

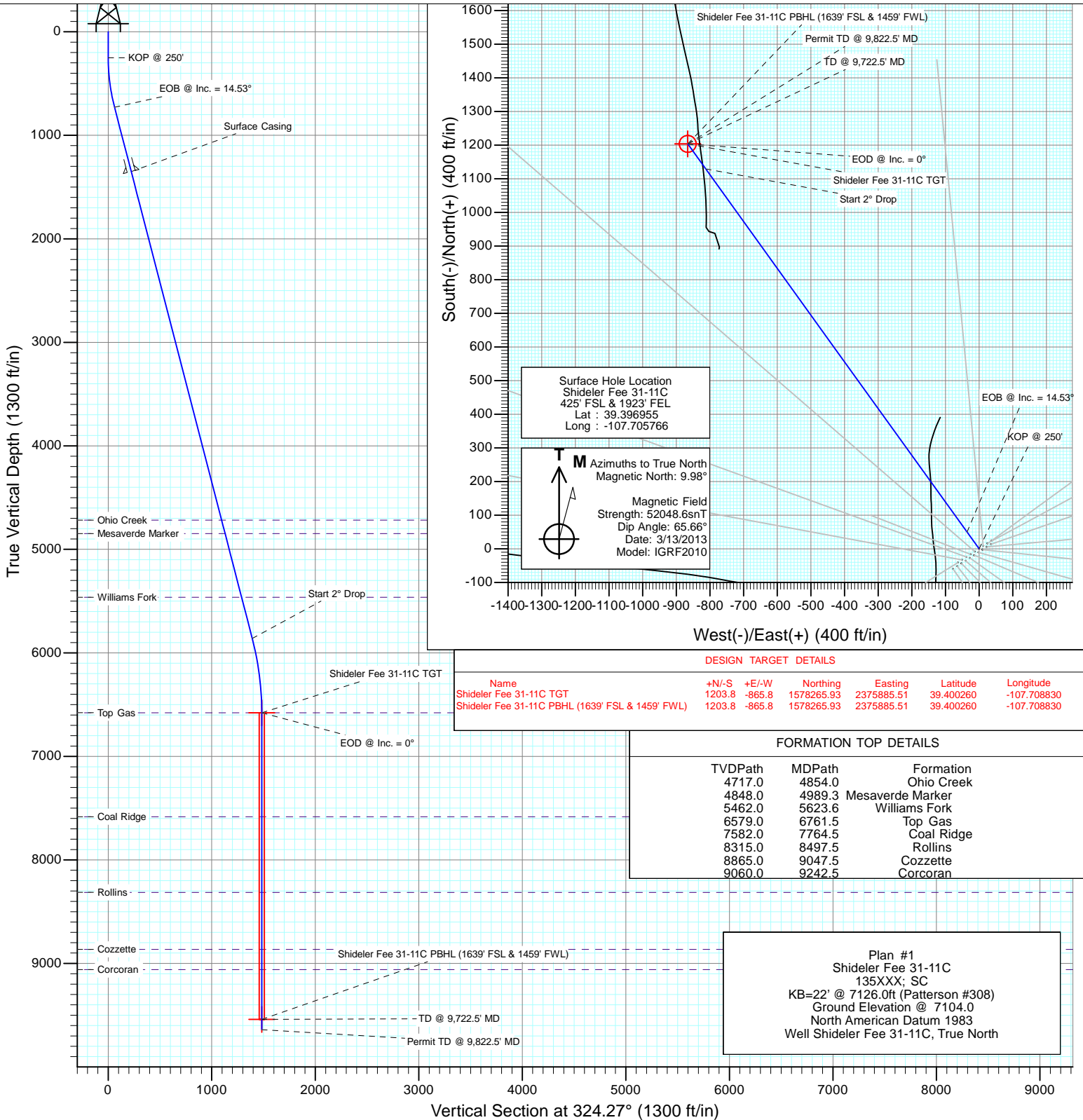


Project: Mamm Creek
 Site: O31E Pad (2nd Occupation)
 Well: Shideler Fee 31-11C
 Wellbore: OH
 Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	
3	734.4	14.53	324.27	729.3	49.6	-35.7	3.00	324.27	61.1	
4	6034.9	14.53	324.27	5860.1	1129.4	-812.3	0.00	0.00	1391.2	
5	6761.5	0.00	0.00	6579.0	1203.8	-865.8	2.00	180.00	1482.8	Shideler Fee 31-11C TGT
6	9722.5	0.00	0.00	9540.0	1203.8	-865.8	0.00	0.00	1482.8	Shideler Fee 31-11C PBHL (1639' FSL & 1459' FWL)
7	9822.5	0.00	0.00	9640.0	1203.8	-865.8	0.00	0.00	1482.8	



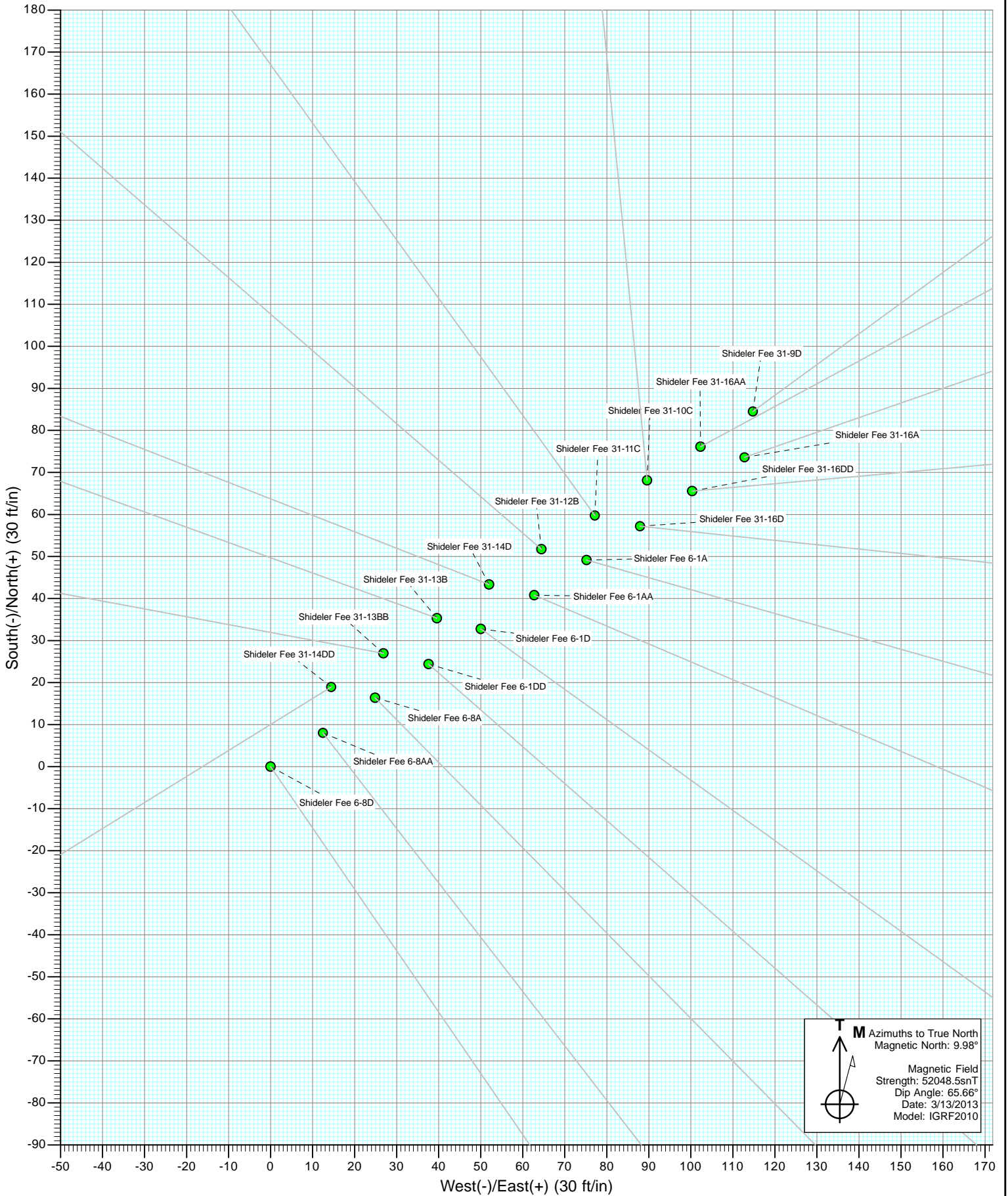
DESIGN TARGET DETAILS

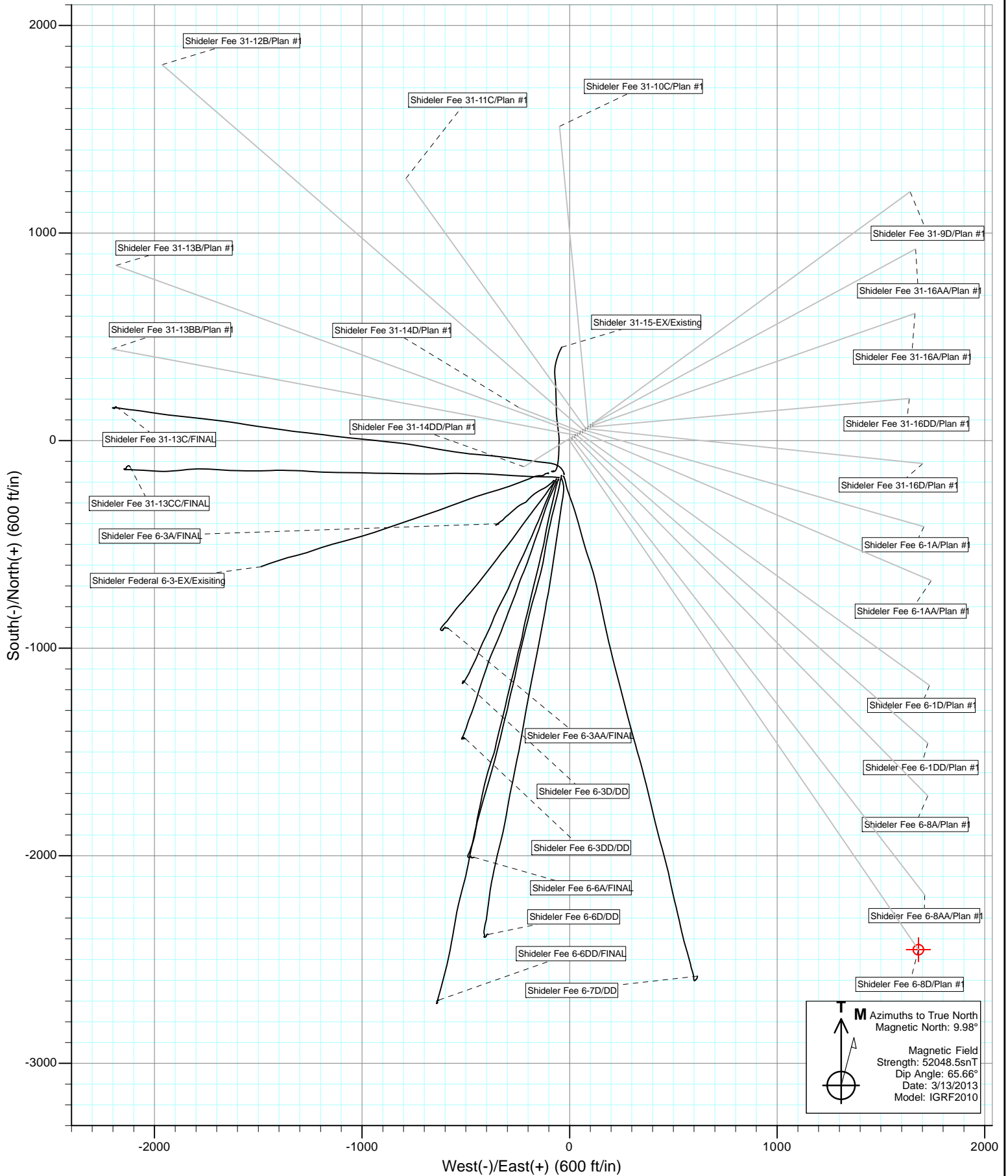
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shideler Fee 31-11C TGT	1203.8	-865.8	1578265.93	2375885.51	39.400260	-107.708830
Shideler Fee 31-11C PBHL (1639' FSL & 1459' FWL)	1203.8	-865.8	1578265.93	2375885.51	39.400260	-107.708830

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4717.0	4854.0	Ohio Creek
4848.0	4989.3	Mesaverde Marker
5462.0	5623.6	Williams Fork
6579.0	6761.5	Top Gas
7582.0	7764.5	Coal Ridge
8315.0	8497.5	Rollins
8865.0	9047.5	Cozzette
9060.0	9242.5	Corcoran

Plan #1
 Shideler Fee 31-11C
 135XXX; SC
 KB=22' @ 7126.0ft (Patterson #308)
 Ground Elevation @ 7104.0
 North American Datum 1983
 Well Shideler Fee 31-11C, True North



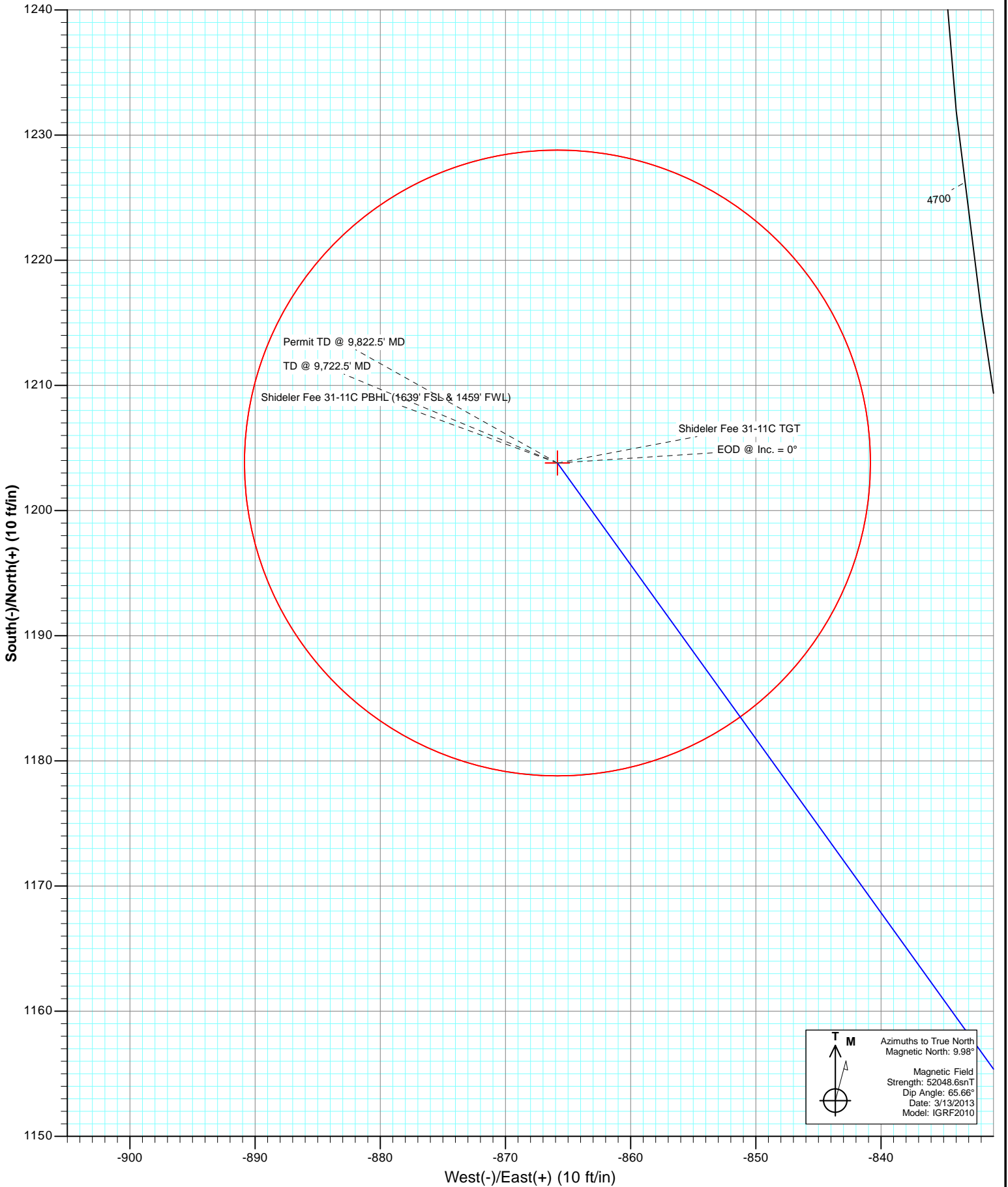


M Azimuths to True North
Magnetic North: 9.98°

Magnetic Field
Strength: 52048.5snT
Dip Angle: 65.66°
Date: 3/13/2013
Model: IGRF2010



Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-11C
Wellbore: OH
Plan: Plan #1



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-11C
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 31-11C	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 31-11C						
Well Position	+N/-S	0.0 ft	Northing:	1,577,041.46 ft	Latitude:	39.396955
	+E/-W	0.0 ft	Easting:	2,376,721.87 ft	Longitude:	-107.705766
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	324.27	

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	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
734.4	14.53	324.27	729.3	49.6	-35.7	3.00	3.00	0.00	324.27	
6,034.9	14.53	324.27	5,860.1	1,129.4	-812.3	0.00	0.00	0.00	0.00	
6,761.5	0.00	0.00	6,579.0	1,203.8	-865.8	2.00	-2.00	0.00	180.00	Shideler Fee 31-11C
9,722.5	0.00	0.00	9,540.0	1,203.8	-865.8	0.00	0.00	0.00	0.00	Shideler Fee 31-11C I
9,822.5	0.00	0.00	9,640.0	1,203.8	-865.8	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 31-11C
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-11C
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	
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	KOP @ 250'
300.0	1.50	324.27	300.0	0.5	-0.4	0.7	3.00	3.00	
400.0	4.50	324.27	399.8	4.8	-3.4	5.9	3.00	3.00	
500.0	7.50	324.27	499.3	13.3	-9.5	16.3	3.00	3.00	
600.0	10.50	324.27	598.0	26.0	-18.7	32.0	3.00	3.00	
700.0	13.50	324.27	695.8	42.8	-30.8	52.8	3.00	3.00	
734.4	14.53	324.27	729.3	49.6	-35.7	61.1	3.00	3.00	EOB @ Inc. = 14.53°
800.0	14.53	324.27	792.7	63.0	-45.3	77.6	0.00	0.00	
900.0	14.53	324.27	889.5	83.3	-59.9	102.7	0.00	0.00	
1,000.0	14.53	324.27	986.3	103.7	-74.6	127.7	0.00	0.00	
1,100.0	14.53	324.27	1,083.1	124.1	-89.2	152.8	0.00	0.00	
1,200.0	14.53	324.27	1,179.9	144.5	-103.9	177.9	0.00	0.00	
1,300.0	14.53	324.27	1,276.7	164.8	-118.6	203.0	0.00	0.00	
1,375.7	14.53	324.27	1,350.0	180.2	-129.6	222.0	0.00	0.00	Surface Casing
1,400.0	14.53	324.27	1,373.5	185.2	-133.2	228.1	0.00	0.00	
1,500.0	14.53	324.27	1,470.3	205.6	-147.9	253.2	0.00	0.00	
1,600.0	14.53	324.27	1,567.1	225.9	-162.5	278.3	0.00	0.00	
1,700.0	14.53	324.27	1,663.9	246.3	-177.2	303.4	0.00	0.00	
1,800.0	14.53	324.27	1,760.7	266.7	-191.8	328.5	0.00	0.00	
1,900.0	14.53	324.27	1,857.5	287.1	-206.5	353.6	0.00	0.00	
2,000.0	14.53	324.27	1,954.3	307.4	-221.1	378.7	0.00	0.00	
2,100.0	14.53	324.27	2,051.1	327.8	-235.8	403.8	0.00	0.00	
2,200.0	14.53	324.27	2,147.9	348.2	-250.4	428.9	0.00	0.00	
2,300.0	14.53	324.27	2,244.7	368.5	-265.1	454.0	0.00	0.00	
2,400.0	14.53	324.27	2,341.5	388.9	-279.7	479.1	0.00	0.00	
2,500.0	14.53	324.27	2,438.3	409.3	-294.4	504.2	0.00	0.00	
2,600.0	14.53	324.27	2,535.1	429.7	-309.0	529.2	0.00	0.00	
2,700.0	14.53	324.27	2,631.9	450.0	-323.7	554.3	0.00	0.00	
2,800.0	14.53	324.27	2,728.7	470.4	-338.3	579.4	0.00	0.00	
2,900.0	14.53	324.27	2,825.5	490.8	-353.0	604.5	0.00	0.00	
3,000.0	14.53	324.27	2,922.3	511.1	-367.6	629.6	0.00	0.00	
3,100.0	14.53	324.27	3,019.1	531.5	-382.3	654.7	0.00	0.00	
3,200.0	14.53	324.27	3,115.9	551.9	-396.9	679.8	0.00	0.00	
3,300.0	14.53	324.27	3,212.7	572.3	-411.6	704.9	0.00	0.00	
3,400.0	14.53	324.27	3,309.5	592.6	-426.2	730.0	0.00	0.00	
3,500.0	14.53	324.27	3,406.3	613.0	-440.9	755.1	0.00	0.00	
3,600.0	14.53	324.27	3,503.1	633.4	-455.6	780.2	0.00	0.00	
3,700.0	14.53	324.27	3,599.9	653.7	-470.2	805.3	0.00	0.00	
3,800.0	14.53	324.27	3,696.7	674.1	-484.9	830.4	0.00	0.00	
3,900.0	14.53	324.27	3,793.5	694.5	-499.5	855.5	0.00	0.00	
4,000.0	14.53	324.27	3,890.3	714.9	-514.2	880.6	0.00	0.00	
4,100.0	14.53	324.27	3,987.1	735.2	-528.8	905.6	0.00	0.00	
4,200.0	14.53	324.27	4,083.9	755.6	-543.5	930.7	0.00	0.00	
4,300.0	14.53	324.27	4,180.7	776.0	-558.1	955.8	0.00	0.00	
4,400.0	14.53	324.27	4,277.5	796.3	-572.8	980.9	0.00	0.00	
4,500.0	14.53	324.27	4,374.3	816.7	-587.4	1,006.0	0.00	0.00	
4,600.0	14.53	324.27	4,471.1	837.1	-602.1	1,031.1	0.00	0.00	
4,700.0	14.53	324.27	4,567.9	857.5	-616.7	1,056.2	0.00	0.00	
4,800.0	14.53	324.27	4,664.7	877.8	-631.4	1,081.3	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-11C
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-11C
TVD Reference: KB=22' @ 7126.0ft (Patterson #308)
MD Reference: KB=22' @ 7126.0ft (Patterson #308)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,854.0	14.53	324.27	4,717.0	888.8	-639.3	1,094.9	0.00	0.00	Ohio Creek
4,900.0	14.53	324.27	4,761.5	898.2	-646.0	1,106.4	0.00	0.00	
4,989.3	14.53	324.27	4,848.0	916.4	-659.1	1,128.8	0.00	0.00	Mesaverde Marker
5,000.0	14.53	324.27	4,858.3	918.6	-660.7	1,131.5	0.00	0.00	
5,100.0	14.53	324.27	4,955.1	938.9	-675.3	1,156.6	0.00	0.00	
5,200.0	14.53	324.27	5,051.9	959.3	-690.0	1,181.7	0.00	0.00	
5,300.0	14.53	324.27	5,148.7	979.7	-704.6	1,206.8	0.00	0.00	
5,400.0	14.53	324.27	5,245.5	1,000.1	-719.3	1,231.9	0.00	0.00	
5,500.0	14.53	324.27	5,342.3	1,020.4	-733.9	1,257.0	0.00	0.00	
5,600.0	14.53	324.27	5,439.1	1,040.8	-748.6	1,282.1	0.00	0.00	
5,623.6	14.53	324.27	5,462.0	1,045.6	-752.1	1,288.0	0.00	0.00	Williams Fork
5,700.0	14.53	324.27	5,535.9	1,061.2	-763.2	1,307.1	0.00	0.00	
5,800.0	14.53	324.27	5,632.7	1,081.5	-777.9	1,332.2	0.00	0.00	
5,900.0	14.53	324.27	5,729.5	1,101.9	-792.6	1,357.3	0.00	0.00	
6,000.0	14.53	324.27	5,826.3	1,122.3	-807.2	1,382.4	0.00	0.00	
6,034.9	14.53	324.27	5,860.1	1,129.4	-812.3	1,391.2	0.00	0.00	Start 2° Drop
6,100.0	13.23	324.27	5,923.3	1,142.1	-821.4	1,406.8	2.00	-2.00	
6,200.0	11.23	324.27	6,021.1	1,159.3	-833.8	1,428.0	2.00	-2.00	
6,300.0	9.23	324.27	6,119.5	1,173.7	-844.2	1,445.7	2.00	-2.00	
6,400.0	7.23	324.27	6,218.4	1,185.3	-852.5	1,460.1	2.00	-2.00	
6,500.0	5.23	324.27	6,317.8	1,194.1	-858.9	1,470.9	2.00	-2.00	
6,600.0	3.23	324.27	6,417.5	1,200.1	-863.2	1,478.3	2.00	-2.00	
6,700.0	1.23	324.27	6,517.5	1,203.3	-865.5	1,482.2	2.00	-2.00	
6,761.5	0.00	0.00	6,579.0	1,203.8	-865.8	1,482.8	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,800.0	0.00	0.00	6,617.5	1,203.8	-865.8	1,482.8	0.00	0.00	
6,900.0	0.00	0.00	6,717.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,000.0	0.00	0.00	6,817.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,100.0	0.00	0.00	6,917.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,200.0	0.00	0.00	7,017.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,300.0	0.00	0.00	7,117.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,400.0	0.00	0.00	7,217.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,500.0	0.00	0.00	7,317.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,600.0	0.00	0.00	7,417.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,700.0	0.00	0.00	7,517.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,764.5	0.00	0.00	7,582.0	1,203.8	-865.8	1,482.8	0.00	0.00	Coal Ridge
7,800.0	0.00	0.00	7,617.5	1,203.8	-865.8	1,482.8	0.00	0.00	
7,900.0	0.00	0.00	7,717.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,000.0	0.00	0.00	7,817.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,100.0	0.00	0.00	7,917.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,200.0	0.00	0.00	8,017.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,300.0	0.00	0.00	8,117.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,400.0	0.00	0.00	8,217.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,497.5	0.00	0.00	8,315.0	1,203.8	-865.8	1,482.8	0.00	0.00	Rollins
8,500.0	0.00	0.00	8,317.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,600.0	0.00	0.00	8,417.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,700.0	0.00	0.00	8,517.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,800.0	0.00	0.00	8,617.5	1,203.8	-865.8	1,482.8	0.00	0.00	
8,900.0	0.00	0.00	8,717.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,000.0	0.00	0.00	8,817.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,047.5	0.00	0.00	8,865.0	1,203.8	-865.8	1,482.8	0.00	0.00	Cozzette
9,100.0	0.00	0.00	8,917.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,200.0	0.00	0.00	9,017.5	1,203.8	-865.8	1,482.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-11C
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 31-11C	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
9,242.5	0.00	0.00	9,060.0	1,203.8	-865.8	1,482.8	0.00	0.00	Corcoran
9,300.0	0.00	0.00	9,117.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,400.0	0.00	0.00	9,217.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,500.0	0.00	0.00	9,317.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,600.0	0.00	0.00	9,417.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,700.0	0.00	0.00	9,517.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,722.5	0.00	0.00	9,540.0	1,203.8	-865.8	1,482.8	0.00	0.00	TD @ 9,722.5' MD
9,800.0	0.00	0.00	9,617.5	1,203.8	-865.8	1,482.8	0.00	0.00	
9,822.5	0.00	0.00	9,640.0	1,203.8	-865.8	1,482.8	0.00	0.00	Permit TD @ 9,822.5' MD

Targets											
Target Name	- hit/miss target	- Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Shideler Fee 31-11C PB			0.00	0.00	9,540.0	1,203.8	-865.8	1,578,265.93	2,375,885.51	39.400260	-107.708830
- plan hits target center											
- Circle (radius 25.0)											
Shideler Fee 31-11C TG			0.00	0.00	6,579.0	1,203.8	-865.8	1,578,265.93	2,375,885.51	39.400260	-107.708830
- plan hits target center											
- Point											

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,375.7	1,350.0	Surface Casing				

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,854.0	4,717.0	Ohio Creek				
4,989.3	4,848.0	Mesaverde Marker				
5,623.6	5,462.0	Williams Fork				
6,761.5	6,579.0	Top Gas				
7,764.5	7,582.0	Coal Ridge				
8,497.5	8,315.0	Rollins				
9,047.5	8,865.0	Cozzette				
9,242.5	9,060.0	Corcoran				

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
250.0	250.0	0.0	0.0	KOP @ 250'
734.4	729.3	49.6	-35.7	EOB @ Inc. = 14.53°
6,034.9	5,860.1	1,129.4	-812.3	Start 2° Drop
6,761.5	6,579.0	1,203.8	-865.8	EOD @ Inc. = 0°
9,722.5	9,540.0	1,203.8	-865.8	TD @ 9,722.5' MD
9,822.5	9,640.0	1,203.8	-865.8	Permit TD @ 9,822.5' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O31E Pad (2nd Occupation)

Shideler Fee 31-11C

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 31-11C
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 31-11C	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	9,822.5	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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 Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
K31E Pad						
Shideler 31-11D (K31E) (Existing) - Existing - Existing	5,791.4	5,470.1	40.4	-0.7	0.983	Level 1, CC, ES, SF
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	300.0	278.8	263.9	263.1	361.408	CC, ES
Shideler 31-15-EX - Existing - Existing	1,900.0	1,877.3	490.1	484.0	79.837	SF
Shideler Federal 6-3-EX - Existing - Existing	261.8	240.5	281.2	280.6	447.233	CC
Shideler Federal 6-3-EX - Existing - Existing	300.0	277.7	281.2	280.5	386.303	ES
Shideler Federal 6-3-EX - Existing - Existing	1,800.0	1,737.4	495.5	489.1	76.718	SF
Shideler Fee 31-13C - OH - FINAL	518.4	538.4	242.7	240.8	129.322	CC, ES
Shideler Fee 31-13C - OH - FINAL	1,800.0	1,726.8	489.0	475.5	36.287	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	270.1			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.2	270.2	269.9	967.855	ES
Shideler Fee 31-13CC - OH - FINAL	1,400.0	1,324.6	491.3	481.9	52.547	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	295.4			
Shideler Fee 6-3A - DD - FINAL	100.0	102.1	295.6	295.3	1,059.490	ES
Shideler Fee 6-3A - DD - FINAL	1,400.0	1,364.9	481.8	475.6	76.920	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	305.7			
Shideler Fee 6-3AA - DD - FINAL	1,000.0	927.9	480.2	475.9	112.403	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	282.8			
Shideler Fee 6-3D - DD - DD	200.0	201.8	283.3	282.7	453.539	ES
Shideler Fee 6-3D - DD - DD	1,100.0	1,005.6	480.7	476.1	104.087	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	293.1			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	293.2	292.9	1,049.860	ES
Shideler Fee 6-3DD - DD - DD	1,000.0	895.1	478.9	474.8	117.486	SF
Shideler Fee 6-6A - DD - FINAL	300.0	304.2	280.2	279.2	286.331	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,200.0	1,049.3	499.1	494.2	101.662	SF
Shideler Fee 6-6D - DD - DD	133.6	136.7	266.6	266.2	674.991	CC, ES
Shideler Fee 6-6D - DD - DD	1,000.0	844.0	475.9	472.0	122.714	SF
Shideler Fee 6-6DD - DD - FINAL	153.2	156.2	256.5	256.0	553.523	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.5	256.6	256.0	412.368	ES
Shideler Fee 6-6DD - DD - FINAL	1,000.0	844.0	472.6	468.6	120.857	SF
Shideler Fee 6-7D - DD - DD	140.2	140.2	254.6	254.2	609.113	CC, ES
Shideler Fee 6-7D - DD - DD	900.0	775.6	428.2	424.7	121.134	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 31-11C
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 31-11C	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 Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	200.0	200.0	15.0	14.4	24.126	CC, ES
Shideler Fee 31-10C - OH - Plan #1	500.0	498.4	24.9	23.1	13.534	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	15.0	14.4	24.191	CC, ES
Shideler Fee 31-12B - OH - Plan #1	800.0	795.6	39.1	35.0	9.631	SF
Shideler Fee 31-13B - OH - Plan #1	200.0	200.0	44.8	44.2	72.123	CC, ES
Shideler Fee 31-13B - OH - Plan #1	900.0	880.7	114.8	109.8	22.910	SF
Shideler Fee 31-13BB - OH - Plan #1	315.1	315.1	60.0	59.0	58.483	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	1,200.0	1,166.7	194.1	186.6	26.008	SF
Shideler Fee 31-14D - OH - Plan #1	322.7	322.6	30.0	28.9	28.471	CC, ES
Shideler Fee 31-14D - OH - Plan #1	500.0	499.3	33.5	31.8	19.309	SF
Shideler Fee 31-14DD - OH - Plan #1	302.0	302.0	74.8	73.8	76.470	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	800.0	789.2	119.3	116.1	37.327	SF
Shideler Fee 31-16A - OH - Plan #1	200.0	200.0	38.2	37.6	61.485	CC
Shideler Fee 31-16A - OH - Plan #1	300.0	300.0	38.4	37.4	39.523	ES
Shideler Fee 31-16A - OH - Plan #1	500.0	497.0	47.6	45.8	27.613	SF
Shideler Fee 31-16AA - OH - Plan #1	200.0	200.0	30.0	29.4	48.316	CC
Shideler Fee 31-16AA - OH - Plan #1	300.0	300.0	30.1	29.1	30.958	ES
Shideler Fee 31-16AA - OH - Plan #1	400.0	398.2	33.4	32.1	25.036	SF
Shideler Fee 31-16D - OH - Plan #1	200.0	200.0	11.0	10.4	17.764	CC
Shideler Fee 31-16D - OH - Plan #1	228.8	228.8	11.1	10.4	15.404	ES
Shideler Fee 31-16D - OH - Plan #1	300.0	300.0	11.5	10.6	11.891	SF
Shideler Fee 31-16DD - OH - Plan #1	200.0	200.0	23.9	23.3	38.457	CC
Shideler Fee 31-16DD - OH - Plan #1	300.0	300.0	24.1	23.2	24.869	ES
Shideler Fee 31-16DD - OH - Plan #1	400.0	398.4	29.2	27.9	21.965	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	45.0	44.4	72.448	CC, ES
Shideler Fee 31-9D - OH - Plan #1	500.0	490.2	70.1	68.4	40.243	SF
Shideler Fee 6-1A - OH - Plan #1	200.0	200.0	10.8	10.1	17.302	CC
Shideler Fee 6-1A - OH - Plan #1	229.1	229.1	10.8	10.1	14.976	ES
Shideler Fee 6-1A - OH - Plan #1	300.0	300.0	11.2	10.2	11.553	SF
Shideler Fee 6-1AA - OH - Plan #1	200.0	200.0	23.8	23.2	38.305	CC
Shideler Fee 6-1AA - OH - Plan #1	300.0	300.0	24.0	23.0	24.720	ES
Shideler Fee 6-1AA - OH - Plan #1	400.0	399.8	26.1	24.8	19.587	SF
Shideler Fee 6-1D - OH - Plan #1	200.0	200.0	38.2	37.6	61.548	CC
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	38.4	37.4	39.500	ES
Shideler Fee 6-1D - OH - Plan #1	500.0	497.6	47.2	45.4	27.028	SF
Shideler Fee 6-1DD - OH - Plan #1	200.0	200.0	53.0	52.4	85.373	CC
Shideler Fee 6-1DD - OH - Plan #1	300.0	300.1	53.1	52.1	54.682	ES
Shideler Fee 6-1DD - OH - Plan #1	500.0	497.2	60.7	58.9	34.224	SF
Shideler Fee 6-8A - OH - Plan #1	200.0	200.0	67.9	67.3	109.298	CC
Shideler Fee 6-8A - OH - Plan #1	300.0	300.1	67.9	66.9	69.891	ES
Shideler Fee 6-8A - OH - Plan #1	600.0	589.8	92.2	89.9	41.023	SF
Shideler Fee 6-8AA - OH - Plan #1	200.0	200.0	82.8	82.2	133.331	CC
Shideler Fee 6-8AA - OH - Plan #1	300.0	299.9	82.9	82.0	85.191	ES
Shideler Fee 6-8AA - OH - Plan #1	600.0	587.2	108.5	106.2	47.223	SF
Shideler Fee 6-8D - OH - Plan #1	200.0	200.0	97.6	96.9	157.034	CC
Shideler Fee 6-8D - OH - Plan #1	300.0	299.6	97.8	96.8	99.938	ES
Shideler Fee 6-8D - OH - Plan #1	600.0	585.0	124.2	121.8	52.701	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 31-11C
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 31-11C	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: 246-MWD													Offset Well Error:	0.0 ft
Reference													Warning	
Offset				Semi Major Axis			Distance		Total		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
4,600.0	4,471.1	4,376.0	4,329.0	20.0	12.6	6.88	1,252.9	-835.7	482.7	466.3	16.43	29.377		
4,700.0	4,567.9	4,469.5	4,421.2	20.5	12.9	6.36	1,237.2	-834.4	443.1	426.3	16.80	26.381		
4,800.0	4,664.7	4,562.7	4,513.0	21.0	13.2	5.73	1,221.1	-832.8	403.2	386.0	17.16	23.493		
4,900.0	4,761.5	4,654.4	4,603.3	21.5	13.5	5.15	1,205.6	-830.3	363.0	345.5	17.53	20.713		
5,000.0	4,858.3	4,746.7	4,694.3	21.9	13.8	4.30	1,189.6	-828.4	322.9	305.0	17.91	18.028		
5,100.0	4,955.1	4,839.3	4,785.3	22.4	14.2	3.17	1,173.2	-826.3	282.5	264.2	18.32	15.421		
5,200.0	5,051.9	4,931.4	4,875.9	22.9	14.5	1.77	1,156.9	-823.7	241.9	223.1	18.77	12.885		
5,300.0	5,148.7	5,021.6	4,964.6	23.4	14.8	-0.29	1,140.5	-821.4	201.3	182.0	19.32	10.417		
5,400.0	5,245.5	5,112.5	5,054.1	23.8	15.1	-3.28	1,124.6	-819.3	161.7	141.5	20.10	8.041		
5,500.0	5,342.3	5,203.4	5,143.5	24.3	15.5	-8.40	1,108.4	-817.6	122.6	101.1	21.53	5.693		
5,600.0	5,439.1	5,294.6	5,233.3	24.8	15.8	-17.82	1,092.7	-816.2	85.8	61.1	24.74	3.469		
5,700.0	5,535.9	5,386.1	5,323.4	25.3	16.1	-39.04	1,076.7	-814.8	54.0	21.2	32.77	1.646		
5,791.4	5,624.4	5,470.1	5,406.3	25.7	16.4	-78.20	1,063.2	-813.4	40.4	-0.7	41.12	0.983	Level 1, CC, ES, SF	
5,800.0	5,632.7	5,478.1	5,414.2	25.7	16.4	-82.51	1,062.0	-813.3	40.6	-0.7	41.21	0.984	Level 1	
5,900.0	5,729.5	5,570.4	5,505.4	26.2	16.7	-121.29	1,048.1	-812.5	58.0	23.2	34.80	1.666		
6,000.0	5,826.3	5,661.7	5,595.6	26.7	17.0	-138.64	1,033.7	-812.0	89.9	60.5	29.38	3.060		
6,100.0	5,923.3	5,752.8	5,685.3	27.2	17.3	-146.95	1,018.0	-811.4	126.4	99.3	27.06	4.670		
6,200.0	6,021.1	5,847.5	5,778.7	27.5	17.6	-151.21	1,001.9	-810.9	161.2	135.0	26.20	6.150		
6,300.0	6,119.5	5,945.1	5,875.1	27.9	17.9	-153.52	986.5	-810.7	192.2	166.3	25.98	7.399		
6,400.0	6,218.4	6,048.0	5,976.9	28.1	18.2	-154.92	972.4	-810.5	218.5	192.5	26.02	8.397		
6,500.0	6,317.8	6,156.3	6,084.7	28.3	18.4	-155.73	962.0	-810.8	237.6	211.4	26.21	9.066		
6,600.0	6,417.5	6,263.4	6,191.6	28.5	18.6	-156.23	956.0	-811.1	249.8	223.3	26.45	9.444		
6,700.0	6,517.5	6,364.6	6,292.8	28.6	18.7	-156.67	952.5	-810.3	256.9	230.2	26.66	9.635		
6,800.0	6,617.5	6,465.4	6,393.6	28.7	18.9	-167.39	949.5	-809.0	260.7	233.8	26.91	9.687		
6,900.0	6,717.5	6,566.3	6,494.4	28.8	19.0	-167.14	947.0	-807.2	263.5	236.4	27.15	9.706		
7,000.0	6,817.5	6,667.1	6,595.2	28.8	19.1	-166.78	944.9	-805.0	266.0	238.7	27.37	9.720		
7,100.0	6,917.5	6,767.9	6,695.9	28.9	19.3	-166.32	943.2	-802.4	268.3	240.7	27.57	9.731		
7,200.0	7,017.5	6,868.0	6,795.9	29.0	19.4	-165.78	941.8	-799.4	270.3	242.6	27.75	9.742		
7,300.0	7,117.5	6,968.1	6,896.0	29.1	19.5	-165.18	940.6	-796.2	272.3	244.4	27.92	9.754		
7,400.0	7,217.5	7,068.2	6,996.0	29.1	19.6	-164.51	939.5	-792.6	274.3	246.2	28.09	9.767		
7,500.0	7,317.5	7,168.2	7,096.0	29.2	19.8	-163.79	938.5	-788.7	276.3	248.1	28.25	9.782		
7,600.0	7,417.5	7,262.0	7,189.7	29.3	19.9	-163.07	937.8	-784.8	278.4	250.0	28.40	9.800		
7,700.0	7,517.5	7,366.5	7,294.1	29.4	20.1	-162.33	936.5	-780.7	280.6	252.0	28.61	9.807		
7,800.0	7,617.5	7,464.8	7,392.3	29.4	20.3	-161.82	934.5	-777.4	283.6	254.7	28.86	9.825		
7,900.0	7,717.5	7,563.1	7,490.6	29.5	20.5	-161.49	931.8	-774.8	287.1	257.9	29.14	9.851		
8,000.0	7,817.5	7,661.4	7,588.8	29.6	20.8	-161.32	928.3	-772.7	291.1	261.7	29.45	9.886		
8,100.0	7,917.5	7,759.7	7,686.9	29.7	21.0	-161.32	923.9	-771.2	295.8	266.0	29.79	9.930		
8,200.0	8,017.5	7,857.9	7,785.0	29.8	21.2	-161.48	918.8	-770.4	301.0	270.8	30.15	9.983		
8,300.0	8,117.5	7,956.0	7,882.9	29.9	21.4	-161.79	913.0	-770.1	306.7	276.2	30.53	10.047		
8,400.0	8,217.5	8,054.0	7,980.7	29.9	21.6	-162.23	906.3	-770.5	313.1	282.2	30.93	10.122		
8,500.0	8,317.5	8,151.9	8,078.3	30.0	21.8	-162.80	898.9	-771.5	320.0	288.7	31.35	10.207		
8,600.0	8,417.5	8,245.0	8,171.1	30.1	22.0	-163.42	891.3	-772.8	327.4	295.7	31.77	10.306		
8,700.0	8,517.5	8,245.0	8,171.1	30.2	22.0	-163.42	891.3	-772.8	351.1	319.2	31.93	10.998		
8,800.0	8,617.5	8,245.0	8,171.1	30.3	22.0	-163.42	891.3	-772.8	399.2	367.1	32.08	12.444		
8,900.0	8,717.5	8,245.0	8,171.1	30.4	22.0	-163.42	891.3	-772.8	464.2	431.9	32.23	14.400		

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 31-11C
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 31-11C	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	-142.01	-208.3	-162.7	265.2						
100.0	100.0	78.3	78.3	0.1	0.1	-142.05	-208.4	-162.5	264.2	264.0	0.20	1,291.243			
200.0	200.0	178.8	178.8	0.3	0.2	-142.21	-208.6	-161.8	264.0	263.5	0.47	565.490			
273.4	273.4	252.2	252.2	0.4	0.2	-106.77	-208.8	-161.1	264.0	263.3	0.66	399.911			
300.0	300.0	278.8	278.8	0.5	0.2	-106.83	-209.0	-160.8	263.9	263.1	0.73	361.408 CC, ES			
400.0	399.8	379.2	379.2	0.7	0.3	-108.26	-209.7	-159.2	265.1	264.1	1.01	262.299			
500.0	499.3	480.1	480.0	0.9	0.4	-110.75	-210.2	-157.1	267.8	266.5	1.33	201.025			
600.0	598.0	582.2	582.1	1.2	0.5	-113.96	-209.4	-155.5	272.3	270.6	1.71	159.295			
700.0	695.8	680.3	680.2	1.6	0.6	-117.53	-207.2	-154.7	279.1	277.0	2.14	130.440			
800.0	792.7	773.5	773.3	2.1	0.7	-121.34	-205.3	-154.9	289.8	287.2	2.58	112.355			
900.0	889.5	867.4	867.3	2.5	0.8	-125.06	-204.8	-155.4	303.6	300.6	3.00	101.056			
1,000.0	986.3	962.4	962.3	3.0	0.8	-128.67	-205.3	-155.2	319.3	315.9	3.41	93.777			
1,100.0	1,083.1	1,058.1	1,058.0	3.4	0.9	-132.05	-206.2	-154.6	336.7	332.9	3.78	89.025			
1,200.0	1,179.9	1,156.0	1,155.9	3.9	1.0	-135.20	-207.2	-153.9	355.2	351.0	4.14	85.860			
1,300.0	1,276.7	1,253.5	1,253.4	4.4	1.1	-137.95	-207.6	-153.5	374.0	369.6	4.47	83.601			
1,400.0	1,373.5	1,349.9	1,349.8	4.9	1.2	-140.46	-208.1	-152.9	393.7	388.9	4.79	82.144			
1,500.0	1,470.3	1,447.8	1,447.7	5.3	1.3	-142.80	-208.4	-151.9	414.0	408.9	5.10	81.235			
1,600.0	1,567.1	1,546.9	1,546.7	5.8	1.4	-145.01	-208.3	-150.6	434.4	429.0	5.38	80.686			
1,700.0	1,663.9	1,647.8	1,647.7	6.3	1.4	-147.10	-207.5	-148.9	454.7	449.1	5.66	80.365			
1,800.0	1,760.7	1,757.3	1,757.0	6.7	1.5	-149.31	-204.8	-145.9	474.0	468.1	5.91	80.175			
1,900.0	1,857.5	1,877.3	1,876.6	7.2	1.7	-151.81	-196.9	-140.8	490.1	484.0	6.14	79.837 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 31-11C
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 31-11C	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	-140.38	-217.4	-180.0	283.1						
100.0	100.0	79.4	79.4	0.1	0.1	-140.40	-217.3	-179.8	282.0	281.8	0.21	1,372.642			
200.0	200.0	179.8	179.8	0.3	0.2	-140.45	-217.0	-179.2	281.4	280.9	0.47	601.847			
261.8	261.8	240.5	240.5	0.4	0.2	-104.83	-216.8	-179.0	281.2	280.6	0.63	447.233 CC			
300.0	300.0	277.7	277.7	0.5	0.2	-104.84	-216.7	-179.0	281.2	280.5	0.73	386.303 ES			
400.0	399.8	376.7	376.7	0.7	0.3	-105.72	-216.7	-179.6	283.0	282.0	1.01	281.225			
500.0	499.3	475.7	475.7	0.9	0.4	-107.48	-216.7	-180.4	286.4	285.1	1.33	215.697			
600.0	598.0	573.9	573.9	1.2	0.5	-110.03	-216.6	-181.5	292.2	290.5	1.71	170.922			
700.0	695.8	670.7	670.7	1.6	0.6	-113.22	-216.8	-182.7	300.9	298.7	2.15	139.719			
800.0	792.7	766.2	766.2	2.1	0.7	-116.88	-217.2	-184.6	312.9	310.3	2.62	119.646			
900.0	889.5	862.1	862.0	2.5	0.8	-120.34	-217.7	-187.1	326.9	323.8	3.07	106.587			
1,000.0	986.3	958.2	958.1	3.0	0.8	-123.47	-218.4	-190.0	342.2	338.7	3.50	97.688			
1,100.0	1,083.1	1,054.3	1,054.1	3.4	0.9	-126.31	-219.3	-193.2	358.8	354.9	3.92	91.465			
1,200.0	1,179.9	1,150.0	1,149.7	3.9	1.0	-128.97	-220.6	-195.9	376.5	372.2	4.32	87.087			
1,300.0	1,276.7	1,245.9	1,245.6	4.4	1.1	-131.48	-222.3	-198.2	395.3	390.6	4.70	84.033			
1,400.0	1,373.5	1,343.2	1,342.9	4.9	1.2	-133.85	-224.1	-200.0	414.8	409.8	5.07	81.864			
1,500.0	1,470.3	1,440.9	1,440.6	5.3	1.3	-136.02	-225.8	-201.9	434.8	429.4	5.42	80.261			
1,600.0	1,567.1	1,538.5	1,538.1	5.8	1.4	-137.94	-227.1	-204.2	455.1	449.3	5.76	79.030			
1,700.0	1,663.9	1,637.9	1,637.5	6.3	1.5	-139.60	-228.2	-207.6	475.5	469.4	6.10	77.976			
1,800.0	1,760.7	1,737.4	1,736.8	6.7	1.6	-140.77	-228.4	-213.9	495.5	489.1	6.46	76.718 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-154.93	-221.1	-103.4	244.1						
100.0	100.0	102.3	102.3	0.1	0.1	-154.94	-221.3	-103.4	244.3	244.0	0.28	874.534			
200.0	200.0	203.2	203.2	0.3	0.3	-154.95	-221.5	-103.5	244.5	243.8	0.63	389.932			
300.0	300.0	306.2	306.2	0.5	0.5	-119.28	-220.8	-103.6	244.2	243.3	0.98	248.814			
400.0	399.8	414.8	414.7	0.7	0.7	-119.83	-216.6	-104.6	243.6	242.3	1.36	178.859			
500.0	499.3	520.0	519.4	0.9	0.9	-120.46	-207.8	-108.2	242.7	240.9	1.79	135.717			
518.4	517.5	538.4	537.8	1.0	1.0	-120.58	-205.9	-109.2	242.7	240.8	1.88	129.322 CC, ES			
600.0	598.0	619.9	618.6	1.2	1.2	-121.27	-197.3	-114.5	243.6	241.3	2.29	106.401			
700.0	695.8	714.7	712.2	1.6	1.4	-122.02	-186.4	-124.2	247.9	245.0	2.89	85.771			
800.0	792.7	803.3	799.2	2.1	1.7	-122.41	-177.4	-138.4	257.8	254.2	3.57	72.252			
900.0	889.5	890.7	884.4	2.5	2.1	-122.19	-171.2	-157.0	272.5	268.2	4.31	63.255			
1,000.0	986.3	979.8	970.7	3.0	2.4	-121.57	-167.2	-178.9	290.9	285.8	5.11	56.887			
1,100.0	1,083.1	1,072.5	1,059.5	3.4	2.9	-120.47	-164.3	-205.2	312.0	305.9	6.01	51.908			
1,200.0	1,179.9	1,167.4	1,149.4	3.9	3.5	-118.84	-160.7	-235.5	334.0	327.0	7.01	47.651			
1,300.0	1,276.7	1,261.0	1,236.4	4.4	4.1	-116.68	-155.9	-269.7	357.2	349.1	8.08	44.197			
1,400.0	1,373.5	1,354.5	1,322.4	4.9	4.8	-114.42	-150.8	-306.0	381.7	372.5	9.18	41.583			
1,500.0	1,470.3	1,448.3	1,408.4	5.3	5.5	-112.36	-145.9	-343.0	407.2	397.0	10.27	39.656			
1,600.0	1,567.1	1,542.5	1,494.7	5.8	6.2	-110.52	-141.2	-380.4	433.6	422.2	11.36	38.179			
1,700.0	1,663.9	1,635.0	1,579.3	6.3	6.9	-108.85	-136.7	-417.7	460.7	448.3	12.42	37.084			
1,800.0	1,760.7	1,726.8	1,663.1	6.7	7.6	-107.38	-132.9	-455.1	489.0	475.5	13.48	36.287 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 31-11C
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 31-11C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD, 1242-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-151.57	-237.5	-128.6	270.1						
100.0	100.0	102.2	102.2	0.1	0.1	-151.55	-237.6	-128.7	270.2	269.9	0.28	967.855 ES			
200.0	200.0	201.5	201.5	0.3	0.3	-151.56	-238.0	-128.9	270.7	270.0	0.62	433.816			
300.0	300.0	298.6	298.6	0.5	0.5	-115.45	-237.9	-131.4	272.1	271.2	0.97	280.153			
400.0	399.8	395.2	394.9	0.7	0.7	-115.02	-236.8	-137.7	276.5	275.2	1.35	205.181			
500.0	499.3	486.3	485.5	0.9	0.9	-114.68	-235.8	-147.6	285.3	283.5	1.78	160.009			
600.0	598.0	580.4	578.6	1.2	1.2	-114.53	-235.4	-161.4	298.6	296.3	2.33	128.328			
700.0	695.8	674.2	670.8	1.6	1.5	-114.52	-234.7	-178.6	315.7	312.7	2.99	105.662			
800.0	792.7	765.4	759.7	2.1	1.9	-114.82	-234.1	-198.6	336.3	332.5	3.73	90.169			
900.0	889.5	856.6	847.9	2.5	2.3	-114.77	-233.6	-222.2	358.8	354.3	4.54	79.046			
1,000.0	986.3	946.9	934.2	3.0	2.8	-114.28	-233.1	-248.6	383.1	377.7	5.40	70.891			
1,100.0	1,083.1	1,036.8	1,018.6	3.4	3.4	-113.21	-231.9	-279.4	409.2	402.8	6.36	64.372			
1,200.0	1,179.9	1,132.0	1,106.9	3.9	4.1	-111.77	-229.7	-315.0	436.2	428.9	7.35	59.332			
1,300.0	1,276.7	1,226.7	1,194.8	4.4	4.7	-110.55	-227.9	-350.1	463.7	455.4	8.34	55.626			
1,400.0	1,373.5	1,324.6	1,285.7	4.9	5.4	-109.45	-226.0	-386.2	491.3	481.9	9.35	52.547 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-148.83	-252.8	-152.9	295.4						
100.0	100.0	102.1	102.1	0.1	0.1	-148.83	-252.9	-153.0	295.6	295.3	0.28	1,059.490	ES		
200.0	200.0	199.3	199.3	0.3	0.3	-148.75	-253.4	-153.8	296.4	295.8	0.62	477.872			
300.0	300.0	295.0	295.0	0.5	0.5	-112.95	-254.3	-155.2	298.3	297.3	0.96	309.819			
400.0	399.8	387.0	386.9	0.7	0.7	-113.41	-256.9	-158.1	304.4	303.1	1.31	231.624			
500.0	499.3	483.2	482.9	0.9	0.8	-114.55	-261.0	-162.3	314.6	312.9	1.71	183.662			
600.0	598.0	584.4	583.9	1.2	1.0	-116.44	-265.2	-166.7	327.0	324.9	2.18	150.326			
700.0	695.8	681.3	680.7	1.6	1.2	-118.78	-268.9	-170.7	342.2	339.5	2.69	127.200			
800.0	792.7	778.1	777.3	2.1	1.4	-121.60	-272.4	-175.3	360.2	357.0	3.23	111.587			
900.0	889.5	874.4	873.4	2.5	1.6	-124.30	-275.9	-180.1	379.3	375.5	3.76	100.877			
1,000.0	986.3	971.8	970.7	3.0	1.8	-126.79	-279.5	-184.8	399.2	394.9	4.28	93.197			
1,100.0	1,083.1	1,069.7	1,068.3	3.4	2.0	-129.01	-282.7	-189.7	419.3	414.5	4.80	87.385			
1,200.0	1,179.9	1,166.0	1,164.5	3.9	2.2	-130.98	-285.7	-194.6	440.0	434.7	5.30	82.996			
1,300.0	1,276.7	1,264.8	1,263.1	4.4	2.4	-132.89	-288.8	-199.1	461.0	455.2	5.79	79.611			
1,400.0	1,373.5	1,364.9	1,363.2	4.9	2.6	-134.78	-291.4	-202.5	481.8	475.6	6.26	76.920	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-149.75	-264.1	-154.0	305.7						
100.0	100.0	96.7	96.7	0.1	0.1	-149.75	-264.5	-154.3	306.2	306.0	0.27	1,126.538			
200.0	200.0	186.8	186.7	0.3	0.3	-149.71	-266.3	-155.5	308.6	308.0	0.60	514.290			
300.0	300.0	273.0	272.8	0.5	0.5	-113.84	-270.7	-158.9	315.3	314.4	0.92	341.181			
400.0	399.8	359.9	359.2	0.7	0.7	-114.00	-278.2	-164.8	328.3	327.0	1.27	259.105			
500.0	499.3	449.5	447.9	0.9	1.0	-114.73	-288.0	-172.0	346.1	344.5	1.65	209.443			
600.0	598.0	538.0	535.2	1.2	1.2	-115.83	-299.8	-180.5	369.1	367.0	2.09	176.325			
700.0	695.8	633.3	629.0	1.6	1.6	-117.50	-313.6	-189.8	395.9	393.3	2.61	151.716			
800.0	792.7	734.5	728.9	2.1	1.9	-119.93	-326.9	-199.6	424.1	420.9	3.17	133.891			
900.0	889.5	831.8	825.0	2.5	2.2	-122.26	-338.7	-208.3	451.9	448.2	3.72	121.450			
1,000.0	986.3	927.9	920.1	3.0	2.5	-124.34	-350.2	-216.6	480.2	475.9	4.27	112.403 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-150.23	-245.5	-140.5	282.8						
100.0	100.0	102.1	102.1	0.1	0.1	-150.22	-245.6	-140.6	283.0	282.7	0.28	1,014.084			
200.0	200.0	201.8	201.8	0.3	0.3	-150.23	-245.9	-140.7	283.3	282.7	0.62	453.539 ES			
300.0	300.0	295.0	295.0	0.5	0.5	-114.57	-246.9	-141.3	284.8	283.9	0.96	296.056			
400.0	399.8	385.0	384.9	0.7	0.6	-115.13	-250.0	-143.7	291.4	290.0	1.31	222.662			
500.0	499.3	470.6	470.2	0.9	0.8	-116.23	-256.1	-147.6	304.3	302.7	1.69	180.603			
600.0	598.0	556.7	555.6	1.2	1.0	-117.86	-265.5	-152.7	324.0	321.9	2.12	153.171			
700.0	695.8	642.5	640.4	1.6	1.3	-119.84	-277.4	-158.4	349.6	347.0	2.60	134.333			
800.0	792.7	731.3	727.8	2.1	1.6	-122.63	-291.8	-164.3	380.3	377.2	3.11	122.215			
900.0	889.5	821.3	816.3	2.5	1.9	-125.37	-307.1	-170.2	412.8	409.2	3.62	114.141			
1,000.0	986.3	913.6	906.9	3.0	2.2	-127.70	-323.0	-176.9	446.4	442.3	4.12	108.376			
1,100.0	1,083.1	1,005.6	997.3	3.4	2.5	-129.67	-338.8	-184.0	480.7	476.1	4.62	104.087 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-151.05	-256.4	-141.9	293.1						
100.0	100.0	102.2	102.2	0.1	0.1	-151.09	-256.7	-141.8	293.2	292.9	0.28	1,049.860	ES		
200.0	200.0	199.7	199.7	0.3	0.3	-151.22	-257.6	-141.5	293.9	293.3	0.62	472.632			
300.0	300.0	289.1	289.0	0.5	0.5	-115.67	-260.2	-142.1	297.1	296.1	0.95	311.791			
400.0	399.8	376.9	376.7	0.7	0.6	-116.35	-265.6	-144.2	306.0	304.7	1.30	236.230			
500.0	499.3	462.6	461.8	0.9	0.9	-117.58	-274.1	-147.5	321.3	319.7	1.67	192.237			
600.0	598.0	549.0	547.4	1.2	1.1	-119.23	-285.6	-152.0	343.1	341.0	2.10	163.458			
700.0	695.8	629.3	626.5	1.6	1.4	-120.88	-298.4	-157.4	371.1	368.5	2.57	144.252			
800.0	792.7	711.6	706.9	2.1	1.7	-123.12	-314.4	-164.5	405.6	402.5	3.07	132.133			
900.0	889.5	802.3	795.3	2.5	2.1	-125.53	-332.9	-172.7	442.1	438.5	3.57	123.685			
1,000.0	986.3	895.1	885.8	3.0	2.5	-127.74	-351.8	-180.3	478.9	474.8	4.08	117.486	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-152.38	-248.4	-130.0	280.4						
100.0	100.0	103.0	103.0	0.1	0.1	-152.34	-248.3	-130.1	280.4	280.1	0.28	999.882			
200.0	200.0	203.4	203.4	0.3	0.3	-152.24	-248.0	-130.5	280.3	279.7	0.63	446.703			
269.1	269.1	273.6	273.6	0.4	0.4	-116.57	-247.7	-130.7	280.4	279.5	0.87	321.812			
300.0	300.0	304.2	304.2	0.5	0.5	-116.54	-247.5	-130.8	280.2	279.2	0.98	286.331 CC, ES			
400.0	399.8	401.1	401.1	0.7	0.7	-117.26	-247.3	-131.4	282.7	281.4	1.34	211.473			
500.0	499.3	493.6	493.5	0.9	0.8	-118.74	-248.6	-132.4	289.4	287.7	1.72	167.932			
600.0	598.0	581.5	581.3	1.2	1.0	-120.81	-252.4	-133.6	301.8	299.6	2.15	140.349			
700.0	695.8	662.0	661.6	1.6	1.1	-123.04	-258.7	-135.6	321.4	318.8	2.62	122.806			
800.0	792.7	753.0	751.9	2.1	1.4	-126.16	-269.3	-138.8	347.9	344.8	3.11	111.746			
900.0	889.5	825.9	823.8	2.5	1.6	-128.55	-280.6	-142.0	379.4	375.8	3.58	106.087			
1,000.0	986.3	903.0	899.4	3.0	1.8	-130.81	-295.6	-145.6	415.4	411.4	4.03	103.020			
1,100.0	1,083.1	977.4	971.8	3.4	2.1	-132.72	-312.6	-149.3	455.4	450.9	4.48	101.743			
1,200.0	1,179.9	1,049.3	1,041.0	3.9	2.5	-134.29	-331.5	-153.5	499.1	494.2	4.91	101.662 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 31-11C
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 31-11C	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	-153.84	-239.3	-117.6	266.6						
100.0	100.0	103.2	103.2	0.1	0.1	-153.82	-239.3	-117.6	266.6	266.3	0.28	950.434			
133.6	133.6	136.7	136.7	0.2	0.2	-153.82	-239.2	-117.6	266.6	266.2	0.39	674.991	CC, ES		
200.0	200.0	198.8	198.8	0.3	0.3	-153.95	-239.9	-117.2	267.0	266.4	0.62	430.901			
300.0	300.0	289.6	289.5	0.5	0.5	-118.95	-243.6	-115.5	270.2	269.3	0.96	281.740			
400.0	399.8	381.7	381.2	0.7	0.7	-120.85	-251.3	-112.4	279.1	277.8	1.33	210.237			
500.0	499.3	468.5	467.3	0.9	0.9	-123.41	-261.7	-109.0	294.5	292.8	1.73	170.185			
600.0	598.0	553.7	551.4	1.2	1.2	-126.22	-274.9	-106.4	317.3	315.1	2.16	146.782			
700.0	695.8	632.5	628.9	1.6	1.5	-128.66	-289.6	-105.4	347.8	345.2	2.61	133.110			
800.0	792.7	707.4	701.8	2.1	1.8	-131.24	-306.4	-106.1	386.0	382.9	3.05	126.458			
900.0	889.5	779.9	771.8	2.5	2.1	-133.46	-325.3	-108.5	428.9	425.4	3.47	123.529			
1,000.0	986.3	844.0	832.9	3.0	2.5	-135.04	-344.2	-111.5	475.9	472.0	3.88	122.714	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-153.23	-229.1	-115.6	256.6						
100.0	100.0	103.5	103.5	0.1	0.1	-153.26	-229.1	-115.4	256.5	256.2	0.28	912.826			
153.2	153.2	156.2	156.2	0.2	0.2	-153.27	-229.1	-115.3	256.5	256.0	0.46	553.523 CC			
200.0	200.0	200.5	200.5	0.3	0.3	-153.27	-229.2	-115.4	256.6	256.0	0.62	412.368 ES			
300.0	300.0	290.4	290.4	0.5	0.5	-117.63	-231.7	-116.5	259.9	259.0	0.95	272.422			
400.0	399.8	378.0	377.7	0.7	0.6	-118.55	-237.9	-118.0	269.5	268.2	1.30	207.973			
500.0	499.3	462.9	462.0	0.9	0.9	-120.11	-247.6	-120.4	286.3	284.6	1.67	171.602			
600.0	598.0	545.9	543.9	1.2	1.1	-122.09	-261.0	-123.5	310.8	308.7	2.09	149.008			
700.0	695.8	624.8	621.1	1.6	1.4	-124.26	-277.0	-126.4	342.7	340.2	2.55	134.589			
800.0	792.7	700.1	694.0	2.1	1.8	-126.80	-295.3	-130.2	382.0	378.9	3.01	126.768			
900.0	889.5	774.7	765.5	2.5	2.1	-129.23	-315.9	-134.5	425.6	422.1	3.47	122.724			
1,000.0	986.3	844.0	831.4	3.0	2.5	-131.03	-336.9	-139.7	472.6	468.6	3.91	120.857 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-155.51	-232.0	-105.7	255.0						
100.0	100.0	101.2	101.2	0.1	0.1	-155.50	-231.8	-105.6	254.7	254.4	0.28	901.269			
140.2	140.2	140.2	140.2	0.2	0.2	-155.51	-231.7	-105.5	254.6	254.2	0.42	609.113 CC, ES			
200.0	200.0	194.1	194.1	0.3	0.3	-155.67	-232.5	-105.1	255.2	254.6	0.62	413.654			
300.0	300.0	287.4	287.2	0.5	0.5	-120.81	-237.1	-103.2	259.2	258.3	0.96	269.229			
400.0	399.8	376.2	375.6	0.7	0.7	-122.64	-245.2	-100.5	269.2	267.9	1.32	203.378			
500.0	499.3	461.3	459.9	0.9	0.9	-125.08	-256.3	-97.7	286.3	284.6	1.72	166.933			
600.0	598.0	546.3	543.5	1.2	1.2	-128.11	-271.0	-93.9	311.1	309.0	2.15	144.597			
700.0	695.8	627.7	623.1	1.6	1.5	-130.98	-288.0	-90.8	344.0	341.3	2.63	130.720			
800.0	792.7	704.2	697.1	2.1	1.9	-134.58	-306.4	-84.6	383.6	380.5	3.10	123.646			
900.0	889.5	775.6	765.3	2.5	2.3	-137.94	-326.1	-77.5	428.2	424.7	3.54	121.134 SF			
1,000.0	986.3	845.0	830.9	3.0	2.7	-140.82	-347.5	-69.7	477.3	473.4	3.94	121.177			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	56.04	8.4	12.4	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.04	8.4	12.4	15.0	14.7	0.27	55.057			
200.0	200.0	200.0	200.0	0.3	0.3	56.04	8.4	12.4	15.0	14.4	0.62	24.126 CC, ES			
300.0	300.0	299.7	299.7	0.5	0.5	89.45	9.8	12.3	15.7	14.8	0.97	16.170			
400.0	399.8	399.2	398.9	0.7	0.7	88.27	16.3	11.7	19.0	17.7	1.36	13.972			
500.0	499.3	498.4	497.5	0.9	0.9	89.30	27.8	10.6	24.9	23.1	1.84	13.534 SF			
600.0	598.0	597.3	594.9	1.2	1.3	91.07	44.4	9.0	33.4	30.9	2.45	13.617			
700.0	695.8	695.7	691.0	1.6	1.7	92.80	65.8	7.0	44.5	41.3	3.22	13.801			
800.0	792.7	794.8	787.0	2.1	2.1	95.41	90.2	4.6	57.2	53.1	4.07	14.039			
900.0	889.5	894.0	883.1	2.5	2.6	97.39	114.7	2.3	70.0	65.0	4.95	14.149			
1,000.0	986.3	993.1	979.1	3.0	3.0	98.76	139.1	0.0	82.9	77.0	5.83	14.208			
1,100.0	1,083.1	1,092.3	1,075.2	3.4	3.5	99.76	163.6	-2.4	95.8	89.0	6.72	14.244			
1,200.0	1,179.9	1,191.4	1,171.3	3.9	3.9	100.53	188.0	-4.7	108.7	101.1	7.62	14.266			
1,300.0	1,276.7	1,290.6	1,267.3	4.4	4.4	101.13	212.4	-7.0	121.6	113.1	8.52	14.281			
1,400.0	1,373.5	1,389.7	1,363.4	4.9	4.8	101.61	236.9	-9.4	134.6	125.2	9.42	14.291			
1,500.0	1,470.3	1,488.9	1,459.5	5.3	5.3	102.01	261.3	-11.7	147.5	137.2	10.32	14.298			
1,600.0	1,567.1	1,588.0	1,555.5	5.8	5.8	102.35	285.7	-14.0	160.5	149.3	11.22	14.304			
1,700.0	1,663.9	1,687.2	1,651.6	6.3	6.2	102.63	310.2	-16.3	173.5	161.3	12.12	14.308			
1,800.0	1,760.7	1,786.4	1,747.7	6.7	6.7	102.88	334.6	-18.7	186.4	173.4	13.03	14.311			
1,900.0	1,857.5	1,885.5	1,843.7	7.2	7.1	103.09	359.0	-21.0	199.4	185.5	13.93	14.313			
2,000.0	1,954.3	1,984.7	1,939.8	7.7	7.6	103.28	383.5	-23.3	212.4	197.6	14.84	14.315			
2,100.0	2,051.1	2,083.8	2,035.8	8.2	8.1	103.44	407.9	-25.7	225.4	209.6	15.74	14.316			
2,200.0	2,147.9	2,183.0	2,131.9	8.6	8.5	103.59	432.4	-28.0	238.4	221.7	16.65	14.317			
2,300.0	2,244.7	2,282.1	2,228.0	9.1	9.0	103.72	456.8	-30.3	251.3	233.8	17.55	14.318			
2,400.0	2,341.5	2,381.3	2,324.0	9.6	9.4	103.84	481.2	-32.7	264.3	245.9	18.46	14.319			
2,500.0	2,438.3	2,480.4	2,420.1	10.1	9.9	103.95	505.7	-35.0	277.3	257.9	19.37	14.320			
2,600.0	2,535.1	2,579.6	2,516.2	10.5	10.4	104.05	530.1	-37.3	290.3	270.0	20.27	14.320			
2,700.0	2,631.9	2,678.7	2,612.2	11.0	10.8	104.14	554.5	-39.7	303.3	282.1	21.18	14.320			
2,800.0	2,728.7	2,777.9	2,708.3	11.5	11.3	104.22	579.0	-42.0	316.3	294.2	22.09	14.321			
2,900.0	2,825.5	2,877.0	2,804.4	12.0	11.8	104.30	603.4	-44.3	329.3	306.3	22.99	14.321			
3,000.0	2,922.3	2,976.2	2,900.4	12.4	12.2	104.37	627.8	-46.6	342.3	318.4	23.90	14.321			
3,100.0	3,019.1	3,075.3	2,996.5	12.9	12.7	104.44	652.3	-49.0	355.2	330.4	24.81	14.321			
3,200.0	3,115.9	3,174.5	3,092.6	13.4	13.1	104.50	676.7	-51.3	368.2	342.5	25.71	14.322			
3,300.0	3,212.7	3,273.6	3,188.6	13.9	13.6	104.55	701.1	-53.6	381.2	354.6	26.62	14.322			
3,400.0	3,309.5	3,372.8	3,284.7	14.3	14.1	104.61	725.6	-56.0	394.2	366.7	27.53	14.322			
3,500.0	3,406.3	3,471.9	3,380.8	14.8	14.5	104.66	750.0	-58.3	407.2	378.8	28.43	14.322			
3,600.0	3,503.1	3,571.1	3,476.8	15.3	15.0	104.70	774.5	-60.6	420.2	390.9	29.34	14.322			
3,700.0	3,599.9	3,670.2	3,572.9	15.8	15.4	104.75	798.9	-63.0	433.2	402.9	30.25	14.322			
3,800.0	3,696.7	3,769.4	3,669.0	16.2	15.9	104.79	823.3	-65.3	446.2	415.0	31.15	14.322			
3,900.0	3,793.5	3,868.5	3,765.0	16.7	16.4	104.83	847.8	-67.6	459.2	427.1	32.06	14.322			
4,000.0	3,890.3	3,967.7	3,861.1	17.2	16.8	104.86	872.2	-69.9	472.2	439.2	32.97	14.322			
4,100.0	3,987.1	4,066.8	3,957.2	17.7	17.3	104.90	896.6	-72.3	485.2	451.3	33.88	14.322			
4,200.0	4,083.9	4,166.0	4,053.2	18.1	17.8	104.93	921.1	-74.6	498.2	463.4	34.78	14.322			

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 31-11C
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 31-11C	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	-122.22	-8.0	-12.7	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	-122.22	-8.0	-12.7	15.0	14.8	0.27	55.206			
200.0	200.0	200.0	200.0	0.3	0.3	-122.22	-8.0	-12.7	15.0	14.4	0.62	24.191	CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	-79.81	-6.3	-14.7	15.9	14.9	0.98	16.218			
400.0	399.8	399.3	398.9	0.7	0.7	-73.37	-1.2	-20.6	18.2	16.8	1.38	13.191			
500.0	499.3	498.6	497.4	0.9	1.0	-69.95	7.3	-30.3	21.7	19.8	1.86	11.676			
600.0	598.0	597.8	595.0	1.2	1.4	-68.77	19.0	-43.9	26.3	23.9	2.46	10.712			
700.0	695.8	696.8	691.3	1.6	1.8	-68.97	34.1	-61.2	32.0	28.8	3.21	9.976			
800.0	792.7	795.6	786.0	2.1	2.3	-68.50	52.4	-82.3	39.1	35.0	4.06	9.631	SF		
900.0	889.5	893.6	878.5	2.5	3.0	-63.66	73.6	-106.8	49.1	44.3	4.84	10.147			
1,000.0	986.3	990.5	968.2	3.0	3.7	-57.12	97.7	-134.5	62.9	57.4	5.49	11.454			
1,100.0	1,083.1	1,086.0	1,054.6	3.4	4.4	-50.76	124.3	-165.2	81.1	75.1	6.01	13.501			
1,200.0	1,179.9	1,183.6	1,142.0	3.9	5.2	-45.95	152.7	-197.9	101.7	95.3	6.47	15.719			
1,300.0	1,276.7	1,281.1	1,229.3	4.4	6.0	-42.77	181.2	-230.7	122.8	115.9	6.95	17.664			
1,400.0	1,373.5	1,378.7	1,316.7	4.9	6.8	-40.52	209.6	-263.5	144.2	136.7	7.45	19.358			
1,500.0	1,470.3	1,476.3	1,404.1	5.3	7.6	-38.85	238.0	-296.2	165.7	157.8	7.95	20.836			
1,600.0	1,567.1	1,573.8	1,491.5	5.8	8.4	-37.57	266.5	-329.0	187.3	178.9	8.46	22.131			
1,700.0	1,663.9	1,671.4	1,578.9	6.3	9.3	-36.55	294.9	-361.8	209.0	200.0	8.98	23.275			
1,800.0	1,760.7	1,768.9	1,666.3	6.7	10.1	-35.72	323.4	-394.5	230.7	221.2	9.50	24.289			
1,900.0	1,857.5	1,866.5	1,753.6	7.2	10.9	-35.04	351.8	-427.3	252.5	242.5	10.02	25.195			
2,000.0	1,954.3	1,964.1	1,841.0	7.7	11.7	-34.46	380.2	-460.1	274.3	263.8	10.55	26.008			
2,100.0	2,051.1	2,061.6	1,928.4	8.2	12.5	-33.97	408.7	-492.9	296.1	285.1	11.07	26.741			
2,200.0	2,147.9	2,159.2	2,015.8	8.6	13.3	-33.55	437.1	-525.6	318.0	306.4	11.60	27.406			
2,300.0	2,244.7	2,256.7	2,103.2	9.1	14.1	-33.18	465.5	-558.4	339.8	327.7	12.13	28.011			
2,400.0	2,341.5	2,354.3	2,190.5	9.6	15.0	-32.85	494.0	-591.2	361.7	349.0	12.66	28.564			
2,500.0	2,438.3	2,451.9	2,277.9	10.1	15.8	-32.57	522.4	-623.9	383.6	370.4	13.19	29.072			
2,600.0	2,535.1	2,549.4	2,365.3	10.5	16.6	-32.31	550.9	-656.7	405.5	391.7	13.73	29.539			
2,700.0	2,631.9	2,647.0	2,452.7	11.0	17.4	-32.08	579.3	-689.5	427.4	413.1	14.26	29.971			
2,800.0	2,728.7	2,744.5	2,540.1	11.5	18.2	-31.87	607.7	-722.2	449.3	434.5	14.79	30.371			
2,900.0	2,825.5	2,842.1	2,627.5	12.0	19.0	-31.68	636.2	-755.0	471.2	455.8	15.33	30.742			
3,000.0	2,922.3	2,939.7	2,714.8	12.4	19.8	-31.51	664.6	-787.8	493.1	477.2	15.86	31.088			

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 31-11C
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 31-11C	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	-122.99	-24.4	-37.6	44.8						
100.0	100.0	100.0	100.0	0.1	0.1	-122.99	-24.4	-37.6	44.8	44.5	0.27	164.589			
200.0	200.0	200.0	200.0	0.3	0.3	-122.99	-24.4	-37.6	44.8	44.2	0.62	72.123 CC, ES			
300.0	300.0	298.5	298.5	0.5	0.5	-85.52	-23.5	-40.0	46.4	45.4	0.97	47.619			
400.0	399.8	396.9	396.5	0.7	0.7	-84.49	-20.9	-47.1	50.8	49.4	1.36	37.216			
500.0	499.3	494.8	493.7	0.9	1.0	-84.79	-16.6	-58.9	58.0	56.2	1.84	31.479			
600.0	598.0	592.3	589.6	1.2	1.3	-85.92	-10.7	-75.3	68.0	65.6	2.45	27.778			
700.0	695.8	689.2	683.9	1.6	1.8	-87.41	-3.1	-96.2	80.8	77.6	3.21	25.184			
800.0	792.7	785.4	776.3	2.1	2.3	-88.62	6.0	-121.3	96.4	92.3	4.08	23.594			
900.0	889.5	880.7	866.4	2.5	2.9	-87.72	16.6	-150.4	114.8	109.8	5.01	22.910 SF			
1,000.0	986.3	975.0	953.9	3.0	3.6	-85.44	28.5	-183.3	136.1	130.2	5.94	22.927			
1,100.0	1,083.1	1,072.2	1,043.5	3.4	4.3	-83.18	41.5	-219.0	158.8	151.9	6.86	23.142			
1,200.0	1,179.9	1,169.5	1,133.0	3.9	5.0	-81.48	54.4	-254.6	181.7	173.9	7.78	23.349			
1,300.0	1,276.7	1,266.7	1,222.5	4.4	5.7	-80.16	67.4	-290.2	204.7	196.0	8.70	23.537			
1,400.0	1,373.5	1,363.9	1,312.1	4.9	6.4	-79.11	80.3	-325.8	227.8	218.2	9.61	23.706			
1,500.0	1,470.3	1,461.1	1,401.6	5.3	7.1	-78.25	93.2	-361.4	250.9	240.4	10.52	23.857			
1,600.0	1,567.1	1,558.3	1,491.1	5.8	7.8	-77.54	106.2	-397.1	274.1	262.7	11.42	23.991			
1,700.0	1,663.9	1,655.6	1,580.7	6.3	8.6	-76.94	119.1	-432.7	297.3	285.0	12.33	24.112			
1,800.0	1,760.7	1,752.8	1,670.2	6.7	9.3	-76.42	132.1	-468.3	320.6	307.3	13.24	24.220			
1,900.0	1,857.5	1,850.0	1,759.7	7.2	10.0	-75.97	145.0	-503.9	343.8	329.7	14.14	24.317			
2,000.0	1,954.3	1,947.2	1,849.3	7.7	10.7	-75.59	157.9	-539.5	367.1	352.1	15.04	24.405			
2,100.0	2,051.1	2,044.5	1,938.8	8.2	11.4	-75.24	170.9	-575.1	390.4	374.5	15.95	24.485			
2,200.0	2,147.9	2,141.7	2,028.3	8.6	12.2	-74.94	183.8	-610.8	413.7	396.9	16.85	24.558			
2,300.0	2,244.7	2,238.9	2,117.9	9.1	12.9	-74.67	196.8	-646.4	437.0	419.3	17.75	24.624			
2,400.0	2,341.5	2,336.1	2,207.4	9.6	13.6	-74.42	209.7	-682.0	460.4	441.7	18.65	24.685			
2,500.0	2,438.3	2,433.4	2,296.9	10.1	14.3	-74.20	222.6	-717.6	483.7	464.2	19.55	24.741			

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 31-11C
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 31-11C	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	220.519			
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	-87.99	-32.8	-50.3	60.0	59.0	0.97	61.811			
315.1	315.1	315.1	315.1	0.5	0.5	-88.43	-32.8	-50.3	60.0	59.0	1.03	58.483	CC, ES		
400.0	399.8	398.3	398.3	0.7	0.7	-91.86	-32.5	-51.7	61.0	59.7	1.34	45.641			
500.0	499.3	496.0	495.8	0.9	0.9	-96.58	-31.4	-57.8	65.9	64.1	1.76	37.367			
600.0	598.0	593.4	592.5	1.2	1.1	-101.12	-29.3	-68.8	74.9	72.6	2.29	32.684			
700.0	695.8	690.3	688.1	1.6	1.4	-104.89	-26.4	-84.5	88.0	85.1	2.95	29.835			
800.0	792.7	786.6	782.1	2.1	1.8	-107.46	-22.6	-104.9	104.8	101.1	3.72	28.205			
900.0	889.5	882.4	874.5	2.5	2.3	-107.47	-18.0	-129.7	124.0	119.4	4.57	27.103			
1,000.0	986.3	977.1	964.5	3.0	2.8	-105.75	-12.6	-158.7	145.2	139.7	5.51	26.374			
1,100.0	1,083.1	1,071.7	1,052.8	3.4	3.5	-103.02	-6.5	-192.0	168.9	162.4	6.48	26.049			
1,200.0	1,179.9	1,166.7	1,140.7	3.9	4.1	-100.32	0.2	-227.6	194.1	186.6	7.46	26.008	SF		
1,300.0	1,276.7	1,263.1	1,229.8	4.4	4.8	-98.21	6.9	-263.7	219.6	211.2	8.44	26.024			
1,400.0	1,373.5	1,359.5	1,318.9	4.9	5.5	-96.54	13.6	-299.8	245.4	236.0	9.41	26.080			
1,500.0	1,470.3	1,455.9	1,408.0	5.3	6.2	-95.18	20.3	-336.0	271.3	260.9	10.37	26.156			
1,600.0	1,567.1	1,552.3	1,497.2	5.8	6.9	-94.06	27.0	-372.1	297.3	286.0	11.33	26.240			
1,700.0	1,663.9	1,648.7	1,586.3	6.3	7.6	-93.12	33.7	-408.2	323.4	311.1	12.29	26.326			
1,800.0	1,760.7	1,745.1	1,675.4	6.7	8.3	-92.33	40.4	-444.3	349.6	336.4	13.24	26.411			
1,900.0	1,857.5	1,841.5	1,764.6	7.2	9.0	-91.64	47.1	-480.4	375.9	361.7	14.19	26.492			
2,000.0	1,954.3	1,937.9	1,853.7	7.7	9.7	-91.04	53.8	-516.5	402.1	387.0	15.14	26.570			
2,100.0	2,051.1	2,034.3	1,942.8	8.2	10.4	-90.52	60.5	-552.7	428.5	412.4	16.08	26.644			
2,200.0	2,147.9	2,130.7	2,032.0	8.6	11.1	-90.05	67.2	-588.8	454.8	437.8	17.03	26.713			
2,300.0	2,244.7	2,227.1	2,121.1	9.1	11.8	-89.64	74.0	-624.9	481.2	463.2	17.97	26.778			

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 31-11C
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 31-11C	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			
300.0	300.0	300.0	300.0	0.5	0.5	-88.61	-16.4	-25.2	30.0	29.0	0.97	30.896			
322.7	322.6	322.6	322.6	0.5	0.5	-90.00	-16.4	-25.2	30.0	28.9	1.05	28.471	CC, ES		
400.0	399.8	399.8	399.8	0.7	0.7	-98.52	-16.4	-25.2	30.3	29.0	1.34	22.668			
500.0	499.3	499.3	499.3	0.9	0.8	-116.32	-16.4	-25.2	33.5	31.8	1.74	19.309	SF		
600.0	598.0	598.4	598.4	1.2	1.0	-131.81	-15.5	-27.5	42.4	40.2	2.14	19.780			
700.0	695.8	697.1	696.9	1.6	1.2	-141.99	-13.5	-32.4	56.4	53.9	2.54	22.188			
800.0	792.7	794.9	794.6	2.1	1.4	-149.74	-11.6	-37.3	75.0	72.1	2.91	25.746			
900.0	889.5	892.7	892.2	2.5	1.6	-154.51	-9.7	-42.2	94.7	91.5	3.28	28.884			
1,000.0	986.3	990.5	989.9	3.0	1.8	-157.64	-7.8	-47.1	114.9	111.2	3.64	31.524			
1,100.0	1,083.1	1,088.3	1,087.5	3.4	1.9	-159.83	-5.9	-52.0	135.2	131.2	4.01	33.749			
1,200.0	1,179.9	1,186.1	1,185.2	3.9	2.1	-161.44	-4.0	-56.9	155.8	151.4	4.37	35.637			
1,300.0	1,276.7	1,283.9	1,282.8	4.4	2.3	-162.68	-2.0	-61.8	176.4	171.6	4.73	37.254			
1,400.0	1,373.5	1,381.7	1,380.5	4.9	2.5	-163.67	-0.1	-66.7	197.0	191.9	5.10	38.653			
1,500.0	1,470.3	1,479.5	1,478.1	5.3	2.7	-164.46	1.8	-71.6	217.7	212.3	5.46	39.873			
1,600.0	1,567.1	1,577.3	1,575.8	5.8	2.9	-165.12	3.7	-76.5	238.5	232.6	5.82	40.946			
1,700.0	1,663.9	1,675.0	1,673.5	6.3	3.1	-165.67	5.6	-81.4	259.2	253.0	6.19	41.896			
1,800.0	1,760.7	1,772.8	1,771.1	6.7	3.3	-166.14	7.5	-86.3	280.0	273.4	6.55	42.743			
1,900.0	1,857.5	1,870.6	1,868.8	7.2	3.5	-166.54	9.5	-91.2	300.8	293.9	6.91	43.502			
2,000.0	1,954.3	1,968.4	1,966.4	7.7	3.7	-166.89	11.4	-96.0	321.6	314.3	7.28	44.187			
2,100.0	2,051.1	2,066.2	2,064.1	8.2	3.9	-167.20	13.3	-100.9	342.4	334.8	7.64	44.808			
2,200.0	2,147.9	2,164.0	2,161.7	8.6	4.1	-167.48	15.2	-105.8	363.3	355.3	8.01	45.373			
2,300.0	2,244.7	2,261.8	2,259.4	9.1	4.2	-167.72	17.1	-110.7	384.1	375.7	8.37	45.890			
2,400.0	2,341.5	2,359.6	2,357.0	9.6	4.4	-167.94	19.0	-115.6	404.9	396.2	8.73	46.364			
2,500.0	2,438.3	2,457.4	2,454.7	10.1	4.6	-168.14	21.0	-120.5	425.8	416.7	9.10	46.800			
2,600.0	2,535.1	2,555.2	2,552.3	10.5	4.8	-168.32	22.9	-125.4	446.6	437.2	9.46	47.203			
2,700.0	2,631.9	2,653.0	2,650.0	11.0	5.0	-168.48	24.8	-130.3	467.5	457.7	9.83	47.577			
2,800.0	2,728.7	2,750.8	2,747.6	11.5	5.2	-168.63	26.7	-135.2	488.3	478.2	10.19	47.923			

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 31-11C
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 31-11C	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 Tooface (")	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			
300.0	300.0	300.0	300.0	0.5	0.5	-87.81	-40.8	-62.7	74.8	73.8	0.97	77.045			
302.0	302.0	302.0	302.0	0.5	0.5	-87.85	-40.8	-62.7	74.8	73.8	0.98	76.470	CC, ES		
400.0	399.8	396.5	396.4	0.7	0.7	-91.43	-42.1	-64.8	77.3	75.9	1.33	57.979			
500.0	499.3	495.8	495.7	0.9	0.8	-98.22	-44.4	-68.5	82.6	80.8	1.75	47.291			
600.0	598.0	594.5	594.3	1.2	1.0	-107.16	-46.7	-72.3	90.4	88.2	2.22	40.793			
700.0	695.8	692.3	692.0	1.6	1.2	-116.97	-49.0	-76.0	102.4	99.7	2.72	37.649			
800.0	792.7	789.2	788.7	2.1	1.4	-126.25	-51.3	-79.6	119.3	116.1	3.20	37.327	SF		
900.0	889.5	886.0	885.4	2.5	1.6	-133.34	-53.5	-83.3	138.9	135.3	3.64	38.192			
1,000.0	986.3	982.7	982.1	3.0	1.8	-138.66	-55.8	-87.0	160.0	156.0	4.05	39.502			
1,100.0	1,083.1	1,079.5	1,078.8	3.4	1.9	-142.74	-58.0	-90.6	182.2	177.7	4.45	40.947			
1,200.0	1,179.9	1,176.3	1,175.5	3.9	2.1	-145.93	-60.3	-94.3	205.0	200.2	4.84	42.384			
1,300.0	1,276.7	1,273.1	1,272.2	4.4	2.3	-148.47	-62.6	-98.0	228.4	223.2	5.22	43.753			
1,400.0	1,373.5	1,369.9	1,368.9	4.9	2.5	-150.55	-64.8	-101.6	252.1	246.5	5.60	45.030			
1,500.0	1,470.3	1,466.6	1,465.5	5.3	2.7	-152.27	-67.1	-105.3	276.0	270.1	5.97	46.208			
1,600.0	1,567.1	1,563.4	1,562.2	5.8	2.9	-153.72	-69.4	-108.9	300.2	293.8	6.35	47.291			
1,700.0	1,663.9	1,660.2	1,658.9	6.3	3.0	-154.95	-71.6	-112.6	324.5	317.8	6.72	48.284			
1,800.0	1,760.7	1,757.0	1,755.6	6.7	3.2	-156.01	-73.9	-116.3	348.9	341.8	7.09	49.195			
1,900.0	1,857.5	1,853.8	1,852.3	7.2	3.4	-156.93	-76.2	-119.9	373.4	366.0	7.46	50.031			
2,000.0	1,954.3	1,950.6	1,949.0	7.7	3.6	-157.74	-78.4	-123.6	398.0	390.2	7.84	50.801			
2,100.0	2,051.1	2,047.3	2,045.7	8.2	3.8	-158.45	-80.7	-127.3	422.7	414.5	8.21	51.509			
2,200.0	2,147.9	2,144.1	2,142.4	8.6	4.0	-159.09	-83.0	-130.9	447.4	438.9	8.58	52.164			
2,300.0	2,244.7	2,240.9	2,239.0	9.1	4.2	-159.66	-85.2	-134.6	472.2	463.3	8.95	52.769			
2,400.0	2,341.5	2,337.7	2,335.7	9.6	4.3	-160.17	-87.5	-138.2	497.0	487.7	9.32	53.331			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	68.76	13.8	35.6	38.2						
100.0	100.0	100.0	100.0	0.1	0.1	68.76	13.8	35.6	38.2	37.9	0.27	140.311			
200.0	200.0	200.0	200.0	0.3	0.3	68.76	13.8	35.6	38.2	37.6	0.62	61.485 CC			
229.7	229.7	229.7	229.7	0.4	0.4	104.65	13.8	35.6	38.2	37.5	0.73	52.720			
300.0	300.0	300.0	300.0	0.5	0.5	105.43	13.8	35.6	38.4	37.4	0.97	39.523 ES			
400.0	399.8	399.8	399.8	0.7	0.7	112.60	13.8	35.6	40.1	38.7	1.34	30.020			
500.0	499.3	497.0	497.0	0.9	0.8	123.52	14.6	37.9	47.6	45.8	1.72	27.613 SF			
600.0	598.0	592.6	592.3	1.2	1.0	132.56	17.0	44.8	64.3	62.2	2.13	30.208			
700.0	695.8	685.7	684.6	1.6	1.3	138.05	20.8	55.8	90.0	87.5	2.57	35.057			
800.0	792.7	775.8	773.4	2.1	1.6	141.11	25.9	70.4	123.0	120.0	3.04	40.471			
900.0	889.5	863.5	859.0	2.5	1.9	142.09	32.2	88.5	159.9	156.4	3.55	45.003			
1,000.0	986.3	948.7	941.2	3.0	2.3	141.96	39.5	109.5	200.2	196.1	4.10	48.795			
1,100.0	1,083.1	1,036.5	1,025.1	3.4	2.8	141.38	48.1	134.1	242.9	238.2	4.69	51.844			
1,200.0	1,179.9	1,126.8	1,111.3	3.9	3.2	140.94	56.9	159.5	285.9	280.6	5.29	54.089			
1,300.0	1,276.7	1,217.1	1,197.4	4.4	3.7	140.61	65.7	184.9	328.9	323.0	5.89	55.818			
1,400.0	1,373.5	1,307.4	1,283.6	4.9	4.2	140.35	74.5	210.3	371.9	365.4	6.50	57.186			
1,500.0	1,470.3	1,397.6	1,369.8	5.3	4.7	140.15	83.4	235.7	414.9	407.8	7.12	58.292			
1,600.0	1,567.1	1,487.9	1,456.0	5.8	5.2	139.99	92.2	261.1	457.9	450.2	7.73	59.203			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	56.91	16.4	25.2	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.91	16.4	25.2	30.0	29.7	0.27	110.259			
200.0	200.0	200.0	200.0	0.3	0.3	56.91	16.4	25.2	30.0	29.4	0.62	48.316 CC			
237.0	237.0	237.0	237.0	0.4	0.4	92.98	16.4	25.2	30.0	29.3	0.75	40.006			
300.0	300.0	300.0	300.0	0.5	0.5	93.88	16.4	25.2	30.1	29.1	0.97	30.958 ES			
400.0	399.8	398.2	398.1	0.7	0.7	102.88	17.6	27.4	33.4	32.1	1.33	25.036 SF			
500.0	499.3	495.3	495.0	0.9	0.9	114.60	21.1	33.9	44.4	42.7	1.73	25.594			
600.0	598.0	590.6	589.5	1.2	1.1	123.23	26.9	44.6	63.8	61.6	2.18	29.258			
700.0	695.8	683.2	680.6	1.6	1.4	128.37	34.6	58.8	91.3	88.6	2.69	33.955			
800.0	792.7	772.8	768.0	2.1	1.8	131.40	44.1	76.3	125.6	122.3	3.25	38.662			
900.0	889.5	859.9	852.0	2.5	2.3	132.43	55.2	96.8	163.6	159.8	3.85	42.503			
1,000.0	986.3	946.7	934.5	3.0	2.7	132.37	67.9	120.3	204.9	200.4	4.48	45.710			
1,100.0	1,083.1	1,037.5	1,020.5	3.4	3.3	132.18	81.7	145.7	246.9	241.7	5.14	48.006			
1,200.0	1,179.9	1,128.2	1,106.6	3.9	3.8	132.05	95.4	171.1	288.8	283.0	5.81	49.713			
1,300.0	1,276.7	1,219.0	1,192.6	4.4	4.3	131.95	109.2	196.5	330.8	324.4	6.48	51.023			
1,400.0	1,373.5	1,309.7	1,278.6	4.9	4.8	131.87	123.0	221.9	372.8	365.7	7.16	52.057			
1,500.0	1,470.3	1,400.5	1,364.7	5.3	5.4	131.81	136.7	247.3	414.8	407.0	7.84	52.892			
1,600.0	1,567.1	1,491.2	1,450.7	5.8	5.9	131.76	150.5	272.7	456.8	448.3	8.53	53.578			
1,700.0	1,663.9	1,582.0	1,536.7	6.3	6.5	131.72	164.2	298.1	498.8	489.6	9.21	54.152			

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 31-11C
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 31-11C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	103.36	-2.5	10.7	11.0						
100.0	100.0	100.0	100.0	0.1	0.1	103.36	-2.5	10.7	11.0	10.8	0.27	40.538			
200.0	200.0	200.0	200.0	0.3	0.3	103.36	-2.5	10.7	11.0	10.4	0.62	17.764	CC		
228.8	228.8	228.8	228.8	0.4	0.4	139.45	-2.5	10.7	11.1	10.4	0.72	15.404	ES		
300.0	300.0	300.0	300.0	0.5	0.5	141.20	-2.5	10.7	11.5	10.6	0.97	11.891	SF		
400.0	399.8	399.2	399.2	0.7	0.7	151.17	-2.7	12.2	17.3	16.0	1.32	13.112			
500.0	499.3	496.9	496.6	0.9	0.9	156.01	-3.3	18.4	32.6	31.0	1.68	19.481			
600.0	598.0	591.8	590.9	1.2	1.1	157.30	-4.5	29.2	57.2	55.2	2.04	28.034			
700.0	695.8	682.9	680.8	1.6	1.4	157.44	-6.0	44.0	90.6	88.2	2.42	37.392			
800.0	792.7	769.7	765.7	2.1	1.7	157.34	-7.9	62.0	131.4	128.6	2.83	46.437			
900.0	889.5	853.2	846.5	2.5	2.1	156.80	-10.1	82.9	176.0	172.8	3.26	54.069			
1,000.0	986.3	938.6	928.3	3.0	2.5	156.08	-12.6	107.2	223.4	219.7	3.70	60.370			
1,100.0	1,083.1	1,026.4	1,012.5	3.4	3.0	155.57	-15.2	132.4	271.1	267.0	4.16	65.193			
1,200.0	1,179.9	1,114.3	1,096.6	3.9	3.5	155.21	-17.8	157.5	318.8	314.2	4.62	68.996			
1,300.0	1,276.7	1,202.2	1,180.8	4.4	3.9	154.95	-20.4	182.7	366.5	361.4	5.09	72.064			
1,400.0	1,373.5	1,290.1	1,264.9	4.9	4.4	154.74	-23.1	207.9	414.2	408.6	5.55	74.584			
1,500.0	1,470.3	1,378.0	1,349.1	5.3	4.9	154.58	-25.7	233.1	461.9	455.8	6.02	76.691			

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 31-11C
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 31-11C	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	75.88	5.8	23.2	23.9						
100.0	100.0	100.0	100.0	0.1	0.1	75.88	5.8	23.2	23.9	23.6	0.27	87.760			
200.0	200.0	200.0	200.0	0.3	0.3	75.88	5.8	23.2	23.9	23.3	0.62	38.457 CC			
229.7	229.7	229.7	229.7	0.4	0.4	111.87	5.8	23.2	23.9	23.2	0.73	33.012			
300.0	300.0	300.0	300.0	0.5	0.5	113.05	5.8	23.2	24.1	23.2	0.97	24.869 ES			
400.0	399.8	398.4	398.3	0.7	0.7	122.95	6.1	25.7	29.2	27.9	1.33	21.965 SF			
500.0	499.3	495.3	495.0	0.9	0.9	133.67	6.7	33.1	43.4	41.7	1.70	25.446			
600.0	598.0	589.7	588.6	1.2	1.1	140.23	7.8	45.0	66.9	64.8	2.10	31.876			
700.0	695.8	680.5	678.0	1.6	1.4	143.67	9.2	60.8	99.2	96.7	2.52	39.320			
800.0	792.7	767.4	762.7	2.1	1.8	145.65	10.9	79.9	138.8	135.8	2.98	46.637			
900.0	889.5	853.2	845.6	2.5	2.2	146.35	12.9	102.3	182.2	178.8	3.45	52.743			
1,000.0	986.3	942.9	931.9	3.0	2.6	146.69	15.0	126.6	226.5	222.5	3.96	57.258			
1,100.0	1,083.1	1,032.6	1,018.1	3.4	3.1	146.91	17.2	150.9	270.8	266.3	4.46	60.652			
1,200.0	1,179.9	1,122.2	1,104.4	3.9	3.5	147.07	19.4	175.2	315.0	310.0	4.98	63.281			
1,300.0	1,276.7	1,211.9	1,190.7	4.4	4.0	147.19	21.6	199.5	359.3	353.8	5.50	65.371			
1,400.0	1,373.5	1,301.5	1,277.0	4.9	4.5	147.29	23.7	223.8	403.6	397.6	6.02	67.067			
1,500.0	1,470.3	1,391.2	1,363.2	5.3	4.9	147.36	25.9	248.1	447.9	441.3	6.54	68.469			
1,600.0	1,567.1	1,480.9	1,449.5	5.8	5.4	147.43	28.1	272.5	492.1	485.1	7.07	69.646			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	56.61	24.8	37.6	45.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.61	24.8	37.6	45.0	44.7	0.27	165.330			
200.0	200.0	200.0	200.0	0.3	0.3	56.61	24.8	37.6	45.0	44.4	0.62	72.448	CC, ES		
300.0	300.0	297.6	297.6	0.5	0.5	92.90	26.2	39.6	47.6	46.6	0.97	49.228			
400.0	399.8	394.6	394.2	0.7	0.7	97.46	30.6	45.6	55.7	54.4	1.33	41.875			
500.0	499.3	490.2	489.1	0.9	1.0	103.86	37.7	55.4	70.1	68.4	1.74	40.243	SF		
600.0	598.0	583.7	581.1	1.2	1.3	109.72	47.4	68.6	91.5	89.2	2.23	41.042			
700.0	695.8	674.5	669.7	1.6	1.7	114.20	59.4	84.9	119.8	117.0	2.80	42.760			
800.0	792.7	762.4	754.3	2.1	2.2	117.65	73.3	104.0	154.5	151.0	3.44	44.946			
900.0	889.5	847.9	835.5	2.5	2.6	119.44	89.0	125.5	193.2	189.1	4.10	47.144			
1,000.0	986.3	939.2	921.7	3.0	3.2	120.44	106.9	150.0	233.8	229.0	4.80	48.693			
1,100.0	1,083.1	1,030.6	1,007.8	3.4	3.8	121.13	124.8	174.6	274.4	268.8	5.51	49.757			
1,200.0	1,179.9	1,121.9	1,093.9	3.9	4.3	121.65	142.8	199.1	315.0	308.7	6.24	50.517			
1,300.0	1,276.7	1,213.3	1,180.1	4.4	4.9	122.05	160.7	223.7	355.6	348.7	6.96	51.082			
1,400.0	1,373.5	1,304.6	1,266.2	4.9	5.4	122.37	178.6	248.2	396.3	388.6	7.69	51.516			
1,500.0	1,470.3	1,395.9	1,352.4	5.3	6.0	122.63	196.5	272.7	436.9	428.5	8.43	51.858			
1,600.0	1,567.1	1,487.3	1,438.5	5.8	6.6	122.84	214.5	297.3	477.6	468.4	9.16	52.133			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-169.40	-10.6	-2.0	10.8						
100.0	100.0	100.0	100.0	0.1	0.1	-169.40	-10.6	-2.0	10.8	10.5	0.27	39.485			
200.0	200.0	200.0	200.0	0.3	0.3	-169.40	-10.6	-2.0	10.8	10.1	0.62	17.302 CC			
229.1	229.1	229.1	229.1	0.4	0.4	-134.09	-10.6	-2.0	10.8	10.1	0.72	14.976 ES			
300.0	300.0	300.0	300.0	0.5	0.5	-136.08	-10.6	-2.0	11.2	10.2	0.97	11.553 SF			
400.0	399.8	399.7	399.7	0.7	0.7	-151.82	-10.7	-1.4	15.7	14.3	1.32	11.850			
500.0	499.3	497.9	497.8	0.9	0.8	-171.37	-12.1	3.5	28.6	26.9	1.67	17.155			
600.0	598.0	593.4	592.7	1.2	1.1	177.87	-14.8	12.9	51.8	49.8	2.01	25.769			
700.0	695.8	684.9	683.2	1.6	1.3	172.38	-18.6	26.2	84.7	82.4	2.36	35.885			
800.0	792.7	771.9	768.4	2.1	1.7	169.29	-23.2	42.7	125.5	122.8	2.73	45.977			
900.0	889.5	855.3	849.5	2.5	2.0	167.15	-28.7	62.0	170.4	167.2	3.12	54.671			
1,000.0	986.3	935.3	926.2	3.0	2.4	165.46	-34.9	83.6	218.8	215.3	3.50	62.427			
1,100.0	1,083.1	1,021.3	1,008.1	3.4	2.9	164.09	-42.0	108.7	269.1	265.1	3.92	68.692			
1,200.0	1,179.9	1,107.5	1,090.3	3.9	3.4	163.15	-49.1	133.9	319.4	315.1	4.33	73.734			
1,300.0	1,276.7	1,193.8	1,172.5	4.4	3.8	162.46	-56.3	159.0	369.9	365.1	4.75	77.858			
1,400.0	1,373.5	1,280.1	1,254.8	4.9	4.3	161.94	-63.4	184.2	420.3	415.2	5.17	81.291			
1,500.0	1,470.3	1,366.4	1,337.0	5.3	4.8	161.53	-70.6	209.4	470.8	465.2	5.59	84.193			

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 31-11C
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 31-11C	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	-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 CC			
230.3	230.3	230.3	230.3	0.4	0.4	-107.28	-18.9	-14.4	23.8	23.1	0.73	32.780			
300.0	300.0	300.0	300.0	0.5	0.5	-108.49	-18.9	-14.4	24.0	23.0	0.97	24.720 ES			
400.0	399.8	399.8	399.8	0.7	0.7	-122.58	-19.5	-13.1	26.1	24.8	1.33	19.587 SF			
500.0	499.3	498.1	497.8	0.9	0.9	-147.68	-22.0	-7.2	35.4	33.7	1.71	20.742			
600.0	598.0	593.2	592.3	1.2	1.1	-166.22	-26.3	2.9	56.8	54.8	2.05	27.709			
700.0	695.8	684.1	682.0	1.6	1.4	-176.32	-32.1	16.6	89.8	87.4	2.38	37.690			
800.0	792.7	770.1	766.1	2.1	1.7	178.06	-39.2	33.1	131.5	128.7	2.72	48.272			
900.0	889.5	852.5	845.8	2.5	2.1	174.57	-47.3	52.2	177.6	174.5	3.08	57.668			
1,000.0	986.3	931.1	921.0	3.0	2.5	172.13	-56.3	73.3	227.5	224.1	3.44	66.190			
1,100.0	1,083.1	1,012.7	998.2	3.4	3.0	170.23	-66.6	97.6	280.2	276.4	3.81	73.543			
1,200.0	1,179.9	1,097.3	1,078.2	3.9	3.5	168.85	-77.4	122.9	333.2	329.0	4.19	79.491			
1,300.0	1,276.7	1,181.8	1,158.1	4.4	4.0	167.85	-88.2	148.2	386.4	381.8	4.58	84.408			
1,400.0	1,373.5	1,266.4	1,238.0	4.9	4.5	167.10	-99.0	173.6	439.6	434.6	4.96	88.551			
1,500.0	1,470.3	1,350.9	1,318.0	5.3	5.0	166.50	-109.8	198.9	492.8	487.5	5.35	92.085			

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 31-11C
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 31-11C	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	-134.81	-27.0	-27.1	38.2						
100.0	100.0	100.0	100.0	0.1	0.1	-134.81	-27.0	-27.1	38.2	38.0	0.27	140.456			
200.0	200.0	200.0	200.0	0.3	0.3	-134.81	-27.0	-27.1	38.2	37.6	0.62	61.548 CC			
230.8	230.8	230.8	230.8	0.4	0.4	-99.27	-27.0	-27.1	38.3	37.5	0.73	52.487			
300.0	300.0	300.0	300.0	0.5	0.5	-100.05	-27.0	-27.1	38.4	37.4	0.97	39.500 ES			
400.0	399.8	399.8	399.7	0.7	0.7	-111.23	-28.5	-25.0	39.6	38.3	1.34	29.546			
500.0	499.3	497.6	497.3	0.9	0.9	-132.41	-32.9	-18.8	47.2	45.4	1.74	27.028 SF			
600.0	598.0	592.0	590.9	1.2	1.1	-151.65	-40.0	-9.0	67.0	64.9	2.12	31.675			
700.0	695.8	681.8	679.3	1.6	1.4	-163.80	-49.2	3.7	99.7	97.2	2.44	40.868			
800.0	792.7	766.5	761.8	2.1	1.8	-171.03	-60.1	18.9	142.2	139.4	2.75	51.730			
900.0	889.5	847.2	839.8	2.5	2.2	-175.46	-72.4	36.1	189.6	186.6	3.06	61.954			
1,000.0	986.3	924.2	913.1	3.0	2.6	-178.41	-86.0	54.9	241.1	237.7	3.37	71.496			
1,100.0	1,083.1	1,000.0	984.4	3.4	3.1	179.41	-101.1	75.8	296.1	292.4	3.69	80.348			
1,200.0	1,179.9	1,074.8	1,054.0	3.9	3.6	177.76	-117.1	98.1	353.7	349.7	4.00	88.401			
1,300.0	1,276.7	1,156.0	1,129.5	4.4	4.1	176.44	-134.7	122.5	411.7	407.3	4.33	95.068			
1,400.0	1,373.5	1,237.2	1,204.9	4.9	4.7	175.45	-152.2	146.8	469.7	465.1	4.66	100.795			

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 31-11C
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 31-11C	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	-131.77	-35.3	-39.6	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	-131.77	-35.3	-39.6	53.0	52.8	0.27	194.826			
200.0	200.0	200.0	200.0	0.3	0.3	-131.77	-35.3	-39.6	53.0	52.4	0.62	85.373 CC			
205.2	205.2	205.2	205.2	0.3	0.3	-96.05	-35.3	-39.6	53.0	52.4	0.64	82.946			
300.0	300.0	300.1	300.1	0.5	0.5	-96.92	-35.4	-39.4	53.1	52.1	0.97	54.682 ES			
400.0	399.8	399.7	399.6	0.7	0.7	-106.52	-38.0	-36.5	54.1	52.7	1.35	40.149			
500.0	499.3	497.2	496.7	0.9	0.9	-124.19	-43.8	-29.9	60.7	58.9	1.77	34.224 SF			
600.0	598.0	591.0	589.6	1.2	1.2	-142.17	-52.5	-20.0	79.0	76.8	2.18	36.185			
700.0	695.8	680.0	677.0	1.6	1.5	-155.09	-63.6	-7.4	110.6	108.0	2.53	43.734			
800.0	792.7	763.7	758.4	2.1	1.9	-163.46	-76.3	7.2	152.8	149.9	2.83	53.927			
900.0	889.5	843.4	835.1	2.5	2.3	-168.76	-90.7	23.5	200.6	197.4	3.13	64.082			
1,000.0	986.3	919.3	907.2	3.0	2.7	-172.29	-106.3	41.4	252.7	249.2	3.42	73.834			
1,100.0	1,083.1	991.4	974.7	3.4	3.2	-174.80	-122.9	60.3	308.4	304.7	3.71	83.092			
1,200.0	1,179.9	1,061.3	1,039.3	3.9	3.7	-176.71	-140.6	80.4	367.4	363.4	4.00	91.869			
1,300.0	1,276.7	1,140.6	1,112.1	4.4	4.2	-178.35	-161.3	103.9	427.7	423.4	4.30	99.373			
1,400.0	1,373.5	1,219.8	1,184.9	4.9	4.8	-179.60	-181.9	127.5	488.2	483.6	4.61	105.909			

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 31-11C
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 31-11C	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 CC			
264.8	264.8	264.8	264.8	0.4	0.4	-94.44	-43.4	-52.2	67.9	67.1	0.85	80.135			
300.0	300.0	300.1	300.1	0.5	0.5	-95.04	-43.8	-51.8	67.9	66.9	0.97	69.891 ES			
400.0	399.8	399.5	399.4	0.7	0.7	-103.66	-47.5	-48.2	68.8	67.5	1.36	50.772			
500.0	499.3	496.6	495.9	0.9	0.9	-118.83	-54.7	-41.1	75.0	73.2	1.80	41.630			
600.0	598.0	589.8	588.0	1.2	1.2	-135.16	-64.8	-31.1	92.2	89.9	2.25	41.023 SF			
700.0	695.8	678.0	674.4	1.6	1.5	-148.01	-77.4	-18.8	122.7	120.1	2.63	46.723			
800.0	792.7	760.8	754.7	2.1	1.9	-156.99	-91.7	-4.6	164.4	161.5	2.94	55.892			
900.0	889.5	839.6	830.2	2.5	2.3	-162.91	-107.7	11.1	212.2	209.0	3.23	65.643			
1,000.0	986.3	914.5	901.1	3.0	2.8	-166.93	-124.9	28.0	264.6	261.1	3.51	75.311			
1,100.0	1,083.1	985.6	967.5	3.4	3.3	-169.80	-143.0	45.9	320.9	317.1	3.79	84.618			
1,200.0	1,179.9	1,053.0	1,029.5	3.9	3.8	-171.94	-161.9	64.4	380.5	376.4	4.07	93.552			
1,300.0	1,276.7	1,123.3	1,093.3	4.4	4.3	-173.72	-182.9	85.2	442.8	438.5	4.34	101.966			

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 31-11C
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 31-11C	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	304.268			
200.0	200.0	200.0	200.0	0.3	0.3	-128.63	-51.7	-64.7	82.8	82.2	0.62	133.331 CC			
232.4	232.4	232.3	232.3	0.4	0.4	-93.01	-51.7	-64.7	82.9	82.1	0.73	112.793			
300.0	300.0	299.9	299.9	0.5	0.5	-94.37	-52.9	-63.8	82.9	82.0	0.97	85.191 ES			
400.0	399.8	398.7	398.5	0.7	0.7	-102.19	-58.0	-59.9	84.4	83.0	1.37	61.753			
500.0	499.3	495.0	494.1	0.9	0.9	-115.16	-66.8	-53.1	91.3	89.4	1.83	49.948			
600.0	598.0	587.2	585.1	1.2	1.2	-129.35	-78.8	-43.8	108.5	106.2	2.30	47.223 SF			
700.0	695.8	674.4	670.3	1.6	1.6	-141.18	-93.4	-32.5	138.6	135.9	2.71	51.122			
800.0	792.7	756.1	749.3	2.1	2.0	-150.06	-109.8	-19.8	179.9	176.9	3.05	59.045			
900.0	889.5	833.7	823.5	2.5	2.4	-156.19	-127.8	-5.9	227.8	224.4	3.34	68.110			
1,000.0	986.3	907.5	893.1	3.0	2.9	-160.44	-147.2	9.1	280.4	276.8	3.62	77.428			
1,100.0	1,083.1	977.5	958.2	3.4	3.4	-163.50	-167.5	24.8	337.1	333.2	3.89	86.547			
1,200.0	1,179.9	1,043.9	1,019.0	3.9	3.9	-165.79	-188.5	41.0	397.2	393.0	4.16	95.449			
1,300.0	1,276.7	1,100.0	1,069.7	4.4	4.3	-167.38	-207.5	55.8	460.3	455.9	4.41	104.341			

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Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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	-127.75	-59.7	-77.1	97.6						
100.0	100.0	100.0	100.0	0.1	0.1	-127.75	-59.7	-77.1	97.6	97.3	0.27	358.360			
200.0	200.0	200.0	200.0	0.3	0.3	-127.75	-59.7	-77.1	97.6	96.9	0.62	157.034	CC		
300.0	300.0	299.6	299.5	0.5	0.5	-93.92	-61.9	-75.7	97.8	96.8	0.98	99.938	ES		
400.0	399.8	397.9	397.6	0.7	0.7	-101.19	-68.2	-71.4	99.7	98.3	1.39	71.975			
500.0	499.3	493.5	492.4	0.9	1.0	-112.71	-78.3	-64.4	107.0	105.1	1.86	57.456			
600.0	598.0	585.0	582.4	1.2	1.3	-125.44	-91.6	-55.3	124.2	121.8	2.36	52.701	SF		
700.0	695.8	671.3	666.6	1.6	1.7	-136.48	-107.5	-44.4	153.7	150.9	2.80	54.899			
800.0	792.7	752.1	744.4	2.1	2.1	-145.21	-125.1	-32.4	194.6	191.4	3.16	61.565			
900.0	889.5	828.8	817.5	2.5	2.5	-151.50	-144.4	-19.2	242.3	238.8	3.47	69.830			
1,000.0	986.3	900.0	884.4	3.0	3.0	-155.87	-164.4	-5.5	295.0	291.3	3.75	78.657			
1,100.0	1,083.1	970.7	950.0	3.4	3.5	-159.23	-186.3	9.6	351.9	347.9	4.03	87.383			
1,200.0	1,179.9	1,036.1	1,009.7	3.9	4.0	-161.69	-208.3	24.7	412.3	408.0	4.29	96.075			
1,300.0	1,276.7	1,100.0	1,067.1	4.4	4.5	-163.66	-231.5	40.5	475.7	471.2	4.55	104.609			

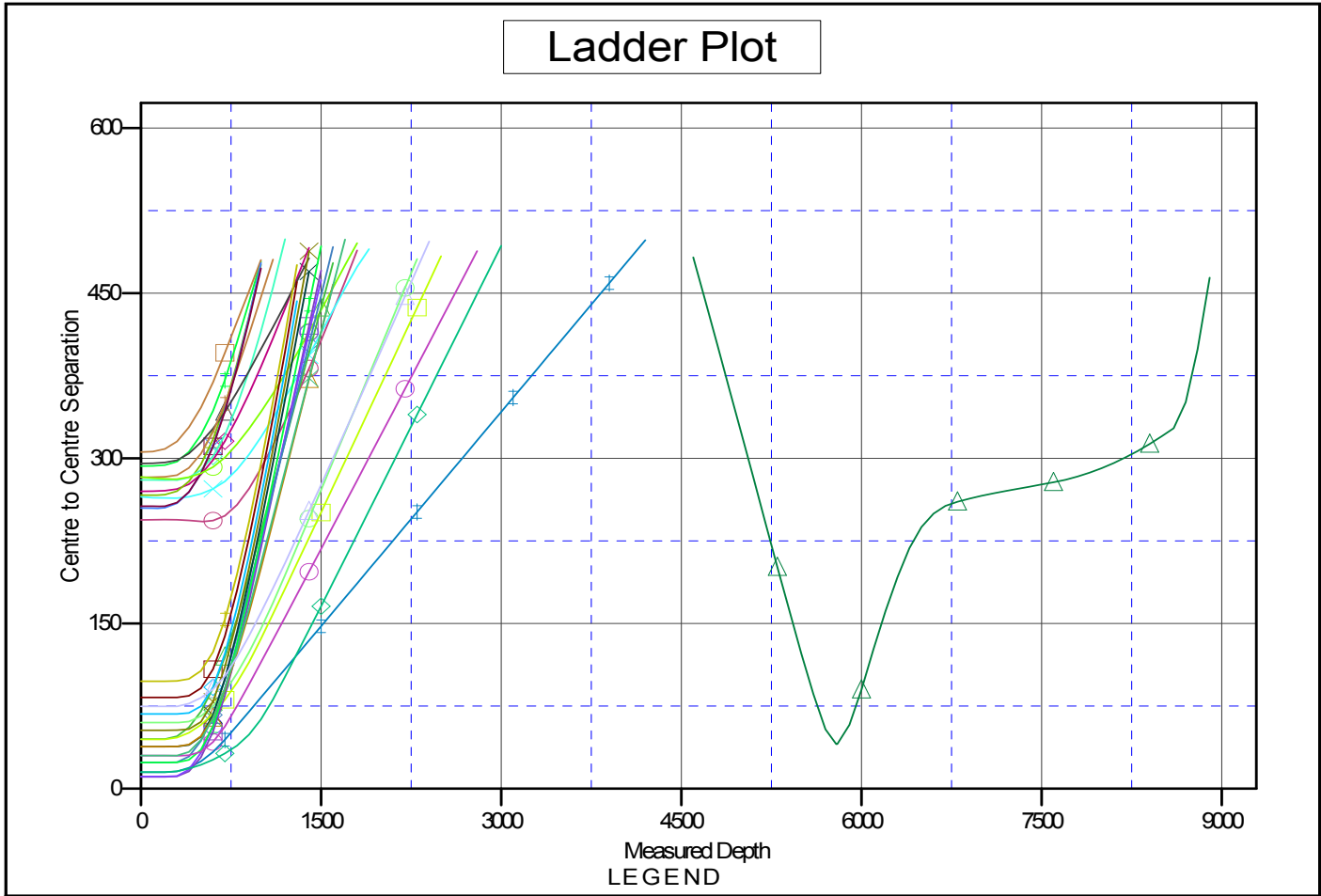
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-11C
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 31-11C	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) Coordinates are relative to: Shideler Fee 31-11C
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Central Zone
 Central Meridian is -105.500000 ° Grid Convergence at Surface is: -1.39°



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|--|--|--------------------------------------|
| Shideler Fee 6-3DD, DD, DD V0 | Shideler Federal 6-3-EX, Existing, Existing V0 | Shideler Fee 31-16DD, OH, Plan #1 V0 |
| Shideler Fee 6-3AA, DD, FINAL V0 | Shideler 31-11D (K31E) (Existing), Existing, Existing V0 | Shideler Fee 6-1D, OH, Plan #1 V0 |
| Shideler Fee 31-13C, OH, FINAL V0 | Shideler Fee 31-9D, OH, Plan #1 V0 | Shideler Fee 6-1AA, OH, Plan #1 V0 |
| Shideler Fee 31-13CC, OH, FINAL V0 | Shideler Fee 31-10C, OH, Plan #1 V0 | Shideler Fee 6-1DD, OH, Plan #1 V0 |
| Shideler Fee 31-15-EX, Existing, Existing V0 | Shideler Fee 31-13B, OH, Plan #1 V0 | Shideler Fee 31-16A, OH, Plan #1 V0 |
| Shideler Fee 6-6D, DD, DD V0 | Shideler Fee 6-8AA, OH, Plan #1 V0 | Shideler Fee 31-14D, OH, Plan #1 V0 |
| Shideler Fee 6-6A, DD, FINAL V0 | Shideler Fee 31-13BB, OH, Plan #1 V0 | Shideler Fee 31-12B, OH, Plan #1 V0 |
| Shideler Fee 6-7D, DD, DD V0 | Shideler Fee 6-8A, OH, Plan #1 V0 | Shideler Fee 31-16AA, OH, Plan #1 V0 |
| Shideler Fee 6-3A, DD, FINAL V0 | Shideler Fee 6-8D, OH, Plan #1 V0 | Shideler Fee 31-14DD, OH, Plan #1 V0 |
| Shideler Fee 6-3D, DD, DD V0 | Shideler Fee 6-1A, OH, Plan #1 V0 | |

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