

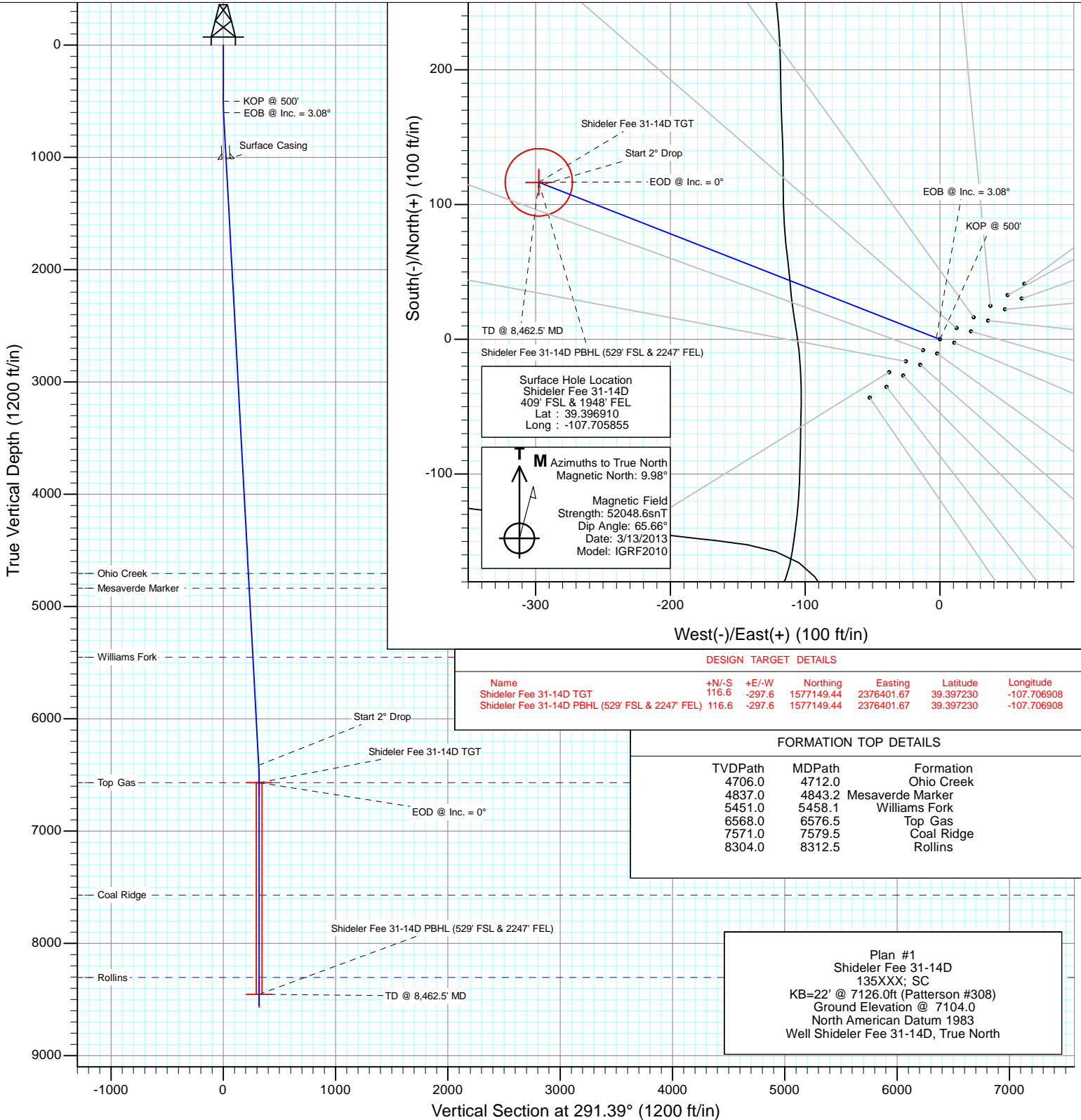


Project: Mamm Creek
 Site: O31E Pad (2nd Occupation)
 Well: Shideler Fee 31-14D
 Wellbore: OH
 Design: Plan #1



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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	602.7	3.08	291.39	602.6	1.0	-2.6	3.00	291.39	2.8	
4	6422.5	3.08	291.39	6414.1	115.1	-293.7	0.00	0.00	315.5	
5	6576.5	0.00	0.00	6568.0	116.6	-297.6	2.00	180.00	319.6	Shideler Fee 31-14D TGT
6	8462.5	0.00	0.00	8454.0	116.6	-297.6	0.00	0.00	319.6	Shideler Fee 31-14D PBHL (529' FSL & 2247' FEL)
7	8562.5	0.00	0.00	8554.0	116.6	-297.6	0.00	0.00	319.6	



Surface Hole Location
 Shideler Fee 31-14D
 409' FSL & 1948' FEL
 Lat : 39.396910
 Long : -107.705855

M Azimuths to True North
 Magnetic North: 9.98°
 Magnetic Field
 Strength: 52048.6snT
 Dip Angle: 65.66°
 Date: 3/13/2013
 Model: IGRF2010

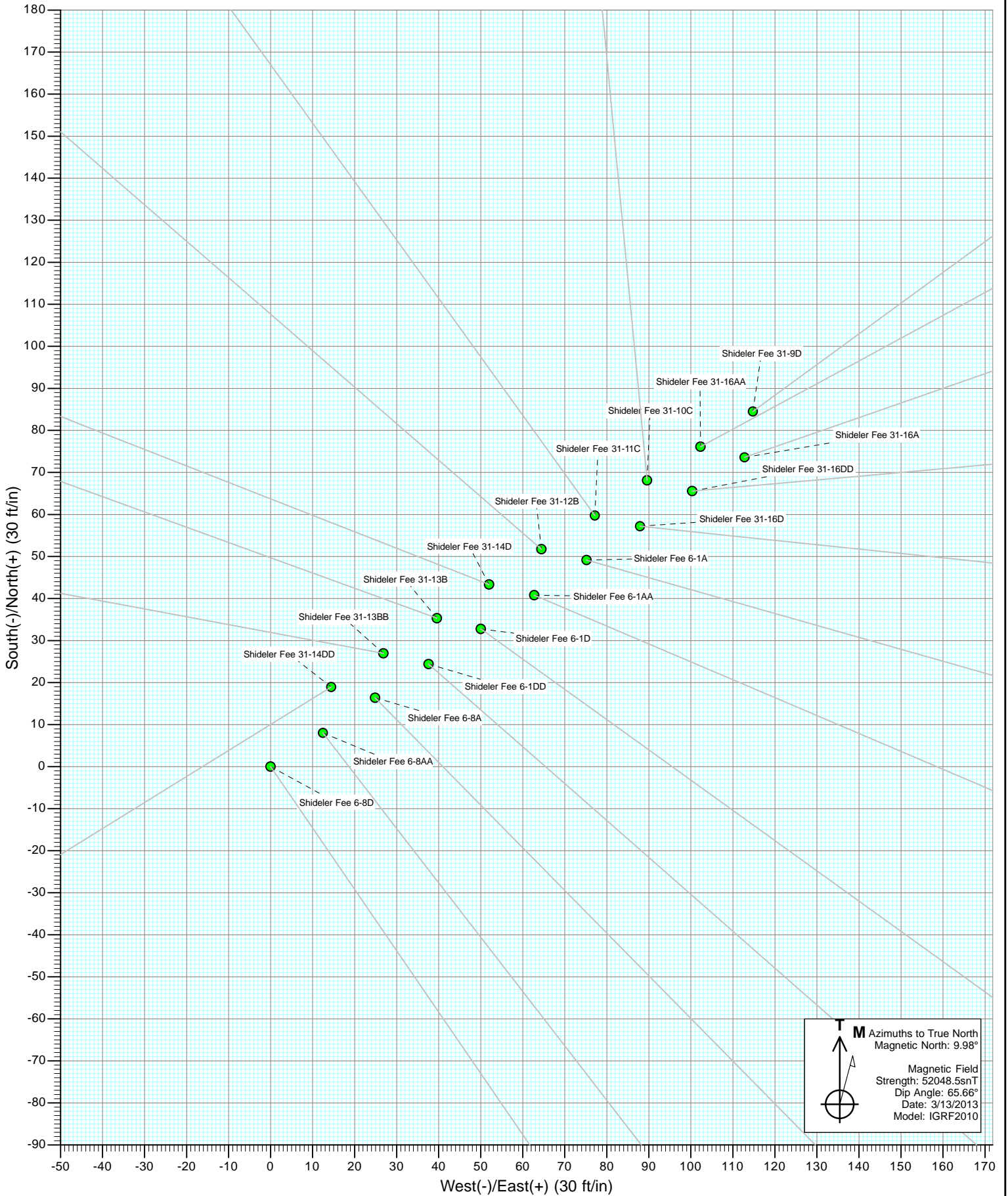
DESIGN TARGET DETAILS

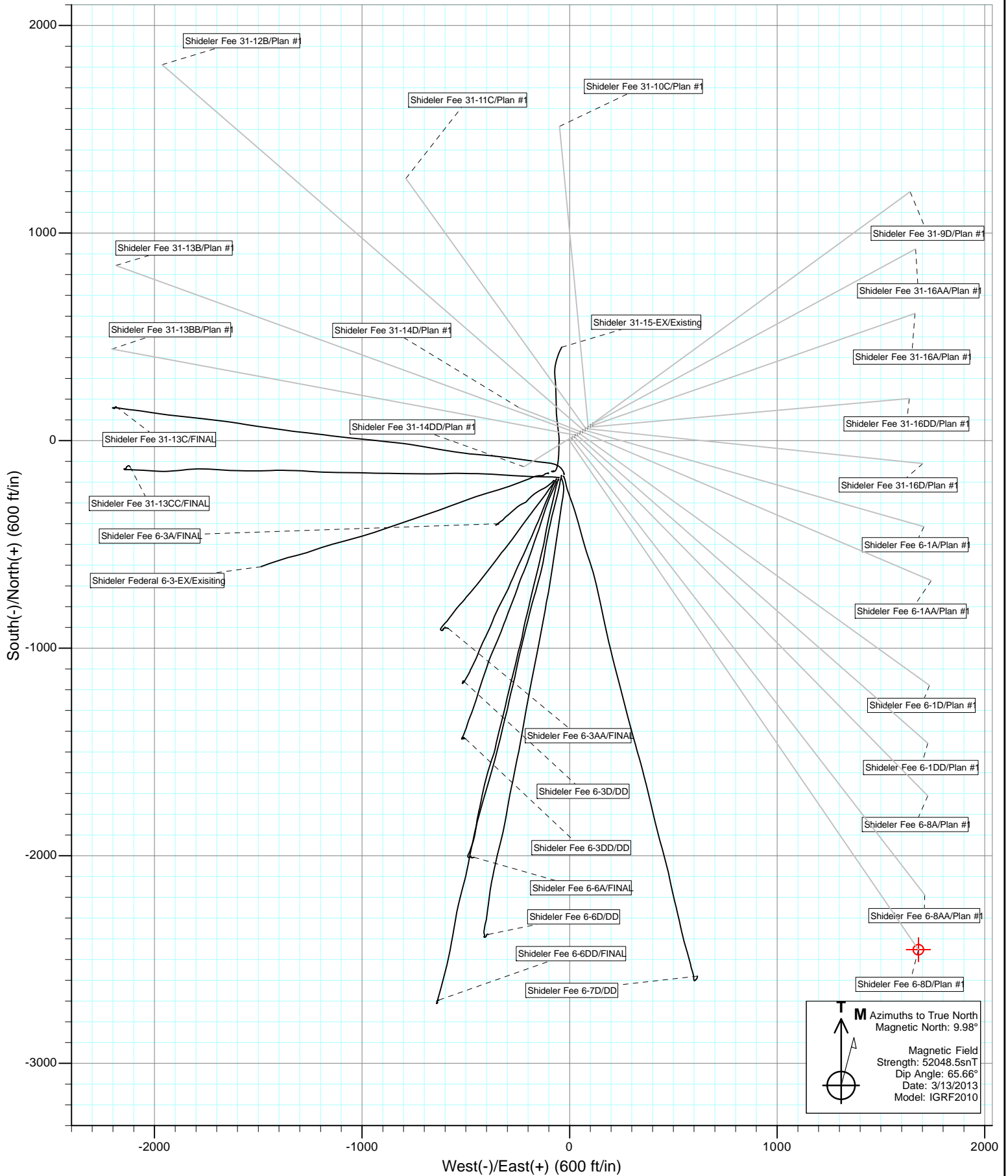
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shideler Fee 31-14D TGT	116.6	-297.6	1577149.44	2376401.67	39.397230	-107.706908
Shideler Fee 31-14D PBHL (529' FSL & 2247' FEL)	116.6	-297.6	1577149.44	2376401.67	39.397230	-107.706908

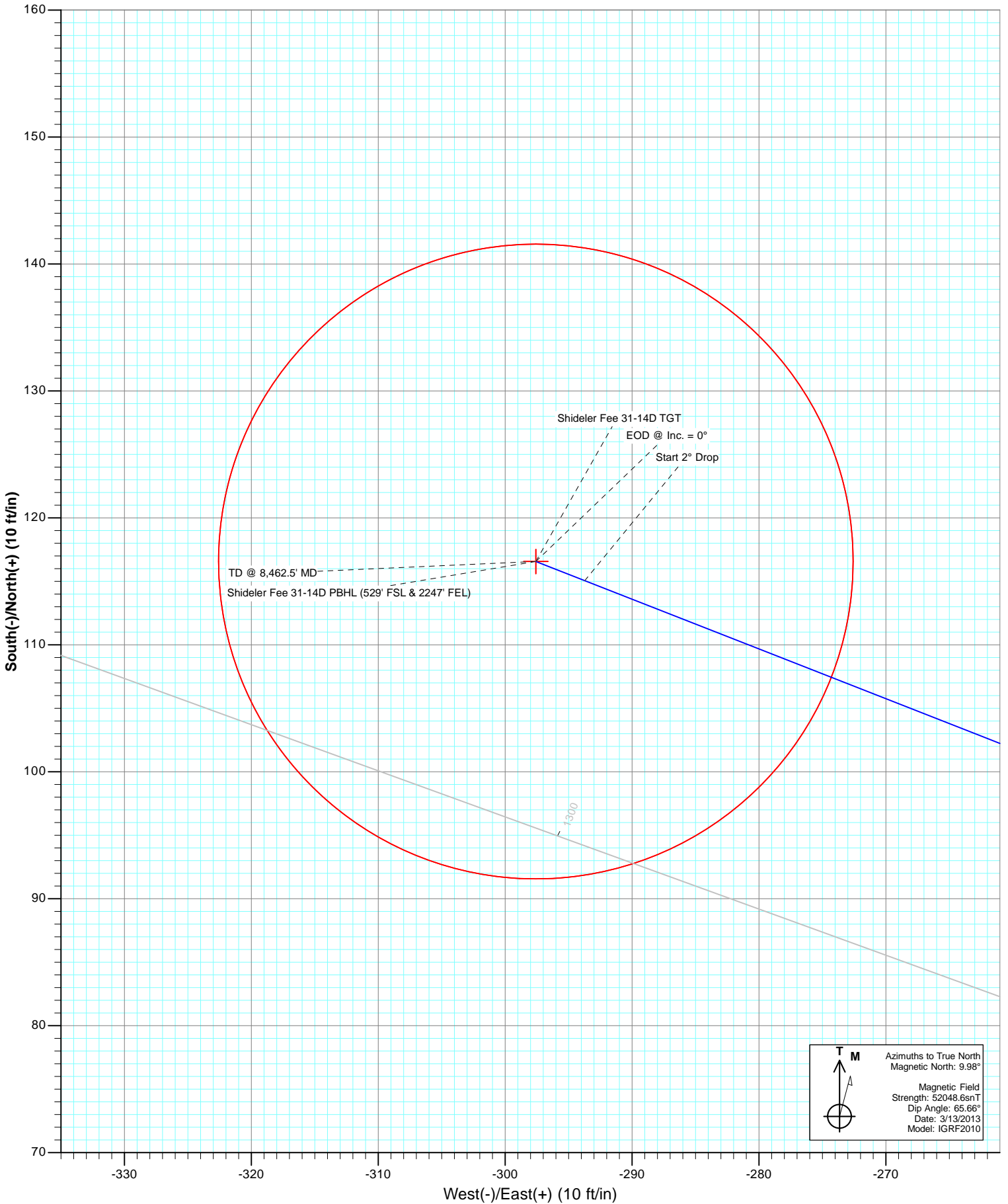
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4706.0	4712.0	Ohio Creek
4837.0	4843.2	Mesaverde Marker
5451.0	5458.1	Williams Fork
6568.0	6576.5	Top Gas
7571.0	7579.5	Coal Ridge
8304.0	8312.5	Rollins

Plan #1
 Shideler Fee 31-14D
 135XXX; SC
 KB=22' @ 7126.0ft (Patterson #308)
 Ground Elevation @ 7104.0
 North American Datum 1983
 Well Shideler Fee 31-14D, True North







Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB	Local Co-ordinate Reference: Well Shideler Fee 31-14D
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 31-14D	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 31-14D						
Well Position	+N/-S	0.0 ft	Northing:	1,577,025.68 ft	Latitude:	39.396910
	+E/-W	0.0 ft	Easting:	2,376,696.33 ft	Longitude:	-107.705855
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	291.39

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
602.7	3.08	291.39	602.6	1.0	-2.6	3.00	3.00	0.00	291.39	
6,422.5	3.08	291.39	6,414.1	115.1	-293.7	0.00	0.00	0.00	0.00	
6,576.5	0.00	0.00	6,568.0	116.6	-297.6	2.00	-2.00	0.00	180.00	Shideler Fee 31-14D
8,462.5	0.00	0.00	8,454.0	116.6	-297.6	0.00	0.00	0.00	0.00	Shideler Fee 31-14D
8,562.5	0.00	0.00	8,554.0	116.6	-297.6	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-14D
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-14D
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	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
602.7	3.08	291.39	602.6	1.0	-2.6	2.8	3.00	3.00	EOB @ Inc. = 3.08°
700.0	3.08	291.39	699.8	2.9	-7.4	8.0	0.00	0.00	
800.0	3.08	291.39	799.7	4.9	-12.4	13.4	0.00	0.00	
900.0	3.08	291.39	899.5	6.8	-17.4	18.7	0.00	0.00	
1,000.0	3.08	291.39	999.4	8.8	-22.4	24.1	0.00	0.00	
1,015.6	3.08	291.39	1,015.0	9.1	-23.2	24.9	0.00	0.00	Surface Casing
1,100.0	3.08	291.39	1,099.2	10.8	-27.4	29.5	0.00	0.00	
1,200.0	3.08	291.39	1,199.1	12.7	-32.5	34.9	0.00	0.00	
1,300.0	3.08	291.39	1,298.9	14.7	-37.5	40.2	0.00	0.00	
1,400.0	3.08	291.39	1,398.8	16.6	-42.5	45.6	0.00	0.00	
1,500.0	3.08	291.39	1,498.7	18.6	-47.5	51.0	0.00	0.00	
1,600.0	3.08	291.39	1,598.5	20.6	-52.5	56.3	0.00	0.00	
1,700.0	3.08	291.39	1,698.4	22.5	-57.5	61.7	0.00	0.00	
1,800.0	3.08	291.39	1,798.2	24.5	-62.5	67.1	0.00	0.00	
1,900.0	3.08	291.39	1,898.1	26.4	-67.5	72.5	0.00	0.00	
2,000.0	3.08	291.39	1,997.9	28.4	-72.5	77.8	0.00	0.00	
2,100.0	3.08	291.39	2,097.8	30.3	-77.5	83.2	0.00	0.00	
2,200.0	3.08	291.39	2,197.6	32.3	-82.5	88.6	0.00	0.00	
2,300.0	3.08	291.39	2,297.5	34.3	-87.5	94.0	0.00	0.00	
2,400.0	3.08	291.39	2,397.4	36.2	-92.5	99.3	0.00	0.00	
2,500.0	3.08	291.39	2,497.2	38.2	-97.5	104.7	0.00	0.00	
2,600.0	3.08	291.39	2,597.1	40.1	-102.5	110.1	0.00	0.00	
2,700.0	3.08	291.39	2,696.9	42.1	-107.5	115.4	0.00	0.00	
2,800.0	3.08	291.39	2,796.8	44.1	-112.5	120.8	0.00	0.00	
2,900.0	3.08	291.39	2,896.6	46.0	-117.5	126.2	0.00	0.00	
3,000.0	3.08	291.39	2,996.5	48.0	-122.5	131.6	0.00	0.00	
3,100.0	3.08	291.39	3,096.3	49.9	-127.5	136.9	0.00	0.00	
3,200.0	3.08	291.39	3,196.2	51.9	-132.5	142.3	0.00	0.00	
3,300.0	3.08	291.39	3,296.1	53.9	-137.5	147.7	0.00	0.00	
3,400.0	3.08	291.39	3,395.9	55.8	-142.5	153.1	0.00	0.00	
3,500.0	3.08	291.39	3,495.8	57.8	-147.5	158.4	0.00	0.00	
3,600.0	3.08	291.39	3,595.6	59.7	-152.5	163.8	0.00	0.00	
3,700.0	3.08	291.39	3,695.5	61.7	-157.5	169.2	0.00	0.00	
3,800.0	3.08	291.39	3,795.3	63.7	-162.5	174.5	0.00	0.00	
3,900.0	3.08	291.39	3,895.2	65.6	-167.5	179.9	0.00	0.00	
4,000.0	3.08	291.39	3,995.0	67.6	-172.5	185.3	0.00	0.00	
4,100.0	3.08	291.39	4,094.9	69.5	-177.5	190.7	0.00	0.00	
4,200.0	3.08	291.39	4,194.8	71.5	-182.5	196.0	0.00	0.00	
4,300.0	3.08	291.39	4,294.6	73.5	-187.5	201.4	0.00	0.00	
4,400.0	3.08	291.39	4,394.5	75.4	-192.5	206.8	0.00	0.00	
4,500.0	3.08	291.39	4,494.3	77.4	-197.5	212.2	0.00	0.00	
4,600.0	3.08	291.39	4,594.2	79.3	-202.5	217.5	0.00	0.00	
4,700.0	3.08	291.39	4,694.0	81.3	-207.5	222.9	0.00	0.00	
4,712.0	3.08	291.39	4,706.0	81.5	-208.1	223.5	0.00	0.00	Ohio Creek
4,800.0	3.08	291.39	4,793.9	83.3	-212.6	228.3	0.00	0.00	
4,843.2	3.08	291.39	4,837.0	84.1	-214.7	230.6	0.00	0.00	Mesaverde Marker

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Mamm Creek
Site: O31E Pad (2nd Occupation)
Well: Shideler Fee 31-14D
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Shideler Fee 31-14D
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
4,900.0	3.08	291.39	4,893.7	85.2	-217.6	233.6	0.00	0.00	
5,000.0	3.08	291.39	4,993.6	87.2	-222.6	239.0	0.00	0.00	
5,100.0	3.08	291.39	5,093.5	89.1	-227.6	244.4	0.00	0.00	
5,200.0	3.08	291.39	5,193.3	91.1	-232.6	249.8	0.00	0.00	
5,300.0	3.08	291.39	5,293.2	93.1	-237.6	255.1	0.00	0.00	
5,400.0	3.08	291.39	5,393.0	95.0	-242.6	260.5	0.00	0.00	
5,458.1	3.08	291.39	5,451.0	96.2	-245.5	263.6	0.00	0.00	Williams Fork
5,500.0	3.08	291.39	5,492.9	97.0	-247.6	265.9	0.00	0.00	
5,600.0	3.08	291.39	5,592.7	98.9	-252.6	271.3	0.00	0.00	
5,700.0	3.08	291.39	5,692.6	100.9	-257.6	276.6	0.00	0.00	
5,800.0	3.08	291.39	5,792.4	102.9	-262.6	282.0	0.00	0.00	
5,900.0	3.08	291.39	5,892.3	104.8	-267.6	287.4	0.00	0.00	
6,000.0	3.08	291.39	5,992.2	106.8	-272.6	292.8	0.00	0.00	
6,100.0	3.08	291.39	6,092.0	108.7	-277.6	298.1	0.00	0.00	
6,200.0	3.08	291.39	6,191.9	110.7	-282.6	303.5	0.00	0.00	
6,300.0	3.08	291.39	6,291.7	112.7	-287.6	308.9	0.00	0.00	
6,400.0	3.08	291.39	6,391.6	114.6	-292.6	314.2	0.00	0.00	
6,422.5	3.08	291.39	6,414.1	115.1	-293.7	315.5	0.00	0.00	Start 2° Drop
6,500.0	1.53	291.39	6,491.5	116.2	-296.6	318.6	2.00	-2.00	
6,576.5	0.00	0.00	6,568.0	116.6	-297.6	319.6	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,600.0	0.00	0.00	6,591.5	116.6	-297.6	319.6	0.00	0.00	
6,700.0	0.00	0.00	6,691.5	116.6	-297.6	319.6	0.00	0.00	
6,800.0	0.00	0.00	6,791.5	116.6	-297.6	319.6	0.00	0.00	
6,900.0	0.00	0.00	6,891.5	116.6	-297.6	319.6	0.00	0.00	
7,000.0	0.00	0.00	6,991.5	116.6	-297.6	319.6	0.00	0.00	
7,100.0	0.00	0.00	7,091.5	116.6	-297.6	319.6	0.00	0.00	
7,200.0	0.00	0.00	7,191.5	116.6	-297.6	319.6	0.00	0.00	
7,300.0	0.00	0.00	7,291.5	116.6	-297.6	319.6	0.00	0.00	
7,400.0	0.00	0.00	7,391.5	116.6	-297.6	319.6	0.00	0.00	
7,500.0	0.00	0.00	7,491.5	116.6	-297.6	319.6	0.00	0.00	
7,579.5	0.00	0.00	7,571.0	116.6	-297.6	319.6	0.00	0.00	Coal Ridge
7,600.0	0.00	0.00	7,591.5	116.6	-297.6	319.6	0.00	0.00	
7,700.0	0.00	0.00	7,691.5	116.6	-297.6	319.6	0.00	0.00	
7,800.0	0.00	0.00	7,791.5	116.6	-297.6	319.6	0.00	0.00	
7,900.0	0.00	0.00	7,891.5	116.6	-297.6	319.6	0.00	0.00	
8,000.0	0.00	0.00	7,991.5	116.6	-297.6	319.6	0.00	0.00	
8,100.0	0.00	0.00	8,091.5	116.6	-297.6	319.6	0.00	0.00	
8,200.0	0.00	0.00	8,191.5	116.6	-297.6	319.6	0.00	0.00	
8,300.0	0.00	0.00	8,291.5	116.6	-297.6	319.6	0.00	0.00	
8,312.5	0.00	0.00	8,304.0	116.6	-297.6	319.6	0.00	0.00	Rollins
8,400.0	0.00	0.00	8,391.5	116.6	-297.6	319.6	0.00	0.00	
8,462.5	0.00	0.00	8,454.0	116.6	-297.6	319.6	0.00	0.00	TD @ 8,462.5' MD
8,500.0	0.00	0.00	8,491.5	116.6	-297.6	319.6	0.00	0.00	
8,562.5	0.00	0.00	8,554.0	116.6	-297.6	319.6	0.00	0.00	Permit TD @ 8,562.5' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-14D
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 31-14D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Shideler Fee 31-14D PB - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,454.0	116.6	-297.6	1,577,149.44	2,376,401.67	39.397230	-107.706908
Shideler Fee 31-14D TG - plan hits target center - Point	0.00	0.00	6,568.0	116.6	-297.6	1,577,149.44	2,376,401.67	39.397230	-107.706908

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,015.6	1,015.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,712.0	4,706.0	Ohio Creek			
4,843.2	4,837.0	Mesaverde Marker			
5,458.1	5,451.0	Williams Fork			
6,576.5	6,568.0	Top Gas			
7,579.5	7,571.0	Coal Ridge			
8,312.5	8,304.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
500.0	500.0	0.0	0.0	KOP @ 500'	
602.7	602.6	1.0	-2.6	EOB @ Inc. = 3.08°	
6,422.5	6,414.1	115.1	-293.7	Start 2° Drop	
6,576.5	6,568.0	116.6	-297.6	EOD @ Inc. = 0°	
8,462.5	8,454.0	116.6	-297.6	TD @ 8,462.5' MD	
8,562.5	8,554.0	116.6	-297.6	Permit TD @ 8,562.5' MD	

EnCana Oil & Gas (USA) Inc

Mamm Creek

O31E Pad (2nd Occupation)

Shideler Fee 31-14DD

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 31-14DD
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 31-14DD	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	3/20/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	9,643.0	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O31E Pad						
Shideler 31-15-EX - Existing - Existing	2,714.0	2,696.7	24.5	17.1	3.289	CC, ES, SF
Shideler Federal 6-3-EX - Existing - Existing	1,751.4	1,721.4	182.4	177.8	39.840	CC, ES
Shideler Federal 6-3-EX - Existing - Existing	2,000.0	1,952.8	192.5	187.2	36.769	SF
Shideler Fee 31-13C - OH - FINAL	842.7	845.0	138.0	134.7	41.704	CC, ES
Shideler Fee 31-13C - OH - FINAL	1,100.0	1,082.2	160.8	156.1	34.197	SF
Shideler Fee 31-13CC - OH - FINAL	459.8	455.9	207.3	205.7	131.342	CC, ES
Shideler Fee 31-13CC - OH - FINAL	1,200.0	1,142.1	292.9	287.8	57.429	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	230.4			
Shideler Fee 6-3A - DD - FINAL	100.0	102.3	230.5	230.2	825.110	ES
Shideler Fee 6-3A - DD - FINAL	8,513.4	8,523.6	300.7	270.5	9.973	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	241.2			
Shideler Fee 6-3AA - DD - FINAL	2,600.0	2,556.7	492.5	483.4	53.679	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	219.0			
Shideler Fee 6-3D - DD - DD	200.0	202.0	219.4	218.8	351.087	ES
Shideler Fee 6-3D - DD - DD	2,300.0	2,240.1	486.2	478.2	60.497	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	229.7			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	229.9	229.6	823.404	ES
Shideler Fee 6-3DD - DD - DD	1,800.0	1,716.2	482.2	476.0	78.040	SF
Shideler Fee 6-6A - DD - FINAL	510.0	505.7	214.0	212.3	125.646	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,100.0	1,029.0	285.9	282.2	77.442	SF
Shideler Fee 6-6D - DD - DD	130.3	133.3	205.9	205.5	537.227	CC, ES
Shideler Fee 6-6D - DD - DD	1,300.0	1,180.4	426.2	421.9	98.365	SF
Shideler Fee 6-6DD - DD - FINAL	152.9	155.9	195.5	195.0	422.861	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	201.1	195.6	195.0	313.849	ES
Shideler Fee 6-6DD - DD - FINAL	1,000.0	906.3	326.2	322.9	98.959	SF
Shideler Fee 6-7D - DD - DD	138.4	138.4	195.6	195.2	475.180	CC, ES
Shideler Fee 6-7D - DD - DD	1,000.0	898.7	332.1	328.7	96.392	SF

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

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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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	200.0	200.0	89.8	89.2	144.563	CC, ES
Shideler Fee 31-10C - OH - Plan #1	700.0	679.1	141.2	138.6	54.985	SF
Shideler Fee 31-11C - OH - Plan #1	302.3	302.4	74.8	73.8	76.370	CC, ES
Shideler Fee 31-11C - OH - Plan #1	800.0	788.4	119.3	116.1	37.453	SF
Shideler Fee 31-12B - OH - Plan #1	327.8	328.7	58.9	57.9	54.127	CC, ES
Shideler Fee 31-12B - OH - Plan #1	700.0	693.9	85.0	82.1	29.777	SF
Shideler Fee 31-13B - OH - Plan #1	381.9	383.1	27.2	25.9	20.922	CC, ES
Shideler Fee 31-13B - OH - Plan #1	600.0	599.2	37.0	34.7	15.897	SF
Shideler Fee 31-13BB - OH - Plan #1	300.0	300.0	14.8	13.8	15.244	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	600.0	600.6	17.9	15.7	8.363	SF
Shideler Fee 31-14D - OH - Plan #1	300.0	300.0	44.8	43.8	46.180	CC, ES
Shideler Fee 31-14D - OH - Plan #1	8,544.5	8,546.9	286.8	255.6	9.197	SF
Shideler Fee 31-16A - OH - Plan #1	300.0	300.0	112.5	111.5	115.932	CC, ES
Shideler Fee 31-16A - OH - Plan #1	800.0	769.3	171.1	168.4	64.179	SF
Shideler Fee 31-16AA - OH - Plan #1	300.0	300.0	104.9	103.9	108.052	CC, ES
Shideler Fee 31-16AA - OH - Plan #1	700.0	671.2	159.6	157.3	68.909	SF
Shideler Fee 31-16D - OH - Plan #1	300.0	300.0	82.8	81.9	85.359	CC, ES
Shideler Fee 31-16D - OH - Plan #1	700.0	680.1	129.1	126.7	54.344	SF
Shideler Fee 31-16DD - OH - Plan #1	300.0	300.0	97.7	96.8	100.726	CC, ES
Shideler Fee 31-16DD - OH - Plan #1	700.0	674.2	150.4	148.0	64.030	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	119.8	119.2	192.887	CC, ES
Shideler Fee 31-9D - OH - Plan #1	700.0	657.6	195.8	193.5	85.439	SF
Shideler Fee 6-1A - OH - Plan #1	300.0	300.0	67.9	66.9	69.932	CC, ES
Shideler Fee 6-1A - OH - Plan #1	600.0	591.1	91.4	89.4	45.139	SF
Shideler Fee 6-1AA - OH - Plan #1	300.0	300.0	53.0	52.1	54.654	CC, ES
Shideler Fee 6-1AA - OH - Plan #1	600.0	592.0	78.5	76.4	38.420	SF
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	38.2	37.2	39.368	CC, ES
Shideler Fee 6-1D - OH - Plan #1	500.0	496.7	51.2	49.6	30.359	SF
Shideler Fee 6-1DD - OH - Plan #1	255.6	255.6	23.8	23.0	29.195	CC
Shideler Fee 6-1DD - OH - Plan #1	300.0	299.8	23.9	22.9	24.638	ES
Shideler Fee 6-1DD - OH - Plan #1	400.0	398.8	28.7	27.4	21.678	SF
Shideler Fee 6-8A - OH - Plan #1	233.9	233.9	10.8	10.0	14.550	CC, ES
Shideler Fee 6-8A - OH - Plan #1	300.0	299.8	11.3	10.4	11.666	SF
Shideler Fee 6-8AA - OH - Plan #1	200.0	200.0	11.1	10.5	17.872	CC, ES
Shideler Fee 6-8AA - OH - Plan #1	300.0	299.7	12.1	11.2	12.510	SF
Shideler Fee 6-8D - OH - Plan #1	200.0	200.0	23.8	23.2	38.305	CC, ES
Shideler Fee 6-8D - OH - Plan #1	400.0	398.4	26.9	25.6	19.960	SF

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Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-Gyro													Offset Well Error:		0.0 ft
Reference				Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-149.17	-167.5	-99.9	196.3						
100.0	100.0	78.1	78.1	0.1	0.1	-149.24	-167.6	-99.7	195.0	194.8	0.20	953.969			
200.0	200.0	178.4	178.4	0.3	0.2	-149.45	-167.8	-99.1	194.9	194.4	0.47	417.683			
300.0	300.0	278.3	278.3	0.5	0.2	-149.75	-168.2	-98.1	194.7	194.0	0.73	267.214			
400.0	400.0	378.5	378.5	0.7	0.3	-28.92	-168.9	-96.4	192.3	191.3	0.99	193.477			
500.0	499.9	479.5	479.5	0.8	0.4	-30.22	-169.4	-94.4	187.9	186.6	1.26	149.071			
600.0	599.8	581.9	581.8	1.0	0.5	-31.27	-168.6	-92.7	182.6	181.1	1.53	119.533			
700.0	699.7	681.8	681.7	1.2	0.6	-31.91	-166.4	-91.9	176.4	174.6	1.79	98.428			
800.0	799.6	778.9	778.8	1.4	0.7	-32.34	-164.5	-92.2	171.0	169.0	2.06	83.212			
900.0	899.5	877.3	877.2	1.6	0.8	-32.93	-164.0	-92.6	167.1	164.8	2.32	72.006			
1,000.0	999.4	976.5	976.4	1.8	0.9	-33.93	-164.6	-92.4	163.8	161.2	2.59	63.282			
1,100.0	1,099.3	1,076.3	1,076.1	2.0	0.9	-35.18	-165.6	-91.7	160.8	157.9	2.86	56.273			
1,200.0	1,199.2	1,176.9	1,176.7	2.2	1.0	-36.48	-166.5	-91.0	157.7	154.6	3.13	50.431			
1,300.0	1,299.1	1,276.8	1,276.7	2.4	1.1	-37.65	-166.9	-90.6	154.4	151.0	3.40	45.430			
1,400.0	1,399.0	1,376.9	1,376.8	2.6	1.2	-39.01	-167.4	-89.9	151.1	147.4	3.67	41.174			
1,500.0	1,498.9	1,477.6	1,477.4	2.7	1.3	-40.52	-167.6	-88.8	147.6	143.6	3.94	37.426			
1,600.0	1,598.8	1,578.4	1,578.3	2.9	1.4	-42.22	-167.4	-87.4	143.5	139.3	4.22	34.023			
1,700.0	1,698.7	1,680.1	1,679.9	3.1	1.5	-44.12	-166.2	-85.4	138.7	134.2	4.50	30.833			
1,800.0	1,798.6	1,784.8	1,784.5	3.3	1.6	-46.57	-162.7	-82.1	131.6	126.8	4.78	27.511			
1,900.0	1,898.5	1,889.3	1,888.6	3.5	1.7	-49.55	-155.0	-77.6	120.6	115.5	5.07	23.771			
2,000.0	1,998.4	1,989.8	1,988.5	3.7	1.8	-52.37	-144.5	-74.1	106.9	101.6	5.36	19.962			
2,100.0	2,098.3	2,088.7	2,086.8	3.9	1.9	-55.10	-133.4	-72.0	93.0	87.3	5.64	16.476			
2,200.0	2,198.2	2,187.6	2,185.1	4.1	2.0	-58.51	-122.3	-70.3	79.3	73.4	5.93	13.366			
2,300.0	2,298.1	2,286.5	2,283.3	4.3	2.1	-63.01	-111.3	-68.9	66.0	59.8	6.23	10.596			
2,400.0	2,398.0	2,385.9	2,382.0	4.5	2.2	-69.44	-100.0	-67.9	53.1	46.5	6.55	8.110			
2,500.0	2,497.9	2,484.9	2,480.3	4.7	2.3	-79.93	-88.0	-67.0	40.5	33.6	6.88	5.891			
2,600.0	2,597.8	2,583.9	2,578.6	4.8	2.4	-98.50	-75.8	-66.2	30.1	22.8	7.22	4.164			
2,700.0	2,697.7	2,682.8	2,676.7	5.0	2.5	-128.91	-63.4	-66.0	24.6	17.2	7.44	3.307			
2,714.0	2,711.7	2,696.7	2,690.4	5.1	2.6	-133.90	-61.6	-66.0	24.5	17.1	7.46	3.289	CC, ES, SF		
2,800.0	2,797.6	2,781.6	2,774.7	5.2	2.7	-161.99	-50.9	-65.9	27.9	20.4	7.50	3.724			
2,900.0	2,897.5	2,880.4	2,872.7	5.4	2.8	177.28	-38.5	-65.6	37.9	30.2	7.67	4.944			
3,000.0	2,997.4	2,979.2	2,970.7	5.6	2.9	166.01	-26.1	-65.3	50.7	42.8	7.92	6.403			
3,100.0	3,097.3	3,078.2	3,068.9	5.8	3.0	159.17	-13.7	-65.3	64.5	56.3	8.19	7.874			
3,200.0	3,197.2	3,176.9	3,166.8	6.0	3.2	154.38	-1.1	-65.8	78.7	70.3	8.47	9.295			
3,300.0	3,297.1	3,275.7	3,264.8	6.2	3.3	150.82	11.9	-66.5	93.5	84.8	8.75	10.686			
3,400.0	3,397.0	3,374.6	3,362.8	6.4	3.4	147.81	25.1	-68.0	108.5	99.4	9.03	12.005			
3,500.0	3,496.9	3,473.4	3,460.6	6.6	3.6	145.25	38.4	-70.2	123.5	114.2	9.32	13.258			
3,600.0	3,596.8	3,572.0	3,558.3	6.8	3.7	143.31	51.8	-72.1	138.8	129.2	9.60	14.464			
3,700.0	3,696.7	3,670.5	3,655.9	6.9	3.8	142.00	65.0	-73.4	154.4	144.5	9.88	15.630			
3,800.0	3,796.6	3,769.3	3,753.8	7.1	4.0	140.93	78.3	-74.7	170.1	159.9	10.16	16.748			
3,900.0	3,896.5	3,868.2	3,851.8	7.3	4.1	139.98	91.6	-76.2	185.7	175.3	10.44	17.799			
4,000.0	3,996.4	3,964.9	3,947.6	7.5	4.2	139.21	104.8	-77.6	201.7	191.0	10.71	18.829			
4,100.0	4,096.3	4,062.2	4,043.9	7.7	4.4	138.65	119.0	-78.2	218.8	207.8	10.99	19.913			
4,200.0	4,196.2	4,159.4	4,139.9	7.9	4.5	138.22	133.4	-78.6	236.2	224.9	11.26	20.974			
4,300.0	4,296.1	4,256.6	4,236.0	8.1	4.7	137.88	148.5	-78.7	254.3	242.7	11.53	22.045			
4,400.0	4,396.0	4,355.2	4,333.4	8.3	4.8	137.56	163.9	-78.8	272.5	260.7	11.81	23.077			
4,500.0	4,495.9	4,454.8	4,431.7	8.5	5.0	137.19	179.3	-79.4	290.5	278.4	12.09	24.036			
4,600.0	4,595.8	4,554.6	4,530.4	8.7	5.1	136.89	194.3	-80.0	308.0	295.6	12.36	24.914			
4,700.0	4,695.7	4,653.6	4,628.4	8.9	5.3	136.69	208.7	-80.4	325.2	312.5	12.64	25.731			
4,800.0	4,795.6	4,752.3	4,726.0	9.0	5.4	136.53	223.0	-80.6	342.3	329.4	12.91	26.512			
4,900.0	4,895.5	4,852.3	4,825.0	9.2	5.6	136.37	237.3	-80.9	359.3	346.1	13.19	27.245			
5,000.0	4,995.4	4,953.2	4,925.0	9.4	5.7	136.21	251.3	-81.5	375.7	362.2	13.46	27.900			

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

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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						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor			
5,100.0	5,095.3	5,053.8	5,024.6	9.6	5.8	136.00	264.7	-82.7	391.5	377.7	13.74	28.488			
5,200.0	5,195.2	5,152.7	5,122.7	9.8	6.0	135.78	277.6	-84.1	407.0	393.0	14.02	29.035			
5,300.0	5,295.1	5,251.6	5,220.7	10.0	6.1	135.64	290.6	-85.1	422.6	408.3	14.29	29.570			
5,400.0	5,395.0	5,350.8	5,319.0	10.2	6.3	135.55	303.4	-85.8	438.1	423.5	14.57	30.075			
5,500.0	5,494.9	5,450.5	5,418.0	10.4	6.4	135.52	316.0	-86.1	453.5	438.7	14.84	30.560			
5,600.0	5,594.8	5,552.0	5,518.7	10.6	6.5	135.63	328.3	-85.4	468.6	453.4	15.11	31.000			
5,700.0	5,694.7	5,652.8	5,618.9	10.8	6.7	135.86	339.6	-83.9	483.0	467.6	15.39	31.393			
5,800.0	5,794.6	5,752.5	5,718.0	11.0	6.8	136.15	350.4	-81.7	497.2	481.6	15.65	31.763			

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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	-146.43	-176.6	-117.2	213.1							
100.0	100.0	79.0	79.0	0.1	0.1	-146.46	-176.5	-117.0	211.8	211.6	0.21	1,031.792				
200.0	200.0	179.3	179.3	0.3	0.2	-146.54	-176.2	-116.5	211.2	210.7	0.47	451.805				
290.6	290.6	268.6	268.6	0.5	0.2	-146.54	-175.9	-116.2	210.9	210.2	0.70	299.760				
300.0	300.0	277.8	277.8	0.5	0.2	-146.54	-175.9	-116.3	210.9	210.1	0.73	289.725				
400.0	400.0	377.2	377.2	0.7	0.3	-24.98	-175.9	-116.8	208.8	207.8	0.99	211.035				
500.0	499.9	476.9	476.8	0.8	0.4	-25.30	-175.9	-117.7	205.2	204.0	1.25	163.777				
600.0	599.8	576.3	576.3	1.0	0.5	-25.58	-175.9	-118.7	201.8	200.3	1.52	133.021				
700.0	699.7	675.5	675.4	1.2	0.6	-25.83	-176.1	-120.1	198.7	196.9	1.78	111.544				
800.0	799.6	774.3	774.3	1.4	0.7	-25.96	-176.4	-122.1	196.1	194.0	2.05	95.844				
900.0	899.5	873.5	873.4	1.6	0.8	-25.97	-177.0	-124.7	194.0	191.7	2.31	83.941				
1,000.0	999.4	972.8	972.7	1.8	0.9	-25.88	-177.7	-127.8	192.2	189.7	2.58	74.614				
1,100.0	1,099.3	1,072.5	1,072.3	2.0	0.9	-25.81	-178.7	-131.0	190.8	187.9	2.84	67.125				
1,200.0	1,199.2	1,172.1	1,171.9	2.2	1.0	-25.93	-180.1	-133.7	189.5	186.4	3.11	60.965				
1,300.0	1,299.1	1,272.3	1,272.0	2.4	1.1	-26.25	-182.0	-136.0	188.3	184.9	3.37	55.801				
1,400.0	1,399.0	1,372.7	1,372.4	2.6	1.2	-26.67	-183.9	-137.8	186.8	183.2	3.64	51.326				
1,500.0	1,498.9	1,472.8	1,472.4	2.7	1.3	-27.01	-185.5	-139.9	185.3	181.4	3.91	47.422				
1,600.0	1,598.8	1,572.3	1,571.9	2.9	1.4	-27.16	-186.8	-142.5	183.8	179.6	4.17	44.036				
1,700.0	1,698.7	1,671.4	1,670.9	3.1	1.5	-26.81	-187.6	-146.6	182.7	178.3	4.44	41.134				
1,751.4	1,750.1	1,721.4	1,720.8	3.2	1.5	-26.23	-187.6	-149.9	182.4	177.8	4.58	39.840	CC, ES			
1,800.0	1,798.6	1,767.5	1,766.7	3.3	1.6	-25.46	-187.6	-153.9	182.8	178.0	4.71	38.819				
1,900.0	1,898.5	1,861.7	1,860.3	3.5	1.7	-23.29	-188.2	-164.8	185.7	180.7	4.97	37.340				
2,000.0	1,998.4	1,952.8	1,950.4	3.7	1.8	-20.86	-190.5	-178.3	192.5	187.2	5.23	36.769	SF			
2,100.0	2,098.3	2,044.1	2,040.1	3.9	1.9	-18.77	-196.6	-194.0	204.3	198.8	5.50	37.163				
2,200.0	2,198.2	2,137.1	2,130.9	4.1	2.1	-16.59	-204.1	-212.5	219.2	213.5	5.76	38.053				
2,300.0	2,298.1	2,228.9	2,219.9	4.3	2.3	-14.38	-212.3	-233.4	237.2	231.2	6.02	39.378				
2,400.0	2,398.0	2,320.8	2,308.3	4.5	2.5	-12.16	-221.3	-256.9	258.1	251.8	6.29	41.052				
2,500.0	2,497.9	2,414.5	2,397.9	4.7	2.7	-10.04	-230.7	-282.4	280.8	274.3	6.55	42.882				
2,600.0	2,597.8	2,507.7	2,486.7	4.8	2.9	-8.09	-240.2	-309.2	305.1	298.3	6.81	44.793				
2,700.0	2,697.7	2,601.5	2,575.8	5.0	3.1	-6.26	-249.5	-337.2	330.5	323.5	7.07	46.733				
2,800.0	2,797.6	2,695.7	2,664.9	5.2	3.4	-4.51	-258.5	-366.4	356.9	349.6	7.34	48.657				
2,900.0	2,897.5	2,791.3	2,755.1	5.4	3.6	-2.89	-267.2	-396.6	383.9	376.3	7.60	50.527				
3,000.0	2,997.4	2,884.9	2,843.5	5.6	3.9	-1.53	-276.1	-426.2	411.3	403.5	7.86	52.358				
3,100.0	3,097.3	2,979.7	2,932.9	5.8	4.2	-0.41	-285.8	-456.2	439.3	431.2	8.11	54.142				
3,200.0	3,197.2	3,075.6	3,023.3	6.0	4.4	0.49	-296.3	-486.2	467.6	459.2	8.37	55.835				
3,300.0	3,297.1	3,170.0	3,112.5	6.2	4.7	1.23	-307.0	-515.6	495.9	487.3	8.63	57.448				

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 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-167.28	-180.3	-40.7	184.8						
100.0	100.0	102.4	102.4	0.1	0.1	-167.29	-180.5	-40.7	185.0	184.7	0.28	661.920			
200.0	200.0	203.3	203.3	0.3	0.3	-167.28	-180.7	-40.8	185.2	184.6	0.63	295.346			
300.0	300.0	305.7	305.7	0.5	0.5	-167.21	-180.0	-40.9	184.6	183.6	0.98	188.330			
400.0	400.0	413.0	412.9	0.7	0.7	-45.59	-175.9	-41.8	179.2	177.9	1.35	133.235			
500.0	499.9	517.8	517.3	0.8	0.9	-44.89	-167.2	-45.4	168.8	167.1	1.72	98.216			
600.0	599.8	617.7	616.4	1.0	1.2	-42.92	-156.7	-51.6	157.0	154.9	2.11	74.255			
700.0	699.7	714.2	711.8	1.2	1.4	-39.18	-145.7	-61.4	145.7	143.1	2.56	56.838			
800.0	799.6	806.3	802.2	1.4	1.7	-33.14	-136.3	-76.3	138.8	135.7	3.08	45.062			
842.7	842.3	845.0	839.9	1.5	1.9	-30.04	-133.3	-84.1	138.0	134.7	3.31	41.704 CC, ES			
900.0	899.5	897.6	891.1	1.6	2.1	-25.61	-130.0	-95.8	139.2	135.6	3.63	38.310			
1,000.0	999.4	989.6	980.1	1.8	2.5	-17.84	-126.1	-118.8	146.9	142.7	4.18	35.111			
1,100.0	1,099.3	1,082.2	1,068.8	2.0	3.0	-10.28	-123.2	-145.3	160.8	156.1	4.70	34.197 SF			
1,200.0	1,199.2	1,172.9	1,154.5	2.2	3.5	-3.22	-119.6	-174.7	180.0	174.8	5.18	34.766			
1,300.0	1,299.1	1,261.9	1,237.2	2.4	4.1	3.25	-115.1	-207.3	205.1	199.5	5.59	36.665			
1,400.0	1,399.0	1,352.3	1,320.4	2.6	4.8	8.75	-110.1	-242.4	234.3	228.4	5.95	39.379			
1,500.0	1,498.9	1,444.3	1,404.7	2.7	5.4	13.12	-105.3	-278.7	265.9	259.7	6.27	42.400			
1,600.0	1,598.8	1,536.3	1,489.0	2.9	6.1	16.55	-100.7	-315.2	299.0	292.4	6.57	45.485			
1,700.0	1,698.7	1,626.6	1,571.6	3.1	6.8	19.27	-96.3	-351.6	333.5	326.6	6.86	48.608			
1,800.0	1,798.6	1,717.8	1,654.8	3.3	7.5	21.44	-92.4	-388.7	369.0	361.8	7.14	51.665			
1,900.0	1,898.5	1,806.5	1,735.5	3.5	8.2	23.17	-88.9	-425.2	405.6	398.1	7.42	54.652			
2,000.0	1,998.4	1,897.1	1,817.7	3.7	8.9	24.63	-85.5	-463.3	443.2	435.5	7.70	57.552			
2,100.0	2,098.3	1,998.1	1,909.7	3.9	9.7	26.01	-81.6	-504.8	480.0	472.0	8.00	60.004			

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 31-14DD
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 31-14DD	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	-161.49	-196.7	-65.8	207.4						
100.0	100.0	102.5	102.5	0.1	0.1	-161.46	-196.8	-66.0	207.6	207.3	0.28	742.329			
200.0	200.0	202.0	202.0	0.3	0.3	-161.45	-197.2	-66.2	208.0	207.4	0.63	332.797			
300.0	300.0	301.2	301.2	0.5	0.5	-160.75	-197.1	-68.8	208.8	207.8	0.98	213.989			
400.0	400.0	399.8	399.5	0.7	0.7	-37.64	-196.0	-75.4	208.0	206.6	1.35	154.482			
459.8	459.7	455.9	455.3	0.8	0.8	-36.49	-195.2	-81.2	207.3	205.7	1.58	131.342	CC, ES		
500.0	499.9	494.0	493.1	0.8	0.9	-35.54	-195.0	-85.9	207.6	205.8	1.75	118.891			
600.0	599.8	590.3	588.3	1.0	1.2	-32.51	-194.5	-100.4	209.6	207.5	2.19	95.572			
700.0	699.7	685.7	682.1	1.2	1.6	-28.73	-193.8	-118.2	214.0	211.3	2.67	79.998			
800.0	799.6	779.0	772.9	1.4	2.0	-24.41	-193.3	-139.2	221.5	218.3	3.17	69.807			
900.0	899.5	871.1	861.7	1.6	2.4	-19.73	-192.7	-163.5	232.8	229.1	3.68	63.327			
1,000.0	999.4	961.1	947.6	1.8	2.9	-15.01	-192.2	-190.4	248.3	244.1	4.17	59.500			
1,100.0	1,099.3	1,048.6	1,029.6	2.0	3.5	-10.12	-190.8	-221.0	268.8	264.2	4.66	57.740			
1,200.0	1,199.2	1,142.1	1,116.3	2.2	4.2	-5.21	-188.7	-256.0	292.9	287.8	5.10	57.429	SF		
1,300.0	1,299.1	1,236.6	1,204.0	2.4	4.8	-1.10	-186.9	-291.0	318.7	313.2	5.50	57.933			
1,400.0	1,399.0	1,330.9	1,291.6	2.6	5.5	2.42	-185.1	-325.8	345.8	339.9	5.88	58.772			
1,500.0	1,498.9	1,430.7	1,384.6	2.7	6.2	5.64	-182.5	-362.2	373.2	366.9	6.24	59.789			
1,600.0	1,598.8	1,519.8	1,467.6	2.9	6.8	8.07	-180.6	-394.4	401.5	394.9	6.57	61.149			
1,700.0	1,698.7	1,617.3	1,558.4	3.1	7.4	10.38	-178.7	-429.8	430.5	423.6	6.89	62.481			
1,800.0	1,798.6	1,703.4	1,638.4	3.3	8.0	12.08	-177.8	-461.4	460.8	453.6	7.18	64.143			
1,900.0	1,898.5	1,797.6	1,725.9	3.5	8.7	13.67	-177.5	-496.7	492.3	484.8	7.49	65.707			

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 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-156.96	-212.0	-90.1	230.4						
100.0	100.0	102.3	102.3	0.1	0.1	-156.95	-212.1	-90.3	230.5	230.2	0.28	825.110	ES		
200.0	200.0	200.4	200.4	0.3	0.3	-156.82	-212.6	-91.0	231.3	230.6	0.62	371.310			
300.0	300.0	295.0	295.0	0.5	0.5	-156.58	-213.5	-92.5	232.8	231.8	0.97	241.221			
400.0	400.0	390.5	390.4	0.7	0.7	-34.73	-216.2	-95.5	234.6	233.3	1.31	179.439			
500.0	499.9	489.2	488.9	0.8	0.9	-34.79	-220.5	-99.8	236.7	235.0	1.66	142.466			
600.0	599.8	591.0	590.6	1.0	1.1	-34.83	-224.6	-104.2	238.4	236.4	2.02	117.927			
700.0	699.7	690.7	690.0	1.2	1.3	-34.89	-228.5	-108.4	240.0	237.6	2.38	100.856			
800.0	799.6	790.7	789.9	1.4	1.5	-34.78	-232.1	-113.2	241.6	238.9	2.74	88.160			
900.0	899.5	890.5	889.5	1.6	1.7	-34.66	-235.7	-118.1	243.2	240.1	3.10	78.453			
1,000.0	999.4	991.4	990.2	1.8	1.9	-34.55	-239.4	-123.0	244.8	241.4	3.46	70.704			
1,100.0	1,099.3	1,091.5	1,090.1	2.0	2.1	-34.37	-242.5	-128.0	246.1	242.3	3.83	64.338			
1,200.0	1,199.2	1,191.7	1,190.2	2.2	2.3	-34.17	-245.7	-133.1	247.4	243.2	4.19	59.095			
1,300.0	1,299.1	1,293.8	1,292.1	2.4	2.5	-34.13	-248.8	-137.5	248.2	243.7	4.55	54.572			
1,400.0	1,399.0	1,394.9	1,393.1	2.6	2.7	-34.22	-251.3	-140.9	248.2	243.2	4.91	50.518			
1,500.0	1,498.9	1,495.3	1,493.3	2.7	2.9	-33.93	-253.0	-145.8	248.0	242.8	5.28	47.016			
1,540.1	1,538.9	1,534.7	1,532.8	2.8	2.9	-33.82	-253.7	-147.7	247.9	242.5	5.42	45.742			
1,600.0	1,598.8	1,590.9	1,588.8	2.9	3.1	-33.62	-255.0	-150.8	248.4	242.7	5.63	44.096			
1,700.0	1,698.7	1,689.6	1,687.3	3.1	3.3	-33.16	-258.3	-157.2	250.4	244.4	5.99	41.778			
1,800.0	1,798.6	1,790.3	1,787.7	3.3	3.5	-32.82	-261.7	-163.2	252.3	245.9	6.36	39.687			
1,900.0	1,898.5	1,891.0	1,888.2	3.5	3.7	-32.57	-265.0	-168.6	253.9	247.2	6.72	37.790			
2,000.0	1,998.4	1,991.0	1,988.1	3.7	3.9	-32.40	-268.4	-173.7	255.3	248.3	7.08	36.075			
2,100.0	2,098.3	2,091.6	2,088.4	3.9	4.1	-32.29	-271.7	-178.6	256.7	249.3	7.44	34.511			
2,200.0	2,198.2	2,192.2	2,188.9	4.1	4.3	-32.26	-275.0	-183.0	257.8	250.0	7.80	33.066			
2,300.0	2,298.1	2,290.9	2,287.5	4.3	4.5	-32.29	-278.3	-187.1	258.8	250.7	8.15	31.741			
2,400.0	2,398.0	2,388.5	2,384.9	4.5	4.7	-32.16	-282.2	-192.2	261.0	252.5	8.51	30.667			
2,500.0	2,497.9	2,488.7	2,484.9	4.7	4.9	-32.04	-286.5	-197.5	263.4	254.5	8.87	29.693			
2,600.0	2,597.8	2,589.9	2,585.9	4.8	5.1	-32.06	-290.8	-202.2	265.5	256.3	9.23	28.768			
2,700.0	2,697.7	2,690.9	2,686.7	5.0	5.3	-32.17	-294.9	-206.3	267.1	257.5	9.59	27.858			
2,800.0	2,797.6	2,791.6	2,787.3	5.2	5.5	-32.38	-298.8	-209.9	268.4	258.5	9.95	26.989			
2,900.0	2,897.5	2,889.8	2,885.3	5.4	5.7	-32.58	-302.9	-213.3	269.9	259.6	10.30	26.201			
3,000.0	2,997.4	2,990.6	2,986.0	5.6	5.9	-32.79	-307.2	-217.0	271.7	261.0	10.66	25.482			
3,100.0	3,097.3	3,090.5	3,085.6	5.8	6.1	-32.92	-311.4	-220.9	273.3	262.3	11.02	24.800			
3,200.0	3,197.2	3,192.3	3,187.3	6.0	6.3	-32.98	-314.9	-225.1	274.5	263.1	11.39	24.112			
3,300.0	3,297.1	3,291.8	3,286.6	6.2	6.5	-32.77	-317.9	-230.2	275.6	263.9	11.75	23.467			
3,400.0	3,397.0	3,393.3	3,387.9	6.4	6.7	-32.49	-320.5	-235.7	276.6	264.5	12.11	22.848			
3,500.0	3,496.9	3,492.4	3,486.9	6.6	6.9	-32.26	-322.7	-240.6	277.0	264.6	12.47	22.224			
3,600.0	3,596.8	3,588.0	3,582.3	6.8	7.1	-31.88	-325.7	-246.6	278.8	266.0	12.82	21.750			
3,700.0	3,696.7	3,686.7	3,680.6	6.9	7.3	-31.50	-329.8	-253.3	281.7	268.6	13.17	21.389			
3,800.0	3,796.6	3,787.5	3,781.1	7.1	7.5	-31.20	-334.0	-259.7	284.6	271.0	13.53	21.031			
3,900.0	3,896.5	3,888.1	3,881.5	7.3	7.8	-30.96	-338.1	-265.8	287.1	273.2	13.89	20.672			
4,000.0	3,996.4	3,988.7	3,981.8	7.5	8.0	-30.82	-342.2	-271.3	289.5	275.2	14.25	20.319			
4,100.0	4,096.3	4,089.9	4,082.9	7.7	8.2	-30.87	-346.5	-275.9	291.5	276.9	14.61	19.958			
4,200.0	4,196.2	4,191.6	4,184.4	7.9	8.4	-31.00	-350.6	-279.8	293.1	278.1	14.97	19.581			
4,300.0	4,296.1	4,294.8	4,287.4	8.1	8.6	-31.07	-353.8	-283.7	293.7	278.4	15.33	19.158			
4,387.3	4,383.3	4,382.6	4,375.2	8.3	8.7	-31.15	-355.9	-286.6	293.6	278.0	15.65	18.767			
4,400.0	4,396.0	4,394.7	4,387.3	8.3	8.8	-31.17	-356.3	-287.0	293.6	277.9	15.69	18.715			
4,500.0	4,495.9	4,492.4	4,484.9	8.5	8.9	-31.25	-359.4	-290.7	294.4	278.4	16.05	18.350			
4,600.0	4,595.8	4,590.3	4,582.7	8.7	9.1	-31.29	-362.8	-294.7	295.5	279.1	16.40	18.016			
4,700.0	4,695.7	4,689.3	4,681.4	8.9	9.3	-31.25	-366.9	-299.6	297.6	280.9	16.76	17.762			
4,800.0	4,795.6	4,791.3	4,783.3	9.0	9.6	-31.29	-370.8	-304.0	299.3	282.2	17.12	17.483			
4,900.0	4,895.5	4,894.8	4,886.6	9.2	9.7	-31.46	-374.4	-307.5	300.1	282.6	17.48	17.165			

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 31-14DD
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 31-14DD	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)					
5,000.0	4,995.4	4,991.7	4,983.4	9.4	9.9	-31.62	-377.5	-310.7	300.6	282.8	17.84	16.850			
5,100.0	5,095.3	5,094.8	5,086.4	9.6	10.1	-31.63	-380.7	-314.9	301.4	283.2	18.20	16.558			
5,200.0	5,195.2	5,193.8	5,185.3	9.8	10.3	-31.69	-383.4	-318.5	301.8	283.2	18.56	16.259			
5,300.0	5,295.1	5,294.4	5,285.8	10.0	10.5	-31.77	-386.2	-322.0	301.9	283.0	18.92	15.958			
5,400.0	5,395.0	5,389.8	5,381.0	10.2	10.7	-31.82	-389.6	-326.0	303.3	284.0	19.27	15.737			
5,500.0	5,494.9	5,493.2	5,484.3	10.4	10.9	-31.96	-393.6	-329.8	304.5	284.9	19.63	15.510			
5,600.0	5,594.8	5,593.4	5,584.4	10.6	11.1	-32.29	-397.0	-332.2	304.9	284.9	20.00	15.246			
5,700.0	5,694.7	5,693.7	5,684.6	10.8	11.3	-32.44	-400.6	-335.6	305.8	285.5	20.36	15.021			
5,800.0	5,794.6	5,792.4	5,783.1	11.0	11.5	-32.57	-403.5	-338.9	306.2	285.4	20.72	14.776			
5,900.0	5,894.5	5,891.1	5,881.8	11.1	11.7	-32.46	-406.8	-343.8	307.6	286.5	21.08	14.594			
6,000.0	5,994.4	5,994.2	5,984.7	11.3	11.9	-32.40	-409.9	-348.4	308.5	287.1	21.44	14.392			
6,100.0	6,094.3	6,098.0	6,088.4	11.5	12.1	-32.48	-412.3	-351.8	308.3	286.5	21.80	14.139			
6,193.8	6,188.0	6,189.1	6,179.5	11.7	12.2	-32.56	-414.3	-354.7	307.9	285.7	22.14	13.906			
6,200.0	6,194.2	6,195.2	6,185.5	11.7	12.3	-32.56	-414.4	-354.9	307.9	285.7	22.16	13.893			
6,300.0	6,294.1	6,291.7	6,281.9	11.9	12.5	-32.57	-417.3	-358.8	308.6	286.0	22.51	13.706			
6,400.0	6,394.0	6,394.4	6,384.5	12.1	12.6	-32.65	-420.6	-362.7	309.3	286.4	22.88	13.520			
6,500.0	6,493.9	6,497.0	6,487.0	12.3	12.8	-32.76	-423.2	-365.8	309.5	286.3	23.24	13.319			
6,600.0	6,593.9	6,600.2	6,590.1	12.4	13.0	-154.45	-425.3	-367.9	311.3	287.7	23.57	13.204			
6,700.0	6,693.9	6,703.6	6,693.5	12.6	13.2	-154.32	-426.5	-369.3	312.9	289.0	23.92	13.082			
6,800.0	6,793.9	6,807.5	6,797.4	12.8	13.3	-154.24	-426.8	-369.9	313.4	289.1	24.26	12.917			
6,900.0	6,893.9	6,910.8	6,900.7	12.9	13.5	-154.28	-426.3	-369.4	312.7	288.1	24.61	12.706			
7,000.0	6,993.9	7,011.9	7,001.8	13.1	13.6	-154.38	-425.2	-368.3	311.2	286.3	24.95	12.474			
7,100.0	7,093.9	7,113.7	7,103.6	13.3	13.8	-154.57	-423.9	-366.5	309.3	284.0	25.30	12.228			
7,200.0	7,193.9	7,209.9	7,199.7	13.4	13.9	-154.69	-422.9	-365.3	307.9	282.2	25.64	12.010			
7,300.0	7,293.9	7,310.5	7,300.4	13.6	14.1	-154.72	-421.9	-364.7	306.7	280.7	25.98	11.806			
7,400.0	7,393.9	7,407.8	7,397.6	13.7	14.2	-154.75	-421.6	-364.4	306.2	279.9	26.32	11.637			
7,500.0	7,493.9	7,509.3	7,499.2	13.9	14.4	-154.87	-421.3	-363.5	305.7	279.0	26.66	11.465			
7,600.0	7,593.9	7,609.0	7,598.8	14.1	14.5	-155.10	-421.2	-362.1	304.9	277.9	27.01	11.291			
7,700.0	7,693.9	7,710.0	7,699.8	14.2	14.7	-155.09	-420.6	-361.9	304.3	277.0	27.35	11.126			
7,800.0	7,793.9	7,808.8	7,798.6	14.4	14.8	-155.20	-419.9	-360.9	303.3	275.6	27.69	10.953			
7,900.0	7,893.9	7,907.5	7,897.4	14.6	15.0	-155.50	-420.4	-359.4	303.1	275.1	28.03	10.812			
7,938.2	7,932.1	7,945.3	7,935.1	14.6	15.0	-155.68	-420.7	-358.5	303.0	274.9	28.17	10.759			
8,000.0	7,993.9	8,004.9	7,994.6	14.7	15.1	-155.83	-421.3	-357.9	303.3	274.9	28.38	10.686			
8,100.0	8,093.9	8,108.2	8,098.0	14.9	15.3	-155.81	-421.7	-358.2	303.7	275.0	28.73	10.573			
8,200.0	8,193.9	8,210.3	8,200.1	15.1	15.5	-155.82	-421.0	-357.8	303.0	273.9	29.07	10.421			
8,300.0	8,293.9	8,308.7	8,298.5	15.2	15.6	-155.82	-420.3	-357.5	302.2	272.8	29.41	10.274			
8,400.0	8,393.9	8,408.9	8,398.7	15.4	15.8	-155.85	-419.9	-357.1	301.7	272.0	29.76	10.139			
8,500.0	8,493.9	8,510.2	8,500.0	15.6	15.9	-155.95	-419.3	-356.3	300.8	270.7	30.10	9.993			
8,513.4	8,507.3	8,523.6	8,513.4	15.6	16.0	-155.97	-419.2	-356.1	300.7	270.5	30.15	9.973 SF			
8,600.0	8,593.9	8,530.0	8,519.8	15.7	16.0	-155.98	-419.2	-356.1	310.3	280.0	30.31	10.239			
8,700.0	8,693.9	8,530.0	8,519.8	15.9	16.0	-155.98	-419.2	-356.1	348.9	318.4	30.48	11.446			
8,800.0	8,793.9	8,530.0	8,519.8	16.1	16.0	-155.98	-419.2	-356.1	408.9	378.2	30.65	13.338			
8,900.0	8,893.9	8,530.0	8,519.8	16.2	16.0	-155.98	-419.2	-356.1	482.3	451.5	30.83	15.645			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	-157.76	-223.3	-91.3	241.2						
100.0	100.0	97.4	97.4	0.1	0.1	-157.74	-223.7	-91.6	241.7	241.5	0.27	884.329			
200.0	200.0	189.5	189.5	0.3	0.3	-157.63	-225.6	-92.9	244.2	243.6	0.61	400.624			
300.0	300.0	278.4	278.2	0.5	0.5	-157.27	-230.2	-96.5	250.6	249.6	0.96	259.712			
400.0	400.0	368.8	367.9	0.7	0.7	-35.11	-238.3	-102.7	259.4	258.1	1.27	203.567			
500.0	499.9	461.2	459.5	0.8	1.0	-35.00	-248.7	-110.3	269.3	267.7	1.62	166.252			
600.0	599.8	554.8	551.8	1.0	1.3	-34.79	-261.4	-119.4	282.0	280.0	1.97	143.236			
700.0	699.7	655.8	651.2	1.2	1.6	-34.66	-275.9	-129.2	295.5	293.1	2.33	126.699			
800.0	799.6	759.7	753.8	1.4	2.0	-34.43	-289.2	-139.2	307.4	304.7	2.70	113.811			
900.0	899.5	860.3	853.2	1.6	2.3	-34.30	-301.3	-148.0	318.3	315.3	3.06	103.966			
1,000.0	999.4	961.2	953.1	1.8	2.6	-34.20	-313.3	-156.7	329.0	325.6	3.43	96.049			
1,100.0	1,099.3	1,060.4	1,051.3	2.0	2.9	-34.08	-324.7	-165.3	339.4	335.7	3.78	89.701			
1,200.0	1,199.2	1,160.0	1,149.7	2.2	3.2	-33.94	-336.2	-174.1	349.9	345.8	4.15	84.386			
1,300.0	1,299.1	1,258.7	1,247.4	2.4	3.5	-33.74	-347.5	-183.3	360.5	356.0	4.51	80.008			
1,400.0	1,399.0	1,358.4	1,346.1	2.6	3.8	-33.66	-359.2	-191.9	371.1	366.3	4.86	76.305			
1,500.0	1,498.9	1,458.9	1,445.5	2.7	4.1	-33.58	-370.8	-200.5	381.5	376.3	5.23	73.005			
1,600.0	1,598.8	1,558.3	1,543.9	2.9	4.4	-33.47	-382.2	-209.2	391.9	386.3	5.59	70.159			
1,700.0	1,698.7	1,658.1	1,642.6	3.1	4.7	-33.38	-393.6	-217.8	402.1	396.2	5.94	67.643			
1,800.0	1,798.6	1,757.9	1,741.4	3.3	5.0	-33.30	-404.9	-226.4	412.4	406.1	6.30	65.411			
1,900.0	1,898.5	1,857.4	1,839.9	3.5	5.3	-33.26	-416.2	-234.6	422.5	415.8	6.66	63.424			
2,000.0	1,998.4	1,956.2	1,937.8	3.7	5.6	-33.26	-427.7	-242.6	432.7	425.7	7.02	61.655			
2,100.0	2,098.3	2,056.1	2,036.6	3.9	5.9	-33.26	-439.3	-250.7	443.0	435.7	7.38	60.053			
2,200.0	2,198.2	2,156.7	2,136.2	4.1	6.2	-33.25	-450.9	-258.9	453.1	445.4	7.74	58.559			
2,300.0	2,298.1	2,254.6	2,233.1	4.3	6.5	-33.22	-462.0	-266.9	463.3	455.2	8.09	57.240			
2,400.0	2,398.0	2,356.1	2,333.7	4.5	6.8	-33.19	-473.6	-275.3	473.4	464.9	8.46	55.982			
2,500.0	2,497.9	2,457.7	2,434.2	4.7	7.1	-33.11	-484.5	-283.9	483.0	474.2	8.82	54.769			
2,600.0	2,597.8	2,556.7	2,532.3	4.8	7.4	-33.03	-495.1	-292.2	492.5	483.4	9.18	53.679 SF			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 111-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	3.0	3.0	0.0	0.0	-159.21	-204.7	-77.7	219.0					
100.0	100.0	102.4	102.4	0.1	0.1	-159.19	-204.8	-77.8	219.1	218.8	0.28	784.021		
200.0	200.0	202.0	202.0	0.3	0.3	-159.20	-205.1	-77.9	219.4	218.8	0.62	351.087 ES		
300.0	300.0	297.4	297.3	0.5	0.5	-159.14	-206.1	-78.6	220.7	219.7	0.97	228.189		
400.0	400.0	389.2	389.1	0.7	0.7	-37.42	-209.4	-81.1	222.9	221.6	1.30	171.136		
500.0	499.9	479.0	478.5	0.8	0.8	-37.64	-216.1	-85.3	228.0	226.4	1.64	139.079		
600.0	599.8	570.1	568.9	1.0	1.1	-37.87	-226.4	-90.8	237.3	235.3	1.98	119.850		
700.0	699.7	662.0	659.6	1.2	1.4	-38.16	-239.6	-97.0	249.6	247.3	2.32	107.549		
800.0	799.6	758.8	754.8	1.4	1.7	-38.64	-255.6	-103.3	263.9	261.2	2.67	98.803		
900.0	899.5	855.9	850.3	1.6	2.0	-39.06	-272.2	-109.9	278.9	275.9	3.02	92.260		
1,000.0	999.4	954.7	947.3	1.8	2.4	-39.32	-289.2	-117.3	294.2	290.8	3.38	87.066		
1,100.0	1,099.3	1,053.0	1,043.9	2.0	2.7	-39.54	-306.2	-124.8	309.6	305.9	3.73	82.922		
1,200.0	1,199.2	1,150.7	1,139.8	2.2	3.1	-39.83	-323.4	-131.8	325.3	321.2	4.09	79.564		
1,300.0	1,299.1	1,248.9	1,236.1	2.4	3.4	-40.09	-341.0	-139.0	341.2	336.8	4.44	76.784		
1,400.0	1,399.0	1,354.0	1,339.5	2.6	3.8	-40.47	-359.1	-145.6	356.2	351.4	4.81	74.036		
1,500.0	1,498.9	1,452.9	1,436.8	2.7	4.2	-40.71	-375.3	-152.1	370.4	365.2	5.17	71.658		
1,600.0	1,598.8	1,553.5	1,535.9	2.9	4.5	-40.94	-391.6	-158.7	384.6	379.0	5.53	69.544		
1,700.0	1,698.7	1,652.6	1,633.5	3.1	4.8	-41.17	-407.2	-164.9	398.0	392.1	5.89	67.583		
1,800.0	1,798.6	1,747.5	1,726.9	3.3	5.2	-41.21	-422.6	-172.2	412.5	406.3	6.24	66.085		
1,900.0	1,898.5	1,846.5	1,824.2	3.5	5.5	-41.28	-439.1	-179.7	427.4	420.8	6.60	64.749		
2,000.0	1,998.4	1,945.2	1,921.3	3.7	5.9	-41.45	-455.7	-186.4	442.1	435.2	6.96	63.538		
2,100.0	2,098.3	2,044.9	2,019.4	3.9	6.3	-41.64	-472.5	-193.0	456.9	449.6	7.32	62.413		
2,200.0	2,198.2	2,144.6	2,117.4	4.1	6.6	-41.68	-488.8	-200.5	471.5	463.8	7.68	61.376		
2,300.0	2,298.1	2,240.1	2,211.3	4.3	7.0	-41.72	-504.6	-207.8	486.2	478.2	8.04	60.497 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 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-159.85	-215.6	-79.1	229.7						
100.0	100.0	102.2	102.2	0.1	0.1	-159.89	-215.9	-79.0	229.9	229.6	0.28	823.404	ES		
200.0	200.0	200.1	200.1	0.3	0.3	-160.03	-216.8	-78.8	230.7	230.1	0.62	371.058			
300.0	300.0	291.6	291.6	0.5	0.5	-160.11	-219.5	-79.4	233.7	232.7	0.96	243.633			
400.0	400.0	382.1	381.9	0.7	0.7	-38.60	-225.3	-81.7	238.5	237.2	1.29	184.888			
500.0	499.9	471.6	470.8	0.8	0.9	-39.12	-234.4	-85.2	246.0	244.4	1.63	151.396			
600.0	599.8	563.3	561.5	1.0	1.2	-39.56	-246.8	-90.1	257.2	255.2	1.97	130.895			
700.0	699.7	650.0	646.7	1.2	1.5	-39.82	-261.4	-96.3	272.1	269.8	2.30	118.404			
800.0	799.6	743.1	737.6	1.4	1.8	-39.95	-280.0	-104.6	290.4	287.8	2.64	109.890			
900.0	899.5	843.2	835.1	1.6	2.2	-40.11	-300.4	-113.4	309.3	306.3	3.00	103.106			
1,000.0	999.4	941.3	930.9	1.8	2.6	-40.42	-320.4	-121.0	327.7	324.4	3.35	97.738			
1,100.0	1,099.3	1,038.4	1,025.6	2.0	3.1	-40.79	-340.5	-128.1	346.3	342.6	3.71	93.462			
1,200.0	1,199.2	1,133.9	1,118.7	2.2	3.5	-41.16	-360.9	-134.9	365.5	361.4	4.05	90.145			
1,300.0	1,299.1	1,231.3	1,213.5	2.4	3.9	-41.54	-382.2	-141.7	385.2	380.8	4.41	87.395			
1,400.0	1,399.0	1,328.0	1,307.6	2.6	4.3	-41.87	-403.5	-148.6	405.1	400.3	4.76	85.095			
1,500.0	1,498.9	1,427.9	1,404.7	2.7	4.7	-42.24	-425.5	-155.4	425.0	419.9	5.12	83.040			
1,600.0	1,598.8	1,530.5	1,504.8	2.9	5.2	-42.52	-447.3	-162.5	444.1	438.7	5.48	80.988			
1,700.0	1,698.7	1,629.5	1,601.5	3.1	5.6	-42.64	-467.3	-170.2	462.4	456.6	5.84	79.149			
1,800.0	1,798.6	1,716.2	1,685.8	3.3	6.0	-42.77	-486.1	-177.0	482.2	476.0	6.18	78.040	SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-162.05	-207.6	-67.3	218.2						
100.0	100.0	103.2	103.2	0.1	0.1	-162.01	-207.5	-67.4	218.2	217.9	0.28	777.935			
200.0	200.0	203.4	203.4	0.3	0.3	-161.88	-207.2	-67.8	218.0	217.4	0.63	347.595			
300.0	300.0	304.1	304.1	0.5	0.5	-161.78	-206.7	-68.0	217.6	216.6	0.98	222.599			
400.0	400.0	401.8	401.8	0.7	0.7	-40.31	-206.5	-68.7	215.7	214.3	1.32	162.791			
500.0	499.9	496.3	496.2	0.8	0.8	-40.91	-207.9	-69.7	214.0	212.3	1.67	128.246			
510.0	509.8	505.7	505.7	0.9	0.8	-40.97	-208.2	-69.8	214.0	212.3	1.70	125.646	CC, ES		
600.0	599.8	588.2	588.1	1.0	1.0	-41.60	-212.0	-71.0	215.4	213.4	2.01	107.194			
700.0	699.7	679.4	678.9	1.2	1.2	-42.28	-219.7	-73.4	220.9	218.5	2.35	93.985			
800.0	799.6	769.0	767.7	1.4	1.4	-42.91	-230.7	-76.7	230.5	227.8	2.69	85.740			
900.0	899.5	857.0	854.4	1.6	1.7	-43.57	-245.5	-80.6	244.8	241.7	3.02	80.920			
1,000.0	999.4	945.0	940.3	1.8	2.0	-44.29	-264.1	-84.9	263.2	259.9	3.36	78.309			
1,100.0	1,099.3	1,029.0	1,021.5	2.0	2.4	-44.93	-285.1	-89.5	285.9	282.2	3.69	77.442	SF		
1,200.0	1,199.2	1,115.2	1,103.8	2.2	2.8	-45.47	-310.0	-95.2	312.5	308.5	4.03	77.626			
1,300.0	1,299.1	1,205.7	1,189.5	2.4	3.3	-45.89	-338.4	-102.0	341.8	337.5	4.37	78.265			
1,400.0	1,399.0	1,297.6	1,276.1	2.6	3.9	-46.26	-368.3	-109.0	372.3	367.6	4.71	79.010			
1,500.0	1,498.9	1,394.8	1,367.7	2.7	4.4	-46.61	-400.1	-116.4	403.0	398.0	5.07	79.551			
1,600.0	1,598.8	1,490.4	1,457.9	2.9	5.0	-46.96	-431.2	-123.2	433.4	427.9	5.42	80.002			
1,700.0	1,698.7	1,584.6	1,546.6	3.1	5.5	-47.38	-461.9	-129.1	463.8	458.0	5.77	80.446			
1,800.0	1,798.6	1,676.8	1,633.5	3.3	6.1	-47.80	-492.5	-134.3	494.6	488.5	6.11	80.939			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-164.56	-198.5	-54.8	206.0						
100.0	100.0	103.2	103.2	0.1	0.1	-164.54	-198.5	-54.9	205.9	205.6	0.28	734.039			
130.3	130.3	133.3	133.3	0.2	0.2	-164.54	-198.4	-54.9	205.9	205.5	0.38	537.227 CC, ES			
200.0	200.0	199.0	199.0	0.3	0.3	-164.69	-199.1	-54.5	206.5	205.8	0.62	333.140			
300.0	300.0	290.7	290.6	0.5	0.5	-165.42	-202.8	-52.8	209.9	209.0	0.96	219.739			
400.0	400.0	383.9	383.4	0.7	0.7	-45.37	-210.7	-49.6	215.6	214.3	1.31	164.311			
500.0	499.9	474.3	473.0	0.8	0.9	-47.61	-221.7	-46.0	223.7	222.0	1.67	134.027			
600.0	599.8	565.5	563.1	1.0	1.2	-49.64	-236.1	-43.4	235.9	233.9	2.02	116.800			
700.0	699.7	652.4	648.3	1.2	1.5	-51.05	-253.0	-42.7	252.3	249.9	2.35	107.200			
800.0	799.6	738.2	731.6	1.4	1.9	-51.91	-273.4	-44.2	273.4	270.7	2.68	102.143			
900.0	899.5	821.8	811.8	1.6	2.4	-52.30	-296.7	-47.6	298.9	295.9	3.00	99.799			
1,000.0	999.4	905.5	891.1	1.8	2.9	-52.50	-323.3	-52.1	328.6	325.2	3.32	98.988			
1,100.0	1,099.3	996.5	976.4	2.0	3.4	-52.67	-354.7	-57.3	360.8	357.2	3.65	98.764			
1,200.0	1,199.2	1,090.6	1,064.5	2.2	4.0	-52.90	-387.2	-62.1	393.2	389.2	4.00	98.409			
1,300.0	1,299.1	1,180.4	1,148.4	2.4	4.6	-53.13	-418.8	-66.5	426.2	421.9	4.33	98.365 SF			
1,400.0	1,399.0	1,269.4	1,231.2	2.6	5.2	-53.35	-451.2	-70.7	460.3	455.7	4.67	98.588			
1,500.0	1,498.9	1,358.6	1,313.8	2.7	5.8	-53.50	-484.4	-75.3	495.5	490.5	5.01	98.965			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-164.32	-188.3	-52.8	195.6						
100.0	100.0	103.3	103.3	0.1	0.1	-164.37	-188.3	-52.7	195.5	195.2	0.28	696.412			
152.9	152.9	155.9	155.9	0.2	0.2	-164.39	-188.3	-52.6	195.5	195.0	0.46	422.861 CC			
200.0	200.0	201.1	201.1	0.3	0.3	-164.38	-188.4	-52.7	195.6	195.0	0.62	313.849 ES			
300.0	300.0	293.2	293.2	0.5	0.5	-164.27	-191.0	-53.8	198.7	197.7	0.96	206.558			
400.0	400.0	383.3	383.0	0.7	0.7	-42.94	-197.6	-55.4	204.3	203.0	1.29	158.070			
500.0	499.9	472.4	471.4	0.8	0.9	-43.74	-208.1	-58.0	213.3	211.7	1.63	131.070			
600.0	599.8	561.2	558.9	1.0	1.2	-44.57	-223.0	-61.3	227.3	225.4	1.96	115.778			
700.0	699.7	647.8	643.5	1.2	1.5	-45.45	-241.5	-64.7	245.9	243.6	2.30	107.069			
800.0	799.6	734.1	726.7	1.4	1.9	-46.12	-263.6	-69.3	269.1	266.5	2.63	102.343			
900.0	899.5	820.6	809.2	1.6	2.4	-46.60	-288.9	-75.0	296.1	293.1	2.96	99.915			
1,000.0	999.4	906.3	890.1	1.8	2.9	-46.81	-316.2	-82.2	326.2	322.9	3.30	98.959 SF			
1,100.0	1,099.3	989.4	967.6	2.0	3.5	-46.97	-345.2	-89.7	359.3	355.6	3.62	99.107			
1,200.0	1,199.2	1,067.9	1,039.8	2.2	4.0	-47.09	-375.0	-97.3	395.6	391.7	3.95	100.282			
1,300.0	1,299.1	1,144.6	1,109.1	2.4	4.6	-47.26	-407.1	-104.8	435.8	431.5	4.26	102.255			
1,400.0	1,399.0	1,236.1	1,191.1	2.6	5.3	-47.52	-446.8	-113.3	477.5	472.9	4.60	103.700			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	-167.34	-191.2	-43.0	196.0						
100.0	100.0	100.9	100.9	0.1	0.1	-167.35	-191.0	-42.9	195.8	195.5	0.28	693.461			
138.4	138.4	138.4	138.4	0.2	0.2	-167.36	-190.9	-42.8	195.6	195.2	0.41	475.180 CC, ES			
200.0	200.0	194.7	194.7	0.3	0.3	-167.54	-191.7	-42.4	196.4	195.8	0.62	318.135			
300.0	300.0	288.0	287.9	0.5	0.5	-168.37	-196.4	-40.4	200.8	199.9	0.96	209.974			
400.0	400.0	379.1	378.5	0.7	0.7	-48.20	-204.7	-37.6	207.5	206.2	1.31	158.679			
500.0	499.9	468.3	466.9	0.8	0.9	-50.30	-216.6	-34.7	217.3	215.7	1.66	131.134			
600.0	599.8	558.0	555.0	1.0	1.2	-52.60	-232.5	-30.7	231.8	229.8	2.01	115.201			
700.0	699.7	647.5	642.3	1.2	1.6	-54.69	-251.7	-26.7	250.3	248.0	2.38	105.157			
800.0	799.6	733.2	724.9	1.4	2.0	-57.28	-273.3	-19.1	273.0	270.3	2.74	99.464			
900.0	899.5	816.5	804.1	1.6	2.5	-59.73	-297.7	-10.2	300.4	297.3	3.10	96.897			
1,000.0	999.4	898.7	881.0	1.8	3.1	-61.92	-324.8	-0.5	332.1	328.7	3.45	96.392 SF			
1,100.0	1,099.3	980.6	956.7	2.0	3.6	-63.81	-354.4	9.7	367.6	363.8	3.78	97.273			
1,200.0	1,199.2	1,062.5	1,031.6	2.2	4.2	-65.31	-386.1	19.5	405.9	401.8	4.10	98.926			
1,300.0	1,299.1	1,145.0	1,106.2	2.4	4.9	-66.49	-420.0	29.1	446.7	442.2	4.42	100.970			
1,400.0	1,399.0	1,229.5	1,182.1	2.6	5.5	-67.45	-455.8	38.6	488.9	484.1	4.74	103.057			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.81	49.2	75.2	89.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.81	49.2	75.2	89.8	89.6	0.27	329.900			
200.0	200.0	200.0	200.0	0.3	0.3	56.81	49.2	75.2	89.8	89.2	0.62	144.563 CC, ES			
300.0	300.0	298.4	298.3	0.5	0.5	56.02	50.6	75.0	90.5	89.5	0.97	93.537			
400.0	400.0	395.7	395.4	0.7	0.7	174.56	56.8	74.4	96.3	94.9	1.33	72.164			
500.0	499.9	491.8	490.9	0.8	0.9	169.73	67.7	73.4	107.1	105.4	1.73	62.015			
600.0	599.8	586.4	584.3	1.0	1.2	164.14	83.1	71.9	121.9	119.7	2.14	56.879			
700.0	699.7	679.1	674.8	1.2	1.6	158.54	102.6	70.1	141.2	138.6	2.57	54.985 SF			
800.0	799.6	774.1	766.9	1.4	2.0	153.43	125.9	67.9	164.3	161.3	2.98	55.157			
900.0	899.5	870.4	860.2	1.6	2.5	149.49	149.7	65.6	188.5	185.1	3.38	55.821			
1,000.0	999.4	966.7	953.5	1.8	2.9	146.45	173.4	63.3	213.4	209.6	3.76	56.685			
1,100.0	1,099.3	1,063.0	1,046.8	2.0	3.3	144.05	197.1	61.1	238.7	234.5	4.14	57.602			
1,200.0	1,199.2	1,159.3	1,140.1	2.2	3.8	142.10	220.9	58.8	264.3	259.8	4.52	58.503			
1,300.0	1,299.1	1,255.6	1,233.4	2.4	4.2	140.50	244.6	56.5	290.2	285.3	4.89	59.359			
1,400.0	1,399.0	1,351.9	1,326.7	2.6	4.7	139.16	268.3	54.3	316.2	311.0	5.26	60.158			
1,500.0	1,498.9	1,448.2	1,420.0	2.7	5.1	138.02	292.1	52.0	342.4	336.8	5.62	60.896			
1,600.0	1,598.8	1,544.5	1,513.3	2.9	5.6	137.05	315.8	49.7	368.7	362.7	5.99	61.576			
1,700.0	1,698.7	1,640.8	1,606.6	3.1	6.0	136.20	339.5	47.5	395.1	388.8	6.35	62.201			
1,800.0	1,798.6	1,737.1	1,699.9	3.3	6.5	135.46	363.3	45.2	421.6	414.9	6.72	62.776			
1,900.0	1,898.5	1,833.4	1,793.2	3.5	6.9	134.81	387.0	43.0	448.1	441.0	7.08	63.306			
2,000.0	1,998.4	1,929.7	1,886.5	3.7	7.3	134.23	410.7	40.7	474.6	467.2	7.44	63.793			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.97	40.8	62.7	74.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.97	40.8	62.7	74.8	74.6	0.27	274.848			
200.0	200.0	200.0	200.0	0.3	0.3	56.97	40.8	62.7	74.8	74.2	0.62	120.439			
300.0	300.0	300.1	300.1	0.5	0.5	56.46	41.3	62.4	74.8	73.8	0.97	77.062			
302.3	302.3	302.4	302.4	0.5	0.5	178.16	41.4	62.3	74.8	73.8	0.98	76.370 CC, ES			
400.0	400.0	399.9	399.8	0.7	0.7	174.39	45.6	59.3	77.3	76.0	1.34	57.813			
500.0	499.9	499.0	498.3	0.8	0.9	167.51	53.9	53.3	82.7	80.9	1.75	47.240			
600.0	599.8	596.7	594.8	1.0	1.2	158.51	66.3	44.4	90.5	88.3	2.21	40.847			
700.0	699.7	692.7	688.7	1.2	1.6	148.71	82.3	32.9	102.4	99.7	2.71	37.774			
800.0	799.6	788.4	781.5	1.4	2.0	139.48	101.4	19.1	119.3	116.1	3.18	37.453 SF			
900.0	899.5	885.2	875.2	1.6	2.5	132.37	121.1	5.0	138.8	135.2	3.63	38.289			
1,000.0	999.4	982.0	968.9	1.8	2.9	127.05	140.8	-9.2	159.9	155.9	4.04	39.578			
1,100.0	1,099.3	1,078.7	1,062.5	2.0	3.3	122.97	160.5	-23.4	182.1	177.7	4.44	41.004			
1,200.0	1,199.2	1,175.5	1,156.2	2.2	3.8	119.78	180.3	-37.6	204.9	200.1	4.83	42.427			
1,300.0	1,299.1	1,272.3	1,249.9	2.4	4.3	117.23	200.0	-51.8	228.3	223.1	5.21	43.785			
1,400.0	1,399.0	1,369.1	1,343.6	2.6	4.7	115.15	219.7	-65.9	252.0	246.4	5.59	45.053			
1,500.0	1,498.9	1,465.9	1,437.3	2.7	5.2	113.43	239.4	-80.1	275.9	270.0	5.97	46.224			
1,600.0	1,598.8	1,562.6	1,531.0	2.9	5.6	111.98	259.1	-94.3	300.1	293.7	6.34	47.301			
1,700.0	1,698.7	1,659.4	1,624.7	3.1	6.1	110.75	278.8	-108.5	324.4	317.7	6.72	48.289			
1,800.0	1,798.6	1,756.2	1,718.3	3.3	6.5	109.69	298.6	-122.7	348.8	341.7	7.09	49.196			
1,900.0	1,898.5	1,853.0	1,812.0	3.5	7.0	108.77	318.3	-136.8	373.3	365.9	7.46	50.029			
2,000.0	1,998.4	1,949.8	1,905.7	3.7	7.5	107.96	338.0	-151.0	397.9	390.1	7.83	50.796			
2,100.0	2,098.3	2,046.6	1,999.4	3.9	7.9	107.24	357.7	-165.2	422.6	414.4	8.21	51.503			
2,200.0	2,198.2	2,143.3	2,093.1	4.1	8.4	106.61	377.4	-179.4	447.3	438.8	8.58	52.156			
2,300.0	2,298.1	2,240.1	2,186.8	4.3	8.8	106.04	397.1	-193.6	472.1	463.2	8.95	52.760			
2,400.0	2,398.0	2,336.9	2,280.5	4.5	9.3	105.53	416.9	-207.7	496.9	487.6	9.32	53.321			

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 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.76	32.8	50.0	59.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.76	32.8	50.0	59.8	59.5	0.27	219.650			
200.0	200.0	200.0	200.0	0.3	0.3	56.76	32.8	50.0	59.8	59.2	0.62	96.251			
300.0	300.0	300.8	300.7	0.5	0.5	54.28	34.5	48.0	59.1	58.2	0.98	60.579			
327.8	327.8	328.7	328.6	0.5	0.6	174.45	35.6	46.7	58.9	57.9	1.09	54.127 CC, ES			
400.0	400.0	401.0	400.6	0.7	0.7	168.86	39.7	42.0	60.3	59.0	1.38	43.856			
500.0	499.9	500.3	499.0	0.8	1.0	158.05	48.2	32.2	64.4	62.6	1.83	35.139			
600.0	599.8	598.1	595.2	1.0	1.4	145.05	59.9	18.8	72.0	69.6	2.34	30.708			
700.0	699.7	693.9	688.4	1.2	1.8	132.12	74.4	2.1	85.0	82.1	2.85	29.777 SF			
800.0	799.6	787.4	778.2	1.4	2.3	121.06	91.5	-17.7	104.4	101.1	3.32	31.426			
900.0	899.5	878.2	864.1	1.6	2.9	112.40	110.9	-40.0	130.3	126.5	3.75	34.779			
1,000.0	999.4	966.1	945.7	1.8	3.5	105.85	132.1	-64.5	161.9	157.8	4.13	39.191			
1,100.0	1,099.3	1,050.7	1,022.9	2.0	4.1	100.92	154.9	-90.7	198.7	194.3	4.49	44.285			
1,200.0	1,199.2	1,138.0	1,101.2	2.2	4.8	97.02	180.2	-119.9	239.5	234.7	4.83	49.565			
1,300.0	1,299.1	1,228.1	1,181.8	2.4	5.6	94.12	206.5	-150.2	281.3	276.1	5.18	54.325			
1,400.0	1,399.0	1,318.2	1,262.5	2.6	6.3	91.96	232.8	-180.4	323.5	318.0	5.52	58.575			
1,500.0	1,498.9	1,408.2	1,343.2	2.7	7.1	90.29	259.0	-210.7	366.0	360.1	5.87	62.372			
1,600.0	1,598.8	1,498.3	1,423.9	2.9	7.8	88.97	285.3	-240.9	408.7	402.4	6.21	65.771			
1,700.0	1,698.7	1,588.4	1,504.5	3.1	8.6	87.90	311.5	-271.2	451.5	444.9	6.56	68.824			
1,800.0	1,798.6	1,678.4	1,585.2	3.3	9.3	87.02	337.8	-301.4	494.4	487.5	6.91	71.579			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.91	16.4	25.2	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	56.91	16.4	25.2	30.0	29.7	0.27	110.259			
200.0	200.0	200.0	200.0	0.3	0.3	56.91	16.4	25.2	30.0	29.4	0.62	48.316			
300.0	300.0	300.9	300.8	0.5	0.5	52.63	17.3	22.6	28.5	27.5	0.98	29.117			
381.9	381.8	383.1	382.8	0.6	0.7	163.78	19.4	16.9	27.2	25.9	1.30	20.922 CC, ES			
400.0	400.0	401.3	400.9	0.7	0.7	160.88	20.0	15.2	27.5	26.2	1.37	20.074			
500.0	499.9	500.9	499.7	0.8	1.0	139.21	24.5	2.9	29.5	27.7	1.84	16.025			
600.0	599.8	599.2	596.3	1.0	1.4	115.01	30.6	-13.9	37.0	34.7	2.33	15.897 SF			
700.0	699.7	695.6	690.1	1.2	1.8	96.57	38.2	-35.0	52.2	49.4	2.74	19.031			
800.0	799.6	789.8	780.5	1.4	2.3	84.84	47.2	-59.8	74.3	71.2	3.10	23.959			
900.0	899.5	881.4	867.1	1.6	2.9	77.47	57.5	-87.9	102.4	98.9	3.44	29.725			
1,000.0	999.4	970.5	949.8	1.8	3.5	72.61	68.7	-119.0	135.6	131.8	3.77	35.930			
1,100.0	1,099.3	1,063.6	1,035.5	2.0	4.2	69.28	81.1	-153.1	171.2	167.1	4.11	41.638			
1,200.0	1,199.2	1,156.7	1,121.2	2.2	4.9	67.10	93.5	-187.2	207.2	202.7	4.45	46.507			
1,300.0	1,299.1	1,249.7	1,206.9	2.4	5.6	65.56	105.9	-221.3	243.3	238.5	4.80	50.684			
1,400.0	1,399.0	1,342.8	1,292.6	2.6	6.2	64.42	118.3	-255.4	279.5	274.4	5.15	54.297			
1,500.0	1,498.9	1,435.9	1,378.3	2.7	6.9	63.54	130.7	-289.4	315.9	310.4	5.50	57.451			
1,600.0	1,598.8	1,529.0	1,464.1	2.9	7.6	62.84	143.1	-323.5	352.2	346.4	5.85	60.225			
1,700.0	1,698.7	1,622.0	1,549.8	3.1	8.3	62.27	155.5	-357.6	388.6	382.4	6.20	62.683			
1,800.0	1,798.6	1,715.1	1,635.5	3.3	9.0	61.80	167.8	-391.7	425.1	418.5	6.55	64.875			
1,900.0	1,898.5	1,808.2	1,721.2	3.5	9.7	61.40	180.2	-425.8	461.5	454.6	6.90	66.843			
2,000.0	1,998.4	1,901.2	1,806.9	3.7	10.4	61.06	192.6	-459.9	498.0	490.7	7.26	68.618			

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 31-14DD
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 31-14DD	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	57.20	8.0	12.4	14.8						
100.0	100.0	100.0	100.0	0.1	0.1	57.20	8.0	12.4	14.8	14.5	0.27	54.330			
200.0	200.0	200.0	200.0	0.3	0.3	57.20	8.0	12.4	14.8	14.2	0.62	23.808			
300.0	300.0	300.0	300.0	0.5	0.5	57.20	8.0	12.4	14.8	13.8	0.97	15.244	CC, ES		
400.0	400.0	400.4	400.4	0.7	0.7	175.52	8.3	11.0	16.3	15.0	1.32	12.345			
500.0	499.9	500.8	500.6	0.8	0.9	160.16	9.5	4.5	16.8	15.1	1.69	9.945			
518.4	518.3	519.3	518.9	0.9	0.9	155.72	9.8	2.7	16.8	15.0	1.77	9.495			
600.0	599.8	600.6	599.7	1.0	1.1	130.26	11.6	-7.1	17.9	15.7	2.14	8.363	SF		
700.0	699.7	699.3	696.9	1.2	1.4	98.06	14.7	-23.5	25.3	22.7	2.58	9.796			
800.0	799.6	796.3	791.5	1.4	1.8	78.44	18.6	-44.4	40.7	37.8	2.95	13.825			
900.0	899.5	891.2	882.9	1.6	2.3	67.99	23.2	-69.5	62.7	59.4	3.29	19.069			
1,000.0	999.4	983.6	970.6	1.8	2.9	61.98	28.5	-98.1	90.1	86.5	3.63	24.855			
1,100.0	1,099.3	1,073.3	1,054.3	2.0	3.5	58.19	34.4	-129.9	122.4	118.5	3.96	30.929			
1,200.0	1,199.2	1,166.9	1,140.9	2.2	4.1	55.66	41.0	-164.9	157.1	152.8	4.30	36.538			
1,300.0	1,299.1	1,260.6	1,227.4	2.4	4.8	54.05	47.5	-200.0	191.9	187.3	4.64	41.329			
1,400.0	1,399.0	1,354.2	1,314.0	2.6	5.5	52.93	54.0	-235.1	226.9	221.9	4.99	45.455			
1,500.0	1,498.9	1,447.8	1,400.5	2.7	6.1	52.11	60.5	-270.2	261.9	256.6	5.34	49.043			
1,600.0	1,598.8	1,541.4	1,487.1	2.9	6.8	51.49	67.0	-305.2	296.9	291.2	5.69	52.191			
1,700.0	1,698.7	1,635.0	1,573.6	3.1	7.5	50.99	73.5	-340.3	332.0	326.0	6.04	54.974			
1,800.0	1,798.6	1,728.6	1,660.2	3.3	8.2	50.59	80.1	-375.4	367.1	360.7	6.39	57.451			
1,900.0	1,898.5	1,822.3	1,746.8	3.5	8.8	50.26	86.6	-410.5	402.2	395.4	6.74	59.671			
2,000.0	1,998.4	1,915.9	1,833.3	3.7	9.5	49.99	93.1	-445.5	437.3	430.2	7.09	61.671			
2,100.0	2,098.3	2,009.5	1,919.9	3.9	10.2	49.75	99.6	-480.6	472.4	464.9	7.44	63.482			

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 31-14DD
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 31-14DD	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 O31E Pad (2nd Occupation) - Shideler Fee 31-14D - OH - Plan #1													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total 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	57.01	24.4	37.6	44.8						
100.0	100.0	100.0	100.0	0.1	0.1	57.01	24.4	37.6	44.8	44.5	0.27	164.589			
200.0	200.0	200.0	200.0	0.3	0.3	57.01	24.4	37.6	44.8	44.2	0.62	72.123			
300.0	300.0	300.0	300.0	0.5	0.5	57.01	24.4	37.6	44.8	43.8	0.97	46.180	CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	178.82	24.4	37.6	47.4	46.1	1.32	35.925			
500.0	499.9	499.9	499.9	0.8	0.8	178.92	24.4	37.6	51.8	50.2	1.67	31.077			
600.0	599.8	601.4	601.4	1.0	1.0	176.72	25.4	35.1	54.8	52.7	2.02	27.075			
700.0	699.7	701.3	701.1	1.2	1.2	172.43	27.3	30.1	56.4	54.0	2.38	23.688			
800.0	799.6	801.2	800.9	1.4	1.4	168.40	29.3	25.1	58.3	55.6	2.74	21.256			
900.0	899.5	901.1	900.7	1.6	1.6	164.65	31.3	20.1	60.5	57.4	3.11	19.451			
1,000.0	999.4	1,001.0	1,000.4	1.8	1.8	161.17	33.2	15.1	62.9	59.5	3.48	18.078			
1,100.0	1,099.3	1,100.9	1,100.2	2.0	2.0	157.96	35.2	10.1	65.6	61.7	3.86	17.011			
1,200.0	1,199.2	1,200.8	1,199.9	2.2	2.2	155.01	37.1	5.1	68.4	64.2	4.23	16.169			
1,300.0	1,299.1	1,300.7	1,299.7	2.4	2.4	152.30	39.1	0.1	71.4	66.8	4.61	15.493			
1,400.0	1,399.0	1,400.6	1,399.4	2.6	2.6	149.81	41.0	-4.9	74.6	69.6	4.99	14.945			
1,500.0	1,498.9	1,500.5	1,499.2	2.7	2.7	147.53	43.0	-9.9	77.9	72.5	5.37	14.496			
1,600.0	1,598.8	1,600.4	1,598.9	2.9	2.9	145.44	45.0	-14.9	81.3	75.5	5.75	14.123			
1,700.0	1,698.7	1,700.3	1,698.7	3.1	3.1	143.51	46.9	-19.9	84.8	78.6	6.14	13.812			
1,800.0	1,798.6	1,800.2	1,798.5	3.3	3.3	141.75	48.9	-24.9	88.3	81.8	6.52	13.550			
1,900.0	1,898.5	1,900.1	1,898.2	3.5	3.5	140.12	50.8	-29.9	92.0	85.1	6.90	13.328			
2,000.0	1,998.4	2,000.0	1,998.0	3.7	3.7	138.61	52.8	-34.9	95.7	88.4	7.29	13.139			
2,100.0	2,098.3	2,099.9	2,097.7	3.9	3.9	137.22	54.8	-39.9	99.5	91.9	7.67	12.976			
2,200.0	2,198.2	2,199.8	2,197.5	4.1	4.1	135.93	56.7	-44.9	103.4	95.3	8.05	12.835			
2,300.0	2,298.1	2,299.7	2,297.2	4.3	4.3	134.74	58.7	-49.9	107.3	98.8	8.44	12.713			
2,400.0	2,398.0	2,399.6	2,397.0	4.5	4.5	133.63	60.6	-54.9	111.2	102.4	8.82	12.607			
2,500.0	2,497.9	2,499.5	2,496.7	4.7	4.7	132.59	62.6	-59.9	115.2	106.0	9.20	12.513			
2,600.0	2,597.8	2,599.4	2,596.5	4.8	4.9	131.63	64.5	-64.9	119.2	109.6	9.59	12.432			
2,700.0	2,697.7	2,699.3	2,696.3	5.0	5.1	130.72	66.5	-69.9	123.2	113.3	9.97	12.359			
2,800.0	2,797.6	2,799.2	2,796.0	5.2	5.3	129.88	68.5	-74.9	127.3	116.9	10.35	12.295			
2,900.0	2,897.5	2,899.1	2,895.8	5.4	5.5	129.09	70.4	-79.9	131.4	120.7	10.74	12.238			
3,000.0	2,997.4	2,999.0	2,995.5	5.6	5.7	128.34	72.4	-84.9	135.5	124.4	11.12	12.187			
3,100.0	3,097.3	3,098.9	3,095.3	5.8	5.9	127.64	74.3	-89.9	139.7	128.2	11.50	12.142			
3,200.0	3,197.2	3,198.8	3,195.0	6.0	6.1	126.98	76.3	-94.9	143.8	131.9	11.88	12.101			
3,300.0	3,297.1	3,298.7	3,294.8	6.2	6.3	126.36	78.2	-99.9	148.0	135.7	12.27	12.065			
3,400.0	3,397.0	3,398.6	3,394.5	6.4	6.5	125.77	80.2	-104.9	152.2	139.5	12.65	12.032			
3,500.0	3,496.9	3,498.5	3,494.3	6.6	6.7	125.21	82.2	-109.9	156.4	143.4	13.03	12.002			
3,600.0	3,596.8	3,598.4	3,594.1	6.8	6.9	124.69	84.1	-114.9	160.6	147.2	13.41	11.975			
3,700.0	3,696.7	3,698.3	3,693.8	6.9	7.1	124.19	86.1	-119.9	164.9	151.1	13.80	11.951			
3,800.0	3,796.6	3,798.2	3,793.6	7.1	7.3	123.71	88.0	-124.8	169.1	154.9	14.18	11.929			
3,900.0	3,896.5	3,898.1	3,893.3	7.3	7.5	123.26	90.0	-129.8	173.4	158.8	14.56	11.908			
4,000.0	3,996.4	3,998.0	3,993.1	7.5	7.7	122.83	91.9	-134.8	177.6	162.7	14.94	11.890			
4,100.0	4,096.3	4,097.9	4,092.8	7.7	7.9	122.42	93.9	-139.8	181.9	166.6	15.32	11.873			
4,200.0	4,196.2	4,197.8	4,192.6	7.9	8.1	122.03	95.9	-144.8	186.2	170.5	15.70	11.858			
4,300.0	4,296.1	4,297.7	4,292.4	8.1	8.3	121.65	97.8	-149.8	190.5	174.4	16.08	11.844			
4,400.0	4,396.0	4,397.6	4,392.1	8.3	8.5	121.30	99.8	-154.8	194.8	178.3	16.47	11.831			
4,500.0	4,495.9	4,497.5	4,491.9	8.5	8.7	120.95	101.7	-159.8	199.1	182.3	16.85	11.819			
4,600.0	4,595.8	4,597.4	4,591.6	8.7	8.9	120.63	103.7	-164.8	203.4	186.2	17.23	11.809			
4,700.0	4,695.7	4,697.3	4,691.4	8.9	9.1	120.31	105.7	-169.8	207.8	190.2	17.61	11.799			
4,800.0	4,795.6	4,797.2	4,791.1	9.0	9.3	120.01	107.6	-174.8	212.1	194.1	17.99	11.789			
4,900.0	4,895.5	4,897.1	4,890.9	9.2	9.5	119.72	109.6	-179.8	216.4	198.1	18.37	11.781			
5,000.0	4,995.4	4,997.0	4,990.6	9.4	9.7	119.45	111.5	-184.8	220.8	202.0	18.75	11.773			
5,100.0	5,095.3	5,096.9	5,090.4	9.6	9.9	119.18	113.5	-189.8	225.1	206.0	19.13	11.766			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,200.0	5,195.2	5,196.8	5,190.2	9.8	10.1	118.92	115.4	-194.8	229.5	210.0	19.51	11.759			
5,300.0	5,295.1	5,296.7	5,289.9	10.0	10.2	118.68	117.4	-199.8	233.8	213.9	19.90	11.753			
5,400.0	5,395.0	5,396.6	5,389.7	10.2	10.4	118.44	119.4	-204.8	238.2	217.9	20.28	11.748			
5,500.0	5,494.9	5,496.5	5,489.4	10.4	10.6	118.21	121.3	-209.8	242.6	221.9	20.66	11.742			
5,600.0	5,594.8	5,596.4	5,589.2	10.6	10.8	117.99	123.3	-214.8	246.9	225.9	21.04	11.738			
5,700.0	5,694.7	5,696.3	5,688.9	10.8	11.0	117.77	125.2	-219.8	251.3	229.9	21.42	11.733			
5,800.0	5,794.6	5,796.2	5,788.7	11.0	11.2	117.57	127.2	-224.8	255.7	233.9	21.80	11.729			
5,900.0	5,894.5	5,896.1	5,888.4	11.1	11.4	117.37	129.1	-229.8	260.1	237.9	22.18	11.725			
6,000.0	5,994.4	5,996.0	5,988.2	11.3	11.6	117.18	131.1	-234.8	264.4	241.9	22.56	11.722			
6,100.0	6,094.3	6,095.9	6,088.0	11.5	11.8	116.99	133.1	-239.8	268.8	245.9	22.94	11.718			
6,200.0	6,194.2	6,195.8	6,187.7	11.7	12.0	116.81	135.0	-244.8	273.2	249.9	23.32	11.715			
6,300.0	6,294.1	6,295.7	6,287.5	11.9	12.2	116.63	137.0	-249.8	277.6	253.9	23.70	11.712			
6,400.0	6,394.0	6,395.6	6,387.2	12.1	12.4	116.46	138.9	-254.8	282.0	257.9	24.08	11.710			
6,500.0	6,493.9	6,499.0	6,490.5	12.3	12.6	116.44	140.6	-259.0	285.8	261.3	24.45	11.686			
6,600.0	6,593.9	6,602.4	6,593.9	12.4	12.8	-5.26	141.0	-260.0	286.8	262.0	24.79	11.570			
6,700.0	6,693.9	6,702.4	6,693.9	12.6	12.9	-5.26	141.0	-260.0	286.8	261.7	25.11	11.421			
6,800.0	6,793.9	6,802.4	6,793.9	12.8	13.1	-5.26	141.0	-260.0	286.8	261.3	25.43	11.275			
6,900.0	6,893.9	6,902.4	6,893.9	12.9	13.2	-5.26	141.0	-260.0	286.8	261.0	25.76	11.133			
7,000.0	6,993.9	7,002.4	6,993.9	13.1	13.4	-5.26	141.0	-260.0	286.8	260.7	26.08	10.994			
7,100.0	7,093.9	7,102.4	7,093.9	13.3	13.6	-5.26	141.0	-260.0	286.8	260.4	26.41	10.858			
7,200.0	7,193.9	7,202.4	7,193.9	13.4	13.7	-5.26	141.0	-260.0	286.8	260.0	26.74	10.725			
7,300.0	7,293.9	7,302.4	7,293.9	13.6	13.9	-5.26	141.0	-260.0	286.8	259.7	27.07	10.595			
7,400.0	7,393.9	7,402.4	7,393.9	13.7	14.0	-5.26	141.0	-260.0	286.8	259.4	27.39	10.468			
7,500.0	7,493.9	7,502.4	7,493.9	13.9	14.2	-5.26	141.0	-260.0	286.8	259.0	27.72	10.344			
7,600.0	7,593.9	7,602.4	7,593.9	14.1	14.4	-5.26	141.0	-260.0	286.8	258.7	28.05	10.223			
7,700.0	7,693.9	7,702.4	7,693.9	14.2	14.5	-5.26	141.0	-260.0	286.8	258.4	28.38	10.104			
7,800.0	7,793.9	7,802.4	7,793.9	14.4	14.7	-5.26	141.0	-260.0	286.8	258.1	28.71	9.988			
7,900.0	7,893.9	7,902.4	7,893.9	14.6	14.8	-5.26	141.0	-260.0	286.8	257.7	29.04	9.875			
8,000.0	7,993.9	8,002.4	7,993.9	14.7	15.0	-5.26	141.0	-260.0	286.8	257.4	29.37	9.763			
8,100.0	8,093.9	8,102.4	8,093.9	14.9	15.2	-5.26	141.0	-260.0	286.8	257.1	29.70	9.654			
8,200.0	8,193.9	8,202.4	8,193.9	15.1	15.3	-5.26	141.0	-260.0	286.8	256.7	30.03	9.548			
8,300.0	8,293.9	8,302.4	8,293.9	15.2	15.5	-5.26	141.0	-260.0	286.8	256.4	30.37	9.443			
8,400.0	8,393.9	8,402.4	8,393.9	15.4	15.7	-5.26	141.0	-260.0	286.8	256.1	30.70	9.341			
8,500.0	8,493.9	8,502.4	8,493.9	15.6	15.8	-5.26	141.0	-260.0	286.8	255.7	31.03	9.241			
8,544.5	8,538.4	8,546.9	8,538.4	15.6	15.9	-5.26	141.0	-260.0	286.8	255.6	31.18	9.197 SF			
8,600.0	8,593.9	8,562.5	8,554.0	15.7	15.9	-5.26	141.0	-260.0	289.5	258.2	31.30	9.250			
8,700.0	8,693.9	8,562.5	8,554.0	15.9	15.9	-5.26	141.0	-260.0	319.1	287.6	31.47	10.140			
8,800.0	8,793.9	8,562.5	8,554.0	16.1	15.9	-5.26	141.0	-260.0	373.9	342.3	31.63	11.819			
8,900.0	8,893.9	8,562.5	8,554.0	16.2	15.9	-5.26	141.0	-260.0	444.7	412.9	31.80	13.984			

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 31-14DD
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 31-14DD	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	60.95	54.6	98.3	112.5						
100.0	100.0	100.0	100.0	0.1	0.1	60.95	54.6	98.3	112.5	112.2	0.27	413.195			
200.0	200.0	200.0	200.0	0.3	0.3	60.95	54.6	98.3	112.5	111.9	0.62	181.063			
300.0	300.0	300.0	300.0	0.5	0.5	60.95	54.6	98.3	112.5	111.5	0.97	115.932 CC, ES			
400.0	400.0	400.0	400.0	0.7	0.7	-177.37	54.6	98.3	115.1	113.7	1.32	87.255			
500.0	499.9	494.0	493.9	0.8	0.8	-177.27	55.4	100.5	121.9	120.3	1.66	73.561			
600.0	599.8	587.2	586.9	1.0	1.0	-176.85	57.6	107.0	133.6	131.6	2.00	66.957			
700.0	699.7	679.1	678.1	1.2	1.3	-176.22	61.3	117.6	150.0	147.7	2.33	64.338			
800.0	799.6	769.3	767.0	1.4	1.5	-175.51	66.3	132.0	171.1	168.4	2.67	64.179 SF			
900.0	899.5	857.5	853.2	1.6	1.9	-174.79	72.5	149.9	196.7	193.7	3.00	65.640			
1,000.0	999.4	943.4	936.1	1.8	2.3	-174.12	79.8	170.9	226.7	223.4	3.32	68.235			
1,100.0	1,099.3	1,033.5	1,022.2	2.0	2.7	-173.48	88.6	195.9	260.2	256.5	3.65	71.190			
1,200.0	1,199.2	1,127.5	1,112.0	2.2	3.2	-172.97	97.8	222.4	294.0	290.0	3.99	73.636			
1,300.0	1,299.1	1,221.6	1,201.8	2.4	3.8	-172.55	107.0	248.9	327.9	323.5	4.33	75.713			
1,400.0	1,399.0	1,315.7	1,291.6	2.6	4.3	-172.22	116.2	275.3	361.7	357.1	4.67	77.498			
1,500.0	1,498.9	1,409.8	1,381.4	2.7	4.8	-171.94	125.4	301.8	395.6	390.6	5.00	79.050			
1,600.0	1,598.8	1,503.8	1,471.2	2.9	5.3	-171.71	134.6	328.3	429.5	424.1	5.34	80.411			
1,700.0	1,698.7	1,597.9	1,561.0	3.1	5.8	-171.51	143.8	354.8	463.4	457.7	5.68	81.614			
1,800.0	1,798.6	1,692.0	1,650.8	3.3	6.4	-171.33	153.0	381.2	497.3	491.3	6.01	82.686			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.95	57.2	87.9	104.9						
100.0	100.0	100.0	100.0	0.1	0.1	56.95	57.2	87.9	104.9	104.6	0.27	385.108			
200.0	200.0	200.0	200.0	0.3	0.3	56.95	57.2	87.9	104.9	104.2	0.62	168.755			
300.0	300.0	300.0	300.0	0.5	0.5	56.95	57.2	87.9	104.9	103.9	0.97	108.052	CC, ES		
400.0	400.0	394.6	394.5	0.7	0.7	178.82	58.3	89.9	109.9	108.6	1.31	83.922			
500.0	499.9	488.2	487.9	0.8	0.9	179.12	61.6	96.0	121.7	120.0	1.65	73.859			
600.0	599.8	580.6	579.6	1.0	1.1	179.49	67.0	106.0	138.3	136.3	1.98	69.725			
700.0	699.7	671.2	668.9	1.2	1.4	179.88	74.3	119.5	159.6	157.3	2.32	68.909	SF		
800.0	799.6	759.8	755.4	1.4	1.8	-179.75	83.4	136.3	185.5	182.9	2.65	70.127			
900.0	899.5	846.1	838.7	1.6	2.2	-179.41	94.1	156.1	215.8	212.8	2.97	72.675			
1,000.0	999.4	931.2	919.8	1.8	2.6	-179.12	106.4	178.7	250.2	247.0	3.29	76.101			
1,100.0	1,099.3	1,024.5	1,008.2	2.0	3.2	-178.87	120.5	204.9	286.2	282.6	3.62	79.011			
1,200.0	1,199.2	1,117.8	1,096.7	2.2	3.7	-178.67	134.7	231.0	322.2	318.3	3.96	81.452			
1,300.0	1,299.1	1,211.1	1,185.1	2.4	4.3	-178.51	148.8	257.1	358.2	353.9	4.29	83.517			
1,400.0	1,399.0	1,304.4	1,273.5	2.6	4.8	-178.38	162.9	283.2	394.2	389.6	4.62	85.287			
1,500.0	1,498.9	1,397.7	1,362.0	2.7	5.4	-178.27	177.1	309.3	430.2	425.3	4.96	86.820			
1,600.0	1,598.8	1,490.9	1,450.4	2.9	5.9	-178.17	191.2	335.4	466.2	460.9	5.29	88.160			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	62.50	38.2	73.5	82.8						
100.0	100.0	100.0	100.0	0.1	0.1	62.50	38.2	73.5	82.8	82.6	0.27	304.229			
200.0	200.0	200.0	200.0	0.3	0.3	62.50	38.2	73.5	82.8	82.2	0.62	133.314			
300.0	300.0	300.0	300.0	0.5	0.5	62.50	38.2	73.5	82.8	81.9	0.97	85.359 CC, ES			
400.0	400.0	397.2	397.2	0.7	0.7	-175.37	38.1	74.8	86.6	85.3	1.31	65.861			
500.0	499.9	492.8	492.6	0.8	0.8	-173.61	37.5	80.8	96.3	94.6	1.66	57.952			
600.0	599.8	587.3	586.5	1.0	1.1	-170.96	36.4	91.4	110.4	108.4	2.02	54.773			
700.0	699.7	680.1	678.1	1.2	1.4	-167.99	34.8	106.2	129.1	126.7	2.38	54.344 SF			
800.0	799.6	771.0	767.0	1.4	1.7	-165.12	32.9	125.0	152.4	149.7	2.74	55.696			
900.0	899.5	859.5	852.6	1.6	2.1	-162.54	30.6	147.4	180.2	177.2	3.09	58.290			
1,000.0	999.4	952.1	941.2	1.8	2.6	-160.26	27.8	173.8	211.4	208.0	3.45	61.276			
1,100.0	1,099.3	1,046.7	1,031.9	2.0	3.1	-158.51	25.0	200.9	243.0	239.2	3.81	63.815			
1,200.0	1,199.2	1,141.4	1,122.5	2.2	3.6	-157.16	22.2	228.0	274.8	270.6	4.16	66.007			
1,300.0	1,299.1	1,236.0	1,213.1	2.4	4.1	-156.09	19.3	255.2	306.7	302.1	4.52	67.913			
1,400.0	1,399.0	1,330.7	1,303.8	2.6	4.6	-155.22	16.5	282.3	338.6	333.7	4.87	69.582			
1,500.0	1,498.9	1,425.3	1,394.4	2.7	5.1	-154.50	13.7	309.4	370.6	365.4	5.22	71.054			
1,600.0	1,598.8	1,520.0	1,485.0	2.9	5.7	-153.89	10.9	336.5	402.6	397.1	5.56	72.361			
1,700.0	1,698.7	1,614.6	1,575.7	3.1	6.2	-153.38	8.1	363.7	434.7	428.8	5.91	73.528			
1,800.0	1,798.6	1,709.3	1,666.3	3.3	6.7	-152.93	5.2	390.8	466.8	460.6	6.26	74.575			
1,900.0	1,898.5	1,803.9	1,756.9	3.5	7.2	-152.55	2.4	417.9	498.9	492.3	6.61	75.520			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	61.51	46.6	85.9	97.7						
100.0	100.0	100.0	100.0	0.1	0.1	61.51	46.6	85.9	97.7	97.5	0.27	358.998			
200.0	200.0	200.0	200.0	0.3	0.3	61.51	46.6	85.9	97.7	97.1	0.62	157.314			
300.0	300.0	300.0	300.0	0.5	0.5	61.51	46.6	85.9	97.7	96.8	0.97	100.726	CC, ES		
400.0	400.0	395.3	395.2	0.7	0.7	-176.29	46.8	88.3	102.6	101.3	1.31	78.232			
500.0	499.9	489.7	489.4	0.8	0.9	-175.03	47.5	95.3	113.9	112.3	1.66	68.821			
600.0	599.8	582.8	581.7	1.0	1.1	-173.29	48.5	106.7	129.8	127.8	2.00	64.871			
700.0	699.7	674.2	671.8	1.2	1.4	-171.38	49.9	122.3	150.4	148.0	2.35	64.030	SF		
800.0	799.6	763.5	759.0	1.4	1.8	-169.54	51.6	141.7	175.5	172.8	2.69	65.139			
900.0	899.5	853.0	845.4	1.6	2.2	-167.83	53.7	164.9	204.9	201.9	3.04	67.457			
1,000.0	999.4	948.0	936.8	1.8	2.7	-166.39	56.0	190.7	235.5	232.2	3.39	69.512			
1,100.0	1,099.3	1,043.1	1,028.3	2.0	3.1	-165.29	58.3	216.5	266.3	262.6	3.74	71.256			
1,200.0	1,199.2	1,138.1	1,119.7	2.2	3.6	-164.41	60.6	242.3	297.1	293.0	4.08	72.750			
1,300.0	1,299.1	1,233.2	1,211.2	2.4	4.1	-163.70	62.9	268.0	328.0	323.6	4.43	74.041			
1,400.0	1,399.0	1,328.2	1,302.6	2.6	4.6	-163.11	65.2	293.8	358.9	354.1	4.77	75.168			
1,500.0	1,498.9	1,423.3	1,394.1	2.7	5.1	-162.61	67.5	319.6	389.8	384.7	5.12	76.158			
1,600.0	1,598.8	1,518.3	1,485.5	2.9	5.6	-162.19	69.8	345.4	420.8	415.3	5.46	77.036			
1,700.0	1,698.7	1,613.4	1,577.0	3.1	6.1	-161.82	72.1	371.1	451.8	446.0	5.81	77.817			
1,800.0	1,798.6	1,708.4	1,668.4	3.3	6.6	-161.51	74.4	396.9	482.8	476.6	6.15	78.518			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	56.83	65.6	100.3	119.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.83	65.6	100.3	119.8	119.6	0.27	440.177			
200.0	200.0	200.0	200.0	0.3	0.3	56.83	65.6	100.3	119.8	119.2	0.62	192.887	CC, ES		
300.0	300.0	294.0	294.0	0.5	0.5	56.78	66.9	102.2	122.3	121.3	0.97	126.687			
400.0	400.0	387.3	387.0	0.7	0.7	178.39	71.0	107.7	132.2	130.9	1.30	101.932			
500.0	499.9	479.2	478.2	0.8	0.9	178.22	77.6	116.8	148.8	147.2	1.63	91.154			
600.0	599.8	569.4	567.1	1.0	1.3	178.02	86.6	129.1	170.0	168.1	1.96	86.569			
700.0	699.7	657.6	653.2	1.2	1.6	177.82	97.7	144.4	195.8	193.5	2.29	85.439	SF		
800.0	799.6	743.5	736.2	1.4	2.1	177.62	110.9	162.3	226.0	223.4	2.61	86.426			
900.0	899.5	826.8	815.6	1.6	2.5	177.45	125.7	182.6	260.4	257.4	2.93	88.842			
1,000.0	999.4	916.6	900.4	1.8	3.1	177.28	143.3	206.7	297.7	294.4	3.26	91.338			
1,100.0	1,099.3	1,009.4	987.8	2.0	3.6	177.15	161.5	231.6	335.1	331.5	3.59	93.315			
1,200.0	1,199.2	1,102.1	1,075.3	2.2	4.2	177.04	179.7	256.5	372.5	368.6	3.92	94.960			
1,300.0	1,299.1	1,194.8	1,162.7	2.4	4.8	176.96	197.9	281.4	409.9	405.7	4.25	96.347			
1,400.0	1,399.0	1,287.6	1,250.1	2.6	5.3	176.88	216.1	306.4	447.3	442.8	4.59	97.537			
1,500.0	1,498.9	1,380.3	1,337.6	2.7	5.9	176.82	234.3	331.3	484.8	479.9	4.92	98.569			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	63.55	30.2	60.8	67.9						
100.0	100.0	100.0	100.0	0.1	0.1	63.55	30.2	60.8	67.9	67.6	0.27	249.244			
200.0	200.0	200.0	200.0	0.3	0.3	63.55	30.2	60.8	67.9	67.2	0.62	109.219			
300.0	300.0	300.0	300.0	0.5	0.5	63.55	30.2	60.8	67.9	66.9	0.97	69.932 CC, ES			
400.0	400.0	398.6	398.6	0.7	0.7	-174.55	30.1	61.4	70.9	69.6	1.32	53.840			
500.0	499.9	495.4	495.2	0.8	0.8	-172.45	28.7	66.1	79.1	77.5	1.67	47.501			
600.0	599.8	591.1	590.5	1.0	1.1	-168.86	26.1	75.4	91.4	89.4	2.03	45.139 SF			
700.0	699.7	685.4	683.6	1.2	1.3	-164.74	22.2	89.0	108.2	105.8	2.40	45.161			
800.0	799.6	777.7	774.1	1.4	1.7	-160.76	17.2	106.6	129.6	126.8	2.77	46.792			
900.0	899.5	867.8	861.5	1.6	2.1	-157.22	11.2	127.9	155.6	152.5	3.14	49.562			
1,000.0	999.4	956.9	946.7	1.8	2.5	-154.18	4.1	152.6	186.2	182.7	3.50	53.163			
1,100.0	1,099.3	1,051.1	1,036.6	2.0	3.1	-151.72	-3.7	180.1	218.5	214.6	3.87	56.466			
1,200.0	1,199.2	1,145.4	1,126.4	2.2	3.6	-149.89	-11.5	207.6	251.0	246.8	4.23	59.333			
1,300.0	1,299.1	1,239.7	1,216.3	2.4	4.1	-148.48	-19.3	235.2	283.8	279.2	4.59	61.830			
1,400.0	1,399.0	1,334.0	1,306.1	2.6	4.6	-147.36	-27.1	262.7	316.6	311.7	4.95	64.019			
1,500.0	1,498.9	1,428.3	1,396.0	2.7	5.2	-146.45	-34.9	290.2	349.5	344.2	5.30	65.950			
1,600.0	1,598.8	1,522.6	1,485.8	2.9	5.7	-145.70	-42.7	317.7	382.5	376.9	5.65	67.665			
1,700.0	1,698.7	1,616.9	1,575.7	3.1	6.2	-145.07	-50.5	345.2	415.6	409.6	6.01	69.195			
1,800.0	1,798.6	1,711.2	1,665.5	3.3	6.8	-144.53	-58.4	372.7	448.7	442.3	6.36	70.568			
1,900.0	1,898.5	1,805.4	1,755.4	3.5	7.3	-144.06	-66.2	400.2	481.8	475.1	6.71	71.808			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	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	65.67	21.9	48.3	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	65.67	21.9	48.3	53.0	52.8	0.27	194.791			
200.0	200.0	200.0	200.0	0.3	0.3	65.67	21.9	48.3	53.0	52.4	0.62	85.358			
300.0	300.0	300.0	300.0	0.5	0.5	65.67	21.9	48.3	53.0	52.1	0.97	54.654 CC, ES			
400.0	400.0	398.5	398.5	0.7	0.7	-171.85	21.3	49.6	56.6	55.2	1.32	42.937			
500.0	499.9	495.8	495.6	0.8	0.9	-168.41	18.9	55.3	65.5	63.8	1.67	39.134			
600.0	599.8	592.0	591.2	1.0	1.1	-163.46	14.6	65.5	78.5	76.4	2.04	38.420 SF			
700.0	699.7	686.6	684.5	1.2	1.4	-158.33	8.5	79.7	96.0	93.6	2.42	39.660			
800.0	799.6	779.2	775.0	1.4	1.8	-153.70	0.8	97.8	118.3	115.5	2.80	42.255			
900.0	899.5	869.5	862.2	1.6	2.2	-149.81	-8.4	119.3	145.3	142.1	3.17	45.801			
1,000.0	999.4	958.2	946.6	1.8	2.7	-146.60	-18.9	144.0	177.0	173.4	3.54	50.056			
1,100.0	1,099.3	1,050.6	1,034.1	2.0	3.2	-144.04	-30.7	171.7	211.1	207.2	3.90	54.126			
1,200.0	1,199.2	1,144.3	1,122.6	2.2	3.8	-142.17	-42.6	199.7	245.5	241.3	4.26	57.610			
1,300.0	1,299.1	1,237.9	1,211.1	2.4	4.3	-140.75	-54.6	227.8	280.1	275.5	4.62	60.624			
1,400.0	1,399.0	1,331.5	1,299.6	2.6	4.9	-139.65	-66.5	255.8	314.8	309.9	4.98	63.251			
1,500.0	1,498.9	1,425.1	1,388.2	2.7	5.5	-138.76	-78.4	283.8	349.6	344.3	5.33	65.558			
1,600.0	1,598.8	1,518.8	1,476.7	2.9	6.0	-138.03	-90.4	311.9	384.5	378.8	5.69	67.598			
1,700.0	1,698.7	1,612.4	1,565.2	3.1	6.6	-137.43	-102.3	339.9	419.4	413.3	6.04	69.413			
1,800.0	1,798.6	1,706.0	1,653.8	3.3	7.2	-136.92	-114.3	368.0	454.3	447.9	6.40	71.038			
1,900.0	1,898.5	1,799.6	1,742.3	3.5	7.8	-136.48	-126.2	396.0	489.3	482.5	6.75	72.501			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	68.76	13.8	35.6	38.2						
100.0	100.0	100.0	100.0	0.1	0.1	68.76	13.8	35.6	38.2	37.9	0.27	140.311			
200.0	200.0	200.0	200.0	0.3	0.3	68.76	13.8	35.6	38.2	37.6	0.62	61.485			
300.0	300.0	300.0	300.0	0.5	0.5	68.76	13.8	35.6	38.2	37.2	0.97	39.368 CC, ES			
400.0	400.0	398.7	398.7	0.7	0.7	-167.19	12.3	37.7	42.2	40.8	1.32	31.919			
500.0	499.9	496.7	496.4	0.8	0.9	-161.31	7.9	43.8	51.2	49.6	1.69	30.359 SF			
600.0	599.8	593.5	592.4	1.0	1.1	-154.13	0.7	53.9	64.4	62.3	2.07	31.095			
700.0	699.7	688.7	686.0	1.2	1.5	-147.42	-9.2	67.6	82.3	79.8	2.46	33.435			
800.0	799.6	781.7	776.6	1.4	1.9	-141.85	-21.5	84.6	105.1	102.2	2.85	36.907			
900.0	899.5	872.3	863.8	1.6	2.3	-137.46	-35.9	104.7	132.7	129.5	3.22	41.157			
1,000.0	999.4	960.2	947.1	1.8	2.8	-134.03	-52.2	127.3	165.0	161.4	3.59	45.937			
1,100.0	1,099.3	1,047.4	1,028.5	2.0	3.4	-131.30	-70.4	152.7	201.6	197.7	3.95	51.061			
1,200.0	1,199.2	1,139.6	1,114.2	2.2	4.0	-129.20	-90.3	180.3	239.6	235.3	4.31	55.572			
1,300.0	1,299.1	1,231.8	1,199.9	2.4	4.6	-127.68	-110.2	207.9	277.8	273.1	4.67	59.467			
1,400.0	1,399.0	1,324.0	1,285.6	2.6	5.3	-126.52	-130.1	235.6	316.1	311.0	5.03	62.849			
1,500.0	1,498.9	1,416.3	1,371.3	2.7	5.9	-125.61	-150.0	263.2	354.5	349.1	5.39	65.809			
1,600.0	1,598.8	1,508.5	1,457.0	2.9	6.5	-124.88	-169.9	290.8	392.9	387.2	5.74	68.420			
1,700.0	1,698.7	1,600.7	1,542.7	3.1	7.2	-124.27	-189.8	318.5	431.4	425.3	6.10	70.738			
1,800.0	1,798.6	1,692.9	1,628.4	3.3	7.8	-123.77	-209.7	346.1	469.9	463.5	6.45	72.808			

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 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	76.74	5.5	23.2	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	76.74	5.5	23.2	23.8	23.5	0.27	87.440			
200.0	200.0	200.0	200.0	0.3	0.3	76.74	5.5	23.2	23.8	23.2	0.62	38.316			
255.6	255.6	255.6	255.6	0.4	0.4	76.74	5.5	23.2	23.8	23.0	0.82	29.195 CC			
300.0	300.0	299.8	299.8	0.5	0.5	77.06	5.4	23.3	23.9	22.9	0.97	24.638 ES			
400.0	400.0	398.8	398.8	0.7	0.7	-156.53	2.8	26.2	28.7	27.4	1.32	21.678 SF			
500.0	499.9	497.0	496.5	0.8	0.9	-149.07	-3.0	32.9	39.0	37.3	1.69	23.011			
600.0	599.8	593.9	592.4	1.0	1.2	-141.50	-12.1	43.1	53.7	51.7	2.07	25.910			
700.0	699.7	689.0	685.8	1.2	1.5	-135.33	-24.0	56.8	73.3	70.9	2.45	29.886			
800.0	799.6	781.9	776.0	1.4	1.9	-130.63	-38.7	73.4	97.8	95.0	2.83	34.579			
900.0	899.5	872.4	862.7	1.6	2.4	-127.11	-55.7	92.8	127.1	123.9	3.20	39.738			
1,000.0	999.4	960.0	945.4	1.8	3.0	-124.43	-74.7	114.5	160.8	157.3	3.56	45.201			
1,100.0	1,099.3	1,044.6	1,024.0	2.0	3.5	-122.37	-95.4	138.2	198.8	194.9	3.90	50.922			
1,200.0	1,199.2	1,135.2	1,107.1	2.2	4.2	-120.70	-119.1	165.1	239.3	235.1	4.26	56.142			
1,300.0	1,299.1	1,226.4	1,190.9	2.4	4.8	-119.50	-142.9	192.2	280.0	275.3	4.62	60.603			
1,400.0	1,399.0	1,317.7	1,274.7	2.6	5.5	-118.60	-166.7	219.3	320.7	315.7	4.98	64.448			
1,500.0	1,498.9	1,408.9	1,358.5	2.7	6.2	-117.91	-190.5	246.4	361.4	356.1	5.33	67.794			
1,600.0	1,598.8	1,500.1	1,442.3	2.9	6.8	-117.35	-214.3	273.6	402.2	396.5	5.69	70.732			
1,700.0	1,698.7	1,591.4	1,526.1	3.1	7.5	-116.90	-238.1	300.7	443.0	437.0	6.04	73.328			
1,800.0	1,798.6	1,682.6	1,609.9	3.3	8.2	-116.53	-261.9	327.8	483.8	477.4	6.40	75.642			

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 31-14DD
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 31-14DD	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	103.70	-2.5	10.5	10.8						
100.0	100.0	100.0	100.0	0.1	0.1	103.70	-2.5	10.5	10.8	10.5	0.27	39.529			
200.0	200.0	200.0	200.0	0.3	0.3	103.70	-2.5	10.5	10.8	10.1	0.62	17.322			
233.9	233.9	233.9	233.9	0.4	0.4	103.70	-2.5	10.5	10.8	10.0	0.74	14.550	CC, ES		
300.0	300.0	299.8	299.7	0.5	0.5	105.43	-3.0	10.9	11.3	10.4	0.97	11.666	SF		
400.0	400.0	398.9	398.7	0.7	0.7	-130.37	-6.7	14.5	17.6	16.3	1.32	13.276			
500.0	499.9	497.1	496.4	0.8	0.9	-127.65	-13.9	21.7	29.7	28.0	1.69	17.573			
600.0	599.8	593.9	592.0	1.0	1.2	-124.01	-24.5	32.1	46.4	44.4	2.06	22.588			
700.0	699.7	688.8	685.0	1.2	1.6	-120.91	-38.3	45.7	67.9	65.5	2.42	28.043			
800.0	799.6	781.5	774.7	1.4	2.0	-118.49	-54.9	62.0	94.2	91.4	2.79	33.778			
900.0	899.5	871.6	860.7	1.6	2.5	-116.60	-74.0	80.8	124.9	121.8	3.15	39.689			
1,000.0	999.4	958.8	942.7	1.8	3.1	-115.12	-95.2	101.7	160.0	156.5	3.50	45.710			
1,100.0	1,099.3	1,043.0	1,020.4	2.0	3.7	-113.94	-118.2	124.3	199.3	195.4	3.85	51.810			
1,200.0	1,199.2	1,128.4	1,097.9	2.2	4.4	-112.95	-143.7	149.4	242.1	237.9	4.19	57.754			
1,300.0	1,299.1	1,218.4	1,179.4	2.4	5.0	-112.19	-171.0	176.3	285.5	281.0	4.54	62.829			
1,400.0	1,399.0	1,308.4	1,260.9	2.6	5.7	-111.63	-198.2	203.1	329.0	324.1	4.90	67.180			
1,500.0	1,498.9	1,398.4	1,342.4	2.7	6.5	-111.21	-225.5	229.9	372.5	367.3	5.25	70.949			
1,600.0	1,598.8	1,488.4	1,423.8	2.9	7.2	-110.87	-252.7	256.8	416.0	410.4	5.60	74.243			
1,700.0	1,698.7	1,578.4	1,505.3	3.1	7.9	-110.59	-280.0	283.6	459.6	453.6	5.96	77.151			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-169.74	-10.9	-2.0	11.1						
100.0	100.0	100.0	100.0	0.1	0.1	-169.74	-10.9	-2.0	11.1	10.8	0.27	40.785			
200.0	200.0	200.0	200.0	0.3	0.3	-169.74	-10.9	-2.0	11.1	10.5	0.62	17.872 CC, ES			
300.0	300.0	299.7	299.7	0.5	0.5	-174.87	-12.1	-1.1	12.1	11.2	0.97	12.510 SF			
400.0	400.0	398.8	398.5	0.7	0.7	-75.68	-17.2	2.9	16.7	15.3	1.33	12.575			
500.0	499.9	496.8	495.9	0.8	0.9	-92.93	-26.2	9.8	27.8	26.1	1.68	16.560			
600.0	599.8	593.4	591.2	1.0	1.3	-99.55	-39.0	19.7	45.0	43.0	2.03	22.129			
700.0	699.7	688.1	683.6	1.2	1.7	-101.99	-55.1	32.2	67.3	65.0	2.39	28.169			
800.0	799.6	780.5	772.7	1.4	2.1	-102.83	-74.4	47.1	94.5	91.7	2.75	34.382			
900.0	899.5	870.2	858.0	1.6	2.7	-103.01	-96.3	64.1	126.1	123.0	3.10	40.668			
1,000.0	999.4	957.0	939.3	1.8	3.2	-102.92	-120.6	82.8	162.1	158.6	3.45	46.981			
1,100.0	1,099.3	1,040.8	1,016.2	2.0	3.8	-102.72	-146.7	103.0	202.1	198.3	3.79	53.299			
1,200.0	1,199.2	1,121.2	1,088.7	2.2	4.5	-102.47	-174.3	124.3	246.1	241.9	4.13	59.612			
1,300.0	1,299.1	1,200.0	1,158.2	2.4	5.2	-102.20	-203.6	147.0	293.6	289.1	4.46	65.844			
1,400.0	1,399.0	1,287.3	1,234.6	2.6	6.0	-101.96	-236.9	172.7	342.4	337.6	4.81	71.246			
1,500.0	1,498.9	1,374.5	1,311.1	2.7	6.7	-101.78	-270.2	198.5	391.3	386.1	5.15	75.928			
1,600.0	1,598.8	1,461.8	1,387.5	2.9	7.5	-101.64	-303.6	224.3	440.1	434.6	5.50	80.025			
1,700.0	1,698.7	1,549.1	1,463.9	3.1	8.3	-101.53	-336.9	250.0	489.0	483.1	5.85	83.638			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Fee 31-14DD
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 31-14DD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-142.73	-18.9	-14.4	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	-142.73	-18.9	-14.4	23.8	23.5	0.27	87.413			
200.0	200.0	200.0	200.0	0.3	0.3	-142.73	-18.9	-14.4	23.8	23.2	0.62	38.305 CC, ES			
300.0	300.0	299.5	299.5	0.5	0.5	-148.44	-21.1	-12.9	24.7	23.8	0.97	25.515			
400.0	400.0	398.4	398.1	0.7	0.7	-44.35	-27.4	-8.6	26.9	25.6	1.35	19.960 SF			
500.0	499.9	496.2	495.1	0.8	1.0	-65.47	-37.9	-1.5	34.8	33.1	1.71	20.349			
600.0	599.8	592.5	589.7	1.0	1.3	-79.15	-52.1	8.3	50.5	48.4	2.05	24.600			
700.0	699.7	686.7	681.5	1.2	1.7	-86.54	-69.8	20.5	72.5	70.2	2.39	30.325			
800.0	799.6	778.6	769.7	1.4	2.2	-90.52	-90.7	34.7	100.0	97.2	2.73	36.563			
900.0	899.5	867.7	854.2	1.6	2.8	-92.75	-114.2	50.9	132.2	129.1	3.08	42.975			
1,000.0	999.4	953.9	934.5	1.8	3.4	-94.05	-140.1	68.6	168.8	165.4	3.42	49.437			
1,100.0	1,099.3	1,037.0	1,010.4	2.0	4.0	-94.82	-167.8	87.6	209.6	205.9	3.75	55.896			
1,200.0	1,199.2	1,116.8	1,082.0	2.2	4.7	-95.29	-197.0	107.6	254.3	250.2	4.08	62.329			
1,300.0	1,299.1	1,200.0	1,154.9	2.4	5.4	-95.60	-230.0	130.2	302.6	298.2	4.41	68.550			
1,400.0	1,399.0	1,273.4	1,218.0	2.6	6.1	-95.76	-260.9	151.4	353.7	349.0	4.73	74.725			
1,500.0	1,498.9	1,359.0	1,291.6	2.7	6.9	-95.91	-297.1	176.2	405.3	400.3	5.07	79.875			
1,600.0	1,598.8	1,444.7	1,365.1	2.9	7.7	-96.02	-333.4	201.0	456.9	451.5	5.41	84.382			

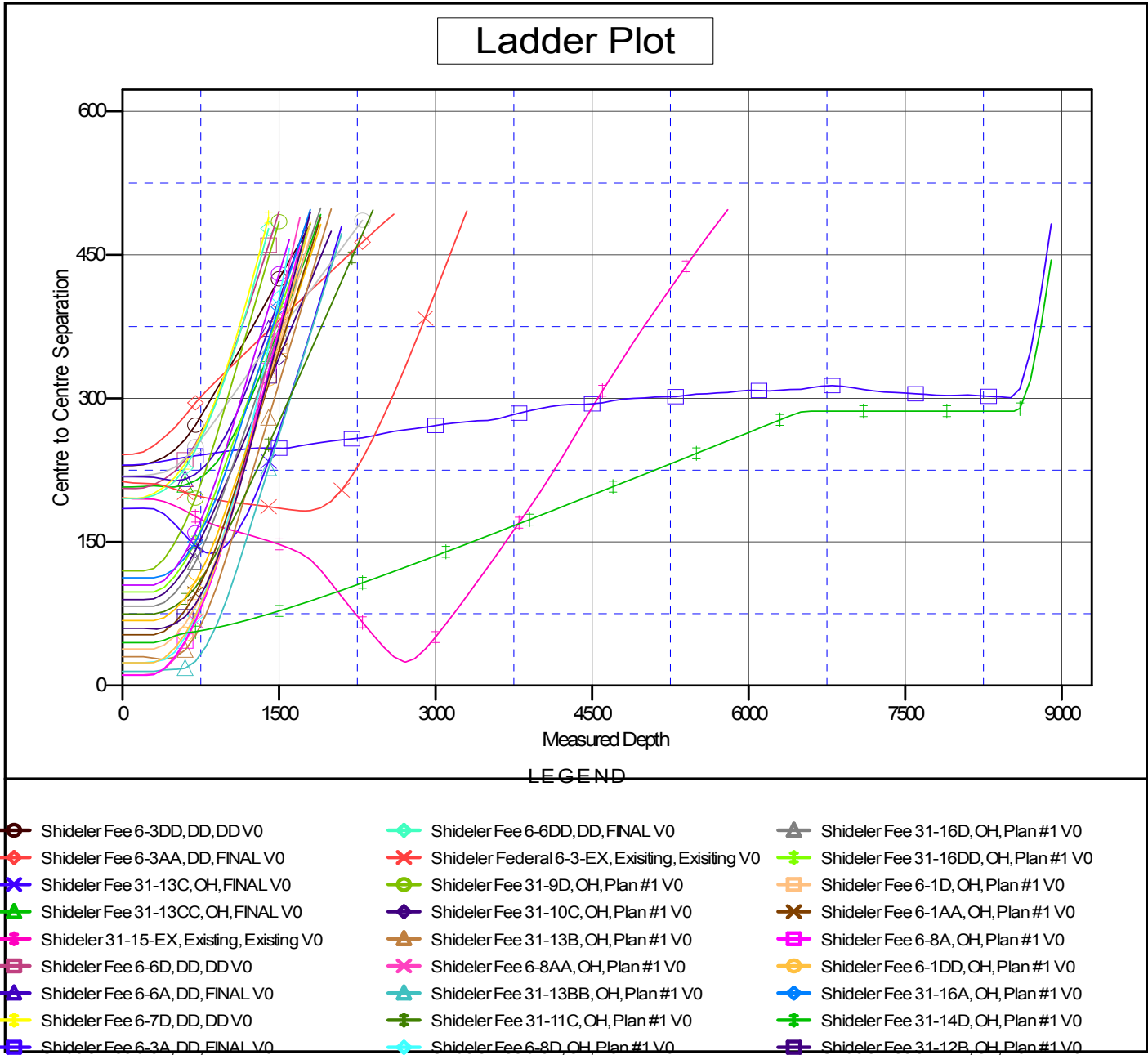
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Shideler Fee 31-14DD	
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 31-14DD	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 31-14DD
 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