

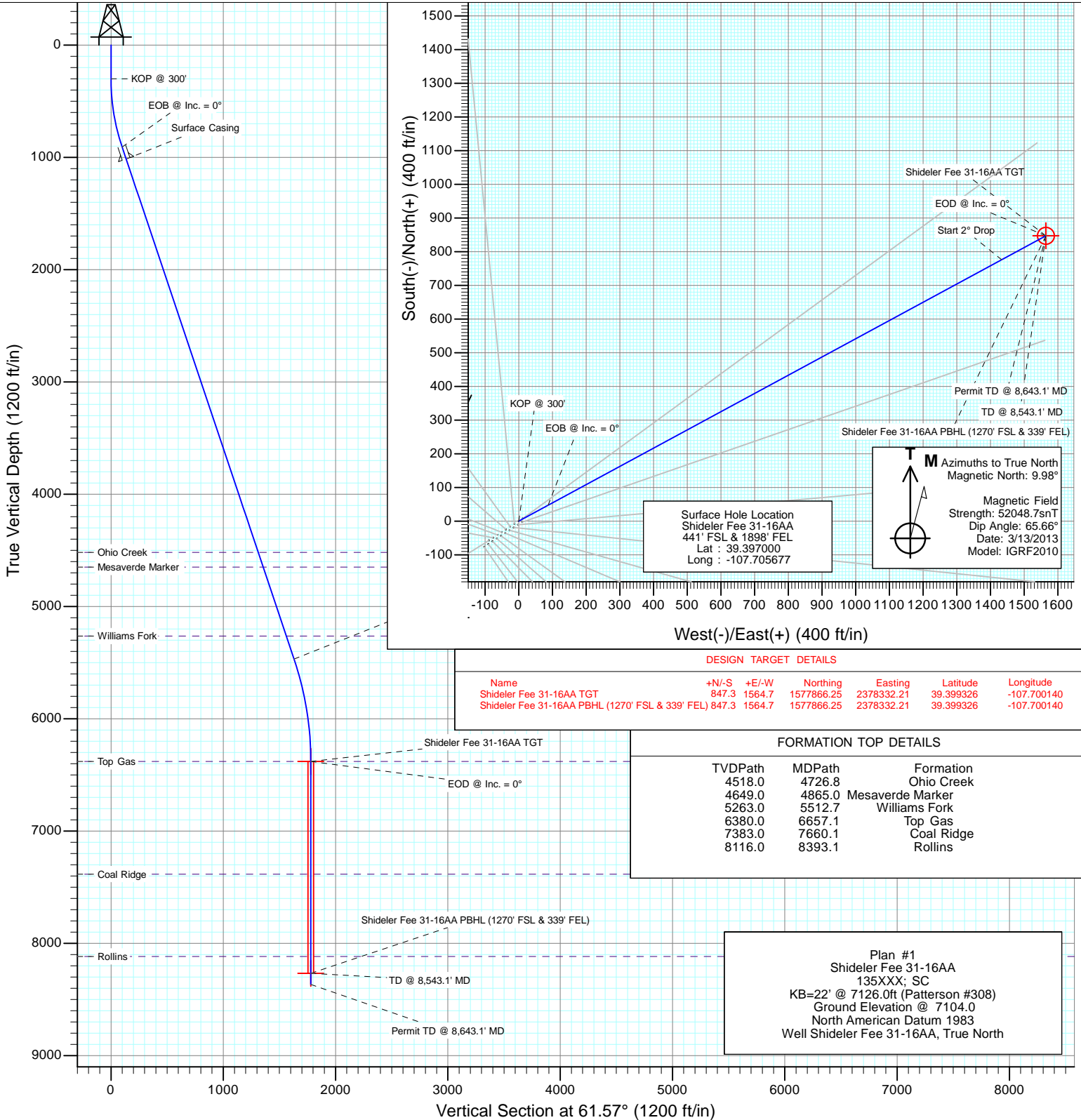


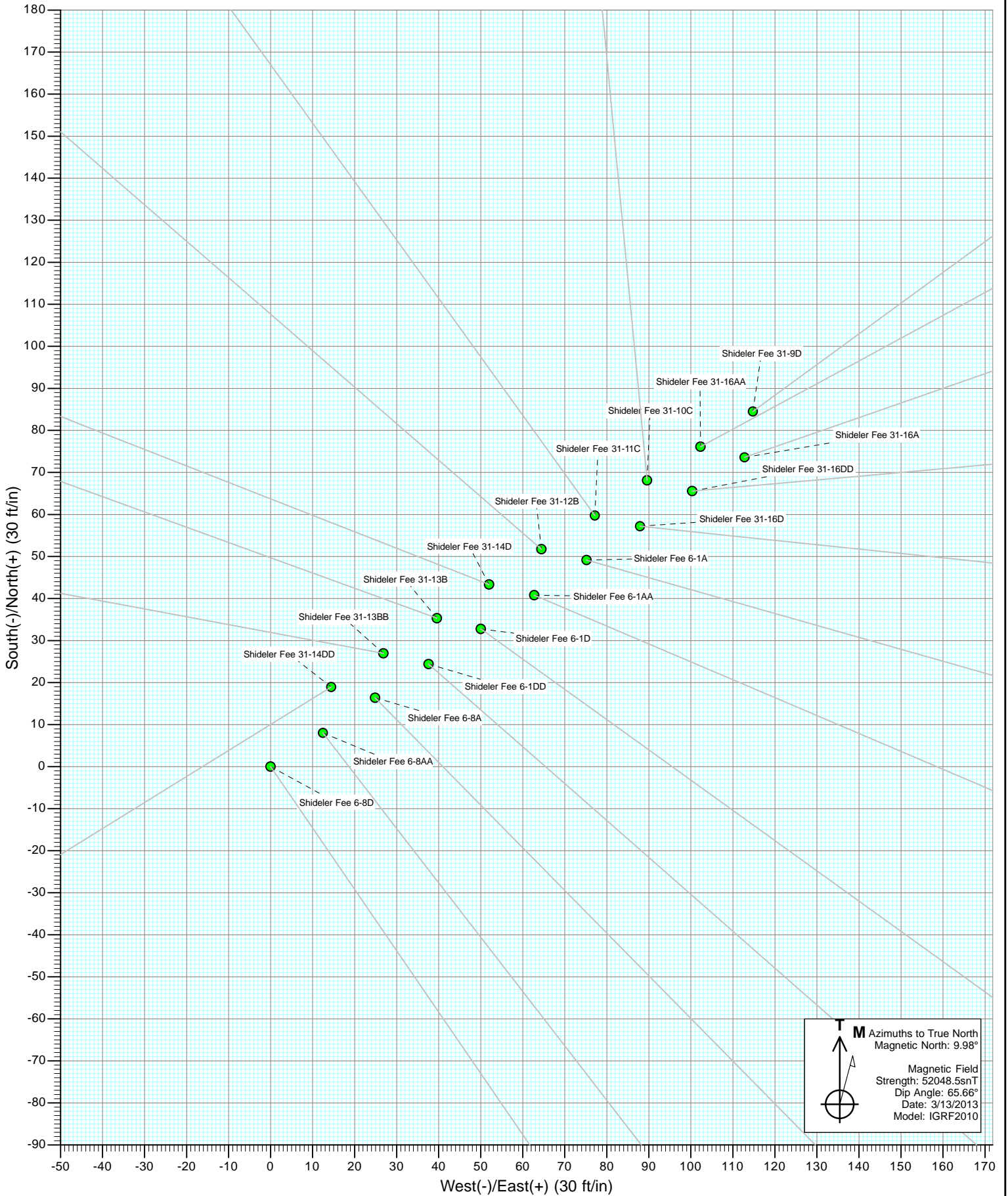
Project: Mamm Creek
 Site: O31E Pad (2nd Occupation)
 Well: Shideler Fee 31-16AA
 Wellbore: OH
 Design: Plan #1

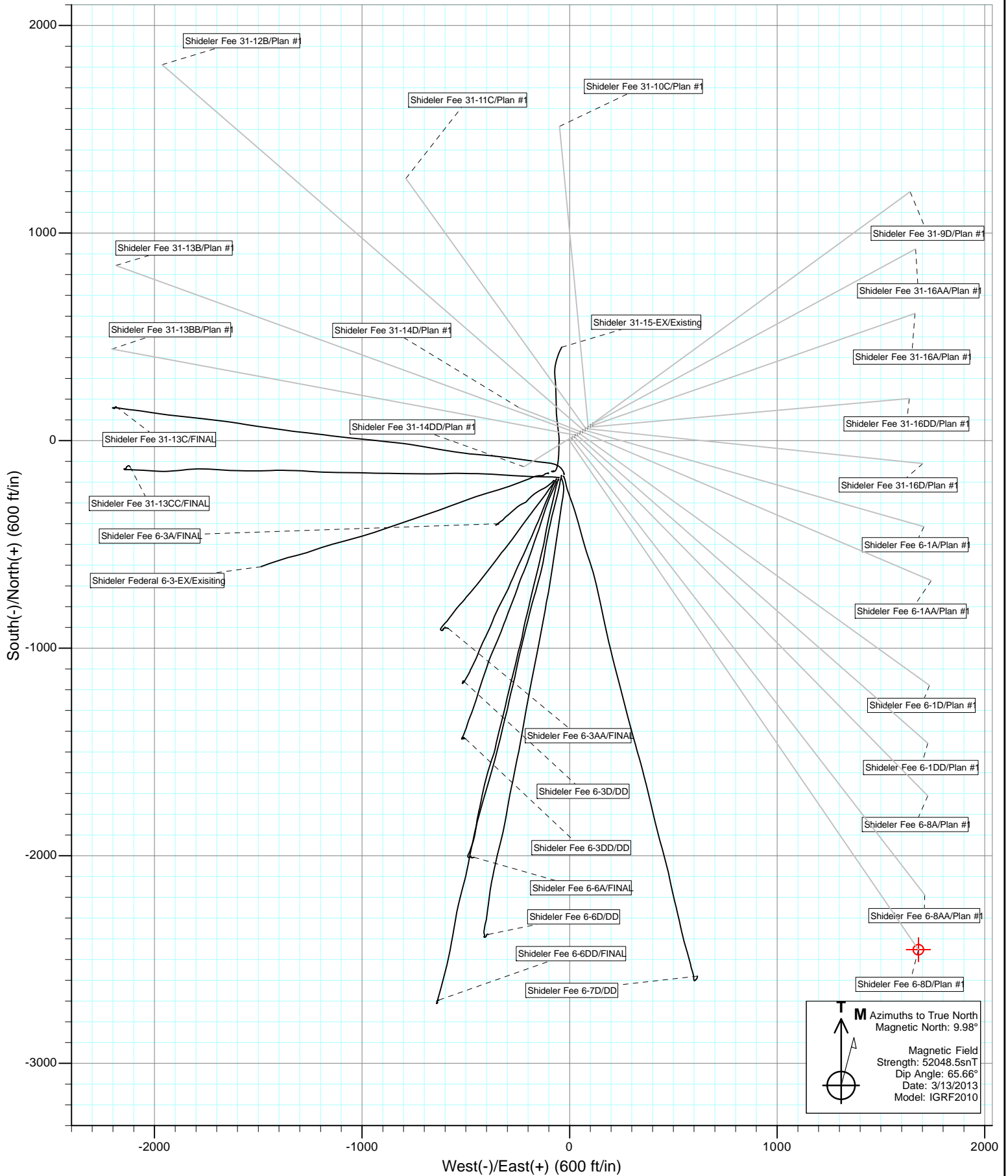


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	918.6	18.56	61.57	907.9	47.3	87.3	3.00	61.57	99.3	
4	5729.1	18.56	61.57	5468.2	776.3	1433.7	0.00	0.00	1630.4	
5	6657.1	0.00	0.00	6380.0	847.3	1564.7	2.00	180.00	1779.4	Shideler Fee 31-16AA TGT
6	8543.1	0.00	0.00	8266.0	847.3	1564.7	0.00	0.00	1779.4	Shideler Fee 31-16AA PBHL (1270' FSL & 339' FEL)
7	8643.1	0.00	0.00	8366.0	847.3	1564.7	0.00	0.00	1779.4	

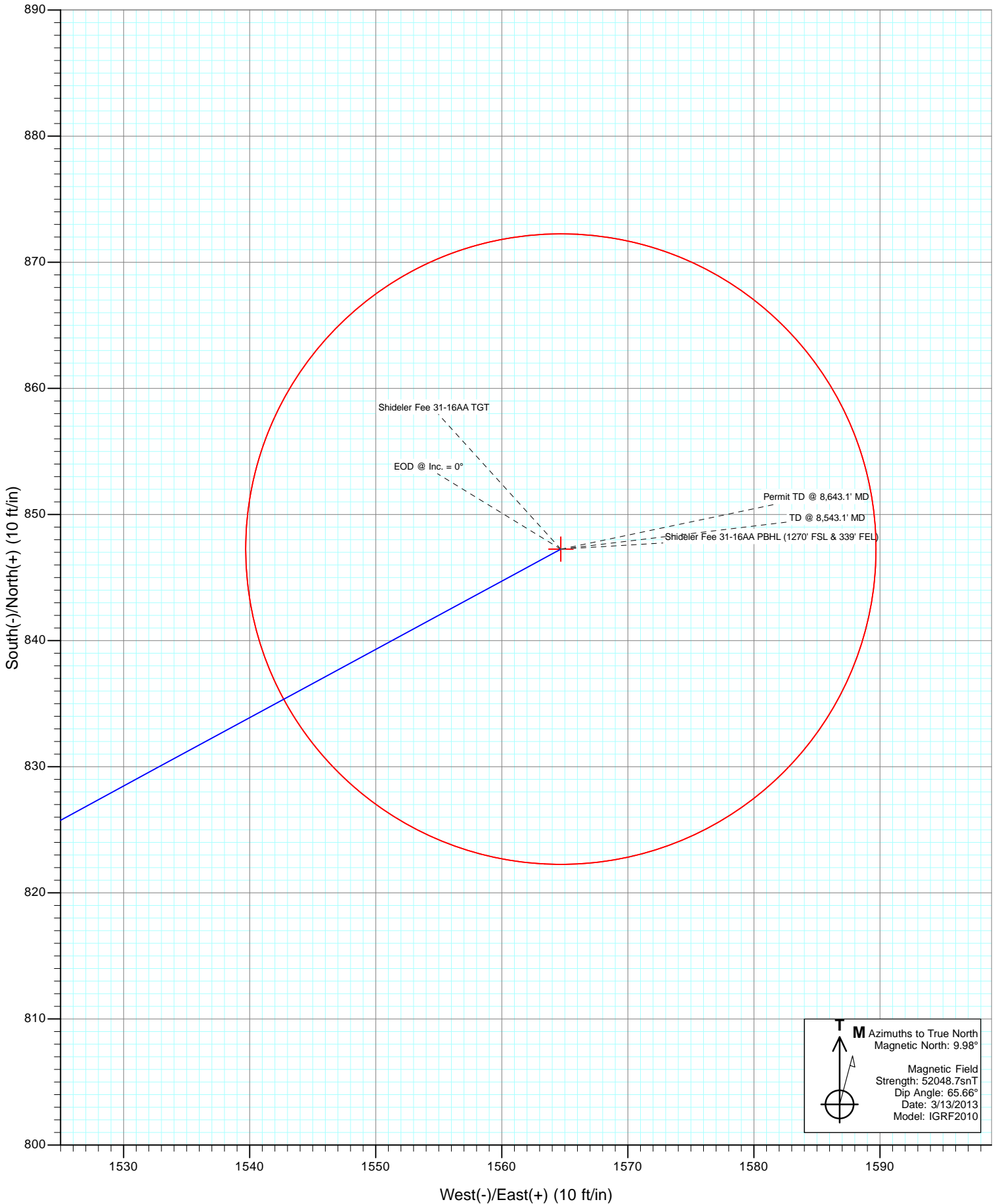








Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-16AA
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-16AA
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 31-16AA	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 31-16AA						
Well Position	+N/-S	0.0 ft	Northing:	1,577,057.23 ft	Latitude:	39.397000
	+E/-W	0.0 ft	Easting:	2,376,747.41 ft	Longitude:	-107.705677
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	(°)	(°)	(nT)
			9.98	65.66	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	61.57	

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
918.6	18.56	61.57	907.9	47.3	87.3	3.00	3.00	0.00	61.57	
5,729.1	18.56	61.57	5,468.2	776.3	1,433.7	0.00	0.00	0.00	0.00	
6,657.1	0.00	0.00	6,380.0	847.3	1,564.7	2.00	-2.00	0.00	180.00	Shideler Fee 31-16AA
8,543.1	0.00	0.00	8,266.0	847.3	1,564.7	0.00	0.00	0.00	0.00	Shideler Fee 31-16AA
8,643.1	0.00	0.00	8,366.0	847.3	1,564.7	0.00	0.00	0.00	0.00	

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 31-16AA
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-16AA
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
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	KOP @ 300'
400.0	3.00	61.57	400.0	1.2	2.3	2.6	3.00	3.00	
500.0	6.00	61.57	499.6	5.0	9.2	10.5	3.00	3.00	
600.0	9.00	61.57	598.8	11.2	20.7	23.5	3.00	3.00	
700.0	12.00	61.57	697.1	19.9	36.7	41.7	3.00	3.00	
800.0	15.00	61.57	794.3	31.0	57.2	65.1	3.00	3.00	
900.0	18.00	61.57	890.2	44.5	82.2	93.5	3.00	3.00	
918.6	18.56	61.57	907.9	47.3	87.3	99.3	3.00	3.00	EOB @ Inc. = 0°
1,000.0	18.56	61.57	985.0	59.6	110.1	125.2	0.00	0.00	
1,031.6	18.56	61.57	1,015.0	64.4	119.0	135.3	0.00	0.00	Surface Casing
1,100.0	18.56	61.57	1,079.8	74.8	138.1	157.0	0.00	0.00	
1,200.0	18.56	61.57	1,174.6	89.9	166.1	188.9	0.00	0.00	
1,300.0	18.56	61.57	1,269.4	105.1	194.1	220.7	0.00	0.00	
1,400.0	18.56	61.57	1,364.2	120.2	222.1	252.5	0.00	0.00	
1,500.0	18.56	61.57	1,459.0	135.4	250.0	284.4	0.00	0.00	
1,600.0	18.56	61.57	1,553.8	150.6	278.0	316.2	0.00	0.00	
1,700.0	18.56	61.57	1,648.6	165.7	306.0	348.0	0.00	0.00	
1,800.0	18.56	61.57	1,743.4	180.9	334.0	379.8	0.00	0.00	
1,900.0	18.56	61.57	1,838.2	196.0	362.0	411.7	0.00	0.00	
2,000.0	18.56	61.57	1,933.0	211.2	390.0	443.5	0.00	0.00	
2,100.0	18.56	61.57	2,027.8	226.3	418.0	475.3	0.00	0.00	
2,200.0	18.56	61.57	2,122.6	241.5	446.0	507.1	0.00	0.00	
2,300.0	18.56	61.57	2,217.4	256.6	474.0	539.0	0.00	0.00	
2,400.0	18.56	61.57	2,312.2	271.8	501.9	570.8	0.00	0.00	
2,500.0	18.56	61.57	2,407.0	286.9	529.9	602.6	0.00	0.00	
2,600.0	18.56	61.57	2,501.8	302.1	557.9	634.5	0.00	0.00	
2,700.0	18.56	61.57	2,596.6	317.3	585.9	666.3	0.00	0.00	
2,800.0	18.56	61.57	2,691.4	332.4	613.9	698.1	0.00	0.00	
2,900.0	18.56	61.57	2,786.2	347.6	641.9	729.9	0.00	0.00	
3,000.0	18.56	61.57	2,881.0	362.7	669.9	761.8	0.00	0.00	
3,100.0	18.56	61.57	2,975.8	377.9	697.9	793.6	0.00	0.00	
3,200.0	18.56	61.57	3,070.6	393.0	725.8	825.4	0.00	0.00	
3,300.0	18.56	61.57	3,165.4	408.2	753.8	857.3	0.00	0.00	
3,400.0	18.56	61.57	3,260.2	423.3	781.8	889.1	0.00	0.00	
3,500.0	18.56	61.57	3,355.0	438.5	809.8	920.9	0.00	0.00	
3,600.0	18.56	61.57	3,449.8	453.7	837.8	952.7	0.00	0.00	
3,700.0	18.56	61.57	3,544.6	468.8	865.8	984.6	0.00	0.00	
3,800.0	18.56	61.57	3,639.4	484.0	893.8	1,016.4	0.00	0.00	
3,900.0	18.56	61.57	3,734.2	499.1	921.8	1,048.2	0.00	0.00	
4,000.0	18.56	61.57	3,829.0	514.3	949.7	1,080.0	0.00	0.00	
4,100.0	18.56	61.57	3,923.8	529.4	977.7	1,111.9	0.00	0.00	
4,200.0	18.56	61.57	4,018.6	544.6	1,005.7	1,143.7	0.00	0.00	
4,300.0	18.56	61.57	4,113.4	559.7	1,033.7	1,175.5	0.00	0.00	
4,400.0	18.56	61.57	4,208.2	574.9	1,061.7	1,207.4	0.00	0.00	
4,500.0	18.56	61.57	4,303.0	590.0	1,089.7	1,239.2	0.00	0.00	
4,600.0	18.56	61.57	4,397.8	605.2	1,117.7	1,271.0	0.00	0.00	
4,700.0	18.56	61.57	4,492.6	620.4	1,145.7	1,302.8	0.00	0.00	
4,726.8	18.56	61.57	4,518.0	624.4	1,153.2	1,311.4	0.00	0.00	Ohio Creek
4,800.0	18.56	61.57	4,587.4	635.5	1,173.6	1,334.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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
4,865.0	18.56	61.57	4,649.0	645.4	1,191.8	1,355.3	0.00	0.00	Mesaverde Marker
4,900.0	18.56	61.57	4,682.2	650.7	1,201.6	1,366.5	0.00	0.00	
5,000.0	18.56	61.57	4,777.0	665.8	1,229.6	1,398.3	0.00	0.00	
5,100.0	18.56	61.57	4,871.8	681.0	1,257.6	1,430.1	0.00	0.00	
5,200.0	18.56	61.57	4,966.6	696.1	1,285.6	1,462.0	0.00	0.00	
5,300.0	18.56	61.57	5,061.4	711.3	1,313.6	1,493.8	0.00	0.00	
5,400.0	18.56	61.57	5,156.2	726.4	1,341.6	1,525.6	0.00	0.00	
5,500.0	18.56	61.57	5,251.0	741.6	1,369.6	1,557.5	0.00	0.00	
5,512.7	18.56	61.57	5,263.0	743.5	1,373.1	1,561.5	0.00	0.00	Williams Fork
5,600.0	18.56	61.57	5,345.8	756.8	1,397.6	1,589.3	0.00	0.00	
5,700.0	18.56	61.57	5,440.6	771.9	1,425.5	1,621.1	0.00	0.00	
5,729.1	18.56	61.57	5,468.2	776.3	1,433.7	1,630.4	0.00	0.00	Start 2° Drop
5,800.0	17.14	61.57	5,535.7	786.7	1,452.8	1,652.1	2.00	-2.00	
5,900.0	15.14	61.57	5,631.7	799.9	1,477.2	1,679.9	2.00	-2.00	
6,000.0	13.14	61.57	5,728.7	811.5	1,498.7	1,704.3	2.00	-2.00	
6,100.0	11.14	61.57	5,826.4	821.5	1,517.2	1,725.4	2.00	-2.00	
6,200.0	9.14	61.57	5,924.9	829.9	1,532.7	1,743.0	2.00	-2.00	
6,300.0	7.14	61.57	6,023.9	836.7	1,545.2	1,757.1	2.00	-2.00	
6,400.0	5.14	61.57	6,123.3	841.8	1,554.6	1,767.8	2.00	-2.00	
6,500.0	3.14	61.57	6,223.0	845.2	1,560.9	1,775.1	2.00	-2.00	
6,600.0	1.14	61.57	6,322.9	847.0	1,564.2	1,778.8	2.00	-2.00	
6,657.1	0.00	0.00	6,380.0	847.3	1,564.7	1,779.4	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,700.0	0.00	0.00	6,422.9	847.3	1,564.7	1,779.4	0.00	0.00	
6,800.0	0.00	0.00	6,522.9	847.3	1,564.7	1,779.4	0.00	0.00	
6,900.0	0.00	0.00	6,622.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,000.0	0.00	0.00	6,722.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,100.0	0.00	0.00	6,822.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,200.0	0.00	0.00	6,922.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,300.0	0.00	0.00	7,022.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,400.0	0.00	0.00	7,122.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,500.0	0.00	0.00	7,222.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,600.0	0.00	0.00	7,322.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,660.1	0.00	0.00	7,383.0	847.3	1,564.7	1,779.4	0.00	0.00	Coal Ridge
7,700.0	0.00	0.00	7,422.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,800.0	0.00	0.00	7,522.9	847.3	1,564.7	1,779.4	0.00	0.00	
7,900.0	0.00	0.00	7,622.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,000.0	0.00	0.00	7,722.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,100.0	0.00	0.00	7,822.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,200.0	0.00	0.00	7,922.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,300.0	0.00	0.00	8,022.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,393.1	0.00	0.00	8,116.0	847.3	1,564.7	1,779.4	0.00	0.00	Rollins
8,400.0	0.00	0.00	8,122.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,500.0	0.00	0.00	8,222.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,543.1	0.00	0.00	8,266.0	847.3	1,564.7	1,779.4	0.00	0.00	TD @ 8,543.1' MD
8,600.0	0.00	0.00	8,322.9	847.3	1,564.7	1,779.4	0.00	0.00	
8,643.1	0.00	0.00	8,366.0	847.3	1,564.7	1,779.4	0.00	0.00	Permit TD @ 8,643.1' MD

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-16AA
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 31-16AA	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 31-16AA T - plan hits target center - Point	0.00	0.00	6,380.0	847.3	1,564.7	1,577,866.25	2,378,332.21	39.399326	-107.700140
Shideler Fee 31-16AA P - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,266.0	847.3	1,564.7	1,577,866.25	2,378,332.21	39.399326	-107.700140

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,031.6	1,015.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,726.8	4,518.0	Ohio Creek			
4,865.0	4,649.0	Mesaverde Marker			
5,512.7	5,263.0	Williams Fork			
6,657.1	6,380.0	Top Gas			
7,660.1	7,383.0	Coal Ridge			
8,393.1	8,116.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
300.0	300.0	0.0	0.0	KOP @ 300'	
918.6	907.9	47.3	87.3	EOB @ Inc. = 0°	
5,729.1	5,468.2	776.3	1,433.7	Start 2° Drop	
6,657.1	6,380.0	847.3	1,564.7	EOD @ Inc. = 0°	
8,543.1	8,266.0	847.3	1,564.7	TD @ 8,543.1' MD	
8,643.1	8,366.0	847.3	1,564.7	Permit TD @ 8,643.1' MD	

EnCana Oil & Gas (USA) Inc

Mamm Creek

O31E Pad (2nd Occupation)

Shideler Fee 31-16AA

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 31-16AA
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 31-16AA	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	8,643.1	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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						
K31E Pad						
Shideler 31-11D (K31E) (Existing) - Existing - Existing						Out of range
Shideler Fee 31-11A - DD - DD						Out of range
Shideler Fee 31-5BB - DD - FINAL						Out of range
Shideler Fee 31-5C - DD - DD						Out of range
Shideler Fee 31-5CC - DD - DD						Out of range
Shideler Fee 31-6D - DD - DD						Out of range
Shideler Fee 31-6DD - DD - FINAL						Out of range
Shideler Fee 31-8B - DD - FINAL						Out of range
Shideler Fee 31-8C - DD - FINAL						Out of range
Shideler Fee 31-9B - DD - DD						Out of range
Shideler Fee 31-9BB - DD - DD						Out of range
O31E Pad						
Shideler 31-15-EX - Existing - Existing		307.4	286.5	292.2	291.4	389.799 CC, ES
Shideler 31-15-EX - Existing - Existing	1,300.0	1,248.0	497.2	493.6	140.260	SF
Shideler Federal 6-3-EX - Existing - Existing	287.3	265.3	309.9	309.2	446.015	CC
Shideler Federal 6-3-EX - Existing - Existing	300.0	277.6	309.9	309.1	425.850	ES
Shideler Federal 6-3-EX - Existing - Existing	1,100.0	1,043.6	472.5	469.6	161.341	SF
Shideler Fee 31-13C - OH - FINAL	405.1	420.7	269.1	267.7	196.402	CC, ES
Shideler Fee 31-13C - OH - FINAL	900.0	857.3	350.0	346.5	101.194	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	296.8			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.1	297.0	296.7	1,063.811	ES
Shideler Fee 31-13CC - OH - FINAL	1,000.0	889.4	491.9	488.2	131.030	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	322.7			
Shideler Fee 6-3A - DD - FINAL	100.0	102.0	322.9	322.6	1,157.637	ES
Shideler Fee 6-3A - DD - FINAL	1,000.0	960.9	478.6	475.1	136.876	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	332.8			
Shideler Fee 6-3AA - DD - FINAL	800.0	725.4	473.0	470.4	177.545	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	309.9			
Shideler Fee 6-3D - DD - DD	200.0	201.8	310.3	309.7	496.853	ES
Shideler Fee 6-3D - DD - DD	900.0	814.5	467.2	464.1	151.147	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	319.9			
Shideler Fee 6-3DD - DD - DD	100.0	102.1	320.0	319.7	1,146.804	ES
Shideler Fee 6-3DD - DD - DD	900.0	792.4	493.0	489.9	159.252	SF
Shideler Fee 6-6A - DD - FINAL	308.1	312.2	306.5	305.5	304.498	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,000.0	898.3	474.1	470.6	133.715	SF
Shideler Fee 6-6D - DD - DD	134.8	138.0	292.8	292.4	733.209	CC, ES
Shideler Fee 6-6D - DD - DD	900.0	779.9	458.8	455.4	135.760	SF
Shideler Fee 6-6DD - DD - FINAL	153.3	156.3	282.8	282.4	609.981	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.3	283.0	282.3	455.032	ES
Shideler Fee 6-6DD - DD - FINAL	900.0	771.6	465.6	462.4	146.981	SF
Shideler Fee 6-7D - DD - DD	139.9	139.9	280.4	280.0	672.461	CC, ES
Shideler Fee 6-7D - DD - DD	1,000.0	871.5	494.3	489.9	112.309	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 31-16AA
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 31-16AA	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	329.6	329.9	14.2	13.1	13.088	CC, ES
Shideler Fee 31-10C - OH - Plan #1	400.0	400.2	15.8	14.5	11.702	SF
Shideler Fee 31-11C - OH - Plan #1	242.5	242.5	30.0	29.3	38.997	CC
Shideler Fee 31-11C - OH - Plan #1	300.0	300.0	30.1	29.1	30.972	ES
Shideler Fee 31-11C - OH - Plan #1	400.0	399.5	33.5	32.1	25.051	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	45.1	44.4	72.505	CC, ES
Shideler Fee 31-12B - OH - Plan #1	500.0	494.7	66.1	64.3	37.531	SF
Shideler Fee 31-13B - OH - Plan #1	200.0	200.0	74.8	74.2	120.439	CC, ES
Shideler Fee 31-13B - OH - Plan #1	500.0	489.5	100.8	99.0	58.710	SF
Shideler Fee 31-13BB - OH - Plan #1	300.0	300.0	90.1	89.1	92.808	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	600.0	585.7	127.9	125.9	63.597	SF
Shideler Fee 31-14D - OH - Plan #1	300.0	300.0	60.0	59.1	61.872	CC, ES
Shideler Fee 31-14D - OH - Plan #1	500.0	499.6	70.5	68.8	42.377	SF
Shideler Fee 31-14DD - OH - Plan #1	300.0	300.0	104.9	103.9	108.052	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	700.0	690.2	162.1	159.8	69.829	SF
Shideler Fee 31-16A - OH - Plan #1	483.1	482.7	7.6	5.9	4.594	CC
Shideler Fee 31-16A - OH - Plan #1	500.0	499.6	7.6	5.9	4.450	ES, SF
Shideler Fee 31-16D - OH - Plan #1	300.0	300.0	23.8	22.8	24.526	CC, ES
Shideler Fee 31-16D - OH - Plan #1	800.0	801.0	57.5	54.0	16.274	SF
Shideler Fee 31-16DD - OH - Plan #1	300.0	300.0	10.7	9.8	11.074	CC, ES
Shideler Fee 31-16DD - OH - Plan #1	500.0	500.2	14.6	12.9	8.393	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	15.0	14.4	24.134	CC, ES
Shideler Fee 31-9D - OH - Plan #1	8,643.1	8,666.9	277.1	211.0	4.191	SF
Shideler Fee 6-1A - OH - Plan #1	300.0	300.0	38.2	37.3	39.412	CC, ES
Shideler Fee 6-1A - OH - Plan #1	2,600.0	2,553.1	489.4	467.1	21.971	SF
Shideler Fee 6-1AA - OH - Plan #1	300.0	300.0	53.0	52.1	54.660	CC, ES
Shideler Fee 6-1AA - OH - Plan #1	2,200.0	2,146.3	473.2	455.1	26.107	SF
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	67.9	66.9	69.982	CC, ES
Shideler Fee 6-1D - OH - Plan #1	1,800.0	1,725.9	467.3	453.7	34.437	SF
Shideler Fee 6-1DD - OH - Plan #1	305.3	305.5	82.8	81.8	83.658	CC, ES
Shideler Fee 6-1DD - OH - Plan #1	1,700.0	1,611.3	485.6	473.2	39.217	SF
Shideler Fee 6-8A - OH - Plan #1	306.4	306.8	97.7	96.7	98.198	CC, ES
Shideler Fee 6-8A - OH - Plan #1	1,600.0	1,499.2	490.6	479.4	43.516	SF
Shideler Fee 6-8AA - OH - Plan #1	283.2	283.2	112.8	111.8	123.597	CC
Shideler Fee 6-8AA - OH - Plan #1	300.0	300.0	112.8	111.8	116.122	ES
Shideler Fee 6-8AA - OH - Plan #1	1,400.0	1,283.0	455.3	446.3	51.056	SF
Shideler Fee 6-8D - OH - Plan #1	200.0	200.0	127.5	126.9	205.228	CC
Shideler Fee 6-8D - OH - Plan #1	300.0	299.6	127.6	126.7	131.409	ES
Shideler Fee 6-8D - OH - Plan #1	1,400.0	1,259.4	488.3	479.6	55.734	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 31-16AA
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 31-16AA	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	-140.10	-224.7	-187.8	293.7						
100.0	100.0	78.4	78.4	0.1	0.1	-140.14	-224.8	-187.6	292.8	292.6	0.20	1,430.169			
200.0	200.0	179.0	179.0	0.3	0.2	-140.28	-225.0	-186.9	292.5	292.1	0.47	626.275			
300.0	300.0	279.1	279.1	0.5	0.2	-140.47	-225.4	-186.0	292.2	291.4	0.73	400.592			
307.4	307.4	286.5	286.5	0.5	0.3	157.95	-225.4	-185.9	292.2	291.4	0.75	389.799 CC, ES			
400.0	400.0	379.9	379.8	0.7	0.3	157.79	-226.1	-184.3	294.1	293.1	0.99	295.790			
500.0	499.6	481.2	481.2	0.9	0.4	157.93	-226.6	-182.2	300.5	299.2	1.26	237.961			
600.0	598.8	583.8	583.7	1.1	0.5	158.61	-225.8	-180.6	311.0	309.4	1.54	202.194			
700.0	697.1	681.6	681.5	1.5	0.6	159.77	-223.5	-179.8	325.9	324.0	1.82	179.315			
800.0	794.3	774.1	774.0	1.9	0.7	161.05	-221.7	-180.0	346.6	344.5	2.10	165.043			
900.0	890.2	867.8	867.7	2.5	0.8	162.28	-221.2	-180.5	373.7	371.3	2.39	156.220			
1,000.0	985.0	962.2	962.1	3.0	0.8	163.53	-221.7	-180.3	404.3	401.6	2.69	150.541			
1,100.0	1,079.8	1,057.1	1,057.0	3.6	0.9	164.57	-222.6	-179.8	435.3	432.3	2.98	146.213			
1,200.0	1,174.6	1,152.5	1,152.4	4.2	1.0	165.46	-223.6	-179.0	466.2	463.0	3.26	142.842			
1,300.0	1,269.4	1,248.0	1,247.8	4.8	1.1	166.32	-223.9	-178.7	497.2	493.6	3.54	140.260 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-138.74	-233.8	-205.1	311.8						
100.0	100.0	79.5	79.5	0.1	0.1	-138.75	-233.7	-204.9	310.8	310.6	0.21	1,510.604			
200.0	200.0	180.0	180.0	0.3	0.2	-138.79	-233.4	-204.3	310.2	309.7	0.47	662.738			
287.3	287.3	265.3	265.3	0.5	0.2	-138.79	-233.1	-204.1	309.9	309.2	0.69	446.015 CC			
300.0	300.0	277.6	277.6	0.5	0.2	-138.79	-233.1	-204.2	309.9	309.1	0.73	425.850 ES			
400.0	400.0	376.6	376.6	0.7	0.3	159.86	-233.1	-204.7	312.7	311.7	0.99	316.198			
500.0	499.6	475.6	475.6	0.9	0.4	160.38	-233.0	-205.5	320.6	319.3	1.25	255.757			
600.0	598.8	573.9	573.9	1.1	0.5	161.13	-233.0	-206.6	333.6	332.1	1.52	219.045			
700.0	697.1	670.4	670.4	1.5	0.6	162.04	-233.2	-207.9	352.0	350.2	1.80	195.707			
800.0	794.3	765.0	764.9	1.9	0.7	163.07	-233.6	-209.7	375.9	373.8	2.08	180.778			
900.0	890.2	858.2	858.1	2.5	0.8	164.15	-234.1	-212.2	405.4	403.0	2.36	171.437			
1,000.0	985.0	950.5	950.3	3.0	0.8	165.41	-234.7	-214.9	438.7	436.1	2.65	165.608			
1,100.0	1,079.8	1,043.6	1,043.4	3.6	0.9	166.55	-235.6	-218.0	472.5	469.6	2.93	161.341 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-151.57	-237.5	-128.6	270.1						
100.0	100.0	102.2	102.2	0.1	0.1	-151.58	-237.7	-128.6	270.2	269.9	0.28	967.874			
200.0	200.0	203.2	203.2	0.3	0.3	-151.59	-237.9	-128.7	270.4	269.8	0.63	431.376			
300.0	300.0	306.4	306.4	0.5	0.5	-151.51	-237.2	-128.7	269.9	268.9	0.98	274.968			
400.0	400.0	415.2	415.1	0.7	0.7	147.89	-232.9	-129.7	269.1	267.7	1.35	199.239			
405.1	405.0	420.7	420.5	0.7	0.7	147.97	-232.6	-129.8	269.1	267.7	1.37	196.402	CC, ES		
500.0	499.6	518.9	518.4	0.9	0.9	150.34	-224.3	-133.3	270.4	268.7	1.74	155.768			
600.0	598.8	615.8	614.5	1.1	1.2	153.71	-214.1	-139.3	276.7	274.5	2.15	128.409			
700.0	697.1	704.5	702.2	1.5	1.4	157.55	-204.0	-148.0	290.2	287.6	2.60	111.573			
800.0	794.3	783.7	780.0	1.9	1.7	161.38	-195.6	-160.0	314.4	311.3	3.04	103.285			
900.0	890.2	857.3	851.9	2.5	1.9	164.82	-189.6	-174.6	350.0	346.5	3.46	101.194	SF		
1,000.0	985.0	937.0	929.3	3.0	2.3	168.37	-185.3	-193.1	394.2	390.3	3.88	101.496			
1,100.0	1,079.8	1,002.4	992.4	3.6	2.6	170.87	-182.8	-210.2	442.5	438.3	4.26	103.763			
1,200.0	1,174.6	1,074.6	1,061.5	4.2	2.9	173.30	-180.6	-230.9	494.3	489.6	4.66	106.013			

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 31-16AA
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 31-16AA	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						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	-148.80	-253.9	-153.7	296.8					
100.0	100.0	102.1	102.1	0.1	0.1	-148.79	-254.0	-153.9	297.0	296.7	0.28	1,063.811 ES		
200.0	200.0	201.3	201.3	0.3	0.3	-148.80	-254.4	-154.1	297.4	296.8	0.62	476.791		
300.0	300.0	297.6	297.6	0.5	0.5	-148.39	-254.3	-156.5	298.7	297.7	0.97	308.033		
400.0	400.0	393.0	392.8	0.7	0.7	151.31	-253.3	-162.7	303.5	302.2	1.33	228.671		
500.0	499.6	479.0	478.2	0.9	0.9	153.24	-252.2	-171.9	315.5	313.8	1.69	186.396		
600.0	598.8	571.0	569.3	1.1	1.1	155.85	-251.8	-185.1	335.5	333.4	2.11	159.326		
700.0	697.1	658.4	655.3	1.5	1.4	158.67	-251.2	-200.6	363.1	360.5	2.53	143.427		
800.0	794.3	739.6	734.6	1.9	1.8	161.40	-250.7	-217.7	398.6	395.6	2.95	135.076		
900.0	890.2	816.4	809.1	2.5	2.1	163.97	-250.2	-236.5	442.2	438.8	3.36	131.682		
1,000.0	985.0	889.4	879.3	3.0	2.5	166.65	-249.8	-256.6	491.9	488.2	3.75	131.030 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-146.52	-269.2	-178.0	322.7						
100.0	100.0	102.0	102.0	0.1	0.1	-146.51	-269.3	-178.2	322.9	322.6	0.28	1,157.637	ES		
200.0	200.0	198.9	198.9	0.3	0.3	-146.45	-269.7	-178.9	323.7	323.1	0.62	521.827			
300.0	300.0	295.0	295.0	0.5	0.5	-146.32	-270.7	-180.3	325.3	324.4	0.96	337.153			
400.0	400.0	387.0	386.9	0.7	0.7	152.39	-273.3	-183.3	331.8	330.5	1.30	255.534			
500.0	499.6	481.1	480.8	0.9	0.8	152.98	-277.3	-187.4	344.7	343.0	1.64	209.947			
600.0	598.8	582.4	581.9	1.1	1.0	153.91	-281.5	-191.7	362.2	360.2	2.01	180.600			
700.0	697.1	678.8	678.2	1.5	1.2	154.97	-285.2	-195.8	384.2	381.8	2.37	162.107			
800.0	794.3	773.9	773.1	1.9	1.4	156.21	-288.7	-200.3	411.2	408.5	2.74	149.996			
900.0	890.2	867.7	866.8	2.5	1.6	157.49	-292.1	-204.9	443.2	440.1	3.12	142.220			
1,000.0	985.0	960.9	959.8	3.0	1.8	159.02	-295.5	-209.4	478.6	475.1	3.50	136.876	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	0.0	0.0	0.0	0.0	-147.43	-280.5	-179.2	332.8						
100.0	100.0	96.5	96.5	0.1	0.1	-147.43	-280.9	-179.4	333.3	333.1	0.27	1,226.002			
200.0	200.0	185.7	185.7	0.3	0.3	-147.41	-282.6	-180.6	335.7	335.1	0.60	557.924			
300.0	300.0	271.0	270.8	0.5	0.5	-147.34	-286.9	-183.9	342.1	341.1	0.95	361.601			
400.0	400.0	356.7	356.0	0.7	0.7	151.23	-294.3	-189.7	355.1	353.9	1.25	285.192			
500.0	499.6	445.5	443.9	0.9	0.9	151.57	-304.0	-196.8	375.5	373.9	1.58	237.877			
600.0	598.8	532.2	529.5	1.1	1.2	152.06	-315.4	-205.0	403.0	401.1	1.92	210.261			
700.0	697.1	625.9	621.7	1.5	1.5	152.69	-328.9	-214.2	436.2	433.9	2.28	191.418			
800.0	794.3	725.4	719.9	1.9	1.9	153.59	-342.1	-223.9	473.0	470.4	2.66	177.545 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-147.69	-261.9	-165.6	309.9						
100.0	100.0	102.0	102.0	0.1	0.1	-147.69	-262.0	-165.7	310.0	309.7	0.28	1,111.139			
200.0	200.0	201.8	201.8	0.3	0.3	-147.70	-262.3	-165.8	310.3	309.7	0.62	496.853 ES			
300.0	300.0	295.0	295.0	0.5	0.5	-147.70	-263.3	-166.4	311.6	310.6	0.96	323.628			
400.0	400.0	383.5	383.4	0.7	0.6	150.91	-266.3	-168.8	318.2	316.9	1.29	246.404			
500.0	499.6	468.2	467.8	0.9	0.8	151.25	-272.3	-172.6	333.3	331.7	1.62	205.971			
600.0	598.8	553.6	552.5	1.1	1.0	151.66	-281.5	-177.6	357.0	355.0	1.96	182.425			
700.0	697.1	638.9	636.9	1.5	1.3	152.09	-293.2	-183.4	387.9	385.6	2.31	167.789			
800.0	794.3	727.3	723.9	1.9	1.6	152.47	-307.5	-189.2	425.1	422.4	2.69	157.929			
900.0	890.2	814.5	809.6	2.5	1.9	152.87	-322.3	-194.9	467.2	464.1	3.09	151.147 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-148.53	-272.8	-167.0	319.9						
100.0	100.0	102.1	102.1	0.1	0.1	-148.56	-273.0	-166.9	320.0	319.7	0.28	1,146.804	ES		
200.0	200.0	199.5	199.5	0.3	0.3	-148.69	-274.0	-166.7	320.7	320.1	0.62	516.839			
300.0	300.0	288.1	288.1	0.5	0.5	-148.83	-276.5	-167.3	323.5	322.6	0.95	339.819			
400.0	400.0	375.3	375.0	0.7	0.6	149.50	-281.9	-169.3	332.3	331.0	1.28	259.797			
500.0	499.6	460.4	459.6	0.9	0.9	149.54	-290.2	-172.6	349.3	347.7	1.61	216.862			
600.0	598.8	546.1	544.5	1.1	1.1	149.72	-301.5	-177.0	374.3	372.4	1.96	191.387			
700.0	697.1	625.4	622.7	1.5	1.4	149.98	-314.1	-182.3	406.8	404.5	2.31	176.202			
800.0	794.3	705.2	700.7	1.9	1.7	150.29	-329.5	-189.0	447.1	444.4	2.68	166.597			
900.0	890.2	792.4	785.6	2.5	2.0	150.74	-347.3	-197.0	493.0	489.9	3.10	159.252	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-149.63	-264.8	-155.1	306.9						
100.0	100.0	103.0	103.0	0.1	0.1	-149.60	-264.7	-155.3	306.9	306.6	0.28	1,094.944			
200.0	200.0	203.3	203.3	0.3	0.3	-149.51	-264.4	-155.7	306.8	306.2	0.63	489.215			
300.0	300.0	304.2	304.2	0.5	0.5	-149.42	-263.9	-155.9	306.5	305.5	0.98	313.464			
308.1	308.1	312.2	312.2	0.5	0.5	149.02	-263.8	-156.0	306.5	305.5	1.01	304.498	CC, ES		
400.0	400.0	400.9	400.9	0.7	0.7	149.34	-263.7	-156.6	308.9	307.6	1.32	233.552			
500.0	499.6	493.2	493.2	0.9	0.8	149.91	-265.0	-157.5	317.4	315.8	1.66	190.679			
600.0	598.8	580.8	580.7	1.1	1.0	150.51	-268.7	-158.8	333.2	331.2	2.01	165.771			
700.0	697.1	662.0	661.6	1.5	1.1	151.07	-275.1	-160.8	357.1	354.7	2.36	151.268			
800.0	794.3	753.0	751.9	1.9	1.4	151.71	-285.7	-163.9	388.9	386.1	2.75	141.492			
900.0	890.2	823.4	821.4	2.5	1.6	151.98	-296.6	-167.0	428.5	425.3	3.13	136.815			
1,000.0	985.0	898.3	894.8	3.0	1.8	152.63	-311.0	-170.5	474.1	470.6	3.55	133.715	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-150.83	-255.7	-142.7	292.8						
100.0	100.0	103.1	103.1	0.1	0.1	-150.82	-255.6	-142.8	292.8	292.5	0.28	1,043.980			
134.8	134.8	138.0	138.0	0.2	0.2	-150.81	-255.6	-142.8	292.8	292.4	0.40	733.209 CC, ES			
200.0	200.0	198.7	198.6	0.3	0.3	-150.94	-256.3	-142.4	293.2	292.6	0.62	473.673			
300.0	300.0	289.3	289.2	0.5	0.5	-151.57	-259.9	-140.7	295.9	294.9	0.95	310.802			
400.0	400.0	381.7	381.2	0.7	0.7	145.75	-267.7	-137.5	303.9	302.6	1.32	230.447			
500.0	499.6	469.3	468.1	0.9	0.9	144.75	-278.2	-134.1	319.3	317.6	1.70	188.126			
600.0	598.8	555.3	553.0	1.1	1.2	144.02	-291.6	-131.5	342.3	340.2	2.09	163.693			
700.0	697.1	634.8	631.1	1.5	1.5	143.63	-306.5	-130.6	373.1	370.6	2.50	149.338			
800.0	794.3	709.5	703.8	1.9	1.8	143.42	-323.3	-131.3	412.1	409.2	2.93	140.885			
900.0	890.2	779.9	771.7	2.5	2.1	143.31	-341.7	-133.6	458.8	455.4	3.38	135.760 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-150.18	-245.5	-140.7	283.0						
100.0	100.0	103.6	103.6	0.1	0.1	-150.20	-245.5	-140.6	282.9	282.6	0.28	1,005.905			
153.3	153.3	156.3	156.3	0.2	0.2	-150.21	-245.5	-140.5	282.8	282.4	0.46	609.981 CC			
200.0	200.0	200.3	200.3	0.3	0.3	-150.21	-245.6	-140.6	283.0	282.3	0.62	455.032 ES			
300.0	300.0	289.3	289.3	0.5	0.5	-150.27	-248.0	-141.6	285.9	285.0	0.95	299.681			
400.0	400.0	376.4	376.1	0.7	0.6	147.92	-254.1	-143.1	295.1	293.8	1.28	230.445			
500.0	499.6	460.9	460.0	0.9	0.8	147.78	-263.7	-145.5	313.0	311.3	1.61	193.975			
600.0	598.8	544.3	542.3	1.1	1.1	147.69	-277.1	-148.6	339.6	337.6	1.96	172.860			
700.0	697.1	623.7	620.0	1.5	1.4	147.47	-293.1	-151.5	373.9	371.6	2.34	159.931			
800.0	794.3	698.9	692.9	1.9	1.8	147.27	-311.4	-155.3	416.2	413.5	2.74	152.112			
900.0	890.2	771.6	762.6	2.5	2.1	147.01	-331.4	-159.5	465.6	462.4	3.17	146.981 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-152.22	-248.4	-130.8	280.8						
100.0	100.0	101.3	101.3	0.1	0.1	-152.22	-248.2	-130.8	280.5	280.3	0.28	991.842			
139.9	139.9	139.9	139.9	0.2	0.2	-152.22	-248.1	-130.7	280.4	280.0	0.42	672.461	CC, ES		
200.0	200.0	193.9	193.9	0.3	0.3	-152.37	-248.9	-130.3	281.0	280.4	0.62	456.135			
300.0	300.0	287.2	287.1	0.5	0.5	-153.15	-253.5	-128.3	284.4	283.5	0.95	298.245			
400.0	400.0	376.0	375.4	0.7	0.7	144.21	-261.5	-125.6	293.3	292.0	1.32	222.889			
500.0	499.6	461.8	460.4	0.9	0.9	143.25	-272.7	-122.8	310.0	308.3	1.69	183.901			
600.0	598.8	548.9	546.1	1.1	1.2	142.23	-287.9	-118.9	334.2	332.1	2.10	159.223			
700.0	697.1	635.7	630.9	1.5	1.6	141.46	-306.2	-115.5	365.8	363.3	2.58	141.843			
800.0	794.3	719.3	711.6	1.9	2.0	140.28	-326.8	-108.3	402.8	399.7	3.13	128.665			
900.0	890.2	796.9	785.6	2.5	2.4	139.04	-348.9	-100.3	446.1	442.3	3.74	119.338			
1,000.0	985.0	871.5	855.7	3.0	2.9	138.60	-372.7	-91.7	494.3	489.9	4.40	112.309	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-122.23	-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	300.2	300.2	0.5	0.5	-116.97	-6.5	-12.9	14.4	13.5	0.97	14.861			
329.6	329.6	329.9	329.8	0.5	0.5	-173.30	-5.2	-13.0	14.2	13.1	1.09	13.088 CC, ES			
400.0	400.0	400.2	399.9	0.7	0.7	-156.14	0.0	-13.5	15.8	14.5	1.35	11.702 SF			
500.0	499.6	499.3	498.4	0.9	1.0	-135.73	11.6	-14.6	24.7	22.9	1.79	13.810			
600.0	598.8	597.1	594.8	1.1	1.3	-126.03	28.0	-16.1	40.7	38.3	2.31	17.627			
700.0	697.1	693.2	688.6	1.5	1.7	-121.74	48.8	-18.1	62.6	59.7	2.93	21.354			
800.0	794.3	789.5	781.9	1.9	2.1	-120.67	72.5	-20.4	88.9	85.3	3.64	24.409			
900.0	890.2	885.2	874.5	2.5	2.5	-121.97	96.1	-22.6	117.9	113.5	4.44	26.577			
1,000.0	985.0	980.1	966.5	3.0	3.0	-124.25	119.5	-24.9	148.8	143.6	5.26	28.280			
1,100.0	1,079.8	1,075.0	1,058.5	3.6	3.4	-125.86	142.9	-27.1	180.0	173.9	6.10	29.513			
1,200.0	1,174.6	1,170.0	1,150.4	4.2	3.8	-127.01	166.3	-29.3	211.2	204.3	6.94	30.447			
1,300.0	1,269.4	1,264.9	1,242.4	4.8	4.3	-127.85	189.7	-31.6	242.5	234.7	7.78	31.178			
1,400.0	1,364.2	1,359.8	1,334.4	5.4	4.7	-128.51	213.1	-33.8	273.8	265.2	8.62	31.764			
1,500.0	1,459.0	1,454.7	1,426.4	6.0	5.1	-129.03	236.5	-36.0	305.2	295.7	9.46	32.244			
1,600.0	1,553.8	1,549.7	1,518.3	6.6	5.6	-129.45	259.9	-38.3	336.5	326.2	10.31	32.644			
1,700.0	1,648.6	1,644.6	1,610.3	7.2	6.0	-129.80	283.3	-40.5	367.9	356.8	11.16	32.982			
1,800.0	1,743.4	1,739.5	1,702.3	7.8	6.5	-130.10	306.7	-42.7	399.3	387.3	12.00	33.272			
1,900.0	1,838.2	1,834.4	1,794.2	8.4	6.9	-130.35	330.1	-45.0	430.7	417.9	12.85	33.524			
2,000.0	1,933.0	1,929.4	1,886.2	9.0	7.3	-130.57	353.5	-47.2	462.1	448.4	13.70	33.743			
2,100.0	2,027.8	2,024.3	1,978.2	9.6	7.8	-130.76	376.9	-49.4	493.5	479.0	14.54	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 31-16AA
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 31-16AA	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	-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			
242.5	242.5	242.5	242.5	0.4	0.4	-123.09	-16.4	-25.2	30.0	29.3	0.77	38.997 CC			
300.0	300.0	300.0	299.9	0.5	0.5	-121.85	-15.9	-25.5	30.1	29.1	0.97	30.972 ES			
400.0	400.0	399.5	399.4	0.7	0.7	-174.21	-11.6	-28.6	33.5	32.1	1.34	25.051 SF			
500.0	499.6	497.9	497.2	0.9	0.9	-162.16	-3.3	-34.5	44.6	42.9	1.73	25.725			
600.0	598.8	594.2	592.3	1.1	1.2	-153.09	8.7	-43.2	64.3	62.1	2.17	29.552			
700.0	697.1	687.7	683.9	1.5	1.6	-147.37	24.1	-54.3	92.1	89.4	2.67	34.428			
800.0	794.3	779.7	773.0	1.9	2.0	-143.88	42.4	-67.5	127.0	123.8	3.23	39.362			
900.0	890.2	871.6	862.0	2.5	2.4	-142.47	61.2	-80.9	166.4	162.5	3.83	43.407			
1,000.0	985.0	962.3	949.9	3.0	2.8	-142.57	79.6	-94.2	208.3	203.8	4.48	46.501			
1,100.0	1,079.8	1,053.1	1,037.7	3.6	3.2	-142.75	98.1	-107.5	250.3	245.2	5.14	48.664			
1,200.0	1,174.6	1,143.8	1,125.6	4.2	3.7	-142.88	116.6	-120.8	292.3	286.5	5.81	50.266			
1,300.0	1,269.4	1,234.6	1,213.4	4.8	4.1	-142.98	135.1	-134.1	334.3	327.8	6.49	51.493			
1,400.0	1,364.2	1,325.3	1,301.3	5.4	4.5	-143.05	153.6	-147.4	376.3	369.1	7.17	52.461			
1,500.0	1,459.0	1,416.1	1,389.1	6.0	4.9	-143.11	172.1	-160.7	418.3	410.4	7.86	53.242			
1,600.0	1,553.8	1,506.9	1,477.0	6.6	5.4	-143.16	190.6	-174.0	460.3	451.7	8.54	53.885			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-122.80	-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 CC, ES			
300.0	300.0	299.3	299.2	0.5	0.5	-119.70	-22.7	-39.8	45.8	44.9	0.97	47.080			
400.0	400.0	397.8	397.5	0.7	0.7	-173.11	-17.7	-45.6	51.6	50.2	1.36	38.002			
500.0	499.6	494.7	493.6	0.9	1.0	-164.06	-9.5	-55.0	66.1	64.3	1.76	37.531 SF			
600.0	598.8	589.0	586.3	1.1	1.3	-157.10	1.5	-67.7	89.8	87.6	2.19	40.995			
700.0	697.1	679.7	674.7	1.5	1.7	-152.40	14.9	-83.1	122.0	119.4	2.65	46.010			
800.0	794.3	766.3	758.0	1.9	2.2	-149.22	30.2	-100.8	162.2	159.0	3.16	51.363			
900.0	890.2	848.0	835.7	2.5	2.7	-146.93	47.0	-120.1	209.5	205.8	3.71	56.501			
1,000.0	985.0	925.4	908.1	3.0	3.2	-145.77	64.8	-140.7	262.4	258.0	4.32	60.766			
1,100.0	1,079.8	1,000.0	976.8	3.6	3.7	-144.74	83.8	-162.6	318.0	313.0	4.96	64.154			
1,200.0	1,174.6	1,070.2	1,040.4	4.2	4.3	-143.74	103.3	-185.0	376.1	370.5	5.61	67.054			
1,300.0	1,269.4	1,148.5	1,110.5	4.8	4.9	-142.72	126.1	-211.3	435.9	429.6	6.30	69.157			
1,400.0	1,364.2	1,228.4	1,182.1	5.4	5.6	-141.93	149.4	-238.1	495.8	488.8	7.01	70.751			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-123.03	-40.8	-62.7	74.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.03	-40.8	-62.7	74.8	74.6	0.27	274.848			
200.0	200.0	200.0	200.0	0.3	0.3	-123.03	-40.8	-62.7	74.8	74.2	0.62	120.439	CC, ES		
300.0	300.0	297.6	297.6	0.5	0.5	-121.54	-39.9	-65.1	76.4	75.4	0.97	78.494			
400.0	400.0	394.5	394.2	0.7	0.7	-179.04	-37.4	-72.0	84.0	82.7	1.34	62.811			
500.0	499.6	489.5	488.4	0.9	1.0	-173.95	-33.3	-83.3	100.8	99.0	1.72	58.710	SF		
600.0	598.8	581.3	578.8	1.1	1.3	-169.32	-27.8	-98.4	126.9	124.8	2.10	60.381			
700.0	697.1	669.2	664.5	1.5	1.7	-165.66	-21.2	-116.6	162.1	159.6	2.49	65.046			
800.0	794.3	752.1	744.5	1.9	2.1	-162.87	-13.7	-137.2	205.7	202.8	2.89	71.198			
900.0	890.2	829.7	818.3	2.5	2.6	-160.71	-5.7	-159.4	257.0	253.7	3.30	77.986			
1,000.0	985.0	900.0	884.4	3.0	3.0	-159.47	2.5	-182.0	314.1	310.4	3.74	84.066			
1,100.0	1,079.8	972.3	951.4	3.6	3.5	-158.39	11.8	-207.5	374.0	369.8	4.21	88.737			
1,200.0	1,174.6	1,051.4	1,024.2	4.2	4.1	-157.44	22.3	-236.5	435.0	430.3	4.72	92.110			
1,300.0	1,269.4	1,130.4	1,097.0	4.8	4.7	-156.72	32.8	-265.4	496.1	490.8	5.24	94.729			

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 31-16AA
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 31-16AA	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	300.0	300.0	0.5	0.5	-123.09	-49.2	-75.5	90.1	89.1	0.97	92.808	CC, ES		
400.0	400.0	397.4	397.4	0.7	0.7	176.04	-48.9	-76.8	93.7	92.4	1.31	71.277			
500.0	499.6	492.7	492.5	0.9	0.8	178.53	-47.8	-82.7	106.2	104.6	1.66	63.965			
600.0	598.8	585.7	584.9	1.1	1.1	-178.21	-45.9	-92.9	127.9	125.9	2.01	63.597	SF		
700.0	697.1	675.0	673.1	1.5	1.4	-175.06	-43.3	-106.9	158.7	156.4	2.36	67.156			
800.0	794.3	759.8	756.1	1.9	1.7	-172.37	-40.2	-123.9	198.3	195.6	2.72	73.046			
900.0	890.2	839.3	833.1	2.5	2.0	-170.17	-36.6	-143.1	246.2	243.1	3.07	80.311			
1,000.0	985.0	913.8	904.6	3.0	2.4	-168.60	-32.7	-164.0	300.2	296.8	3.44	87.153			
1,100.0	1,079.8	984.8	971.8	3.6	2.9	-167.32	-28.6	-186.4	357.3	353.4	3.84	92.994			
1,200.0	1,174.6	1,052.4	1,034.9	4.2	3.3	-166.20	-24.2	-210.0	417.1	412.9	4.25	98.256			
1,300.0	1,269.4	1,126.8	1,103.7	4.8	3.8	-165.12	-19.0	-237.8	478.9	474.2	4.68	102.415			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-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	220.518			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-32.8	-50.3	60.0	59.4	0.62	96.632			
300.0	300.0	300.0	300.0	0.5	0.5	-123.09	-32.8	-50.3	60.0	59.1	0.97	61.872 CC, ES			
400.0	400.0	400.0	400.0	0.7	0.7	175.53	-32.8	-50.3	62.7	61.3	1.32	47.523			
500.0	499.6	499.6	499.6	0.9	0.8	176.01	-32.8	-50.3	70.5	68.8	1.66	42.377 SF			
600.0	598.8	596.2	596.1	1.1	1.0	177.92	-31.9	-52.6	85.0	83.0	2.00	42.494			
700.0	697.1	693.5	693.3	1.5	1.2	-179.47	-30.0	-57.4	106.6	104.2	2.34	45.612			
800.0	794.3	789.8	789.5	1.9	1.4	-177.79	-28.1	-62.2	133.4	130.7	2.67	50.009			
900.0	890.2	884.6	884.1	2.5	1.5	-176.75	-26.3	-67.0	165.2	162.2	2.99	55.262			
1,000.0	985.0	978.1	977.6	3.0	1.7	-176.13	-24.4	-71.7	200.4	197.1	3.33	60.151			
1,100.0	1,079.8	1,071.7	1,071.0	3.6	1.9	-175.71	-22.6	-76.3	235.7	232.0	3.68	64.041			
1,200.0	1,174.6	1,165.3	1,164.4	4.2	2.1	-175.40	-20.7	-81.0	271.0	266.9	4.03	67.242			
1,300.0	1,269.4	1,258.8	1,257.8	4.8	2.3	-175.16	-18.9	-85.7	306.2	301.9	4.38	69.919			
1,400.0	1,364.2	1,352.4	1,351.2	5.4	2.5	-174.97	-17.1	-90.4	341.5	336.8	4.73	72.191			
1,500.0	1,459.0	1,445.9	1,444.7	6.0	2.6	-174.82	-15.2	-95.1	376.8	371.7	5.08	74.141			
1,600.0	1,553.8	1,539.5	1,538.1	6.6	2.8	-174.69	-13.4	-99.7	412.1	406.7	5.43	75.833			
1,700.0	1,648.6	1,633.1	1,631.5	7.2	3.0	-174.58	-11.6	-104.4	447.4	441.6	5.79	77.314			
1,800.0	1,743.4	1,726.6	1,724.9	7.8	3.2	-174.49	-9.7	-109.1	482.7	476.6	6.14	78.621			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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			
300.0	300.0	300.0	300.0	0.5	0.5	-123.05	-57.2	-87.9	104.9	103.9	0.97	108.052	CC, ES		
400.0	400.0	395.1	395.1	0.7	0.7	175.51	-58.4	-89.9	109.9	108.6	1.31	83.915			
500.0	499.6	494.3	494.2	0.9	0.8	175.81	-60.7	-93.6	122.2	120.5	1.65	73.895			
600.0	598.8	592.8	592.6	1.1	1.0	176.19	-63.0	-97.4	139.6	137.6	1.99	70.107			
700.0	697.1	690.2	689.9	1.5	1.2	176.59	-65.3	-101.0	162.1	159.8	2.32	69.829	SF		
800.0	794.3	786.3	785.9	1.9	1.4	176.97	-67.6	-104.7	189.7	187.1	2.64	71.760			
900.0	890.2	880.8	880.3	2.5	1.6	177.30	-69.8	-108.3	222.3	219.4	2.96	75.202			
1,000.0	985.0	974.1	973.5	3.0	1.7	177.61	-72.0	-111.8	258.2	255.0	3.29	78.590			
1,100.0	1,079.8	1,067.4	1,066.7	3.6	1.9	177.85	-74.2	-115.3	294.2	290.6	3.62	81.276			
1,200.0	1,174.6	1,160.7	1,159.9	4.2	2.1	178.04	-76.3	-118.9	330.2	326.3	3.95	83.517			
1,300.0	1,269.4	1,254.0	1,253.1	4.8	2.3	178.19	-78.5	-122.4	366.2	361.9	4.29	85.414			
1,400.0	1,364.2	1,347.3	1,346.3	5.4	2.5	178.32	-80.7	-125.9	402.2	397.6	4.62	87.042			
1,500.0	1,459.0	1,440.6	1,439.5	6.0	2.6	178.42	-82.9	-129.4	438.2	433.3	4.95	88.453			
1,600.0	1,553.8	1,533.9	1,532.7	6.6	2.8	178.51	-85.1	-133.0	474.2	468.9	5.29	89.689			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	103.70	-2.5	10.5	10.8						
100.0	100.0	100.0	100.0	0.1	0.1	103.70	-2.5	10.5	10.8	10.5	0.27	39.528			
200.0	200.0	200.0	200.0	0.3	0.3	103.70	-2.5	10.5	10.8	10.1	0.62	17.321			
300.0	300.0	300.0	300.0	0.5	0.5	103.70	-2.5	10.5	10.8	9.8	0.97	11.091			
400.0	400.0	400.0	400.0	0.7	0.7	53.43	-2.5	10.5	9.0	7.7	1.32	6.798			
483.1	482.8	482.7	482.7	0.8	0.8	82.51	-2.0	12.1	7.6	5.9	1.65	4.594 CC			
500.0	499.6	499.6	499.6	0.9	0.8	89.34	-1.7	12.9	7.6	5.9	1.72	4.450 ES, SF			
600.0	598.8	599.5	599.2	1.1	1.0	120.56	0.9	20.3	10.3	8.2	2.15	4.807			
700.0	697.1	699.7	698.5	1.5	1.3	134.07	5.2	32.6	15.3	12.7	2.61	5.874			
800.0	794.3	800.1	797.2	1.9	1.6	139.08	11.2	49.9	21.3	18.2	3.14	6.787			
900.0	890.2	900.7	895.0	2.5	2.1	140.54	18.9	72.1	28.0	24.2	3.79	7.379			
1,000.0	985.0	1,001.3	991.5	3.0	2.6	138.79	28.2	99.0	33.9	29.3	4.61	7.352			
1,100.0	1,079.8	1,101.2	1,086.8	3.6	3.1	135.92	38.0	127.1	39.0	33.5	5.56	7.017			
1,200.0	1,174.6	1,201.0	1,182.1	4.2	3.6	133.72	47.8	155.2	44.2	37.7	6.55	6.749			
1,300.0	1,269.4	1,300.9	1,277.5	4.8	4.2	131.98	57.5	183.3	49.4	41.9	7.56	6.536			
1,400.0	1,364.2	1,400.8	1,372.8	5.4	4.7	130.57	67.3	211.4	54.7	46.1	8.59	6.366			
1,500.0	1,459.0	1,500.6	1,468.1	6.0	5.3	129.41	77.1	239.5	60.0	50.3	9.63	6.227			
1,600.0	1,553.8	1,600.5	1,563.4	6.6	5.9	128.44	86.8	267.6	65.3	54.6	10.68	6.112			
1,700.0	1,648.6	1,700.3	1,658.7	7.2	6.4	127.62	96.6	295.7	70.6	58.9	11.74	6.017			
1,800.0	1,743.4	1,800.2	1,754.1	7.8	7.0	126.91	106.4	323.8	76.0	63.2	12.80	5.936			
1,900.0	1,838.2	1,900.0	1,849.4	8.4	7.5	126.29	116.1	351.9	81.3	67.5	13.86	5.867			
2,000.0	1,933.0	1,999.9	1,944.7	9.0	8.1	125.75	125.9	380.0	86.7	71.7	14.92	5.807			
2,100.0	2,027.8	2,099.7	2,040.0	9.6	8.7	125.27	135.6	408.1	92.0	76.0	15.99	5.755			
2,200.0	2,122.6	2,199.6	2,135.3	10.2	9.2	124.85	145.4	436.2	97.4	80.3	17.06	5.709			
2,300.0	2,217.4	2,299.4	2,230.7	10.8	9.8	124.47	155.2	464.3	102.8	84.6	18.13	5.669			
2,400.0	2,312.2	2,399.3	2,326.0	11.4	10.3	124.13	164.9	492.4	108.2	89.0	19.20	5.633			
2,500.0	2,407.0	2,499.1	2,421.3	12.0	10.9	123.82	174.7	520.5	113.5	93.3	20.27	5.600			
2,600.0	2,501.8	2,599.0	2,516.6	12.6	11.5	123.54	184.5	548.6	118.9	97.6	21.35	5.571			
2,700.0	2,596.6	2,698.8	2,611.9	13.2	12.0	123.28	194.2	576.7	124.3	101.9	22.42	5.545			
2,800.0	2,691.4	2,798.7	2,707.3	13.8	12.6	123.04	204.0	604.8	129.7	106.2	23.49	5.521			
2,900.0	2,786.2	2,898.5	2,802.6	14.4	13.2	122.83	213.8	632.9	135.1	110.5	24.57	5.499			
3,000.0	2,881.0	2,998.4	2,897.9	15.0	13.7	122.63	223.5	660.9	140.5	114.8	25.64	5.479			
3,100.0	2,975.8	3,098.3	2,993.2	15.6	14.3	122.44	233.3	689.0	145.9	119.2	26.72	5.460			
3,200.0	3,070.6	3,198.1	3,088.5	16.2	14.9	122.27	243.1	717.1	151.3	123.5	27.79	5.443			
3,300.0	3,165.4	3,298.0	3,183.9	16.8	15.4	122.11	252.8	745.2	156.7	127.8	28.87	5.427			
3,400.0	3,260.2	3,397.8	3,279.2	17.4	16.0	121.96	262.6	773.3	162.1	132.1	29.95	5.412			
3,500.0	3,355.0	3,497.7	3,374.5	18.0	16.6	121.82	272.4	801.4	167.5	136.5	31.02	5.399			
3,600.0	3,449.8	3,597.5	3,469.8	18.6	17.1	121.69	282.1	829.5	172.9	140.8	32.10	5.386			
3,700.0	3,544.6	3,697.4	3,565.1	19.2	17.7	121.56	291.9	857.6	178.3	145.1	33.18	5.374			
3,800.0	3,639.4	3,797.2	3,660.5	19.8	18.3	121.45	301.7	885.7	183.7	149.4	34.25	5.363			
3,900.0	3,734.2	3,897.1	3,755.8	20.4	18.8	121.34	311.4	913.8	189.1	153.8	35.33	5.352			
4,000.0	3,829.0	3,996.9	3,851.1	21.0	19.4	121.24	321.2	941.9	194.5	158.1	36.41	5.342			
4,100.0	3,923.8	4,096.8	3,946.4	21.6	20.0	121.14	331.0	970.0	199.9	162.4	37.48	5.333			
4,200.0	4,018.6	4,196.6	4,041.7	22.2	20.5	121.05	340.7	998.1	205.3	166.7	38.56	5.324			
4,300.0	4,113.4	4,296.5	4,137.0	22.8	21.1	120.96	350.5	1,026.2	210.7	171.1	39.64	5.316			
4,400.0	4,208.2	4,396.3	4,232.4	23.4	21.7	120.87	360.3	1,054.3	216.1	175.4	40.72	5.308			
4,500.0	4,303.0	4,496.2	4,327.7	24.0	22.2	120.79	370.0	1,082.4	221.5	179.7	41.79	5.300			
4,600.0	4,397.8	4,596.1	4,423.0	24.6	22.8	120.72	379.8	1,110.5	226.9	184.1	42.87	5.293			
4,700.0	4,492.6	4,695.9	4,518.3	25.2	23.4	120.65	389.5	1,138.6	232.3	188.4	43.95	5.287			
4,800.0	4,587.4	4,795.8	4,613.6	25.8	23.9	120.58	399.3	1,166.7	237.8	192.7	45.03	5.280			
4,900.0	4,682.2	4,895.6	4,709.0	26.4	24.5	120.51	409.1	1,194.8	243.2	197.1	46.11	5.274			
5,000.0	4,777.0	4,995.5	4,804.3	27.0	25.0	120.45	418.8	1,222.9	248.6	201.4	47.18	5.268			

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 31-16AA
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 31-16AA	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		
5,100.0	4,871.8	5,095.3	4,899.6	27.6	25.6	120.39	428.6	1,251.0	254.0	205.7	48.26	5.263			
5,200.0	4,966.6	5,195.2	4,994.9	28.2	26.2	120.33	438.4	1,279.1	259.4	210.1	49.34	5.257			
5,300.0	5,061.4	5,295.0	5,090.2	28.8	26.7	120.28	448.1	1,307.2	264.8	214.4	50.42	5.252			
5,400.0	5,156.2	5,394.9	5,185.6	29.4	27.3	120.22	457.9	1,335.3	270.2	218.7	51.50	5.247			
5,500.0	5,251.0	5,494.7	5,280.9	30.0	27.9	120.17	467.7	1,363.4	275.6	223.0	52.57	5.242			
5,600.0	5,345.8	5,594.6	5,376.2	30.6	28.4	120.12	477.4	1,391.5	281.0	227.4	53.65	5.238			
5,700.0	5,440.6	5,694.4	5,471.5	31.2	29.0	120.08	487.2	1,419.6	286.4	231.7	54.73	5.234			
5,800.0	5,535.7	5,793.2	5,565.8	31.8	29.6	119.97	496.8	1,447.2	291.5	235.7	55.81	5.223			
5,900.0	5,631.7	5,889.6	5,658.6	32.3	30.0	119.80	505.4	1,471.9	295.8	239.0	56.79	5.208			
6,000.0	5,728.7	5,985.9	5,752.2	32.7	30.5	119.65	513.0	1,493.7	299.5	241.9	57.65	5.196			
6,100.0	5,826.4	6,082.3	5,846.5	33.1	30.8	119.52	519.5	1,512.5	302.8	244.4	58.40	5.184			
6,200.0	5,924.9	6,178.7	5,941.4	33.4	31.1	119.40	525.0	1,528.2	305.4	246.4	59.04	5.173			
6,300.0	6,023.9	6,275.1	6,036.9	33.7	31.4	119.29	529.4	1,541.0	307.6	248.0	59.57	5.163			
6,400.0	6,123.3	6,371.6	6,132.8	33.9	31.6	119.19	532.8	1,550.7	309.2	249.2	59.99	5.153			
6,500.0	6,223.0	6,468.0	6,228.9	34.0	31.7	119.11	535.1	1,557.3	310.2	249.9	60.31	5.144			
6,600.0	6,322.9	6,564.5	6,325.3	34.1	31.8	119.04	536.3	1,560.9	310.7	250.2	60.52	5.134			
6,700.0	6,422.9	6,662.1	6,422.9	34.2	31.9	-179.43	536.6	1,561.6	310.7	250.0	60.67	5.121			
6,800.0	6,522.9	6,762.1	6,522.9	34.3	31.9	-179.43	536.6	1,561.6	310.7	249.9	60.80	5.110			
6,900.0	6,622.9	6,862.1	6,622.9	34.3	32.0	-179.43	536.6	1,561.6	310.7	249.8	60.94	5.099			
7,000.0	6,722.9	6,962.1	6,722.9	34.4	32.1	-179.43	536.6	1,561.6	310.7	249.6	61.08	5.087			
7,100.0	6,822.9	7,062.1	6,822.9	34.4	32.1	-179.43	536.6	1,561.6	310.7	249.5	61.22	5.076			
7,200.0	6,922.9	7,162.1	6,922.9	34.5	32.2	-179.43	536.6	1,561.6	310.7	249.3	61.36	5.064			
7,300.0	7,022.9	7,262.1	7,022.9	34.6	32.3	-179.43	536.6	1,561.6	310.7	249.2	61.50	5.052			
7,400.0	7,122.9	7,362.1	7,122.9	34.6	32.3	-179.43	536.6	1,561.6	310.7	249.1	61.64	5.040			
7,500.0	7,222.9	7,462.1	7,222.9	34.7	32.4	-179.43	536.6	1,561.6	310.7	248.9	61.79	5.028			
7,600.0	7,322.9	7,562.1	7,322.9	34.8	32.5	-179.43	536.6	1,561.6	310.7	248.8	61.94	5.016			
7,700.0	7,422.9	7,662.1	7,422.9	34.8	32.5	-179.43	536.6	1,561.6	310.7	248.6	62.09	5.004			
7,800.0	7,522.9	7,762.1	7,522.9	34.9	32.6	-179.43	536.6	1,561.6	310.7	248.5	62.24	4.992			
7,900.0	7,622.9	7,862.1	7,622.9	35.0	32.7	-179.43	536.6	1,561.6	310.7	248.3	62.39	4.980			
8,000.0	7,722.9	7,962.1	7,722.9	35.0	32.8	-179.43	536.6	1,561.6	310.7	248.2	62.55	4.968			
8,100.0	7,822.9	8,062.1	7,822.9	35.1	32.8	-179.43	536.6	1,561.6	310.7	248.0	62.70	4.955			
8,200.0	7,922.9	8,162.1	7,922.9	35.2	32.9	-179.43	536.6	1,561.6	310.7	247.8	62.86	4.943			
8,300.0	8,022.9	8,262.1	8,022.9	35.2	33.0	-179.43	536.6	1,561.6	310.7	247.7	63.02	4.930			
8,400.0	8,122.9	8,362.1	8,122.9	35.3	33.1	-179.43	536.6	1,561.6	310.7	247.5	63.18	4.918			
8,500.0	8,222.9	8,462.1	8,222.9	35.4	33.1	-179.43	536.6	1,561.6	310.7	247.4	63.34	4.905			
8,600.0	8,322.9	8,562.1	8,322.9	35.5	33.2	-179.43	536.6	1,561.6	310.7	247.2	63.50	4.893			
8,643.1	8,366.0	8,605.2	8,366.0	35.5	33.3	-179.43	536.6	1,561.6	310.7	247.1	63.57	4.887			

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 31-16AA
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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 31-16AA	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
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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	-142.73	-18.9	-14.4	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	-142.73	-18.9	-14.4	23.8	23.5	0.27	87.413			
200.0	200.0	200.0	200.0	0.3	0.3	-142.73	-18.9	-14.4	23.8	23.2	0.62	38.305			
300.0	300.0	300.0	300.0	0.5	0.5	-142.73	-18.9	-14.4	23.8	22.8	0.97	24.526	CC, ES		
400.0	400.0	400.5	400.5	0.7	0.7	155.26	-19.1	-12.9	25.4	24.1	1.32	19.224			
500.0	499.6	501.1	500.8	0.9	0.9	150.54	-19.8	-6.3	29.3	27.6	1.70	17.216			
600.0	598.8	601.5	600.5	1.1	1.1	143.66	-21.0	5.5	35.7	33.5	2.16	16.537			
700.0	697.1	701.5	699.0	1.5	1.4	136.73	-22.8	22.4	45.0	42.3	2.76	16.340			
800.0	794.3	801.0	796.1	1.9	1.9	130.81	-25.0	44.3	57.5	54.0	3.54	16.274	SF		
900.0	890.2	899.9	891.3	2.5	2.3	126.13	-27.8	70.9	73.2	68.7	4.49	16.287			
1,000.0	985.0	998.3	985.5	3.0	2.9	124.01	-30.8	99.1	91.0	85.5	5.50	16.554			
1,100.0	1,079.8	1,096.6	1,079.7	3.6	3.4	122.68	-33.7	127.3	109.0	102.5	6.53	16.696			
1,200.0	1,174.6	1,195.0	1,173.8	4.2	3.9	121.73	-36.6	155.5	127.0	119.4	7.57	16.775			
1,300.0	1,269.4	1,293.3	1,268.0	4.8	4.4	121.01	-39.6	183.7	145.0	136.4	8.62	16.820			
1,400.0	1,364.2	1,391.7	1,362.2	5.4	5.0	120.46	-42.5	211.9	163.1	153.4	9.68	16.846			
1,500.0	1,459.0	1,490.0	1,456.4	6.0	5.5	120.01	-45.4	240.1	181.1	170.4	10.74	16.863			
1,600.0	1,553.8	1,588.4	1,550.5	6.6	6.0	119.65	-48.3	268.3	199.2	187.4	11.80	16.872			
1,700.0	1,648.6	1,686.7	1,644.7	7.2	6.6	119.34	-51.3	296.5	217.2	204.4	12.87	16.878			
1,800.0	1,743.4	1,785.1	1,738.9	7.8	7.1	119.08	-54.2	324.6	235.3	221.4	13.94	16.881			
1,900.0	1,838.2	1,883.4	1,833.1	8.4	7.6	118.86	-57.1	352.8	253.4	238.4	15.01	16.882			
2,000.0	1,933.0	1,981.8	1,927.2	9.0	8.2	118.67	-60.1	381.0	271.5	255.4	16.08	16.883			
2,100.0	2,027.8	2,080.1	2,021.4	9.6	8.7	118.50	-63.0	409.2	289.5	272.4	17.15	16.882			
2,200.0	2,122.6	2,178.5	2,115.6	10.2	9.3	118.35	-65.9	437.4	307.6	289.4	18.22	16.881			
2,300.0	2,217.4	2,276.8	2,209.8	10.8	9.8	118.22	-68.9	465.6	325.7	306.4	19.30	16.880			
2,400.0	2,312.2	2,375.2	2,304.0	11.4	10.3	118.10	-71.8	493.8	343.8	323.4	20.37	16.878			
2,500.0	2,407.0	2,473.5	2,398.1	12.0	10.9	118.00	-74.7	522.0	361.9	340.4	21.44	16.877			
2,600.0	2,501.8	2,571.8	2,492.3	12.6	11.4	117.90	-77.7	550.1	380.0	357.5	22.52	16.875			
2,700.0	2,596.6	2,670.2	2,586.5	13.2	12.0	117.82	-80.6	578.3	398.1	374.5	23.59	16.873			
2,800.0	2,691.4	2,768.5	2,680.7	13.8	12.5	117.74	-83.5	606.5	416.2	391.5	24.67	16.871			
2,900.0	2,786.2	2,866.9	2,774.8	14.4	13.0	117.66	-86.5	634.7	434.2	408.5	25.74	16.870			
3,000.0	2,881.0	2,965.2	2,869.0	15.0	13.6	117.60	-89.4	662.9	452.3	425.5	26.82	16.868			
3,100.0	2,975.8	3,063.6	2,963.2	15.6	14.1	117.53	-92.3	691.1	470.4	442.5	27.89	16.866			
3,200.0	3,070.6	3,161.9	3,057.4	16.2	14.7	117.48	-95.3	719.3	488.5	459.6	28.97	16.865			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-169.39	-10.6	-2.0	10.7						
100.0	100.0	100.0	100.0	0.1	0.1	-169.39	-10.6	-2.0	10.7	10.5	0.27	39.469			
200.0	200.0	200.0	200.0	0.3	0.3	-169.39	-10.6	-2.0	10.7	10.1	0.62	17.295			
300.0	300.0	300.0	300.0	0.5	0.5	-169.39	-10.6	-2.0	10.7	9.8	0.97	11.074	CC, ES		
400.0	400.0	400.1	400.1	0.7	0.7	126.61	-10.3	0.6	11.7	10.4	1.33	8.798			
500.0	499.6	500.2	499.8	0.9	0.9	121.25	-9.6	8.5	14.6	12.9	1.74	8.393	SF		
600.0	598.8	600.2	598.9	1.1	1.1	115.92	-8.5	21.5	19.7	17.4	2.27	8.670			
700.0	697.1	699.9	697.0	1.5	1.5	111.82	-6.9	39.6	26.9	23.9	2.95	9.106			
800.0	794.3	799.4	793.7	1.9	1.9	108.91	-4.8	62.7	36.2	32.4	3.81	9.501			
900.0	890.2	898.7	889.3	2.5	2.4	108.48	-2.4	89.4	47.5	42.7	4.79	9.913			
1,000.0	985.0	997.9	984.8	3.0	2.9	111.35	0.0	116.3	60.0	54.2	5.78	10.367			
1,100.0	1,079.8	1,097.0	1,080.2	3.6	3.4	113.34	2.4	143.2	72.6	65.8	6.79	10.695			
1,200.0	1,174.6	1,196.2	1,175.6	4.2	3.9	114.74	4.8	170.1	85.3	77.5	7.79	10.939			
1,300.0	1,269.4	1,295.4	1,271.0	4.8	4.4	115.78	7.2	197.0	98.0	89.2	8.80	11.127			
1,400.0	1,364.2	1,394.6	1,366.5	5.4	4.9	116.58	9.6	223.9	110.7	100.9	9.82	11.276			
1,500.0	1,459.0	1,493.7	1,461.9	6.0	5.4	117.22	12.0	250.8	123.5	112.6	10.83	11.397			
1,600.0	1,553.8	1,592.9	1,557.3	6.6	6.0	117.73	14.4	277.7	136.2	124.4	11.85	11.497			
1,700.0	1,648.6	1,692.1	1,652.8	7.2	6.5	118.16	16.8	304.6	149.0	136.1	12.87	11.581			
1,800.0	1,743.4	1,791.3	1,748.2	7.8	7.0	118.52	19.2	331.5	161.8	147.9	13.88	11.652			
1,900.0	1,838.2	1,890.4	1,843.6	8.4	7.5	118.83	21.6	358.4	174.6	159.7	14.90	11.714			
2,000.0	1,933.0	1,989.6	1,939.0	9.0	8.0	119.09	24.0	385.3	187.4	171.4	15.92	11.767			
2,100.0	2,027.8	2,088.8	2,034.5	9.6	8.5	119.32	26.4	412.2	200.2	183.2	16.94	11.815			
2,200.0	2,122.6	2,188.0	2,129.9	10.2	9.0	119.52	28.8	439.1	213.0	195.0	17.96	11.856			
2,300.0	2,217.4	2,287.1	2,225.3	10.8	9.6	119.71	31.2	466.0	225.8	206.8	18.98	11.893			
2,400.0	2,312.2	2,386.3	2,320.7	11.4	10.1	119.87	33.6	492.9	238.6	218.6	20.00	11.927			
2,500.0	2,407.0	2,485.5	2,416.2	12.0	10.6	120.01	36.0	519.8	251.4	230.3	21.02	11.957			
2,600.0	2,501.8	2,584.7	2,511.6	12.6	11.1	120.14	38.4	546.7	264.2	242.1	22.04	11.984			
2,700.0	2,596.6	2,683.8	2,607.0	13.2	11.6	120.26	40.8	573.6	277.0	253.9	23.06	12.009			
2,800.0	2,691.4	2,783.0	2,702.5	13.8	12.1	120.37	43.2	600.5	289.8	265.7	24.09	12.031			
2,900.0	2,786.2	2,882.2	2,797.9	14.4	12.7	120.47	45.6	627.4	302.6	277.5	25.11	12.052			
3,000.0	2,881.0	2,981.4	2,893.3	15.0	13.2	120.56	48.0	654.2	315.4	289.3	26.13	12.071			
3,100.0	2,975.8	3,080.5	2,988.7	15.6	13.7	120.64	50.4	681.1	328.2	301.1	27.15	12.089			
3,200.0	3,070.6	3,179.7	3,084.2	16.2	14.2	120.72	52.7	708.0	341.0	312.8	28.17	12.105			
3,300.0	3,165.4	3,278.9	3,179.6	16.8	14.7	120.79	55.1	734.9	353.8	324.6	29.19	12.121			
3,400.0	3,260.2	3,378.1	3,275.0	17.4	15.2	120.86	57.5	761.8	366.6	336.4	30.21	12.135			
3,500.0	3,355.0	3,477.2	3,370.5	18.0	15.8	120.92	59.9	788.7	379.5	348.2	31.24	12.148			
3,600.0	3,449.8	3,576.4	3,465.9	18.6	16.3	120.98	62.3	815.6	392.3	360.0	32.26	12.160			
3,700.0	3,544.6	3,675.6	3,561.3	19.2	16.8	121.03	64.7	842.5	405.1	371.8	33.28	12.172			
3,800.0	3,639.4	3,774.8	3,656.7	19.8	17.3	121.08	67.1	869.4	417.9	383.6	34.30	12.183			
3,900.0	3,734.2	3,873.9	3,752.2	20.4	17.8	121.13	69.5	896.3	430.7	395.4	35.32	12.193			
4,000.0	3,829.0	3,973.1	3,847.6	21.0	18.4	121.18	71.9	923.2	443.5	407.2	36.35	12.203			
4,100.0	3,923.8	4,072.3	3,943.0	21.6	18.9	121.22	74.3	950.1	456.3	419.0	37.37	12.212			
4,200.0	4,018.6	4,171.5	4,038.5	22.2	19.4	121.26	76.7	977.0	469.2	430.8	38.39	12.221			
4,300.0	4,113.4	4,270.6	4,133.9	22.8	19.9	121.30	79.1	1,003.9	482.0	442.6	39.41	12.229			
4,400.0	4,208.2	4,369.8	4,229.3	23.4	20.4	121.34	81.5	1,030.8	494.8	454.3	40.43	12.237			

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 31-16AA
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 31-16AA	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				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	56.02	8.4	12.4	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.02	8.4	12.4	15.0	14.7	0.27	55.076			
200.0	200.0	200.0	200.0	0.3	0.3	56.02	8.4	12.4	15.0	14.4	0.62	24.134 CC, ES			
300.0	300.0	299.1	299.1	0.5	0.5	55.70	9.9	14.5	17.6	16.6	0.98	18.037			
400.0	400.0	398.0	397.6	0.7	0.7	-7.14	14.4	20.7	22.8	21.4	1.32	17.303			
500.0	499.6	496.5	495.3	0.9	1.0	-9.35	21.9	31.0	27.9	26.3	1.66	16.814			
600.0	598.8	594.8	592.0	1.1	1.3	-12.04	32.4	45.3	33.1	31.1	2.01	16.477			
700.0	697.1	692.8	687.4	1.5	1.8	-14.99	45.7	63.5	38.4	36.1	2.38	16.154			
800.0	794.3	790.6	781.2	1.9	2.3	-18.08	61.8	85.6	43.9	41.1	2.79	15.714			
900.0	890.2	889.0	874.3	2.5	2.9	-21.39	80.7	111.4	49.1	45.8	3.29	14.916			
1,000.0	985.0	988.9	968.5	3.0	3.5	-25.42	100.3	138.2	52.1	48.2	3.94	13.223			
1,100.0	1,079.8	1,088.8	1,062.7	3.6	4.1	-29.05	119.9	165.1	55.2	50.5	4.70	11.755			
1,200.0	1,174.6	1,188.7	1,156.9	4.2	4.7	-32.27	139.5	191.9	58.6	53.0	5.55	10.557			
1,300.0	1,269.4	1,288.6	1,251.1	4.8	5.3	-35.14	159.1	218.8	62.1	55.6	6.47	9.593			
1,400.0	1,364.2	1,388.5	1,345.3	5.4	6.0	-37.70	178.7	245.6	65.8	58.3	7.45	8.822			
1,500.0	1,459.0	1,488.4	1,439.5	6.0	6.6	-39.98	198.3	272.4	69.5	61.1	8.48	8.201			
1,600.0	1,553.8	1,588.3	1,533.7	6.6	7.2	-42.02	217.9	299.3	73.4	63.9	9.54	7.698			
1,700.0	1,648.6	1,688.2	1,627.9	7.2	7.8	-43.86	237.5	326.1	77.4	66.7	10.62	7.286			
1,800.0	1,743.4	1,788.1	1,722.1	7.8	8.5	-45.52	257.1	353.0	81.4	69.7	11.72	6.944			
1,900.0	1,838.2	1,888.0	1,816.3	8.4	9.1	-47.02	276.7	379.8	85.5	72.6	12.84	6.658			
2,000.0	1,933.0	1,987.9	1,910.5	9.0	9.7	-48.38	296.3	406.6	89.6	75.7	13.97	6.416			
2,100.0	2,027.8	2,087.7	2,004.7	9.6	10.3	-49.63	315.9	433.5	93.8	78.7	15.11	6.210			
2,200.0	2,122.6	2,187.6	2,098.9	10.2	10.9	-50.76	335.5	460.3	98.0	81.8	16.25	6.033			
2,300.0	2,217.4	2,287.5	2,193.1	10.8	11.6	-51.80	355.1	487.2	102.3	84.9	17.40	5.879			
2,400.0	2,312.2	2,387.4	2,287.3	11.4	12.2	-52.76	374.7	514.0	106.6	88.0	18.56	5.744			
2,500.0	2,407.0	2,487.3	2,381.5	12.0	12.8	-53.64	394.3	540.9	110.9	91.2	19.72	5.626			
2,600.0	2,501.8	2,587.2	2,475.7	12.6	13.4	-54.46	414.0	567.7	115.3	94.4	20.88	5.521			
2,700.0	2,596.6	2,687.1	2,569.9	13.2	14.1	-55.22	433.6	594.5	119.6	97.6	22.04	5.428			
2,800.0	2,691.4	2,787.0	2,664.1	13.8	14.7	-55.92	453.2	621.4	124.0	100.8	23.20	5.345			
2,900.0	2,786.2	2,886.9	2,758.3	14.4	15.3	-56.58	472.8	648.2	128.4	104.1	24.37	5.270			
3,000.0	2,881.0	2,986.8	2,852.5	15.0	15.9	-57.19	492.4	675.1	132.8	107.3	25.54	5.202			
3,100.0	2,975.8	3,086.7	2,946.7	15.6	16.6	-57.76	512.0	701.9	137.3	110.6	26.71	5.140			
3,200.0	3,070.6	3,186.6	3,040.9	16.2	17.2	-58.30	531.6	728.7	141.7	113.9	27.87	5.084			
3,300.0	3,165.4	3,286.5	3,135.1	16.8	17.8	-58.80	551.2	755.6	146.2	117.1	29.04	5.033			
3,400.0	3,260.2	3,386.4	3,229.3	17.4	18.4	-59.28	570.8	782.4	150.7	120.4	30.21	4.986			
3,500.0	3,355.0	3,486.2	3,323.5	18.0	19.1	-59.72	590.4	809.3	155.1	123.8	31.38	4.943			
3,600.0	3,449.8	3,586.1	3,417.7	18.6	19.7	-60.14	610.0	836.1	159.6	127.1	32.55	4.904			
3,700.0	3,544.6	3,686.0	3,511.9	19.2	20.3	-60.54	629.6	863.0	164.1	130.4	33.72	4.867			
3,800.0	3,639.4	3,785.9	3,606.1	19.8	20.9	-60.92	649.2	889.8	168.6	133.7	34.89	4.833			
3,900.0	3,734.2	3,885.8	3,700.3	20.4	21.6	-61.28	668.8	916.6	173.1	137.1	36.06	4.801			
4,000.0	3,829.0	3,985.7	3,794.5	21.0	22.2	-61.62	688.4	943.5	177.7	140.4	37.23	4.772			
4,100.0	3,923.8	4,085.6	3,888.7	21.6	22.8	-61.94	708.0	970.3	182.2	143.8	38.40	4.744			
4,200.0	4,018.6	4,185.5	3,982.9	22.2	23.4	-62.25	727.6	997.2	186.7	147.1	39.57	4.718			
4,300.0	4,113.4	4,285.4	4,077.1	22.8	24.1	-62.54	747.3	1,024.0	191.2	150.5	40.74	4.694			
4,400.0	4,208.2	4,385.3	4,171.3	23.4	24.7	-62.82	766.9	1,050.8	195.8	153.9	41.91	4.671			
4,500.0	4,303.0	4,485.2	4,265.5	24.0	25.3	-63.09	786.5	1,077.7	200.3	157.2	43.08	4.650			
4,600.0	4,397.8	4,585.1	4,359.7	24.6	25.9	-63.34	806.1	1,104.5	204.9	160.6	44.25	4.630			
4,700.0	4,492.6	4,685.0	4,453.9	25.2	26.6	-63.58	825.7	1,131.4	209.4	164.0	45.42	4.611			
4,800.0	4,587.4	4,784.8	4,548.1	25.8	27.2	-63.82	845.3	1,158.2	214.0	167.4	46.59	4.593			
4,900.0	4,682.2	4,884.7	4,642.3	26.4	27.8	-64.04	864.9	1,185.1	218.5	170.8	47.75	4.576			
5,000.0	4,777.0	4,984.6	4,736.5	27.0	28.4	-64.25	884.5	1,211.9	223.1	174.2	48.92	4.560			
5,100.0	4,871.8	5,084.5	4,830.7	27.6	29.1	-64.46	904.1	1,238.7	227.7	177.6	50.09	4.545			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	4,966.6	5,184.4	4,924.9	28.2	29.7	-64.66	923.7	1,265.6	232.2	181.0	51.26	4.530			
5,300.0	5,061.4	5,284.3	5,019.1	28.8	30.3	-64.85	943.3	1,292.4	236.8	184.4	52.43	4.516			
5,400.0	5,156.2	5,384.2	5,113.3	29.4	30.9	-65.03	962.9	1,319.3	241.4	187.8	53.60	4.503			
5,500.0	5,251.0	5,484.1	5,207.5	30.0	31.6	-65.21	982.5	1,346.1	245.9	191.2	54.76	4.491			
5,600.0	5,345.8	5,584.0	5,301.7	30.6	32.2	-65.38	1,002.1	1,372.9	250.5	194.6	55.93	4.479			
5,700.0	5,440.6	5,683.9	5,395.9	31.2	32.8	-65.54	1,021.7	1,399.8	255.1	198.0	57.10	4.467			
5,800.0	5,535.7	5,787.5	5,494.0	31.8	33.4	-65.78	1,041.5	1,426.8	259.5	201.2	58.25	4.455			
5,900.0	5,631.7	5,892.4	5,594.4	32.3	34.0	-66.02	1,059.4	1,451.3	263.4	204.1	59.28	4.444			
6,000.0	5,728.7	5,997.4	5,696.0	32.7	34.4	-66.23	1,075.1	1,472.9	266.9	206.7	60.19	4.434			
6,100.0	5,826.4	6,102.4	5,798.5	33.1	34.9	-66.41	1,088.6	1,491.4	269.8	208.8	60.98	4.425			
6,200.0	5,924.9	6,207.6	5,901.8	33.4	35.2	-66.58	1,100.0	1,506.9	272.2	210.6	61.65	4.416			
6,300.0	6,023.9	6,312.7	6,005.8	33.7	35.5	-66.71	1,109.0	1,519.3	274.2	212.0	62.20	4.408			
6,400.0	6,123.3	6,417.9	6,110.3	33.9	35.7	-66.83	1,115.9	1,528.7	275.6	213.0	62.64	4.400			
6,500.0	6,223.0	6,523.1	6,215.2	34.0	35.8	-66.92	1,120.4	1,534.9	276.5	213.6	62.96	4.393			
6,600.0	6,322.9	6,628.2	6,320.3	34.1	35.9	-66.99	1,122.7	1,538.0	277.0	213.8	63.17	4.384			
6,700.0	6,422.9	6,730.8	6,422.9	34.2	36.0	-5.45	1,123.0	1,538.4	277.0	213.7	63.31	4.375			
6,800.0	6,522.9	6,830.8	6,522.9	34.3	36.1	-5.45	1,123.0	1,538.4	277.0	213.5	63.44	4.366			
6,900.0	6,622.9	6,930.8	6,622.9	34.3	36.1	-5.45	1,123.0	1,538.4	277.0	213.4	63.57	4.357			
7,000.0	6,722.9	7,030.8	6,722.9	34.4	36.2	-5.45	1,123.0	1,538.4	277.0	213.3	63.70	4.348			
7,100.0	6,822.9	7,130.8	6,822.9	34.4	36.2	-5.45	1,123.0	1,538.4	277.0	213.1	63.83	4.339			
7,200.0	6,922.9	7,230.8	6,922.9	34.5	36.3	-5.45	1,123.0	1,538.4	277.0	213.0	63.97	4.330			
7,300.0	7,022.9	7,330.8	7,022.9	34.6	36.4	-5.45	1,123.0	1,538.4	277.0	212.9	64.11	4.320			
7,400.0	7,122.9	7,430.8	7,122.9	34.6	36.4	-5.45	1,123.0	1,538.4	277.0	212.7	64.25	4.311			
7,500.0	7,222.9	7,530.8	7,222.9	34.7	36.5	-5.45	1,123.0	1,538.4	277.0	212.6	64.39	4.302			
7,600.0	7,322.9	7,630.8	7,322.9	34.8	36.5	-5.45	1,123.0	1,538.4	277.0	212.4	64.53	4.292			
7,700.0	7,422.9	7,730.8	7,422.9	34.8	36.6	-5.45	1,123.0	1,538.4	277.0	212.3	64.68	4.282			
7,800.0	7,522.9	7,830.8	7,522.9	34.9	36.7	-5.45	1,123.0	1,538.4	277.0	212.2	64.82	4.273			
7,900.0	7,622.9	7,930.8	7,622.9	35.0	36.7	-5.45	1,123.0	1,538.4	277.0	212.0	64.97	4.263			
8,000.0	7,722.9	8,030.8	7,722.9	35.0	36.8	-5.45	1,123.0	1,538.4	277.0	211.9	65.12	4.253			
8,100.0	7,822.9	8,130.8	7,822.9	35.1	36.9	-5.45	1,123.0	1,538.4	277.0	211.7	65.27	4.244			
8,200.0	7,922.9	8,230.8	7,922.9	35.2	36.9	-5.45	1,123.0	1,538.4	277.0	211.6	65.42	4.234			
8,300.0	8,022.9	8,330.8	8,022.9	35.2	37.0	-5.45	1,123.0	1,538.4	277.0	211.4	65.57	4.224			
8,400.0	8,122.9	8,430.8	8,122.9	35.3	37.1	-5.45	1,123.0	1,538.4	277.0	211.2	65.73	4.214			
8,500.0	8,222.9	8,530.8	8,222.9	35.4	37.1	-5.45	1,123.0	1,538.4	277.0	211.1	65.88	4.204			
8,600.0	8,322.9	8,630.8	8,322.9	35.5	37.2	-5.45	1,123.0	1,538.4	277.0	210.9	66.04	4.194			
8,625.9	8,348.9	8,656.8	8,348.9	35.5	37.2	-5.45	1,123.0	1,538.4	277.0	210.9	66.08	4.191			
8,643.1	8,366.0	8,666.9	8,359.0	35.5	37.2	-5.45	1,123.0	1,538.4	277.1	211.0	66.10	4.191 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 31-16AA
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 31-16AA	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	-134.82	-27.0	-27.1	38.2					
100.0	100.0	100.0	100.0	0.1	0.1	-134.82	-27.0	-27.1	38.2	38.0	0.27	140.468		
200.0	200.0	200.0	200.0	0.3	0.3	-134.82	-27.0	-27.1	38.2	37.6	0.62	61.553		
300.0	300.0	300.0	300.0	0.5	0.5	-134.82	-27.0	-27.1	38.2	37.3	0.97	39.412	CC, ES	
400.0	400.0	400.5	400.5	0.7	0.7	163.83	-27.1	-26.5	40.4	39.1	1.32	30.628		
500.0	499.6	501.4	501.2	0.9	0.9	160.71	-28.6	-21.4	45.4	43.7	1.68	26.973		
600.0	598.8	602.0	601.3	1.1	1.1	155.06	-31.5	-11.2	53.3	51.2	2.10	25.353		
700.0	697.1	702.1	700.1	1.5	1.4	148.59	-35.8	4.0	64.6	62.0	2.63	24.540		
800.0	794.3	801.4	797.2	1.9	1.8	142.48	-41.5	24.0	79.8	76.5	3.33	23.977		
900.0	890.2	899.8	892.3	2.5	2.2	137.20	-48.4	48.5	98.9	94.7	4.21	23.508		
1,000.0	985.0	997.2	985.2	3.0	2.8	133.07	-56.4	76.5	120.8	115.6	5.20	23.214		
1,100.0	1,079.8	1,094.5	1,077.9	3.6	3.3	130.14	-64.5	104.9	143.2	136.9	6.24	22.959		
1,200.0	1,174.6	1,191.7	1,170.5	4.2	3.8	128.00	-72.5	133.3	165.8	158.5	7.28	22.761		
1,300.0	1,269.4	1,289.0	1,263.2	4.8	4.4	126.38	-80.6	161.6	188.6	180.2	8.34	22.609		
1,400.0	1,364.2	1,386.2	1,355.9	5.4	4.9	125.10	-88.6	190.0	211.5	202.1	9.40	22.490		
1,500.0	1,459.0	1,483.5	1,448.5	6.0	5.5	124.08	-96.7	218.4	234.5	224.0	10.47	22.395		
1,600.0	1,553.8	1,580.7	1,541.2	6.6	6.0	123.23	-104.7	246.7	257.5	246.0	11.54	22.319		
1,700.0	1,648.6	1,677.9	1,633.9	7.2	6.6	122.53	-112.8	275.1	280.6	268.0	12.61	22.255		
1,800.0	1,743.4	1,775.2	1,726.5	7.8	7.1	121.93	-120.8	303.5	303.7	290.0	13.68	22.202		
1,900.0	1,838.2	1,872.4	1,819.2	8.4	7.7	121.42	-128.9	331.8	326.9	312.1	14.75	22.158		
2,000.0	1,933.0	1,969.7	1,911.9	9.0	8.3	120.98	-137.0	360.2	350.0	334.2	15.83	22.119		
2,100.0	2,027.8	2,066.9	2,004.5	9.6	8.8	120.59	-145.0	388.5	373.2	356.3	16.90	22.086		
2,200.0	2,122.6	2,164.2	2,097.2	10.2	9.4	120.24	-153.1	416.9	396.4	378.5	17.97	22.057		
2,300.0	2,217.4	2,261.4	2,189.9	10.8	9.9	119.94	-161.1	445.3	419.7	400.6	19.05	22.032		
2,400.0	2,312.2	2,358.7	2,282.5	11.4	10.5	119.67	-169.2	473.6	442.9	422.8	20.12	22.009		
2,500.0	2,407.0	2,455.9	2,375.2	12.0	11.1	119.42	-177.2	502.0	466.1	444.9	21.20	21.989		
2,600.0	2,501.8	2,553.1	2,467.9	12.6	11.6	119.20	-185.3	530.4	489.4	467.1	22.27	21.971	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-131.76	-35.3	-39.6	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	-131.76	-35.3	-39.6	53.0	52.8	0.27	194.815			
200.0	200.0	200.0	200.0	0.3	0.3	-131.76	-35.3	-39.6	53.0	52.4	0.62	85.368			
300.0	300.0	300.0	300.0	0.5	0.5	-131.76	-35.3	-39.6	53.0	52.1	0.97	54.660	CC, ES		
400.0	400.0	400.9	400.9	0.7	0.7	165.87	-35.9	-38.2	55.0	53.6	1.32	41.570			
500.0	499.6	501.8	501.6	0.9	0.9	161.86	-38.5	-32.0	60.0	58.3	1.70	35.369			
600.0	598.8	602.2	601.3	1.1	1.1	155.82	-43.2	-21.1	68.6	66.5	2.13	32.160			
700.0	697.1	701.8	699.4	1.5	1.4	149.22	-49.8	-5.5	81.5	78.8	2.69	30.330			
800.0	794.3	800.3	795.4	1.9	1.8	143.10	-58.4	14.6	99.0	95.6	3.40	29.155			
900.0	890.2	897.4	888.8	2.5	2.3	137.87	-68.7	38.8	121.3	117.0	4.28	28.335			
1,000.0	985.0	993.3	979.9	3.0	2.9	133.66	-80.6	66.6	146.9	141.6	5.28	27.793			
1,100.0	1,079.8	1,089.4	1,070.7	3.6	3.5	130.45	-92.8	95.4	173.2	166.9	6.33	27.362			
1,200.0	1,174.6	1,185.5	1,161.6	4.2	4.0	128.10	-105.1	124.2	199.9	192.5	7.39	27.055			
1,300.0	1,269.4	1,281.6	1,252.4	4.8	4.6	126.29	-117.3	153.0	226.8	218.4	8.45	26.830			
1,400.0	1,364.2	1,377.7	1,343.3	5.4	5.2	124.87	-129.6	181.7	253.9	244.4	9.52	26.661			
1,500.0	1,459.0	1,473.7	1,434.1	6.0	5.8	123.73	-141.8	210.5	281.1	270.5	10.60	26.532			
1,600.0	1,553.8	1,569.8	1,525.0	6.6	6.4	122.78	-154.1	239.3	308.4	296.8	11.67	26.430			
1,700.0	1,648.6	1,665.9	1,615.8	7.2	6.9	121.99	-166.3	268.1	335.8	323.1	12.75	26.348			
1,800.0	1,743.4	1,762.0	1,706.7	7.8	7.5	121.32	-178.6	296.8	363.2	349.4	13.82	26.281			
1,900.0	1,838.2	1,858.1	1,797.6	8.4	8.1	120.74	-190.9	325.6	390.7	375.8	14.90	26.226			
2,000.0	1,933.0	1,954.2	1,888.4	9.0	8.7	120.24	-203.1	354.4	418.2	402.2	15.97	26.180			
2,100.0	2,027.8	2,050.3	1,979.3	9.6	9.3	119.80	-215.4	383.2	445.7	428.7	17.05	26.141			
2,200.0	2,122.6	2,146.3	2,070.1	10.2	9.9	119.41	-227.6	411.9	473.2	455.1	18.13	26.107	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 31-16AA
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 31-16AA	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	-129.66	-43.3	-52.3	67.9						
100.0	100.0	100.0	100.0	0.1	0.1	-129.66	-43.3	-52.3	67.9	67.6	0.27	249.424			
200.0	200.0	200.0	200.0	0.3	0.3	-129.66	-43.3	-52.3	67.9	67.3	0.62	109.298			
300.0	300.0	300.0	300.0	0.5	0.5	-129.66	-43.3	-52.3	67.9	66.9	0.97	69.982	CC, ES		
400.0	400.0	400.8	400.8	0.7	0.7	167.07	-44.9	-50.1	69.8	68.5	1.33	52.656			
500.0	499.6	501.2	500.8	0.9	0.9	162.51	-49.5	-43.7	76.0	74.2	1.71	44.318			
600.0	598.8	600.6	599.4	1.1	1.2	156.41	-57.1	-33.1	87.0	84.8	2.17	40.069			
700.0	697.1	698.7	695.8	1.5	1.5	150.14	-67.6	-18.6	103.5	100.8	2.73	37.862			
800.0	794.3	795.0	789.4	1.9	1.9	144.52	-80.6	-0.5	125.7	122.3	3.43	36.689			
900.0	890.2	889.2	879.9	2.5	2.4	139.81	-96.0	20.9	153.7	149.4	4.26	36.066			
1,000.0	985.0	981.3	966.9	3.0	3.0	136.16	-113.6	45.3	185.8	180.6	5.22	35.615			
1,100.0	1,079.8	1,073.4	1,052.6	3.6	3.6	132.68	-133.2	72.6	219.8	213.5	6.24	35.236			
1,200.0	1,174.6	1,166.6	1,139.3	4.2	4.2	129.99	-153.3	100.5	254.4	247.1	7.28	34.952			
1,300.0	1,269.4	1,259.8	1,225.9	4.8	4.8	127.94	-173.4	128.4	289.5	281.1	8.33	34.768			
1,400.0	1,364.2	1,353.0	1,312.5	5.4	5.5	126.34	-193.6	156.4	324.7	315.4	9.37	34.645			
1,500.0	1,459.0	1,446.2	1,399.2	6.0	6.1	125.04	-213.7	184.3	360.2	349.8	10.42	34.562			
1,600.0	1,553.8	1,539.4	1,485.8	6.6	6.7	123.98	-233.8	212.2	395.8	384.4	11.47	34.505			
1,700.0	1,648.6	1,632.7	1,572.4	7.2	7.4	123.09	-253.9	240.2	431.5	419.0	12.52	34.465			
1,800.0	1,743.4	1,725.9	1,659.0	7.8	8.0	122.34	-274.0	268.1	467.3	453.7	13.57	34.437	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-128.63	-51.7	-64.7	82.8					
100.0	100.0	100.0	100.0	0.1	0.1	-128.63	-51.7	-64.7	82.8	82.6	0.27	304.278		
200.0	200.0	200.0	200.0	0.3	0.3	-128.63	-51.7	-64.7	82.8	82.2	0.62	133.336		
300.0	300.0	300.2	300.2	0.5	0.5	-128.75	-51.8	-64.6	82.8	81.8	0.97	85.312		
305.3	305.3	305.5	305.5	0.5	0.5	169.63	-51.9	-64.5	82.8	81.8	0.99	83.658 CC, ES		
400.0	400.0	400.8	400.7	0.7	0.7	167.35	-54.5	-61.6	84.8	83.4	1.33	63.691		
500.0	499.6	500.7	500.2	0.9	0.9	162.65	-60.5	-54.7	91.5	89.8	1.73	52.867		
600.0	598.8	599.5	597.9	1.1	1.2	156.76	-69.9	-44.0	103.7	101.5	2.20	47.098		
700.0	697.1	696.6	693.2	1.5	1.5	150.80	-82.3	-29.9	122.0	119.2	2.77	43.982		
800.0	794.3	791.6	785.3	1.9	2.0	145.48	-97.5	-12.5	146.5	143.0	3.46	42.303		
900.0	890.2	884.1	873.9	2.5	2.5	140.99	-115.3	7.7	177.0	172.8	4.28	41.405		
1,000.0	985.0	974.2	958.7	3.0	3.1	137.59	-135.2	30.4	212.1	206.9	5.20	40.790		
1,100.0	1,079.8	1,062.7	1,040.6	3.6	3.7	134.33	-157.3	55.6	249.4	243.2	6.19	40.316		
1,200.0	1,174.6	1,154.1	1,124.6	4.2	4.3	131.50	-181.2	82.8	288.0	280.8	7.22	39.905		
1,300.0	1,269.4	1,245.6	1,208.5	4.8	5.0	129.34	-205.0	110.0	327.0	318.8	8.25	39.643		
1,400.0	1,364.2	1,337.0	1,292.5	5.4	5.6	127.63	-228.9	137.2	366.4	357.1	9.28	39.469		
1,500.0	1,459.0	1,428.5	1,376.5	6.0	6.3	126.25	-252.7	164.4	406.0	395.6	10.32	39.352		
1,600.0	1,553.8	1,519.9	1,460.5	6.6	7.0	125.12	-276.6	191.5	445.7	434.4	11.35	39.272		
1,700.0	1,648.6	1,611.3	1,544.5	7.2	7.7	124.17	-300.5	218.7	485.6	473.2	12.38	39.217 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-127.65	-59.7	-77.4	97.8						
100.0	100.0	100.0	100.0	0.1	0.1	-127.65	-59.7	-77.4	97.8	97.5	0.27	359.181			
200.0	200.0	200.0	200.0	0.3	0.3	-127.65	-59.7	-77.4	97.8	97.2	0.62	157.394			
300.0	300.0	300.3	300.3	0.5	0.5	-128.03	-60.2	-77.0	97.7	96.7	0.97	100.623			
306.4	306.4	306.8	306.8	0.5	0.5	170.30	-60.3	-76.8	97.7	96.7	1.00	98.198 CC, ES			
400.0	400.0	400.6	400.5	0.7	0.7	167.63	-64.0	-73.3	99.8	98.5	1.34	74.535			
500.0	499.6	500.1	499.4	0.9	0.9	162.88	-71.4	-66.0	107.1	105.4	1.75	61.101			
600.0	598.8	598.2	596.3	1.1	1.2	157.18	-82.3	-55.2	120.4	118.2	2.24	53.739			
700.0	697.1	694.4	690.4	1.5	1.6	151.49	-96.4	-41.3	140.2	137.4	2.82	49.693			
800.0	794.3	788.2	781.1	1.9	2.1	146.40	-113.4	-24.6	166.5	163.0	3.51	47.482			
900.0	890.2	879.3	867.9	2.5	2.6	142.07	-132.9	-5.4	199.1	194.8	4.30	46.282			
1,000.0	985.0	967.6	950.8	3.0	3.2	138.83	-154.7	16.0	236.5	231.3	5.20	45.463			
1,100.0	1,079.8	1,053.5	1,030.0	3.6	3.8	135.81	-178.4	39.4	276.3	270.1	6.17	44.790			
1,200.0	1,174.6	1,140.9	1,109.3	4.2	4.5	132.91	-204.7	65.3	318.2	311.0	7.18	44.329			
1,300.0	1,269.4	1,230.5	1,190.3	4.8	5.1	130.57	-231.8	92.0	360.8	352.6	8.20	43.982			
1,400.0	1,364.2	1,320.0	1,271.4	5.4	5.8	128.72	-258.9	118.7	403.8	394.6	9.23	43.758			
1,500.0	1,459.0	1,409.6	1,352.5	6.0	6.5	127.21	-286.0	145.4	447.1	436.9	10.25	43.612			
1,600.0	1,553.8	1,499.2	1,433.6	6.6	7.2	125.98	-313.2	172.1	490.6	479.4	11.27	43.516 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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)	Offset Wellbore Centre +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	-127.16	-68.1	-89.9	112.8						
100.0	100.0	100.0	100.0	0.1	0.1	-127.16	-68.1	-89.9	112.8	112.5	0.27	414.149			
200.0	200.0	200.0	200.0	0.3	0.3	-127.16	-68.1	-89.9	112.8	112.1	0.62	181.481			
283.2	283.2	283.2	283.2	0.5	0.5	-127.61	-68.8	-89.3	112.8	111.8	0.91	123.597 CC			
300.0	300.0	300.0	300.0	0.5	0.5	-127.91	-69.3	-89.0	112.8	111.8	0.97	116.122 ES			
400.0	400.0	399.6	399.4	0.7	0.7	167.49	-74.4	-85.0	115.5	114.2	1.35	85.526			
500.0	499.6	498.2	497.2	0.9	0.9	162.86	-83.5	-77.9	124.2	122.5	1.78	69.816			
600.0	598.8	595.0	592.7	1.1	1.3	157.54	-96.4	-68.0	139.6	137.3	2.28	61.325			
700.0	697.1	689.6	685.1	1.5	1.7	152.33	-112.6	-55.5	161.8	159.0	2.85	56.789			
800.0	794.3	781.5	773.6	1.9	2.1	147.68	-131.8	-40.6	191.1	187.5	3.51	54.424			
900.0	890.2	870.1	857.9	2.5	2.7	143.72	-153.5	-23.9	226.9	222.7	4.26	53.231			
1,000.0	985.0	955.7	938.0	3.0	3.2	140.84	-177.4	-5.4	267.8	262.7	5.11	52.427			
1,100.0	1,079.8	1,038.7	1,014.3	3.6	3.8	138.20	-203.2	14.6	311.1	305.1	6.01	51.763			
1,200.0	1,174.6	1,119.0	1,086.7	4.2	4.5	135.71	-230.6	35.8	357.0	350.1	6.95	51.389			
1,300.0	1,269.4	1,197.5	1,156.0	4.8	5.2	133.34	-259.8	58.3	405.5	397.6	7.91	51.263			
1,400.0	1,364.2	1,283.0	1,230.9	5.4	5.9	131.13	-292.4	83.6	455.3	446.3	8.92	51.056 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16AA
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 31-16AA	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	-126.65	-76.1	-102.3	127.5						
100.0	100.0	100.0	100.0	0.1	0.1	-126.65	-76.1	-102.3	127.5	127.2	0.27	468.341			
200.0	200.0	200.0	200.0	0.3	0.3	-126.65	-76.1	-102.3	127.5	126.9	0.62	205.228 CC			
300.0	300.0	299.6	299.6	0.5	0.5	-127.82	-78.3	-100.8	127.6	126.7	0.97	131.409 ES			
400.0	400.0	398.7	398.4	0.7	0.7	167.40	-84.6	-96.5	130.9	129.5	1.37	95.565			
500.0	499.6	496.6	495.4	0.9	1.0	162.84	-95.1	-89.3	140.5	138.7	1.82	77.400			
600.0	598.8	592.6	589.9	1.1	1.3	157.75	-109.3	-79.6	157.0	154.7	2.32	67.575			
700.0	697.1	686.1	680.9	1.5	1.7	152.81	-126.9	-67.5	180.7	177.8	2.90	62.309			
800.0	794.3	776.7	768.0	1.9	2.2	148.39	-147.4	-53.5	211.6	208.0	3.55	59.544			
900.0	890.2	863.8	850.5	2.5	2.7	144.58	-170.3	-37.7	249.2	244.9	4.29	58.133			
1,000.0	985.0	947.7	928.7	3.0	3.3	141.85	-195.3	-20.6	292.0	286.9	5.11	57.160			
1,100.0	1,079.8	1,028.8	1,003.0	3.6	3.9	139.39	-222.2	-2.2	337.3	331.3	5.98	56.390			
1,200.0	1,174.6	1,107.2	1,073.4	4.2	4.6	137.07	-250.5	17.2	385.1	378.2	6.88	55.944			
1,300.0	1,269.4	1,182.6	1,139.8	4.8	5.2	134.90	-280.1	37.4	435.5	427.7	7.81	55.734			
1,400.0	1,364.2	1,259.4	1,206.1	5.4	6.0	132.80	-312.2	59.4	488.3	479.6	8.76	55.734 SF			

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

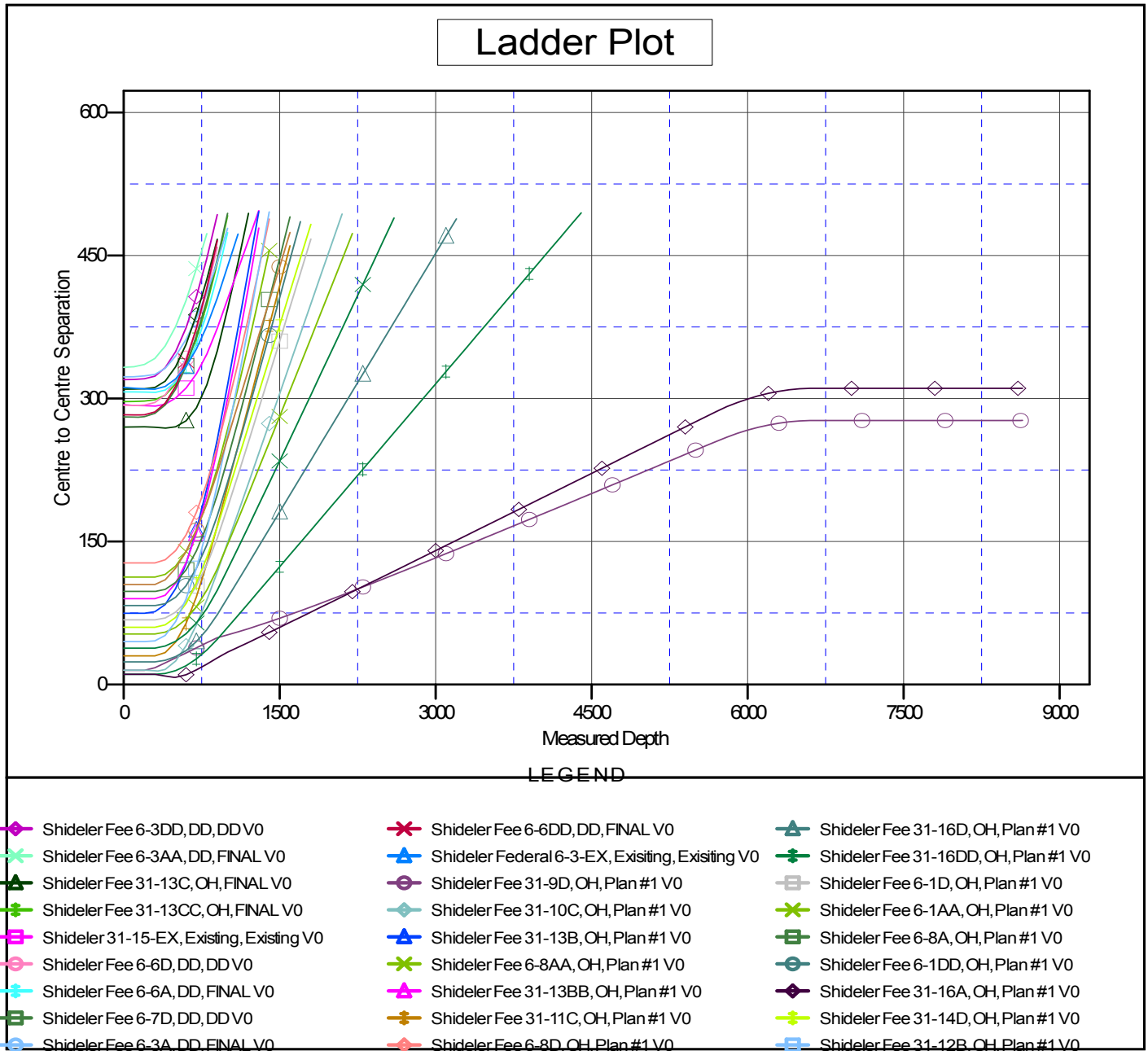
Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Shideler Fee 31-16AA	
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 31-16AA	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 31-16AA
 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