0	68.1	67.1	70.195	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	500.0	493.8	81.6	79.9	48.957	SF
Shideler Fee 31-14D - OH - Plan #1	300.0	300.0	38.5	37.5	39.640	CC, ES
Shideler Fee 31-14D - OH - Plan #1	500.0	499.8	45.7	44.1	27.417	SF
Shideler Fee 31-14DD - OH - Plan #1	300.0	300.0	82.8	81.9	85.359	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	700.0	692.3	130.5	128.1	54.734	SF
Shideler Fee 31-16A - OH - Plan #1	552.7	550.5	26.1	24.2	13.757	CC, ES
Shideler Fee 31-16A - OH - Plan #1	800.0	794.5	36.3	32.9	10.634	SF
Shideler Fee 31-16AA - OH - Plan #1	300.0	300.0	23.8	22.8	24.526	CC, ES
Shideler Fee 31-16AA - OH - Plan #1	800.0	791.1	56.8	53.3	16.182	SF
Shideler Fee 31-16DD - OH - Plan #1	300.0	300.0	15.0	14.0	15.450	CC, ES
Shideler Fee 31-16DD - OH - Plan #1	8,624.8	8,597.6	319.8	256.6	5.061	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	38.3	37.7	61.648	CC, ES
Shideler Fee 31-9D - OH - Plan #1	2,600.0	2,529.0	491.0	469.0	22.269	SF
Shideler Fee 6-1A - OH - Plan #1	300.0	300.0	15.0	14.1	15.492	CC, ES
Shideler Fee 6-1A - OH - Plan #1	8,624.8	8,647.7	303.8	238.0	4.619	SF
Shideler Fee 6-1AA - OH - Plan #1	300.0	300.0	30.0	29.1	30.936	CC
Shideler Fee 6-1AA - OH - Plan #1	400.0	400.7	30.3	29.0	22.939	ES
Shideler Fee 6-1AA - OH - Plan #1	2,200.0	2,197.8	169.3	150.2	8.867	SF
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	45.1	44.1	46.424	CC
Shideler Fee 6-1D - OH - Plan #1	400.0	400.8	45.3	43.9	34.101	ES
Shideler Fee 6-1D - OH - Plan #1	1,500.0	1,489.6	185.0	173.6	16.158	SF
Shideler Fee 6-1DD - OH - Plan #1	300.0	300.2	60.0	59.0	61.805	CC
Shideler Fee 6-1DD - OH - Plan #1	400.0	400.9	60.2	58.8	45.147	ES
Shideler Fee 6-1DD - OH - Plan #1	1,500.0	1,479.9	233.2	221.7	20.292	SF
Shideler Fee 6-8A - OH - Plan #1	342.9	343.6	74.9	73.8	66.377	CC, ES
Shideler Fee 6-8A - OH - Plan #1	1,500.0	1,468.6	276.9	265.3	23.966	SF
Shideler Fee 6-8AA - OH - Plan #1	316.1	316.3	90.0	88.9	87.003	CC, ES
Shideler Fee 6-8AA - OH - Plan #1	1,400.0	1,348.2	307.6	297.2	29.724	SF
Shideler Fee 6-8D - OH - Plan #1	297.7	297.8	104.8	103.9	108.878	CC
Shideler Fee 6-8D - OH - Plan #1	300.0	300.0	104.8	103.9	108.000	ES
Shideler Fee 6-8D - OH - Plan #1	1,400.0	1,331.2	344.0	333.7	33.358	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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-Gyro													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	-139.87	-205.7	-173.4	270.0						
100.0	100.0	78.4	78.4	0.1	0.1	-139.92	-205.8	-173.2	269.0	268.8	0.20	1,314.723			
200.0	200.0	178.9	178.9	0.3	0.2	-140.06	-206.1	-172.5	268.8	268.3	0.47	575.726			
300.0	300.0	279.0	279.0	0.5	0.2	-140.27	-206.4	-171.6	268.4	267.7	0.73	368.304			
331.6	331.6	310.7	310.7	0.5	0.3	123.73	-206.6	-171.1	268.4	267.6	0.81	329.993 CC, ES			
400.0	400.0	379.8	379.7	0.7	0.3	123.67	-207.2	-169.9	268.7	267.7	1.00	270.080			
500.0	499.8	481.1	481.0	0.9	0.4	124.36	-207.7	-167.8	271.5	270.2	1.28	212.888			
600.0	599.1	583.3	583.2	1.1	0.5	126.15	-206.8	-166.2	276.6	275.0	1.59	174.320			
700.0	697.6	681.1	681.0	1.4	0.6	128.84	-204.6	-165.4	284.8	282.9	1.94	147.189			
800.0	795.1	774.3	774.2	1.8	0.7	131.93	-202.8	-165.6	298.1	295.8	2.32	128.492			
900.0	891.4	869.0	868.9	2.3	0.8	135.24	-202.3	-166.1	317.3	314.5	2.73	116.090			
1,000.0	987.1	965.0	964.9	2.9	0.8	138.54	-202.7	-165.9	338.8	335.7	3.13	108.341			
1,100.0	1,082.9	1,061.3	1,061.2	3.4	0.9	141.35	-203.7	-165.3	361.3	357.8	3.50	103.092			
1,200.0	1,178.6	1,157.4	1,157.2	3.9	1.0	143.82	-204.6	-164.6	384.4	380.5	3.86	99.504			
1,300.0	1,274.4	1,253.5	1,253.4	4.5	1.1	146.12	-205.0	-164.2	408.2	404.0	4.20	97.153			
1,400.0	1,370.2	1,350.5	1,350.4	5.0	1.2	148.15	-205.5	-163.6	432.3	427.8	4.53	95.524			
1,500.0	1,465.9	1,448.6	1,448.5	5.5	1.3	149.99	-205.9	-162.7	456.6	451.8	4.84	94.396			
1,600.0	1,561.7	1,547.4	1,547.2	6.1	1.4	151.68	-205.8	-161.3	480.8	475.6	5.14	93.605 SF			

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

Cathedral Energy Services

Anticollision Report

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Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-Gyro													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-138.41	-214.8	-190.7	288.1						
100.0	100.0	79.4	79.4	0.1	0.1	-138.43	-214.8	-190.5	287.1	286.9	0.21	1,396.166			
200.0	200.0	179.8	179.8	0.3	0.2	-138.47	-214.4	-189.9	286.5	286.0	0.47	612.243			
287.2	287.2	265.2	265.2	0.5	0.2	-138.47	-214.2	-189.7	286.1	285.4	0.69	412.050 CC			
300.0	300.0	277.7	277.7	0.5	0.2	-138.46	-214.2	-189.7	286.1	285.4	0.73	393.209 ES			
400.0	400.0	376.7	376.7	0.7	0.3	125.90	-214.1	-190.3	287.3	286.3	0.99	290.312			
500.0	499.8	475.9	475.9	0.9	0.4	126.95	-214.1	-191.1	291.8	290.5	1.27	230.399			
600.0	599.1	574.4	574.4	1.1	0.5	128.69	-214.1	-192.2	299.8	298.2	1.57	190.605			
700.0	697.6	671.3	671.3	1.4	0.6	130.93	-214.3	-193.5	311.8	309.9	1.92	162.619			
800.0	795.1	766.3	766.3	1.8	0.7	133.54	-214.6	-195.4	328.6	326.3	2.30	142.800			
900.0	891.4	860.1	860.0	2.3	0.8	136.44	-215.2	-197.8	350.5	347.7	2.71	129.317			
1,000.0	987.1	953.6	953.5	2.9	0.8	139.55	-215.8	-200.6	375.2	372.1	3.10	121.037			
1,100.0	1,082.9	1,048.1	1,048.0	3.4	0.9	142.31	-216.7	-203.7	401.1	397.6	3.47	115.580			
1,200.0	1,178.6	1,143.8	1,143.6	3.9	1.0	144.70	-217.9	-206.4	427.7	423.9	3.83	111.812			
1,300.0	1,274.4	1,240.0	1,239.8	4.5	1.1	146.74	-219.6	-208.8	454.7	450.6	4.17	109.115			
1,400.0	1,370.2	1,336.6	1,336.3	5.0	1.2	148.53	-221.5	-210.6	481.9	477.4	4.50	107.119 SF			

Cathedral Energy Services

Anticollision Report

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Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-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	3.0	3.0	0.0	0.0	-152.42	-218.6	-114.2	246.6						
100.0	100.0	102.3	102.3	0.1	0.1	-152.43	-218.7	-114.2	246.7	246.5	0.28	883.307			
200.0	200.0	203.2	203.2	0.3	0.3	-152.44	-218.9	-114.3	246.9	246.3	0.63	393.889			
300.0	300.0	306.1	306.1	0.5	0.5	-152.35	-218.3	-114.3	246.4	245.4	0.98	251.147			
400.0	400.0	414.2	414.1	0.7	0.7	112.77	-214.0	-115.3	243.9	242.6	1.35	180.807			
500.0	499.8	517.3	516.8	0.9	0.9	116.02	-205.5	-118.8	241.2	239.4	1.75	138.135			
544.9	544.4	561.2	560.4	1.0	1.0	118.04	-201.0	-121.2	240.8	238.8	1.95	123.692	CC, ES		
600.0	599.1	613.8	612.5	1.1	1.1	120.86	-195.4	-124.7	241.6	239.4	2.21	109.510			
700.0	697.6	702.3	700.1	1.4	1.4	126.61	-185.3	-133.3	248.5	245.8	2.73	90.976			
800.0	795.1	781.8	778.2	1.8	1.7	132.41	-176.8	-145.3	266.5	263.3	3.28	81.220			
900.0	891.4	856.2	850.9	2.3	1.9	137.74	-170.8	-160.0	297.1	293.3	3.81	77.946	SF		
1,000.0	987.1	937.0	929.3	2.9	2.3	143.22	-166.3	-178.7	336.6	332.3	4.29	78.427			
1,100.0	1,082.9	1,004.2	994.1	3.4	2.6	146.94	-163.8	-196.2	381.4	376.7	4.70	81.107			
1,200.0	1,178.6	1,076.7	1,063.5	3.9	2.9	150.34	-161.6	-217.2	430.8	425.7	5.09	84.634			
1,300.0	1,274.4	1,145.8	1,129.0	4.5	3.3	153.17	-159.1	-238.9	483.6	478.1	5.45	88.756			

Cathedral Energy Services

Anticollision Report

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Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD, 1242-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-149.33	-234.9	-139.3	273.1						
100.0	100.0	102.2	102.2	0.1	0.1	-149.32	-235.0	-139.5	273.3	273.0	0.28	978.790 ES			
200.0	200.0	201.4	201.4	0.3	0.3	-149.33	-235.4	-139.6	273.8	273.1	0.62	438.675			
300.0	300.0	298.1	298.1	0.5	0.5	-148.87	-235.4	-142.1	275.0	274.0	0.97	284.046			
400.0	400.0	394.0	393.7	0.7	0.7	116.59	-234.3	-148.4	278.1	276.8	1.33	209.084			
500.0	499.8	483.3	482.5	0.9	0.9	119.16	-233.3	-158.0	286.3	284.6	1.72	166.650			
600.0	599.1	571.0	569.3	1.1	1.1	122.53	-232.9	-170.6	301.0	298.8	2.16	139.274			
700.0	697.6	662.0	658.8	1.4	1.5	126.70	-232.3	-186.9	322.3	319.6	2.67	120.761			
800.0	795.1	742.7	737.6	1.8	1.8	130.59	-231.7	-204.0	351.4	348.2	3.19	110.021			
900.0	891.4	819.6	812.2	2.3	2.2	134.41	-231.3	-222.9	388.9	385.2	3.73	104.275			
1,000.0	987.1	893.3	883.1	2.9	2.5	138.49	-230.8	-243.3	432.5	428.3	4.21	102.680 SF			
1,100.0	1,082.9	962.5	948.9	3.4	2.9	141.87	-230.4	-264.3	480.5	475.9	4.66	103.098			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	3.0	3.0	0.0	0.0	-146.82	-250.2	-163.6	299.0						
100.0	100.0	102.1	102.1	0.1	0.1	-146.81	-250.4	-163.7	299.1	298.9	0.28	1,072.096	ES		
200.0	200.0	199.2	199.2	0.3	0.3	-146.74	-250.8	-164.5	300.0	299.3	0.62	483.290			
300.0	300.0	295.0	295.0	0.5	0.5	-146.61	-251.7	-165.9	301.6	300.6	0.96	312.792			
400.0	400.0	387.0	386.9	0.7	0.7	117.76	-254.3	-168.9	306.4	305.1	1.30	235.799			
500.0	499.8	483.1	482.8	0.9	0.8	118.75	-258.5	-173.0	315.5	313.8	1.66	190.057			
600.0	599.1	584.5	584.0	1.1	1.0	120.51	-262.6	-177.4	327.2	325.1	2.07	158.426			
700.0	697.6	681.6	680.9	1.4	1.2	122.70	-266.4	-181.5	341.8	339.3	2.51	136.170			
800.0	795.1	777.4	776.6	1.8	1.4	125.33	-269.9	-186.0	360.3	357.3	3.00	120.000			
900.0	891.4	872.1	871.2	2.3	1.6	128.28	-273.3	-190.7	383.0	379.4	3.53	108.571			
1,000.0	987.1	966.9	965.7	2.9	1.8	131.48	-276.8	-195.3	408.0	404.0	4.04	101.025			
1,100.0	1,082.9	1,061.6	1,060.3	3.4	2.0	134.39	-279.9	-200.0	434.0	429.4	4.53	95.791			
1,200.0	1,178.6	1,155.0	1,153.6	3.9	2.2	136.96	-282.8	-204.8	461.0	456.0	5.00	92.162			
1,300.0	1,274.4	1,254.0	1,252.3	4.5	2.4	139.35	-285.9	-209.4	488.4	483.0	5.46	89.438	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-147.79	-261.5	-164.8	309.1						
100.0	100.0	96.7	96.7	0.1	0.1	-147.79	-262.0	-165.0	309.6	309.4	0.27	1,136.397			
200.0	200.0	186.6	186.6	0.3	0.3	-147.77	-263.7	-166.3	312.0	311.4	0.60	516.107			
300.0	300.0	272.7	272.5	0.5	0.5	-147.68	-268.1	-169.6	318.4	317.5	0.95	333.770			
400.0	400.0	359.6	358.9	0.7	0.7	116.51	-275.6	-175.5	330.0	328.7	1.25	263.595			
500.0	499.8	449.5	447.9	0.9	1.0	117.07	-285.5	-182.7	346.5	344.9	1.60	216.484			
600.0	599.1	538.4	535.6	1.1	1.2	118.07	-297.3	-191.2	368.3	366.4	1.98	185.569			
700.0	697.6	634.5	630.2	1.4	1.6	119.51	-311.2	-200.6	394.0	391.6	2.43	161.895			
800.0	795.1	735.0	729.4	1.8	1.9	121.50	-324.4	-210.4	421.8	418.8	2.95	143.053			
900.0	891.4	831.4	824.7	2.3	2.2	123.73	-336.1	-219.0	451.8	448.3	3.51	128.896			
1,000.0	987.1	925.2	917.5	2.9	2.5	126.36	-347.3	-227.1	483.5	479.4	4.06	119.128 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 111-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	3.0	3.0	0.0	0.0	-148.11	-243.0	-151.2	286.2					
100.0	100.0	102.1	102.1	0.1	0.1	-148.10	-243.1	-151.3	286.3	286.0	0.28	1,025.827		
200.0	200.0	201.9	201.9	0.3	0.3	-148.11	-243.4	-151.4	286.6	286.0	0.62	458.751 ES		
300.0	300.0	295.0	295.0	0.5	0.5	-148.11	-244.3	-152.0	287.9	286.9	0.96	298.928		
400.0	400.0	384.9	384.8	0.7	0.6	116.14	-247.4	-154.4	292.9	291.6	1.29	226.209		
500.0	499.8	470.9	470.5	0.9	0.8	116.80	-253.6	-158.3	304.2	302.6	1.64	185.783		
600.0	599.1	558.3	557.2	1.1	1.0	117.83	-263.2	-163.5	322.1	320.1	2.02	159.355		
700.0	697.6	646.2	644.0	1.4	1.3	119.11	-275.4	-169.4	345.5	343.0	2.46	140.297		
800.0	795.1	738.1	734.5	1.8	1.6	120.57	-290.3	-175.5	373.6	370.6	2.98	125.488		
900.0	891.4	828.3	823.2	2.3	1.9	122.31	-305.7	-181.4	405.4	401.9	3.55	114.290		
1,000.0	987.1	919.6	912.9	2.9	2.2	124.70	-321.5	-188.1	439.4	435.3	4.13	106.511		
1,100.0	1,082.9	1,011.2	1,002.8	3.4	2.6	126.79	-337.2	-195.2	474.3	469.6	4.71	100.792 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-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	3.0	3.0	0.0	0.0	-148.99	-253.9	-152.6	296.2						
100.0	100.0	102.2	102.2	0.1	0.1	-149.03	-254.1	-152.5	296.4	296.1	0.28	1,061.395 ES			
200.0	200.0	199.7	199.7	0.3	0.3	-149.17	-255.1	-152.2	297.1	296.4	0.62	477.941			
300.0	300.0	289.1	289.0	0.5	0.5	-149.32	-257.6	-152.9	299.9	298.9	0.96	313.213			
400.0	400.0	377.1	376.9	0.7	0.6	114.62	-263.1	-155.0	307.1	305.8	1.28	239.326			
500.0	499.8	463.6	462.8	0.9	0.9	114.91	-271.7	-158.3	320.3	318.7	1.63	196.437			
600.0	599.1	551.3	549.7	1.1	1.1	115.64	-283.3	-162.9	339.4	337.4	2.02	167.917			
700.0	697.6	633.1	630.1	1.4	1.4	116.61	-296.5	-168.5	364.2	361.8	2.46	147.999			
800.0	795.1	717.7	712.8	1.8	1.7	117.83	-313.0	-175.7	395.4	392.4	2.97	132.939			
900.0	891.4	810.3	803.1	2.3	2.1	119.60	-332.0	-184.1	430.6	427.0	3.57	120.767			
1,000.0	987.1	904.6	895.1	2.9	2.5	121.95	-351.2	-191.7	466.5	462.4	4.18	111.700 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 111-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	3.0	3.0	0.0	0.0	-150.21	-245.9	-140.7	283.3					
100.0	100.0	103.0	103.0	0.1	0.1	-150.18	-245.8	-140.9	283.3	283.0	0.28	1,010.716		
200.0	200.0	203.3	203.3	0.3	0.3	-150.08	-245.5	-141.3	283.2	282.6	0.63	451.600		
300.0	300.0	304.2	304.2	0.5	0.5	-149.98	-244.9	-141.5	282.9	281.9	0.98	289.316		
319.2	319.2	323.1	323.1	0.5	0.5	114.11	-244.8	-141.6	282.9	281.8	1.05	270.647	CC, ES	
400.0	400.0	401.1	401.1	0.7	0.7	114.45	-244.7	-142.2	283.7	282.3	1.32	214.271		
500.0	499.8	494.1	494.1	0.9	0.8	115.46	-246.1	-143.1	288.2	286.5	1.68	171.552		
600.0	599.1	583.1	583.0	1.1	1.0	116.84	-249.9	-144.4	297.9	295.8	2.07	144.055		
700.0	697.6	670.4	670.0	1.4	1.2	118.49	-257.0	-146.6	313.9	311.4	2.51	125.178		
800.0	795.1	753.0	751.9	1.8	1.4	120.14	-266.7	-149.5	336.6	333.6	3.01	112.018		
900.0	891.4	835.7	833.5	2.3	1.6	121.85	-279.8	-153.1	366.1	362.5	3.57	102.631		
1,000.0	987.1	917.0	913.1	2.9	1.9	123.77	-296.1	-157.0	400.2	396.0	4.15	96.518		
1,100.0	1,082.9	995.5	989.2	3.4	2.2	125.12	-314.6	-161.1	437.5	432.8	4.74	92.269		
1,200.0	1,178.6	1,071.7	1,062.5	3.9	2.6	126.05	-335.3	-165.7	478.1	472.8	5.35	89.301	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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-151.55	-236.8	-128.3	269.3						
100.0	100.0	103.1	103.1	0.1	0.1	-151.53	-236.7	-128.4	269.3	269.0	0.28	960.062			
134.5	134.5	137.6	137.6	0.2	0.2	-151.53	-236.7	-128.4	269.3	268.9	0.40	676.088	CC, ES		
200.0	200.0	198.9	198.9	0.3	0.3	-151.66	-237.3	-128.0	269.7	269.1	0.62	435.177			
300.0	300.0	290.1	290.0	0.5	0.5	-152.35	-241.0	-126.3	272.4	271.5	0.96	284.209			
400.0	400.0	383.1	382.5	0.7	0.7	110.49	-248.9	-123.1	278.9	277.6	1.32	211.056			
500.0	499.8	472.0	470.7	0.9	0.9	109.67	-259.7	-119.6	290.3	288.6	1.71	169.368			
600.0	599.1	560.1	557.8	1.1	1.2	109.45	-273.5	-117.0	307.1	304.9	2.15	142.660			
700.0	697.6	642.6	638.7	1.4	1.5	109.80	-289.2	-116.1	329.5	326.8	2.65	124.503			
800.0	795.1	721.6	715.6	1.8	1.9	110.49	-307.4	-117.2	358.4	355.2	3.21	111.708			
900.0	891.4	797.7	788.9	2.3	2.2	111.53	-327.8	-120.0	393.7	389.9	3.84	102.513			
1,000.0	987.1	873.3	860.6	2.9	2.7	113.27	-351.0	-123.8	434.0	429.5	4.51	96.254			
1,100.0	1,082.9	952.4	935.1	3.4	3.1	114.68	-377.6	-128.3	477.3	472.1	5.21	91.584	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	3.0	3.0	0.0	0.0	-150.86	-226.6	-126.3	259.4						
100.0	100.0	103.6	103.6	0.1	0.1	-150.89	-226.5	-126.2	259.3	259.0	0.28	922.486			
153.3	153.3	156.3	156.3	0.2	0.2	-150.90	-226.5	-126.1	259.2	258.8	0.46	559.244	CC		
200.0	200.0	200.5	200.5	0.3	0.3	-150.90	-226.6	-126.1	259.4	258.8	0.62	416.871	ES		
300.0	300.0	290.3	290.3	0.5	0.5	-150.96	-229.1	-127.2	262.4	261.4	0.96	274.047			
400.0	400.0	378.4	378.1	0.7	0.6	112.82	-235.3	-128.8	270.0	268.7	1.28	210.151			
500.0	499.8	464.4	463.5	0.9	0.9	112.95	-245.3	-131.2	284.0	282.4	1.63	173.903			
600.0	599.1	550.3	548.2	1.1	1.1	113.40	-259.2	-134.4	304.6	302.6	2.03	150.030			
700.0	697.6	632.7	628.7	1.4	1.5	113.90	-276.2	-137.5	331.1	328.6	2.49	132.874			
800.0	795.1	712.8	706.2	1.8	1.8	114.54	-296.1	-141.6	364.1	361.1	3.03	120.107			
900.0	891.4	791.1	781.2	2.3	2.2	115.40	-318.2	-146.4	402.7	399.1	3.64	110.551			
1,000.0	987.1	867.8	853.9	2.9	2.7	117.06	-341.9	-152.4	445.5	441.2	4.28	104.116			
1,100.0	1,082.9	944.6	926.0	3.4	3.2	118.38	-367.5	-159.1	490.9	486.0	4.93	99.493	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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-153.10	-229.5	-116.4	257.3						
100.0	100.0	101.2	101.2	0.1	0.1	-153.09	-229.2	-116.4	257.1	256.8	0.28	909.231			
141.0	141.0	141.0	141.0	0.2	0.2	-153.09	-229.1	-116.3	257.0	256.5	0.42	610.669 CC, ES			
200.0	200.0	194.3	194.3	0.3	0.3	-153.26	-230.0	-115.8	257.5	256.9	0.62	417.535			
300.0	300.0	288.0	287.8	0.5	0.5	-154.10	-234.6	-113.9	261.1	260.1	0.96	271.439			
400.0	400.0	377.6	377.0	0.7	0.7	108.76	-242.8	-111.1	268.5	267.1	1.32	203.577			
500.0	499.8	465.0	463.6	0.9	0.9	107.98	-254.3	-108.3	281.2	279.5	1.70	165.118			
600.0	599.1	553.5	550.6	1.1	1.2	107.43	-269.8	-104.3	299.0	296.9	2.16	138.624			
700.0	697.6	644.7	639.6	1.4	1.6	107.37	-289.3	-100.4	321.9	319.2	2.73	117.838			
800.0	795.1	732.1	723.9	1.8	2.0	106.99	-311.3	-92.7	347.9	344.5	3.42	101.650			
900.0	891.4	816.0	803.6	2.3	2.5	106.79	-335.8	-83.8	378.4	374.2	4.22	89.688			
1,000.0	987.1	898.8	881.2	2.9	3.1	107.14	-363.1	-74.0	412.2	407.1	5.07	81.229			
1,100.0	1,082.9	980.3	956.4	3.4	3.6	107.19	-392.5	-63.8	448.6	442.7	5.95	75.386			
1,200.0	1,178.6	1,060.6	1,029.8	3.9	4.2	107.15	-423.6	-54.2	487.5	480.7	6.84	71.308 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	8.82	10.9	1.7	11.1						
100.0	100.0	100.0	100.0	0.1	0.1	8.82	10.9	1.7	11.1	10.8	0.27	40.597			
200.0	200.0	200.0	200.0	0.3	0.3	8.82	10.9	1.7	11.1	10.4	0.62	17.790 CC, ES			
300.0	300.0	299.5	299.5	0.5	0.5	7.18	12.4	1.6	12.5	11.5	0.97	12.833 SF			
400.0	400.0	398.5	398.3	0.7	0.7	-97.30	18.8	0.9	19.0	17.7	1.32	14.405			
500.0	499.8	496.2	495.3	0.9	0.9	-109.86	30.1	-0.1	32.2	30.6	1.69	19.113			
600.0	599.1	591.6	589.4	1.1	1.3	-118.32	45.8	-1.6	53.3	51.2	2.10	25.349			
700.0	697.6	684.1	679.7	1.4	1.6	-123.29	65.6	-3.5	82.1	79.5	2.58	31.782			
800.0	795.1	776.8	769.5	1.8	2.0	-126.68	88.4	-5.7	117.0	113.9	3.13	37.370			
900.0	891.4	868.8	858.6	2.3	2.5	-129.77	111.0	-7.8	155.4	151.6	3.73	41.603			
1,000.0	987.1	960.1	947.1	2.9	2.9	-132.56	133.5	-10.0	195.2	190.9	4.36	44.750			
1,100.0	1,082.9	1,051.5	1,035.7	3.4	3.3	-134.41	156.0	-12.1	235.4	230.4	5.00	47.097			
1,200.0	1,178.6	1,142.9	1,124.2	3.9	3.7	-135.72	178.6	-14.3	275.7	270.0	5.64	48.907			
1,300.0	1,274.4	1,234.2	1,212.7	4.5	4.1	-136.69	201.1	-16.4	316.1	309.8	6.28	50.343			
1,400.0	1,370.2	1,325.6	1,301.2	5.0	4.5	-137.45	223.6	-18.6	356.5	349.6	6.92	51.507			
1,500.0	1,465.9	1,417.0	1,389.8	5.5	5.0	-138.05	246.1	-20.7	397.0	389.4	7.57	52.469			
1,600.0	1,561.7	1,508.3	1,478.3	6.1	5.4	-138.54	268.6	-22.9	437.5	429.3	8.21	53.278			
1,700.0	1,657.4	1,599.7	1,566.8	6.6	5.8	-138.95	291.2	-25.0	478.0	469.2	8.86	53.965			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-76.64	2.5	-10.7	11.0						
100.0	100.0	100.0	100.0	0.1	0.1	-76.64	2.5	-10.7	11.0	10.8	0.27	40.538			
200.0	200.0	200.0	200.0	0.3	0.3	-76.64	2.5	-10.7	11.0	10.4	0.62	17.764			
234.3	234.3	234.3	234.3	0.4	0.4	-76.64	2.5	-10.7	11.0	10.3	0.74	14.893 CC, ES			
300.0	300.0	299.8	299.8	0.5	0.5	-74.53	3.1	-11.1	11.5	10.6	0.97	11.891 SF			
400.0	400.0	398.9	398.8	0.7	0.7	-160.44	7.3	-14.1	17.3	16.0	1.32	13.095			
500.0	499.8	496.6	495.9	0.9	0.9	-155.40	15.5	-20.0	32.6	30.9	1.68	19.446			
600.0	599.1	591.5	589.7	1.1	1.2	-153.78	27.3	-28.5	57.2	55.1	2.04	27.979			
700.0	697.6	682.5	678.8	1.4	1.6	-153.18	42.1	-39.2	90.5	88.1	2.43	37.321			
800.0	795.1	771.0	764.6	1.8	1.9	-152.89	59.6	-51.8	131.9	129.1	2.82	46.692			
900.0	891.4	859.6	850.4	2.3	2.3	-153.22	77.7	-64.8	178.1	174.8	3.25	54.788			
1,000.0	987.1	947.5	935.5	2.9	2.7	-153.99	95.6	-77.6	225.7	222.0	3.70	60.966			
1,100.0	1,082.9	1,035.4	1,020.6	3.4	3.1	-154.49	113.5	-90.5	273.4	269.2	4.16	65.703			
1,200.0	1,178.6	1,123.3	1,105.7	3.9	3.6	-154.84	131.4	-103.4	321.1	316.4	4.62	69.434			
1,300.0	1,274.4	1,211.2	1,190.7	4.5	4.0	-155.10	149.3	-116.3	368.7	363.7	5.09	72.442			
1,400.0	1,370.2	1,299.1	1,275.8	5.0	4.4	-155.31	167.2	-129.2	416.4	410.9	5.56	74.913			
1,500.0	1,465.9	1,386.9	1,360.9	5.5	4.8	-155.47	185.1	-142.0	464.1	458.1	6.03	76.975			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-103.11	-5.5	-23.5	24.1						
100.0	100.0	100.0	100.0	0.1	0.1	-103.11	-5.5	-23.5	24.1	23.8	0.27	88.454			
200.0	200.0	200.0	200.0	0.3	0.3	-103.11	-5.5	-23.5	24.1	23.5	0.62	38.761	CC, ES		
300.0	300.0	299.2	299.1	0.5	0.5	-98.46	-3.8	-25.4	25.7	24.7	0.97	26.441			
400.0	400.0	397.7	397.3	0.7	0.7	176.48	1.2	-31.2	32.8	31.4	1.34	24.535	SF		
500.0	499.8	494.2	493.0	0.9	1.0	-173.98	9.4	-40.5	50.0	48.3	1.69	29.547			
600.0	599.1	587.4	584.8	1.1	1.3	-168.50	20.2	-53.0	77.3	75.3	2.04	37.858			
700.0	697.6	676.2	671.3	1.4	1.7	-165.50	33.3	-68.1	114.0	111.6	2.39	47.675			
800.0	795.1	759.7	751.8	1.8	2.1	-163.71	47.9	-85.0	159.3	156.5	2.74	58.135			
900.0	891.4	837.3	825.6	2.3	2.6	-162.58	63.6	-103.0	212.3	209.2	3.09	68.664			
1,000.0	987.1	910.3	894.1	2.9	3.1	-162.06	80.1	-122.1	269.9	266.5	3.47	77.755			
1,100.0	1,082.9	979.6	958.1	3.4	3.6	-161.55	97.4	-142.0	330.4	326.6	3.86	85.674			
1,200.0	1,178.6	1,045.2	1,017.9	3.9	4.1	-161.06	115.1	-162.4	393.6	389.4	4.24	92.791			
1,300.0	1,274.4	1,113.6	1,079.3	4.5	4.6	-160.57	134.9	-185.2	459.0	454.4	4.64	98.970			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-114.33	-21.9	-48.3	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	-114.33	-21.9	-48.3	53.0	52.8	0.27	194.791			
200.0	200.0	200.0	200.0	0.3	0.3	-114.33	-21.9	-48.3	53.0	52.4	0.62	85.358	CC, ES		
300.0	300.0	298.0	297.9	0.5	0.5	-112.50	-21.0	-50.7	54.9	53.9	0.97	56.564			
400.0	400.0	395.3	394.9	0.7	0.7	156.79	-18.4	-57.7	62.1	60.8	1.33	46.701			
500.0	499.8	490.5	489.4	0.9	1.0	163.86	-14.3	-69.0	78.9	77.2	1.69	46.664	SF		
600.0	599.1	582.3	579.7	1.1	1.3	169.95	-8.8	-84.2	105.8	103.8	2.03	52.010			
700.0	697.6	669.5	664.7	1.4	1.7	174.33	-2.3	-102.3	142.6	140.3	2.36	60.500			
800.0	795.1	751.1	743.5	1.8	2.1	177.33	5.1	-122.5	188.5	185.9	2.66	70.925			
900.0	891.4	826.6	815.4	2.3	2.5	179.41	12.9	-144.1	242.7	239.7	2.94	82.466			
1,000.0	987.1	900.0	884.4	2.9	3.0	-179.05	21.5	-167.6	301.6	298.3	3.25	92.929			
1,100.0	1,082.9	964.7	944.4	3.4	3.5	-177.99	29.7	-190.3	363.4	359.8	3.54	102.793			
1,200.0	1,178.6	1,041.6	1,015.2	3.9	4.0	-177.03	40.0	-218.5	426.6	422.8	3.85	110.921			
1,300.0	1,274.4	1,118.8	1,086.4	4.5	4.6	-176.31	50.2	-246.8	489.9	485.8	4.16	117.821			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-116.35	-30.2	-61.0	68.1						
100.0	100.0	100.0	100.0	0.1	0.1	-116.35	-30.2	-61.0	68.1	67.8	0.27	250.181			
200.0	200.0	200.0	200.0	0.3	0.3	-116.35	-30.2	-61.0	68.1	67.5	0.62	109.630			
300.0	300.0	300.0	300.0	0.5	0.5	-116.35	-30.2	-61.0	68.1	67.1	0.97	70.195 CC, ES			
400.0	400.0	397.8	397.8	0.7	0.7	148.97	-30.0	-62.4	70.5	69.2	1.32	53.576			
500.0	499.8	493.8	493.6	0.9	0.8	153.62	-28.9	-68.4	81.6	79.9	1.67	48.957 SF			
600.0	599.1	587.1	586.3	1.1	1.1	159.29	-27.0	-78.7	102.3	100.2	2.01	50.772			
700.0	697.6	676.6	674.6	1.4	1.4	164.21	-24.3	-92.8	132.9	130.5	2.35	56.603			
800.0	795.1	761.1	757.3	1.8	1.7	167.91	-21.2	-109.8	173.1	170.4	2.66	65.059			
900.0	891.4	839.8	833.6	2.3	2.0	170.60	-17.6	-128.9	222.0	219.1	2.95	75.172			
1,000.0	987.1	914.0	904.7	2.9	2.4	172.68	-13.8	-149.6	276.3	273.0	3.25	84.972			
1,100.0	1,082.9	984.4	971.3	3.4	2.9	174.17	-9.6	-171.8	333.8	330.2	3.54	94.268			
1,200.0	1,178.6	1,051.1	1,033.7	3.9	3.3	175.28	-5.3	-195.1	394.3	390.5	3.82	103.149			
1,300.0	1,274.4	1,124.5	1,101.6	4.5	3.8	176.25	-0.2	-222.5	457.0	452.8	4.11	111.122			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-111.09	-13.8	-35.9	38.5						
100.0	100.0	100.0	100.0	0.1	0.1	-111.09	-13.8	-35.9	38.5	38.2	0.27	141.279			
200.0	200.0	200.0	200.0	0.3	0.3	-111.09	-13.8	-35.9	38.5	37.8	0.62	61.909			
300.0	300.0	300.0	300.0	0.5	0.5	-111.09	-13.8	-35.9	38.5	37.5	0.97	39.640 CC, ES			
400.0	400.0	400.0	400.0	0.7	0.7	153.92	-13.8	-35.9	39.8	38.5	1.32	30.155			
500.0	499.8	499.8	499.8	0.9	0.8	157.45	-13.8	-35.9	45.7	44.1	1.67	27.417 SF			
600.0	599.1	596.6	596.5	1.1	1.0	163.11	-13.0	-38.2	58.9	56.9	2.01	29.280			
700.0	697.6	693.9	693.8	1.4	1.2	168.53	-11.0	-43.0	79.9	77.6	2.35	34.070			
800.0	795.1	790.2	789.9	1.8	1.4	172.06	-9.2	-47.8	106.5	103.8	2.67	39.859			
900.0	891.4	884.9	884.4	2.3	1.5	174.40	-7.3	-52.6	138.1	135.1	2.99	46.222			
1,000.0	987.1	979.0	978.4	2.9	1.7	175.97	-5.5	-57.3	171.7	168.3	3.32	51.660			
1,100.0	1,082.9	1,073.1	1,072.4	3.4	1.9	177.03	-3.6	-62.0	205.3	201.6	3.66	56.124			
1,200.0	1,178.6	1,167.3	1,166.4	3.9	2.1	177.79	-1.8	-66.7	238.9	234.9	3.99	59.849			
1,300.0	1,274.4	1,261.4	1,260.4	4.5	2.3	178.37	0.1	-71.4	272.6	268.3	4.33	63.001			
1,400.0	1,370.2	1,355.5	1,354.4	5.0	2.5	178.81	1.9	-76.1	306.3	301.6	4.66	65.701			
1,500.0	1,465.9	1,449.7	1,448.4	5.5	2.6	179.17	3.8	-80.8	340.0	335.0	5.00	68.039			
1,600.0	1,561.7	1,543.8	1,542.4	6.1	2.8	179.47	5.6	-85.5	373.7	368.4	5.33	70.083			
1,700.0	1,657.4	1,637.9	1,636.4	6.6	3.0	179.71	7.5	-90.2	407.5	401.8	5.67	71.885			
1,800.0	1,753.2	1,732.0	1,730.4	7.2	3.2	179.92	9.3	-95.0	441.2	435.2	6.00	73.485			
1,900.0	1,849.0	1,826.2	1,824.3	7.7	3.4	-179.90	11.1	-99.7	474.9	468.6	6.34	74.915			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-117.50	-38.2	-73.5	82.8						
100.0	100.0	100.0	100.0	0.1	0.1	-117.50	-38.2	-73.5	82.8	82.6	0.27	304.229			
200.0	200.0	200.0	200.0	0.3	0.3	-117.50	-38.2	-73.5	82.8	82.2	0.62	133.314			
300.0	300.0	300.0	300.0	0.5	0.5	-117.50	-38.2	-73.5	82.8	81.9	0.97	85.359	CC, ES		
400.0	400.0	396.2	396.1	0.7	0.7	146.91	-39.5	-75.5	86.5	85.2	1.31	65.906			
500.0	499.8	495.6	495.5	0.9	0.8	148.66	-41.8	-79.3	96.5	94.8	1.66	57.955			
600.0	599.1	594.4	594.2	1.1	1.0	151.34	-44.1	-83.0	111.1	109.0	2.02	54.910			
700.0	697.6	692.3	691.9	1.4	1.2	154.33	-46.4	-86.7	130.5	128.1	2.38	54.734	SF		
800.0	795.1	788.9	788.5	1.8	1.4	157.21	-48.7	-90.4	154.9	152.2	2.74	56.452			
900.0	891.4	884.1	883.6	2.3	1.6	159.84	-50.9	-94.0	184.4	181.3	3.10	59.463			
1,000.0	987.1	978.8	978.1	2.9	1.8	162.10	-53.1	-97.6	215.8	212.3	3.46	62.325			
1,100.0	1,082.9	1,073.4	1,072.7	3.4	1.9	163.78	-55.4	-101.1	247.4	243.6	3.82	64.780			
1,200.0	1,178.6	1,168.1	1,167.3	3.9	2.1	165.09	-57.6	-104.7	279.2	275.0	4.17	66.900			
1,300.0	1,274.4	1,262.7	1,261.8	4.5	2.3	166.13	-59.8	-108.3	311.0	306.5	4.52	68.744			
1,400.0	1,370.2	1,357.4	1,356.4	5.0	2.5	166.97	-62.0	-111.9	343.0	338.1	4.87	70.359			
1,500.0	1,465.9	1,452.0	1,450.9	5.5	2.7	167.68	-64.2	-115.5	375.0	369.8	5.22	71.783			
1,600.0	1,561.7	1,546.7	1,545.5	6.1	2.8	168.27	-66.4	-119.0	407.0	401.5	5.57	73.047			
1,700.0	1,657.4	1,641.3	1,640.0	6.6	3.0	168.77	-68.7	-122.6	439.1	433.2	5.92	74.175			
1,800.0	1,753.2	1,736.0	1,734.6	7.2	3.2	169.21	-70.9	-126.2	471.2	465.0	6.27	75.187			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.61	16.4	24.9	29.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.61	16.4	24.9	29.8	29.5	0.27	109.391			
200.0	200.0	200.0	200.0	0.3	0.3	56.61	16.4	24.9	29.8	29.2	0.62	47.935			
300.0	300.0	300.0	300.0	0.5	0.5	56.61	16.4	24.9	29.8	28.8	0.97	30.692			
400.0	400.0	400.0	400.0	0.7	0.7	-41.22	16.4	24.9	28.7	27.3	1.32	21.713			
500.0	499.8	498.6	498.5	0.9	0.8	-48.96	17.2	27.3	26.5	24.8	1.68	15.745			
552.7	552.2	550.5	550.4	1.0	0.9	-55.04	18.3	30.5	26.1	24.2	1.90	13.757	CC, ES		
600.0	599.1	597.2	596.9	1.1	1.0	-61.35	19.7	34.5	26.4	24.3	2.10	12.569			
700.0	697.6	695.9	694.7	1.4	1.3	-75.33	23.9	46.5	29.6	26.9	2.67	11.092			
800.0	795.1	794.5	791.7	1.8	1.6	-87.07	29.7	63.2	36.3	32.9	3.41	10.634	SF		
900.0	891.4	893.0	887.6	2.3	2.0	-95.20	37.2	84.6	46.2	41.9	4.32	10.703			
1,000.0	987.1	991.6	982.2	2.9	2.5	-97.47	46.2	110.7	58.4	53.1	5.30	11.012			
1,100.0	1,082.9	1,090.8	1,076.9	3.4	3.0	-97.49	55.9	138.6	71.1	64.8	6.32	11.252			
1,200.0	1,178.6	1,189.9	1,171.5	3.9	3.6	-97.50	65.6	166.5	83.9	76.5	7.36	11.396			
1,300.0	1,274.4	1,289.1	1,266.2	4.5	4.1	-97.51	75.3	194.4	96.6	88.2	8.41	11.489			
1,400.0	1,370.2	1,388.3	1,360.9	5.0	4.7	-97.51	85.0	222.3	109.4	99.9	9.47	11.551			
1,500.0	1,465.9	1,487.5	1,455.6	5.5	5.2	-97.52	94.7	250.2	122.1	111.6	10.53	11.595			
1,600.0	1,561.7	1,586.7	1,550.3	6.1	5.8	-97.52	104.4	278.1	134.9	123.3	11.60	11.626			
1,700.0	1,657.4	1,685.9	1,644.9	6.6	6.3	-97.52	114.1	306.0	147.6	135.0	12.67	11.650			
1,800.0	1,753.2	1,785.0	1,739.6	7.2	6.9	-97.53	123.8	333.9	160.4	146.6	13.75	11.668			
1,900.0	1,849.0	1,884.2	1,834.3	7.7	7.4	-97.53	133.5	361.9	173.1	158.3	14.82	11.682			
2,000.0	1,944.7	1,983.4	1,929.0	8.3	8.0	-97.53	143.2	389.8	185.9	170.0	15.90	11.693			
2,100.0	2,040.5	2,082.6	2,023.7	8.8	8.6	-97.53	152.9	417.7	198.6	181.7	16.97	11.702			
2,200.0	2,136.2	2,181.8	2,118.3	9.4	9.1	-97.54	162.6	445.6	211.4	193.3	18.05	11.710			
2,300.0	2,232.0	2,281.0	2,213.0	9.9	9.7	-97.54	172.3	473.5	224.1	205.0	19.13	11.716			
2,400.0	2,327.7	2,380.1	2,307.7	10.5	10.2	-97.54	182.0	501.4	236.9	216.7	20.21	11.720			
2,500.0	2,423.5	2,479.3	2,402.4	11.0	10.8	-97.54	191.7	529.3	249.6	228.3	21.29	11.725			
2,600.0	2,519.3	2,578.5	2,497.1	11.6	11.4	-97.54	201.4	557.2	262.4	240.0	22.37	11.728			
2,700.0	2,615.0	2,677.7	2,591.7	12.1	11.9	-97.54	211.1	585.1	275.1	251.7	23.45	11.731			
2,800.0	2,710.8	2,776.9	2,686.4	12.7	12.5	-97.54	220.8	613.0	287.9	263.3	24.53	11.734			
2,900.0	2,806.5	2,876.1	2,781.1	13.2	13.0	-97.54	230.5	640.9	300.6	275.0	25.62	11.736			
3,000.0	2,902.3	2,975.2	2,875.8	13.8	13.6	-97.54	240.2	668.8	313.4	286.7	26.70	11.738			
3,100.0	2,998.1	3,074.4	2,970.5	14.3	14.2	-97.54	249.9	696.8	326.1	298.4	27.78	11.739			
3,200.0	3,093.8	3,173.6	3,065.2	14.9	14.7	-97.54	259.6	724.7	338.9	310.0	28.86	11.741			
3,300.0	3,189.6	3,272.8	3,159.8	15.4	15.3	-97.55	269.3	752.6	351.6	321.7	29.95	11.742			
3,400.0	3,285.3	3,372.0	3,254.5	16.0	15.8	-97.55	279.0	780.5	364.4	333.4	31.03	11.743			
3,500.0	3,381.1	3,471.2	3,349.2	16.5	16.4	-97.55	288.7	808.4	377.1	345.0	32.11	11.744			
3,600.0	3,476.8	3,570.4	3,443.9	17.1	17.0	-97.55	298.4	836.3	389.9	356.7	33.20	11.745			
3,700.0	3,572.6	3,669.5	3,538.6	17.6	17.5	-97.55	308.1	864.2	402.6	368.4	34.28	11.746			
3,800.0	3,668.4	3,768.7	3,633.2	18.2	18.1	-97.55	317.8	892.1	415.4	380.0	35.36	11.747			
3,900.0	3,764.1	3,867.9	3,727.9	18.7	18.7	-97.55	327.5	920.0	428.1	391.7	36.45	11.747			
4,000.0	3,859.9	3,967.1	3,822.6	19.3	19.2	-97.55	337.2	947.9	440.9	403.4	37.53	11.748			
4,100.0	3,955.6	4,066.3	3,917.3	19.8	19.8	-97.55	346.9	975.8	453.6	415.0	38.61	11.748			
4,200.0	4,051.4	4,165.5	4,012.0	20.4	20.3	-97.55	356.6	1,003.8	466.4	426.7	39.70	11.749			
4,300.0	4,147.1	4,264.6	4,106.6	20.9	20.9	-97.55	366.3	1,031.7	479.1	438.3	40.78	11.749			
4,400.0	4,242.9	4,363.8	4,201.3	21.5	21.5	-97.55	376.0	1,059.6	491.9	450.0	41.86	11.749			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	37.27	18.9	14.4	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	37.27	18.9	14.4	23.8	23.5	0.27	87.413			
200.0	200.0	200.0	200.0	0.3	0.3	37.27	18.9	14.4	23.8	23.2	0.62	38.305			
300.0	300.0	300.0	300.0	0.5	0.5	37.27	18.9	14.4	23.8	22.8	0.97	24.526	CC, ES		
400.0	400.0	398.8	398.8	0.7	0.7	-59.06	20.2	16.7	25.4	24.1	1.32	19.239			
500.0	499.8	497.5	497.1	0.9	0.9	-63.57	23.8	23.4	29.2	27.5	1.70	17.204			
600.0	599.1	595.8	594.6	1.1	1.1	-70.15	29.8	34.5	35.4	33.3	2.15	16.488			
700.0	697.6	693.7	690.9	1.4	1.5	-76.73	38.2	50.0	44.6	41.9	2.74	16.263			
800.0	795.1	791.1	785.7	1.8	1.9	-82.25	48.8	69.6	56.8	53.3	3.51	16.182	SF		
900.0	891.4	887.7	878.5	2.3	2.4	-86.55	61.7	93.3	72.1	67.7	4.46	16.188			
1,000.0	987.1	985.4	971.1	2.9	3.0	-88.73	76.3	120.4	89.9	84.4	5.45	16.479			
1,100.0	1,082.9	1,083.7	1,064.4	3.4	3.5	-90.09	91.3	148.0	107.8	101.3	6.48	16.642			
1,200.0	1,178.6	1,182.1	1,157.6	3.9	4.1	-91.06	106.2	175.5	125.8	118.3	7.52	16.733			
1,300.0	1,274.4	1,280.4	1,250.8	4.5	4.7	-91.79	121.1	203.0	143.8	135.3	8.57	16.787			
1,400.0	1,370.2	1,378.8	1,344.1	5.0	5.3	-92.36	136.0	230.5	161.9	152.3	9.62	16.819			
1,500.0	1,465.9	1,477.1	1,437.3	5.5	5.8	-92.81	150.9	258.1	179.9	169.2	10.69	16.840			
1,600.0	1,561.7	1,575.5	1,530.5	6.1	6.4	-93.18	165.8	285.6	198.0	186.2	11.75	16.852			
1,700.0	1,657.4	1,673.8	1,623.8	6.6	7.0	-93.49	180.7	313.1	216.1	203.2	12.81	16.860			
1,800.0	1,753.2	1,772.2	1,717.0	7.2	7.6	-93.75	195.6	340.6	234.1	220.2	13.88	16.865			
1,900.0	1,849.0	1,870.5	1,810.2	7.7	8.2	-93.97	210.5	368.2	252.2	237.3	14.95	16.868			
2,000.0	1,944.7	1,968.9	1,903.5	8.3	8.8	-94.17	225.4	395.7	270.3	254.3	16.02	16.870			
2,100.0	2,040.5	2,067.2	1,996.7	8.8	9.4	-94.34	240.3	423.2	288.4	271.3	17.09	16.870			
2,200.0	2,136.2	2,165.6	2,090.0	9.4	10.0	-94.49	255.2	450.7	306.5	288.3	18.17	16.870			
2,300.0	2,232.0	2,263.9	2,183.2	9.9	10.6	-94.62	270.1	478.3	324.5	305.3	19.24	16.870			
2,400.0	2,327.7	2,362.3	2,276.4	10.5	11.1	-94.74	285.0	505.8	342.6	322.3	20.31	16.869			
2,500.0	2,423.5	2,460.6	2,369.7	11.0	11.7	-94.84	299.9	533.3	360.7	339.3	21.38	16.868			
2,600.0	2,519.3	2,558.9	2,462.9	11.6	12.3	-94.94	314.8	560.8	378.8	356.3	22.46	16.866			
2,700.0	2,615.0	2,657.3	2,556.1	12.1	12.9	-95.03	329.7	588.4	396.9	373.4	23.53	16.865			
2,800.0	2,710.8	2,755.6	2,649.4	12.7	13.5	-95.11	344.6	615.9	415.0	390.4	24.61	16.864			
2,900.0	2,806.5	2,854.0	2,742.6	13.2	14.1	-95.18	359.5	643.4	433.1	407.4	25.68	16.862			
3,000.0	2,902.3	2,952.3	2,835.8	13.8	14.7	-95.25	374.4	670.9	451.2	424.4	26.76	16.861			
3,100.0	2,998.1	3,050.7	2,929.1	14.3	15.3	-95.31	389.3	698.5	469.3	441.4	27.83	16.860			
3,200.0	3,093.8	3,149.0	3,022.3	14.9	15.9	-95.37	404.3	726.0	487.4	458.4	28.91	16.858			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.03	8.4	12.4	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.03	8.4	12.4	15.0	14.7	0.27	55.066			
200.0	200.0	200.0	200.0	0.3	0.3	56.03	8.4	12.4	15.0	14.4	0.62	24.130			
300.0	300.0	300.0	300.0	0.5	0.5	56.03	8.4	12.4	15.0	14.0	0.97	15.450	CC, ES		
400.0	400.0	399.3	399.2	0.7	0.7	-38.80	8.6	15.0	16.1	14.8	1.32	12.229			
500.0	499.8	498.5	498.1	0.9	0.9	-40.25	9.3	22.7	17.9	16.3	1.69	10.644			
600.0	599.1	597.6	596.4	1.1	1.1	-43.74	10.4	35.5	20.3	18.2	2.10	9.669			
700.0	697.6	696.6	693.8	1.4	1.5	-48.36	12.0	53.3	23.4	20.8	2.63	8.912			
800.0	795.1	795.5	790.0	1.8	1.9	-53.34	14.1	76.1	27.3	23.9	3.32	8.217			
900.0	891.4	895.0	885.8	2.3	2.4	-59.76	16.4	102.9	31.3	27.0	4.23	7.390			
1,000.0	987.1	994.9	981.9	2.9	2.9	-67.09	18.9	129.9	35.0	29.7	5.30	6.597			
1,100.0	1,082.9	1,094.7	1,078.0	3.4	3.4	-72.95	21.3	157.0	39.2	32.7	6.42	6.104			
1,200.0	1,178.6	1,194.6	1,174.0	3.9	3.9	-77.64	23.7	184.1	43.7	36.1	7.54	5.793			
1,300.0	1,274.4	1,294.4	1,270.1	4.5	4.4	-81.43	26.1	211.2	48.4	39.7	8.65	5.593			
1,400.0	1,370.2	1,394.3	1,366.2	5.0	4.9	-84.54	28.5	238.2	53.3	43.6	9.76	5.461			
1,500.0	1,465.9	1,494.1	1,462.2	5.5	5.4	-87.12	30.9	265.3	58.4	47.5	10.86	5.373			
1,600.0	1,561.7	1,593.9	1,558.3	6.1	6.0	-89.28	33.3	292.4	63.5	51.6	11.95	5.313			
1,700.0	1,657.4	1,693.8	1,654.4	6.6	6.5	-91.11	35.8	319.5	68.7	55.7	13.03	5.273			
1,800.0	1,753.2	1,793.6	1,750.4	7.2	7.0	-92.69	38.2	346.5	74.0	59.9	14.11	5.245			
1,900.0	1,849.0	1,893.5	1,846.5	7.7	7.5	-94.06	40.6	373.6	79.3	64.2	15.18	5.227			
2,000.0	1,944.7	1,993.3	1,942.6	8.3	8.0	-95.25	43.0	400.7	84.7	68.5	16.24	5.215			
2,100.0	2,040.5	2,093.1	2,038.6	8.8	8.6	-96.30	45.4	427.8	90.1	72.8	17.30	5.208			
2,200.0	2,136.2	2,193.0	2,134.7	9.4	9.1	-97.23	47.8	454.8	95.5	77.2	18.36	5.204			
2,300.0	2,232.0	2,292.8	2,230.8	9.9	9.6	-98.06	50.2	481.9	101.0	81.6	19.41	5.202			
2,400.0	2,327.7	2,392.7	2,326.8	10.5	10.1	-98.81	52.7	509.0	106.5	86.0	20.46	5.203			
2,500.0	2,423.5	2,492.5	2,422.9	11.0	10.6	-99.48	55.1	536.1	111.9	90.4	21.51	5.204			
2,600.0	2,519.3	2,592.3	2,519.0	11.6	11.1	-100.09	57.5	563.2	117.4	94.9	22.56	5.207			
2,700.0	2,615.0	2,692.2	2,615.1	12.1	11.7	-100.65	59.9	590.2	123.0	99.4	23.60	5.210			
2,800.0	2,710.8	2,792.0	2,711.1	12.7	12.2	-101.15	62.3	617.3	128.5	103.8	24.64	5.214			
2,900.0	2,806.5	2,891.9	2,807.2	13.2	12.7	-101.62	64.7	644.4	134.0	108.3	25.68	5.218			
3,000.0	2,902.3	2,991.7	2,903.3	13.8	13.2	-102.05	67.1	671.5	139.5	112.8	26.72	5.222			
3,100.0	2,998.1	3,091.6	2,999.3	14.3	13.8	-102.44	69.6	698.5	145.1	117.3	27.76	5.226			
3,200.0	3,093.8	3,191.4	3,095.4	14.9	14.3	-102.81	72.0	725.6	150.6	121.8	28.80	5.231			
3,300.0	3,189.6	3,291.2	3,191.5	15.4	14.8	-103.15	74.4	752.7	156.2	126.4	29.84	5.235			
3,400.0	3,285.3	3,391.1	3,287.5	16.0	15.3	-103.47	76.8	779.8	161.8	130.9	30.87	5.240			
3,500.0	3,381.1	3,490.9	3,383.6	16.5	15.8	-103.76	79.2	806.8	167.3	135.4	31.91	5.244			
3,600.0	3,476.8	3,590.8	3,479.7	17.1	16.4	-104.04	81.6	833.9	172.9	140.0	32.94	5.249			
3,700.0	3,572.6	3,690.6	3,575.7	17.6	16.9	-104.30	84.0	861.0	178.5	144.5	33.98	5.253			
3,800.0	3,668.4	3,790.4	3,671.8	18.2	17.4	-104.55	86.5	888.1	184.1	149.1	35.01	5.257			
3,900.0	3,764.1	3,890.3	3,767.9	18.7	17.9	-104.78	88.9	915.2	189.7	153.6	36.05	5.261			
4,000.0	3,859.9	3,990.1	3,864.0	19.3	18.4	-104.99	91.3	942.2	195.2	158.2	37.08	5.266			
4,100.0	3,955.6	4,090.0	3,960.0	19.8	19.0	-105.20	93.7	969.3	200.8	162.7	38.11	5.270			
4,200.0	4,051.4	4,189.8	4,056.1	20.4	19.5	-105.39	96.1	996.4	206.4	167.3	39.14	5.273			
4,300.0	4,147.1	4,289.6	4,152.2	20.9	20.0	-105.57	98.5	1,023.5	212.0	171.8	40.17	5.277			
4,400.0	4,242.9	4,389.5	4,248.2	21.5	20.5	-105.75	100.9	1,050.5	217.6	176.4	41.21	5.281			
4,500.0	4,338.7	4,489.3	4,344.3	22.0	21.0	-105.91	103.4	1,077.6	223.2	181.0	42.24	5.284			
4,600.0	4,434.4	4,589.2	4,440.4	22.6	21.6	-106.07	105.8	1,104.7	228.8	185.5	43.27	5.288			
4,700.0	4,530.2	4,689.0	4,536.4	23.1	22.1	-106.22	108.2	1,131.8	234.4	190.1	44.30	5.291			
4,800.0	4,625.9	4,788.9	4,632.5	23.7	22.6	-106.36	110.6	1,158.8	240.0	194.7	45.33	5.295			
4,900.0	4,721.7	4,888.7	4,728.6	24.2	23.1	-106.50	113.0	1,185.9	245.6	199.2	46.36	5.298			
5,000.0	4,817.5	4,988.5	4,824.6	24.8	23.7	-106.63	115.4	1,213.0	251.2	203.8	47.39	5.301			
5,100.0	4,913.2	5,088.4	4,920.7	25.3	24.2	-106.75	117.8	1,240.1	256.8	208.4	48.42	5.304			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,200.0	5,009.0	5,188.2	5,016.8	25.9	24.7	-106.87	120.3	1,267.2	262.4	213.0	49.45	5.307			
5,300.0	5,104.7	5,288.1	5,112.9	26.4	25.2	-106.98	122.7	1,294.2	268.0	217.6	50.48	5.310			
5,400.0	5,200.5	5,387.9	5,208.9	27.0	25.7	-107.09	125.1	1,321.3	273.6	222.1	51.51	5.313			
5,500.0	5,296.2	5,487.7	5,305.0	27.5	26.3	-107.20	127.5	1,348.4	279.3	226.7	52.54	5.315			
5,600.0	5,392.0	5,587.6	5,401.1	28.1	26.8	-107.30	129.9	1,375.5	284.9	231.3	53.57	5.318			
5,700.0	5,487.8	5,687.4	5,497.1	28.7	27.3	-107.40	132.3	1,402.5	290.5	235.9	54.60	5.321			
5,800.0	5,583.5	5,787.3	5,593.2	29.2	27.8	-107.49	134.7	1,429.6	296.1	240.5	55.62	5.323			
5,900.0	5,679.7	5,886.4	5,688.8	29.7	28.3	-107.52	137.1	1,456.0	301.3	244.7	56.60	5.324			
6,000.0	5,776.7	5,985.1	5,784.6	30.1	28.7	-107.51	139.2	1,479.2	305.9	248.5	57.46	5.324			
6,100.0	5,874.6	6,083.8	5,881.2	30.5	29.1	-107.50	140.9	1,499.1	309.9	251.7	58.19	5.325			
6,200.0	5,973.1	6,182.5	5,978.5	30.8	29.4	-107.50	142.4	1,515.8	313.1	254.3	58.81	5.324			
6,300.0	6,072.1	6,281.2	6,076.3	31.1	29.7	-107.51	143.6	1,529.0	315.8	256.5	59.32	5.323			
6,400.0	6,171.6	6,379.9	6,174.6	31.3	29.9	-107.52	144.5	1,538.9	317.7	258.0	59.71	5.322			
6,500.0	6,271.3	6,478.7	6,273.1	31.4	30.0	-107.54	145.1	1,545.5	319.1	259.1	59.99	5.318			
6,600.0	6,371.2	6,577.4	6,371.8	31.5	30.1	-107.56	145.4	1,548.6	319.7	259.6	60.16	5.314			
6,700.0	6,471.2	6,676.9	6,471.2	31.6	30.2	-11.63	145.4	1,548.9	319.8	259.5	60.30	5.304			
6,800.0	6,571.2	6,776.9	6,571.2	31.7	30.2	-11.63	145.4	1,548.9	319.8	259.4	60.43	5.292			
6,900.0	6,671.2	6,876.9	6,671.2	31.7	30.3	-11.63	145.4	1,548.9	319.8	259.2	60.57	5.280			
7,000.0	6,771.2	6,976.9	6,771.2	31.8	30.4	-11.63	145.4	1,548.9	319.8	259.1	60.71	5.268			
7,100.0	6,871.2	7,076.9	6,871.2	31.8	30.4	-11.63	145.4	1,548.9	319.8	258.9	60.85	5.255			
7,200.0	6,971.2	7,176.9	6,971.2	31.9	30.5	-11.63	145.4	1,548.9	319.8	258.8	60.99	5.243			
7,300.0	7,071.2	7,276.9	7,071.2	32.0	30.6	-11.63	145.4	1,548.9	319.8	258.7	61.14	5.231			
7,400.0	7,171.2	7,376.9	7,171.2	32.1	30.6	-11.63	145.4	1,548.9	319.8	258.5	61.28	5.218			
7,500.0	7,271.2	7,476.9	7,271.2	32.1	30.7	-11.63	145.4	1,548.9	319.8	258.4	61.43	5.206			
7,600.0	7,371.2	7,576.9	7,371.2	32.2	30.8	-11.63	145.4	1,548.9	319.8	258.2	61.58	5.193			
7,700.0	7,471.2	7,676.9	7,471.2	32.3	30.9	-11.63	145.4	1,548.9	319.8	258.1	61.73	5.181			
7,800.0	7,571.2	7,776.9	7,571.2	32.3	30.9	-11.63	145.4	1,548.9	319.8	257.9	61.88	5.168			
7,900.0	7,671.2	7,876.9	7,671.2	32.4	31.0	-11.63	145.4	1,548.9	319.8	257.8	62.03	5.155			
8,000.0	7,771.2	7,976.9	7,771.2	32.5	31.1	-11.63	145.4	1,548.9	319.8	257.6	62.19	5.142			
8,100.0	7,871.2	8,076.9	7,871.2	32.6	31.2	-11.63	145.4	1,548.9	319.8	257.4	62.35	5.129			
8,200.0	7,971.2	8,176.9	7,971.2	32.6	31.3	-11.63	145.4	1,548.9	319.8	257.3	62.51	5.116			
8,300.0	8,071.2	8,276.9	8,071.2	32.7	31.3	-11.63	145.4	1,548.9	319.8	257.1	62.67	5.103			
8,400.0	8,171.2	8,376.9	8,171.2	32.8	31.4	-11.63	145.4	1,548.9	319.8	257.0	62.83	5.090			
8,500.0	8,271.2	8,476.9	8,271.2	32.9	31.5	-11.63	145.4	1,548.9	319.8	256.8	62.99	5.077			
8,600.0	8,371.2	8,576.9	8,371.2	33.0	31.6	-11.63	145.4	1,548.9	319.8	256.6	63.15	5.064			
8,614.9	8,386.2	8,591.8	8,386.2	33.0	31.6	-11.63	145.4	1,548.9	319.8	256.6	63.18	5.062			
8,624.8	8,396.0	8,597.6	8,392.0	33.0	31.6	-11.63	145.4	1,548.9	319.8	256.6	63.19	5.061 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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	44.50	27.3	26.8	38.3						
100.0	100.0	100.0	100.0	0.1	0.1	44.50	27.3	26.8	38.3	38.0	0.27	140.684			
200.0	200.0	200.0	200.0	0.3	0.3	44.50	27.3	26.8	38.3	37.7	0.62	61.648	CC, ES		
300.0	300.0	298.0	297.9	0.5	0.5	45.07	28.8	28.9	40.8	39.9	0.97	41.900			
400.0	400.0	395.5	395.2	0.7	0.7	-50.71	33.2	34.9	47.5	46.2	1.31	36.138			
500.0	499.8	492.5	491.4	0.9	1.0	-53.64	40.5	44.9	56.1	54.4	1.68	33.369			
600.0	599.1	588.8	586.1	1.1	1.3	-58.25	50.6	58.7	66.8	64.7	2.10	31.747			
700.0	697.6	684.2	679.0	1.4	1.7	-63.40	63.3	76.1	80.1	77.5	2.64	30.341			
800.0	795.1	778.6	769.8	1.8	2.2	-68.37	78.6	97.1	96.5	93.1	3.34	28.859			
900.0	891.4	873.0	859.2	2.3	2.8	-72.97	96.4	121.5	115.9	111.7	4.22	27.471			
1,000.0	987.1	970.4	951.0	2.9	3.4	-77.11	115.6	147.7	136.6	131.4	5.20	26.281			
1,100.0	1,082.9	1,067.8	1,042.9	3.4	4.0	-80.16	134.7	173.8	157.9	151.7	6.21	25.412			
1,200.0	1,178.6	1,165.2	1,134.8	3.9	4.6	-82.48	153.8	200.0	179.4	172.2	7.25	24.767			
1,300.0	1,274.4	1,262.6	1,226.6	4.5	5.2	-84.31	172.9	226.2	201.2	193.0	8.29	24.279			
1,400.0	1,370.2	1,360.0	1,318.5	5.0	5.8	-85.77	192.0	252.4	223.2	213.9	9.34	23.901			
1,500.0	1,465.9	1,457.5	1,410.4	5.5	6.4	-86.98	211.2	278.5	245.3	234.9	10.39	23.601			
1,600.0	1,561.7	1,554.9	1,502.2	6.1	7.0	-87.98	230.3	304.7	267.4	256.0	11.45	23.359			
1,700.0	1,657.4	1,652.3	1,594.1	6.6	7.6	-88.83	249.4	330.9	289.6	277.1	12.51	23.159			
1,800.0	1,753.2	1,749.7	1,686.0	7.2	8.2	-89.57	268.5	357.1	311.9	298.3	13.56	22.993			
1,900.0	1,849.0	1,847.1	1,777.8	7.7	8.8	-90.20	287.6	383.2	334.2	319.6	14.62	22.853			
2,000.0	1,944.7	1,944.5	1,869.7	8.3	9.4	-90.75	306.8	409.4	356.5	340.9	15.68	22.733			
2,100.0	2,040.5	2,042.0	1,961.6	8.8	10.0	-91.24	325.9	435.6	378.9	362.2	16.74	22.629			
2,200.0	2,136.2	2,139.4	2,053.4	9.4	10.6	-91.68	345.0	461.8	401.3	383.5	17.81	22.538			
2,300.0	2,232.0	2,236.8	2,145.3	9.9	11.3	-92.06	364.1	487.9	423.7	404.8	18.87	22.458			
2,400.0	2,327.7	2,334.2	2,237.2	10.5	11.9	-92.41	383.2	514.1	446.1	426.2	19.93	22.388			
2,500.0	2,423.5	2,431.6	2,329.0	11.0	12.5	-92.73	402.4	540.3	468.6	447.6	20.99	22.325			
2,600.0	2,519.3	2,529.0	2,420.9	11.6	13.1	-93.02	421.5	566.5	491.0	469.0	22.05	22.269	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-122.23	-8.0	-12.7	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	-122.23	-8.0	-12.7	15.0	14.8	0.27	55.214			
200.0	200.0	200.0	200.0	0.3	0.3	-122.23	-8.0	-12.7	15.0	14.4	0.62	24.195			
300.0	300.0	300.0	300.0	0.5	0.5	-122.23	-8.0	-12.7	15.0	14.1	0.97	15.492	CC, ES		
400.0	400.0	400.3	400.3	0.7	0.7	143.35	-8.2	-12.1	15.8	14.4	1.32	11.933			
500.0	499.8	500.9	500.7	0.9	0.9	143.60	-9.6	-7.0	17.4	15.7	1.69	10.317			
600.0	599.1	601.5	600.8	1.1	1.1	141.73	-12.5	3.2	19.6	17.5	2.10	9.349			
700.0	697.6	702.2	700.2	1.4	1.4	138.51	-16.9	18.4	22.4	19.8	2.60	8.621			
800.0	795.1	802.9	798.6	1.8	1.8	134.63	-22.6	38.7	26.0	22.7	3.26	7.965			
900.0	891.4	903.5	895.8	2.3	2.3	130.51	-29.8	63.9	30.3	26.2	4.12	7.347			
1,000.0	987.1	1,003.7	991.4	2.9	2.8	123.74	-38.0	92.8	33.9	28.7	5.20	6.526			
1,100.0	1,082.9	1,103.5	1,086.5	3.4	3.3	117.90	-46.3	122.0	37.8	31.5	6.34	5.963			
1,200.0	1,178.6	1,203.4	1,181.7	3.9	3.9	113.19	-54.5	151.1	42.0	34.5	7.51	5.599			
1,300.0	1,274.4	1,303.3	1,276.8	4.5	4.5	109.36	-62.8	180.2	46.5	37.8	8.68	5.358			
1,400.0	1,370.2	1,403.1	1,372.0	5.0	5.0	106.22	-71.1	209.3	51.1	41.3	9.84	5.194			
1,500.0	1,465.9	1,503.0	1,467.1	5.5	5.6	103.60	-79.4	238.5	55.9	44.9	11.00	5.080			
1,600.0	1,561.7	1,602.8	1,562.3	6.1	6.2	101.39	-87.6	267.6	60.7	48.6	12.15	4.999			
1,700.0	1,657.4	1,702.7	1,657.4	6.6	6.7	99.51	-95.9	296.7	65.7	52.4	13.29	4.941			
1,800.0	1,753.2	1,802.5	1,752.6	7.2	7.3	97.90	-104.2	325.8	70.7	56.2	14.42	4.899			
1,900.0	1,849.0	1,902.4	1,847.8	7.7	7.9	96.50	-112.4	355.0	75.7	60.1	15.55	4.868			
2,000.0	1,944.7	2,002.3	1,942.9	8.3	8.5	95.28	-120.7	384.1	80.8	64.1	16.67	4.844			
2,100.0	2,040.5	2,102.1	2,038.1	8.8	9.0	94.20	-129.0	413.2	85.9	68.1	17.79	4.827			
2,200.0	2,136.2	2,202.0	2,133.2	9.4	9.6	93.24	-137.3	442.4	91.0	72.1	18.90	4.815			
2,300.0	2,232.0	2,301.8	2,228.4	9.9	10.2	92.38	-145.5	471.5	96.2	76.2	20.01	4.805			
2,400.0	2,327.7	2,401.7	2,323.5	10.5	10.7	91.62	-153.8	500.6	101.4	80.2	21.12	4.799			
2,500.0	2,423.5	2,501.5	2,418.7	11.0	11.3	90.92	-162.1	529.7	106.6	84.3	22.23	4.794			
2,600.0	2,519.3	2,601.4	2,513.8	11.6	11.9	90.29	-170.4	558.9	111.8	88.4	23.33	4.791			
2,700.0	2,615.0	2,701.3	2,609.0	12.1	12.5	89.72	-178.6	588.0	117.0	92.6	24.43	4.789			
2,800.0	2,710.8	2,801.1	2,704.2	12.7	13.1	89.20	-186.9	617.1	122.2	96.7	25.53	4.787			
2,900.0	2,806.5	2,901.0	2,799.3	13.2	13.6	88.72	-195.2	646.2	127.5	100.8	26.63	4.787			
3,000.0	2,902.3	3,000.8	2,894.5	13.8	14.2	88.28	-203.4	675.4	132.7	105.0	27.72	4.787			
3,100.0	2,998.1	3,100.7	2,989.6	14.3	14.8	87.87	-211.7	704.5	138.0	109.1	28.82	4.788			
3,200.0	3,093.8	3,200.5	3,084.8	14.9	15.4	87.49	-220.0	733.6	143.2	113.3	29.91	4.789			
3,300.0	3,189.6	3,300.4	3,179.9	15.4	15.9	87.14	-228.3	762.8	148.5	117.5	31.00	4.790			
3,400.0	3,285.3	3,400.3	3,275.1	16.0	16.5	86.81	-236.5	791.9	153.8	121.7	32.09	4.791			
3,500.0	3,381.1	3,500.1	3,370.2	16.5	17.1	86.50	-244.8	821.0	159.1	125.9	33.18	4.793			
3,600.0	3,476.8	3,600.0	3,465.4	17.1	17.7	86.22	-253.1	850.1	164.3	130.1	34.27	4.795			
3,700.0	3,572.6	3,699.8	3,560.6	17.6	18.2	85.95	-261.4	879.3	169.6	134.3	35.36	4.796			
3,800.0	3,668.4	3,799.7	3,655.7	18.2	18.8	85.69	-269.6	908.4	174.9	138.5	36.45	4.798			
3,900.0	3,764.1	3,899.5	3,750.9	18.7	19.4	85.46	-277.9	937.5	180.2	142.7	37.54	4.800			
4,000.0	3,859.9	3,999.4	3,846.0	19.3	20.0	85.23	-286.2	966.6	185.5	146.9	38.63	4.802			
4,100.0	3,955.6	4,099.3	3,941.2	19.8	20.5	85.02	-294.4	995.8	190.8	151.1	39.72	4.804			
4,200.0	4,051.4	4,199.1	4,036.3	20.4	21.1	84.82	-302.7	1,024.9	196.1	155.3	40.80	4.806			
4,300.0	4,147.1	4,299.0	4,131.5	20.9	21.7	84.63	-311.0	1,054.0	201.4	159.5	41.89	4.808			
4,400.0	4,242.9	4,398.8	4,226.6	21.5	22.3	84.45	-319.3	1,083.1	206.7	163.7	42.98	4.810			
4,500.0	4,338.7	4,498.7	4,321.8	22.0	22.9	84.28	-327.5	1,112.3	212.0	168.0	44.06	4.812			
4,600.0	4,434.4	4,598.5	4,417.0	22.6	23.4	84.12	-335.8	1,141.4	217.3	172.2	45.15	4.814			
4,700.0	4,530.2	4,698.4	4,512.1	23.1	24.0	83.96	-344.1	1,170.5	222.7	176.4	46.23	4.816			
4,800.0	4,625.9	4,798.3	4,607.3	23.7	24.6	83.82	-352.3	1,199.7	228.0	180.6	47.32	4.818			
4,900.0	4,721.7	4,898.1	4,702.4	24.2	25.2	83.68	-360.6	1,228.8	233.3	184.9	48.40	4.820			
5,000.0	4,817.5	4,998.0	4,797.6	24.8	25.7	83.54	-368.9	1,257.9	238.6	189.1	49.49	4.821			
5,100.0	4,913.2	5,097.8	4,892.7	25.3	26.3	83.41	-377.2	1,287.0	243.9	193.3	50.57	4.823			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference													Warning		
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			
5,200.0	5,009.0	5,197.7	4,987.9	25.9	26.9	83.29	-385.4	1,316.2	249.2	197.6	51.66	4.825			
5,300.0	5,104.7	5,297.5	5,083.0	26.4	27.5	83.17	-393.7	1,345.3	254.6	201.8	52.74	4.827			
5,400.0	5,200.5	5,397.4	5,178.2	27.0	28.0	83.06	-402.0	1,374.4	259.9	206.0	53.82	4.828			
5,500.0	5,296.2	5,497.3	5,273.4	27.5	28.6	82.95	-410.3	1,403.5	265.2	210.3	54.91	4.830			
5,600.0	5,392.0	5,597.1	5,368.5	28.1	29.2	82.85	-418.5	1,432.7	270.5	214.5	55.99	4.832			
5,700.0	5,487.8	5,697.0	5,463.7	28.7	29.8	82.74	-426.8	1,461.8	275.8	218.8	57.07	4.833			
5,800.0	5,583.5	5,796.9	5,558.9	29.2	30.4	82.65	-435.1	1,491.0	281.2	223.0	58.16	4.835			
5,900.0	5,679.7	5,899.8	5,657.5	29.7	30.9	82.73	-443.1	1,519.1	286.1	226.9	59.17	4.835			
6,000.0	5,776.7	6,002.7	5,757.1	30.1	31.3	82.80	-450.1	1,543.9	290.5	230.4	60.06	4.836			
6,100.0	5,874.6	6,105.6	5,857.7	30.5	31.7	82.86	-456.2	1,565.2	294.2	233.4	60.82	4.837			
6,200.0	5,973.1	6,208.7	5,959.0	30.8	32.1	82.90	-461.2	1,583.1	297.3	235.9	61.47	4.837			
6,300.0	6,072.1	6,311.8	6,061.0	31.1	32.4	82.92	-465.3	1,597.4	299.9	237.9	61.99	4.837			
6,400.0	6,171.6	6,414.9	6,163.6	31.3	32.6	82.93	-468.4	1,608.2	301.8	239.4	62.40	4.836			
6,500.0	6,271.3	6,518.1	6,266.4	31.4	32.7	82.93	-470.4	1,615.4	303.1	240.4	62.69	4.834			
6,600.0	6,371.2	6,621.3	6,369.6	31.5	32.8	82.90	-471.5	1,619.1	303.7	240.9	62.87	4.831			
6,700.0	6,471.2	6,723.0	6,471.2	31.6	32.9	178.82	-471.6	1,619.6	303.8	240.8	63.00	4.823			
6,800.0	6,571.2	6,823.0	6,571.2	31.7	32.9	178.82	-471.6	1,619.6	303.8	240.7	63.13	4.813			
6,900.0	6,671.2	6,923.0	6,671.2	31.7	33.0	178.82	-471.6	1,619.6	303.8	240.6	63.26	4.803			
7,000.0	6,771.2	7,023.0	6,771.2	31.8	33.1	178.82	-471.6	1,619.6	303.8	240.4	63.39	4.793			
7,100.0	6,871.2	7,123.0	6,871.2	31.8	33.1	178.82	-471.6	1,619.6	303.8	240.3	63.53	4.783			
7,200.0	6,971.2	7,223.0	6,971.2	31.9	33.2	178.82	-471.6	1,619.6	303.8	240.2	63.66	4.772			
7,300.0	7,071.2	7,323.0	7,071.2	32.0	33.3	178.82	-471.6	1,619.6	303.8	240.0	63.80	4.762			
7,400.0	7,171.2	7,423.0	7,171.2	32.1	33.3	178.82	-471.6	1,619.6	303.8	239.9	63.94	4.752			
7,500.0	7,271.2	7,523.0	7,271.2	32.1	33.4	178.82	-471.6	1,619.6	303.8	239.7	64.08	4.741			
7,600.0	7,371.2	7,623.0	7,371.2	32.2	33.5	178.82	-471.6	1,619.6	303.8	239.6	64.23	4.731			
7,700.0	7,471.2	7,723.0	7,471.2	32.3	33.5	178.82	-471.6	1,619.6	303.8	239.5	64.37	4.720			
7,800.0	7,571.2	7,823.0	7,571.2	32.3	33.6	178.82	-471.6	1,619.6	303.8	239.3	64.52	4.709			
7,900.0	7,671.2	7,923.0	7,671.2	32.4	33.7	178.82	-471.6	1,619.6	303.8	239.2	64.67	4.698			
8,000.0	7,771.2	8,023.0	7,771.2	32.5	33.8	178.82	-471.6	1,619.6	303.8	239.0	64.82	4.688			
8,100.0	7,871.2	8,123.0	7,871.2	32.6	33.8	178.82	-471.6	1,619.6	303.8	238.9	64.97	4.677			
8,200.0	7,971.2	8,223.0	7,971.2	32.6	33.9	178.82	-471.6	1,619.6	303.8	238.7	65.12	4.666			
8,300.0	8,071.2	8,323.0	8,071.2	32.7	34.0	178.82	-471.6	1,619.6	303.8	238.6	65.27	4.655			
8,400.0	8,171.2	8,423.0	8,171.2	32.8	34.1	178.82	-471.6	1,619.6	303.8	238.4	65.43	4.644			
8,500.0	8,271.2	8,523.0	8,271.2	32.9	34.1	178.82	-471.6	1,619.6	303.8	238.2	65.59	4.633			
8,600.0	8,371.2	8,623.0	8,371.2	33.0	34.2	178.82	-471.6	1,619.6	303.8	238.1	65.74	4.621			
8,624.8	8,396.0	8,647.7	8,396.0	33.0	34.2	178.82	-471.6	1,619.6	303.8	238.0	65.78	4.619 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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.09	-16.4	-25.2	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-16.4	-25.2	30.0	29.7	0.27	110.259			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-16.4	-25.2	30.0	29.4	0.62	48.316			
300.0	300.0	300.0	300.0	0.5	0.5	-123.09	-16.4	-25.2	30.0	29.1	0.97	30.936 CC			
400.0	400.0	400.7	400.6	0.7	0.7	140.38	-17.0	-23.8	30.3	29.0	1.32	22.939 ES			
500.0	499.8	501.5	501.3	0.9	0.9	137.90	-19.6	-17.7	31.8	30.1	1.70	18.682			
600.0	599.1	602.3	601.3	1.1	1.1	133.99	-24.3	-6.7	34.5	32.4	2.16	16.017			
700.0	697.6	703.0	700.5	1.4	1.4	129.34	-31.0	9.1	38.7	35.9	2.74	14.103			
800.0	795.1	803.5	798.5	1.8	1.9	124.61	-39.8	29.7	44.4	40.9	3.52	12.631			
900.0	891.4	903.9	895.0	2.3	2.4	120.19	-50.5	54.9	51.7	47.2	4.49	11.517			
1,000.0	987.1	1,003.7	989.7	2.9	2.9	114.11	-62.9	84.2	59.2	53.6	5.62	10.541			
1,100.0	1,082.9	1,103.2	1,083.8	3.4	3.5	108.80	-75.6	114.0	67.2	60.5	6.78	9.916			
1,200.0	1,178.6	1,202.7	1,177.9	3.9	4.1	104.65	-88.3	143.8	75.7	67.8	7.94	9.534			
1,300.0	1,274.4	1,302.2	1,272.0	4.5	4.7	101.34	-101.0	173.6	84.5	75.4	9.09	9.293			
1,400.0	1,370.2	1,401.7	1,366.1	5.0	5.3	98.66	-113.7	203.4	93.5	83.3	10.23	9.139			
1,500.0	1,465.9	1,501.3	1,460.1	5.5	5.9	96.46	-126.4	233.2	102.7	91.3	11.36	9.038			
1,600.0	1,561.7	1,600.8	1,554.2	6.1	6.5	94.62	-139.1	263.0	112.0	99.5	12.48	8.971			
1,700.0	1,657.4	1,700.3	1,648.3	6.6	7.2	93.06	-151.8	292.8	121.4	107.8	13.60	8.928			
1,800.0	1,753.2	1,799.8	1,742.4	7.2	7.8	91.73	-164.5	322.6	130.9	116.2	14.70	8.900			
1,900.0	1,849.0	1,899.3	1,836.5	7.7	8.4	90.57	-177.2	352.4	140.4	124.6	15.81	8.882			
2,000.0	1,944.7	1,998.8	1,930.6	8.3	9.0	89.57	-189.9	382.1	150.0	133.1	16.90	8.872			
2,100.0	2,040.5	2,098.3	2,024.7	8.8	9.6	88.68	-202.5	411.9	159.6	141.6	18.00	8.868			
2,200.0	2,136.2	2,197.8	2,118.8	9.4	10.2	87.90	-215.2	441.7	169.3	150.2	19.09	8.867 SF			
2,300.0	2,232.0	2,297.3	2,212.9	9.9	10.8	87.20	-227.9	471.5	179.0	158.8	20.18	8.868			
2,400.0	2,327.7	2,396.8	2,306.9	10.5	11.4	86.57	-240.6	501.3	188.7	167.4	21.27	8.872			
2,500.0	2,423.5	2,496.3	2,401.0	11.0	12.0	86.01	-253.3	531.1	198.4	176.1	22.35	8.877			
2,600.0	2,519.3	2,595.8	2,495.1	11.6	12.7	85.49	-266.0	560.9	208.2	184.7	23.44	8.882			
2,700.0	2,615.0	2,695.3	2,589.2	12.1	13.3	85.03	-278.7	590.7	217.9	193.4	24.52	8.889			
2,800.0	2,710.8	2,794.8	2,683.3	12.7	13.9	84.60	-291.4	620.5	227.7	202.1	25.60	8.895			
2,900.0	2,806.5	2,894.4	2,777.4	13.2	14.5	84.21	-304.1	650.3	237.5	210.8	26.68	8.902			
3,000.0	2,902.3	2,993.9	2,871.5	13.8	15.1	83.85	-316.8	680.1	247.3	219.5	27.76	8.910			
3,100.0	2,998.1	3,093.4	2,965.6	14.3	15.7	83.51	-329.4	709.9	257.1	228.3	28.83	8.917			
3,200.0	3,093.8	3,192.9	3,059.7	14.9	16.3	83.21	-342.1	739.7	266.9	237.0	29.91	8.924			
3,300.0	3,189.6	3,292.4	3,153.7	15.4	17.0	82.92	-354.8	769.5	276.7	245.7	30.99	8.931			
3,400.0	3,285.3	3,391.9	3,247.8	16.0	17.6	82.65	-367.5	799.3	286.6	254.5	32.06	8.938			
3,500.0	3,381.1	3,491.4	3,341.9	16.5	18.2	82.40	-380.2	829.1	296.4	263.3	33.14	8.945			
3,600.0	3,476.8	3,590.9	3,436.0	17.1	18.8	82.17	-392.9	858.9	306.2	272.0	34.21	8.952			
3,700.0	3,572.6	3,690.4	3,530.1	17.6	19.4	81.95	-405.6	888.7	316.1	280.8	35.28	8.958			
3,800.0	3,668.4	3,789.9	3,624.2	18.2	20.0	81.74	-418.3	918.5	325.9	289.6	36.36	8.965			
3,900.0	3,764.1	3,889.4	3,718.3	18.7	20.6	81.55	-431.0	948.3	335.8	298.4	37.43	8.971			
4,000.0	3,859.9	3,988.9	3,812.4	19.3	21.3	81.37	-443.7	978.1	345.6	307.1	38.50	8.977			
4,100.0	3,955.6	4,088.4	3,906.5	19.8	21.9	81.20	-456.4	1,007.9	355.5	315.9	39.57	8.983			
4,200.0	4,051.4	4,187.9	4,000.5	20.4	22.5	81.03	-469.0	1,037.7	365.4	324.7	40.65	8.989			
4,300.0	4,147.1	4,287.5	4,094.6	20.9	23.1	80.88	-481.7	1,067.5	375.2	333.5	41.72	8.994			
4,400.0	4,242.9	4,387.0	4,188.7	21.5	23.7	80.73	-494.4	1,097.3	385.1	342.3	42.79	9.000			
4,500.0	4,338.7	4,486.5	4,282.8	22.0	24.3	80.59	-507.1	1,127.1	395.0	351.1	43.86	9.005			
4,600.0	4,434.4	4,586.0	4,376.9	22.6	24.9	80.46	-519.8	1,156.9	404.9	359.9	44.93	9.010			
4,700.0	4,530.2	4,685.5	4,471.0	23.1	25.6	80.33	-532.5	1,186.7	414.7	368.7	46.00	9.015			
4,800.0	4,625.9	4,785.0	4,565.1	23.7	26.2	80.21	-545.2	1,216.5	424.6	377.5	47.07	9.020			
4,900.0	4,721.7	4,884.5	4,659.2	24.2	26.8	80.10	-557.9	1,246.3	434.5	386.3	48.14	9.025			
5,000.0	4,817.5	4,984.0	4,753.3	24.8	27.4	79.99	-570.6	1,276.1	444.4	395.1	49.21	9.029			
5,100.0	4,913.2	5,083.5	4,847.3	25.3	28.0	79.88	-583.3	1,305.9	454.2	404.0	50.29	9.033			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,200.0	5,009.0	5,183.0	4,941.4	25.9	28.6	79.78	-595.9	1,335.7	464.1	412.8	51.36	9.038			
5,300.0	5,104.7	5,282.5	5,035.5	26.4	29.2	79.69	-608.6	1,365.5	474.0	421.6	52.42	9.042			
5,400.0	5,200.5	5,382.0	5,129.6	27.0	29.9	79.59	-621.3	1,395.3	483.9	430.4	53.49	9.046			
5,500.0	5,296.2	5,481.5	5,223.7	27.5	30.5	79.51	-634.0	1,425.1	493.8	439.2	54.56	9.050			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-122.80	-24.4	-37.9	45.1						
100.0	100.0	100.0	100.0	0.1	0.1	-122.80	-24.4	-37.9	45.1	44.8	0.27	165.461			
200.0	200.0	200.0	200.0	0.3	0.3	-122.80	-24.4	-37.9	45.1	44.4	0.62	72.505			
300.0	300.0	300.0	300.0	0.5	0.5	-122.80	-24.4	-37.9	45.1	44.1	0.97	46.424 CC			
343.6	343.6	344.0	344.0	0.6	0.6	140.96	-24.7	-37.5	45.2	44.0	1.13	40.129			
400.0	400.0	400.8	400.8	0.7	0.7	139.30	-26.0	-35.7	45.3	43.9	1.33	34.101 ES			
500.0	499.8	501.5	501.1	0.9	0.9	135.38	-30.6	-29.3	47.7	46.0	1.72	27.653			
600.0	599.1	601.9	600.6	1.1	1.2	130.44	-38.3	-18.5	52.7	50.5	2.21	23.797			
700.0	697.6	701.9	698.9	1.4	1.5	125.36	-49.0	-3.7	60.5	57.7	2.85	21.239			
800.0	795.1	801.4	795.7	1.8	1.9	120.74	-62.6	15.2	71.2	67.5	3.66	19.455			
900.0	891.4	900.4	890.5	2.3	2.5	116.86	-79.1	38.1	84.7	80.0	4.65	18.222			
1,000.0	987.1	998.6	983.1	2.9	3.1	112.29	-98.2	64.7	99.6	93.8	5.77	17.260			
1,100.0	1,082.9	1,096.7	1,074.3	3.4	3.7	107.14	-119.3	94.0	115.6	108.7	6.93	16.681			
1,200.0	1,178.6	1,194.9	1,165.6	3.9	4.4	103.19	-140.5	123.4	132.4	124.3	8.08	16.383			
1,300.0	1,274.4	1,293.2	1,256.9	4.5	5.1	100.14	-161.7	152.8	149.6	140.4	9.21	16.237			
1,400.0	1,370.2	1,391.4	1,348.2	5.0	5.7	97.72	-182.9	182.3	167.2	156.9	10.34	16.174			
1,500.0	1,465.9	1,489.6	1,439.5	5.5	6.4	95.76	-204.1	211.7	185.0	173.6	11.45	16.158 SF			
1,600.0	1,561.7	1,587.8	1,530.7	6.1	7.1	94.15	-225.3	241.2	203.0	190.4	12.55	16.168			
1,700.0	1,657.4	1,686.0	1,622.0	6.6	7.8	92.79	-246.5	270.6	221.1	207.4	13.65	16.194			
1,800.0	1,753.2	1,784.3	1,713.3	7.2	8.4	91.65	-267.7	300.0	239.3	224.6	14.75	16.228			
1,900.0	1,849.0	1,882.5	1,804.6	7.7	9.1	90.66	-288.9	329.5	257.6	241.8	15.84	16.267			
2,000.0	1,944.7	1,980.7	1,895.9	8.3	9.8	89.81	-310.1	358.9	276.0	259.1	16.92	16.307			
2,100.0	2,040.5	2,078.9	1,987.1	8.8	10.5	89.06	-331.3	388.3	294.4	276.4	18.01	16.348			
2,200.0	2,136.2	2,177.2	2,078.4	9.4	11.1	88.40	-352.5	417.8	312.8	293.8	19.09	16.389			
2,300.0	2,232.0	2,275.4	2,169.7	9.9	11.8	87.82	-373.7	447.2	331.3	311.2	20.17	16.428			
2,400.0	2,327.7	2,373.6	2,261.0	10.5	12.5	87.29	-394.9	476.7	349.9	328.6	21.25	16.466			
2,500.0	2,423.5	2,471.8	2,352.2	11.0	13.2	86.82	-416.0	506.1	368.4	346.1	22.32	16.503			
2,600.0	2,519.3	2,570.0	2,443.5	11.6	13.9	86.39	-437.2	535.5	387.0	363.6	23.40	16.538			
2,700.0	2,615.0	2,668.3	2,534.8	12.1	14.6	86.01	-458.4	565.0	405.6	381.1	24.47	16.571			
2,800.0	2,710.8	2,766.5	2,626.1	12.7	15.2	85.65	-479.6	594.4	424.2	398.6	25.55	16.603			
2,900.0	2,806.5	2,864.7	2,717.4	13.2	15.9	85.33	-500.8	623.9	442.8	416.2	26.62	16.633			
3,000.0	2,902.3	2,962.9	2,808.6	13.8	16.6	85.03	-522.0	653.3	461.4	433.7	27.69	16.662			
3,100.0	2,998.1	3,061.2	2,899.9	14.3	17.3	84.76	-543.2	682.7	480.0	451.3	28.76	16.689			
3,200.0	3,093.8	3,159.4	2,991.2	14.9	18.0	84.50	-564.4	712.2	498.7	468.9	29.83	16.715			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													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	-123.09	-32.8	-50.3	60.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-32.8	-50.3	60.0	59.8	0.27	220.527			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-32.8	-50.3	60.0	59.4	0.62	96.636			
300.0	300.0	300.2	300.2	0.5	0.5	-123.25	-32.9	-50.2	60.0	59.0	0.97	61.805 CC			
347.0	347.0	347.6	347.6	0.6	0.6	139.96	-33.7	-49.3	60.0	58.9	1.14	52.664			
400.0	400.0	400.9	400.9	0.7	0.7	138.04	-35.5	-47.2	60.2	58.8	1.33	45.147 ES			
500.0	499.8	501.4	500.9	0.9	0.9	133.76	-41.6	-40.2	63.2	61.4	1.74	36.202			
600.0	599.1	601.4	599.8	1.1	1.2	128.81	-51.1	-29.4	69.4	67.1	2.26	30.745			
700.0	697.6	700.9	697.3	1.4	1.6	123.94	-64.0	-14.8	79.1	76.1	2.91	27.138			
800.0	795.1	799.6	793.0	1.8	2.0	119.62	-80.0	3.5	92.1	88.4	3.74	24.662			
900.0	891.4	897.5	886.5	2.3	2.6	116.05	-99.1	25.3	108.5	103.8	4.73	22.966			
1,000.0	987.1	994.5	977.6	2.9	3.2	112.22	-121.1	50.4	126.8	121.0	5.83	21.752			
1,100.0	1,082.9	1,090.9	1,066.5	3.4	3.9	107.63	-145.8	78.4	146.8	139.8	6.98	21.014			
1,200.0	1,178.6	1,188.2	1,155.8	3.9	4.6	103.84	-171.1	107.3	167.7	159.6	8.13	20.623			
1,300.0	1,274.4	1,285.4	1,245.1	4.5	5.3	100.89	-196.5	136.3	189.2	179.9	9.26	20.422			
1,400.0	1,370.2	1,382.7	1,334.5	5.0	6.0	98.54	-221.9	165.2	211.1	200.7	10.38	20.326			
1,500.0	1,465.9	1,479.9	1,423.8	5.5	6.7	96.64	-247.2	194.1	233.2	221.7	11.49	20.292 SF			
1,600.0	1,561.7	1,577.2	1,513.1	6.1	7.4	95.06	-272.6	223.0	255.6	243.0	12.59	20.293			
1,700.0	1,657.4	1,674.4	1,602.4	6.6	8.1	93.74	-298.0	251.9	278.1	264.4	13.69	20.315			
1,800.0	1,753.2	1,771.7	1,691.7	7.2	8.8	92.61	-323.3	280.8	300.7	285.9	14.78	20.349			
1,900.0	1,849.0	1,868.9	1,781.1	7.7	9.6	91.65	-348.7	309.7	323.4	307.5	15.86	20.389			
2,000.0	1,944.7	1,966.2	1,870.4	8.3	10.3	90.81	-374.1	338.6	346.2	329.3	16.94	20.434			
2,100.0	2,040.5	2,063.4	1,959.7	8.8	11.0	90.07	-399.4	367.5	369.1	351.0	18.02	20.479			
2,200.0	2,136.2	2,160.7	2,049.0	9.4	11.7	89.42	-424.8	396.4	392.0	372.9	19.10	20.525			
2,300.0	2,232.0	2,257.9	2,138.4	9.9	12.4	88.84	-450.2	425.3	414.9	394.8	20.17	20.570			
2,400.0	2,327.7	2,355.2	2,227.7	10.5	13.1	88.32	-475.6	454.2	437.9	416.7	21.24	20.614			
2,500.0	2,423.5	2,452.4	2,317.0	11.0	13.9	87.85	-500.9	483.1	460.9	438.6	22.32	20.656			
2,600.0	2,519.3	2,549.7	2,406.3	11.6	14.6	87.43	-526.3	512.1	484.0	460.6	23.39	20.697			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-122.92	-40.8	-63.0	75.1						
100.0	100.0	100.0	100.0	0.1	0.1	-122.92	-40.8	-63.0	75.1	74.8	0.27	275.719			
200.0	200.0	200.0	200.0	0.3	0.3	-122.92	-40.8	-63.0	75.1	74.4	0.62	120.821			
300.0	300.0	300.4	300.4	0.5	0.5	-123.41	-41.3	-62.6	74.9	74.0	0.97	77.170			
342.9	342.9	343.6	343.5	0.6	0.6	139.60	-42.4	-61.4	74.9	73.8	1.13	66.377	CC, ES		
400.0	400.0	401.0	400.8	0.7	0.7	137.39	-45.0	-58.8	75.2	73.8	1.34	56.061			
500.0	499.8	501.1	500.4	0.9	0.9	132.94	-52.5	-51.5	78.8	77.0	1.77	44.506			
600.0	599.1	600.7	598.7	1.1	1.2	128.05	-63.7	-40.5	86.1	83.8	2.30	37.389			
700.0	697.6	699.5	695.4	1.4	1.6	123.35	-78.3	-26.1	97.3	94.4	2.98	32.703			
800.0	795.1	797.4	790.0	1.8	2.1	119.22	-96.3	-8.3	112.4	108.6	3.81	29.506			
900.0	891.4	894.3	882.2	2.3	2.7	115.84	-117.5	12.5	131.1	126.3	4.80	27.328			
1,000.0	987.1	990.0	971.6	2.9	3.3	112.46	-141.7	36.3	152.1	146.2	5.89	25.820			
1,100.0	1,082.9	1,084.2	1,057.9	3.4	4.0	108.43	-168.6	62.8	175.0	168.0	7.04	24.862			
1,200.0	1,178.6	1,180.2	1,144.8	3.9	4.8	104.56	-197.6	91.4	199.7	191.5	8.19	24.370			
1,300.0	1,274.4	1,276.3	1,231.9	4.5	5.5	101.54	-226.7	120.1	225.0	215.6	9.33	24.120			
1,400.0	1,370.2	1,372.5	1,318.9	5.0	6.2	99.12	-255.9	148.7	250.8	240.3	10.45	24.004			
1,500.0	1,465.9	1,468.6	1,405.9	5.5	7.0	97.16	-285.0	177.4	276.9	265.3	11.55	23.966	SF		
1,600.0	1,561.7	1,564.7	1,492.9	6.1	7.8	95.53	-314.1	206.0	303.3	290.6	12.65	23.973			
1,700.0	1,657.4	1,660.9	1,579.9	6.6	8.5	94.16	-343.2	234.7	329.8	316.1	13.74	24.007			
1,800.0	1,753.2	1,757.0	1,666.9	7.2	9.3	93.00	-372.3	263.4	356.5	341.7	14.82	24.055			
1,900.0	1,849.0	1,853.1	1,754.0	7.7	10.0	92.00	-401.4	292.0	383.4	367.5	15.90	24.113			
2,000.0	1,944.7	1,949.2	1,841.0	8.3	10.8	91.13	-430.5	320.7	410.3	393.3	16.97	24.174			
2,100.0	2,040.5	2,045.4	1,928.0	8.8	11.5	90.36	-459.6	349.3	437.3	419.3	18.04	24.237			
2,200.0	2,136.2	2,141.5	2,015.0	9.4	12.3	89.69	-488.7	378.0	464.4	445.3	19.11	24.299			
2,300.0	2,232.0	2,237.6	2,102.0	9.9	13.1	89.08	-517.8	406.7	491.5	471.3	20.18	24.361			

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 Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.09	-49.2	-75.5	90.1						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-49.2	-75.5	90.1	89.8	0.27	330.778			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-49.2	-75.5	90.1	89.4	0.62	144.948			
300.0	300.0	300.2	300.2	0.5	0.5	-124.03	-50.3	-74.5	90.0	89.0	0.97	92.654			
316.1	316.1	316.3	316.3	0.5	0.5	139.60	-50.9	-74.1	90.0	88.9	1.03	87.003 CC, ES			
400.0	400.0	400.2	400.0	0.7	0.7	136.48	-55.5	-70.5	90.8	89.5	1.35	67.100			
500.0	499.8	499.7	498.8	0.9	1.0	132.04	-64.8	-63.4	95.8	94.0	1.80	53.256			
600.0	599.1	598.4	596.0	1.1	1.3	127.41	-78.0	-53.2	105.3	102.9	2.35	44.845			
700.0	697.6	696.0	691.2	1.4	1.7	123.11	-94.9	-40.1	119.2	116.2	3.02	39.407			
800.0	795.1	792.4	784.1	1.8	2.2	119.40	-115.4	-24.3	137.5	133.7	3.85	35.743			
900.0	891.4	887.5	874.3	2.3	2.8	116.42	-139.2	-5.9	160.0	155.2	4.81	33.250			
1,000.0	987.1	981.1	961.5	2.9	3.4	113.68	-166.0	14.9	185.1	179.2	5.87	31.549			
1,100.0	1,082.9	1,073.0	1,045.4	3.4	4.1	110.47	-195.7	37.8	212.4	205.4	6.98	30.448			
1,200.0	1,178.6	1,162.7	1,125.5	3.9	4.9	107.07	-227.7	62.5	242.3	234.2	8.10	29.898			
1,300.0	1,274.4	1,254.7	1,206.1	4.5	5.7	103.71	-262.7	89.6	274.5	265.3	9.23	29.735			
1,400.0	1,370.2	1,348.2	1,288.0	5.0	6.5	100.98	-298.4	117.2	307.6	297.2	10.35	29.724 SF			
1,500.0	1,465.9	1,441.6	1,369.8	5.5	7.3	98.78	-334.1	144.8	341.1	329.7	11.44	29.805			
1,600.0	1,561.7	1,535.1	1,451.6	6.1	8.1	96.97	-369.8	172.4	375.0	362.5	12.53	29.934			
1,700.0	1,657.4	1,628.5	1,533.5	6.6	9.0	95.45	-405.5	200.0	409.2	395.6	13.60	30.087			
1,800.0	1,753.2	1,722.0	1,615.3	7.2	9.8	94.17	-441.2	227.7	443.7	429.0	14.67	30.249			
1,900.0	1,849.0	1,815.4	1,697.1	7.7	10.6	93.07	-476.9	255.3	478.2	462.5	15.72	30.413			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16D
Project:	Mamm Creek	TVD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.05	-57.2	-87.9	104.9						
100.0	100.0	100.0	100.0	0.1	0.1	-123.05	-57.2	-87.9	104.9	104.6	0.27	385.108			
200.0	200.0	200.0	200.0	0.3	0.3	-123.05	-57.2	-87.9	104.9	104.2	0.62	168.755			
297.7	297.7	297.8	297.7	0.5	0.5	-124.42	-59.2	-86.5	104.8	103.9	0.96	108.878	CC		
300.0	300.0	300.0	300.0	0.5	0.5	-124.48	-59.3	-86.4	104.8	103.9	0.97	108.000	ES		
400.0	400.0	399.6	399.3	0.7	0.7	135.85	-65.8	-82.0	106.2	104.8	1.37	77.296			
500.0	499.8	498.5	497.3	0.9	1.0	131.44	-76.4	-74.7	112.0	110.2	1.84	60.970			
600.0	599.1	596.5	593.6	1.1	1.3	126.96	-91.0	-64.7	122.7	120.3	2.40	51.107			
700.0	697.6	693.3	687.8	1.4	1.8	122.86	-109.4	-52.1	138.2	135.1	3.09	44.763			
800.0	795.1	788.7	779.4	1.8	2.3	119.33	-131.4	-37.0	158.3	154.4	3.91	40.493			
900.0	891.4	882.5	868.0	2.3	2.9	116.49	-156.7	-19.7	182.9	178.0	4.87	37.572			
1,000.0	987.1	974.6	953.6	2.9	3.5	114.03	-185.0	-0.3	210.2	204.3	5.91	35.582			
1,100.0	1,082.9	1,064.9	1,035.6	3.4	4.2	111.19	-216.0	20.9	239.8	232.8	6.99	34.291			
1,200.0	1,178.6	1,153.0	1,113.9	3.9	5.0	108.19	-249.3	43.7	272.1	264.0	8.10	33.582			
1,300.0	1,274.4	1,239.4	1,188.9	4.5	5.8	105.17	-284.8	68.1	307.3	298.1	9.20	33.397			
1,400.0	1,370.2	1,331.2	1,267.7	5.0	6.6	102.36	-323.6	94.7	344.0	333.7	10.31	33.358	SF		
1,500.0	1,465.9	1,423.0	1,346.5	5.5	7.5	100.09	-362.4	121.3	381.4	370.0	11.41	33.437			
1,600.0	1,561.7	1,514.8	1,425.3	6.1	8.3	98.22	-401.3	147.9	419.2	406.7	12.48	33.578			
1,700.0	1,657.4	1,606.6	1,504.1	6.6	9.2	96.66	-440.1	174.5	457.3	443.7	13.55	33.751			
1,800.0	1,753.2	1,698.4	1,582.9	7.2	10.1	95.33	-478.9	201.1	495.6	481.0	14.60	33.937			

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

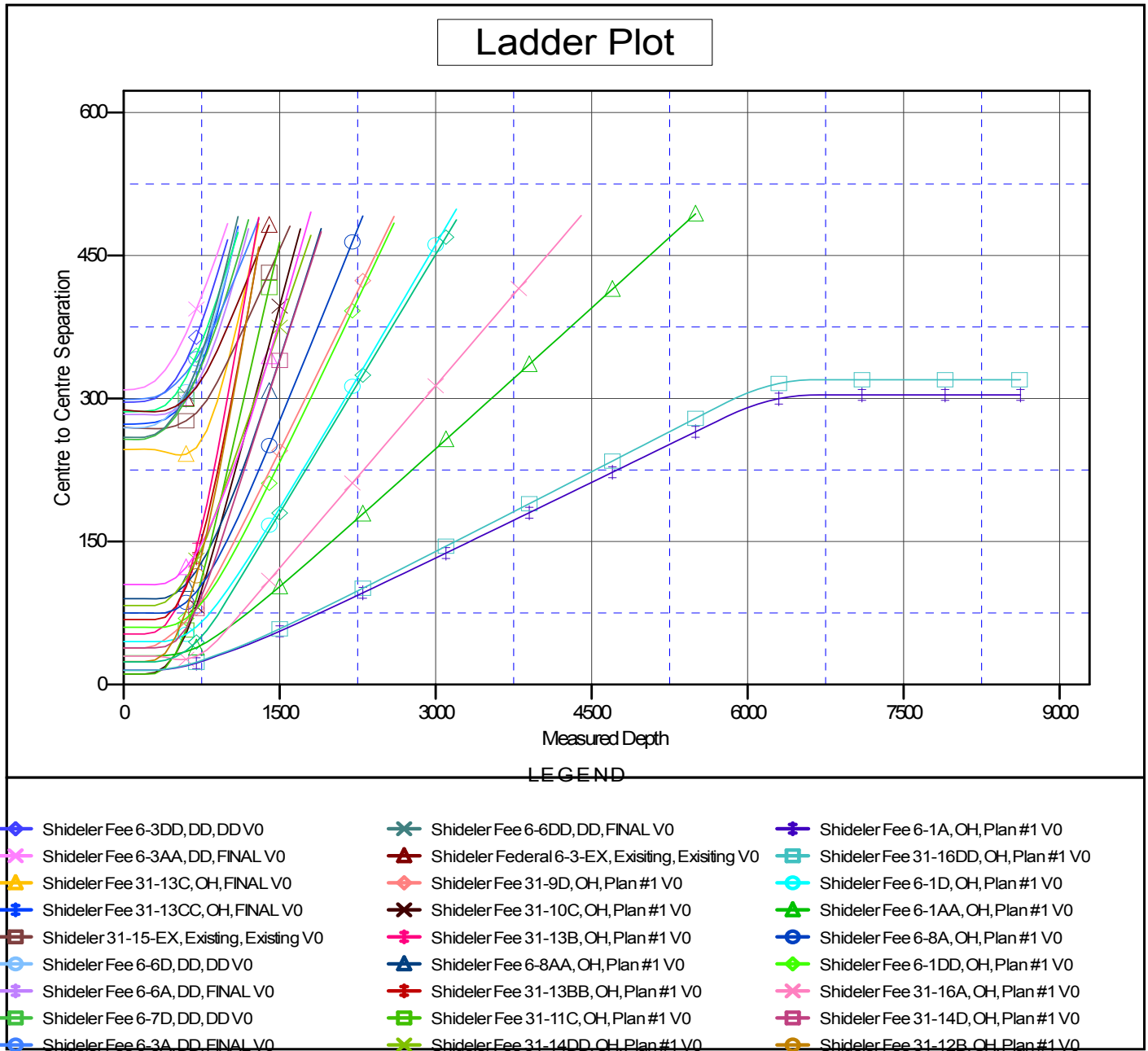
Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Shideler Fee 31-16D	
Project: Mamm Creek	TVD Reference: KB=22' @ 7126.0ft (Patterson #308)	
Reference Site: O31E Pad (2nd Occupation)	MD Reference: KB=22' @ 7126.0ft (Patterson #308)	
Site Error: 0.0ft	North Reference: True	
Reference Well: Shideler Fee 31-16D	Survey Calculation Method: Minimum Curvature	
Well Error: 0.0ft	Output errors are at 2.00 sigma	
Reference Wellbore OH	Database: USA EDM 5000 Multi Users DB	
Reference Design: Plan #1	Offset TVD Reference: Offset Datum	

Reference Depths are relative to KB=22' @ 7126.0ft (Patterson #308)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Shideler Fee 31-16D
 Coordinate System is US State Plane 1983, Colorado Central Zone
 Grid Convergence at Surface is: -1.39°



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