

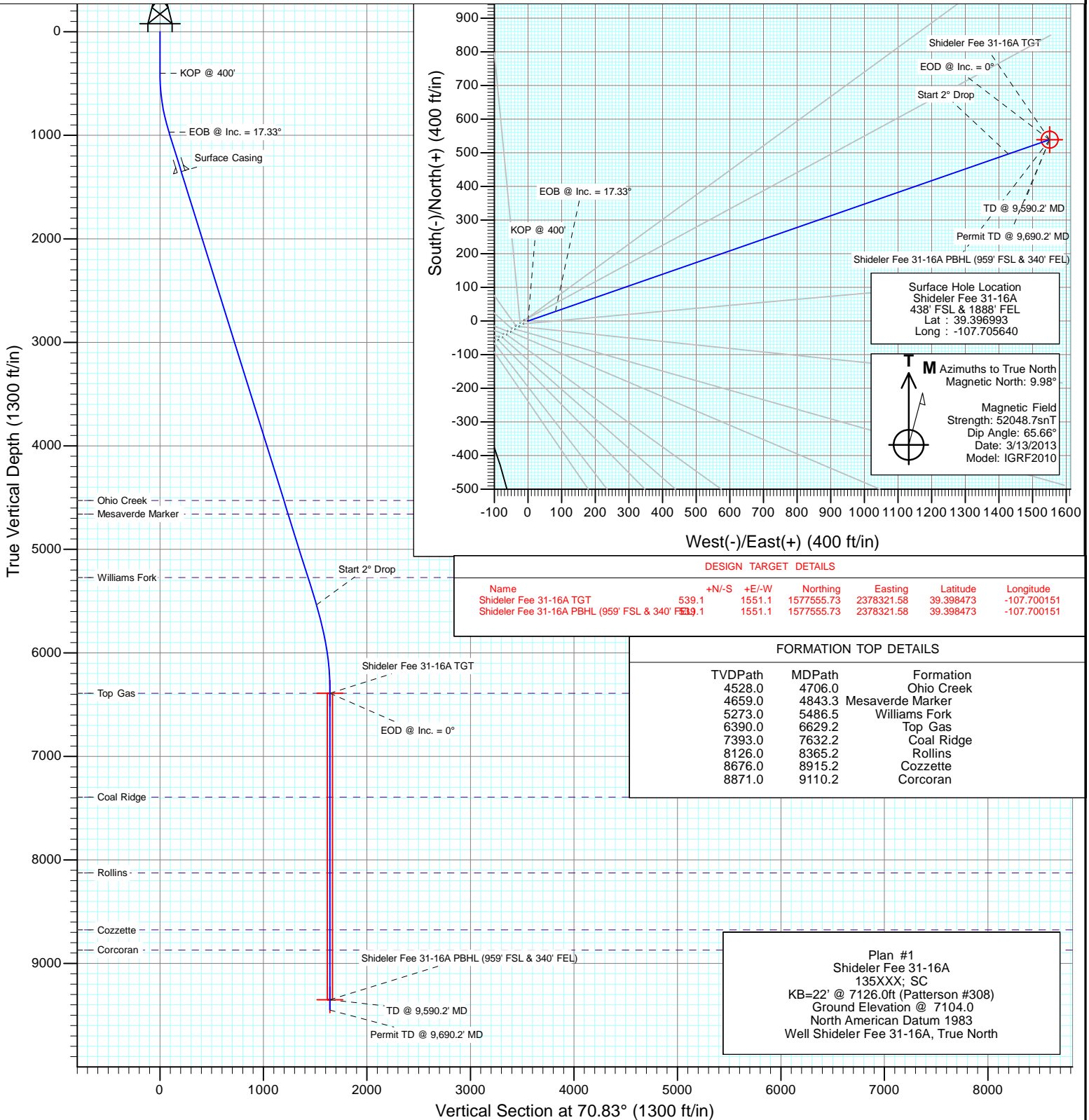


Project: Mamm Creek
 Site: O31E Pad (2nd Occupation)
 Well: Shideler Fee 31-16A
 Wellbore: OH
 Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	977.7	17.33	70.83	968.9	28.5	81.9	3.00	70.83	86.7	
4	5762.6	17.33	70.83	5536.6	496.4	1428.3	0.00	0.00	1512.1	
5	6629.2	0.00	0.00	6390.0	539.1	1551.1	2.00	180.00	1642.2	Shideler Fee 31-16A TGT
6	9590.2	0.00	0.00	9351.0	539.1	1551.1	0.00	0.00	1642.2	Shideler Fee 31-16A PBHL (959' FSL & 340' FEL)
7	9690.2	0.00	0.00	9451.0	539.1	1551.1	0.00	0.00	1642.2	



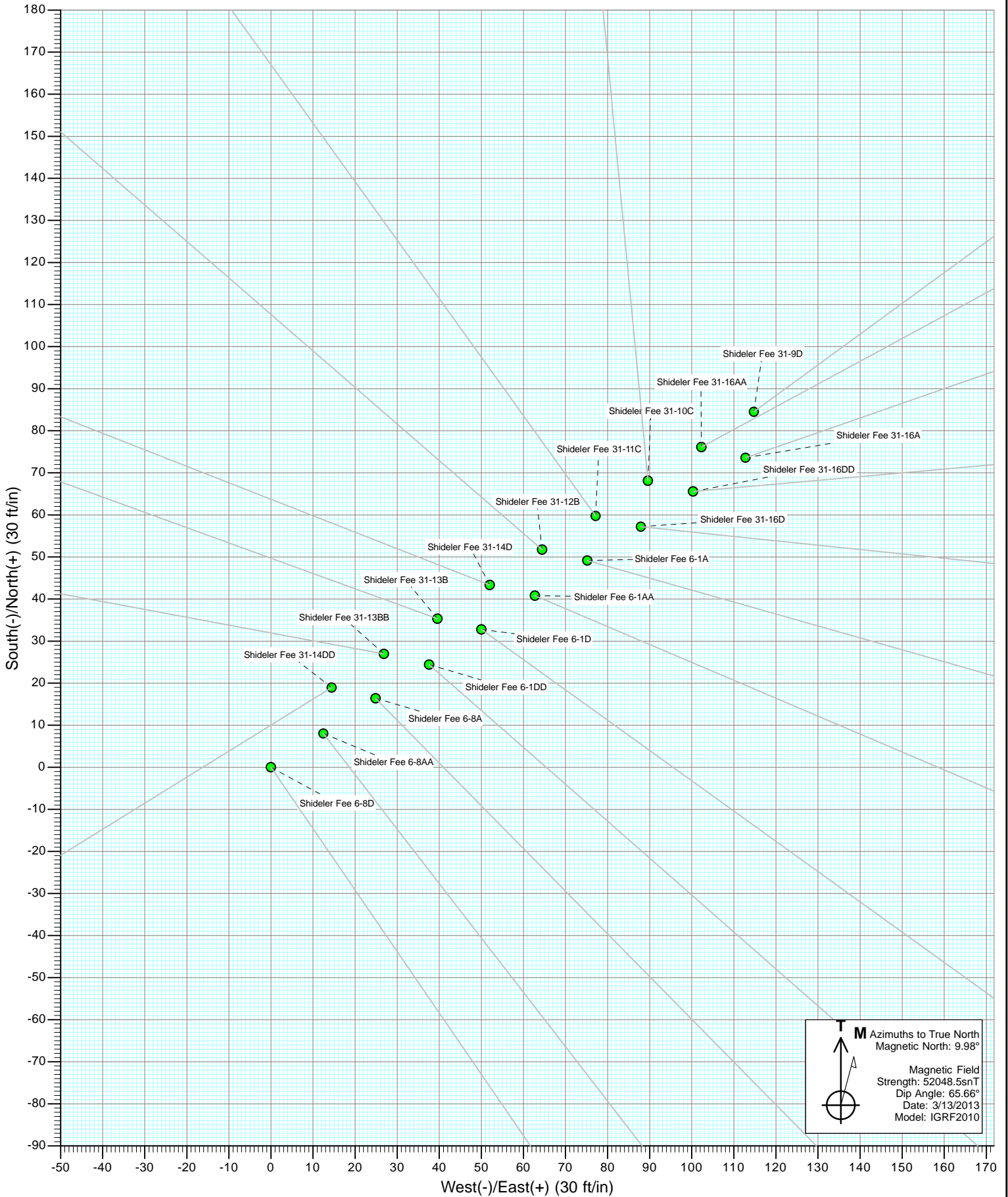
Surface Hole Location
 Shideler Fee 31-16A
 438' FSL & 1888' FEL
 Lat : 39.396993
 Long : -107.705640

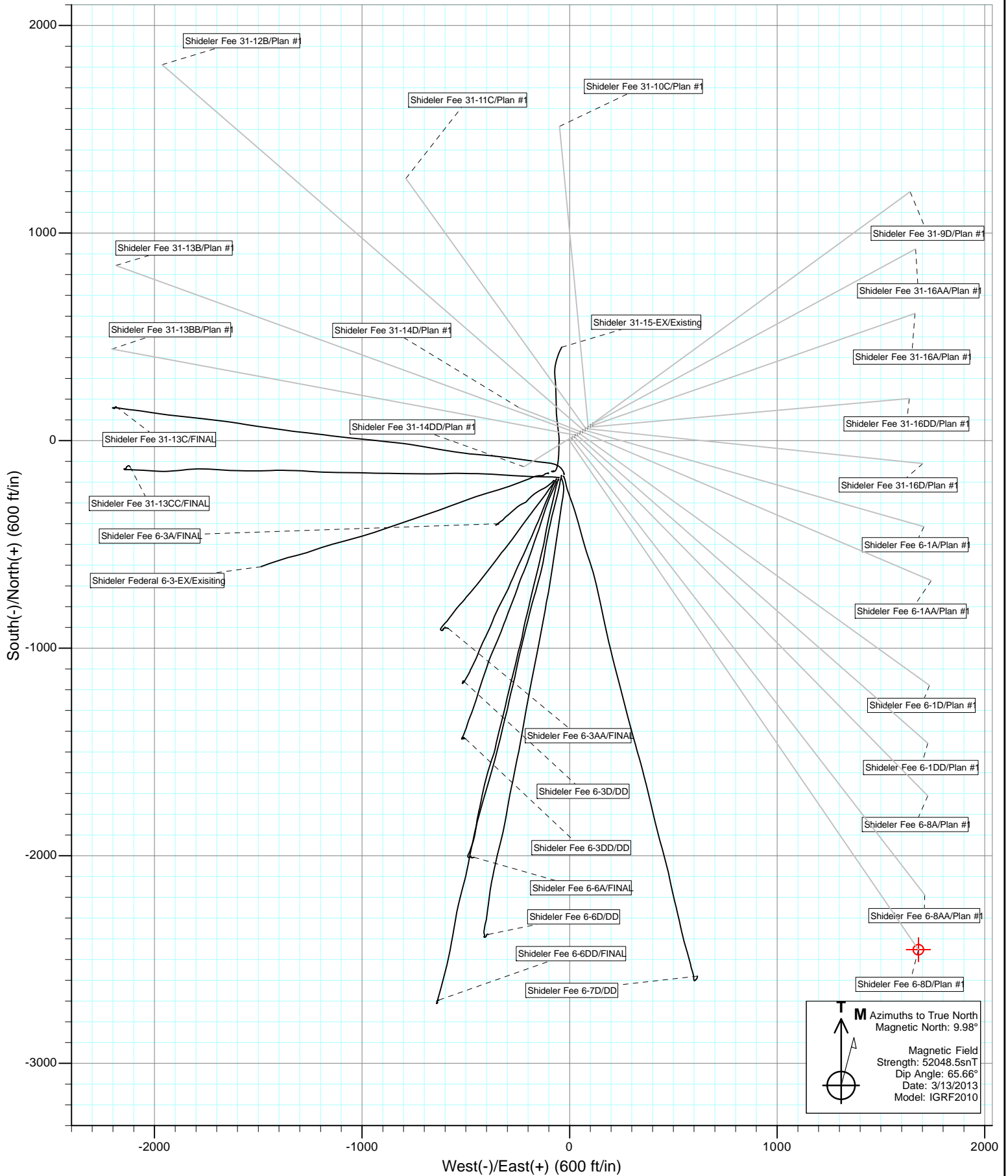
M Azimuths to True North
 Magnetic North: 9.98°
 Magnetic Field
 Strength: 52048.7snT
 Dip Angle: 65.66°
 Date: 3/13/2013
 Model: IGRF2010

DESIGN TARGET DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
Shideler Fee 31-16A TGT	539.1	1551.1	1577555.73	2378321.58	39.398473	-107.700151	
Shideler Fee 31-16A PBHL (959' FSL & 340' FEL)	539.1	1551.1	1577555.73	2378321.58	39.398473	-107.700151	

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	
4528.0	4706.0	Ohio Creek	
4659.0	4843.3	Mesaverde Marker	
5273.0	5486.5	Williams Fork	
6390.0	6629.2	Top Gas	
7393.0	7632.2	Coal Ridge	
8126.0	8365.2	Rollins	
8676.0	8915.2	Cozzette	
8871.0	9110.2	Corcoran	

Plan #1
 Shideler Fee 31-16A
 135XXX: SC
 KB=22' @ 7126.0ft (Patterson #308)
 Ground Elevation @ 7104.0
 North American Datum 1983
 Well Shideler Fee 31-16A, True North



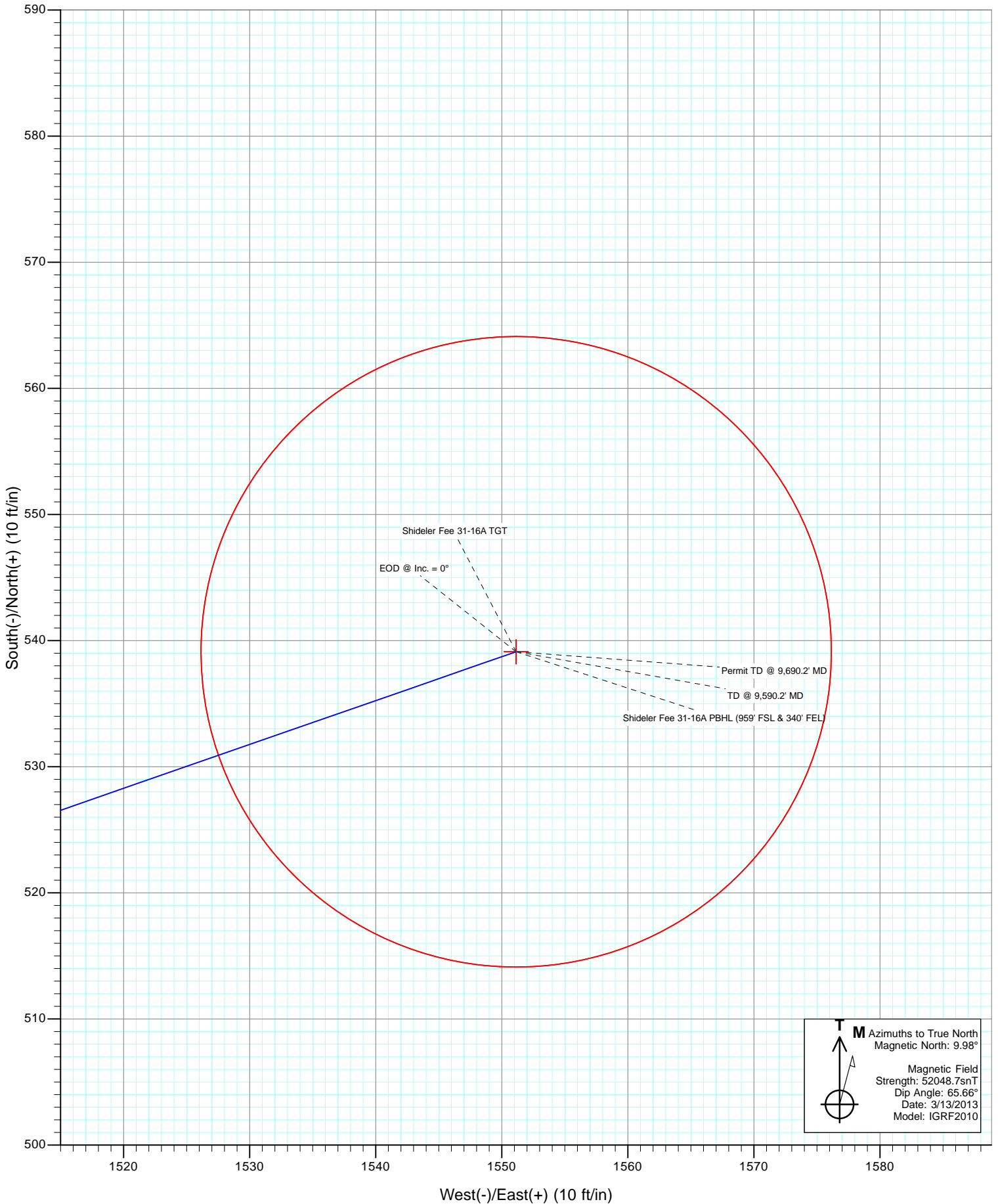


M Azimuths to True North
Magnetic North: 9.98°

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



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-16A
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 31-16A	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 31-16A						
Well Position	+N/-S	0.0 ft	Northing:	1,577,054.43 ft	Latitude:	39.396993
	+E/-W	0.0 ft	Easting:	2,376,757.80 ft	Longitude:	-107.705640
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	70.83	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
977.7	17.33	70.83	968.9	28.5	81.9	3.00	3.00	0.00	70.83	
5,762.6	17.33	70.83	5,536.6	496.4	1,428.3	0.00	0.00	0.00	0.00	
6,629.2	0.00	0.00	6,390.0	539.1	1,551.1	2.00	-2.00	0.00	180.00	Shideler Fee 31-16A
9,590.2	0.00	0.00	9,351.0	539.1	1,551.1	0.00	0.00	0.00	0.00	Shideler Fee 31-16A I
9,690.2	0.00	0.00	9,451.0	539.1	1,551.1	0.00	0.00	0.00	0.00	

Cathedral Energy Services

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

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

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	3.00	70.83	500.0	0.9	2.5	2.6	3.00	3.00	
600.0	6.00	70.83	599.6	3.4	9.9	10.5	3.00	3.00	
700.0	9.00	70.83	698.8	7.7	22.2	23.5	3.00	3.00	
800.0	12.00	70.83	797.1	13.7	39.4	41.7	3.00	3.00	
900.0	15.00	70.83	894.3	21.4	61.5	65.1	3.00	3.00	
977.7	17.33	70.83	968.9	28.5	81.9	86.7	3.00	3.00	EOB @ Inc. = 17.33°
1,000.0	17.33	70.83	990.2	30.6	88.2	93.4	0.00	0.00	
1,100.0	17.33	70.83	1,085.7	40.4	116.3	123.1	0.00	0.00	
1,200.0	17.33	70.83	1,181.1	50.2	144.5	152.9	0.00	0.00	
1,300.0	17.33	70.83	1,276.6	60.0	172.6	182.7	0.00	0.00	
1,376.9	17.33	70.83	1,350.0	67.5	194.2	205.6	0.00	0.00	Surface Casing
1,400.0	17.33	70.83	1,372.1	69.8	200.7	212.5	0.00	0.00	
1,500.0	17.33	70.83	1,467.5	79.5	228.9	242.3	0.00	0.00	
1,600.0	17.33	70.83	1,563.0	89.3	257.0	272.1	0.00	0.00	
1,700.0	17.33	70.83	1,658.4	99.1	285.1	301.9	0.00	0.00	
1,800.0	17.33	70.83	1,753.9	108.9	313.3	331.7	0.00	0.00	
1,900.0	17.33	70.83	1,849.4	118.7	341.4	361.5	0.00	0.00	
2,000.0	17.33	70.83	1,944.8	128.4	369.6	391.2	0.00	0.00	
2,100.0	17.33	70.83	2,040.3	138.2	397.7	421.0	0.00	0.00	
2,200.0	17.33	70.83	2,135.7	148.0	425.8	450.8	0.00	0.00	
2,300.0	17.33	70.83	2,231.2	157.8	454.0	480.6	0.00	0.00	
2,400.0	17.33	70.83	2,326.7	167.6	482.1	510.4	0.00	0.00	
2,500.0	17.33	70.83	2,422.1	177.3	510.3	540.2	0.00	0.00	
2,600.0	17.33	70.83	2,517.6	187.1	538.4	570.0	0.00	0.00	
2,700.0	17.33	70.83	2,613.0	196.9	566.5	599.8	0.00	0.00	
2,800.0	17.33	70.83	2,708.5	206.7	594.7	629.6	0.00	0.00	
2,900.0	17.33	70.83	2,804.0	216.5	622.8	659.3	0.00	0.00	
3,000.0	17.33	70.83	2,899.4	226.2	650.9	689.1	0.00	0.00	
3,100.0	17.33	70.83	2,994.9	236.0	679.1	718.9	0.00	0.00	
3,200.0	17.33	70.83	3,090.3	245.8	707.2	748.7	0.00	0.00	
3,300.0	17.33	70.83	3,185.8	255.6	735.4	778.5	0.00	0.00	
3,400.0	17.33	70.83	3,281.3	265.4	763.5	808.3	0.00	0.00	
3,500.0	17.33	70.83	3,376.7	275.1	791.6	838.1	0.00	0.00	
3,600.0	17.33	70.83	3,472.2	284.9	819.8	867.9	0.00	0.00	
3,700.0	17.33	70.83	3,567.6	294.7	847.9	897.7	0.00	0.00	
3,800.0	17.33	70.83	3,663.1	304.5	876.0	927.5	0.00	0.00	
3,900.0	17.33	70.83	3,758.6	314.3	904.2	957.2	0.00	0.00	
4,000.0	17.33	70.83	3,854.0	324.0	932.3	987.0	0.00	0.00	
4,100.0	17.33	70.83	3,949.5	333.8	960.5	1,016.8	0.00	0.00	
4,200.0	17.33	70.83	4,044.9	343.6	988.6	1,046.6	0.00	0.00	
4,300.0	17.33	70.83	4,140.4	353.4	1,016.7	1,076.4	0.00	0.00	
4,400.0	17.33	70.83	4,235.9	363.2	1,044.9	1,106.2	0.00	0.00	
4,500.0	17.33	70.83	4,331.3	372.9	1,073.0	1,136.0	0.00	0.00	
4,600.0	17.33	70.83	4,426.8	382.7	1,101.2	1,165.8	0.00	0.00	
4,700.0	17.33	70.83	4,522.2	392.5	1,129.3	1,195.6	0.00	0.00	
4,706.0	17.33	70.83	4,528.0	393.1	1,131.0	1,197.4	0.00	0.00	Ohio Creek
4,800.0	17.33	70.83	4,617.7	402.3	1,157.4	1,225.3	0.00	0.00	

Cathedral Energy Services

Planning Report

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

Local Co-ordinate Reference: Well Shideler Fee 31-16A
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
4,843.3	17.33	70.83	4,659.0	406.5	1,169.6	1,238.2	0.00	0.00	Mesaverde Marker
4,900.0	17.33	70.83	4,713.2	412.1	1,185.6	1,255.1	0.00	0.00	
5,000.0	17.33	70.83	4,808.6	421.8	1,213.7	1,284.9	0.00	0.00	
5,100.0	17.33	70.83	4,904.1	431.6	1,241.8	1,314.7	0.00	0.00	
5,200.0	17.33	70.83	4,999.5	441.4	1,270.0	1,344.5	0.00	0.00	
5,300.0	17.33	70.83	5,095.0	451.2	1,298.1	1,374.3	0.00	0.00	
5,400.0	17.33	70.83	5,190.5	461.0	1,326.3	1,404.1	0.00	0.00	
5,486.5	17.33	70.83	5,273.0	469.4	1,350.6	1,429.8	0.00	0.00	Williams Fork
5,500.0	17.33	70.83	5,285.9	470.7	1,354.4	1,433.9	0.00	0.00	
5,600.0	17.33	70.83	5,381.4	480.5	1,382.5	1,463.7	0.00	0.00	
5,700.0	17.33	70.83	5,476.8	490.3	1,410.7	1,493.5	0.00	0.00	
5,762.6	17.33	70.83	5,536.6	496.4	1,428.3	1,512.1	0.00	0.00	Start 2° Drop
5,800.0	16.58	70.83	5,572.4	500.0	1,438.6	1,523.0	2.00	-2.00	
5,900.0	14.58	70.83	5,668.7	508.8	1,464.0	1,549.9	2.00	-2.00	
6,000.0	12.58	70.83	5,765.9	516.5	1,486.2	1,573.4	2.00	-2.00	
6,100.0	10.58	70.83	5,863.8	523.1	1,505.1	1,593.4	2.00	-2.00	
6,200.0	8.58	70.83	5,962.4	528.6	1,520.8	1,610.1	2.00	-2.00	
6,300.0	6.58	70.83	6,061.6	532.9	1,533.3	1,623.3	2.00	-2.00	
6,400.0	4.58	70.83	6,161.1	536.1	1,542.5	1,633.0	2.00	-2.00	
6,500.0	2.58	70.83	6,260.9	538.2	1,548.4	1,639.3	2.00	-2.00	
6,600.0	0.58	70.83	6,360.8	539.1	1,551.0	1,642.0	2.00	-2.00	
6,629.2	0.00	0.00	6,390.0	539.1	1,551.1	1,642.2	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,700.0	0.00	0.00	6,460.8	539.1	1,551.1	1,642.2	0.00	0.00	
6,800.0	0.00	0.00	6,560.8	539.1	1,551.1	1,642.2	0.00	0.00	
6,900.0	0.00	0.00	6,660.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,000.0	0.00	0.00	6,760.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,100.0	0.00	0.00	6,860.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,200.0	0.00	0.00	6,960.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,300.0	0.00	0.00	7,060.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,400.0	0.00	0.00	7,160.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,500.0	0.00	0.00	7,260.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,600.0	0.00	0.00	7,360.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,632.2	0.00	0.00	7,393.0	539.1	1,551.1	1,642.2	0.00	0.00	Coal Ridge
7,700.0	0.00	0.00	7,460.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,800.0	0.00	0.00	7,560.8	539.1	1,551.1	1,642.2	0.00	0.00	
7,900.0	0.00	0.00	7,660.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,000.0	0.00	0.00	7,760.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,100.0	0.00	0.00	7,860.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,200.0	0.00	0.00	7,960.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,300.0	0.00	0.00	8,060.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,365.2	0.00	0.00	8,126.0	539.1	1,551.1	1,642.2	0.00	0.00	Rollins
8,400.0	0.00	0.00	8,160.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,500.0	0.00	0.00	8,260.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,600.0	0.00	0.00	8,360.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,700.0	0.00	0.00	8,460.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,800.0	0.00	0.00	8,560.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,900.0	0.00	0.00	8,660.8	539.1	1,551.1	1,642.2	0.00	0.00	
8,915.2	0.00	0.00	8,676.0	539.1	1,551.1	1,642.2	0.00	0.00	Cozzette
9,000.0	0.00	0.00	8,760.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,100.0	0.00	0.00	8,860.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,110.2	0.00	0.00	8,871.0	539.1	1,551.1	1,642.2	0.00	0.00	Corcoran
9,200.0	0.00	0.00	8,960.8	539.1	1,551.1	1,642.2	0.00	0.00	

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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
9,300.0	0.00	0.00	9,060.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,400.0	0.00	0.00	9,160.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,500.0	0.00	0.00	9,260.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,590.2	0.00	0.00	9,351.0	539.1	1,551.1	1,642.2	0.00	0.00	TD @ 9,590.2' MD
9,600.0	0.00	0.00	9,360.8	539.1	1,551.1	1,642.2	0.00	0.00	
9,690.2	0.00	0.00	9,451.0	539.1	1,551.1	1,642.2	0.00	0.00	Permit TD @ 9,690.2' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Shideler Fee 31-16A PB - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,351.0	539.1	1,551.1	1,577,555.73	2,378,321.58	39.398473	-107.700151
Shideler Fee 31-16A TG - plan hits target center - Point	0.00	0.00	6,390.0	539.1	1,551.1	1,577,555.73	2,378,321.58	39.398473	-107.700151

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,376.9	1,350.0	Surface Casing		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,706.0	4,528.0	Ohio Creek			
4,843.3	4,659.0	Mesaverde Marker			
5,486.5	5,273.0	Williams Fork			
6,629.2	6,390.0	Top Gas			
7,632.2	7,393.0	Coal Ridge			
8,365.2	8,126.0	Rollins			
8,915.2	8,676.0	Cozzette			
9,110.2	8,871.0	Corcoran			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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)	
400.0	400.0	0.0	0.0	KOP @ 400'
977.7	968.9	28.5	81.9	EOB @ Inc. = 17.33°
5,762.6	5,536.6	496.4	1,428.3	Start 2° Drop
6,629.2	6,390.0	539.1	1,551.1	EOD @ Inc. = 0°
9,590.2	9,351.0	539.1	1,551.1	TD @ 9,590.2' MD
9,690.2	9,451.0	539.1	1,551.1	Permit TD @ 9,690.2' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O31E Pad (2nd Occupation)

Shideler Fee 31-16A

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 31-16A
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 31-16A	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	9,690.2	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
K31E Pad						
Shideler 31-11D (K31E) (Existing) - Existing - Existing						Out of range
Shideler Fee 31-11A - DD - DD						Out of range
Shideler Fee 31-5BB - DD - FINAL						Out of range
Shideler Fee 31-5C - DD - DD						Out of range
Shideler Fee 31-5CC - DD - DD						Out of range
Shideler Fee 31-6D - DD - DD						Out of range
Shideler Fee 31-6DD - DD - FINAL						Out of range
Shideler Fee 31-8B - DD - FINAL						Out of range
Shideler Fee 31-8C - DD - FINAL						Out of range
Shideler Fee 31-9B - DD - DD						Out of range
Shideler Fee 31-9BB - DD - DD						Out of range
O31E Pad						
Shideler 31-15-EX - Existing - Existing	417.0	397.3	296.4	295.4	285.245	CC, ES
Shideler 31-15-EX - Existing - Existing	1,400.0	1,351.9	486.3	482.4	124.169	SF
Shideler Federal 6-3-EX - Existing - Existing	286.6	264.6	315.0	314.3	454.529	CC
Shideler Federal 6-3-EX - Existing - Existing	300.0	277.6	315.0	314.2	432.891	ES
Shideler Federal 6-3-EX - Existing - Existing	1,200.0	1,145.0	471.6	468.3	143.899	SF
Shideler Fee 31-13C - OH - FINAL	527.8	545.8	266.6	264.8	144.779	CC, ES
Shideler Fee 31-13C - OH - FINAL	900.0	861.2	326.0	322.5	93.053	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	300.2			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.1	300.4	300.1	1,076.158	ES
Shideler Fee 31-13CC - OH - FINAL	1,000.0	896.4	465.1	461.3	122.031	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	326.5			
Shideler Fee 6-3A - DD - FINAL	100.0	102.0	326.7	326.4	1,171.334	ES
Shideler Fee 6-3A - DD - FINAL	1,100.0	1,062.2	480.2	476.2	122.001	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	336.4			
Shideler Fee 6-3AA - DD - FINAL	900.0	828.6	487.7	484.6	159.174	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	313.5			
Shideler Fee 6-3D - DD - DD	200.0	201.8	313.9	313.3	502.569	ES
Shideler Fee 6-3D - DD - DD	1,000.0	912.7	482.6	479.1	136.586	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	323.3			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	323.5	323.2	1,158.916	ES
Shideler Fee 6-3DD - DD - DD	900.0	803.2	467.7	464.6	151.254	SF
Shideler Fee 6-6A - DD - FINAL	336.3	339.3	309.7	308.6	281.004	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,100.0	982.8	488.8	484.8	121.467	SF
Shideler Fee 6-6D - DD - DD	135.8	138.9	295.8	295.4	734.711	CC, ES
Shideler Fee 6-6D - DD - DD	1,000.0	859.7	481.5	477.7	125.527	SF
Shideler Fee 6-6DD - DD - FINAL	153.4	156.4	286.0	285.5	616.592	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.3	286.1	285.5	460.161	ES
Shideler Fee 6-6DD - DD - FINAL	1,000.0	854.1	490.8	487.2	135.649	SF
Shideler Fee 6-7D - DD - DD	141.0	141.0	283.2	282.8	673.108	CC, ES
Shideler Fee 6-7D - DD - DD	1,000.0	883.6	463.4	459.1	106.322	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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	336.3	336.3	23.6	22.5	21.473	CC, ES
Shideler Fee 31-10C - OH - Plan #1	500.0	498.6	30.6	28.8	17.416	SF
Shideler Fee 31-11C - OH - Plan #1	235.3	235.3	38.2	37.5	51.321	CC
Shideler Fee 31-11C - OH - Plan #1	300.0	299.7	38.4	37.4	39.553	ES
Shideler Fee 31-11C - OH - Plan #1	500.0	497.2	47.6	45.8	27.632	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	53.0	52.4	85.358	CC, ES
Shideler Fee 31-12B - OH - Plan #1	500.0	494.0	68.7	66.9	39.354	SF
Shideler Fee 31-13B - OH - Plan #1	200.0	200.0	82.6	82.0	132.910	CC, ES
Shideler Fee 31-13B - OH - Plan #1	600.0	581.5	123.9	121.8	59.504	SF
Shideler Fee 31-13BB - OH - Plan #1	300.0	300.0	97.7	96.8	100.726	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	600.0	586.3	123.4	121.4	61.299	SF
Shideler Fee 31-14D - OH - Plan #1	400.0	400.0	67.9	66.5	51.433	CC, ES
Shideler Fee 31-14D - OH - Plan #1	600.0	596.8	80.0	78.0	39.840	SF
Shideler Fee 31-14DD - OH - Plan #1	300.0	300.0	112.5	111.5	115.932	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	700.0	692.4	151.4	149.1	64.746	SF
Shideler Fee 31-16AA - OH - Plan #1	482.7	483.0	7.6	5.9	4.594	CC
Shideler Fee 31-16AA - OH - Plan #1	500.0	500.3	7.6	5.9	4.448	ES, SF
Shideler Fee 31-16D - OH - Plan #1	550.5	552.7	26.1	24.2	13.757	CC, ES
Shideler Fee 31-16D - OH - Plan #1	800.0	802.4	36.6	33.2	10.657	SF
Shideler Fee 31-16DD - OH - Plan #1	543.7	544.6	8.6	6.7	4.508	CC, ES
Shideler Fee 31-16DD - OH - Plan #1	600.0	600.8	9.4	7.2	4.294	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	11.1	10.5	17.879	CC, ES
Shideler Fee 31-9D - OH - Plan #1	5,200.0	5,163.6	490.3	440.8	9.906	SF
Shideler Fee 6-1A - OH - Plan #1	488.5	490.5	43.6	41.9	26.572	CC
Shideler Fee 6-1A - OH - Plan #1	500.0	502.2	43.6	41.9	25.913	ES
Shideler Fee 6-1A - OH - Plan #1	3,300.0	3,263.8	498.9	469.1	16.750	SF
Shideler Fee 6-1AA - OH - Plan #1	480.4	482.9	58.1	56.5	35.834	CC
Shideler Fee 6-1AA - OH - Plan #1	500.0	502.7	58.1	56.5	34.306	ES
Shideler Fee 6-1AA - OH - Plan #1	2,700.0	2,655.3	490.9	467.5	20.945	SF
Shideler Fee 6-1D - OH - Plan #1	445.9	447.7	73.5	72.0	48.872	CC, ES
Shideler Fee 6-1D - OH - Plan #1	1,900.0	1,843.7	426.1	411.5	29.236	SF
Shideler Fee 6-1DD - OH - Plan #1	433.4	435.0	88.6	87.1	60.445	CC, ES
Shideler Fee 6-1DD - OH - Plan #1	1,900.0	1,822.3	489.6	475.2	33.881	SF
Shideler Fee 6-8A - OH - Plan #1	423.1	424.5	103.7	102.3	72.187	CC, ES
Shideler Fee 6-8A - OH - Plan #1	1,700.0	1,615.5	469.2	456.9	38.074	SF
Shideler Fee 6-8AA - OH - Plan #1	402.0	402.4	119.5	118.1	87.724	CC, ES
Shideler Fee 6-8AA - OH - Plan #1	1,400.0	1,306.9	406.2	397.2	45.170	SF
Shideler Fee 6-8D - OH - Plan #1	307.7	307.7	134.6	133.6	134.748	CC
Shideler Fee 6-8D - OH - Plan #1	400.0	399.6	134.8	133.5	101.884	ES
Shideler Fee 6-8D - OH - Plan #1	1,500.0	1,371.4	489.5	479.7	49.558	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 31-16A
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 31-16A	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-138.24	-222.1	-198.3	298.6					
100.0	100.0	78.5	78.5	0.1	0.1	-138.28	-222.2	-198.1	297.7	297.5	0.20	1,453.890		
200.0	200.0	179.1	179.1	0.3	0.2	-138.42	-222.5	-197.4	297.4	297.0	0.47	636.694		
300.0	300.0	279.2	279.2	0.5	0.2	-138.60	-222.8	-196.4	297.0	296.3	0.73	407.248		
400.0	400.0	380.1	380.1	0.7	0.3	-138.94	-223.6	-194.8	296.5	295.5	0.99	298.714		
417.0	417.0	397.3	397.2	0.7	0.3	150.16	-223.7	-194.4	296.4	295.4	1.04	285.245	CC, ES	
500.0	500.0	481.6	481.6	0.8	0.4	150.09	-224.1	-192.7	297.8	296.6	1.26	236.583		
600.0	599.6	584.5	584.4	1.0	0.5	150.66	-223.2	-191.0	303.0	301.4	1.53	198.164		
700.0	698.8	682.9	682.8	1.3	0.6	151.85	-221.0	-190.3	312.2	310.4	1.81	172.930		
800.0	797.1	776.5	776.4	1.6	0.7	153.32	-219.1	-190.5	327.2	325.1	2.09	156.398		
900.0	894.3	871.9	871.8	2.1	0.8	154.84	-218.7	-191.0	348.4	346.0	2.40	145.437		
1,000.0	990.2	967.6	967.5	2.6	0.8	156.34	-219.2	-190.8	374.5	371.7	2.71	138.194		
1,100.0	1,085.7	1,063.3	1,063.2	3.1	0.9	157.88	-220.1	-190.2	402.3	399.2	3.02	133.126		
1,200.0	1,181.1	1,159.3	1,159.2	3.6	1.0	159.21	-221.1	-189.5	430.2	426.9	3.33	129.295		
1,300.0	1,276.6	1,255.3	1,255.2	4.2	1.1	160.46	-221.4	-189.1	458.3	454.6	3.62	126.436		
1,400.0	1,372.1	1,351.9	1,351.8	4.7	1.2	161.55	-221.9	-188.4	486.3	482.4	3.92	124.169	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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Reference Site:	O31E Pad (2nd Occupation)	MD Reference:	KB=22' @ 7126.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Fee 31-16A	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	-137.01	-231.2	-215.6	316.9						
100.0	100.0	79.6	79.6	0.1	0.1	-137.02	-231.1	-215.4	315.9	315.7	0.21	1,535.184			
200.0	200.0	180.0	180.0	0.3	0.2	-137.06	-230.8	-214.8	315.3	314.8	0.47	673.593			
286.6	286.6	264.6	264.6	0.5	0.2	-137.06	-230.6	-214.6	315.0	314.3	0.69	454.529 CC			
300.0	300.0	277.6	277.6	0.5	0.2	-137.05	-230.5	-214.6	315.0	314.2	0.73	432.891 ES			
400.0	400.0	376.6	376.6	0.7	0.3	-136.97	-230.5	-215.2	315.3	314.4	0.99	319.047			
500.0	500.0	475.9	475.9	0.8	0.4	152.48	-230.5	-216.0	318.2	316.9	1.25	254.474			
600.0	599.6	574.8	574.8	1.0	0.5	153.15	-230.5	-217.1	325.9	324.4	1.52	214.870			
700.0	698.8	672.2	672.2	1.3	0.6	154.10	-230.7	-218.4	338.7	336.9	1.79	189.046			
800.0	797.1	767.9	767.9	1.6	0.7	155.29	-231.0	-220.3	356.9	354.8	2.08	171.782			
900.0	894.3	862.7	862.6	2.1	0.8	156.63	-231.6	-222.7	380.6	378.2	2.38	160.226			
1,000.0	990.2	956.2	956.1	2.6	0.8	158.11	-232.2	-225.6	409.5	406.8	2.68	152.786			
1,100.0	1,085.7	1,050.2	1,050.0	3.1	0.9	159.72	-233.1	-228.6	440.4	437.5	2.98	147.728			
1,200.0	1,181.1	1,145.0	1,144.8	3.6	1.0	161.06	-234.3	-231.3	471.6	468.3	3.28	143.899 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	3.0	3.0	0.0	0.0	-149.38	-234.9	-139.0	273.0						
100.0	100.0	102.2	102.2	0.1	0.1	-149.40	-235.1	-139.1	273.2	272.9	0.28	978.316			
200.0	200.0	203.1	203.1	0.3	0.3	-149.41	-235.3	-139.1	273.4	272.7	0.63	436.087			
300.0	300.0	306.3	306.3	0.5	0.5	-149.32	-234.6	-139.2	272.9	271.9	0.98	278.001			
400.0	400.0	414.9	414.8	0.7	0.7	-148.68	-230.4	-140.2	269.9	268.6	1.35	200.444			
500.0	500.0	518.4	517.8	0.8	0.9	142.52	-221.8	-143.7	266.8	265.1	1.73	154.263			
527.8	527.7	545.8	545.1	0.9	1.0	143.33	-219.0	-145.2	266.6	264.8	1.84	144.779	CC, ES		
600.0	599.6	615.5	614.3	1.0	1.1	145.75	-211.6	-149.8	268.1	265.9	2.14	124.987			
700.0	698.8	704.9	702.6	1.3	1.4	149.71	-201.4	-158.5	276.4	273.8	2.60	106.369			
800.0	797.1	785.5	781.8	1.6	1.7	153.84	-192.8	-170.8	295.3	292.2	3.06	96.496			
900.0	894.3	861.2	855.7	2.1	2.0	157.67	-186.8	-185.9	326.0	322.5	3.50	93.053	SF		
1,000.0	990.2	937.0	929.3	2.6	2.3	161.22	-182.7	-203.6	367.1	363.2	3.92	93.566			
1,100.0	1,085.7	1,008.8	998.5	3.1	2.6	164.39	-180.1	-222.4	414.1	409.8	4.33	95.684			
1,200.0	1,181.1	1,081.8	1,068.4	3.6	3.0	167.18	-177.8	-243.6	464.7	460.0	4.72	98.391			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-146.84	-251.3	-164.2	300.2						
100.0	100.0	102.1	102.1	0.1	0.1	-146.83	-251.4	-164.3	300.4	300.1	0.28	1,076.158 ES			
200.0	200.0	201.2	201.2	0.3	0.3	-146.84	-251.8	-164.5	300.8	300.2	0.62	482.318			
300.0	300.0	297.1	297.1	0.5	0.5	-146.45	-251.8	-167.0	302.2	301.2	0.97	312.050			
400.0	400.0	392.4	392.1	0.7	0.7	-145.38	-250.7	-173.1	304.9	303.5	1.32	230.869			
500.0	500.0	479.0	478.2	0.8	0.9	145.40	-249.7	-182.3	312.3	310.6	1.69	185.111			
600.0	599.6	571.0	569.3	1.0	1.1	147.80	-249.3	-195.5	327.3	325.3	2.10	156.216			
700.0	698.8	662.0	658.8	1.3	1.5	150.70	-248.7	-211.8	349.7	347.2	2.53	138.142			
800.0	797.1	743.4	738.3	1.6	1.8	153.51	-248.1	-229.1	380.1	377.1	2.96	128.288			
900.0	894.3	822.1	814.6	2.1	2.2	156.28	-247.6	-248.4	418.6	415.2	3.40	123.286			
1,000.0	990.2	896.4	886.0	2.6	2.6	158.96	-247.2	-269.1	465.1	461.3	3.81	122.031 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-144.74	-266.6	-188.5	326.5						
100.0	100.0	102.0	102.0	0.1	0.1	-144.74	-266.7	-188.6	326.7	326.4	0.28	1,171.334	ES		
200.0	200.0	198.8	198.8	0.3	0.3	-144.67	-267.2	-189.4	327.5	326.9	0.62	528.113			
300.0	300.0	295.0	295.0	0.5	0.5	-144.56	-268.1	-190.8	329.2	328.2	0.96	341.112			
400.0	400.0	387.0	386.9	0.7	0.7	-144.41	-270.7	-193.7	333.3	332.0	1.31	253.713			
500.0	500.0	481.6	481.3	0.8	0.8	145.02	-274.8	-197.8	341.4	339.8	1.64	208.426			
600.0	599.6	583.6	583.2	1.0	1.0	145.75	-279.0	-202.3	353.7	351.7	2.00	177.117			
700.0	698.8	681.2	680.6	1.3	1.2	146.76	-282.7	-206.3	370.2	367.8	2.36	156.846			
800.0	797.1	777.8	777.0	1.6	1.4	148.07	-286.3	-210.9	391.4	388.7	2.74	142.950			
900.0	894.3	873.3	872.3	2.1	1.6	149.54	-289.7	-215.6	417.3	414.2	3.13	133.367			
1,000.0	990.2	968.0	966.8	2.6	1.8	151.16	-293.2	-220.2	448.0	444.5	3.53	126.849			
1,100.0	1,085.7	1,062.2	1,060.9	3.1	2.0	153.03	-296.3	-224.9	480.2	476.2	3.94	122.001	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-145.69	-277.9	-189.6	336.4						
100.0	100.0	96.4	96.4	0.1	0.1	-145.70	-278.4	-189.9	337.0	336.7	0.27	1,239.123			
200.0	200.0	185.5	185.5	0.3	0.3	-145.69	-280.1	-191.1	339.4	338.8	0.60	563.661			
300.0	300.0	270.7	270.5	0.5	0.5	-145.64	-284.3	-194.4	345.7	344.8	0.95	364.689			
400.0	400.0	356.5	355.8	0.7	0.7	-145.55	-291.7	-200.1	356.5	355.2	1.33	267.444			
500.0	500.0	446.2	444.6	0.8	0.9	143.61	-301.5	-207.3	372.1	370.6	1.58	236.270			
600.0	599.6	534.5	531.8	1.0	1.2	143.88	-313.1	-215.7	394.6	392.7	1.91	206.797			
700.0	698.8	630.4	626.2	1.3	1.6	144.37	-327.0	-225.1	422.4	420.2	2.27	186.236			
800.0	797.1	731.7	726.2	1.6	1.9	145.26	-340.4	-234.9	453.5	450.8	2.66	170.618			
900.0	894.3	828.6	821.9	2.1	2.2	146.25	-352.1	-243.7	487.7	484.6	3.06	159.174 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-145.83	-259.3	-176.1	313.5						
100.0	100.0	102.0	102.0	0.1	0.1	-145.82	-259.5	-176.2	313.6	313.3	0.28	1,124.136			
200.0	200.0	201.8	201.8	0.3	0.3	-145.84	-259.7	-176.3	313.9	313.3	0.62	502.569 ES			
300.0	300.0	295.0	295.0	0.5	0.5	-145.85	-260.7	-176.9	315.2	314.2	0.96	327.318			
400.0	400.0	383.5	383.4	0.7	0.6	-145.80	-263.7	-179.2	319.5	318.2	1.30	245.814			
500.0	500.0	468.8	468.4	0.8	0.8	143.37	-269.8	-183.1	329.9	328.3	1.61	204.370			
600.0	599.6	555.5	554.5	1.0	1.0	143.54	-279.2	-188.2	348.5	346.6	1.95	178.977			
700.0	698.8	642.7	640.6	1.3	1.3	143.83	-291.2	-194.1	374.0	371.7	2.30	162.738			
800.0	797.1	733.7	730.1	1.6	1.6	144.17	-306.0	-200.0	405.5	402.8	2.68	151.223			
900.0	894.3	823.3	818.3	2.1	1.9	144.63	-321.2	-206.0	441.8	438.7	3.09	142.804			
1,000.0	990.2	912.7	906.1	2.6	2.2	145.43	-336.7	-212.5	482.6	479.1	3.53	136.586 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-146.71	-270.3	-177.5	323.3						
100.0	100.0	102.2	102.2	0.1	0.1	-146.75	-270.5	-177.4	323.5	323.2	0.28	1,158.916	ES		
200.0	200.0	199.6	199.5	0.3	0.3	-146.88	-271.4	-177.1	324.1	323.5	0.62	522.195			
300.0	300.0	288.1	288.1	0.5	0.5	-147.03	-274.0	-177.7	326.9	326.0	0.95	343.087			
400.0	400.0	375.3	375.1	0.7	0.6	-147.23	-279.3	-179.8	333.4	332.1	1.29	257.522			
500.0	500.0	461.2	460.4	0.8	0.9	141.63	-287.8	-183.0	345.7	344.1	1.61	215.083			
600.0	599.6	548.2	546.6	1.0	1.1	141.55	-299.3	-187.6	365.7	363.8	1.95	187.984			
700.0	698.8	629.2	626.3	1.3	1.4	141.66	-312.2	-193.0	392.9	390.6	2.29	171.456			
800.0	797.1	712.1	707.4	1.6	1.7	141.91	-328.3	-200.1	427.7	425.0	2.67	160.336			
900.0	894.3	803.2	796.2	2.1	2.1	142.41	-346.9	-208.4	467.7	464.6	3.09	151.254	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-147.73	-262.3	-165.6	310.2						
100.0	100.0	103.0	103.0	0.1	0.1	-147.70	-262.2	-165.7	310.2	309.9	0.28	1,106.802			
200.0	200.0	203.3	203.3	0.3	0.3	-147.61	-261.9	-166.2	310.1	309.5	0.63	494.504			
300.0	300.0	304.2	304.2	0.5	0.5	-147.52	-261.3	-166.4	309.8	308.8	0.98	316.863			
336.3	336.3	339.3	339.3	0.5	0.6	-147.47	-261.1	-166.5	309.7	308.6	1.10	281.004 CC, ES			
400.0	400.0	400.9	400.9	0.7	0.7	-147.40	-261.1	-167.0	310.0	308.7	1.32	234.651			
500.0	500.0	493.6	493.6	0.8	0.8	141.99	-262.5	-168.0	313.8	312.1	1.66	189.146			
600.0	599.6	582.1	582.0	1.0	1.0	142.37	-266.3	-169.3	324.4	322.4	2.00	162.518			
700.0	698.8	668.8	668.3	1.3	1.2	142.87	-273.2	-171.4	342.8	340.5	2.35	146.037			
800.0	797.1	753.0	751.9	1.6	1.4	143.39	-283.1	-174.4	369.0	366.2	2.72	135.580			
900.0	894.3	831.0	828.8	2.1	1.6	143.76	-295.4	-177.8	402.8	399.7	3.12	129.001			
1,000.0	990.2	908.7	905.0	2.6	1.9	144.16	-310.7	-181.4	443.8	440.2	3.56	124.523			
1,100.0	1,085.7	982.8	977.0	3.1	2.2	144.90	-327.8	-185.2	488.8	484.8	4.02	121.467 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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		Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor			
0.0	0.0	3.0	3.0	0.0	0.0	-148.82	-253.2	-153.2	295.9						
100.0	100.0	103.1	103.1	0.1	0.1	-148.81	-253.1	-153.2	295.9	295.6	0.28	1,054.949			
135.8	135.8	138.9	138.9	0.2	0.2	-148.81	-253.1	-153.2	295.8	295.4	0.40	734.711	CC, ES		
200.0	200.0	198.8	198.8	0.3	0.3	-148.93	-253.7	-152.9	296.2	295.6	0.62	478.356			
300.0	300.0	289.7	289.6	0.5	0.5	-149.58	-257.4	-151.1	298.8	297.8	0.95	313.441			
400.0	400.0	382.4	381.9	0.7	0.7	-150.84	-265.2	-148.0	304.4	303.1	1.29	235.256			
500.0	500.0	470.5	469.3	0.8	0.9	136.89	-275.8	-144.5	315.1	313.4	1.69	185.966			
600.0	599.6	557.6	555.3	1.0	1.2	135.80	-289.4	-141.9	333.2	331.1	2.08	160.461			
700.0	698.8	638.7	634.9	1.3	1.5	135.19	-304.7	-141.0	358.8	356.3	2.47	145.304			
800.0	797.1	715.7	709.9	1.6	1.8	134.86	-322.3	-141.9	392.3	389.4	2.88	136.006			
900.0	894.3	789.2	780.6	2.1	2.2	134.73	-341.8	-144.5	433.5	430.1	3.34	129.885			
1,000.0	990.2	859.7	847.8	2.6	2.6	134.87	-363.0	-148.0	481.5	477.7	3.84	125.527	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-148.11	-243.0	-151.2	286.2						
100.0	100.0	103.6	103.6	0.1	0.1	-148.13	-242.9	-151.0	286.0	285.8	0.28	1,017.048			
153.4	153.4	156.4	156.4	0.2	0.2	-148.14	-242.9	-151.0	286.0	285.5	0.46	616.592 CC			
200.0	200.0	200.3	200.3	0.3	0.3	-148.14	-243.0	-151.0	286.1	285.5	0.62	460.161 ES			
300.0	300.0	289.2	289.2	0.5	0.5	-148.22	-245.4	-152.1	289.1	288.1	0.95	302.889			
400.0	400.0	376.5	376.3	0.7	0.6	-148.60	-251.6	-153.6	296.0	294.7	1.30	228.357			
500.0	500.0	461.8	461.0	0.8	0.9	140.01	-261.3	-156.0	309.2	307.6	1.61	192.121			
600.0	599.6	546.8	544.7	1.0	1.1	139.58	-275.0	-159.2	330.8	328.9	1.95	169.441			
700.0	698.8	627.9	624.1	1.3	1.4	139.15	-291.5	-162.1	359.9	357.6	2.32	155.355			
800.0	797.1	705.9	699.6	1.6	1.8	138.83	-310.6	-166.1	396.9	394.2	2.71	146.347			
900.0	894.3	781.8	772.3	2.1	2.2	138.54	-331.9	-170.6	440.7	437.6	3.15	140.050			
1,000.0	990.2	854.1	841.0	2.6	2.6	138.59	-353.9	-176.1	490.8	487.2	3.62	135.649 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-150.11	-245.9	-141.3	283.6						
100.0	100.0	101.3	101.3	0.1	0.1	-150.10	-245.6	-141.2	283.3	283.1	0.28	1,001.673			
141.0	141.0	141.0	141.0	0.2	0.2	-150.11	-245.5	-141.2	283.2	282.8	0.42	673.108 CC, ES			
200.0	200.0	194.0	194.0	0.3	0.3	-150.26	-246.3	-140.7	283.8	283.1	0.62	460.458			
300.0	300.0	287.8	287.6	0.5	0.5	-151.06	-251.0	-138.8	287.1	286.1	0.96	300.487			
400.0	400.0	376.6	376.1	0.7	0.7	-152.29	-259.1	-136.0	293.6	292.3	1.29	227.181			
500.0	500.0	463.2	461.8	0.8	0.9	135.44	-270.4	-133.2	305.7	304.0	1.68	181.668			
600.0	599.6	551.1	548.2	1.0	1.2	134.02	-285.8	-129.3	325.0	322.9	2.08	156.119			
700.0	698.8	640.3	635.3	1.3	1.6	132.92	-304.7	-125.6	351.4	348.8	2.55	137.814			
800.0	797.1	725.6	717.7	1.6	2.0	131.52	-325.9	-118.2	382.7	379.6	3.09	124.017			
900.0	894.3	806.0	794.2	2.1	2.5	130.15	-349.1	-109.7	420.2	416.5	3.69	113.969			
1,000.0	990.2	883.6	867.0	2.6	3.0	129.11	-374.2	-100.7	463.4	459.1	4.36	106.322 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-103.28	-5.5	-23.2	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	-103.28	-5.5	-23.2	23.8	23.5	0.27	87.447			
200.0	200.0	200.0	200.0	0.3	0.3	-103.28	-5.5	-23.2	23.8	23.2	0.62	38.320			
300.0	300.0	300.1	300.1	0.5	0.5	-99.73	-4.0	-23.3	23.7	22.7	0.97	24.366			
336.3	336.3	336.3	336.3	0.5	0.6	-95.45	-2.2	-23.5	23.6	22.5	1.10	21.473 CC, ES			
400.0	400.0	399.8	399.6	0.7	0.7	-84.06	2.5	-23.9	24.1	22.7	1.33	18.124			
500.0	500.0	498.6	497.7	0.8	0.9	-135.08	14.0	-25.0	30.6	28.8	1.76	17.416 SF			
600.0	599.6	596.0	593.7	1.0	1.3	-123.66	30.3	-26.6	45.7	43.5	2.19	20.875			
700.0	698.8	691.5	686.8	1.3	1.7	-118.69	51.0	-28.6	67.7	65.1	2.69	25.191			
800.0	797.1	787.5	779.9	1.6	2.1	-117.40	74.6	-30.8	94.5	91.3	3.27	28.911			
900.0	894.3	883.1	872.5	2.1	2.5	-118.51	98.1	-33.1	123.7	119.8	3.94	31.365			
1,000.0	990.2	977.6	964.1	2.6	3.0	-120.73	121.5	-35.3	155.5	150.8	4.70	33.111			
1,100.0	1,085.7	1,071.9	1,055.4	3.1	3.4	-123.07	144.7	-37.5	188.3	182.8	5.48	34.376			
1,200.0	1,181.1	1,166.1	1,146.7	3.6	3.8	-124.72	167.9	-39.7	221.3	215.0	6.26	35.335			
1,300.0	1,276.6	1,260.4	1,238.0	4.2	4.2	-125.94	191.1	-41.9	254.4	247.3	7.05	36.085			
1,400.0	1,372.1	1,354.6	1,329.3	4.7	4.7	-126.87	214.4	-44.1	287.6	279.7	7.84	36.688			
1,500.0	1,467.5	1,448.8	1,420.6	5.3	5.1	-127.62	237.6	-46.4	320.8	312.2	8.63	37.183			
1,600.0	1,563.0	1,543.1	1,511.9	5.8	5.6	-128.22	260.8	-48.6	354.1	344.7	9.42	37.596			
1,700.0	1,658.4	1,637.3	1,603.2	6.4	6.0	-128.73	284.0	-50.8	387.4	377.2	10.21	37.946			
1,800.0	1,753.9	1,731.5	1,694.6	7.0	6.4	-129.15	307.3	-53.0	420.8	409.8	11.00	38.246			
1,900.0	1,849.4	1,825.8	1,785.9	7.5	6.9	-129.51	330.5	-55.2	454.1	442.3	11.79	38.506			
2,000.0	1,944.8	1,920.0	1,877.2	8.1	7.3	-129.82	353.7	-57.4	487.5	474.9	12.59	38.734			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-111.24	-13.8	-35.6	38.2						
100.0	100.0	100.0	100.0	0.1	0.1	-111.24	-13.8	-35.6	38.2	37.9	0.27	140.311			
200.0	200.0	200.0	200.0	0.3	0.3	-111.24	-13.8	-35.6	38.2	37.6	0.62	61.485			
235.3	235.3	235.3	235.3	0.4	0.4	-111.24	-13.8	-35.6	38.2	37.5	0.74	51.321 CC			
300.0	300.0	299.7	299.7	0.5	0.5	-110.30	-13.3	-36.0	38.4	37.4	0.97	39.553 ES			
400.0	400.0	399.0	398.8	0.7	0.7	-103.17	-9.1	-39.0	40.1	38.7	1.33	30.216			
500.0	500.0	497.2	496.5	0.8	0.9	-162.84	-0.9	-44.9	47.6	45.8	1.72	27.632 SF			
600.0	599.6	593.6	591.7	1.0	1.2	-153.42	11.2	-53.6	64.4	62.3	2.13	30.319			
700.0	698.8	687.2	683.4	1.3	1.6	-147.42	26.6	-64.7	90.3	87.7	2.56	35.321			
800.0	797.1	779.4	772.8	1.6	2.0	-143.91	44.9	-77.9	123.8	120.8	3.02	41.036			
900.0	894.3	871.8	862.2	2.1	2.4	-142.54	63.8	-91.4	161.9	158.3	3.53	45.894			
1,000.0	990.2	962.6	950.2	2.6	2.8	-142.46	82.3	-104.7	203.7	199.6	4.08	49.905			
1,100.0	1,085.7	1,052.9	1,037.5	3.1	3.2	-143.07	100.6	-118.0	246.6	242.0	4.68	52.753			
1,200.0	1,181.1	1,143.2	1,124.9	3.6	3.6	-143.51	119.0	-131.2	289.6	284.3	5.28	54.868			
1,300.0	1,276.6	1,233.5	1,212.3	4.2	4.1	-143.83	137.4	-144.4	332.6	326.7	5.89	56.493			
1,400.0	1,372.1	1,323.7	1,299.7	4.7	4.5	-144.08	155.8	-157.6	375.6	369.1	6.50	57.776			
1,500.0	1,467.5	1,414.0	1,387.1	5.3	4.9	-144.28	174.2	-170.9	418.6	411.5	7.12	58.812			
1,600.0	1,563.0	1,504.3	1,474.5	5.8	5.3	-144.44	192.6	-184.1	461.6	453.9	7.74	59.665			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-114.33	-21.9	-48.3	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	-114.33	-21.9	-48.3	53.0	52.8	0.27	194.791			
200.0	200.0	200.0	200.0	0.3	0.3	-114.33	-21.9	-48.3	53.0	52.4	0.62	85.358	CC, ES		
300.0	300.0	298.8	298.7	0.5	0.5	-111.88	-20.2	-50.3	54.2	53.2	0.97	55.689			
400.0	400.0	397.0	396.7	0.7	0.7	-105.19	-15.2	-56.0	58.1	56.8	1.35	43.086			
500.0	500.0	494.0	492.8	0.8	1.0	-167.40	-7.1	-65.4	68.7	66.9	1.75	39.354	SF		
600.0	599.6	588.5	585.9	1.0	1.3	-160.07	4.0	-78.1	89.0	86.9	2.14	41.554			
700.0	698.8	679.7	674.7	1.3	1.7	-154.98	17.4	-93.6	118.7	116.1	2.55	46.595			
800.0	797.1	766.7	758.4	1.6	2.2	-151.62	32.9	-111.4	156.8	153.9	2.97	52.806			
900.0	894.3	848.8	836.4	2.1	2.7	-149.31	49.7	-130.8	202.7	199.3	3.42	59.291			
1,000.0	990.2	925.7	908.4	2.6	3.2	-147.79	67.4	-151.2	255.7	251.7	3.91	65.464			
1,100.0	1,085.7	1,000.0	976.8	3.1	3.7	-147.12	86.4	-173.0	312.5	308.1	4.45	70.298			
1,200.0	1,181.1	1,067.9	1,038.4	3.6	4.3	-146.43	105.2	-194.7	372.1	367.1	4.99	74.520			
1,300.0	1,276.6	1,144.8	1,107.2	4.2	4.9	-145.70	127.6	-220.5	433.3	427.8	5.58	77.688			
1,400.0	1,372.1	1,223.7	1,177.9	4.7	5.5	-145.14	150.6	-247.0	494.7	488.5	6.18	80.094			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-117.59	-38.2	-73.2	82.6						
100.0	100.0	100.0	100.0	0.1	0.1	-117.59	-38.2	-73.2	82.6	82.3	0.27	303.308			
200.0	200.0	200.0	200.0	0.3	0.3	-117.59	-38.2	-73.2	82.6	82.0	0.62	132.910	CC, ES		
300.0	300.0	297.1	297.0	0.5	0.5	-116.35	-37.4	-75.5	84.3	83.3	0.97	86.756			
400.0	400.0	393.7	393.3	0.7	0.7	-112.95	-34.9	-82.4	89.7	88.4	1.35	66.367			
500.0	500.0	488.9	487.8	0.8	1.0	-179.05	-30.8	-93.7	102.0	100.3	1.71	59.691			
600.0	599.6	581.5	579.0	1.0	1.3	-174.29	-25.3	-108.9	123.9	121.8	2.08	59.504	SF		
700.0	698.8	670.4	665.7	1.3	1.7	-170.36	-18.6	-127.4	155.4	153.0	2.45	63.477			
800.0	797.1	754.6	746.9	1.6	2.1	-167.35	-10.9	-148.4	195.9	193.1	2.81	69.831			
900.0	894.3	833.4	821.9	2.1	2.6	-165.07	-2.7	-171.0	244.7	241.5	3.16	77.531			
1,000.0	990.2	906.4	890.4	2.6	3.1	-163.41	5.9	-194.6	300.9	297.4	3.51	85.698			
1,100.0	1,085.7	976.9	955.7	3.1	3.6	-162.42	15.0	-219.7	361.1	357.2	3.91	92.384			
1,200.0	1,181.1	1,055.8	1,028.4	3.6	4.1	-161.55	25.5	-248.6	422.4	418.1	4.34	97.411			
1,300.0	1,276.6	1,134.7	1,101.0	4.2	4.7	-160.89	36.0	-277.5	483.7	478.9	4.77	101.417			

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 31-16A
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 31-16A	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	-118.49	-46.6	-85.9	97.7						
100.0	100.0	100.0	100.0	0.1	0.1	-118.49	-46.6	-85.9	97.7	97.5	0.27	358.998			
200.0	200.0	200.0	200.0	0.3	0.3	-118.49	-46.6	-85.9	97.7	97.1	0.62	157.314			
300.0	300.0	300.0	300.0	0.5	0.5	-118.49	-46.6	-85.9	97.7	96.8	0.97	100.726	CC, ES		
400.0	400.0	397.1	397.1	0.7	0.7	-117.99	-46.4	-87.2	98.8	97.5	1.32	75.106			
500.0	500.0	492.6	492.4	0.8	0.8	173.37	-45.3	-93.1	106.4	104.8	1.66	64.008			
600.0	599.6	586.3	585.5	1.0	1.1	176.67	-43.4	-103.5	123.4	121.4	2.01	61.299	SF		
700.0	698.8	676.8	674.8	1.3	1.4	-179.93	-40.7	-117.7	150.0	147.6	2.36	63.504			
800.0	797.1	763.0	759.2	1.6	1.7	-176.99	-37.5	-135.1	185.8	183.1	2.70	68.808			
900.0	894.3	844.2	837.8	2.1	2.1	-174.61	-33.8	-154.9	230.3	227.3	3.03	76.131			
1,000.0	990.2	919.7	910.1	2.6	2.5	-172.76	-29.8	-176.2	282.8	279.4	3.35	84.540			
1,100.0	1,085.7	990.8	977.4	3.1	2.9	-171.43	-25.6	-198.9	339.7	336.1	3.69	92.031			
1,200.0	1,181.1	1,058.4	1,040.5	3.6	3.4	-170.33	-21.2	-222.7	399.6	395.5	4.04	98.928			
1,300.0	1,276.6	1,134.2	1,110.6	4.2	3.9	-169.30	-15.9	-251.0	461.3	456.9	4.41	104.617			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-116.45	-30.2	-60.8	67.9						
100.0	100.0	100.0	100.0	0.1	0.1	-116.45	-30.2	-60.8	67.9	67.6	0.27	249.251			
200.0	200.0	200.0	200.0	0.3	0.3	-116.45	-30.2	-60.8	67.9	67.2	0.62	109.223			
300.0	300.0	300.0	300.0	0.5	0.5	-116.45	-30.2	-60.8	67.9	66.9	0.97	69.934			
400.0	400.0	400.0	400.0	0.7	0.7	-116.45	-30.2	-60.8	67.9	66.5	1.32	51.433 CC, ES			
500.0	500.0	500.0	500.0	0.8	0.8	172.97	-30.2	-60.8	70.5	68.8	1.67	42.265			
600.0	599.6	596.8	596.8	1.0	1.0	174.92	-29.3	-63.0	80.0	78.0	2.01	39.840 SF			
700.0	698.8	695.1	694.9	1.3	1.2	177.84	-27.4	-68.0	96.8	94.5	2.35	41.241			
800.0	797.1	792.6	792.2	1.6	1.4	179.91	-25.5	-72.8	119.0	116.3	2.68	44.379			
900.0	894.3	888.7	888.2	2.1	1.6	-178.70	-23.6	-77.6	146.3	143.3	3.01	48.675			
1,000.0	990.2	983.3	982.7	2.6	1.7	-177.79	-21.8	-82.4	178.6	175.2	3.33	53.646			
1,100.0	1,085.7	1,077.4	1,076.7	3.1	1.9	-177.20	-19.9	-87.1	212.3	208.7	3.67	57.815			
1,200.0	1,181.1	1,171.5	1,170.6	3.6	2.1	-176.77	-18.1	-91.8	246.1	242.1	4.02	61.261			
1,300.0	1,276.6	1,265.6	1,264.6	4.2	2.3	-176.44	-16.2	-96.5	279.9	275.6	4.36	64.154			
1,400.0	1,372.1	1,359.7	1,358.6	4.7	2.5	-176.19	-14.4	-101.2	313.7	309.0	4.71	66.617			
1,500.0	1,467.5	1,453.8	1,452.6	5.3	2.7	-175.98	-12.5	-105.9	347.5	342.5	5.06	68.737			
1,600.0	1,563.0	1,547.9	1,546.5	5.8	2.8	-175.81	-10.7	-110.6	381.3	375.9	5.40	70.581			
1,700.0	1,658.4	1,642.0	1,640.5	6.4	3.0	-175.67	-8.9	-115.3	415.2	409.4	5.75	72.198			
1,800.0	1,753.9	1,736.1	1,734.5	7.0	3.2	-175.55	-7.0	-120.0	449.0	442.9	6.10	73.628			
1,900.0	1,849.4	1,830.3	1,828.4	7.5	3.4	-175.45	-5.2	-124.7	482.8	476.3	6.45	74.901			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-119.05	-54.6	-98.3	112.5						
100.0	100.0	100.0	100.0	0.1	0.1	-119.05	-54.6	-98.3	112.5	112.2	0.27	413.195			
200.0	200.0	200.0	200.0	0.3	0.3	-119.05	-54.6	-98.3	112.5	111.9	0.62	181.063			
300.0	300.0	300.0	300.0	0.5	0.5	-119.05	-54.6	-98.3	112.5	111.5	0.97	115.932	CC, ES		
400.0	400.0	394.9	394.9	0.7	0.7	-119.11	-55.9	-100.3	114.9	113.6	1.31	87.463			
500.0	500.0	494.7	494.5	0.8	0.8	170.14	-58.2	-104.1	122.0	120.3	1.66	73.574			
600.0	599.6	593.9	593.7	1.0	1.0	170.56	-60.5	-107.9	134.1	132.1	2.00	67.040			
700.0	698.8	692.4	692.0	1.3	1.2	171.20	-62.8	-111.6	151.4	149.1	2.34	64.746	SF		
800.0	797.1	789.8	789.4	1.6	1.4	171.92	-65.1	-115.3	173.8	171.1	2.67	65.094			
900.0	894.3	885.9	885.4	2.1	1.6	172.64	-67.4	-118.9	201.2	198.2	2.99	67.231			
1,000.0	990.2	980.5	979.9	2.6	1.8	173.34	-69.6	-122.5	233.5	230.2	3.31	70.483			
1,100.0	1,085.7	1,074.6	1,073.9	3.1	1.9	173.97	-71.8	-126.0	267.3	263.7	3.65	73.195			
1,200.0	1,181.1	1,168.7	1,167.8	3.6	2.1	174.47	-74.0	-129.6	301.2	297.2	3.99	75.467			
1,300.0	1,276.6	1,262.7	1,261.8	4.2	2.3	174.86	-76.2	-133.2	335.0	330.7	4.33	77.398			
1,400.0	1,372.1	1,358.8	1,358.8	4.7	2.5	175.18	-78.4	-136.7	368.9	364.2	4.67	79.060			
1,500.0	1,467.5	1,450.9	1,449.8	5.3	2.6	175.45	-80.6	-140.3	402.8	397.8	5.00	80.504			
1,600.0	1,563.0	1,544.9	1,543.8	5.8	2.8	175.68	-82.8	-143.8	436.7	431.3	5.34	81.772			
1,700.0	1,658.4	1,639.0	1,637.7	6.4	3.0	175.87	-85.0	-147.4	470.6	464.9	5.68	82.893			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-76.30	2.5	-10.5	10.8						
100.0	100.0	100.0	100.0	0.1	0.1	-76.30	2.5	-10.5	10.8	10.5	0.27	39.528			
200.0	200.0	200.0	200.0	0.3	0.3	-76.30	2.5	-10.5	10.8	10.1	0.62	17.321			
300.0	300.0	300.0	300.0	0.5	0.5	-76.30	2.5	-10.5	10.8	9.8	0.97	11.091			
400.0	400.0	400.3	400.3	0.7	0.7	-64.95	3.8	-8.1	9.0	7.7	1.32	6.806			
482.7	482.7	483.0	482.8	0.8	0.8	-106.74	6.7	-2.7	7.6	5.9	1.65	4.594 CC			
500.0	500.0	500.3	500.0	0.8	0.9	-99.76	7.5	-1.2	7.6	5.9	1.72	4.448 ES, SF			
600.0	599.6	600.0	598.8	1.0	1.1	-68.59	13.7	10.2	10.4	8.2	2.15	4.805			
700.0	698.8	699.5	696.6	1.3	1.5	-55.05	22.4	26.1	15.3	12.7	2.62	5.857			
800.0	797.1	798.6	792.9	1.6	1.9	-49.96	33.4	46.4	21.3	18.1	3.15	6.756			
900.0	894.3	897.4	887.7	2.1	2.5	-48.36	46.7	71.0	27.9	24.1	3.79	7.340			
1,000.0	990.2	996.9	982.1	2.6	3.0	-49.96	61.7	98.8	33.8	29.2	4.61	7.341			
1,100.0	1,085.7	1,096.8	1,076.8	3.1	3.6	-52.85	76.8	126.7	38.9	33.4	5.55	7.011			
1,200.0	1,181.1	1,196.7	1,171.4	3.6	4.2	-55.06	92.0	154.7	44.1	37.6	6.54	6.745			
1,300.0	1,276.6	1,296.5	1,266.1	4.2	4.8	-56.81	107.1	182.6	49.3	41.8	7.55	6.533			
1,400.0	1,372.1	1,396.4	1,360.8	4.7	5.4	-58.22	122.2	210.6	54.6	46.0	8.58	6.363			
1,500.0	1,467.5	1,496.2	1,455.4	5.3	6.0	-59.39	137.4	238.5	59.9	50.2	9.62	6.225			
1,600.0	1,563.0	1,596.1	1,550.1	5.8	6.6	-60.36	152.5	266.5	65.2	54.5	10.67	6.111			
1,700.0	1,658.4	1,695.9	1,644.7	6.4	7.1	-61.19	167.6	294.4	70.5	58.8	11.72	6.015			
1,800.0	1,753.9	1,795.8	1,739.4	7.0	7.7	-61.90	182.8	322.4	75.8	63.1	12.78	5.935			
1,900.0	1,849.4	1,895.6	1,834.1	7.5	8.3	-62.52	197.9	350.3	81.2	67.4	13.84	5.866			
2,000.0	1,944.8	1,995.5	1,928.7	8.1	8.9	-63.06	213.0	378.3	86.6	71.6	14.91	5.806			
2,100.0	2,040.3	2,095.3	2,023.4	8.7	9.5	-63.54	228.2	406.2	91.9	75.9	15.97	5.754			
2,200.0	2,135.7	2,195.2	2,118.0	9.2	10.1	-63.96	243.3	434.2	97.3	80.2	17.04	5.709			
2,300.0	2,231.2	2,295.0	2,212.7	9.8	10.7	-64.34	258.4	462.1	102.7	84.5	18.11	5.668			
2,400.0	2,326.7	2,394.9	2,307.4	10.3	11.3	-64.68	273.6	490.1	108.0	88.9	19.18	5.632			
2,500.0	2,422.1	2,494.7	2,402.0	10.9	11.9	-65.00	288.7	518.0	113.4	93.2	20.26	5.600			
2,600.0	2,517.6	2,594.6	2,496.7	11.5	12.5	-65.28	303.8	545.9	118.8	97.5	21.33	5.570			
2,700.0	2,613.0	2,694.5	2,591.3	12.0	13.1	-65.54	319.0	573.9	124.2	101.8	22.40	5.544			
2,800.0	2,708.5	2,794.3	2,686.0	12.6	13.7	-65.77	334.1	601.8	129.6	106.1	23.48	5.520			
2,900.0	2,804.0	2,894.2	2,780.7	13.2	14.3	-65.99	349.2	629.8	135.0	110.4	24.55	5.498			
3,000.0	2,899.4	2,994.0	2,875.3	13.7	14.9	-66.19	364.4	657.7	140.4	114.7	25.62	5.478			
3,100.0	2,994.9	3,093.9	2,970.0	14.3	15.5	-66.38	379.5	685.7	145.8	119.1	26.70	5.459			
3,200.0	3,090.3	3,193.7	3,064.7	14.9	16.1	-66.55	394.6	713.6	151.2	123.4	27.78	5.442			
3,300.0	3,185.8	3,293.6	3,159.3	15.4	16.7	-66.71	409.8	741.6	156.6	127.7	28.85	5.427			
3,400.0	3,281.3	3,393.4	3,254.0	16.0	17.3	-66.86	424.9	769.5	162.0	132.0	29.93	5.412			
3,500.0	3,376.7	3,493.3	3,348.6	16.6	17.9	-67.00	440.0	797.5	167.4	136.4	31.00	5.398			
3,600.0	3,472.2	3,593.1	3,443.3	17.1	18.5	-67.13	455.2	825.4	172.8	140.7	32.08	5.385			
3,700.0	3,567.6	3,693.0	3,538.0	17.7	19.1	-67.25	470.3	853.4	178.2	145.0	33.16	5.373			
3,800.0	3,663.1	3,792.8	3,632.6	18.3	19.7	-67.37	485.4	881.3	183.6	149.3	34.23	5.362			
3,900.0	3,758.6	3,892.7	3,727.3	18.8	20.3	-67.48	500.6	909.3	189.0	153.7	35.31	5.352			
4,000.0	3,854.0	3,992.5	3,821.9	19.4	21.0	-67.58	515.7	937.2	194.4	158.0	36.39	5.342			
4,100.0	3,949.5	4,092.4	3,916.6	20.0	21.6	-67.68	530.8	965.2	199.8	162.3	37.47	5.333			
4,200.0	4,044.9	4,192.3	4,011.3	20.5	22.2	-67.77	546.0	993.1	205.2	166.6	38.54	5.324			
4,300.0	4,140.4	4,292.1	4,105.9	21.1	22.8	-67.86	561.1	1,021.0	210.6	171.0	39.62	5.315			
4,400.0	4,235.9	4,392.0	4,200.6	21.7	23.4	-67.95	576.2	1,049.0	216.0	175.3	40.70	5.308			
4,500.0	4,331.3	4,491.8	4,295.2	22.2	24.0	-68.02	591.4	1,076.9	221.4	179.6	41.78	5.300			
4,600.0	4,426.8	4,591.7	4,389.9	22.8	24.6	-68.10	606.5	1,104.9	226.8	184.0	42.85	5.293			
4,700.0	4,522.2	4,691.5	4,484.6	23.4	25.2	-68.17	621.6	1,132.8	232.2	188.3	43.93	5.286			
4,800.0	4,617.7	4,791.4	4,579.2	23.9	25.8	-68.24	636.8	1,160.8	237.6	192.6	45.01	5.280			
4,900.0	4,713.2	4,891.2	4,673.9	24.5	26.4	-68.31	651.9	1,188.7	243.0	197.0	46.09	5.274			
5,000.0	4,808.6	4,991.1	4,768.5	25.1	27.0	-68.37	667.0	1,216.7	248.5	201.3	47.16	5.268			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,100.0	4,904.1	5,090.9	4,863.2	25.6	27.6	-68.43	682.2	1,244.6	253.9	205.6	48.24	5.262			
5,200.0	4,999.5	5,190.8	4,957.9	26.2	28.2	-68.49	697.3	1,272.6	259.3	210.0	49.32	5.257			
5,300.0	5,095.0	5,290.6	5,052.5	26.8	28.8	-68.54	712.4	1,300.5	264.7	214.3	50.40	5.252			
5,400.0	5,190.5	5,390.5	5,147.2	27.3	29.4	-68.60	727.6	1,328.5	270.1	218.6	51.48	5.247			
5,500.0	5,285.9	5,490.3	5,241.8	27.9	30.0	-68.65	742.7	1,356.4	275.5	222.9	52.55	5.242			
5,600.0	5,381.4	5,590.2	5,336.5	28.5	30.6	-68.70	757.8	1,384.4	280.9	227.3	53.63	5.238			
5,700.0	5,476.8	5,690.1	5,431.2	29.0	31.2	-68.74	772.9	1,412.3	286.3	231.6	54.71	5.233			
5,800.0	5,572.4	5,793.2	5,529.1	29.6	31.8	-68.90	788.3	1,440.6	291.5	235.7	55.81	5.222			
5,900.0	5,668.7	5,898.4	5,630.2	30.1	32.3	-69.17	802.3	1,466.4	296.0	239.1	56.83	5.208			
6,000.0	5,765.9	6,003.8	5,732.4	30.5	32.8	-69.40	814.5	1,489.0	299.9	242.1	57.72	5.195			
6,100.0	5,863.8	6,109.2	5,835.5	30.9	33.2	-69.61	824.9	1,508.3	303.2	244.7	58.49	5.183			
6,200.0	5,962.4	6,214.7	5,939.4	31.2	33.5	-69.79	833.6	1,524.3	305.9	246.7	59.14	5.172			
6,300.0	6,061.6	6,320.2	6,043.9	31.4	33.7	-69.94	840.4	1,536.8	308.0	248.3	59.67	5.161			
6,400.0	6,161.1	6,425.7	6,148.9	31.6	33.9	-70.07	845.4	1,546.0	309.5	249.4	60.09	5.151			
6,500.0	6,260.9	6,531.3	6,254.3	31.8	34.1	-70.17	848.5	1,551.8	310.4	250.0	60.39	5.141			
6,600.0	6,360.8	6,636.8	6,359.8	31.8	34.2	-70.25	849.8	1,554.2	310.7	250.1	60.58	5.129			
6,700.0	6,460.8	6,737.9	6,460.8	31.9	34.2	0.57	849.8	1,554.2	310.7	250.0	60.72	5.117			
6,800.0	6,560.8	6,837.9	6,560.8	32.0	34.3	0.57	849.8	1,554.2	310.7	249.9	60.85	5.106			
6,900.0	6,660.8	6,937.9	6,660.8	32.0	34.3	0.57	849.8	1,554.2	310.7	249.7	60.99	5.094			
7,000.0	6,760.8	7,037.9	6,760.8	32.1	34.4	0.57	849.8	1,554.2	310.7	249.6	61.13	5.083			
7,100.0	6,860.8	7,137.9	6,860.8	32.2	34.5	0.57	849.8	1,554.2	310.7	249.4	61.27	5.071			
7,200.0	6,960.8	7,237.9	6,960.8	32.2	34.5	0.57	849.8	1,554.2	310.7	249.3	61.41	5.059			
7,300.0	7,060.8	7,337.9	7,060.8	32.3	34.6	0.57	849.8	1,554.2	310.7	249.1	61.55	5.048			
7,400.0	7,160.8	7,437.9	7,160.8	32.4	34.7	0.57	849.8	1,554.2	310.7	249.0	61.70	5.036			
7,500.0	7,260.8	7,537.9	7,260.8	32.4	34.7	0.57	849.8	1,554.2	310.7	248.9	61.85	5.024			
7,600.0	7,360.8	7,637.9	7,360.8	32.5	34.8	0.57	849.8	1,554.2	310.7	248.7	62.00	5.012			
7,700.0	7,460.8	7,737.9	7,460.8	32.6	34.9	0.57	849.8	1,554.2	310.7	248.6	62.15	5.000			
7,800.0	7,560.8	7,837.9	7,560.8	32.6	34.9	0.57	849.8	1,554.2	310.7	248.4	62.30	4.987			
7,900.0	7,660.8	7,937.9	7,660.8	32.7	35.0	0.57	849.8	1,554.2	310.7	248.3	62.45	4.975			
8,000.0	7,760.8	8,037.9	7,760.8	32.8	35.1	0.57	849.8	1,554.2	310.7	248.1	62.61	4.963			
8,100.0	7,860.8	8,137.9	7,860.8	32.9	35.1	0.57	849.8	1,554.2	310.7	247.9	62.76	4.951			
8,200.0	7,960.8	8,237.9	7,960.8	32.9	35.2	0.57	849.8	1,554.2	310.7	247.8	62.92	4.938			
8,300.0	8,060.8	8,337.9	8,060.8	33.0	35.3	0.57	849.8	1,554.2	310.7	247.6	63.08	4.926			
8,400.0	8,160.8	8,437.9	8,160.8	33.1	35.3	0.57	849.8	1,554.2	310.7	247.5	63.24	4.913			
8,500.0	8,260.8	8,537.9	8,260.8	33.2	35.4	0.57	849.8	1,554.2	310.7	247.3	63.40	4.901			
8,600.0	8,360.8	8,637.9	8,360.8	33.2	35.5	0.57	849.8	1,554.2	310.7	247.1	63.57	4.888			
8,700.0	8,460.8	8,643.1	8,366.0	33.3	35.5	0.57	849.8	1,554.2	324.9	261.2	63.65	5.104			
8,800.0	8,560.8	8,643.1	8,366.0	33.4	35.5	0.57	849.8	1,554.2	366.7	303.0	63.74	5.754			
8,900.0	8,660.8	8,643.1	8,366.0	33.5	35.5	0.57	849.8	1,554.2	428.3	364.5	63.82	6.711			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.39	-16.4	-24.9	29.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.39	-16.4	-24.9	29.8	29.5	0.27	109.391			
200.0	200.0	200.0	200.0	0.3	0.3	-123.39	-16.4	-24.9	29.8	29.2	0.62	47.935			
300.0	300.0	300.0	300.0	0.5	0.5	-123.39	-16.4	-24.9	29.8	28.8	0.97	30.692			
400.0	400.0	400.9	400.9	0.7	0.7	-125.30	-16.5	-23.4	28.6	27.3	1.32	21.655			
500.0	500.0	501.8	501.6	0.8	0.9	155.92	-17.2	-16.7	26.4	24.7	1.69	15.666			
550.5	550.4	552.7	552.2	0.9	1.0	149.95	-17.8	-11.4	26.1	24.2	1.90	13.757	CC, ES		
600.0	599.6	602.4	601.4	1.0	1.1	143.21	-18.5	-4.9	26.5	24.4	2.11	12.518			
700.0	698.8	702.6	700.2	1.3	1.4	128.95	-20.2	12.1	29.8	27.1	2.68	11.085			
800.0	797.1	802.4	797.5	1.6	1.9	117.00	-22.5	34.2	36.6	33.2	3.44	10.657	SF		
900.0	894.3	901.7	893.0	2.1	2.4	108.73	-25.3	61.0	46.7	42.4	4.35	10.739			
1,000.0	990.2	1,000.9	988.0	2.6	2.9	106.57	-28.3	89.4	59.0	53.6	5.34	11.043			
1,100.0	1,085.7	1,100.1	1,083.0	3.1	3.4	106.55	-31.2	117.9	71.7	65.4	6.36	11.275			
1,200.0	1,181.1	1,199.3	1,178.0	3.6	3.9	106.54	-34.2	146.3	84.5	77.1	7.40	11.413			
1,300.0	1,276.6	1,298.5	1,272.9	4.2	4.5	106.53	-37.2	174.7	97.2	88.8	8.45	11.502			
1,400.0	1,372.1	1,397.7	1,367.9	4.7	5.0	106.52	-40.1	203.1	110.0	100.5	9.51	11.562			
1,500.0	1,467.5	1,496.8	1,462.9	5.3	5.5	106.52	-43.1	231.6	122.7	112.2	10.58	11.604			
1,600.0	1,563.0	1,596.0	1,557.9	5.8	6.1	106.51	-46.0	260.0	135.5	123.8	11.64	11.634			
1,700.0	1,658.4	1,695.2	1,652.8	6.4	6.6	106.51	-49.0	288.4	148.2	135.5	12.72	11.657			
1,800.0	1,753.9	1,794.4	1,747.8	7.0	7.2	106.51	-51.9	316.9	161.0	147.2	13.79	11.674			
1,900.0	1,849.4	1,893.6	1,842.8	7.5	7.7	106.51	-54.9	345.3	173.7	158.9	14.86	11.688			
2,000.0	1,944.8	1,992.8	1,937.8	8.1	8.2	106.50	-57.9	373.7	186.5	170.5	15.94	11.699			
2,100.0	2,040.3	2,091.9	2,032.7	8.7	8.8	106.50	-60.8	402.1	199.2	182.2	17.02	11.707			
2,200.0	2,135.7	2,191.1	2,127.7	9.2	9.3	106.50	-63.8	430.6	212.0	193.9	18.10	11.714			
2,300.0	2,231.2	2,290.3	2,222.7	9.8	9.9	106.50	-66.7	459.0	224.7	205.6	19.18	11.720			
2,400.0	2,326.7	2,389.5	2,317.7	10.3	10.4	106.50	-69.7	487.4	237.5	217.2	20.26	11.724			
2,500.0	2,422.1	2,488.7	2,412.7	10.9	11.0	106.50	-72.6	515.9	250.2	228.9	21.34	11.728			
2,600.0	2,517.6	2,587.9	2,507.6	11.5	11.5	106.50	-75.6	544.3	263.0	240.6	22.42	11.732			
2,700.0	2,613.0	2,687.0	2,602.6	12.0	12.1	106.49	-78.6	572.7	275.7	252.2	23.50	11.734			
2,800.0	2,708.5	2,786.2	2,697.6	12.6	12.6	106.49	-81.5	601.1	288.5	263.9	24.58	11.737			
2,900.0	2,804.0	2,885.4	2,792.6	13.2	13.1	106.49	-84.5	629.6	301.2	275.6	25.66	11.739			
3,000.0	2,899.4	2,984.6	2,887.5	13.7	13.7	106.49	-87.4	658.0	314.0	287.2	26.74	11.741			
3,100.0	2,994.9	3,083.8	2,982.5	14.3	14.2	106.49	-90.4	686.4	326.7	298.9	27.83	11.742			
3,200.0	3,090.3	3,183.0	3,077.5	14.9	14.8	106.49	-93.3	714.8	339.5	310.6	28.91	11.743			
3,300.0	3,185.8	3,282.1	3,172.5	15.4	15.3	106.49	-96.3	743.3	352.2	322.2	29.99	11.745			
3,400.0	3,281.3	3,381.3	3,267.4	16.0	15.9	106.49	-99.3	771.7	365.0	333.9	31.07	11.746			
3,500.0	3,376.7	3,480.5	3,362.4	16.6	16.4	106.49	-102.2	800.1	377.7	345.6	32.16	11.746			
3,600.0	3,472.2	3,579.7	3,457.4	17.1	17.0	106.49	-105.2	828.6	390.5	357.2	33.24	11.747			
3,700.0	3,567.6	3,678.9	3,552.4	17.7	17.5	106.49	-108.1	857.0	403.2	368.9	34.32	11.748			
3,800.0	3,663.1	3,778.1	3,647.4	18.3	18.1	106.49	-111.1	885.4	416.0	380.6	35.41	11.749			
3,900.0	3,758.6	3,877.2	3,742.3	18.8	18.6	106.49	-114.1	913.8	428.7	392.2	36.49	11.749			
4,000.0	3,854.0	3,976.4	3,837.3	19.4	19.2	106.49	-117.0	942.3	441.5	403.9	37.57	11.750			
4,100.0	3,949.5	4,075.6	3,932.3	20.0	19.7	106.49	-120.0	970.7	454.2	415.6	38.66	11.750			
4,200.0	4,044.9	4,174.8	4,027.3	20.5	20.2	106.49	-122.9	999.1	467.0	427.2	39.74	11.750			
4,300.0	4,140.4	4,274.0	4,122.2	21.1	20.8	106.49	-125.9	1,027.6	479.7	438.9	40.83	11.751			
4,400.0	4,235.9	4,373.2	4,217.2	21.7	21.3	106.49	-128.8	1,056.0	492.5	450.6	41.91	11.751			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft								
Survey Program: O-MWD													Offset Well Error:		0.0 ft							
Reference													Offset		Semi Major Axis		Distance				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	Warning									
0.0	0.0	0.0	0.0	0.0	0.0	-122.80	-8.0	-12.4	14.8													
100.0	100.0	100.0	100.0	0.1	0.1	-122.80	-8.0	-12.4	14.8	14.5	0.27	54.330										
200.0	200.0	200.0	200.0	0.3	0.3	-122.80	-8.0	-12.4	14.8	14.2	0.62	23.808										
300.0	300.0	300.0	300.0	0.5	0.5	-122.80	-8.0	-12.4	14.8	13.8	0.97	15.244										
400.0	400.0	400.6	400.6	0.7	0.7	-128.45	-7.8	-9.8	12.5	11.2	1.33	9.438										
500.0	500.0	500.9	500.5	0.8	0.9	138.23	-7.1	-1.9	9.1	7.4	1.70	5.337										
543.7	543.5	544.6	543.9	0.9	1.0	122.39	-6.6	3.1	8.6	6.7	1.91	4.508	CC, ES									
600.0	599.6	600.8	599.6	1.0	1.2	101.56	-5.9	11.1	9.4	7.2	2.20	4.294	SF									
700.0	698.8	700.4	697.5	1.3	1.5	78.23	-4.3	29.2	14.0	11.2	2.75	5.087										
800.0	797.1	800.0	794.3	1.6	1.9	68.93	-2.2	52.4	20.7	17.4	3.38	6.141										
900.0	894.3	899.3	889.9	2.1	2.4	67.82	0.2	79.1	28.0	23.8	4.15	6.735										
1,000.0	990.2	999.0	985.9	2.6	2.9	74.93	2.6	106.2	33.6	28.4	5.20	6.465										
1,100.0	1,085.7	1,098.7	1,081.8	3.1	3.4	82.28	5.0	133.2	39.5	33.1	6.33	6.232										
1,200.0	1,181.1	1,198.5	1,177.8	3.6	3.9	87.68	7.4	160.3	45.8	38.3	7.45	6.147										
1,300.0	1,276.6	1,298.2	1,273.7	4.2	4.4	91.75	9.8	187.3	52.4	43.8	8.54	6.133										
1,400.0	1,372.1	1,397.9	1,369.7	4.7	4.9	94.90	12.2	214.4	59.2	49.6	9.62	6.154										
1,500.0	1,467.5	1,497.6	1,465.6	5.3	5.5	97.39	14.6	241.4	66.2	55.5	10.68	6.192										
1,600.0	1,563.0	1,597.3	1,561.6	5.8	6.0	99.40	17.0	268.4	73.2	61.5	11.74	6.236										
1,700.0	1,658.4	1,697.1	1,657.5	6.4	6.5	101.06	19.4	295.5	80.3	67.5	12.79	6.282										
1,800.0	1,753.9	1,796.8	1,753.5	7.0	7.0	102.44	21.9	322.5	87.5	73.7	13.83	6.328										
1,900.0	1,849.4	1,896.5	1,849.4	7.5	7.5	103.62	24.3	349.6	94.7	79.9	14.87	6.372										
2,000.0	1,944.8	1,996.2	1,945.4	8.1	8.0	104.63	26.7	376.6	102.0	86.1	15.90	6.414										
2,100.0	2,040.3	2,095.9	2,041.3	8.7	8.6	105.50	29.1	403.7	109.3	92.4	16.94	6.454										
2,200.0	2,135.7	2,195.7	2,137.3	9.2	9.1	106.27	31.5	430.7	116.6	98.6	17.97	6.491										
2,300.0	2,231.2	2,295.4	2,233.2	9.8	9.6	106.94	33.9	457.8	123.9	105.0	18.99	6.525										
2,400.0	2,326.7	2,395.1	2,329.2	10.3	10.1	107.54	36.3	484.8	131.3	111.3	20.02	6.557										
2,500.0	2,422.1	2,494.8	2,425.2	10.9	10.6	108.08	38.7	511.8	138.6	117.6	21.05	6.588										
2,600.0	2,517.6	2,594.5	2,521.1	11.5	11.2	108.56	41.1	538.9	146.0	123.9	22.07	6.616										
2,700.0	2,613.0	2,694.3	2,617.1	12.0	11.7	109.00	43.6	565.9	153.4	130.3	23.09	6.642										
2,800.0	2,708.5	2,794.0	2,713.0	12.6	12.2	109.39	46.0	593.0	160.8	136.7	24.12	6.667										
2,900.0	2,804.0	2,893.7	2,809.0	13.2	12.7	109.75	48.4	620.0	168.2	143.0	25.14	6.690										
3,000.0	2,899.4	2,993.4	2,904.9	13.7	13.2	110.08	50.8	647.1	175.6	149.4	26.16	6.711										
3,100.0	2,994.9	3,093.2	3,000.9	14.3	13.8	110.39	53.2	674.1	183.0	155.8	27.18	6.732										
3,200.0	3,090.3	3,192.9	3,096.8	14.9	14.3	110.67	55.6	701.1	190.4	162.2	28.20	6.751										
3,300.0	3,185.8	3,292.6	3,192.8	15.4	14.8	110.93	58.0	728.2	197.8	168.6	29.22	6.769										
3,400.0	3,281.3	3,392.3	3,288.7	16.0	15.3	111.17	60.4	755.2	205.2	175.0	30.24	6.786										
3,500.0	3,376.7	3,492.0	3,384.7	16.6	15.8	111.39	62.9	782.3	212.6	181.4	31.26	6.802										
3,600.0	3,472.2	3,591.8	3,480.6	17.1	16.4	111.60	65.3	809.3	220.1	187.8	32.28	6.817										
3,700.0	3,567.6	3,691.5	3,576.6	17.7	16.9	111.79	67.7	836.4	227.5	194.2	33.30	6.832										
3,800.0	3,663.1	3,791.2	3,672.5	18.3	17.4	111.97	70.1	863.4	234.9	200.6	34.32	6.845										
3,900.0	3,758.6	3,890.9	3,768.5	18.8	17.9	112.15	72.5	890.5	242.4	207.0	35.34	6.858										
4,000.0	3,854.0	3,990.6	3,864.5	19.4	18.4	112.31	74.9	917.5	249.8	213.4	36.36	6.871										
4,100.0	3,949.5	4,090.4	3,960.4	20.0	19.0	112.46	77.3	944.5	257.2	219.9	37.37	6.883										
4,200.0	4,044.9	4,190.1	4,056.4	20.5	19.5	112.60	79.7	971.6	264.7	226.3	38.39	6.894										
4,300.0	4,140.4	4,289.8	4,152.3	21.1	20.0	112.74	82.1	998.6	272.1	232.7	39.41	6.905										
4,400.0	4,235.9	4,389.5	4,248.3	21.7	20.5	112.87	84.6	1,025.7	279.5	239.1	40.43	6.915										
4,500.0	4,331.3	4,489.2	4,344.2	22.2	21.0	112.99	87.0	1,052.7	287.0	245.5	41.44	6.925										
4,600.0	4,426.8	4,589.0	4,440.2	22.8	21.6	113.10	89.4	1,079.8	294.4	252.0	42.46	6.934										
4,700.0	4,522.2	4,688.7	4,536.1	23.4	22.1	113.21	91.8	1,106.8	301.9	258.4	43.48	6.943										
4,800.0	4,617.7	4,788.4	4,632.1	23.9	22.6	113.32	94.2	1,133.9	309.3	264.8	44.50	6.951										
4,900.0	4,713.2	4,888.1	4,728.0	24.5	23.1	113.42	96.6	1,160.9	316.8	271.2	45.51	6.960										
5,000.0	4,808.6	4,987.8	4,824.0	25.1	23.6	113.51	99.0	1,187.9	324.2	277.7	46.53	6.968										

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,100.0	4,904.1	5,087.6	4,919.9	25.6	24.2	113.60	101.4	1,215.0	331.7	284.1	47.55	6.975			
5,200.0	4,999.5	5,187.3	5,015.9	26.2	24.7	113.69	103.8	1,242.0	339.1	290.5	48.57	6.982			
5,300.0	5,095.0	5,287.0	5,111.8	26.8	25.2	113.77	106.3	1,269.1	346.6	297.0	49.58	6.989			
5,400.0	5,190.5	5,386.7	5,207.8	27.3	25.7	113.85	108.7	1,296.1	354.0	303.4	50.60	6.996			
5,500.0	5,285.9	5,486.5	5,303.8	27.9	26.3	113.93	111.1	1,323.2	361.5	309.8	51.62	7.003			
5,600.0	5,381.4	5,586.2	5,399.7	28.5	26.8	114.00	113.5	1,350.2	368.9	316.3	52.63	7.009			
5,700.0	5,476.8	5,685.9	5,495.7	29.0	27.3	114.07	115.9	1,377.3	376.4	322.7	53.65	7.015			
5,800.0	5,572.4	5,785.6	5,591.6	29.6	27.8	114.16	118.3	1,404.3	383.7	329.0	54.66	7.019			
5,900.0	5,668.7	5,884.1	5,686.5	30.1	28.3	114.01	120.7	1,430.5	390.0	334.4	55.66	7.007			
6,000.0	5,765.9	5,981.5	5,781.2	30.5	28.7	113.83	122.7	1,453.6	395.5	338.9	56.53	6.995			
6,100.0	5,863.8	6,079.1	5,876.6	30.9	29.1	113.66	124.5	1,473.4	400.1	342.8	57.29	6.984			
6,200.0	5,962.4	6,176.7	5,972.8	31.2	29.4	113.51	126.0	1,490.0	403.9	346.0	57.94	6.972			
6,300.0	6,061.6	6,274.3	6,069.5	31.4	29.6	113.37	127.1	1,503.3	407.0	348.5	58.47	6.960			
6,400.0	6,161.1	6,372.1	6,166.7	31.6	29.8	113.24	128.0	1,513.4	409.1	350.3	58.89	6.948			
6,500.0	6,260.9	6,469.8	6,264.3	31.8	30.0	113.11	128.6	1,520.1	410.5	351.3	59.20	6.935			
6,600.0	6,360.8	6,567.6	6,362.0	31.8	30.1	112.99	128.9	1,523.6	411.0	351.6	59.40	6.920			
6,700.0	6,460.8	6,666.5	6,460.8	31.9	30.1	-176.22	129.0	1,524.0	411.0	351.5	59.55	6.902			
6,800.0	6,560.8	6,766.5	6,560.8	32.0	30.2	-176.22	129.0	1,524.0	411.0	351.3	59.68	6.887			
6,900.0	6,660.8	6,866.5	6,660.8	32.0	30.3	-176.22	129.0	1,524.0	411.0	351.2	59.82	6.871			
7,000.0	6,760.8	6,966.5	6,760.8	32.1	30.4	-176.22	129.0	1,524.0	411.0	351.1	59.96	6.854			
7,100.0	6,860.8	7,066.5	6,860.8	32.2	30.4	-176.22	129.0	1,524.0	411.0	350.9	60.11	6.838			
7,200.0	6,960.8	7,166.5	6,960.8	32.2	30.5	-176.22	129.0	1,524.0	411.0	350.8	60.25	6.822			
7,300.0	7,060.8	7,266.5	7,060.8	32.3	30.6	-176.22	129.0	1,524.0	411.0	350.6	60.40	6.805			
7,400.0	7,160.8	7,366.5	7,160.8	32.4	30.6	-176.22	129.0	1,524.0	411.0	350.5	60.54	6.789			
7,500.0	7,260.8	7,466.5	7,260.8	32.4	30.7	-176.22	129.0	1,524.0	411.0	350.3	60.69	6.772			
7,600.0	7,360.8	7,566.5	7,360.8	32.5	30.8	-176.22	129.0	1,524.0	411.0	350.2	60.84	6.755			
7,700.0	7,460.8	7,666.5	7,460.8	32.6	30.9	-176.22	129.0	1,524.0	411.0	350.0	60.99	6.739			
7,800.0	7,560.8	7,766.5	7,560.8	32.6	30.9	-176.22	129.0	1,524.0	411.0	349.9	61.15	6.722			
7,900.0	7,660.8	7,866.5	7,660.8	32.7	31.0	-176.22	129.0	1,524.0	411.0	349.7	61.30	6.705			
8,000.0	7,760.8	7,966.5	7,760.8	32.8	31.1	-176.22	129.0	1,524.0	411.0	349.6	61.46	6.687			
8,100.0	7,860.8	8,066.5	7,860.8	32.9	31.2	-176.22	129.0	1,524.0	411.0	349.4	61.62	6.670			
8,200.0	7,960.8	8,166.5	7,960.8	32.9	31.2	-176.22	129.0	1,524.0	411.0	349.2	61.78	6.653			
8,300.0	8,060.8	8,266.5	8,060.8	33.0	31.3	-176.22	129.0	1,524.0	411.0	349.1	61.94	6.636			
8,400.0	8,160.8	8,366.5	8,160.8	33.1	31.4	-176.22	129.0	1,524.0	411.0	348.9	62.11	6.618			
8,500.0	8,260.8	8,466.5	8,260.8	33.2	31.5	-176.22	129.0	1,524.0	411.0	348.8	62.27	6.601			
8,600.0	8,360.8	8,566.5	8,360.8	33.2	31.6	-176.22	129.0	1,524.0	411.0	348.6	62.44	6.583			
8,700.0	8,460.8	8,597.6	8,392.0	33.3	31.6	-176.22	129.0	1,524.0	416.7	354.2	62.55	6.663			
8,800.0	8,560.8	8,597.6	8,392.0	33.4	31.6	-176.22	129.0	1,524.0	444.3	381.7	62.63	7.095			
8,900.0	8,660.8	8,597.6	8,392.0	33.5	31.6	-176.22	129.0	1,524.0	491.1	428.4	62.72	7.831			

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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	10.26	10.9	2.0	11.1						
100.0	100.0	100.0	100.0	0.1	0.1	10.26	10.9	2.0	11.1	10.8	0.27	40.801			
200.0	200.0	200.0	200.0	0.3	0.3	10.26	10.9	2.0	11.1	10.5	0.62	17.879	CC, ES		
300.0	300.0	299.5	299.4	0.5	0.5	18.09	12.5	4.1	13.1	12.1	0.98	13.424			
400.0	400.0	398.4	398.1	0.7	0.7	31.19	17.0	10.3	20.0	18.6	1.37	14.572			
500.0	500.0	496.7	495.5	0.8	1.0	-33.22	24.5	20.5	30.1	28.4	1.68	17.930			
600.0	599.6	594.3	591.5	1.0	1.3	-31.99	34.9	34.7	40.9	38.8	2.04	19.993			
700.0	698.8	691.4	686.0	1.3	1.8	-32.77	48.0	52.8	52.1	49.7	2.44	21.348			
800.0	797.1	787.9	778.7	1.6	2.3	-34.45	63.9	74.5	63.9	61.0	2.90	22.028			
900.0	894.3	885.1	870.7	2.1	2.9	-36.68	82.4	99.9	75.9	72.5	3.46	21.957			
1,000.0	990.2	984.6	964.4	2.6	3.5	-40.25	102.0	126.6	85.0	80.8	4.18	20.317			
1,100.0	1,085.7	1,084.1	1,058.3	3.1	4.1	-43.89	121.5	153.3	93.2	88.2	5.04	18.507			
1,200.0	1,181.1	1,183.6	1,152.1	3.6	4.7	-46.94	141.0	180.1	101.8	95.8	5.96	17.071			
1,300.0	1,276.6	1,283.1	1,245.9	4.2	5.3	-49.51	160.5	206.8	110.6	103.6	6.94	15.942			
1,400.0	1,372.1	1,382.6	1,339.7	4.7	5.9	-51.70	180.1	233.5	119.5	111.6	7.94	15.049			
1,500.0	1,467.5	1,482.1	1,433.6	5.3	6.5	-53.58	199.6	260.3	128.7	119.7	8.97	14.336			
1,600.0	1,563.0	1,581.6	1,527.4	5.8	7.2	-55.21	219.1	287.0	137.9	127.9	10.02	13.758			
1,700.0	1,658.4	1,681.1	1,621.2	6.4	7.8	-56.64	238.7	313.8	147.2	136.1	11.08	13.283			
1,800.0	1,753.9	1,780.6	1,715.1	7.0	8.4	-57.89	258.2	340.5	156.6	144.5	12.16	12.888			
1,900.0	1,849.4	1,880.1	1,808.9	7.5	9.0	-59.00	277.7	367.2	166.1	152.9	13.23	12.555			
2,000.0	1,944.8	1,979.6	1,902.7	8.1	9.6	-60.00	297.2	394.0	175.7	161.4	14.32	12.271			
2,100.0	2,040.3	2,079.1	1,996.6	8.7	10.3	-60.89	316.8	420.7	185.3	169.9	15.40	12.028			
2,200.0	2,135.7	2,178.6	2,090.4	9.2	10.9	-61.69	336.3	447.4	194.9	178.4	16.49	11.817			
2,300.0	2,231.2	2,278.1	2,184.2	9.8	11.5	-62.42	355.8	474.2	204.5	187.0	17.58	11.632			
2,400.0	2,326.7	2,377.6	2,278.1	10.3	12.1	-63.08	375.4	500.9	214.2	195.6	18.68	11.469			
2,500.0	2,422.1	2,477.1	2,371.9	10.9	12.8	-63.68	394.9	527.6	223.9	204.2	19.77	11.325			
2,600.0	2,517.6	2,576.6	2,465.7	11.5	13.4	-64.23	414.4	554.4	233.7	212.8	20.87	11.197			
2,700.0	2,613.0	2,676.1	2,559.5	12.0	14.0	-64.74	433.9	581.1	243.4	221.5	21.97	11.081			
2,800.0	2,708.5	2,775.6	2,653.4	12.6	14.6	-65.21	453.5	607.9	253.2	230.2	23.07	10.977			
2,900.0	2,804.0	2,875.1	2,747.2	13.2	15.2	-65.65	473.0	634.6	263.0	238.8	24.17	10.883			
3,000.0	2,899.4	2,974.6	2,841.0	13.7	15.9	-66.05	492.5	661.3	272.8	247.5	25.27	10.797			
3,100.0	2,994.9	3,074.1	2,934.9	14.3	16.5	-66.43	512.1	688.1	282.6	256.3	26.37	10.719			
3,200.0	3,090.3	3,173.6	3,028.7	14.9	17.1	-66.78	531.6	714.8	292.5	265.0	27.47	10.647			
3,300.0	3,185.8	3,273.1	3,122.5	15.4	17.7	-67.10	551.1	741.5	302.3	273.7	28.57	10.582			
3,400.0	3,281.3	3,372.6	3,216.4	16.0	18.4	-67.41	570.6	768.3	312.1	282.5	29.67	10.521			
3,500.0	3,376.7	3,472.1	3,310.2	16.6	19.0	-67.70	590.2	795.0	322.0	291.2	30.77	10.465			
3,600.0	3,472.2	3,571.6	3,404.0	17.1	19.6	-67.97	609.7	821.7	331.9	300.0	31.87	10.412			
3,700.0	3,567.6	3,671.1	3,497.8	17.7	20.2	-68.23	629.2	848.5	341.7	308.8	32.97	10.364			
3,800.0	3,663.1	3,770.6	3,591.7	18.3	20.8	-68.47	648.8	875.2	351.6	317.5	34.08	10.319			
3,900.0	3,758.6	3,870.1	3,685.5	18.8	21.5	-68.70	668.3	902.0	361.5	326.3	35.18	10.277			
4,000.0	3,854.0	3,969.6	3,779.3	19.4	22.1	-68.91	687.8	928.7	371.4	335.1	36.28	10.237			
4,100.0	3,949.5	4,069.1	3,873.2	20.0	22.7	-69.12	707.4	955.4	381.3	343.9	37.38	10.200			
4,200.0	4,044.9	4,168.6	3,967.0	20.5	23.3	-69.31	726.9	982.2	391.2	352.7	38.48	10.165			
4,300.0	4,140.4	4,268.1	4,060.8	21.1	24.0	-69.49	746.4	1,008.9	401.1	361.5	39.58	10.132			
4,400.0	4,235.9	4,367.6	4,154.7	21.7	24.6	-69.67	765.9	1,035.6	411.0	370.3	40.69	10.101			
4,500.0	4,331.3	4,467.1	4,248.5	22.2	25.2	-69.84	785.5	1,062.4	420.9	379.1	41.79	10.072			
4,600.0	4,426.8	4,566.6	4,342.3	22.8	25.8	-70.00	805.0	1,089.1	430.8	387.9	42.89	10.044			
4,700.0	4,522.2	4,666.1	4,436.2	23.4	26.4	-70.15	824.5	1,115.8	440.7	396.7	43.99	10.018			
4,800.0	4,617.7	4,765.6	4,530.0	23.9	27.1	-70.30	844.1	1,142.6	450.6	405.5	45.09	9.993			
4,900.0	4,713.2	4,865.1	4,623.8	24.5	27.7	-70.44	863.6	1,169.3	460.6	414.4	46.20	9.970			
5,000.0	4,808.6	4,964.6	4,717.6	25.1	28.3	-70.57	883.1	1,196.1	470.5	423.2	47.30	9.947			
5,100.0	4,904.1	5,064.1	4,811.5	25.6	28.9	-70.70	902.6	1,222.8	480.4	432.0	48.40	9.926			

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 31-16A
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 31-16A	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	
O31E Pad (2nd Occupation) - Shideler Fee 31-9D - OH - Plan #1													Offset Well Error:	0.0 ft	
Survey Program: 0-MWD															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,200.0	4,999.5	5,163.6	4,905.3	26.2	29.6	-70.82	922.2	1,249.5	490.3	440.8	49.50	9.906 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-16A
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 31-16A	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	-123.00	-24.4	-37.6	44.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.00	-24.4	-37.6	44.8	44.5	0.27	164.598			
200.0	200.0	200.0	200.0	0.3	0.3	-123.00	-24.4	-37.6	44.8	44.2	0.62	72.127			
300.0	300.0	300.0	300.0	0.5	0.5	-123.00	-24.4	-37.6	44.8	43.8	0.97	46.182			
400.0	400.0	400.8	400.8	0.7	0.7	-123.66	-24.6	-36.9	44.4	43.1	1.32	33.591			
488.5	488.4	490.5	490.3	0.8	0.8	161.71	-25.8	-32.6	43.6	41.9	1.64	26.572 CC			
500.0	500.0	502.2	502.0	0.8	0.9	161.00	-26.1	-31.8	43.6	41.9	1.68	25.913 ES			
600.0	599.6	603.2	602.5	1.0	1.1	153.24	-29.0	-21.5	45.2	43.1	2.09	21.662			
700.0	698.8	703.8	701.8	1.3	1.4	143.79	-33.3	-6.2	50.0	47.4	2.59	19.282			
800.0	797.1	803.8	799.5	1.6	1.8	134.59	-39.1	14.0	58.6	55.3	3.26	17.962			
900.0	894.3	903.0	895.3	2.1	2.3	126.87	-46.1	38.9	71.2	67.1	4.12	17.265			
1,000.0	990.2	1,001.5	989.2	2.6	2.8	121.61	-54.2	67.3	87.4	82.3	5.11	17.103			
1,100.0	1,085.7	1,099.8	1,083.0	3.1	3.3	118.81	-62.3	96.0	104.8	98.7	6.13	17.091			
1,200.0	1,181.1	1,198.2	1,176.7	3.6	3.9	116.80	-70.5	124.7	122.4	115.2	7.18	17.058			
1,300.0	1,276.6	1,296.6	1,270.4	4.2	4.4	115.30	-78.6	153.4	140.1	131.9	8.23	17.022			
1,400.0	1,372.1	1,394.9	1,364.2	4.7	5.0	114.14	-86.8	182.1	157.9	148.6	9.29	16.988			
1,500.0	1,467.5	1,493.3	1,457.9	5.3	5.5	113.21	-94.9	210.8	175.7	165.3	10.36	16.958			
1,600.0	1,563.0	1,591.6	1,551.6	5.8	6.1	112.46	-103.1	239.5	193.5	182.1	11.43	16.932			
1,700.0	1,658.4	1,690.0	1,645.4	6.4	6.7	111.83	-111.2	268.2	211.4	198.9	12.50	16.909			
1,800.0	1,753.9	1,788.4	1,739.1	7.0	7.2	111.30	-119.4	296.8	229.3	215.8	13.58	16.889			
1,900.0	1,849.4	1,886.7	1,832.8	7.5	7.8	110.84	-127.5	325.5	247.3	232.6	14.66	16.871			
2,000.0	1,944.8	1,985.1	1,926.5	8.1	8.4	110.45	-135.7	354.2	265.2	249.5	15.73	16.856			
2,100.0	2,040.3	2,083.5	2,020.3	8.7	8.9	110.11	-143.8	382.9	283.2	266.3	16.81	16.842			
2,200.0	2,135.7	2,181.8	2,114.0	9.2	9.5	109.81	-152.0	411.6	301.1	283.2	17.89	16.829			
2,300.0	2,231.2	2,280.2	2,207.7	9.8	10.0	109.54	-160.1	440.3	319.1	300.1	18.97	16.818			
2,400.0	2,326.7	2,378.5	2,301.5	10.3	10.6	109.30	-168.3	469.0	337.0	317.0	20.05	16.809			
2,500.0	2,422.1	2,476.9	2,395.2	10.9	11.2	109.09	-176.4	497.7	355.0	333.9	21.13	16.800			
2,600.0	2,517.6	2,575.3	2,488.9	11.5	11.7	108.89	-184.6	526.4	373.0	350.8	22.21	16.791			
2,700.0	2,613.0	2,673.6	2,582.7	12.0	12.3	108.71	-192.7	555.1	391.0	367.7	23.29	16.784			
2,800.0	2,708.5	2,772.0	2,676.4	12.6	12.9	108.55	-200.9	583.8	409.0	384.6	24.38	16.777			
2,900.0	2,804.0	2,870.4	2,770.1	13.2	13.5	108.41	-209.0	612.4	427.0	401.5	25.46	16.771			
3,000.0	2,899.4	2,968.7	2,863.9	13.7	14.0	108.27	-217.2	641.1	444.9	418.4	26.54	16.765			
3,100.0	2,994.9	3,067.1	2,957.6	14.3	14.6	108.15	-225.3	669.8	462.9	435.3	27.62	16.760			
3,200.0	3,090.3	3,165.4	3,051.3	14.9	15.2	108.03	-233.5	698.5	480.9	452.2	28.70	16.755			
3,300.0	3,185.8	3,263.8	3,145.1	15.4	15.7	107.92	-241.6	727.2	498.9	469.1	29.79	16.750 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 31-16A
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 31-16A	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	-123.24	-32.8	-50.0	59.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.24	-32.8	-50.0	59.8	59.5	0.27	219.650			
200.0	200.0	200.0	200.0	0.3	0.3	-123.24	-32.8	-50.0	59.8	59.2	0.62	96.251			
300.0	300.0	300.0	300.0	0.5	0.5	-123.24	-32.8	-50.0	59.8	58.8	0.97	61.628			
400.0	400.0	401.3	401.3	0.7	0.7	-124.47	-33.4	-48.6	59.0	57.7	1.32	44.580			
480.4	480.4	482.9	482.7	0.8	0.8	160.98	-35.3	-44.0	58.1	56.5	1.62	35.834 CC			
500.0	500.0	502.7	502.5	0.8	0.9	159.78	-36.0	-42.4	58.1	56.5	1.70	34.306 ES			
600.0	599.6	603.7	602.7	1.0	1.1	152.21	-40.7	-31.4	60.5	58.4	2.12	28.508			
700.0	698.8	703.9	701.4	1.3	1.4	143.43	-47.5	-15.6	66.9	64.3	2.66	25.184			
800.0	797.1	803.2	798.2	1.6	1.9	135.05	-56.1	4.8	78.0	74.6	3.34	23.308			
900.0	894.3	901.5	892.8	2.1	2.4	128.02	-66.6	29.4	93.6	89.4	4.20	22.283			
1,000.0	990.2	998.8	985.1	2.6	2.9	122.78	-78.7	57.8	113.6	108.4	5.19	21.872			
1,100.0	1,085.7	1,096.3	1,077.2	3.1	3.5	119.60	-91.1	87.0	135.1	128.8	6.23	21.682			
1,200.0	1,181.1	1,193.7	1,169.3	3.6	4.1	117.29	-103.6	116.2	156.8	149.5	7.28	21.533			
1,300.0	1,276.6	1,291.1	1,261.5	4.2	4.7	115.55	-116.0	145.4	178.7	170.4	8.34	21.418			
1,400.0	1,372.1	1,388.6	1,353.6	4.7	5.2	114.19	-128.4	174.6	200.8	191.3	9.41	21.329			
1,500.0	1,467.5	1,486.0	1,445.8	5.3	5.8	113.09	-140.9	203.7	222.9	212.4	10.48	21.258			
1,600.0	1,563.0	1,583.5	1,537.9	5.8	6.4	112.20	-153.3	232.9	245.1	233.5	11.56	21.202			
1,700.0	1,658.4	1,680.9	1,630.0	6.4	7.0	111.45	-165.7	262.1	267.3	254.7	12.64	21.155			
1,800.0	1,753.9	1,778.4	1,722.2	7.0	7.6	110.82	-178.1	291.3	289.6	275.9	13.71	21.117			
1,900.0	1,849.4	1,875.8	1,814.3	7.5	8.2	110.28	-190.6	320.4	311.9	297.1	14.79	21.085			
2,000.0	1,944.8	1,973.2	1,906.4	8.1	8.8	109.81	-203.0	349.6	334.2	318.4	15.87	21.058			
2,100.0	2,040.3	2,070.7	1,998.6	8.7	9.4	109.40	-215.4	378.8	356.6	339.6	16.95	21.035			
2,200.0	2,135.7	2,168.1	2,090.7	9.2	10.0	109.04	-227.8	408.0	379.0	360.9	18.03	21.015			
2,300.0	2,231.2	2,265.6	2,182.8	9.8	10.6	108.71	-240.3	437.2	401.3	382.2	19.11	20.997			
2,400.0	2,326.7	2,363.0	2,275.0	10.3	11.2	108.43	-252.7	466.3	423.7	403.5	20.19	20.982			
2,500.0	2,422.1	2,460.4	2,367.1	10.9	11.8	108.17	-265.1	495.5	446.1	424.8	21.28	20.968			
2,600.0	2,517.6	2,557.9	2,459.2	11.5	12.4	107.93	-277.5	524.7	468.5	446.2	22.36	20.956			
2,700.0	2,613.0	2,655.3	2,551.4	12.0	13.0	107.72	-290.0	553.9	490.9	467.5	23.44	20.945 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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.03	-40.8	-62.7	74.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.03	-40.8	-62.7	74.8	74.6	0.27	274.848			
200.0	200.0	200.0	200.0	0.3	0.3	-123.03	-40.8	-62.7	74.8	74.2	0.62	120.439			
300.0	300.0	300.0	300.0	0.5	0.5	-123.03	-40.8	-62.7	74.8	73.9	0.97	77.116			
400.0	400.0	401.3	401.3	0.7	0.7	-124.98	-42.4	-60.6	73.9	72.6	1.32	55.805			
445.9	445.9	447.7	447.6	0.7	0.8	162.09	-44.1	-58.1	73.5	72.0	1.50	48.872	CC, ES		
500.0	500.0	502.2	501.9	0.8	0.9	158.89	-47.0	-54.1	74.1	72.4	1.72	43.213			
600.0	599.6	602.4	601.1	1.0	1.2	151.54	-54.7	-43.4	78.9	76.7	2.17	36.402			
700.0	698.8	701.4	698.5	1.3	1.5	143.64	-65.4	-28.6	89.0	86.3	2.72	32.763			
800.0	797.1	799.1	793.4	1.6	1.9	136.45	-78.7	-10.1	104.9	101.5	3.39	30.926			
900.0	894.3	895.0	885.5	2.1	2.4	130.54	-94.5	11.9	126.4	122.2	4.21	30.037			
1,000.0	990.2	989.1	974.3	2.6	3.0	126.03	-112.7	37.1	153.0	147.8	5.16	29.661			
1,100.0	1,085.7	1,083.4	1,062.0	3.1	3.6	122.46	-132.8	65.1	182.2	176.0	6.17	29.515			
1,200.0	1,181.1	1,178.4	1,150.3	3.6	4.3	119.78	-153.3	93.6	212.1	204.9	7.21	29.404			
1,300.0	1,276.6	1,273.4	1,238.6	4.2	4.9	117.76	-173.8	122.1	242.2	234.0	8.26	29.335			
1,400.0	1,372.1	1,368.5	1,326.9	4.7	5.6	116.18	-194.4	150.5	272.6	263.3	9.31	29.292			
1,500.0	1,467.5	1,463.5	1,415.2	5.3	6.2	114.92	-214.9	179.0	303.1	292.8	10.36	29.265			
1,600.0	1,563.0	1,558.6	1,503.5	5.8	6.9	113.90	-235.4	207.5	333.8	322.4	11.41	29.249			
1,700.0	1,658.4	1,653.6	1,591.9	6.4	7.5	113.04	-255.9	236.0	364.5	352.0	12.47	29.241			
1,800.0	1,753.9	1,748.6	1,680.2	7.0	8.2	112.31	-276.4	264.5	395.3	381.8	13.52	29.237			
1,900.0	1,849.4	1,843.7	1,768.5	7.5	8.8	111.70	-296.9	293.0	426.1	411.5	14.57	29.236	SF		
2,000.0	1,944.8	1,938.7	1,856.8	8.1	9.5	111.16	-317.4	321.4	457.0	441.4	15.63	29.238			
2,100.0	2,040.3	2,033.7	1,945.1	8.7	10.2	110.69	-337.9	349.9	487.9	471.2	16.69	29.241			

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 31-16A
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 31-16A	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	-123.19	-49.2	-75.2	89.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.19	-49.2	-75.2	89.8	89.6	0.27	329.918			
200.0	200.0	200.0	200.0	0.3	0.3	-123.19	-49.2	-75.2	89.8	89.2	0.62	144.571			
300.0	300.0	300.3	300.3	0.5	0.5	-123.30	-49.3	-75.0	89.8	88.8	0.97	92.466			
400.0	400.0	401.4	401.3	0.7	0.7	-125.79	-51.9	-72.0	88.8	87.5	1.33	67.010			
433.4	433.4	435.0	434.8	0.7	0.7	161.84	-53.6	-70.1	88.6	87.1	1.47	60.445	CC, ES		
500.0	500.0	501.9	501.4	0.8	0.9	158.05	-58.1	-65.1	89.6	87.9	1.73	51.696			
600.0	599.6	601.5	599.9	1.0	1.2	151.14	-67.5	-54.3	95.7	93.5	2.20	43.421			
700.0	698.8	699.7	696.2	1.3	1.6	143.91	-80.2	-39.8	107.6	104.9	2.76	38.930			
800.0	797.1	796.2	789.8	1.6	2.0	137.37	-95.8	-22.0	125.8	122.3	3.44	36.575			
900.0	894.3	890.8	880.2	2.1	2.5	131.94	-114.1	-1.2	149.9	145.7	4.24	35.379			
1,000.0	990.2	983.1	967.0	2.6	3.1	127.75	-134.8	22.4	179.5	174.4	5.16	34.801			
1,100.0	1,085.7	1,074.4	1,051.3	3.1	3.8	124.37	-157.8	48.6	212.3	206.1	6.15	34.502			
1,200.0	1,181.1	1,167.8	1,137.1	3.6	4.4	121.55	-182.2	76.4	246.1	239.0	7.18	34.270			
1,300.0	1,276.6	1,261.3	1,223.0	4.2	5.1	119.40	-206.6	104.2	280.4	272.2	8.22	34.125			
1,400.0	1,372.1	1,354.8	1,308.9	4.7	5.8	117.72	-231.0	132.0	314.9	305.7	9.25	34.031			
1,500.0	1,467.5	1,448.3	1,394.7	5.3	6.5	116.36	-255.4	159.8	349.6	339.3	10.29	33.969			
1,600.0	1,563.0	1,541.8	1,480.6	5.8	7.1	115.26	-279.8	187.6	384.5	373.2	11.33	33.930			
1,700.0	1,658.4	1,635.3	1,566.5	6.4	7.8	114.33	-304.2	215.4	419.5	407.1	12.37	33.905			
1,800.0	1,753.9	1,728.8	1,652.4	7.0	8.5	113.55	-328.5	243.2	454.5	441.1	13.41	33.889			
1,900.0	1,849.4	1,822.3	1,738.2	7.5	9.2	112.88	-352.9	271.0	489.6	475.2	14.45	33.881	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 31-16A
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 31-16A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.05	-57.2	-87.9	104.9						
100.0	100.0	100.0	100.0	0.1	0.1	-123.05	-57.2	-87.9	104.9	104.6	0.27	385.108			
200.0	200.0	200.0	200.0	0.3	0.3	-123.05	-57.2	-87.9	104.9	104.2	0.62	168.755			
300.0	300.0	300.5	300.5	0.5	0.5	-123.41	-57.7	-87.4	104.7	103.8	0.97	107.793			
400.0	400.0	401.3	401.2	0.7	0.7	-126.29	-61.5	-83.7	103.8	102.5	1.33	78.292			
423.1	423.1	424.5	424.3	0.7	0.7	161.82	-62.9	-82.3	103.7	102.3	1.44	72.187	CC, ES		
500.0	500.0	501.4	500.7	0.8	0.9	157.59	-69.0	-76.3	105.3	103.5	1.76	59.871			
600.0	599.6	600.4	598.4	1.0	1.2	151.05	-80.0	-65.4	112.4	110.2	2.24	50.070			
700.0	698.8	697.8	693.7	1.3	1.6	144.33	-94.4	-51.2	125.9	123.1	2.82	44.664			
800.0	797.1	793.3	786.0	1.6	2.1	138.25	-111.9	-34.0	145.9	142.4	3.49	41.770			
900.0	894.3	886.5	874.8	2.1	2.6	133.15	-132.1	-14.2	172.2	167.9	4.28	40.237			
1,000.0	990.2	977.3	959.8	2.6	3.2	129.18	-154.7	8.1	204.2	199.0	5.18	39.433			
1,100.0	1,085.7	1,065.7	1,041.1	3.1	3.9	126.07	-179.4	32.5	239.5	233.3	6.16	38.898			
1,200.0	1,181.1	1,156.3	1,123.2	3.6	4.6	123.09	-206.8	59.4	276.8	269.7	7.17	38.586			
1,300.0	1,276.6	1,248.1	1,206.3	4.2	5.3	120.75	-234.6	86.8	314.8	306.6	8.20	38.370			
1,400.0	1,372.1	1,340.0	1,289.5	4.7	6.0	118.91	-262.4	114.2	353.1	343.8	9.23	38.236			
1,500.0	1,467.5	1,431.8	1,372.6	5.3	6.7	117.42	-290.2	141.5	391.6	381.3	10.26	38.153			
1,600.0	1,563.0	1,523.6	1,455.7	5.8	7.4	116.20	-318.0	168.9	430.3	419.0	11.29	38.102			
1,700.0	1,658.4	1,615.5	1,538.9	6.4	8.2	115.19	-345.8	196.3	469.2	456.9	12.32	38.074	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 31-16A
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 31-16A	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	-123.16	-65.6	-100.3	119.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.16	-65.6	-100.3	119.8	119.6	0.27	440.168			
200.0	200.0	200.0	200.0	0.3	0.3	-123.16	-65.6	-100.3	119.8	119.2	0.62	192.883			
300.0	300.0	300.3	300.3	0.5	0.5	-123.87	-66.7	-99.4	119.7	118.8	0.97	123.257			
400.0	400.0	400.4	400.1	0.7	0.7	-127.01	-71.9	-95.4	119.5	118.2	1.32	90.231			
402.0	402.0	402.4	402.1	0.7	0.7	162.06	-72.1	-95.3	119.5	118.1	1.36	87.724	CC, ES		
500.0	500.0	499.5	498.6	0.8	1.0	157.02	-81.1	-88.3	122.3	120.5	1.79	68.500			
600.0	599.6	597.4	595.0	1.0	1.3	150.98	-94.2	-78.2	131.6	129.3	2.28	57.596			
700.0	698.8	693.4	688.7	1.3	1.7	144.95	-110.8	-65.4	147.7	144.8	2.86	51.705			
800.0	797.1	787.2	779.1	1.6	2.2	139.53	-130.5	-50.1	170.7	167.2	3.51	48.616			
900.0	894.3	878.3	865.7	2.1	2.7	134.97	-153.1	-32.6	200.3	196.0	4.26	47.017			
1,000.0	990.2	966.6	948.1	2.6	3.3	131.40	-178.0	-13.4	235.9	230.8	5.11	46.189			
1,100.0	1,085.7	1,052.2	1,026.6	3.1	3.9	128.74	-205.1	7.6	275.0	268.9	6.03	45.571			
1,200.0	1,181.1	1,135.3	1,101.2	3.6	4.6	126.14	-234.0	29.9	316.7	309.7	6.99	45.278			
1,300.0	1,276.6	1,218.7	1,174.6	4.2	5.3	123.61	-265.3	54.1	360.9	352.9	7.98	45.231			
1,400.0	1,372.1	1,306.9	1,251.8	4.7	6.1	121.40	-299.0	80.2	406.2	397.2	8.99	45.170	SF		
1,500.0	1,467.5	1,395.1	1,329.0	5.3	6.9	119.62	-332.7	106.2	451.9	441.9	10.00	45.175			
1,600.0	1,563.0	1,483.2	1,406.2	5.8	7.7	118.17	-366.4	132.3	497.8	486.8	11.01	45.217			

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 31-16A
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 31-16A	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	-123.12	-73.6	-112.8	134.6						
100.0	100.0	100.0	100.0	0.1	0.1	-123.12	-73.6	-112.8	134.6	134.4	0.27	494.497			
200.0	200.0	200.0	200.0	0.3	0.3	-123.12	-73.6	-112.8	134.6	134.0	0.62	216.690			
300.0	300.0	300.1	300.0	0.5	0.5	-124.24	-75.7	-111.3	134.6	133.6	0.97	138.553			
307.7	307.7	307.7	307.7	0.5	0.5	-124.42	-76.1	-111.0	134.6	133.6	1.00	134.748 CC			
400.0	400.0	399.6	399.2	0.7	0.7	-127.56	-82.2	-106.9	134.8	133.5	1.32	101.884 ES			
500.0	500.0	498.1	496.9	0.8	1.0	156.60	-92.7	-99.6	138.5	136.7	1.82	75.988			
600.0	599.6	595.1	592.3	1.0	1.3	150.90	-107.2	-89.7	149.0	146.7	2.34	63.809			
700.0	698.8	690.1	684.8	1.3	1.8	145.26	-125.2	-77.4	166.7	163.8	2.91	57.212			
800.0	797.1	782.7	773.7	1.6	2.3	140.19	-146.3	-62.9	191.4	187.8	3.56	53.706			
900.0	894.3	872.5	858.7	2.1	2.8	135.88	-170.2	-46.5	222.8	218.5	4.30	51.848			
1,000.0	990.2	959.1	939.3	2.6	3.4	132.48	-196.4	-28.6	260.3	255.2	5.12	50.842			
1,100.0	1,085.7	1,043.0	1,015.9	3.1	4.0	130.01	-224.6	-9.3	301.5	295.4	6.02	50.062			
1,200.0	1,181.1	1,124.3	1,088.6	3.6	4.7	127.62	-254.5	11.2	345.2	338.2	6.95	49.643			
1,300.0	1,276.6	1,202.7	1,157.2	4.2	5.4	125.34	-285.7	32.6	391.6	383.7	7.90	49.572			
1,400.0	1,372.1	1,285.5	1,228.4	4.7	6.2	123.11	-320.6	56.5	440.3	431.4	8.88	49.573			
1,500.0	1,467.5	1,371.4	1,302.2	5.3	7.0	121.21	-357.0	81.4	489.5	479.7	9.88	49.558 SF			

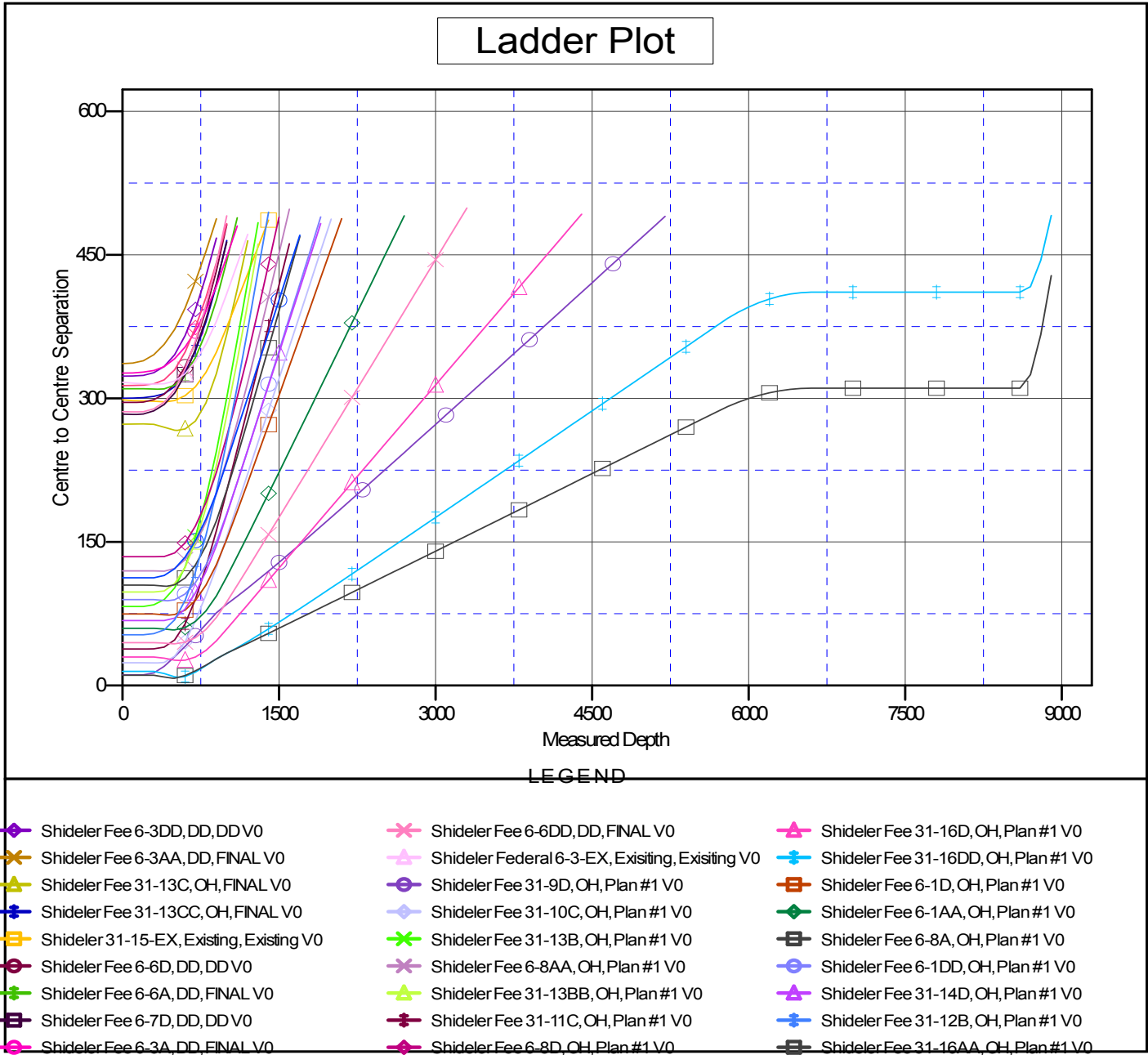
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

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



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