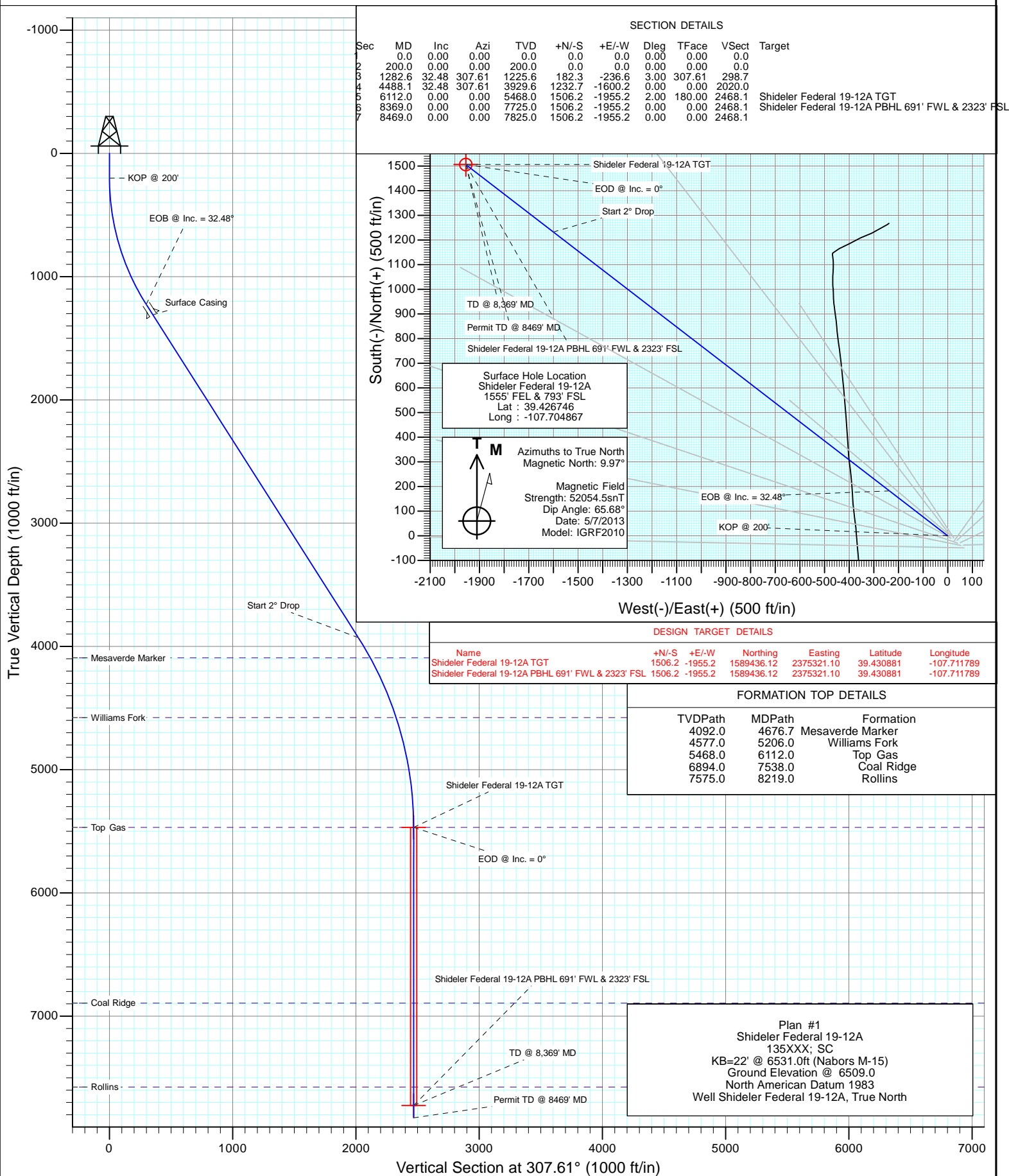
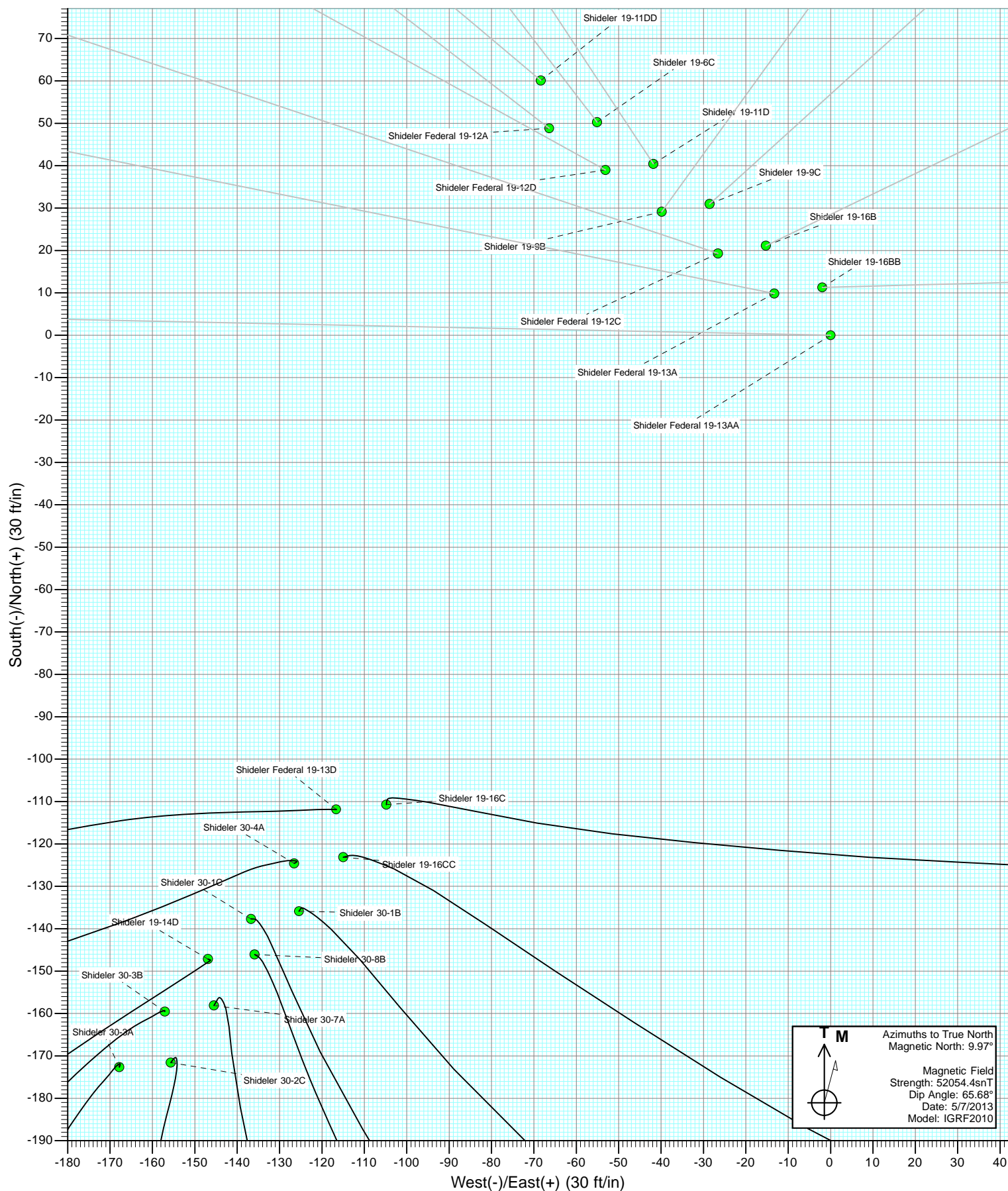
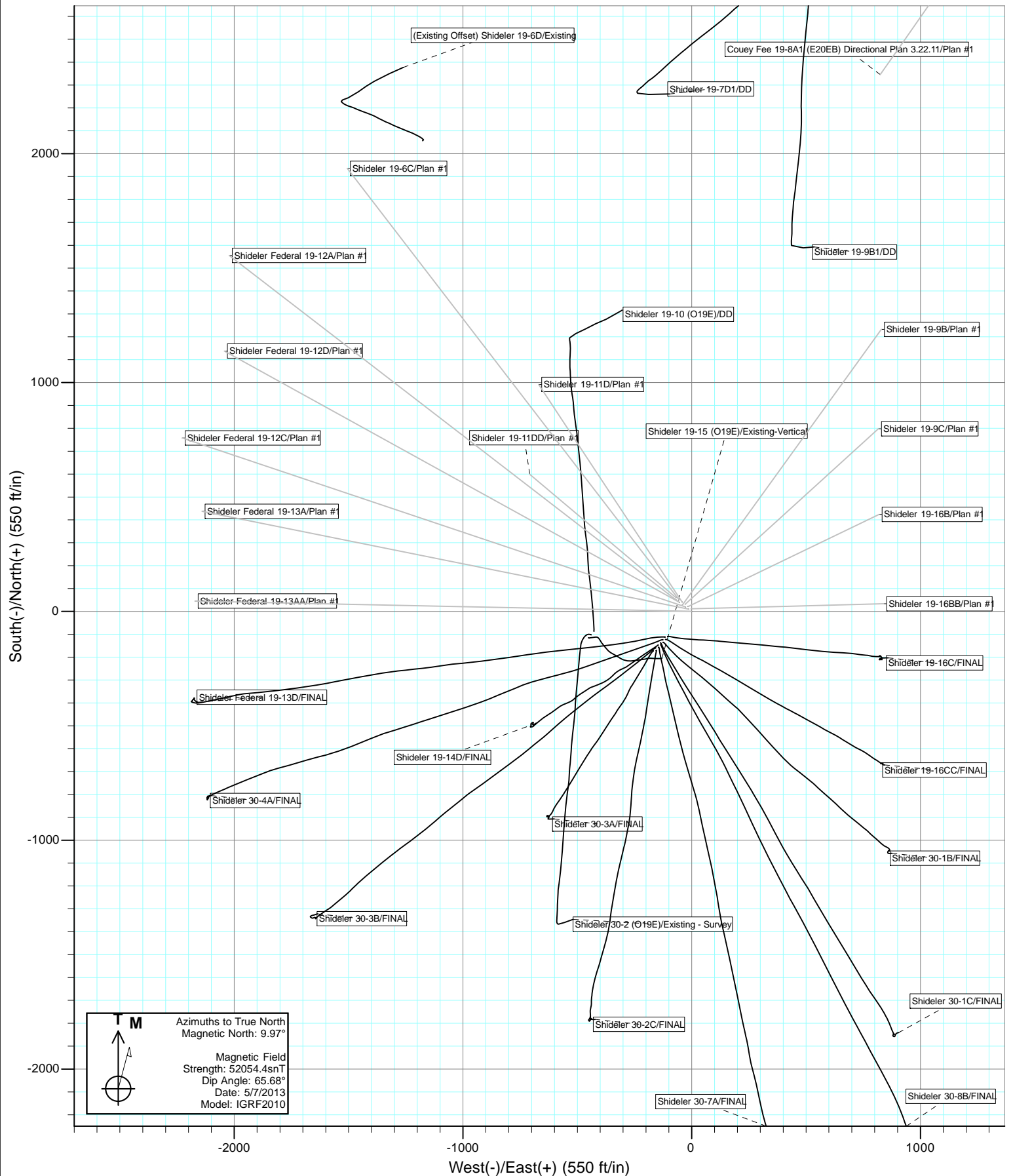




Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler Federal 19-12A
Wellbore: OH
Design: Plan #1

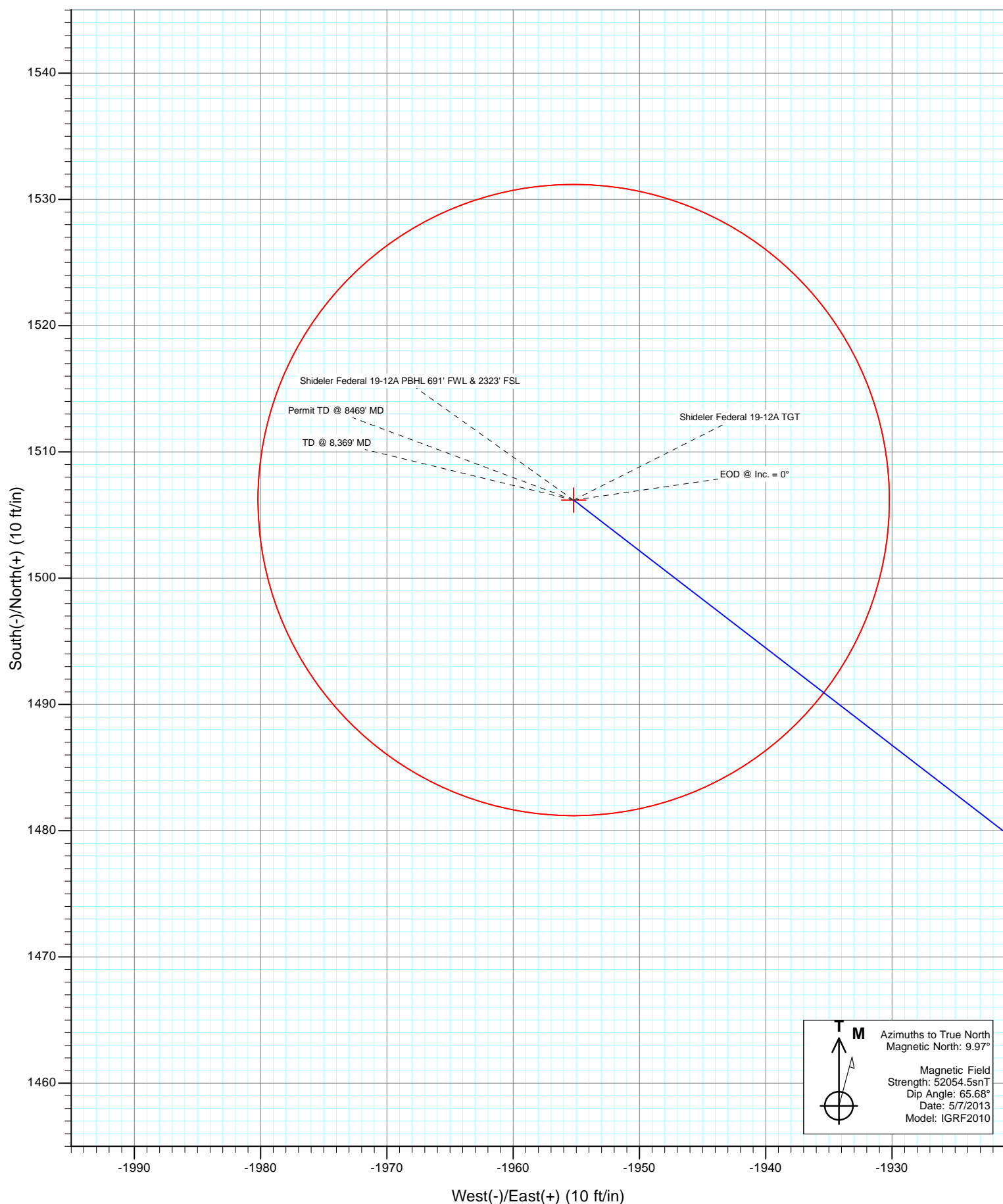








Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler Federal 19-12A
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler Federal 19-12A	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		O19EB Pad (2nd Occupation)			
Site Position:		Northing:	1,587,894.27 ft	Latitude:	39.426777
From:	Lat/Long	Easting:	2,377,237.48 ft	Longitude:	-107.704874
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	Shideler Federal 19-12A					
Well Position	+N/-S	0.0 ft	Northing:	1,587,882.93 ft	Latitude:	39.426746
	+E/-W	0.0 ft	Easting:	2,377,239.18 ft	Longitude:	-107.704867
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,509.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/7/2013	9.97	65.68	52,054

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	307.61

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,282.6	32.48	307.61	1,225.6	182.3	-236.6	3.00	3.00	0.00	307.61	
4,488.1	32.48	307.61	3,929.6	1,232.7	-1,600.2	0.00	0.00	0.00	0.00	
6,112.0	0.00	0.00	5,468.0	1,506.2	-1,955.2	2.00	-2.00	0.00	180.00	Shideler Federal 19-1
8,369.0	0.00	0.00	7,725.0	1,506.2	-1,955.2	0.00	0.00	0.00	0.00	Shideler Federal 19-1
8,469.0	0.00	0.00	7,825.0	1,506.2	-1,955.2	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler Federal 19-12A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	3.00	307.61	300.0	1.6	-2.1	2.6	3.00	3.00	
400.0	6.00	307.61	399.6	6.4	-8.3	10.5	3.00	3.00	
500.0	9.00	307.61	498.8	14.3	-18.6	23.5	3.00	3.00	
600.0	12.00	307.61	597.1	25.5	-33.1	41.7	3.00	3.00	
700.0	15.00	307.61	694.3	39.7	-51.6	65.1	3.00	3.00	
800.0	18.00	307.61	790.2	57.0	-74.1	93.5	3.00	3.00	
900.0	21.00	307.61	884.4	77.4	-100.5	126.9	3.00	3.00	
1,000.0	24.00	307.61	976.8	100.8	-130.8	165.1	3.00	3.00	
1,100.0	27.00	307.61	1,067.1	127.0	-164.9	208.2	3.00	3.00	
1,200.0	30.00	307.61	1,154.9	156.2	-202.7	255.9	3.00	3.00	
1,282.6	32.48	307.61	1,225.6	182.3	-236.6	298.7	3.00	3.00	EOB @ Inc. = 32.48°
1,300.0	32.48	307.61	1,240.2	188.0	-244.0	308.0	0.00	0.00	
1,382.6	32.48	307.61	1,309.9	215.1	-279.2	352.4	0.00	0.00	Surface Casing
1,400.0	32.48	307.61	1,324.6	220.8	-286.6	361.7	0.00	0.00	
1,500.0	32.48	307.61	1,408.9	253.5	-329.1	415.4	0.00	0.00	
1,600.0	32.48	307.61	1,493.3	286.3	-371.7	469.1	0.00	0.00	
1,700.0	32.48	307.61	1,577.7	319.1	-414.2	522.8	0.00	0.00	
1,800.0	32.48	307.61	1,662.0	351.8	-456.7	576.5	0.00	0.00	
1,900.0	32.48	307.61	1,746.4	384.6	-499.3	630.2	0.00	0.00	
2,000.0	32.48	307.61	1,830.7	417.4	-541.8	683.9	0.00	0.00	
2,100.0	32.48	307.61	1,915.1	450.2	-584.4	737.6	0.00	0.00	
2,200.0	32.48	307.61	1,999.5	482.9	-626.9	791.3	0.00	0.00	
2,300.0	32.48	307.61	2,083.8	515.7	-669.4	845.0	0.00	0.00	
2,400.0	32.48	307.61	2,168.2	548.5	-712.0	898.7	0.00	0.00	
2,500.0	32.48	307.61	2,252.5	581.2	-754.5	952.4	0.00	0.00	
2,600.0	32.48	307.61	2,336.9	614.0	-797.1	1,006.1	0.00	0.00	
2,700.0	32.48	307.61	2,421.3	646.8	-839.6	1,059.8	0.00	0.00	
2,800.0	32.48	307.61	2,505.6	679.6	-882.1	1,113.5	0.00	0.00	
2,900.0	32.48	307.61	2,590.0	712.3	-924.7	1,167.2	0.00	0.00	
3,000.0	32.48	307.61	2,674.3	745.1	-967.2	1,220.9	0.00	0.00	
3,100.0	32.48	307.61	2,758.7	777.9	-1,009.8	1,274.6	0.00	0.00	
3,200.0	32.48	307.61	2,843.0	810.6	-1,052.3	1,328.3	0.00	0.00	
3,300.0	32.48	307.61	2,927.4	843.4	-1,094.8	1,382.0	0.00	0.00	
3,400.0	32.48	307.61	3,011.8	876.2	-1,137.4	1,435.7	0.00	0.00	
3,500.0	32.48	307.61	3,096.1	908.9	-1,179.9	1,489.4	0.00	0.00	
3,600.0	32.48	307.61	3,180.5	941.7	-1,222.5	1,543.1	0.00	0.00	
3,700.0	32.48	307.61	3,264.8	974.5	-1,265.0	1,596.8	0.00	0.00	
3,800.0	32.48	307.61	3,349.2	1,007.3	-1,307.5	1,650.5	0.00	0.00	
3,900.0	32.48	307.61	3,433.6	1,040.0	-1,350.1	1,704.2	0.00	0.00	
4,000.0	32.48	307.61	3,517.9	1,072.8	-1,392.6	1,757.9	0.00	0.00	
4,100.0	32.48	307.61	3,602.3	1,105.6	-1,435.2	1,811.6	0.00	0.00	
4,200.0	32.48	307.61	3,686.6	1,138.3	-1,477.7	1,865.3	0.00	0.00	
4,300.0	32.48	307.61	3,771.0	1,171.1	-1,520.2	1,919.0	0.00	0.00	
4,400.0	32.48	307.61	3,855.4	1,203.9	-1,562.8	1,972.7	0.00	0.00	
4,488.1	32.48	307.61	3,929.6	1,232.7	-1,600.2	2,020.0	0.00	0.00	Start 2° Drop
4,500.0	32.24	307.61	3,939.7	1,236.6	-1,605.3	2,026.4	2.00	-2.00	
4,600.0	30.24	307.61	4,025.2	1,268.3	-1,646.4	2,078.2	2.00	-2.00	
4,676.7	28.71	307.61	4,092.0	1,291.3	-1,676.3	2,116.0	2.00	-2.00	Mesaverde Marker
4,700.0	28.24	307.61	4,112.5	1,298.1	-1,685.1	2,127.1	2.00	-2.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler Federal 19-12A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	26.24	307.61	4,201.4	1,326.0	-1,721.3	2,172.9	2.00	-2.00	
4,900.0	24.24	307.61	4,291.8	1,352.0	-1,755.1	2,215.5	2.00	-2.00	
5,000.0	22.24	307.61	4,383.7	1,376.1	-1,786.4	2,255.0	2.00	-2.00	
5,100.0	20.24	307.61	4,476.9	1,398.2	-1,815.1	2,291.2	2.00	-2.00	
5,200.0	18.24	307.61	4,571.3	1,418.3	-1,841.2	2,324.1	2.00	-2.00	
5,206.0	18.12	307.61	4,577.0	1,419.5	-1,842.6	2,326.0	2.00	-2.00	Williams Fork
5,300.0	16.24	307.61	4,666.8	1,436.4	-1,864.6	2,353.8	2.00	-2.00	
5,400.0	14.24	307.61	4,763.3	1,452.5	-1,885.5	2,380.1	2.00	-2.00	
5,500.0	12.24	307.61	4,860.6	1,466.4	-1,903.6	2,403.0	2.00	-2.00	
5,600.0	10.24	307.61	4,958.7	1,478.3	-1,919.1	2,422.4	2.00	-2.00	
5,700.0	8.24	307.61	5,057.4	1,488.1	-1,931.8	2,438.5	2.00	-2.00	
5,800.0	6.24	307.61	5,156.6	1,495.8	-1,941.8	2,451.1	2.00	-2.00	
5,900.0	4.24	307.61	5,256.2	1,501.4	-1,949.0	2,460.2	2.00	-2.00	
6,000.0	2.24	307.61	5,356.0	1,504.9	-1,953.5	2,465.9	2.00	-2.00	
6,100.0	0.24	307.61	5,456.0	1,506.2	-1,955.2	2,468.1	2.00	-2.00	
6,112.0	0.00	0.00	5,468.0	1,506.2	-1,955.2	2,468.1	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,200.0	0.00	0.00	5,556.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,300.0	0.00	0.00	5,656.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,400.0	0.00	0.00	5,756.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,500.0	0.00	0.00	5,856.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,600.0	0.00	0.00	5,956.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,700.0	0.00	0.00	6,056.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,800.0	0.00	0.00	6,156.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
6,900.0	0.00	0.00	6,256.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,000.0	0.00	0.00	6,356.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,100.0	0.00	0.00	6,456.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,200.0	0.00	0.00	6,556.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,300.0	0.00	0.00	6,656.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,400.0	0.00	0.00	6,756.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,500.0	0.00	0.00	6,856.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,538.0	0.00	0.00	6,894.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	Coal Ridge
7,600.0	0.00	0.00	6,956.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,700.0	0.00	0.00	7,056.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,800.0	0.00	0.00	7,156.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
7,900.0	0.00	0.00	7,256.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,000.0	0.00	0.00	7,356.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,100.0	0.00	0.00	7,456.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,200.0	0.00	0.00	7,556.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,219.0	0.00	0.00	7,575.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	Rollins
8,300.0	0.00	0.00	7,656.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,369.0	0.00	0.00	7,725.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	TD @ 8,369' MD
8,400.0	0.00	0.00	7,756.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	
8,469.0	0.00	0.00	7,825.0	1,506.2	-1,955.2	2,468.1	0.00	0.00	Permit TD @ 8469' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler Federal 19-12A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Shideler Federal 19-12A	0.00	0.00	5,468.0	1,506.2	-1,955.2	1,589,436.12	2,375,321.10	39.430881	-107.711789
- plan hits target center									
- Point									
Shideler Federal 19-12A	0.00	0.00	7,725.0	1,506.2	-1,955.2	1,589,436.12	2,375,321.10	39.430881	-107.711789
- plan hits target center									
- Circle (radius 25.0)									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(ft)	(ft)	Name	(in)	(in)
1,382.6	1,309.9	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,676.7	4,092.0	Mesaverde Marker			
5,206.0	4,577.0	Williams Fork			
6,112.0	5,468.0	Top Gas			
7,538.0	6,894.0	Coal Ridge			
8,219.0	7,575.0	Rollins			

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
1,282.6	1,225.6	182.3	-236.6	EOB @ Inc. = 32.48°
4,488.1	3,929.6	1,232.7	-1,600.2	Start 2° Drop
6,112.0	5,468.0	1,506.2	-1,955.2	EOD @ Inc. = 0°
8,369.0	7,725.0	1,506.2	-1,955.2	TD @ 8,369' MD
8,469.0	7,825.0	1,506.2	-1,955.2	Permit TD @ 8469' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O19EB Pad (2nd Occupation)

Shideler Federal 19-12A

OH

Plan #1

Anticollision Report

09 May, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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	5/8/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,469.0	Plan #1 (OH)	MWD	Geolink MWD	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 Measured Depth	Offset Measured Depth	Distance		Separation Factor	Warning
	(ft)	(ft)	Between Centres (ft)	Between Ellipses (ft)		
O19E Pad						
Shideler 19-10 (O19E) - DD - DD	1,500.0	1,509.3	154.7	143.5	13.867	SF
Shideler 19-10 (O19E) - DD - DD	1,595.8	1,600.9	150.9	140.1	14.008	CC, ES
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	1,084.5	1,090.5	343.2	336.9	53.917	CC
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	1,100.0	1,103.8	343.3	336.8	52.694	ES
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	1,400.0	1,333.2	391.6	382.2	42.088	SF
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	0.0	25.9	402.9			
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	100.0	125.6	403.0	402.6	1,197.194	ES
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	1,200.0	1,075.1	483.7	476.3	65.314	SF
O19EB Pad (1st Occupation)						
(Existing Offset) Shideler 19-6D - Existing - Existing						Out of range
Shideler 19-14D - OH - FINAL	195.7	195.7	211.8	211.2	349.349	CC
Shideler 19-14D - OH - FINAL	200.0	200.0	211.8	211.2	340.862	ES
Shideler 19-14D - OH - FINAL	1,400.0	1,304.9	497.8	489.4	59.204	SF
Shideler 19-16C - OH - FINAL	247.8	249.5	162.9	162.1	205.080	CC, ES
Shideler 19-16C - OH - FINAL	800.0	768.0	250.0	246.6	74.424	SF
Shideler 19-16CC - OH - FINAL	234.9	236.2	178.1	177.4	237.941	CC, ES
Shideler 19-16CC - OH - FINAL	800.0	746.4	269.6	266.3	81.447	SF
Shideler 30-1B - OH - FINAL	237.1	238.4	193.3	192.5	255.836	CC, ES
Shideler 30-1B - OH - FINAL	800.0	737.9	286.0	282.7	86.290	SF
Shideler 30-1C - OH - FINAL	212.6	213.0	199.1	198.4	298.369	CC, ES
Shideler 30-1C - OH - FINAL	900.0	784.0	368.2	364.3	94.008	SF
Shideler 30-2C - OH - FINAL	224.1	224.9	236.3	235.6	333.501	CC, ES
Shideler 30-2C - OH - FINAL	1,000.0	846.0	442.4	437.7	94.339	SF
Shideler 30-3A - OH - FINAL	213.8	214.2	242.8	242.1	361.778	CC, ES
Shideler 30-3A - OH - FINAL	1,200.0	1,087.2	491.8	485.1	73.514	SF
Shideler 30-3B - OH - FINAL	209.0	209.3	227.0	226.3	347.213	CC, ES
Shideler 30-3B - OH - FINAL	1,200.0	1,036.8	494.3	486.6	64.423	SF
Shideler 30-4A - OH - FINAL	205.7	205.9	182.8	182.2	284.759	CC, ES
Shideler 30-4A - OH - FINAL	1,400.0	1,285.7	491.9	480.4	42.510	SF
Shideler 30-7A - OH - FINAL	239.4	240.7	219.4	218.7	287.242	CC, ES
Shideler 30-7A - OH - FINAL	1,100.0	906.6	491.0	485.8	93.987	SF
Shideler 30-8B - OH - FINAL	0.0	0.0	206.9			
Shideler 30-8B - OH - FINAL	200.0	198.8	207.1	206.5	334.085	ES
Shideler 30-8B - OH - FINAL	900.0	775.4	380.7	376.8	97.826	SF
Shideler Federal 19-13D - OH - FINAL	0.0	0.0	168.3			
Shideler Federal 19-13D - OH - FINAL	200.0	199.8	168.4	167.7	271.130	ES
Shideler Federal 19-13D - OH - FINAL	1,500.0	1,415.6	473.8	459.2	32.408	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
O19EB Pad (2nd Occupation)						
Shideler 19-11D - OH - Plan #1	200.0	200.0	26.0	25.3	41.788	CC, ES
Shideler 19-11D - OH - Plan #1	400.0	399.6	36.0	34.7	27.328	SF
Shideler 19-11DD - OH - Plan #1	631.6	630.4	9.6	6.8	3.376	CC, ES
Shideler 19-11DD - OH - Plan #1	700.0	698.6	10.6	7.3	3.196	SF
Shideler 19-16B - OH - Plan #1	200.0	200.0	58.1	57.5	93.575	CC, ES
Shideler 19-16B - OH - Plan #1	500.0	493.6	87.4	85.7	52.007	SF
Shideler 19-16BB - OH - Plan #1	200.0	200.0	74.5	73.9	119.959	CC, ES
Shideler 19-16BB - OH - Plan #1	500.0	494.6	100.0	98.3	60.476	SF
Shideler 19-6C - OH - Plan #1	200.0	200.0	11.4	10.8	18.336	CC, ES
Shideler 19-6C - OH - Plan #1	4,200.0	4,193.3	487.7	417.5	6.941	SF
Shideler 19-9B - OH - Plan #1	200.0	200.0	33.0	32.4	53.182	CC, ES
Shideler 19-9B - OH - Plan #1	400.0	399.6	43.5	42.2	32.948	SF
Shideler 19-9C - OH - Plan #1	200.0	200.0	41.9	41.2	67.356	CC, ES
Shideler 19-9C - OH - Plan #1	400.0	397.1	56.5	55.1	41.623	SF
Shideler Federal 19-12C - OH - Plan #1	200.0	200.0	49.6	48.9	79.778	CC, ES
Shideler Federal 19-12C - OH - Plan #1	3,400.0	3,403.9	497.7	448.0	10.029	SF
Shideler Federal 19-12D - OH - Plan #1	200.0	200.0	16.5	15.9	26.591	CC, ES
Shideler Federal 19-12D - OH - Plan #1	8,469.0	8,379.7	418.0	336.2	5.112	SF
Shideler Federal 19-13A - OH - Plan #1	200.0	200.0	65.9	65.3	106.017	CC, ES
Shideler Federal 19-13A - OH - Plan #1	2,600.0	2,580.2	484.3	451.4	14.720	SF
Shideler Federal 19-13AA - OH - Plan #1	100.0	100.0	82.4	82.1	302.617	CC
Shideler Federal 19-13AA - OH - Plan #1	200.0	200.0	82.4	81.8	132.608	ES
Shideler Federal 19-13AA - OH - Plan #1	2,100.0	2,061.1	485.9	461.2	19.729	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19E Pad - Shideler 19-10 (O19E) - DD - DD													Offset Site Error:	0.0 ft
Survey Program: 154--MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	26.0	26.0	0.0	0.0	-110.67	-136.1	-360.9	385.7					
100.0	100.0	125.9	125.9	0.1	0.2	-110.64	-136.0	-360.9	385.7	385.4	0.34	1,148.179		
200.0	200.0	226.2	226.2	0.3	0.4	-110.58	-135.6	-361.1	385.7	385.0	0.68	566.154		
300.0	300.0	326.6	326.6	0.5	0.5	-58.45	-134.9	-361.2	384.2	383.2	1.04	370.200		
400.0	399.6	432.1	432.0	0.7	0.7	-59.32	-132.5	-361.1	379.2	377.8	1.44	264.070		
500.0	498.8	535.8	535.6	1.0	0.9	-60.48	-126.4	-361.0	370.3	368.4	1.90	194.885		
600.0	597.1	641.4	640.5	1.4	1.2	-61.76	-114.7	-361.7	357.7	355.2	2.48	144.430		
700.0	694.3	746.4	744.1	1.8	1.5	-63.20	-97.5	-362.2	340.4	337.3	3.19	106.761		
800.0	790.2	847.3	842.7	2.4	1.9	-64.81	-76.1	-363.6	319.8	315.7	4.04	79.186		
900.0	884.4	947.2	939.4	3.0	2.4	-66.90	-51.2	-365.7	296.1	291.1	5.03	58.930		
1,000.0	976.8	1,045.2	1,033.7	3.7	2.8	-69.95	-24.6	-367.8	269.9	263.8	6.13	44.018		
1,100.0	1,067.1	1,140.7	1,125.3	4.6	3.3	-74.40	2.5	-370.0	242.1	234.8	7.35	32.939		
1,200.0	1,154.9	1,235.0	1,215.2	5.5	3.8	-80.75	30.5	-372.8	214.2	205.6	8.64	24.800		
1,300.0	1,240.2	1,327.0	1,302.9	6.5	4.3	-89.48	58.3	-375.9	188.5	178.7	9.87	19.102		
1,400.0	1,324.6	1,419.4	1,390.6	7.5	4.8	-99.90	87.1	-379.3	167.6	156.8	10.79	15.525		
1,500.0	1,408.9	1,509.3	1,476.2	8.5	5.3	-112.09	114.4	-382.7	154.7	143.5	11.15	13.867 SF		
1,595.8	1,489.8	1,600.9	1,563.4	9.5	5.8	-125.96	142.5	-385.2	150.9	140.1	10.77	14.008 CC, ES		
1,600.0	1,493.3	1,604.9	1,567.1	9.6	5.9	-126.58	143.8	-385.3	150.9	140.2	10.74	14.047		
1,700.0	1,577.7	1,695.4	1,652.9	10.6	6.4	-140.43	172.6	-386.8	157.0	147.0	10.01	15.689		
1,800.0	1,662.0	1,790.3	1,742.6	11.6	7.0	-153.24	203.4	-388.9	172.2	162.8	9.31	18.492		
1,900.0	1,746.4	1,883.5	1,830.3	12.6	7.5	-163.65	234.9	-391.5	193.4	184.4	8.93	21.661		
2,000.0	1,830.7	1,976.3	1,917.5	13.7	8.1	-171.84	266.4	-394.9	219.3	210.3	8.95	24.496		
2,100.0	1,915.1	2,069.4	2,005.0	14.7	8.7	-178.21	297.9	-398.9	248.3	238.8	9.48	26.183		
2,200.0	1,999.5	2,155.9	2,086.5	15.7	9.2	177.03	327.0	-402.1	280.3	269.9	10.44	26.862		
2,300.0	2,083.8	2,245.7	2,171.1	16.7	9.7	172.95	356.8	-403.9	315.4	303.7	11.71	26.936		
2,400.0	2,168.2	2,340.5	2,260.5	17.8	10.3	169.44	388.6	-406.0	351.5	338.3	13.20	26.630		
2,500.0	2,252.5	2,433.6	2,347.7	18.8	10.9	166.50	421.0	-408.4	387.6	372.9	14.74	26.288		
2,600.0	2,336.9	2,523.5	2,432.0	19.8	11.5	164.14	452.1	-410.7	424.6	408.4	16.23	26.163		
2,700.0	2,421.3	2,613.5	2,516.6	20.9	12.0	162.22	482.7	-412.8	462.5	444.8	17.66	26.188		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19E Pad - Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertical												Offset Site Error:	0.0 ft
Survey Program: 100-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	26.5	26.5	0.0	0.0	-113.20	-164.6	-384.2	417.9				
100.0	100.0	127.7	127.7	0.1	0.2	-113.21	-164.6	-383.8	417.6	417.3	0.33	1,247.710	
200.0	200.0	228.6	228.6	0.3	0.4	-113.29	-165.0	-383.2	417.2	416.5	0.69	608.808	
300.0	300.0	332.1	332.1	0.5	0.6	-61.37	-165.1	-381.9	414.9	413.8	1.05	396.062	
400.0	399.6	434.5	434.5	0.7	0.7	-62.58	-164.8	-380.0	409.4	407.9	1.44	284.831	
500.0	498.8	537.0	537.0	1.0	0.9	-64.61	-164.3	-377.4	400.9	399.0	1.88	212.904	
600.0	597.1	638.6	638.5	1.4	1.1	-67.54	-163.6	-373.6	389.9	387.5	2.41	161.946	
700.0	694.3	736.4	736.2	1.8	1.3	-71.33	-162.7	-369.4	377.2	374.2	3.02	124.704	
800.0	790.2	830.9	830.6	2.4	1.5	-76.05	-162.5	-365.0	364.7	361.0	3.75	97.267	
900.0	884.4	925.3	924.9	3.0	1.7	-81.74	-162.1	-360.3	353.7	349.1	4.59	77.058	
1,000.0	976.8	1,016.7	1,016.1	3.7	1.8	-88.17	-161.6	-355.6	345.7	340.2	5.52	62.591	
1,084.5	1,053.2	1,090.5	1,089.8	4.4	2.0	-93.97	-161.5	-351.5	343.2	336.9	6.37	53.917	CC
1,100.0	1,067.1	1,103.8	1,103.1	4.6	2.0	-95.06	-161.5	-350.7	343.3	336.8	6.52	52.694	ES
1,200.0	1,154.9	1,186.7	1,185.9	5.5	2.2	-102.02	-162.0	-346.0	349.0	341.5	7.52	46.418	
1,300.0	1,240.2	1,260.0	1,259.0	6.5	2.3	-108.24	-163.5	-342.2	365.0	356.5	8.48	43.057	
1,400.0	1,324.6	1,333.2	1,332.1	7.5	2.4	-114.49	-166.8	-339.1	391.6	382.2	9.30	42.088	SF
1,500.0	1,408.9	1,410.8	1,409.6	8.5	2.6	-120.39	-171.2	-336.6	425.6	415.6	9.99	42.599	
1,600.0	1,493.3	1,493.4	1,492.0	9.6	2.7	-125.90	-176.0	-334.0	464.7	454.1	10.54	44.074	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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												O19E Pad - Shideler 30-2 (O19E) - Existing - Survey - Existing - Survey		Offset Site Error:		0.0 ft	
Survey Program: 164-MWD2														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	25.9	25.9	0.0	0.0	-112.06	-151.3	-373.4	402.9								
100.0	100.0	125.6	125.6	0.1	0.2	-112.04	-151.2	-373.5	403.0	402.6	0.34	1,197.194 ES					
200.0	200.0	221.4	221.4	0.3	0.4	-111.97	-150.9	-374.0	403.3	402.6	0.67	599.329					
300.0	300.0	309.6	309.5	0.5	0.5	-59.58	-150.1	-376.7	404.5	403.5	1.01	399.806					
400.0	399.6	396.3	396.0	0.7	0.7	-59.93	-149.1	-382.5	406.3	404.9	1.38	294.799					
500.0	498.8	485.6	485.0	1.0	0.9	-61.04	-150.4	-390.2	408.4	406.6	1.80	227.008					
600.0	597.1	574.6	573.4	1.4	1.1	-63.19	-155.8	-398.4	410.8	408.5	2.28	180.070					
700.0	694.3	662.2	660.2	1.8	1.4	-66.31	-165.3	-406.5	414.3	411.4	2.86	144.823					
800.0	790.2	755.0	751.5	2.4	1.6	-70.63	-179.4	-413.8	419.0	415.4	3.57	117.326					
900.0	884.4	841.1	835.8	3.0	1.9	-75.56	-196.4	-418.4	426.1	421.7	4.40	96.836					
1,000.0	976.8	918.2	910.6	3.7	2.2	-80.50	-214.8	-420.8	438.4	433.1	5.32	82.401					
1,100.0	1,067.1	995.3	985.0	4.6	2.6	-85.57	-235.2	-423.2	457.8	451.5	6.33	72.347					
1,200.0	1,154.9	1,075.1	1,061.8	5.5	2.9	-90.71	-256.4	-425.4	483.7	476.3	7.41	65.314 SF					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 19-14D - OH - FINAL													Offset Site Error:	0.0 ft
Survey Program: 172-MWD, 1613-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis				Distance					Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-157.67	-196.0	-80.5	211.9					
100.0	100.0	100.0	100.0	0.1	0.2	-157.71	-196.0	-80.4	211.8	211.6	0.29	734.399		
195.7	195.7	195.7	195.7	0.3	0.3	-157.82	-196.1	-80.0	211.8	211.2	0.61	349.349	CC	
200.0	200.0	200.0	200.0	0.3	0.3	-157.82	-196.2	-80.0	211.8	211.2	0.62	340.862	ES	
300.0	300.0	296.6	296.6	0.5	0.5	-105.96	-196.6	-80.5	213.2	212.2	0.97	219.264		
400.0	399.6	386.0	385.9	0.7	0.6	-107.03	-198.6	-83.4	218.8	217.4	1.35	162.539		
500.0	498.8	478.0	477.6	1.0	0.8	-108.39	-202.9	-90.1	229.7	227.9	1.79	128.143		
600.0	597.1	574.0	572.8	1.4	1.1	-110.15	-209.3	-100.0	245.4	243.0	2.33	105.297		
700.0	694.3	671.0	669.0	1.8	1.3	-112.56	-216.3	-110.6	264.0	261.0	2.95	89.500		
800.0	790.2	766.5	763.7	2.4	1.6	-115.41	-223.4	-121.1	285.6	282.0	3.64	78.511		
900.0	884.4	861.6	858.0	3.0	1.9	-118.54	-230.5	-131.6	310.6	306.2	4.38	70.848		
1,000.0	976.8	954.1	949.6	3.7	2.1	-121.67	-237.4	-141.9	339.5	334.3	5.17	65.647		
1,100.0	1,067.1	1,044.6	1,039.2	4.6	2.4	-124.70	-244.4	-152.1	372.7	366.7	5.99	62.258		
1,200.0	1,154.9	1,132.8	1,126.5	5.5	2.7	-127.52	-251.4	-162.2	410.6	403.7	6.82	60.195		
1,300.0	1,240.2	1,220.1	1,213.0	6.5	2.9	-130.34	-258.4	-172.3	452.9	445.3	7.65	59.211		
1,400.0	1,324.6	1,304.9	1,296.9	7.5	3.2	-133.55	-265.1	-181.9	497.8	489.4	8.41	59.204	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 19-16C - OH - FINAL												Offset Site Error:	0.0 ft
Survey Program: 173-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	-166.46	-159.5	-38.4	164.1				
100.0	100.0	100.8	100.8	0.1	0.2	-166.45	-159.3	-38.4	163.9	163.6	0.29	564.685	
200.0	200.0	201.4	201.4	0.3	0.3	-166.43	-158.6	-38.3	163.1	162.5	0.62	261.112	
247.8	247.8	249.5	249.5	0.4	0.4	-114.30	-158.1	-38.0	162.9	162.1	0.79	205.080	CC, ES
300.0	300.0	301.0	301.0	0.5	0.5	-115.32	-157.9	-36.8	163.3	162.3	0.98	166.582	
400.0	399.6	399.6	399.4	0.7	0.7	-119.87	-158.7	-30.3	166.5	165.2	1.38	120.665	
500.0	498.8	494.7	493.8	1.0	0.9	-126.84	-160.7	-19.3	175.1	173.3	1.86	94.256	
600.0	597.1	588.5	586.4	1.4	1.2	-135.04	-163.6	-4.7	191.5	189.1	2.38	80.492	
700.0	694.3	679.6	675.9	1.8	1.5	-143.13	-166.1	12.3	216.3	213.4	2.90	74.644	
800.0	790.2	768.0	762.2	2.4	1.9	-150.36	-168.1	30.8	250.0	246.6	3.36	74.424	SF
900.0	884.4	853.5	845.7	3.0	2.2	-156.30	-169.9	49.4	291.8	288.0	3.76	77.676	
1,000.0	976.8	935.1	925.2	3.7	2.6	-161.01	-171.4	67.7	340.8	336.7	4.10	83.168	
1,100.0	1,067.1	1,016.0	1,003.9	4.6	2.9	-164.91	-172.6	86.4	396.2	391.8	4.39	90.274	
1,200.0	1,154.9	1,095.5	1,081.3	5.5	3.3	-168.06	-173.4	104.4	456.5	451.8	4.64	98.463	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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: 202-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis		Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-164.22	-171.9	-48.6	178.7					
100.0	100.0	100.4	100.4	0.1	0.2	-164.28	-171.9	-48.4	178.5	178.3	0.29	610.868		
200.0	200.0	200.8	200.8	0.3	0.3	-164.46	-171.7	-47.7	178.2	177.6	0.62	286.079		
234.9	234.9	236.2	236.2	0.4	0.4	-112.27	-171.6	-47.4	178.1	177.4	0.75	237.941	CC, ES	
300.0	300.0	300.8	300.8	0.5	0.5	-113.27	-171.5	-46.3	178.7	177.7	0.98	181.974		
400.0	399.6	398.1	398.0	0.7	0.7	-116.66	-172.4	-42.3	182.0	180.7	1.37	132.558		
500.0	498.8	492.3	491.9	1.0	0.9	-121.97	-175.3	-35.4	190.5	188.7	1.82	104.666		
600.0	597.1	581.2	580.1	1.4	1.1	-128.21	-180.7	-25.9	207.0	204.7	2.31	89.545		
700.0	694.3	666.1	663.8	1.8	1.4	-134.54	-188.5	-14.0	233.2	230.4	2.82	82.810		
800.0	790.2	746.4	742.4	2.4	1.7	-140.31	-197.8	-0.1	269.6	266.3	3.31	81.447	SF	
900.0	884.4	825.8	819.4	3.0	2.0	-145.45	-208.3	15.9	315.3	311.5	3.77	83.598		
1,000.0	976.8	902.0	893.0	3.7	2.4	-149.64	-218.8	32.3	368.4	364.2	4.19	87.848		
1,100.0	1,067.1	978.5	966.8	4.6	2.8	-153.19	-229.4	49.6	427.9	423.4	4.58	93.368		
1,200.0	1,154.9	1,054.2	1,039.9	5.5	3.1	-156.17	-239.1	66.9	492.1	487.1	4.94	99.555		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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													O19EB Pad (1st Occupation) - Shideler 30-1B - OH - FINAL		Offset Site Error:		0.0 ft
Survey Program:													202-MWD		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Total	Separation	Warning				
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	Axis						
0.0	0.0	0.0	0.0	0.0	0.0	-162.27	-184.7	-59.0	193.9								
100.0	100.0	100.5	100.5	0.1	0.2	-162.28	-184.6	-59.0	193.8	193.5	0.29	662.490					
200.0	200.0	201.0	201.0	0.3	0.3	-162.32	-184.3	-58.7	193.4	192.8	0.62	310.248					
237.1	237.1	238.4	238.4	0.4	0.4	-110.05	-184.1	-58.6	193.3	192.5	0.76	255.836	CC, ES				
300.0	300.0	300.1	300.1	0.5	0.5	-110.77	-183.9	-58.1	193.8	192.8	0.98	198.080					
400.0	399.6	396.3	396.2	0.7	0.7	-113.55	-185.5	-55.6	197.6	196.3	1.36	144.962					
500.0	498.8	488.6	488.3	1.0	0.8	-117.95	-189.5	-50.8	206.7	204.9	1.80	114.945					
600.0	597.1	575.7	574.9	1.4	1.0	-123.17	-196.7	-44.1	223.6	221.3	2.28	98.052					
700.0	694.3	661.0	659.1	1.8	1.3	-128.71	-207.2	-35.3	249.9	247.1	2.79	89.454					
800.0	790.2	737.9	734.3	2.4	1.6	-133.62	-219.1	-25.0	286.0	282.7	3.31	86.290	SF				
900.0	884.4	813.1	807.1	3.0	1.9	-138.17	-232.7	-12.2	331.5	327.7	3.84	86.405					
1,000.0	976.8	884.9	876.1	3.7	2.3	-142.13	-246.4	2.5	385.3	381.0	4.34	88.818					
1,100.0	1,067.1	953.8	941.9	4.6	2.7	-145.37	-260.1	17.8	446.0	441.1	4.83	92.406					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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												O19EB Pad (1st Occupation) - Shideler 30-1C - OH - FINAL		Offset Site Error:		0.0 ft
Survey Program:		111-MWD											Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	-159.34	-186.5	-70.3	199.3							
100.0	100.0	100.2	100.2	0.1	0.1	-159.36	-186.5	-70.3	199.3	199.0	0.28	721.220				
200.0	200.0	200.6	200.6	0.3	0.3	-159.52	-186.5	-69.7	199.1	198.5	0.62	319.894				
212.6	212.6	213.0	213.0	0.3	0.3	-107.18	-186.5	-69.5	199.1	198.4	0.67	298.369	CC, ES			
300.0	300.0	295.4	295.3	0.5	0.5	-108.24	-187.7	-68.3	200.6	199.6	0.97	206.218				
400.0	399.6	386.0	385.8	0.7	0.7	-111.16	-193.0	-65.3	207.8	206.5	1.36	153.284				
500.0	498.8	472.8	471.9	1.0	0.9	-115.26	-202.6	-61.1	222.7	220.9	1.79	124.308				
600.0	597.1	557.6	555.4	1.4	1.1	-120.04	-215.8	-55.1	245.8	243.5	2.29	107.417				
700.0	694.3	639.7	635.6	1.8	1.5	-125.03	-231.6	-46.6	277.7	274.9	2.82	98.391				
800.0	790.2	715.3	708.6	2.4	1.8	-129.45	-248.5	-36.6	318.4	315.1	3.37	94.604				
900.0	884.4	784.0	774.1	3.0	2.2	-132.99	-265.9	-26.0	368.2	364.3	3.92	94.008	SF			
1,000.0	976.8	846.0	832.6	3.7	2.6	-135.64	-283.5	-15.3	426.4	421.9	4.49	95.062				
1,100.0	1,067.1	900.4	883.3	4.6	3.0	-137.38	-300.4	-5.0	492.0	486.9	5.10	96.415				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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													O19EB Pad (1st Occupation) - Shideler 30-2C - OH - FINAL		Offset Site Error:		0.0 ft
Survey Program:													172-MWD, 1616-MWD		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation Factor					
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis						
0.0	0.0	0.0	0.0	0.0	0.0	-157.95	-220.4	-89.3	237.8								
100.0	100.0	101.7	101.7	0.1	0.2	-157.97	-220.1	-89.0	237.4	237.1	0.29	815.022					
200.0	200.0	202.0	202.0	0.3	0.3	-158.05	-219.3	-88.4	236.4	235.8	0.63	377.915					
224.1	224.1	224.9	224.9	0.4	0.4	-105.73	-219.2	-88.2	236.3	235.6	0.71	333.501	CC, ES				
300.0	300.0	294.0	294.0	0.5	0.5	-106.36	-220.0	-87.8	237.7	236.7	0.97	245.410					
400.0	399.6	383.6	383.5	0.7	0.6	-108.01	-224.0	-88.2	244.4	243.0	1.34	182.133					
500.0	498.8	468.1	467.6	1.0	0.8	-110.18	-231.7	-89.9	258.1	256.3	1.76	146.655					
600.0	597.1	551.7	550.4	1.4	1.1	-112.81	-243.5	-92.4	279.4	277.2	2.24	124.820					
700.0	694.3	631.1	628.3	1.8	1.3	-115.57	-258.5	-94.8	308.4	305.7	2.77	111.348					
800.0	790.2	706.1	701.2	2.4	1.7	-117.99	-275.9	-97.7	345.5	342.1	3.35	103.008					
900.0	884.4	776.5	768.7	3.0	2.0	-119.97	-295.3	-101.1	390.3	386.3	3.99	97.780					
1,000.0	976.8	846.0	834.5	3.7	2.4	-121.61	-317.3	-104.8	442.4	437.7	4.69	94.339	SF				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 30-3A - OH - FINAL												Offset Site Error:	0.0 ft
Survey Program: 172-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	-155.40	-221.5	-101.4	243.6				
100.0	100.0	101.0	101.0	0.1	0.2	-155.39	-221.3	-101.3	243.4	243.1	0.29	838.833	
200.0	200.0	200.9	200.9	0.3	0.3	-155.37	-220.7	-101.2	242.8	242.2	0.62	389.447	
213.8	213.8	214.2	214.2	0.3	0.3	-102.98	-220.7	-101.2	242.8	242.1	0.67	361.778	CC, ES
300.0	300.0	294.0	294.0	0.5	0.5	-103.34	-221.2	-102.1	244.3	243.3	0.97	252.296	
400.0	399.6	382.8	382.7	0.7	0.6	-104.42	-224.6	-105.0	251.0	249.7	1.34	187.028	
500.0	498.8	468.1	467.5	1.0	0.8	-105.93	-231.1	-110.2	263.8	262.0	1.77	149.015	
600.0	597.1	554.2	552.7	1.4	1.1	-107.98	-241.4	-116.8	283.2	280.9	2.27	124.763	
700.0	694.3	644.5	641.7	1.8	1.4	-110.55	-254.8	-124.5	307.9	305.0	2.85	107.979	
800.0	790.2	734.5	730.3	2.4	1.7	-113.25	-269.0	-132.9	336.7	333.2	3.50	96.072	
900.0	884.4	822.9	816.9	3.0	2.0	-115.98	-283.9	-141.2	369.8	365.6	4.22	87.655	
1,000.0	976.8	914.4	906.7	3.7	2.3	-118.83	-299.6	-149.8	406.9	401.9	5.00	81.421	
1,100.0	1,067.1	1,003.5	994.1	4.6	2.6	-121.41	-314.2	-158.7	447.3	441.5	5.83	76.789	
1,200.0	1,154.9	1,087.2	1,076.2	5.5	3.0	-123.64	-328.0	-167.3	491.8	485.1	6.69	73.514	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 30-3B - OH - FINAL													Offset Site Error:	0.0 ft
Survey Program: 160-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-156.48	-208.3	-90.7	227.2					
100.0	100.0	100.2	100.2	0.1	0.2	-156.47	-208.3	-90.7	227.2	226.9	0.29	791.491		
200.0	200.0	200.7	200.7	0.3	0.3	-156.46	-208.1	-90.7	227.0	226.4	0.62	364.619		
209.0	209.0	209.3	209.3	0.3	0.3	-104.07	-208.1	-90.7	227.0	226.3	0.65	347.213	CC, ES	
300.0	300.0	294.0	294.0	0.5	0.5	-104.36	-208.5	-91.9	228.6	227.6	0.97	235.999		
400.0	399.6	386.0	385.8	0.7	0.6	-105.15	-210.9	-96.2	234.8	233.4	1.35	173.682		
500.0	498.8	478.0	477.3	1.0	0.9	-106.35	-216.3	-104.0	246.9	245.1	1.80	136.870		
600.0	597.1	557.9	556.4	1.4	1.1	-107.69	-224.4	-113.0	265.5	263.2	2.32	114.626		
700.0	694.3	645.5	642.2	1.8	1.4	-109.25	-235.8	-125.9	290.1	287.2	2.95	98.407		
800.0	790.2	729.0	723.2	2.4	1.8	-110.48	-248.5	-141.5	320.0	316.3	3.68	86.915		
900.0	884.4	808.7	799.5	3.0	2.2	-111.43	-262.8	-159.4	355.6	351.1	4.52	78.652		
1,000.0	976.8	884.9	871.2	3.7	2.7	-111.97	-278.7	-179.6	396.9	391.4	5.47	72.583		
1,100.0	1,067.1	959.7	940.2	4.6	3.3	-112.18	-296.3	-202.5	443.6	437.0	6.52	68.044		
1,200.0	1,154.9	1,036.8	1,010.5	5.5	3.9	-112.37	-315.9	-227.6	494.3	486.6	7.67	64.423	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 30-4A - OH - FINAL												Offset Site Error:	0.0 ft
Survey Program: 111-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-160.86	-173.4	-60.2	183.5				
100.0	100.0	100.8	100.8	0.1	0.1	-160.93	-173.2	-59.9	183.3	183.0	0.28	661.267	
200.0	200.0	200.3	200.3	0.3	0.3	-161.00	-172.9	-59.5	182.8	182.2	0.62	293.976	
205.7	205.7	205.9	205.9	0.3	0.3	-108.60	-172.9	-59.6	182.8	182.2	0.64	284.759	CC, ES
300.0	300.0	296.5	296.4	0.5	0.5	-108.62	-172.7	-61.8	184.3	183.3	0.97	189.323	
400.0	399.6	390.6	390.3	0.7	0.7	-108.88	-174.1	-68.2	190.4	189.0	1.37	139.120	
500.0	498.8	481.0	480.1	1.0	0.9	-109.49	-177.9	-77.8	202.0	200.2	1.83	110.130	
600.0	597.1	574.3	572.1	1.4	1.2	-110.22	-183.8	-91.8	218.8	216.4	2.42	90.293	
700.0	694.3	668.2	664.0	1.8	1.5	-110.87	-190.4	-110.0	239.4	236.2	3.15	76.024	
800.0	790.2	754.0	747.1	2.4	1.9	-111.29	-197.5	-130.4	264.2	260.2	3.98	66.369	
900.0	884.4	846.0	834.8	3.0	2.5	-111.56	-206.6	-156.7	293.8	288.8	4.99	58.828	
1,000.0	976.8	931.4	914.7	3.7	3.1	-111.55	-216.4	-185.1	327.7	321.6	6.12	53.557	
1,100.0	1,067.1	1,019.7	996.2	4.6	3.7	-111.62	-227.5	-217.0	365.3	357.9	7.37	49.592	
1,200.0	1,154.9	1,108.6	1,078.0	5.5	4.3	-111.95	-239.3	-250.1	405.6	396.9	8.71	46.556	
1,300.0	1,240.2	1,198.2	1,159.9	6.5	5.0	-112.74	-251.2	-284.2	448.2	438.1	10.14	44.213	
1,400.0	1,324.6	1,285.7	1,239.9	7.5	5.7	-114.43	-262.8	-317.7	491.9	480.4	11.57	42.510	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 30-7A - OH - FINAL												Offset Site Error:	0.0 ft
Survey Program: 172-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	-159.08	-206.9	-79.1	221.5				
100.0	100.0	102.0	102.0	0.1	0.2	-159.10	-206.5	-78.8	221.0	220.7	0.29	756.282	
200.0	200.0	203.0	203.0	0.3	0.3	-159.16	-205.3	-78.2	219.7	219.1	0.63	349.727	
239.4	239.4	240.7	240.7	0.4	0.4	-106.92	-205.0	-77.9	219.4	218.7	0.76	287.242 CC, ES	
300.0	300.0	296.6	296.6	0.5	0.5	-107.60	-205.5	-77.2	220.4	219.4	0.97	226.415	
400.0	399.6	385.4	385.3	0.7	0.6	-109.77	-209.5	-75.9	226.7	225.3	1.35	168.251	
500.0	498.8	473.4	472.9	1.0	0.8	-112.80	-217.7	-74.9	240.2	238.4	1.77	135.421	
600.0	597.1	558.8	557.4	1.4	1.1	-116.48	-229.3	-73.2	260.9	258.7	2.26	115.639	
700.0	694.3	638.7	636.0	1.8	1.3	-120.26	-243.7	-70.3	290.0	287.2	2.78	104.304	
800.0	790.2	713.4	708.7	2.4	1.7	-123.70	-260.6	-66.6	328.0	324.7	3.34	98.281	
900.0	884.4	782.8	775.4	3.0	2.0	-126.56	-279.1	-62.4	374.7	370.8	3.92	95.530	
1,000.0	976.8	846.0	835.5	3.7	2.3	-128.63	-298.2	-58.5	429.4	424.8	4.55	94.444	
1,100.0	1,067.1	906.6	892.5	4.6	2.7	-130.15	-318.5	-54.5	491.0	485.8	5.22	93.987 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler 30-8B - OH - FINAL													Offset Site Error:	0.0 ft
Survey Program: 142-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-160.37	-194.9	-69.5	206.9					
100.0	100.0	99.8	99.8	0.1	0.1	-160.44	-195.0	-69.3	206.9	206.7	0.28	729.969		
200.0	200.0	198.8	198.8	0.3	0.3	-160.68	-195.5	-68.5	207.1	206.5	0.62	334.085 ES		
300.0	300.0	292.8	292.8	0.5	0.5	-109.49	-197.9	-66.9	209.9	208.9	0.97	216.194		
400.0	399.6	383.8	383.5	0.7	0.7	-112.17	-203.8	-64.3	218.1	216.7	1.35	160.961		
500.0	498.8	471.0	470.1	1.0	0.9	-115.88	-213.5	-60.6	233.4	231.7	1.79	130.619		
600.0	597.1	555.9	553.8	1.4	1.1	-120.19	-226.6	-55.4	256.8	254.5	2.27	113.128		
700.0	694.3	635.0	631.0	1.8	1.5	-124.46	-242.2	-48.7	288.9	286.1	2.79	103.661		
800.0	790.2	708.4	701.9	2.4	1.8	-128.26	-259.5	-40.6	330.3	327.0	3.33	99.172		
900.0	884.4	775.4	765.8	3.0	2.2	-131.33	-277.7	-31.9	380.7	376.8	3.89	97.826 SF		
1,000.0	976.8	836.0	822.8	3.7	2.6	-133.59	-296.2	-23.0	439.2	434.8	4.48	97.989		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (1st Occupation) - Shideler Federal 19-13D - OH - FINAL												Offset Site Error:	0.0 ft
Survey Program: 111-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-162.62	-160.6	-50.3	168.3				
100.0	100.0	99.9	99.9	0.1	0.1	-162.64	-160.7	-50.2	168.3	168.1	0.28	609.925	
200.0	200.0	199.8	199.8	0.3	0.3	-162.63	-160.7	-50.3	168.4	167.7	0.62	271.130	ES
300.0	300.0	297.6	297.5	0.5	0.5	-110.21	-160.6	-52.7	170.0	169.0	0.98	174.057	
400.0	399.6	393.7	393.4	0.7	0.7	-110.16	-160.9	-59.9	175.2	173.8	1.39	126.420	
500.0	498.8	490.0	488.8	1.0	1.0	-109.69	-161.3	-73.1	184.1	182.2	1.92	95.985	
600.0	597.1	584.2	581.2	1.4	1.3	-109.15	-162.2	-90.9	197.0	194.4	2.58	76.314	
700.0	694.3	674.9	669.5	1.8	1.7	-108.94	-165.1	-111.7	214.9	211.5	3.36	63.891	
800.0	790.2	765.3	756.4	2.4	2.2	-108.90	-169.9	-136.1	237.7	233.4	4.29	55.447	
900.0	884.4	854.9	841.1	3.0	2.7	-108.75	-176.0	-164.6	265.0	259.6	5.36	49.404	
1,000.0	976.8	947.5	926.9	3.7	3.4	-108.38	-182.5	-198.9	295.6	288.9	6.63	44.571	
1,100.0	1,067.1	1,037.7	1,008.5	4.6	4.2	-107.81	-188.4	-236.6	328.8	320.7	8.05	40.866	
1,200.0	1,154.9	1,129.2	1,090.0	5.5	5.0	-107.40	-194.5	-277.7	364.5	354.9	9.59	38.018	
1,300.0	1,240.2	1,227.1	1,176.8	6.5	5.8	-107.66	-200.1	-322.7	401.1	389.8	11.27	35.572	
1,400.0	1,324.6	1,322.6	1,261.4	7.5	6.7	-108.82	-204.8	-366.8	437.6	424.6	12.97	33.739	
1,500.0	1,408.9	1,415.6	1,344.5	8.5	7.5	-109.93	-209.1	-408.5	473.8	459.2	14.62	32.408	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-11D - 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							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	108.82	-8.4	24.6	26.0					
100.0	100.0	100.0	100.0	0.1	0.1	108.82	-8.4	24.6	26.0	25.7	0.27	95.362		
200.0	200.0	200.0	200.0	0.3	0.3	108.82	-8.4	24.6	26.0	25.3	0.62	41.788 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	162.89	-8.4	24.6	28.5	27.5	0.97	29.324		
400.0	399.6	399.6	399.6	0.7	0.7	166.51	-8.4	24.6	36.0	34.7	1.32	27.328 SF		
500.0	498.8	500.9	500.9	1.0	0.8	168.50	-6.2	23.1	46.5	44.9	1.67	27.885		
600.0	597.1	602.7	602.3	1.4	1.1	168.05	0.6	18.7	57.6	55.6	2.03	28.357		
700.0	694.3	704.9	703.6	1.8	1.3	166.32	11.9	11.2	69.3	66.8	2.43	28.532		
800.0	790.2	807.5	804.4	2.4	1.7	163.89	27.8	0.7	81.6	78.7	2.89	28.231		
900.0	884.4	909.4	903.5	3.0	2.1	161.14	47.9	-12.5	94.7	91.3	3.45	27.467		
1,000.0	976.8	1,008.0	998.8	3.7	2.5	159.49	68.6	-26.2	111.6	107.6	4.05	27.562		
1,100.0	1,067.1	1,105.6	1,093.2	4.6	3.0	159.01	89.1	-39.8	133.4	128.7	4.65	28.658		
1,200.0	1,154.9	1,202.0	1,186.5	5.5	3.4	159.24	109.4	-53.1	159.9	154.6	5.24	30.514		
1,300.0	1,240.2	1,296.9	1,278.4	6.5	3.8	159.89	129.4	-66.3	191.0	185.2	5.80	32.947		
1,400.0	1,324.6	1,391.4	1,369.8	7.5	4.3	160.73	149.3	-79.4	223.8	217.4	6.36	35.200		
1,500.0	1,408.9	1,485.8	1,461.2	8.5	4.7	161.35	169.1	-92.5	256.6	249.7	6.92	37.077		
1,600.0	1,493.3	1,580.2	1,552.6	9.6	5.2	161.83	189.0	-105.6	289.4	281.9	7.49	38.662		
1,700.0	1,577.7	1,674.7	1,644.0	10.6	5.6	162.21	208.8	-118.7	322.3	314.2	8.05	40.019		
1,800.0	1,662.0	1,769.1	1,735.4	11.6	6.0	162.52	228.7	-131.8	355.1	346.5	8.62	41.193		
1,900.0	1,746.4	1,863.5	1,826.8	12.6	6.5	162.78	248.6	-144.9	388.0	378.8	9.19	42.218		
2,000.0	1,830.7	1,958.0	1,918.1	13.7	6.9	163.00	268.4	-158.0	420.9	411.1	9.76	43.120		
2,100.0	1,915.1	2,052.4	2,009.5	14.7	7.4	163.19	288.3	-171.1	453.7	443.4	10.33	43.921		
2,200.0	1,999.5	2,146.8	2,100.9	15.7	7.8	163.35	308.2	-184.2	486.6	475.7	10.90	44.636		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-11DD - 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		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-9.94	11.3	-2.0	11.5					
100.0	100.0	100.0	100.0	0.1	0.1	-9.94	11.3	-2.0	11.5	11.2	0.27	42.086		
200.0	200.0	200.0	200.0	0.3	0.3	-9.94	11.3	-2.0	11.5	10.8	0.62	18.442		
300.0	300.0	299.7	299.7	0.5	0.5	46.89	12.2	-3.1	10.7	9.7	0.98	10.952		
400.0	399.6	399.3	399.1	0.7	0.7	53.59	16.4	-8.1	10.0	8.7	1.37	7.312		
500.0	498.8	499.0	498.1	1.0	1.0	61.84	23.9	-17.0	9.7	7.9	1.89	5.167		
600.0	597.1	598.8	596.5	1.4	1.3	73.45	34.5	-29.5	9.7	7.1	2.58	3.767		
631.6	627.9	630.4	627.6	1.5	1.4	81.78	38.0	-33.7	9.6	6.8	2.86	3.376 CC, ES		
700.0	694.3	698.6	694.8	1.8	1.6	108.67	45.6	-42.7	10.6	7.3	3.32	3.196 SF		
800.0	790.2	798.0	792.7	2.4	1.9	143.60	56.7	-55.9	18.3	15.0	3.36	5.456		
900.0	884.4	896.6	889.8	3.0	2.3	159.44	67.7	-68.9	33.4	30.1	3.39	9.853		
1,000.0	976.8	994.2	985.9	3.7	2.6	166.58	78.6	-81.9	54.5	50.9	3.58	15.233		
1,100.0	1,067.1	1,090.5	1,080.8	4.6	2.9	170.33	89.3	-94.6	81.0	77.1	3.82	21.182		
1,200.0	1,154.9	1,185.3	1,174.1	5.5	3.3	172.55	99.9	-107.2	112.5	108.5	4.09	27.549		
1,300.0	1,240.2	1,278.3	1,265.8	6.5	3.6	173.99	110.2	-119.5	149.0	144.7	4.36	34.186		
1,400.0	1,324.6	1,370.7	1,356.7	7.5	3.9	174.99	120.5	-131.7	187.3	182.6	4.68	40.001		
1,500.0	1,408.9	1,463.1	1,447.7	8.5	4.2	175.65	130.8	-143.9	225.5	220.5	5.01	45.015		
1,600.0	1,493.3	1,555.4	1,538.7	9.6	4.5	176.11	141.1	-156.2	263.8	258.4	5.34	49.386		
1,700.0	1,577.7	1,647.8	1,629.7	10.6	4.9	176.46	151.4	-168.4	302.1	296.4	5.67	53.231		
1,800.0	1,662.0	1,740.2	1,720.7	11.6	5.2	176.74	161.7	-180.6	340.3	334.3	6.01	56.640		
1,900.0	1,746.4	1,832.5	1,811.6	12.6	5.5	176.95	172.0	-192.8	378.6	372.3	6.34	59.684		
2,000.0	1,830.7	1,924.9	1,902.6	13.7	5.8	177.13	182.3	-205.1	416.9	410.2	6.68	62.420		
2,100.0	1,915.1	2,017.3	1,993.6	14.7	6.2	177.27	192.6	-217.3	455.2	448.2	7.02	64.891		
2,200.0	1,999.5	2,109.7	2,084.6	15.7	6.5	177.40	202.9	-229.5	493.5	486.2	7.35	67.135		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-16B - 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	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	118.43	-27.7	51.1	58.1					
100.0	100.0	100.0	100.0	0.1	0.1	118.43	-27.7	51.1	58.1	57.9	0.27	213.542		
200.0	200.0	200.0	200.0	0.3	0.3	118.43	-27.7	51.1	58.1	57.5	0.62	93.575 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	171.20	-27.7	51.1	60.7	59.8	0.97	62.620		
400.0	399.6	397.6	397.5	0.7	0.7	170.45	-26.6	53.4	70.0	68.6	1.32	53.121		
500.0	498.8	493.6	493.2	1.0	0.9	167.80	-23.4	60.0	87.4	85.7	1.68	52.007 SF		
600.0	597.1	586.9	585.8	1.4	1.1	164.68	-18.3	70.5	113.0	110.9	2.07	54.553		
700.0	694.3	676.7	674.3	1.8	1.4	161.83	-11.6	84.5	146.8	144.3	2.50	58.738		
800.0	790.2	767.0	762.7	2.4	1.7	159.65	-3.6	101.1	187.3	184.4	2.96	63.343		
900.0	884.4	856.2	850.0	3.0	2.1	158.47	4.4	117.5	232.5	229.0	3.44	67.644		
1,000.0	976.8	943.2	935.1	3.7	2.4	157.85	12.1	133.5	281.9	278.0	3.93	71.718		
1,100.0	1,067.1	1,027.5	1,017.7	4.6	2.7	157.54	19.6	149.1	335.5	331.1	4.44	75.609		
1,200.0	1,154.9	1,109.2	1,097.6	5.5	3.1	157.37	26.9	164.1	393.1	388.2	4.96	79.340		
1,300.0	1,240.2	1,187.9	1,174.6	6.5	3.4	157.41	33.9	178.6	454.6	449.2	5.49	82.878		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-16BB - 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						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	120.22	-37.5	64.4	74.5				
100.0	100.0	100.0	100.0	0.1	0.1	120.22	-37.5	64.4	74.5	74.3	0.27	273.753	
200.0	200.0	200.0	200.0	0.3	0.3	120.22	-37.5	64.4	74.5	73.9	0.62	119.959 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	172.85	-37.5	64.4	77.1	76.2	0.97	79.543	
400.0	399.6	399.6	399.6	0.7	0.7	173.48	-37.5	64.4	84.9	83.6	1.32	64.539	
500.0	498.8	494.6	494.6	1.0	0.8	173.52	-37.5	66.7	100.0	98.3	1.65	60.476 SF	
600.0	597.1	587.1	586.8	1.4	1.0	172.58	-37.3	73.6	124.1	122.2	1.99	62.406	
700.0	694.3	675.8	674.9	1.8	1.2	171.27	-37.0	84.3	157.2	154.9	2.33	67.506	
800.0	790.2	759.9	757.8	2.4	1.5	169.94	-36.6	98.2	198.7	196.1	2.67	74.443	
900.0	884.4	847.2	843.5	3.0	1.8	168.83	-36.2	114.7	246.8	243.8	3.03	81.540	
1,000.0	976.8	932.3	927.0	3.7	2.1	168.14	-35.8	130.8	299.3	295.9	3.38	88.446	
1,100.0	1,067.1	1,014.6	1,007.8	4.6	2.4	167.70	-35.4	146.4	356.1	352.4	3.74	95.185	
1,200.0	1,154.9	1,093.8	1,085.6	5.5	2.6	167.38	-35.0	161.4	417.1	413.0	4.10	101.758	
1,300.0	1,240.2	1,169.9	1,160.3	6.5	2.9	167.22	-34.6	175.9	481.9	477.5	4.46	107.989	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-6C - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	82.65	1.5	11.3	11.4					
100.0	100.0	100.0	100.0	0.1	0.1	82.65	1.5	11.3	11.4	11.1	0.27	41.843		
200.0	200.0	200.0	200.0	0.3	0.3	82.65	1.5	11.3	11.4	10.8	0.62	18.336 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	142.95	1.5	11.3	13.4	12.4	0.97	13.745		
400.0	399.6	400.0	400.0	0.7	0.7	155.26	2.0	10.9	19.7	18.4	1.33	14.845		
500.0	498.8	500.7	500.5	1.0	0.9	159.64	6.2	7.7	27.6	25.9	1.69	16.349		
600.0	597.1	601.7	601.0	1.4	1.1	160.05	14.6	1.2	36.2	34.1	2.08	17.410		
700.0	694.3	703.1	701.1	1.8	1.4	158.70	27.3	-8.5	45.3	42.8	2.52	17.961		
800.0	790.2	804.7	800.4	2.4	1.8	156.49	44.2	-21.5	55.0	52.0	3.06	17.973		
900.0	884.4	906.6	898.8	3.0	2.3	153.86	65.3	-37.8	65.4	61.7	3.74	17.493		
1,000.0	976.8	1,008.8	995.8	3.7	2.9	151.05	90.6	-57.3	76.6	72.0	4.60	16.654		
1,100.0	1,067.1	1,111.2	1,091.2	4.6	3.5	148.17	120.1	-80.0	88.6	82.9	5.67	15.630		
1,200.0	1,154.9	1,213.7	1,184.6	5.5	4.3	145.33	153.7	-105.8	101.4	94.4	6.96	14.567		
1,300.0	1,240.2	1,316.5	1,275.8	6.5	5.2	142.57	191.2	-134.6	115.1	106.6	8.49	13.558		
1,400.0	1,324.6	1,419.6	1,364.5	7.5	6.2	139.11	232.7	-166.6	127.0	116.7	10.34	12.285		
1,500.0	1,408.9	1,520.7	1,449.1	8.5	7.2	134.64	276.7	-200.4	136.8	124.3	12.52	10.928		
1,600.0	1,493.3	1,619.6	1,531.4	9.6	8.2	130.61	320.2	-233.9	146.9	132.2	14.75	9.959		
1,700.0	1,577.7	1,718.6	1,613.8	10.6	9.2	127.11	363.7	-267.3	157.7	140.7	17.01	9.271		
1,800.0	1,662.0	1,817.6	1,696.1	11.6	10.2	124.06	407.2	-300.8	168.9	149.7	19.26	8.770		
1,900.0	1,746.4	1,916.6	1,778.5	12.6	11.3	121.40	450.8	-334.3	180.6	159.1	21.51	8.396		
2,000.0	1,830.7	2,015.6	1,860.9	13.7	12.3	119.07	494.3	-367.8	192.6	168.9	23.75	8.113		
2,100.0	1,915.1	2,114.6	1,943.2	14.7	13.3	117.01	537.8	-401.2	204.9	179.0	25.97	7.893		
2,200.0	1,999.5	2,213.6	2,025.6	15.7	14.3	115.18	581.3	-434.7	217.5	189.3	28.17	7.720		
2,300.0	2,083.8	2,312.5	2,107.9	16.7	15.3	113.56	624.9	-468.2	230.2	199.8	30.36	7.583		
2,400.0	2,168.2	2,411.5	2,190.3	17.8	16.3	112.10	668.4	-501.7	243.1	210.6	32.53	7.473		
2,500.0	2,252.5	2,510.5	2,272.7	18.8	17.4	110.79	711.9	-535.2	256.1	221.4	34.69	7.383		
2,600.0	2,336.9	2,609.5	2,355.0	19.8	18.4	109.61	755.4	-568.6	269.3	232.4	36.84	7.309		
2,700.0	2,421.3	2,708.5	2,437.4	20.9	19.4	108.54	798.9	-602.1	282.5	243.5	38.98	7.248		
2,800.0	2,505.6	2,807.5	2,519.7	21.9	20.4	107.56	842.5	-635.6	295.9	254.7	41.11	7.197		
2,900.0	2,590.0	2,906.5	2,602.1	22.9	21.5	106.67	886.0	-669.1	309.3	266.0	43.23	7.155		
3,000.0	2,674.3	3,005.4	2,684.5	24.0	22.5	105.86	929.5	-702.5	322.7	277.4	45.34	7.119		
3,100.0	2,758.7	3,104.4	2,766.8	25.0	23.5	105.10	973.0	-736.0	336.3	288.8	47.44	7.089		
3,200.0	2,843.0	3,203.4	2,849.2	26.0	24.5	104.41	1,016.6	-769.5	349.9	300.3	49.54	7.063		
3,300.0	2,927.4	3,302.4	2,931.5	27.1	25.6	103.77	1,060.1	-803.0	363.5	311.9	51.63	7.041		
3,400.0	3,011.8	3,401.4	3,013.9	28.1	26.6	103.17	1,103.6	-836.4	377.2	323.5	53.72	7.022		
3,500.0	3,096.1	3,500.4	3,096.3	29.1	27.6	102.62	1,147.1	-869.9	390.9	335.1	55.80	7.006		
3,600.0	3,180.5	3,599.4	3,178.6	30.2	28.6	102.10	1,190.7	-903.4	404.7	346.8	57.88	6.992		
3,700.0	3,264.8	3,698.4	3,261.0	31.2	29.7	101.62	1,234.2	-936.9	418.5	358.5	59.95	6.980		
3,800.0	3,349.2	3,797.3	3,343.3	32.2	30.7	101.17	1,277.7	-970.4	432.3	370.3	62.02	6.970		
3,900.0	3,433.6	3,896.3	3,425.7	33.3	31.7	100.75	1,321.2	-1,003.8	446.1	382.0	64.09	6.961		
4,000.0	3,517.9	3,995.3	3,508.1	34.3	32.7	100.35	1,364.8	-1,037.3	460.0	393.8	66.15	6.953		
4,100.0	3,602.3	4,094.3	3,590.4	35.3	33.8	99.98	1,408.3	-1,070.8	473.8	405.6	68.22	6.946		
4,200.0	3,686.6	4,193.3	3,672.8	36.3	34.8	99.62	1,451.8	-1,104.3	487.7	417.5	70.27	6.941 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-9B - 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						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	126.53	-19.7	26.6	33.0				
100.0	100.0	100.0	100.0	0.1	0.1	126.53	-19.7	26.6	33.0	32.8	0.27	121.365	
200.0	200.0	200.0	200.0	0.3	0.3	126.53	-19.7	26.6	33.0	32.4	0.62	53.182 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	179.00	-19.7	26.6	35.7	34.7	0.97	36.781	
400.0	399.6	399.6	399.5	0.7	0.7	175.74	-17.6	28.1	43.5	42.2	1.32	32.948 SF	
500.0	498.8	498.2	497.8	1.0	0.9	168.88	-11.3	32.6	57.3	55.6	1.70	33.630	
600.0	597.1	595.0	593.8	1.4	1.1	161.98	-1.2	39.9	77.7	75.6	2.15	36.168	
700.0	694.3	689.3	686.6	1.8	1.5	156.33	12.4	49.7	105.2	102.5	2.68	39.206	
800.0	790.2	780.6	775.6	2.4	1.8	151.95	29.1	61.8	139.4	136.1	3.31	42.113	
900.0	884.4	868.4	860.0	3.0	2.3	148.53	48.4	75.7	180.2	176.2	4.03	44.692	
1,000.0	976.8	952.2	939.6	3.7	2.8	145.74	69.7	91.1	227.2	222.3	4.83	47.033	
1,100.0	1,067.1	1,036.6	1,018.9	4.6	3.3	143.57	93.1	108.0	279.2	273.5	5.70	48.964	
1,200.0	1,154.9	1,119.7	1,097.0	5.5	3.8	142.21	116.1	124.6	334.8	328.2	6.61	50.660	
1,300.0	1,240.2	1,200.4	1,172.8	6.5	4.3	141.56	138.5	140.8	393.8	386.3	7.54	52.215	
1,400.0	1,324.6	1,280.2	1,247.9	7.5	4.8	142.07	160.6	156.8	453.9	445.4	8.49	53.462	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler 19-9C - 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						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	115.25	-17.9	37.9	41.9				
100.0	100.0	100.0	100.0	0.1	0.1	115.25	-17.9	37.9	41.9	41.6	0.27	153.709	
200.0	200.0	200.0	200.0	0.3	0.3	115.25	-17.9	37.9	41.9	41.2	0.62	67.356 CC, ES	
300.0	300.0	299.0	299.0	0.5	0.5	165.32	-16.1	39.8	45.4	44.5	0.98	46.583	
400.0	399.6	397.1	396.7	0.7	0.7	160.16	-11.0	45.4	56.5	55.1	1.36	41.623 SF	
500.0	498.8	493.3	492.2	1.0	1.0	154.94	-2.7	54.5	75.4	73.6	1.78	42.242	
600.0	597.1	586.9	584.3	1.4	1.3	150.82	8.4	66.8	102.1	99.8	2.27	44.964	
700.0	694.3	677.1	672.2	1.8	1.7	147.76	22.0	81.8	136.3	133.5	2.82	48.402	
800.0	790.2	768.4	760.6	2.4	2.1	145.86	37.3	98.7	176.3	172.9	3.42	51.621	
900.0	884.4	858.2	847.5	3.0	2.5	145.13	52.4	115.3	220.3	216.3	4.05	54.377	
1,000.0	976.8	945.9	932.4	3.7	2.9	144.98	67.2	131.5	268.2	263.5	4.72	56.838	
1,100.0	1,067.1	1,031.4	1,015.2	4.6	3.3	145.11	81.6	147.4	319.8	314.4	5.41	59.121	
1,200.0	1,154.9	1,114.4	1,095.5	5.5	3.7	145.34	95.5	162.8	375.2	369.1	6.12	61.286	
1,300.0	1,240.2	1,194.7	1,173.3	6.5	4.1	145.79	109.0	177.6	434.2	427.3	6.85	63.372	
1,400.0	1,324.6	1,274.0	1,250.0	7.5	4.5	147.06	122.3	192.3	494.5	487.0	7.59	65.134	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler Federal 19-12C - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	126.53	-29.5	39.8	49.6					
100.0	100.0	100.0	100.0	0.1	0.1	126.53	-29.5	39.8	49.6	49.3	0.27	182.057		
200.0	200.0	200.0	200.0	0.3	0.3	126.53	-29.5	39.8	49.6	48.9	0.62	79.778 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	178.98	-29.5	39.8	52.2	51.2	0.97	53.825		
400.0	399.6	401.2	401.1	0.7	0.7	179.32	-29.3	39.2	59.4	58.1	1.32	45.074		
500.0	498.8	504.0	503.9	1.0	0.9	-179.06	-27.5	33.9	67.4	65.7	1.67	40.400		
600.0	597.1	607.2	606.5	1.4	1.1	-176.41	-24.0	23.4	75.7	73.7	2.03	37.337		
700.0	694.3	710.7	708.6	1.8	1.4	-173.06	-18.7	7.6	84.4	82.0	2.41	34.968		
800.0	790.2	814.4	809.9	2.4	1.8	-169.23	-11.6	-13.4	93.7	90.8	2.87	32.693		
900.0	884.4	918.3	909.9	3.0	2.3	-165.14	-2.8	-39.7	103.8	100.4	3.44	30.144		
1,000.0	976.8	1,022.2	1,008.4	3.7	3.0	-160.92	7.7	-71.2	114.9	110.7	4.21	27.277		
1,100.0	1,067.1	1,126.3	1,105.1	4.6	3.7	-156.70	20.0	-107.7	127.2	122.0	5.23	24.320		
1,200.0	1,154.9	1,230.3	1,199.5	5.5	4.6	-152.57	33.9	-149.1	140.7	134.2	6.53	21.558		
1,300.0	1,240.2	1,334.3	1,291.3	6.5	5.5	-148.62	49.4	-195.4	155.5	147.4	8.11	19.173		
1,400.0	1,324.6	1,435.0	1,378.0	7.5	6.5	-144.80	65.7	-243.8	169.6	159.6	9.93	17.069		
1,500.0	1,408.9	1,533.4	1,462.7	8.5	7.4	-141.54	81.7	-291.5	184.0	172.1	11.82	15.563		
1,600.0	1,493.3	1,631.9	1,547.3	9.6	8.4	-138.75	97.7	-339.2	198.9	185.1	13.76	14.457		
1,700.0	1,577.7	1,730.3	1,631.9	10.6	9.4	-136.36	113.7	-386.9	214.2	198.5	15.72	13.624		
1,800.0	1,662.0	1,828.7	1,716.5	11.6	10.4	-134.29	129.7	-434.5	229.8	212.1	17.71	12.982		
1,900.0	1,746.4	1,927.2	1,801.2	12.6	11.4	-132.48	145.7	-482.2	245.7	226.0	19.70	12.475		
2,000.0	1,830.7	2,025.6	1,885.8	13.7	12.3	-130.89	161.7	-529.9	261.9	240.2	21.70	12.069		
2,100.0	1,915.1	2,124.1	1,970.4	14.7	13.3	-129.49	177.7	-577.6	278.1	254.4	23.70	11.736		
2,200.0	1,999.5	2,222.5	2,055.0	15.7	14.3	-128.24	193.7	-625.3	294.6	268.9	25.70	11.461		
2,300.0	2,083.8	2,321.0	2,139.7	16.7	15.3	-127.12	209.7	-673.0	311.1	283.4	27.70	11.230		
2,400.0	2,168.2	2,419.4	2,224.3	17.8	16.3	-126.12	225.7	-720.7	327.8	298.1	29.70	11.035		
2,500.0	2,252.5	2,517.9	2,308.9	18.8	17.3	-125.21	241.7	-768.4	344.5	312.8	31.70	10.867		
2,600.0	2,336.9	2,616.3	2,393.5	19.8	18.2	-124.39	257.7	-816.1	361.3	327.6	33.70	10.721		
2,700.0	2,421.3	2,714.8	2,478.2	20.9	19.2	-123.64	273.7	-863.8	378.2	342.5	35.70	10.595		
2,800.0	2,505.6	2,813.2	2,562.8	21.9	20.2	-122.95	289.7	-911.5	395.1	357.4	37.69	10.484		
2,900.0	2,590.0	2,911.7	2,647.4	22.9	21.2	-122.32	305.7	-959.2	412.1	372.4	39.68	10.386		
3,000.0	2,674.3	3,010.1	2,732.1	24.0	22.2	-121.74	321.7	-1,006.9	429.2	387.5	41.67	10.298		
3,100.0	2,758.7	3,108.6	2,816.7	25.0	23.2	-121.21	337.7	-1,054.5	446.2	402.6	43.66	10.220		
3,200.0	2,843.0	3,207.0	2,901.3	26.0	24.2	-120.71	353.7	-1,102.2	463.3	417.7	45.65	10.150		
3,300.0	2,927.4	3,305.5	2,985.9	27.1	25.2	-120.25	369.7	-1,149.9	480.5	432.8	47.64	10.086		
3,400.0	3,011.8	3,403.9	3,070.6	28.1	26.2	-119.82	385.7	-1,197.6	497.7	448.0	49.62	10.029 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler Federal 19-12D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	126.53	-9.8	13.3	16.5					
100.0	100.0	100.0	100.0	0.1	0.1	126.53	-9.8	13.3	16.5	16.2	0.27	60.682		
200.0	200.0	200.0	200.0	0.3	0.3	126.53	-9.8	13.3	16.5	15.9	0.62	26.591 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	179.07	-9.8	13.3	19.1	18.2	0.97	19.740		
400.0	399.6	400.7	400.6	0.7	0.7	179.81	-9.1	12.0	25.5	24.2	1.32	19.378		
500.0	498.8	501.9	501.7	1.0	0.9	-178.34	-5.9	6.1	32.1	30.4	1.66	19.279		
600.0	597.1	603.6	602.6	1.4	1.1	-175.90	0.0	-4.5	38.7	36.7	2.01	19.207		
700.0	694.3	705.5	703.0	1.8	1.5	-173.15	8.4	-19.8	45.4	43.0	2.38	19.072		
800.0	790.2	807.7	802.6	2.4	1.9	-170.20	19.5	-39.8	52.3	49.5	2.79	18.757		
900.0	884.4	910.3	901.1	3.0	2.4	-167.16	33.2	-64.6	59.4	56.1	3.27	18.151		
1,000.0	976.8	1,013.1	998.3	3.7	3.0	-164.07	49.4	-94.1	66.7	62.8	3.88	17.201		
1,100.0	1,067.1	1,116.1	1,093.7	4.6	3.8	-160.98	68.2	-128.1	74.3	69.6	4.66	15.959		
1,200.0	1,154.9	1,219.5	1,187.1	5.5	4.6	-157.91	89.6	-166.8	82.2	76.6	5.65	14.558		
1,300.0	1,240.2	1,323.0	1,278.2	6.5	5.6	-154.89	113.4	-209.9	90.5	83.6	6.88	13.139		
1,400.0	1,324.6	1,423.1	1,364.7	7.5	6.5	-151.91	137.7	-254.0	97.8	89.4	8.33	11.734		
1,500.0	1,408.9	1,522.7	1,450.7	8.5	7.5	-149.35	162.0	-298.0	105.3	95.4	9.87	10.666		
1,600.0	1,493.3	1,622.3	1,536.7	9.6	8.4	-147.13	186.3	-342.0	113.0	101.5	11.48	9.843		
1,700.0	1,577.7	1,722.0	1,622.7	10.6	9.4	-145.20	210.6	-386.0	120.8	107.7	13.13	9.200		
1,800.0	1,662.0	1,821.6	1,708.7	11.6	10.4	-143.51	234.9	-430.0	128.8	114.0	14.82	8.688		
1,900.0	1,746.4	1,921.2	1,794.8	12.6	11.3	-142.01	259.1	-473.9	136.8	120.3	16.54	8.273		
2,000.0	1,830.7	2,020.8	1,880.8	13.7	12.3	-140.69	283.4	-517.9	145.0	126.7	18.28	7.933		
2,100.0	1,915.1	2,120.4	1,966.8	14.7	13.3	-139.50	307.7	-561.9	153.2	133.2	20.03	7.649		
2,200.0	1,999.5	2,220.0	2,052.8	15.7	14.2	-138.43	332.0	-605.9	161.5	139.7	21.79	7.409		
2,300.0	2,083.8	2,319.6	2,138.8	16.7	15.2	-137.47	356.3	-649.9	169.8	146.2	23.56	7.205		
2,400.0	2,168.2	2,419.3	2,224.8	17.8	16.2	-136.60	380.6	-693.9	178.1	152.8	25.34	7.029		
2,500.0	2,252.5	2,518.9	2,310.9	18.8	17.1	-135.81	404.8	-737.8	186.5	159.4	27.13	6.877		
2,600.0	2,336.9	2,618.5	2,396.9	19.8	18.1	-135.08	429.1	-781.8	195.0	166.1	28.92	6.743		
2,700.0	2,421.3	2,718.1	2,482.9	20.9	19.1	-134.42	453.4	-825.8	203.4	172.7	30.71	6.625		
2,800.0	2,505.6	2,817.7	2,568.9	21.9	20.1	-133.80	477.7	-869.8	211.9	179.4	32.50	6.520		
2,900.0	2,590.0	2,917.3	2,654.9	22.9	21.0	-133.24	502.0	-913.8	220.4	186.1	34.30	6.426		
3,000.0	2,674.3	3,017.0	2,740.9	24.0	22.0	-132.72	526.3	-957.8	228.9	192.8	36.10	6.342		
3,100.0	2,758.7	3,116.6	2,827.0	25.0	23.0	-132.23	550.5	-1,001.7	237.5	199.6	37.90	6.266		
3,200.0	2,843.0	3,216.2	2,913.0	26.0	23.9	-131.78	574.8	-1,045.7	246.1	206.4	39.70	6.197		
3,300.0	2,927.4	3,315.8	2,999.0	27.1	24.9	-131.36	599.1	-1,089.7	254.6	213.1	41.51	6.135		
3,400.0	3,011.8	3,415.4	3,085.0	28.1	25.9	-130.97	623.4	-1,133.7	263.2	219.9	43.31	6.077		
3,500.0	3,096.1	3,515.0	3,171.0	29.1	26.9	-130.60	647.7	-1,177.7	271.8	226.7	45.12	6.025		
3,600.0	3,180.5	3,614.6	3,257.0	30.2	27.8	-130.25	671.9	-1,221.7	280.4	233.5	46.92	5.976		
3,700.0	3,264.8	3,714.3	3,343.1	31.2	28.8	-129.93	696.2	-1,265.6	289.0	240.3	48.73	5.932		
3,800.0	3,349.2	3,813.9	3,429.1	32.2	29.8	-129.62	720.5	-1,309.6	297.7	247.1	50.54	5.890		
3,900.0	3,433.6	3,913.5	3,515.1	33.3	30.8	-129.33	744.8	-1,353.6	306.3	254.0	52.34	5.852		
4,000.0	3,517.9	4,013.1	3,601.1	34.3	31.7	-129.06	769.1	-1,397.6	315.0	260.8	54.15	5.816		
4,100.0	3,602.3	4,112.7	3,687.1	35.3	32.7	-128.80	793.4	-1,441.6	323.6	267.6	55.96	5.783		
4,200.0	3,686.6	4,212.3	3,773.1	36.3	33.7	-128.55	817.6	-1,485.6	332.3	274.5	57.77	5.752		
4,300.0	3,771.0	4,311.9	3,859.2	37.4	34.6	-128.32	841.9	-1,529.5	340.9	281.3	59.57	5.723		
4,400.0	3,855.4	4,411.6	3,945.2	38.4	35.6	-128.10	866.2	-1,573.5	349.6	288.2	61.38	5.695		
4,500.0	3,939.7	4,511.2	4,031.2	39.4	36.6	-127.90	890.5	-1,617.5	358.2	295.1	63.19	5.670		
4,600.0	4,025.2	4,607.2	4,114.4	40.4	37.5	-127.65	913.6	-1,659.5	365.9	300.9	64.99	5.631		
4,700.0	4,112.5	4,700.0	4,196.2	41.3	38.3	-127.40	934.8	-1,697.9	373.0	306.3	66.66	5.595		
4,800.0	4,201.4	4,794.6	4,280.9	42.1	39.1	-127.15	955.1	-1,734.6	379.6	311.3	68.24	5.562		
4,900.0	4,291.8	4,888.3	4,366.2	42.9	39.8	-126.93	973.9	-1,768.5	385.7	316.0	69.71	5.533		
5,000.0	4,383.7	4,982.0	4,452.8	43.6	40.4	-126.71	991.2	-1,800.0	391.3	320.2	71.07	5.506		
5,100.0	4,476.9	5,075.7	4,540.4	44.3	41.0	-126.50	1,007.2	-1,829.0	396.4	324.0	72.32	5.481		

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 Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler Federal 19-12D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,200.0	4,571.3	5,169.4	4,629.1	44.8	41.6	-126.30	1,021.9	-1,855.5	400.9	327.5	73.47	5.457		
5,300.0	4,666.8	5,263.1	4,718.8	45.4	42.1	-126.11	1,035.1	-1,879.4	405.0	330.5	74.51	5.436		
5,400.0	4,763.3	5,356.9	4,809.3	45.8	42.5	-125.92	1,046.8	-1,900.7	408.5	333.1	75.44	5.415		
5,500.0	4,860.6	5,450.7	4,900.6	46.2	42.9	-125.74	1,057.2	-1,919.5	411.5	335.2	76.27	5.395		
5,600.0	4,958.7	5,544.5	4,992.6	46.6	43.2	-125.56	1,066.1	-1,935.6	414.0	337.0	77.00	5.376		
5,700.0	5,057.4	5,638.3	5,085.1	46.8	43.4	-125.39	1,073.5	-1,949.1	415.9	338.3	77.62	5.358		
5,800.0	5,156.6	5,732.2	5,178.2	47.0	43.7	-125.21	1,079.5	-1,959.9	417.3	339.1	78.15	5.339		
5,900.0	5,256.2	5,826.0	5,271.6	47.2	43.8	-125.05	1,084.0	-1,968.1	418.1	339.5	78.57	5.321		
6,000.0	5,356.0	5,920.0	5,365.3	47.3	43.9	-124.88	1,087.0	-1,973.5	418.4	339.5	78.90	5.303		
6,100.0	5,456.0	6,013.9	5,459.2	47.3	44.0	-124.71	1,088.6	-1,976.3	418.2	339.0	79.14	5.284		
6,200.0	5,556.0	6,110.7	5,556.0	47.4	44.0	-177.05	1,088.8	-1,976.7	418.0	338.7	79.27	5.273		
6,300.0	5,656.0	6,210.7	5,656.0	47.4	44.1	-177.05	1,088.8	-1,976.7	418.0	338.6	79.36	5.266		
6,400.0	5,756.0	6,310.7	5,756.0	47.5	44.1	-177.05	1,088.8	-1,976.7	418.0	338.5	79.46	5.260		
6,500.0	5,856.0	6,410.7	5,856.0	47.5	44.2	-177.05	1,088.8	-1,976.7	418.0	338.4	79.56	5.254		
6,600.0	5,956.0	6,510.7	5,956.0	47.5	44.2	-177.05	1,088.8	-1,976.7	418.0	338.3	79.66	5.247		
6,700.0	6,056.0	6,610.7	6,056.0	47.6	44.3	-177.05	1,088.8	-1,976.7	418.0	338.2	79.76	5.240		
6,800.0	6,156.0	6,710.7	6,156.0	47.6	44.3	-177.05	1,088.8	-1,976.7	418.0	338.1	79.86	5.234		
6,900.0	6,256.0	6,810.7	6,256.0	47.7	44.3	-177.05	1,088.8	-1,976.7	418.0	338.0	79.96	5.227		
7,000.0	6,356.0	6,910.7	6,356.0	47.7	44.4	-177.05	1,088.8	-1,976.7	418.0	337.9	80.07	5.220		
7,100.0	6,456.0	7,010.7	6,456.0	47.8	44.4	-177.05	1,088.8	-1,976.7	418.0	337.8	80.17	5.213		
7,200.0	6,556.0	7,110.7	6,556.0	47.8	44.5	-177.05	1,088.8	-1,976.7	418.0	337.7	80.28	5.206		
7,300.0	6,656.0	7,210.7	6,656.0	47.9	44.5	-177.05	1,088.8	-1,976.7	418.0	337.6	80.39	5.199		
7,400.0	6,756.0	7,310.7	6,756.0	47.9	44.6	-177.05	1,088.8	-1,976.7	418.0	337.5	80.50	5.192		
7,500.0	6,856.0	7,410.7	6,856.0	48.0	44.6	-177.05	1,088.8	-1,976.7	418.0	337.4	80.61	5.185		
7,600.0	6,956.0	7,510.7	6,956.0	48.0	44.7	-177.05	1,088.8	-1,976.7	418.0	337.2	80.73	5.178		
7,700.0	7,056.0	7,610.7	7,056.0	48.0	44.7	-177.05	1,088.8	-1,976.7	418.0	337.1	80.84	5.170		
7,800.0	7,156.0	7,710.7	7,156.0	48.1	44.8	-177.05	1,088.8	-1,976.7	418.0	337.0	80.96	5.163		
7,900.0	7,256.0	7,810.7	7,256.0	48.1	44.8	-177.05	1,088.8	-1,976.7	418.0	336.9	81.07	5.155		
8,000.0	7,356.0	7,910.7	7,356.0	48.2	44.9	-177.05	1,088.8	-1,976.7	418.0	336.8	81.19	5.148		
8,100.0	7,456.0	8,010.7	7,456.0	48.2	45.0	-177.05	1,088.8	-1,976.7	418.0	336.7	81.31	5.140		
8,200.0	7,556.0	8,110.7	7,556.0	48.3	45.0	-177.05	1,088.8	-1,976.7	418.0	336.5	81.43	5.133		
8,300.0	7,656.0	8,210.7	7,656.0	48.4	45.1	-177.05	1,088.8	-1,976.7	418.0	336.4	81.55	5.125		
8,400.0	7,756.0	8,310.7	7,756.0	48.4	45.1	-177.05	1,088.8	-1,976.7	418.0	336.3	81.68	5.117		
8,469.0	7,825.0	8,379.7	7,825.0	48.4	45.2	-177.05	1,088.8	-1,976.7	418.0	336.2	81.76	5.112 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler Federal 19-13A - 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		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	126.27	-39.0	53.1	65.9					
100.0	100.0	100.0	100.0	0.1	0.1	126.27	-39.0	53.1	65.9	65.6	0.27	241.935		
200.0	200.0	200.0	200.0	0.3	0.3	126.27	-39.0	53.1	65.9	65.3	0.62	106.017 CC, ES		
300.0	300.0	301.6	301.6	0.5	0.5	178.96	-38.8	52.4	67.9	66.9	0.97	69.785		
400.0	399.6	404.9	404.7	0.7	0.7	-178.99	-37.7	46.9	70.9	69.6	1.33	53.307		
500.0	498.8	508.2	507.4	1.0	0.9	-175.24	-35.5	36.0	74.5	72.8	1.70	43.743		
600.0	597.1	611.3	609.2	1.4	1.3	-170.14	-32.3	19.7	79.1	77.0	2.13	37.207		
700.0	694.3	714.2	709.7	1.8	1.7	-164.10	-27.9	-1.9	85.3	82.6	2.67	31.994		
800.0	790.2	816.8	808.6	2.4	2.2	-157.62	-22.5	-28.8	93.4	90.0	3.40	27.454		
900.0	884.4	919.0	905.4	3.0	2.9	-151.14	-16.1	-60.6	103.8	99.4	4.40	23.587		
1,000.0	976.8	1,020.8	1,000.0	3.7	3.6	-145.00	-8.8	-97.3	116.9	111.2	5.69	20.531		
1,100.0	1,067.1	1,122.0	1,092.0	4.6	4.4	-139.39	-0.5	-138.7	132.5	125.3	7.25	18.275		
1,200.0	1,154.9	1,221.0	1,180.1	5.5	5.3	-134.74	8.5	-183.1	151.1	142.1	8.98	16.827		
1,300.0	1,240.2	1,318.3	1,266.4	6.5	6.1	-132.18	17.3	-227.2	173.5	162.8	10.68	16.242		
1,400.0	1,324.6	1,415.4	1,352.4	7.5	7.0	-130.92	26.1	-271.1	197.2	184.8	12.36	15.950		
1,500.0	1,408.9	1,512.4	1,438.5	8.5	7.8	-129.93	35.0	-315.1	221.0	206.9	14.06	15.721		
1,600.0	1,493.3	1,609.5	1,524.6	9.6	8.7	-129.13	43.8	-359.1	244.8	229.1	15.76	15.537		
1,700.0	1,577.7	1,706.6	1,610.7	10.6	9.6	-128.48	52.6	-403.0	268.7	251.2	17.46	15.387		
1,800.0	1,662.0	1,803.6	1,696.8	11.6	10.5	-127.93	61.5	-447.0	292.6	273.4	19.17	15.262		
1,900.0	1,746.4	1,900.7	1,782.9	12.6	11.3	-127.46	70.3	-491.0	316.5	295.7	20.88	15.157		
2,000.0	1,830.7	1,997.8	1,868.9	13.7	12.2	-127.06	79.1	-535.0	340.5	317.9	22.60	15.067		
2,100.0	1,915.1	2,094.8	1,955.0	14.7	13.1	-126.72	88.0	-578.9	364.4	340.1	24.31	14.989		
2,200.0	1,999.5	2,191.9	2,041.1	15.7	13.9	-126.41	96.8	-622.9	388.4	362.4	26.03	14.922		
2,300.0	2,083.8	2,289.0	2,127.2	16.7	14.8	-126.14	105.6	-666.9	412.4	384.6	27.75	14.862		
2,400.0	2,168.2	2,386.0	2,213.3	17.8	15.7	-125.90	114.4	-710.8	436.4	406.9	29.46	14.809		
2,500.0	2,252.5	2,483.1	2,299.4	18.8	16.6	-125.69	123.3	-754.8	460.3	429.2	31.18	14.762		
2,600.0	2,336.9	2,580.2	2,385.4	19.8	17.4	-125.49	132.1	-798.8	484.3	451.4	32.90	14.720 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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 O19EB Pad (2nd Occupation) - Shideler Federal 19-13AA - 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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	126.32	-48.8	66.4	82.4				
100.0	100.0	100.0	100.0	0.1	0.1	126.32	-48.8	66.4	82.4	82.1	0.27	302.617 CC	
200.0	200.0	200.0	200.0	0.3	0.3	126.32	-48.8	66.4	82.4	81.8	0.62	132.608 ES	
300.0	300.0	303.6	303.6	0.5	0.5	179.88	-48.7	63.6	82.8	81.8	0.98	84.529	
400.0	399.6	407.1	406.7	0.7	0.7	-176.72	-48.6	55.2	84.2	82.9	1.36	62.167	
500.0	498.8	510.2	508.8	1.0	1.0	-171.37	-48.3	41.3	87.2	85.5	1.78	49.045	
600.0	597.1	612.7	609.5	1.4	1.4	-164.60	-47.9	22.0	92.5	90.2	2.31	40.129	
700.0	694.3	714.6	708.3	1.8	1.9	-157.11	-47.4	-2.5	100.9	97.9	3.01	33.535	
800.0	790.2	815.6	805.0	2.4	2.5	-149.64	-46.8	-31.9	113.0	109.1	3.95	28.624	
900.0	884.4	915.6	899.0	3.0	3.1	-142.74	-46.1	-66.1	129.0	123.9	5.14	25.120	
1,000.0	976.8	1,014.5	990.1	3.7	3.9	-136.67	-45.3	-104.7	148.9	142.4	6.55	22.730	
1,100.0	1,067.1	1,112.1	1,077.8	4.6	4.7	-131.51	-44.4	-147.2	172.7	164.5	8.15	21.178	
1,200.0	1,154.9	1,207.8	1,163.2	5.5	5.6	-128.09	-43.5	-190.4	200.2	190.4	9.79	20.451	
1,300.0	1,240.2	1,302.9	1,248.0	6.5	6.4	-126.43	-42.6	-233.4	231.0	219.6	11.43	20.214	
1,400.0	1,324.6	1,397.6	1,332.6	7.5	7.2	-125.98	-41.7	-276.2	262.8	249.8	13.06	20.123	
1,500.0	1,408.9	1,492.4	1,417.1	8.5	8.0	-125.63	-40.8	-319.0	294.7	280.0	14.70	20.042	
1,600.0	1,493.3	1,587.2	1,501.7	9.6	8.9	-125.35	-40.0	-361.8	326.5	310.2	16.35	19.972	
1,700.0	1,577.7	1,682.0	1,586.3	10.6	9.7	-125.11	-39.1	-404.6	358.4	340.4	18.00	19.910	
1,800.0	1,662.0	1,776.8	1,670.8	11.6	10.5	-124.92	-38.2	-447.4	390.2	370.6	19.65	19.856	
1,900.0	1,746.4	1,871.5	1,755.4	12.6	11.4	-124.75	-37.3	-490.3	422.1	400.8	21.31	19.808	
2,000.0	1,830.7	1,966.3	1,839.9	13.7	12.2	-124.61	-36.4	-533.1	454.0	431.0	22.97	19.766	
2,100.0	1,915.1	2,061.1	1,924.5	14.7	13.0	-124.48	-35.5	-575.9	485.9	461.2	24.63	19.729 SF	

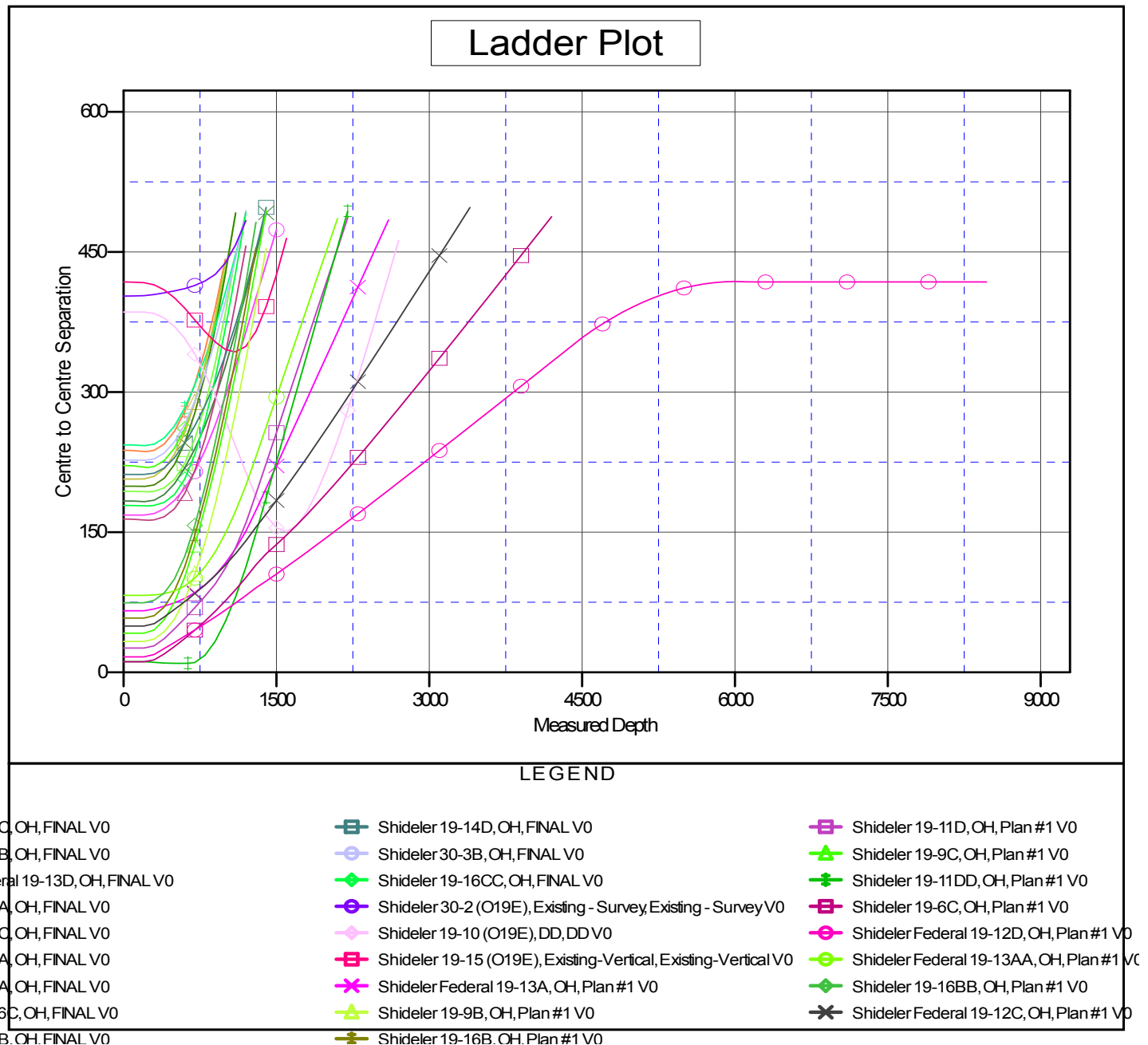
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-12A
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Nabors M-15)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler Federal 19-12A	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' @ 6531.0ft (Nabors M-15)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Shideler Federal 19-12A
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.39°



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