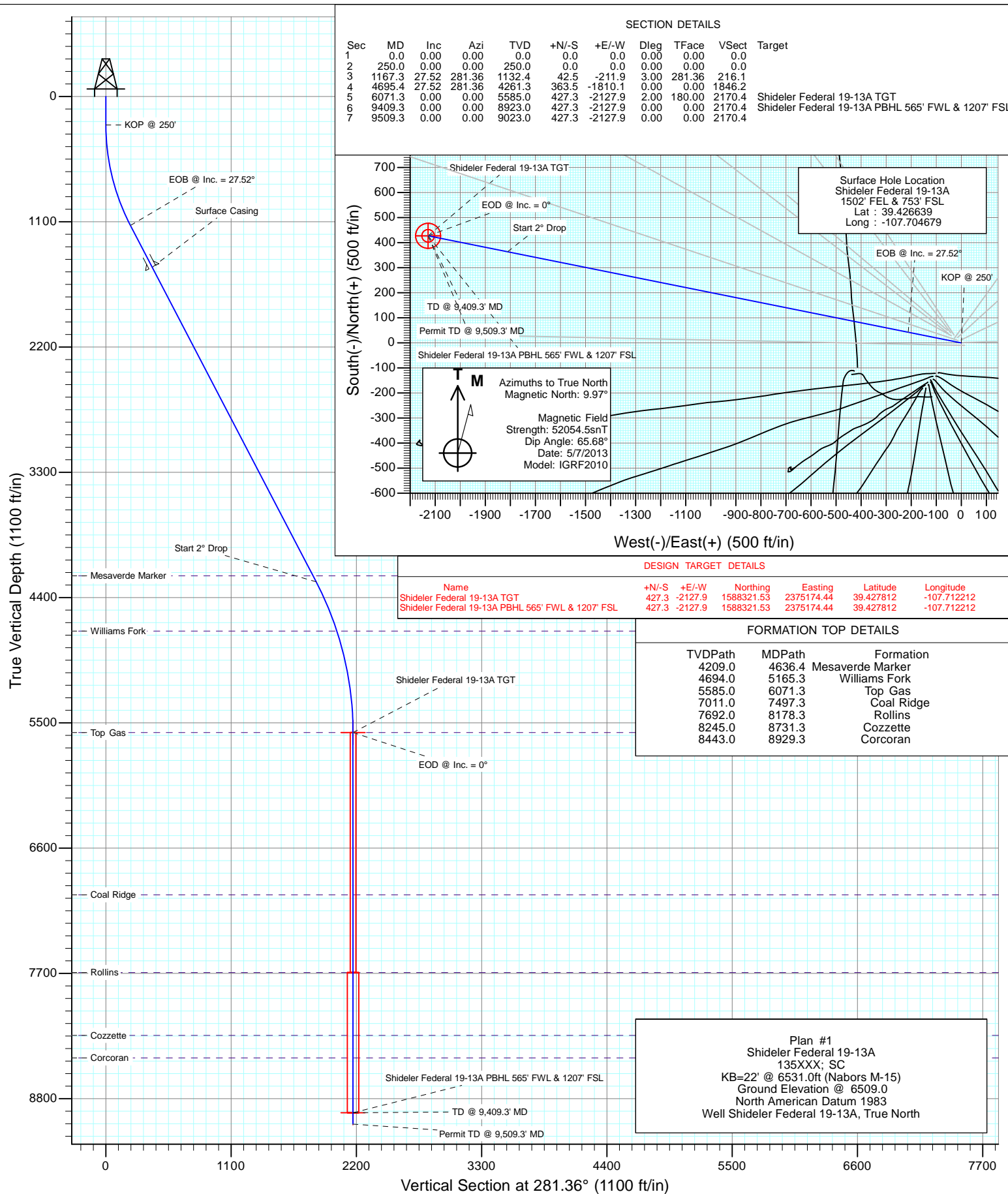
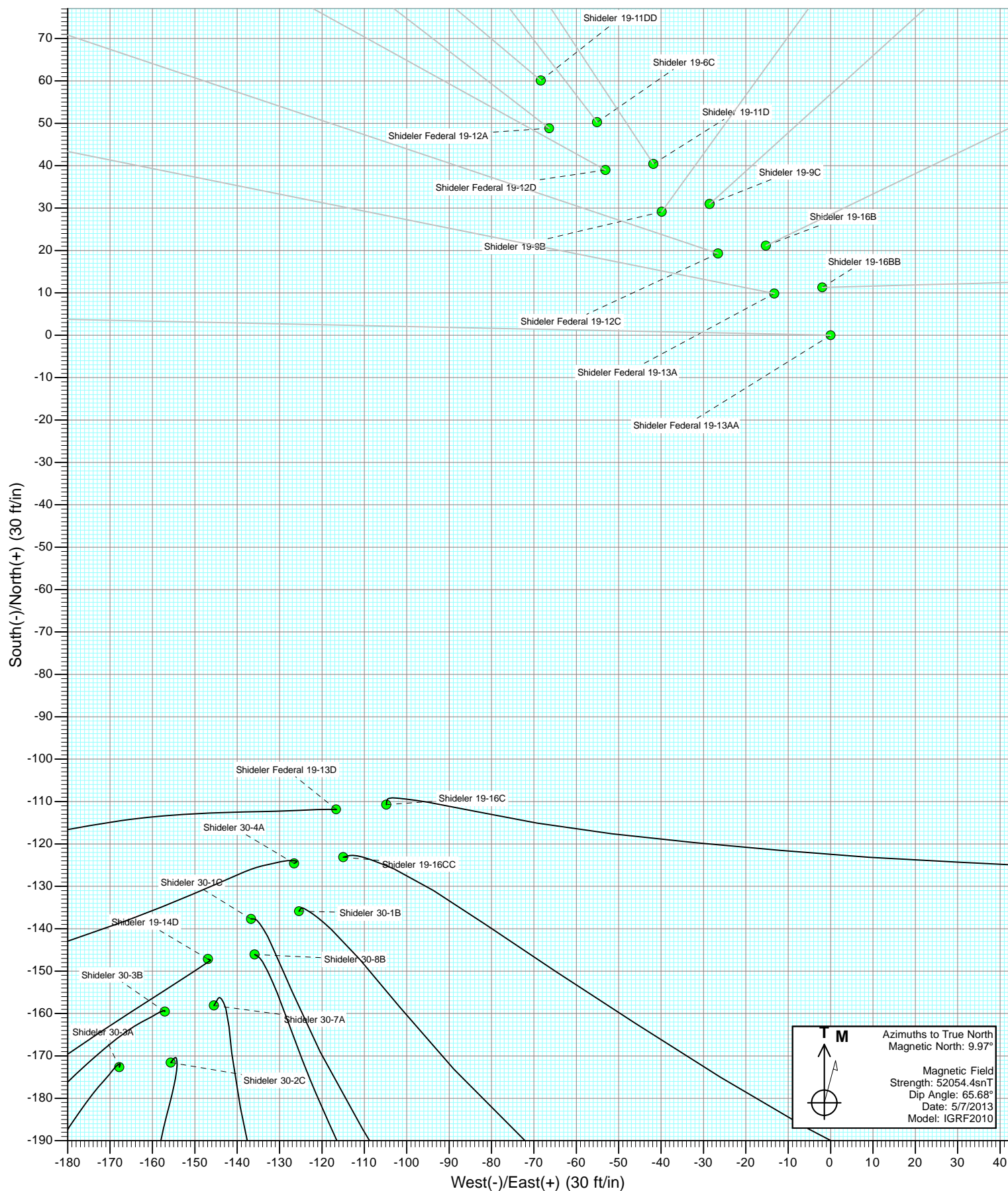
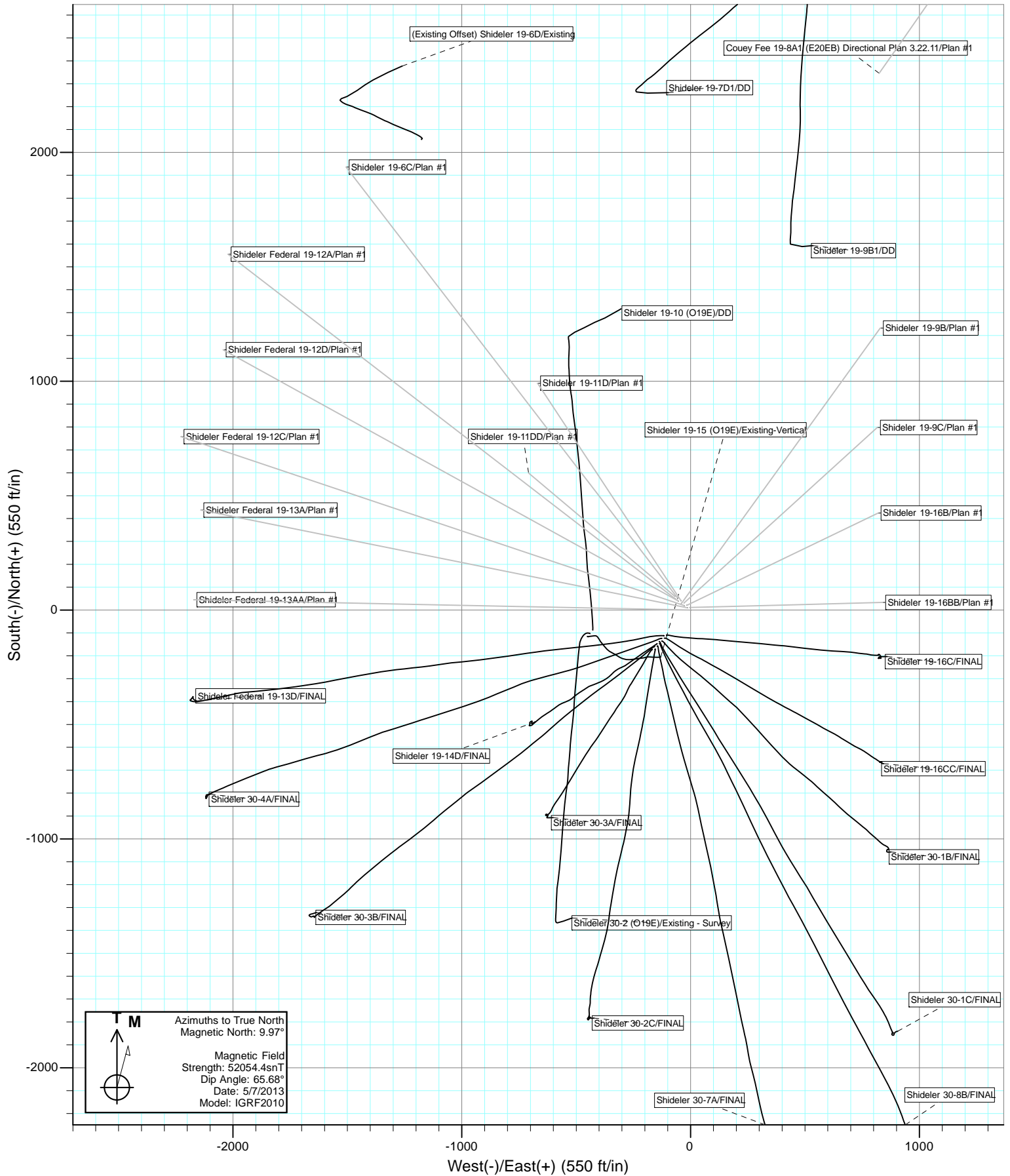




Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler Federal 19-13A
Wellbore: OH
Design: Plan #1

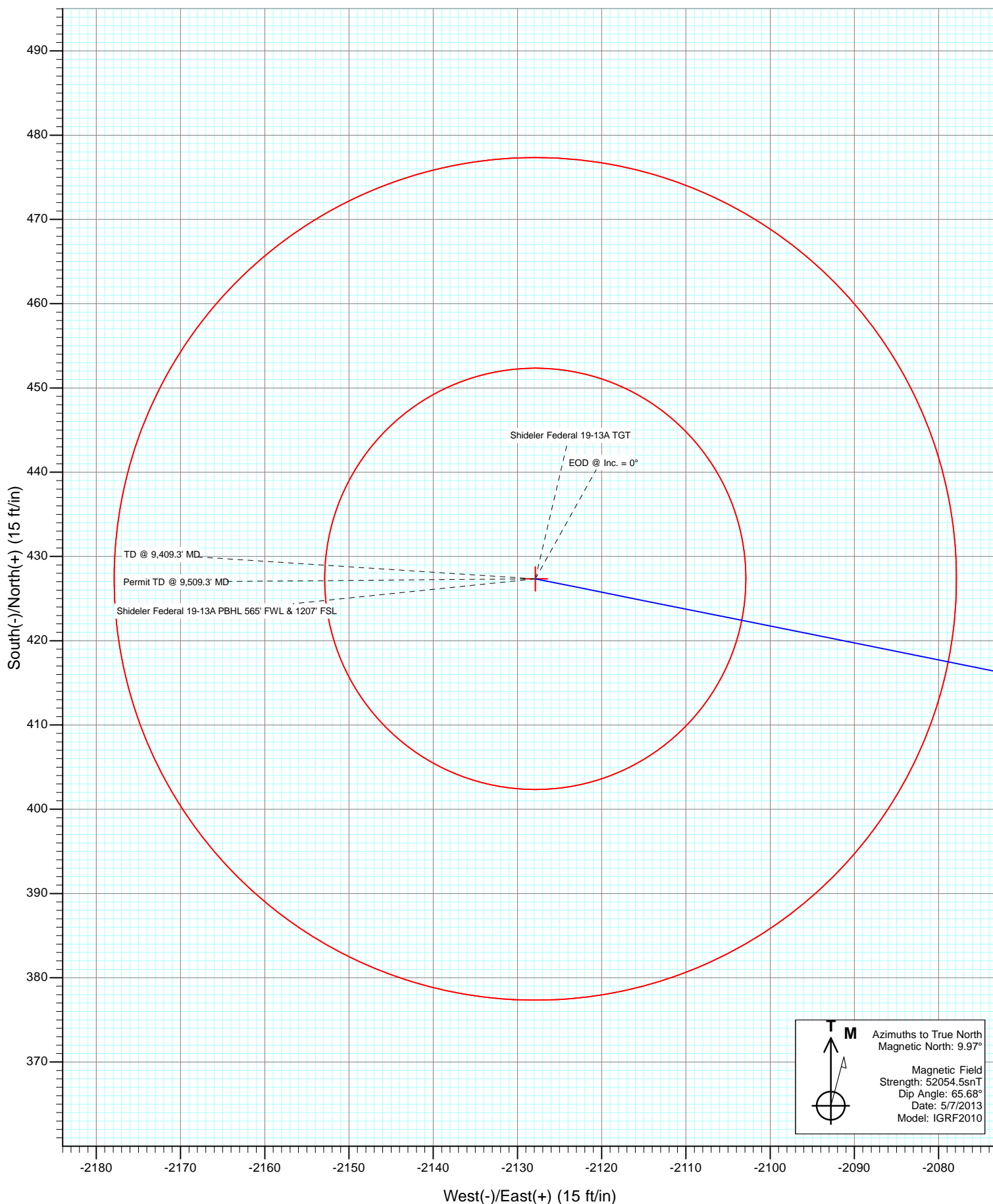








Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler Federal 19-13A
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 19-13A					
Well Position	+N/-S	0.0 ft	Northing:	1,587,842.68 ft	Latitude:	39.426639
	+E/-W	0.0 ft	Easting:	2,377,291.32 ft	Longitude:	-107.704679
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) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	281.36

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,167.3	27.52	281.36	1,132.4	42.5	-211.9	3.00	3.00	0.00	281.36	
4,695.4	27.52	281.36	4,261.3	363.5	-1,810.1	0.00	0.00	0.00	0.00	
6,071.3	0.00	0.00	5,585.0	427.3	-2,127.9	2.00	-2.00	0.00	180.00	Shideler Federal 19-1
9,409.3	0.00	0.00	8,923.0	427.3	-2,127.9	0.00	0.00	0.00	0.00	Shideler Federal 19-1
9,509.3	0.00	0.00	9,023.0	427.3	-2,127.9	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 19-13A
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 19-13A	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	
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	KOP @ 250'
300.0	1.50	281.36	300.0	0.1	-0.6	0.7	3.00	3.00	
400.0	4.50	281.36	399.8	1.2	-5.8	5.9	3.00	3.00	
500.0	7.50	281.36	499.3	3.2	-16.0	16.3	3.00	3.00	
600.0	10.50	281.36	598.0	6.3	-31.4	32.0	3.00	3.00	
700.0	13.50	281.36	695.8	10.4	-51.7	52.8	3.00	3.00	
800.0	16.50	281.36	792.4	15.5	-77.1	78.6	3.00	3.00	
900.0	19.50	281.36	887.5	21.6	-107.4	109.5	3.00	3.00	
1,000.0	22.50	281.36	980.9	28.6	-142.5	145.4	3.00	3.00	
1,100.0	25.50	281.36	1,072.2	36.6	-182.4	186.0	3.00	3.00	
1,167.3	27.52	281.36	1,132.4	42.5	-211.9	216.1	3.00	3.00	EOB @ Inc. = 27.52°
1,200.0	27.52	281.36	1,161.4	45.5	-226.7	231.2	0.00	0.00	
1,300.0	27.52	281.36	1,250.1	54.6	-272.0	277.4	0.00	0.00	
1,400.0	27.52	281.36	1,338.8	63.7	-317.3	323.6	0.00	0.00	
1,500.0	27.52	281.36	1,427.5	72.8	-362.6	369.8	0.00	0.00	
1,581.8	27.52	281.36	1,500.0	80.3	-399.6	407.6	0.00	0.00	Surface Casing
1,600.0	27.52	281.36	1,516.2	81.9	-407.9	416.0	0.00	0.00	
1,700.0	27.52	281.36	1,604.9	91.0	-453.2	462.2	0.00	0.00	
1,800.0	27.52	281.36	1,693.5	100.1	-498.5	508.4	0.00	0.00	
1,900.0	27.52	281.36	1,782.2	109.2	-543.8	554.6	0.00	0.00	
2,000.0	27.52	281.36	1,870.9	118.3	-589.1	600.8	0.00	0.00	
2,100.0	27.52	281.36	1,959.6	127.4	-634.4	647.0	0.00	0.00	
2,200.0	27.52	281.36	2,048.3	136.5	-679.7	693.2	0.00	0.00	
2,300.0	27.52	281.36	2,137.0	145.6	-725.0	739.4	0.00	0.00	
2,400.0	27.52	281.36	2,225.7	154.7	-770.3	785.7	0.00	0.00	
2,500.0	27.52	281.36	2,314.3	163.8	-815.6	831.9	0.00	0.00	
2,600.0	27.52	281.36	2,403.0	172.9	-860.9	878.1	0.00	0.00	
2,700.0	27.52	281.36	2,491.7	182.0	-906.2	924.3	0.00	0.00	
2,800.0	27.52	281.36	2,580.4	191.1	-951.5	970.5	0.00	0.00	
2,900.0	27.52	281.36	2,669.1	200.2	-996.8	1,016.7	0.00	0.00	
3,000.0	27.52	281.36	2,757.8	209.3	-1,042.1	1,062.9	0.00	0.00	
3,100.0	27.52	281.36	2,846.5	218.4	-1,087.4	1,109.1	0.00	0.00	
3,200.0	27.52	281.36	2,935.1	227.5	-1,132.7	1,155.3	0.00	0.00	
3,300.0	27.52	281.36	3,023.8	236.6	-1,178.0	1,201.5	0.00	0.00	
3,400.0	27.52	281.36	3,112.5	245.7	-1,223.3	1,247.7	0.00	0.00	
3,500.0	27.52	281.36	3,201.2	254.8	-1,268.6	1,293.9	0.00	0.00	
3,600.0	27.52	281.36	3,289.9	263.9	-1,313.9	1,340.1	0.00	0.00	
3,700.0	27.52	281.36	3,378.6	273.0	-1,359.2	1,386.3	0.00	0.00	
3,800.0	27.52	281.36	3,467.3	282.1	-1,404.5	1,432.5	0.00	0.00	
3,900.0	27.52	281.36	3,555.9	291.2	-1,449.8	1,478.7	0.00	0.00	
4,000.0	27.52	281.36	3,644.6	300.3	-1,495.1	1,524.9	0.00	0.00	
4,100.0	27.52	281.36	3,733.3	309.4	-1,540.4	1,571.1	0.00	0.00	
4,200.0	27.52	281.36	3,822.0	318.5	-1,585.7	1,617.3	0.00	0.00	
4,300.0	27.52	281.36	3,910.7	327.6	-1,631.0	1,663.5	0.00	0.00	
4,400.0	27.52	281.36	3,999.4	336.6	-1,676.3	1,709.8	0.00	0.00	
4,500.0	27.52	281.36	4,088.1	345.7	-1,721.6	1,756.0	0.00	0.00	
4,600.0	27.52	281.36	4,176.7	354.8	-1,766.9	1,802.2	0.00	0.00	
4,636.4	27.52	281.36	4,209.0	358.2	-1,783.4	1,819.0	0.00	0.00	Mesaverde Marker
4,695.4	27.52	281.36	4,261.3	363.5	-1,810.1	1,846.2	0.00	0.00	Start 2° Drop

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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
4,700.0	27.43	281.36	4,265.4	363.9	-1,812.2	1,848.4	2.00	-2.00	
4,800.0	25.43	281.36	4,355.0	372.7	-1,855.8	1,892.9	2.00	-2.00	
4,900.0	23.43	281.36	4,446.0	380.8	-1,896.4	1,934.2	2.00	-2.00	
5,000.0	21.43	281.36	4,538.5	388.4	-1,933.8	1,972.4	2.00	-2.00	
5,100.0	19.43	281.36	4,632.2	395.2	-1,968.0	2,007.3	2.00	-2.00	
5,165.3	18.12	281.36	4,694.0	399.4	-1,988.6	2,028.3	2.00	-2.00	Williams Fork
5,200.0	17.43	281.36	4,727.0	401.5	-1,999.0	2,038.9	2.00	-2.00	
5,300.0	15.43	281.36	4,822.9	407.0	-2,026.7	2,067.2	2.00	-2.00	
5,400.0	13.43	281.36	4,919.8	411.9	-2,051.1	2,092.1	2.00	-2.00	
5,500.0	11.43	281.36	5,017.4	416.2	-2,072.2	2,113.6	2.00	-2.00	
5,600.0	9.43	281.36	5,115.8	419.7	-2,089.9	2,131.7	2.00	-2.00	
5,700.0	7.43	281.36	5,214.7	422.6	-2,104.3	2,146.3	2.00	-2.00	
5,800.0	5.43	281.36	5,314.1	424.8	-2,115.3	2,157.5	2.00	-2.00	
5,900.0	3.43	281.36	5,413.8	426.3	-2,122.9	2,165.2	2.00	-2.00	
6,000.0	1.43	281.36	5,513.7	427.2	-2,127.0	2,169.5	2.00	-2.00	
6,071.3	0.00	0.00	5,585.0	427.3	-2,127.9	2,170.4	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,100.0	0.00	0.00	5,613.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,200.0	0.00	0.00	5,713.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,300.0	0.00	0.00	5,813.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,400.0	0.00	0.00	5,913.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,500.0	0.00	0.00	6,013.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,600.0	0.00	0.00	6,113.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,700.0	0.00	0.00	6,213.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,800.0	0.00	0.00	6,313.7	427.3	-2,127.9	2,170.4	0.00	0.00	
6,900.0	0.00	0.00	6,413.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,000.0	0.00	0.00	6,513.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,100.0	0.00	0.00	6,613.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,200.0	0.00	0.00	6,713.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,300.0	0.00	0.00	6,813.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,400.0	0.00	0.00	6,913.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,497.3	0.00	0.00	7,011.0	427.3	-2,127.9	2,170.4	0.00	0.00	Coal Ridge
7,500.0	0.00	0.00	7,013.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,600.0	0.00	0.00	7,113.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,700.0	0.00	0.00	7,213.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,800.0	0.00	0.00	7,313.7	427.3	-2,127.9	2,170.4	0.00	0.00	
7,900.0	0.00	0.00	7,413.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,000.0	0.00	0.00	7,513.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,100.0	0.00	0.00	7,613.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,178.3	0.00	0.00	7,692.0	427.3	-2,127.9	2,170.4	0.00	0.00	Rollins
8,200.0	0.00	0.00	7,713.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,300.0	0.00	0.00	7,813.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,400.0	0.00	0.00	7,913.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,500.0	0.00	0.00	8,013.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,600.0	0.00	0.00	8,113.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,700.0	0.00	0.00	8,213.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,731.3	0.00	0.00	8,245.0	427.3	-2,127.9	2,170.4	0.00	0.00	Cozzette
8,800.0	0.00	0.00	8,313.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,900.0	0.00	0.00	8,413.7	427.3	-2,127.9	2,170.4	0.00	0.00	
8,929.3	0.00	0.00	8,443.0	427.3	-2,127.9	2,170.4	0.00	0.00	Corcoran
9,000.0	0.00	0.00	8,513.7	427.3	-2,127.9	2,170.4	0.00	0.00	
9,100.0	0.00	0.00	8,613.7	427.3	-2,127.9	2,170.4	0.00	0.00	
9,200.0	0.00	0.00	8,713.7	427.3	-2,127.9	2,170.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	0.00	0.00	8,813.7	427.3	-2,127.9	2,170.4	0.00	0.00	
9,409.3	0.00	0.00	8,923.0	427.3	-2,127.9	2,170.4	0.00	0.00	TD @ 9,409.3' MD
9,509.3	0.00	0.00	9,023.0	427.3	-2,127.9	2,170.4	0.00	0.00	Permit TD @ 9,509.3' MD

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Shideler Federal 19-13A	- plan hits target center	0.00	0.00	8,923.0	427.3	-2,127.9	1,588,321.53	2,375,174.44	39.427812 -107.712212
	- Circle (radius 50.0)								
Shideler Federal 19-13A	- plan hits target center	0.00	0.00	5,585.0	427.3	-2,127.9	1,588,321.53	2,375,174.44	39.427812 -107.712212
	- Circle (radius 25.0)								

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,581.8	1,500.0	Surface Casing			

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,636.4	4,209.0	Mesaverde Marker			
5,165.3	4,694.0	Williams Fork			
6,071.3	5,585.0	Top Gas			
7,497.3	7,011.0	Coal Ridge			
8,178.3	7,692.0	Rollins			
8,731.3	8,245.0	Cozzette			
8,929.3	8,443.0	Corcoran			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
250.0	250.0	0.0	0.0	KOP @ 250'
1,167.3	1,132.4	42.5	-211.9	EOB @ Inc. = 27.52°
4,695.4	4,261.3	363.5	-1,810.1	Start 2° Drop
6,071.3	5,585.0	427.3	-2,127.9	EOD @ Inc. = 0°
9,409.3	8,923.0	427.3	-2,127.9	TD @ 9,409.3' MD
9,509.3	9,023.0	427.3	-2,127.9	Permit TD @ 9,509.3' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O19EB Pad (2nd Occupation)

Shideler Federal 19-13A

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 19-13A
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 19-13A	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	9,509.3	Plan #1 (OH)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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	1,583.6	1,535.2	92.4	82.6	9.369	CC
Shideler 19-10 (O19E) - DD - DD	1,600.0	1,549.5	92.7	82.5	9.084	ES
Shideler 19-10 (O19E) - DD - DD	1,700.0	1,636.3	108.3	96.0	8.847	SF
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	1,431.9	1,384.5	206.1	196.5	21.394	CC, ES
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	1,600.0	1,530.8	222.5	211.3	19.868	SF
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	1,266.3	1,178.9	380.8	373.6	52.580	CC, ES
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	1,800.0	1,620.0	482.5	469.2	36.486	SF
O19EB Pad (1st Occupation)						
(Existing Offset) Shideler 19-6D - Existing - Existing						Out of range
Shideler 19-14D - OH - FINAL	211.4	211.4	205.9	205.3	311.360	CC, ES
Shideler 19-14D - OH - FINAL	1,500.0	1,425.7	329.0	318.7	32.045	SF
Shideler 19-16C - OH - FINAL	600.3	601.0	133.5	131.0	53.834	CC, ES
Shideler 19-16C - OH - FINAL	800.0	782.6	156.9	153.1	41.478	SF
Shideler 19-16CC - OH - FINAL	571.0	566.2	155.8	153.6	71.027	CC, ES
Shideler 19-16CC - OH - FINAL	800.0	767.6	181.7	178.0	48.990	SF
Shideler 30-1B - OH - FINAL	541.0	533.2	176.9	175.0	89.414	CC, ES
Shideler 30-1B - OH - FINAL	900.0	840.6	231.9	227.5	53.467	SF
Shideler 30-1C - OH - FINAL	324.3	321.3	191.6	190.6	180.969	CC, ES
Shideler 30-1C - OH - FINAL	1,000.0	883.3	316.9	311.8	62.003	SF
Shideler 30-2C - OH - FINAL	251.0	250.2	228.8	228.0	286.632	CC, ES
Shideler 30-2C - OH - FINAL	1,300.0	1,116.0	469.7	461.9	60.211	SF
Shideler 30-3A - OH - FINAL	215.4	215.5	238.4	237.7	352.975	CC, ES
Shideler 30-3A - OH - FINAL	1,700.0	1,561.8	499.4	487.1	40.687	SF
Shideler 30-3B - OH - FINAL	212.9	212.7	222.0	221.3	333.292	CC, ES
Shideler 30-3B - OH - FINAL	1,600.0	1,441.1	485.7	472.0	35.443	SF
Shideler 30-4A - OH - FINAL	197.2	197.2	175.0	174.4	285.988	CC
Shideler 30-4A - OH - FINAL	200.0	199.9	175.0	174.4	281.519	ES
Shideler 30-4A - OH - FINAL	2,300.0	2,176.9	487.7	461.1	18.326	SF
Shideler 30-7A - OH - FINAL	331.5	327.6	211.2	210.1	195.631	CC, ES
Shideler 30-7A - OH - FINAL	1,100.0	950.2	368.1	362.3	63.201	SF
Shideler 30-8B - OH - FINAL	193.5	193.5	198.2	197.6	331.140	CC
Shideler 30-8B - OH - FINAL	200.0	199.8	198.2	197.6	319.128	ES
Shideler 30-8B - OH - FINAL	1,000.0	875.3	330.6	325.6	65.239	SF
Shideler Federal 19-13D - OH - FINAL	154.5	154.5	159.6	159.2	345.263	CC
Shideler Federal 19-13D - OH - FINAL	200.0	199.4	159.7	159.1	257.416	ES
Shideler Federal 19-13D - OH - FINAL	3,200.0	3,122.1	492.5	448.9	11.290	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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)		
O19EB Pad (2nd Occupation)						
Shideler 19-11D - OH - Plan #1	548.0	544.6	31.9	30.0	16.342	CC, ES
Shideler 19-11D - OH - Plan #1	700.0	692.9	40.6	37.7	14.156	SF
Shideler 19-11DD - OH - Plan #1	200.0	200.0	74.6	73.9	120.010	CC, ES
Shideler 19-11DD - OH - Plan #1	1,100.0	1,076.4	97.4	90.4	14.028	SF
Shideler 19-16B - OH - Plan #1	334.9	334.7	11.1	10.0	10.050	CC, ES
Shideler 19-16B - OH - Plan #1	400.0	399.3	12.8	11.5	9.585	SF
Shideler 19-16BB - OH - Plan #1	200.0	200.0	11.4	10.8	18.336	CC
Shideler 19-16BB - OH - Plan #1	228.0	228.0	11.5	10.8	15.981	ES
Shideler 19-16BB - OH - Plan #1	300.0	300.0	12.0	11.0	12.383	SF
Shideler 19-6C - OH - Plan #1	557.4	551.2	50.4	48.4	25.743	CC, ES
Shideler 19-6C - OH - Plan #1	900.0	880.6	80.9	76.3	17.520	SF
Shideler 19-9B - OH - Plan #1	485.7	483.9	24.7	23.0	14.553	CC, ES
Shideler 19-9B - OH - Plan #1	500.0	497.9	24.9	23.1	14.118	SF
Shideler 19-9C - OH - Plan #1	338.1	337.5	25.9	24.8	22.930	CC, ES
Shideler 19-9C - OH - Plan #1	400.0	398.5	27.0	25.6	19.733	SF
Shideler Federal 19-12A - OH - Plan #1	200.0	200.0	65.9	65.3	106.017	CC, ES
Shideler Federal 19-12A - OH - Plan #1	2,700.0	2,600.1	498.9	464.9	14.668	SF
Shideler Federal 19-12C - OH - Plan #1	545.8	544.7	8.1	6.1	4.053	CC, ES
Shideler Federal 19-12C - OH - Plan #1	1,900.0	1,902.7	74.3	51.9	3.320	SF
Shideler Federal 19-12D - OH - Plan #1	653.4	645.9	40.6	38.2	16.843	CC
Shideler Federal 19-12D - OH - Plan #1	700.0	691.5	40.9	38.2	15.126	ES
Shideler Federal 19-12D - OH - Plan #1	1,300.0	1,279.5	92.2	81.2	8.394	SF
Shideler Federal 19-13AA - OH - Plan #1	449.2	450.5	13.6	12.0	8.467	CC
Shideler Federal 19-13AA - OH - Plan #1	500.0	501.5	13.8	11.9	7.372	ES
Shideler Federal 19-13AA - OH - Plan #1	8,453.9	8,444.4	393.5	306.6	4.530	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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			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	25.9	25.9	0.0	0.0	-103.21	-97.2	-414.0	425.2					
100.0	100.0	125.7	125.7	0.1	0.2	-103.18	-97.0	-414.0	425.2	424.9	0.34	1,267.052		
200.0	200.0	225.9	225.9	0.3	0.4	-103.13	-96.6	-414.2	425.3	424.6	0.68	624.975		
300.0	300.0	326.2	326.2	0.5	0.5	-24.43	-95.9	-414.3	424.7	423.7	1.03	411.882		
400.0	399.8	430.7	430.7	0.7	0.7	-24.50	-93.6	-414.2	419.3	417.9	1.40	300.470		
500.0	499.3	531.9	531.7	0.9	0.9	-24.45	-87.7	-414.1	408.4	406.6	1.78	229.568		
600.0	598.0	633.5	632.7	1.2	1.2	-24.04	-76.8	-414.7	392.4	390.1	2.21	177.289		
700.0	695.8	734.5	732.4	1.6	1.5	-23.15	-60.7	-415.2	370.5	367.8	2.71	136.505		
800.0	792.4	830.0	825.8	2.1	1.8	-21.77	-41.1	-416.4	344.0	340.8	3.26	105.430		
900.0	887.5	924.2	917.2	2.7	2.3	-19.77	-18.2	-418.3	313.4	309.6	3.85	81.497		
1,000.0	980.9	1,017.3	1,006.8	3.4	2.7	-17.11	6.6	-420.3	278.6	274.2	4.42	63.014		
1,100.0	1,072.2	1,107.6	1,093.5	4.2	3.1	-13.65	32.0	-422.3	240.0	235.1	4.94	48.544		
1,200.0	1,161.4	1,195.5	1,177.6	5.1	3.6	-8.63	57.6	-424.7	198.6	193.2	5.38	36.922		
1,300.0	1,250.1	1,283.3	1,261.2	6.0	4.1	-0.67	84.1	-427.5	159.0	153.2	5.79	27.457		
1,400.0	1,338.8	1,371.2	1,344.9	6.8	4.6	11.68	110.9	-430.6	124.4	117.9	6.49	19.154		
1,500.0	1,427.5	1,460.4	1,429.6	7.7	5.1	30.83	138.7	-434.0	100.0	91.9	8.09	12.356		
1,583.6	1,501.7	1,535.2	1,500.9	8.5	5.5	51.14	161.1	-436.7	92.4	82.6	9.86	9.369 CC		
1,600.0	1,516.2	1,549.5	1,514.5	8.6	5.5	55.24	165.4	-437.1	92.7	82.5	10.21	9.084 ES		
1,700.0	1,604.9	1,636.3	1,596.9	9.5	6.0	78.42	192.8	-438.9	108.3	96.0	12.24	8.847 SF		
1,800.0	1,693.5	1,724.0	1,680.1	10.4	6.6	94.92	220.6	-440.5	139.5	125.5	13.97	9.982		
1,900.0	1,782.2	1,809.9	1,761.1	11.3	7.1	104.95	248.9	-442.5	178.9	163.6	15.31	11.682		
2,000.0	1,870.9	1,898.0	1,843.9	12.2	7.6	111.37	278.8	-445.1	222.0	205.5	16.48	13.469		
2,100.0	1,959.6	1,987.4	1,927.9	13.1	8.2	115.68	309.2	-448.4	266.4	248.8	17.59	15.145		
2,200.0	2,048.3	2,076.0	2,011.2	14.0	8.7	118.68	339.1	-452.3	311.0	292.3	18.67	16.659		
2,300.0	2,137.0	2,160.7	2,090.9	14.9	9.2	120.97	367.5	-455.3	356.6	336.9	19.69	18.107		
2,400.0	2,225.7	2,248.3	2,173.6	15.8	9.7	122.99	396.6	-457.1	403.4	382.7	20.71	19.480		
2,500.0	2,314.3	2,334.0	2,254.3	16.7	10.3	124.52	425.3	-458.9	450.5	428.8	21.74	20.725		
2,600.0	2,403.0	2,420.0	2,335.0	17.6	10.8	125.63	455.2	-461.2	498.3	475.5	22.79	21.870		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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				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	26.5	26.5	0.0	0.0	-106.03	-125.7	-437.3	455.0					
100.0	100.0	128.0	128.0	0.1	0.2	-106.04	-125.6	-436.9	454.6	454.3	0.34	1,355.628		
200.0	200.0	229.2	229.2	0.3	0.4	-106.11	-126.0	-436.3	454.1	453.5	0.69	661.268		
300.0	300.0	333.0	333.0	0.5	0.6	-27.58	-126.1	-435.0	452.4	451.4	1.04	434.056		
400.0	399.8	435.8	435.7	0.7	0.7	-28.02	-125.8	-433.1	445.9	444.5	1.40	318.859		
500.0	499.3	539.1	539.1	0.9	0.9	-28.91	-125.3	-430.4	434.1	432.3	1.77	245.836		
600.0	598.0	641.4	641.3	1.2	1.1	-30.32	-124.7	-426.6	416.8	414.6	2.15	193.616		
700.0	695.8	739.9	739.6	1.6	1.3	-32.30	-123.8	-422.3	394.5	392.0	2.57	153.412		
800.0	792.4	835.5	835.1	2.1	1.5	-35.10	-123.5	-417.9	368.4	365.3	3.05	120.630		
900.0	887.5	930.3	929.8	2.7	1.7	-38.91	-123.1	-413.2	338.7	335.0	3.64	92.988		
1,000.0	980.9	1,022.5	1,021.9	3.4	1.8	-44.02	-122.6	-408.4	306.2	301.8	4.39	69.744		
1,100.0	1,072.2	1,111.2	1,110.5	4.2	2.0	-50.93	-122.5	-403.4	272.6	267.3	5.37	50.780		
1,200.0	1,161.4	1,196.2	1,195.3	5.1	2.2	-59.71	-123.1	-398.6	240.9	234.4	6.59	36.551		
1,300.0	1,250.1	1,275.5	1,274.5	6.0	2.3	-69.23	-125.1	-394.6	217.5	209.6	7.91	27.501		
1,400.0	1,338.8	1,357.8	1,356.6	6.8	2.5	-80.37	-129.2	-391.4	206.8	197.5	9.24	22.377		
1,431.9	1,367.1	1,384.5	1,383.3	7.1	2.5	-84.10	-130.7	-390.5	206.1	196.5	9.63	21.394 CC, ES		
1,500.0	1,427.5	1,443.5	1,442.1	7.7	2.7	-92.25	-134.2	-388.7	209.0	198.6	10.38	20.125		
1,600.0	1,516.2	1,530.8	1,529.3	8.6	2.8	-103.70	-139.1	-385.9	222.5	211.3	11.20	19.868 SF		
1,700.0	1,604.9	1,617.7	1,616.0	9.5	3.0	-113.77	-143.8	-382.8	245.6	233.9	11.70	20.996		
1,800.0	1,693.5	1,704.1	1,702.2	10.4	3.2	-122.19	-148.3	-379.7	275.9	263.9	11.97	23.057		
1,900.0	1,782.2	1,790.9	1,788.8	11.3	3.3	-129.19	-152.6	-376.3	311.4	299.3	12.10	25.733		
2,000.0	1,870.9	1,876.7	1,874.5	12.2	3.5	-134.84	-156.7	-372.7	350.7	338.5	12.18	28.790		
2,100.0	1,959.6	1,963.8	1,961.4	13.1	3.7	-139.45	-161.1	-369.3	392.5	380.3	12.25	32.050		
2,200.0	2,048.3	2,050.3	2,047.7	14.0	3.8	-143.23	-165.2	-366.0	436.0	423.7	12.32	35.390		
2,300.0	2,137.0	2,136.4	2,133.6	14.9	4.0	-146.34	-169.3	-362.6	481.0	468.6	12.41	38.743		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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							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	25.9	25.9	0.0	0.0	-104.76	-112.3	-426.5	441.1					
100.0	100.0	125.4	125.4	0.1	0.2	-104.74	-112.2	-426.6	441.1	440.8	0.34	1,311.675		
200.0	200.0	220.6	220.6	0.3	0.4	-104.68	-111.9	-427.1	441.5	440.9	0.67	656.979		
300.0	300.0	307.0	307.0	0.5	0.5	-25.88	-111.2	-429.7	443.6	442.6	1.00	443.860		
400.0	399.8	392.1	391.9	0.7	0.7	-25.80	-110.1	-435.3	445.0	443.7	1.33	334.974		
500.0	499.3	483.1	482.5	0.9	0.9	-26.24	-111.3	-443.1	444.2	442.6	1.67	265.535		
600.0	598.0	575.4	574.2	1.2	1.1	-27.54	-116.9	-451.5	440.7	438.7	2.03	216.628		
700.0	695.8	668.1	666.0	1.6	1.4	-29.78	-127.1	-460.2	434.5	432.1	2.45	177.549		
800.0	792.4	768.3	764.6	2.1	1.7	-33.35	-142.8	-467.8	425.0	422.0	2.97	143.282		
900.0	887.5	862.0	856.2	2.7	2.0	-38.03	-162.1	-472.2	412.4	408.8	3.61	114.100		
1,000.0	980.9	946.6	938.1	3.4	2.4	-43.40	-183.2	-474.8	400.0	395.6	4.40	90.937		
1,100.0	1,072.2	1,034.3	1,022.6	4.2	2.7	-49.82	-206.6	-477.4	389.7	384.4	5.36	72.725		
1,200.0	1,161.4	1,121.4	1,106.6	5.1	3.1	-56.78	-229.6	-479.6	382.4	375.9	6.47	59.131		
1,266.3	1,220.2	1,178.9	1,162.1	5.7	3.4	-61.43	-244.6	-480.9	380.8	373.6	7.24	52.580	CC, ES	
1,300.0	1,250.1	1,208.2	1,190.3	6.0	3.5	-63.81	-252.1	-481.4	381.2	373.6	7.64	49.888		
1,400.0	1,338.8	1,287.3	1,266.7	6.8	3.9	-70.18	-272.8	-483.0	387.7	378.9	8.80	44.068		
1,500.0	1,427.5	1,368.9	1,345.1	7.7	4.3	-76.47	-295.1	-485.4	402.8	392.8	9.95	40.470		
1,600.0	1,516.2	1,454.7	1,427.7	8.6	4.7	-82.72	-318.4	-487.4	423.9	412.8	11.09	38.229		
1,700.0	1,604.9	1,537.2	1,507.1	9.5	5.1	-88.24	-340.9	-489.3	450.7	438.6	12.18	37.020		
1,800.0	1,693.5	1,620.0	1,586.6	10.4	5.5	-93.24	-363.6	-491.4	482.5	469.2	13.22	36.486	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 (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	-139.60	-157.0	-133.6	206.2					
100.0	100.0	100.2	100.2	0.1	0.2	-139.64	-157.0	-133.5	206.1	205.8	0.29	713.889		
200.0	200.0	200.2	200.2	0.3	0.3	-139.75	-157.2	-133.1	205.9	205.3	0.62	331.248		
211.4	211.4	211.4	211.4	0.3	0.3	-61.12	-157.2	-133.0	205.9	205.3	0.66	311.360 CC, ES		
300.0	300.0	296.1	296.1	0.5	0.5	-61.22	-157.7	-133.6	206.4	205.4	0.96	214.038		
400.0	399.8	386.0	385.9	0.7	0.6	-62.04	-159.6	-136.5	207.7	206.4	1.31	158.587		
500.0	499.3	478.0	477.6	0.9	0.8	-63.59	-163.9	-143.2	211.2	209.5	1.70	123.985		
600.0	598.0	573.1	571.9	1.2	1.1	-65.97	-170.3	-153.0	216.0	213.9	2.18	99.279		
700.0	695.8	671.8	669.7	1.6	1.3	-69.53	-177.4	-163.8	220.2	217.5	2.76	79.855		
800.0	792.4	769.3	766.4	2.1	1.6	-74.15	-184.6	-174.5	224.1	220.6	3.46	64.680		
900.0	887.5	866.6	862.9	2.7	1.9	-79.77	-191.9	-185.2	228.5	224.2	4.31	52.999		
1,000.0	980.9	961.9	957.3	3.4	2.2	-86.10	-199.0	-195.9	235.0	229.7	5.29	44.435		
1,100.0	1,072.2	1,055.7	1,050.2	4.2	2.4	-92.92	-206.3	-206.5	245.1	238.7	6.37	38.498		
1,200.0	1,161.4	1,148.0	1,141.6	5.1	2.7	-99.99	-213.7	-217.1	260.1	252.6	7.47	34.827		
1,300.0	1,250.1	1,240.4	1,233.1	6.0	3.0	-106.76	-221.0	-227.7	279.7	271.2	8.49	32.927		
1,400.0	1,338.8	1,332.6	1,324.4	6.8	3.2	-112.67	-228.4	-238.2	303.0	293.5	9.43	32.142		
1,500.0	1,427.5	1,425.7	1,416.7	7.7	3.5	-117.88	-235.6	-248.5	329.0	318.7	10.27	32.045 SF		
1,600.0	1,516.2	1,517.7	1,507.9	8.6	3.8	-122.39	-242.3	-258.2	357.2	346.2	11.02	32.417		
1,700.0	1,604.9	1,608.6	1,598.1	9.5	4.0	-126.29	-248.9	-267.3	387.5	375.8	11.70	33.117		
1,800.0	1,693.5	1,712.4	1,701.0	10.4	4.3	-129.90	-256.0	-279.6	418.1	405.7	12.38	33.770		
1,900.0	1,782.2	1,807.0	1,794.4	11.3	4.6	-132.56	-261.9	-292.7	448.2	435.2	13.05	34.337		
2,000.0	1,870.9	1,891.9	1,878.2	12.2	4.9	-134.55	-268.3	-304.8	479.9	466.2	13.73	34.964		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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						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	-142.80	-120.6	-91.5	151.4				
100.0	100.0	100.7	100.7	0.1	0.2	-142.75	-120.3	-91.5	151.2	150.9	0.29	521.187	
200.0	200.0	201.2	201.2	0.3	0.3	-142.61	-119.6	-91.4	150.5	149.9	0.62	241.006	
300.0	300.0	303.1	303.1	0.5	0.5	-64.57	-119.0	-89.8	148.8	147.8	0.98	152.401	
400.0	399.8	405.8	405.5	0.7	0.7	-69.09	-119.8	-82.8	143.5	142.2	1.36	105.432	
500.0	499.3	504.4	503.4	0.9	0.9	-77.96	-122.0	-71.0	136.9	135.0	1.85	73.927	
600.0	598.0	600.8	598.4	1.2	1.2	-90.87	-125.0	-55.7	133.5	131.0	2.48	53.884	
600.3	598.3	601.0	598.7	1.2	1.2	-90.92	-125.0	-55.6	133.5	131.0	2.48	53.834 CC, ES	
700.0	695.8	693.6	689.5	1.6	1.6	-106.04	-127.5	-37.9	138.7	135.5	3.17	43.683	
800.0	792.4	782.6	776.5	2.1	1.9	-120.61	-129.5	-19.2	156.9	153.1	3.78	41.478 SF	
900.0	887.5	868.4	860.3	2.7	2.3	-132.55	-131.2	-0.4	188.5	184.2	4.25	44.348	
1,000.0	980.9	950.2	939.9	3.4	2.6	-141.53	-132.6	18.1	231.3	226.7	4.61	50.147	
1,100.0	1,072.2	1,031.3	1,018.8	4.2	3.0	-148.37	-133.8	36.8	282.8	277.9	4.90	57.678	
1,200.0	1,161.4	1,110.1	1,095.6	5.1	3.3	-153.73	-134.6	54.6	340.4	335.3	5.13	66.308	
1,300.0	1,250.1	1,187.5	1,171.1	6.0	3.7	-158.07	-135.6	71.4	400.5	395.1	5.33	75.167	
1,400.0	1,338.8	1,263.0	1,244.8	6.8	4.0	-161.24	-136.7	87.9	461.7	456.1	5.53	83.494	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 19-16CC - 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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-142.59	-133.0	-101.7	167.4				
100.0	100.0	100.6	100.6	0.1	0.2	-142.63	-132.9	-101.5	167.2	166.9	0.29	571.060	
200.0	200.0	201.1	201.1	0.3	0.3	-142.77	-132.7	-100.8	166.7	166.1	0.62	267.138	
300.0	300.0	302.3	302.3	0.5	0.5	-64.73	-132.5	-99.3	165.4	164.4	0.98	169.342	
400.0	399.8	402.3	402.2	0.7	0.7	-67.90	-133.5	-95.2	161.7	160.3	1.35	119.680	
500.0	499.3	499.9	499.4	0.9	0.9	-74.33	-136.7	-87.8	157.2	155.4	1.80	87.350	
571.0	569.5	566.2	565.3	1.1	1.1	-80.79	-140.6	-80.8	155.8	153.6	2.19	71.027	CC, ES
600.0	598.0	593.0	591.8	1.2	1.1	-83.83	-142.7	-77.5	156.1	153.7	2.37	65.946	
700.0	695.8	682.5	679.9	1.6	1.4	-95.33	-151.3	-64.5	162.9	159.9	3.03	53.742	
800.0	792.4	767.6	763.0	2.1	1.8	-107.02	-161.6	-49.1	181.7	178.0	3.71	48.990	SF
900.0	887.5	850.5	843.3	2.7	2.1	-117.39	-172.7	-32.0	213.0	208.7	4.32	49.273	
1,000.0	980.9	929.7	919.8	3.4	2.5	-125.64	-183.7	-14.6	255.3	250.4	4.87	52.418	
1,100.0	1,072.2	1,010.3	997.5	4.2	2.9	-132.41	-194.6	3.7	306.1	300.8	5.37	57.041	
1,200.0	1,161.4	1,085.3	1,069.9	5.1	3.3	-137.89	-203.9	21.0	363.3	357.5	5.80	62.656	
1,300.0	1,250.1	1,156.5	1,138.5	6.0	3.6	-142.76	-212.7	37.9	424.2	418.0	6.13	69.202	
1,400.0	1,338.8	1,226.6	1,205.9	6.8	4.0	-146.53	-221.4	54.9	487.4	480.9	6.43	75.766	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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						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	-142.41	-145.7	-112.1	183.9					
100.0	100.0	100.5	100.5	0.1	0.2	-142.41	-145.6	-112.1	183.7	183.4	0.29	627.905		
200.0	200.0	201.0	201.0	0.3	0.3	-142.41	-145.3	-111.8	183.3	182.7	0.62	293.997		
300.0	300.0	301.0	301.0	0.5	0.5	-64.05	-144.9	-111.2	182.4	181.4	0.97	187.536		
400.0	399.8	399.8	399.8	0.7	0.7	-66.60	-146.6	-108.5	180.0	178.6	1.34	134.380		
500.0	499.3	495.4	495.1	0.9	0.9	-71.79	-151.0	-103.4	177.3	175.6	1.77	100.402		
541.0	539.8	533.2	532.7	1.0	0.9	-74.63	-153.8	-100.7	176.9	175.0	1.98	89.414	CC, ES	
600.0	598.0	586.9	586.0	1.2	1.1	-79.39	-158.9	-96.2	177.9	175.6	2.30	77.461		
700.0	695.8	675.4	673.2	1.6	1.4	-88.75	-170.3	-86.7	185.4	182.5	2.94	63.166		
800.0	792.4	759.8	755.6	2.1	1.7	-98.60	-184.0	-74.7	202.9	199.2	3.63	55.866		
900.0	887.5	840.6	833.6	2.7	2.1	-107.90	-198.9	-59.9	231.9	227.5	4.34	53.467	SF	
1,000.0	980.9	917.9	907.7	3.4	2.5	-115.88	-213.9	-43.4	272.1	267.1	5.00	54.361		
1,100.0	1,072.2	990.9	977.2	4.2	2.9	-122.11	-228.6	-26.8	321.8	316.2	5.65	56.952		
1,200.0	1,161.4	1,059.9	1,042.6	5.1	3.3	-127.42	-242.7	-10.2	379.5	373.3	6.24	60.833		
1,300.0	1,250.1	1,128.5	1,107.6	6.0	3.7	-132.68	-256.9	6.9	441.7	435.0	6.69	66.026		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning				
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
0.0	0.0	0.0	0.0	0.0	0.0	-140.08	-147.5	-123.4	192.4								
100.0	100.0	100.2	100.2	0.1	0.1	-140.09	-147.5	-123.4	192.3	192.0	0.28	695.683					
200.0	200.0	201.1	201.1	0.3	0.3	-140.24	-147.5	-122.8	191.9	191.3	0.62	307.862					
300.0	300.0	297.9	297.8	0.5	0.5	-62.33	-148.8	-121.3	191.7	190.7	0.97	197.596					
324.3	324.3	321.3	321.2	0.5	0.5	-62.85	-149.7	-120.7	191.6	190.6	1.06	180.969	CC, ES				
400.0	399.8	390.4	390.2	0.7	0.7	-65.34	-154.4	-118.3	192.2	190.9	1.34	143.497					
500.0	499.3	482.6	481.6	0.9	0.9	-70.72	-164.9	-113.7	195.3	193.5	1.78	109.463					
600.0	598.0	572.7	570.2	1.2	1.2	-78.01	-179.5	-106.8	202.5	200.1	2.34	86.608					
700.0	695.8	661.0	656.2	1.6	1.6	-86.57	-197.2	-97.1	216.1	213.1	2.99	72.396					
800.0	792.4	741.2	733.3	2.1	2.0	-94.67	-215.8	-85.9	238.9	235.2	3.67	65.032					
900.0	887.5	815.5	804.0	2.7	2.4	-101.71	-235.7	-73.8	272.5	268.1	4.38	62.201					
1,000.0	980.9	883.3	867.4	3.4	2.9	-107.28	-255.9	-61.4	316.9	311.8	5.11	62.003	SF				
1,100.0	1,072.2	938.0	917.9	4.2	3.2	-110.76	-273.9	-50.4	371.0	365.1	5.89	62.981					
1,200.0	1,161.4	999.8	974.1	5.1	3.7	-114.89	-295.9	-37.0	433.2	426.5	6.66	65.037					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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							
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	-141.87	-181.4	-142.4	230.6				
100.0	100.0	101.7	101.7	0.1	0.2	-141.87	-181.1	-142.1	230.2	229.9	0.29	788.479	
200.0	200.0	202.0	202.0	0.3	0.3	-141.88	-180.3	-141.5	229.2	228.6	0.63	365.515	
251.0	251.0	250.2	250.2	0.4	0.4	-63.38	-180.3	-141.1	228.8	228.0	0.80	286.632 CC, ES	
300.0	300.0	295.9	295.8	0.5	0.5	-63.59	-181.1	-140.9	229.2	228.2	0.96	237.732	
400.0	399.8	386.0	385.9	0.7	0.6	-65.15	-185.2	-141.3	230.8	229.5	1.31	175.730	
500.0	499.3	478.0	477.4	0.9	0.8	-68.01	-193.9	-143.4	235.7	234.0	1.71	137.501	
600.0	598.0	559.9	558.4	1.2	1.1	-71.66	-205.9	-145.8	244.3	242.1	2.17	112.370	
700.0	695.8	643.3	640.2	1.6	1.4	-76.23	-222.1	-148.3	257.8	255.1	2.73	94.581	
800.0	792.4	723.7	718.1	2.1	1.7	-80.91	-241.5	-151.6	277.7	274.4	3.37	82.530	
900.0	887.5	800.7	791.7	2.7	2.2	-85.37	-263.7	-155.4	304.7	300.6	4.09	74.474	
1,000.0	980.9	877.5	864.1	3.4	2.6	-89.56	-289.0	-159.7	338.8	333.9	4.91	68.992	
1,100.0	1,072.2	957.3	938.8	4.2	3.1	-93.53	-316.8	-164.6	378.2	372.4	5.83	64.873	
1,200.0	1,161.4	1,035.5	1,011.5	5.1	3.6	-97.48	-345.0	-169.3	422.2	415.4	6.81	61.982	
1,300.0	1,250.1	1,116.0	1,086.3	6.0	4.1	-101.87	-374.5	-174.1	469.7	461.9	7.80	60.211 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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	-139.74	-182.5	-154.5	239.1				
100.0	100.0	100.9	100.9	0.1	0.2	-139.73	-182.3	-154.5	238.9	238.6	0.29	823.632	
200.0	200.0	200.7	200.7	0.3	0.3	-139.67	-181.7	-154.3	238.4	237.8	0.62	382.638	
215.4	215.4	215.5	215.5	0.3	0.3	-61.01	-181.7	-154.4	238.4	237.7	0.68	352.975 CC, ES	
300.0	300.0	294.0	294.0	0.5	0.5	-61.04	-182.2	-155.2	239.1	238.2	0.96	248.939	
400.0	399.8	382.7	382.5	0.7	0.6	-61.94	-185.6	-158.1	241.7	240.4	1.30	185.299	
500.0	499.3	469.4	468.8	0.9	0.8	-63.70	-192.2	-163.4	246.7	245.0	1.69	146.345	
600.0	598.0	558.3	556.8	1.2	1.1	-66.55	-203.0	-170.2	254.5	252.4	2.14	119.044	
700.0	695.8	651.4	648.5	1.6	1.4	-70.41	-216.8	-178.3	264.4	261.7	2.69	98.231	
800.0	792.4	744.9	740.4	2.1	1.7	-74.87	-231.7	-187.0	275.5	272.1	3.36	82.070	
900.0	887.5	837.7	831.4	2.7	2.0	-79.85	-247.5	-195.6	288.6	284.5	4.14	69.637	
1,000.0	980.9	933.5	925.4	3.4	2.4	-85.33	-263.8	-204.8	304.1	299.0	5.07	59.942	
1,100.0	1,072.2	1,026.2	1,016.3	4.2	2.7	-90.72	-279.0	-214.2	322.1	316.0	6.11	52.672	
1,200.0	1,161.4	1,115.1	1,103.6	5.1	3.1	-96.09	-293.7	-223.3	344.2	336.9	7.22	47.650	
1,300.0	1,250.1	1,204.2	1,190.8	6.0	3.4	-101.34	-308.9	-233.0	370.4	362.0	8.32	44.501	
1,400.0	1,338.8	1,294.8	1,279.5	6.8	3.8	-106.06	-324.4	-242.6	399.7	390.3	9.39	42.554	
1,500.0	1,427.5	1,387.0	1,370.0	7.7	4.1	-110.31	-339.8	-252.0	431.0	420.6	10.42	41.380	
1,600.0	1,516.2	1,476.3	1,457.8	8.6	4.4	-114.07	-354.0	-259.8	464.1	452.7	11.37	40.812	
1,700.0	1,604.9	1,561.8	1,542.0	9.5	4.7	-117.37	-367.7	-266.0	499.4	487.1	12.27	40.687 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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							
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	-139.67	-169.4	-143.8	222.2				
100.0	100.0	100.2	100.2	0.1	0.2	-139.66	-169.3	-143.8	222.1	221.8	0.29	774.151	
200.0	200.0	200.5	200.5	0.3	0.3	-139.63	-169.1	-143.8	222.0	221.4	0.62	356.713	
212.9	212.9	212.7	212.7	0.3	0.3	-60.99	-169.1	-143.8	222.0	221.3	0.67	333.292 CC, ES	
300.0	300.0	294.0	294.0	0.5	0.5	-60.93	-169.5	-145.0	222.9	221.9	0.96	231.969	
400.0	399.8	383.9	383.7	0.7	0.6	-61.48	-171.8	-149.2	225.3	224.0	1.31	172.195	
500.0	499.3	471.8	471.2	0.9	0.8	-62.77	-176.8	-156.5	230.1	228.4	1.69	135.783	
600.0	598.0	558.8	557.2	1.2	1.1	-64.94	-185.5	-166.2	238.0	235.9	2.15	110.799	
700.0	695.8	647.3	644.0	1.6	1.4	-67.65	-197.1	-179.3	249.0	246.3	2.71	91.930	
800.0	792.4	733.7	727.7	2.1	1.8	-70.40	-210.3	-195.6	263.1	259.7	3.39	77.534	
900.0	887.5	817.3	807.7	2.7	2.3	-73.13	-225.6	-214.6	281.0	276.7	4.22	66.534	
1,000.0	980.9	899.0	884.4	3.4	2.8	-75.64	-242.9	-236.8	303.2	298.0	5.21	58.154	
1,100.0	1,072.2	982.9	961.5	4.2	3.5	-78.02	-263.1	-263.0	329.6	323.2	6.38	51.647	
1,200.0	1,161.4	1,070.9	1,041.4	5.1	4.1	-80.83	-285.8	-292.1	358.4	350.7	7.72	46.405	
1,300.0	1,250.1	1,162.7	1,124.2	6.0	4.9	-83.92	-310.0	-323.4	389.1	379.9	9.17	42.411	
1,400.0	1,338.8	1,256.9	1,209.1	6.8	5.6	-86.51	-334.5	-356.2	420.6	409.9	10.68	39.394	
1,500.0	1,427.5	1,349.6	1,292.4	7.7	6.4	-88.66	-358.5	-388.9	452.8	440.6	12.19	37.139	
1,600.0	1,516.2	1,441.1	1,374.7	8.6	7.1	-90.53	-382.5	-421.1	485.7	472.0	13.70	35.443 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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				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	-139.88	-134.4	-113.3	175.8					
100.0	100.0	101.0	101.0	0.1	0.1	-139.92	-134.3	-113.0	175.5	175.2	0.28	631.913		
197.2	197.2	197.2	197.2	0.3	0.3	-139.94	-133.9	-112.6	175.0	174.4	0.61	285.988 CC		
200.0	200.0	199.9	199.9	0.3	0.3	-139.94	-133.9	-112.6	175.0	174.4	0.62	281.519 ES		
300.0	300.0	294.0	294.0	0.5	0.5	-60.87	-133.8	-114.8	176.0	175.1	0.96	183.078		
400.0	399.8	386.0	385.7	0.7	0.7	-60.92	-135.0	-120.9	178.9	177.5	1.32	135.674		
500.0	499.3	478.0	477.2	0.9	0.9	-61.88	-138.8	-130.5	183.8	182.0	1.72	106.689		
600.0	598.0	569.0	567.0	1.2	1.1	-63.42	-144.5	-144.0	190.8	188.5	2.21	86.276		
700.0	695.8	661.0	657.0	1.6	1.5	-65.26	-151.0	-161.6	199.0	196.2	2.83	70.414		
800.0	792.4	754.0	747.1	2.1	1.9	-67.32	-158.5	-183.5	208.9	205.3	3.59	58.117		
900.0	887.5	846.0	834.8	2.7	2.5	-69.45	-167.6	-209.8	221.5	217.0	4.54	48.759		
1,000.0	980.9	933.8	916.9	3.4	3.1	-71.44	-177.7	-239.0	236.6	231.0	5.66	41.805		
1,100.0	1,072.2	1,027.8	1,003.7	4.2	3.7	-73.83	-189.6	-273.1	253.2	246.2	6.99	36.209		
1,200.0	1,161.4	1,124.0	1,092.0	5.1	4.5	-76.88	-202.3	-309.1	270.3	261.7	8.51	31.747		
1,300.0	1,250.1	1,220.4	1,180.2	6.0	5.2	-79.96	-215.1	-345.8	288.3	278.2	10.11	28.526		
1,400.0	1,338.8	1,316.3	1,267.9	6.8	5.9	-82.64	-228.0	-382.6	307.3	295.5	11.72	26.219		
1,500.0	1,427.5	1,414.0	1,357.0	7.7	6.7	-85.04	-241.3	-420.1	327.0	313.6	13.36	24.472		
1,600.0	1,516.2	1,511.6	1,446.4	8.6	7.4	-87.21	-254.3	-457.3	346.9	331.9	15.01	23.107		
1,700.0	1,604.9	1,610.4	1,536.0	9.5	8.2	-88.88	-267.3	-496.6	367.5	350.8	16.70	21.999		
1,800.0	1,693.5	1,711.5	1,627.4	10.4	9.1	-90.14	-279.0	-538.4	386.9	368.4	18.42	21.007		
1,900.0	1,782.2	1,813.0	1,719.2	11.3	9.9	-91.28	-290.1	-580.2	405.8	385.7	20.13	20.159		
2,000.0	1,870.9	1,911.2	1,808.2	12.2	10.7	-92.34	-300.4	-620.3	424.5	402.7	21.81	19.464		
2,100.0	1,959.6	2,006.2	1,894.6	13.1	11.4	-93.33	-310.5	-658.7	443.4	419.9	23.47	18.894		
2,200.0	2,048.3	2,092.2	1,972.1	14.0	12.2	-94.05	-321.1	-694.3	464.2	439.1	25.06	18.525		
2,300.0	2,137.0	2,176.9	2,048.2	14.9	12.9	-94.74	-333.9	-729.2	487.7	461.1	26.61	18.326 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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	-141.79	-167.9	-132.2	213.7				
100.0	100.0	102.0	102.0	0.1	0.2	-141.77	-167.5	-132.0	213.2	213.0	0.29	727.216	
200.0	200.0	202.9	202.9	0.3	0.3	-141.73	-166.4	-131.3	211.9	211.3	0.63	336.372	
300.0	300.0	298.2	298.2	0.5	0.5	-63.48	-166.6	-130.3	211.2	210.2	0.97	218.182	
331.5	331.4	327.6	327.5	0.5	0.5	-63.96	-167.4	-129.9	211.2	210.1	1.08	195.631 CC, ES	
400.0	399.8	389.0	388.9	0.7	0.6	-65.60	-170.8	-128.9	211.8	210.5	1.32	160.121	
500.0	499.3	478.0	477.4	0.9	0.8	-69.26	-179.2	-128.0	215.2	213.4	1.73	124.450	
600.0	598.0	569.0	567.5	1.2	1.1	-74.67	-191.9	-126.0	221.8	219.5	2.23	99.300	
700.0	695.8	654.5	651.5	1.6	1.4	-80.99	-208.1	-122.7	233.9	231.1	2.83	82.755	
800.0	792.4	735.2	729.7	2.1	1.8	-87.46	-227.1	-118.5	254.0	250.5	3.50	72.636	
900.0	887.5	811.2	802.5	2.7	2.1	-93.42	-248.4	-113.7	283.1	278.9	4.22	67.137	
1,000.0	980.9	883.2	870.6	3.4	2.6	-98.41	-271.5	-109.2	321.4	316.5	4.99	64.406	
1,100.0	1,072.2	950.2	933.0	4.2	3.0	-102.36	-295.2	-104.5	368.1	362.3	5.83	63.201 SF	
1,200.0	1,161.4	1,010.2	988.1	5.1	3.4	-105.84	-318.3	-99.5	422.6	415.9	6.68	63.229	
1,300.0	1,250.1	1,067.4	1,039.9	6.0	3.9	-109.76	-342.1	-93.7	483.1	475.6	7.47	64.650	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 (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	-141.82	-155.9	-122.6	198.3				
100.0	100.0	100.1	100.1	0.1	0.1	-141.89	-156.0	-122.4	198.3	198.0	0.28	698.837	
193.5	193.5	193.5	193.5	0.3	0.3	-142.11	-156.4	-121.7	198.2	197.6	0.60	331.140	CC
200.0	200.0	199.8	199.8	0.3	0.3	-142.14	-156.5	-121.6	198.2	197.6	0.62	319.128	ES
300.0	300.0	295.7	295.6	0.5	0.5	-64.49	-159.1	-119.9	199.0	198.0	0.97	204.919	
400.0	399.8	389.3	389.0	0.7	0.7	-67.40	-165.3	-117.2	200.6	199.2	1.35	148.980	
500.0	499.3	480.3	479.3	0.9	0.9	-72.29	-175.8	-113.2	204.7	202.9	1.78	114.728	
600.0	598.0	569.0	566.6	1.2	1.2	-78.78	-190.0	-107.5	212.9	210.6	2.31	92.141	
700.0	695.8	654.5	650.0	1.6	1.5	-86.21	-207.5	-99.8	227.8	224.9	2.93	77.809	
800.0	792.4	733.7	726.1	2.1	1.9	-93.41	-227.1	-90.6	251.9	248.2	3.61	69.826	
900.0	887.5	807.0	795.6	2.7	2.4	-99.70	-248.1	-80.4	286.2	281.9	4.32	66.280	
1,000.0	980.9	875.3	859.4	3.4	2.8	-104.84	-270.2	-69.7	330.6	325.6	5.07	65.239	SF
1,100.0	1,072.2	938.0	917.1	4.2	3.3	-108.79	-291.9	-58.5	383.8	378.0	5.87	65.422	
1,200.0	1,161.4	994.7	968.6	5.1	3.7	-112.29	-312.8	-47.2	444.8	438.1	6.67	66.636	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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						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	-139.64	-121.7	-103.4	159.7					
100.0	100.0	100.0	100.0	0.1	0.1	-139.67	-121.7	-103.3	159.6	159.4	0.28	578.153		
154.5	154.5	154.5	154.5	0.2	0.2	-139.69	-121.7	-103.3	159.6	159.2	0.46	345.263 CC		
200.0	200.0	199.4	199.4	0.3	0.3	-139.66	-121.7	-103.4	159.7	159.1	0.62	257.416 ES		
300.0	300.0	295.2	295.2	0.5	0.5	-60.55	-121.7	-105.7	160.9	159.9	0.96	166.907		
400.0	399.8	386.0	385.7	0.7	0.7	-60.23	-121.9	-112.2	163.3	162.0	1.32	123.473		
500.0	499.3	482.0	480.8	0.9	0.9	-59.91	-122.3	-124.9	167.1	165.4	1.77	94.449		
600.0	598.0	575.4	572.7	1.2	1.3	-59.82	-123.1	-142.2	172.2	169.9	2.31	74.668		
700.0	695.8	666.9	661.8	1.6	1.7	-60.52	-125.7	-162.8	179.0	176.0	2.94	60.785		
800.0	792.4	758.5	749.8	2.1	2.1	-61.89	-130.5	-187.2	187.7	184.0	3.73	50.393		
900.0	887.5	849.2	835.7	2.7	2.7	-63.47	-136.6	-215.8	198.6	194.0	4.68	42.465		
1,000.0	980.9	942.6	922.4	3.4	3.4	-64.98	-143.2	-250.0	210.9	205.1	5.84	36.090		
1,100.0	1,072.2	1,035.2	1,006.3	4.2	4.1	-66.27	-149.3	-288.6	224.1	216.9	7.20	31.099		
1,200.0	1,161.4	1,131.6	1,092.2	5.1	5.0	-67.93	-155.7	-332.0	237.4	228.7	8.76	27.114		
1,300.0	1,250.1	1,232.9	1,182.0	6.0	5.9	-69.64	-161.5	-378.5	250.4	239.9	10.42	24.018		
1,400.0	1,338.8	1,334.4	1,271.9	6.8	6.8	-71.07	-166.3	-425.3	262.8	250.7	12.11	21.692		
1,500.0	1,427.5	1,434.6	1,361.5	7.7	7.6	-72.66	-171.1	-470.0	274.6	260.7	13.82	19.870		
1,600.0	1,516.2	1,536.5	1,453.3	8.6	8.5	-74.47	-176.0	-513.7	285.7	270.2	15.56	18.359		
1,700.0	1,604.9	1,634.8	1,542.4	9.5	9.3	-76.27	-180.9	-555.1	297.0	279.7	17.31	17.160		
1,800.0	1,693.5	1,734.3	1,632.4	10.4	10.1	-77.85	-185.3	-597.4	308.2	289.2	19.08	16.154		
1,900.0	1,782.2	1,830.3	1,718.9	11.3	10.9	-79.22	-190.3	-638.6	320.5	299.7	20.81	15.402		
2,000.0	1,870.9	1,930.3	1,809.6	12.2	11.7	-80.78	-196.0	-680.5	333.1	310.5	22.58	14.747		
2,100.0	1,959.6	2,026.5	1,896.8	13.1	12.5	-82.19	-201.5	-720.6	345.8	321.4	24.34	14.205		
2,200.0	2,048.3	2,122.3	1,982.9	14.0	13.3	-83.26	-207.8	-762.1	360.0	333.9	26.09	13.800		
2,300.0	2,137.0	2,223.1	2,073.6	14.9	14.2	-84.34	-214.4	-805.6	374.3	346.4	27.86	13.434		
2,400.0	2,225.7	2,324.5	2,165.2	15.8	15.0	-85.45	-220.5	-848.6	388.0	358.4	29.65	13.087		
2,500.0	2,314.3	2,426.2	2,257.2	16.7	15.8	-86.49	-226.0	-891.6	401.2	369.8	31.43	12.764		
2,600.0	2,403.0	2,527.2	2,348.8	17.6	16.7	-87.46	-230.8	-934.0	413.9	380.7	33.21	12.462		
2,700.0	2,491.7	2,629.3	2,441.1	18.5	17.5	-88.32	-235.0	-977.3	426.0	391.0	35.00	12.172		
2,800.0	2,580.4	2,725.0	2,527.7	19.4	18.3	-89.10	-238.9	-1,017.7	438.3	401.5	36.72	11.937		
2,900.0	2,669.1	2,817.2	2,611.3	20.3	19.0	-89.88	-244.0	-1,056.4	451.9	413.5	38.40	11.768		
3,000.0	2,757.8	2,917.3	2,702.0	21.2	19.9	-90.69	-250.1	-1,098.3	466.2	426.0	40.14	11.614		
3,100.0	2,846.5	3,021.7	2,797.0	22.1	20.7	-91.57	-255.7	-1,141.3	479.7	437.8	41.90	11.449		
3,200.0	2,935.1	3,122.1	2,888.9	23.0	21.5	-92.51	-260.4	-1,181.5	492.5	448.9	43.62	11.290 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-43.00	30.6	-28.5	41.8					
100.0	100.0	100.0	100.0	0.1	0.1	-43.00	30.6	-28.5	41.8	41.6	0.27	153.648		
200.0	200.0	200.0	200.0	0.3	0.3	-43.00	30.6	-28.5	41.8	41.2	0.62	67.329		
300.0	300.0	300.0	300.0	0.5	0.5	36.18	30.6	-28.5	41.3	40.3	0.97	42.562		
400.0	399.8	399.8	399.8	0.7	0.7	41.02	30.6	-28.5	37.2	35.9	1.33	28.056		
500.0	499.3	497.7	497.6	0.9	0.8	53.34	32.7	-29.9	32.6	30.9	1.72	18.974		
548.0	546.8	544.6	544.4	1.1	0.9	62.31	35.2	-31.5	31.9	30.0	1.95	16.342 CC, ES		
600.0	598.0	595.4	595.1	1.2	1.0	73.31	38.9	-34.0	32.9	30.7	2.23	14.772		
700.0	695.8	692.9	691.8	1.6	1.3	92.77	49.3	-40.9	40.6	37.7	2.87	14.156 SF		
800.0	792.4	789.8	787.1	2.1	1.6	105.47	63.7	-50.4	55.4	51.8	3.62	15.303		
900.0	887.5	886.5	881.2	2.7	2.0	112.49	82.0	-62.5	75.6	71.1	4.49	16.853		
1,000.0	980.9	982.8	974.4	3.4	2.4	117.56	102.3	-75.8	99.6	94.2	5.43	18.344		
1,100.0	1,072.2	1,078.4	1,067.0	4.2	2.8	122.42	122.4	-89.1	126.9	120.5	6.40	19.831		
1,200.0	1,161.4	1,172.7	1,158.3	5.1	3.3	126.99	142.2	-102.2	157.7	150.3	7.34	21.475		
1,300.0	1,250.1	1,266.8	1,249.3	6.0	3.7	130.70	162.0	-115.2	190.0	181.8	8.26	23.011		
1,400.0	1,338.8	1,360.8	1,340.2	6.8	4.1	133.34	181.8	-128.3	222.9	213.7	9.17	24.315		
1,500.0	1,427.5	1,454.8	1,431.2	7.7	4.6	135.30	201.6	-141.3	256.0	245.9	10.07	25.423		
1,600.0	1,516.2	1,548.8	1,522.2	8.6	5.0	136.82	221.4	-154.4	289.4	278.4	10.97	26.370		
1,700.0	1,604.9	1,642.9	1,613.2	9.5	5.4	138.02	241.1	-167.4	322.9	311.0	11.88	27.186		
1,800.0	1,693.5	1,736.9	1,704.2	10.4	5.9	139.00	260.9	-180.5	356.5	343.7	12.78	27.895		
1,900.0	1,782.2	1,830.9	1,795.2	11.3	6.3	139.80	280.7	-193.5	390.2	376.5	13.68	28.515		
2,000.0	1,870.9	1,924.9	1,886.2	12.2	6.8	140.48	300.5	-206.5	424.0	409.4	14.59	29.062		
2,100.0	1,959.6	2,018.9	1,977.2	13.1	7.2	141.06	320.2	-219.6	457.7	442.3	15.49	29.548		
2,200.0	2,048.3	2,113.0	2,068.2	14.0	7.7	141.56	340.0	-232.6	491.6	475.2	16.40	29.982		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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						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	-47.62	50.3	-55.1	74.6					
100.0	100.0	100.0	100.0	0.1	0.1	-47.62	50.3	-55.1	74.6	74.3	0.27	273.869		
200.0	200.0	200.0	200.0	0.3	0.3	-47.62	50.3	-55.1	74.6	73.9	0.62	120.010 CC, ES		
300.0	300.0	297.2	297.1	0.5	0.5	31.22	51.1	-56.1	75.4	74.5	0.97	78.116		
400.0	399.8	393.3	393.1	0.7	0.7	32.93	55.0	-60.8	77.3	76.0	1.31	58.858		
500.0	499.3	489.2	488.4	0.9	0.9	36.22	62.0	-69.0	79.9	78.2	1.68	47.545		
600.0	598.0	586.0	583.9	1.2	1.2	40.92	72.0	-80.9	83.5	81.4	2.10	39.708		
700.0	695.8	685.5	681.9	1.6	1.5	47.56	83.1	-94.1	85.3	82.7	2.65	32.205		
800.0	792.4	784.6	779.5	2.1	1.9	56.66	94.2	-107.2	85.2	81.8	3.40	25.061		
855.4	845.3	839.2	833.2	2.5	2.1	62.93	100.3	-114.4	85.1	81.1	3.95	21.545		
900.0	887.5	882.9	876.3	2.7	2.2	68.61	105.1	-120.2	85.3	80.8	4.43	19.230		
1,000.0	980.9	980.3	972.2	3.4	2.6	83.04	116.0	-133.1	88.3	82.6	5.70	15.503		
1,100.0	1,072.2	1,076.4	1,066.9	4.2	2.9	98.38	126.7	-145.9	97.4	90.4	6.94	14.028 SF		
1,200.0	1,161.4	1,171.2	1,160.2	5.1	3.2	112.48	137.3	-158.4	114.4	106.5	7.90	14.471		
1,300.0	1,250.1	1,265.5	1,253.2	6.0	3.5	123.28	147.8	-170.9	137.5	128.9	8.57	16.050		
1,400.0	1,338.8	1,359.9	1,346.1	6.8	3.9	130.93	158.3	-183.4	164.1	155.0	9.09	18.051		
1,500.0	1,427.5	1,454.2	1,439.0	7.7	4.2	136.44	168.8	-195.9	192.7	183.2	9.56	20.155		
1,600.0	1,516.2	1,548.6	1,532.0	8.6	4.5	140.54	179.3	-208.4	222.6	212.6	10.02	22.216		
1,700.0	1,604.9	1,643.0	1,624.9	9.5	4.9	143.67	189.9	-220.8	253.3	242.8	10.48	24.174		
1,800.0	1,693.5	1,737.3	1,717.8	10.4	5.2	146.13	200.4	-233.3	284.5	273.6	10.94	26.006		
1,900.0	1,782.2	1,831.7	1,810.8	11.3	5.5	148.11	210.9	-245.8	316.1	304.7	11.41	27.707		
2,000.0	1,870.9	1,926.0	1,903.7	12.2	5.8	149.72	221.4	-258.3	348.0	336.1	11.89	29.280		
2,100.0	1,959.6	2,020.4	1,996.6	13.1	6.2	151.07	231.9	-270.8	380.1	367.7	12.37	30.735		
2,200.0	2,048.3	2,114.7	2,089.6	14.0	6.5	152.21	242.5	-283.3	412.4	399.5	12.85	32.080		
2,300.0	2,137.0	2,209.1	2,182.5	14.9	6.8	153.18	253.0	-295.8	444.8	431.4	13.35	33.325		
2,400.0	2,225.7	2,303.5	2,275.4	15.8	7.2	154.03	263.5	-308.3	477.2	463.4	13.84	34.479		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-9.93	11.3	-2.0	11.5					
100.0	100.0	100.0	100.0	0.1	0.1	-9.93	11.3	-2.0	11.5	11.2	0.27	42.102		
200.0	200.0	200.0	200.0	0.3	0.3	-9.93	11.3	-2.0	11.5	10.8	0.62	18.449		
300.0	300.0	300.0	300.0	0.5	0.5	71.83	11.3	-2.0	11.2	10.3	0.97	11.579		
334.9	334.8	334.7	334.7	0.6	0.5	79.44	11.4	-1.7	11.1	10.0	1.10	10.050 CC, ES		
400.0	399.8	399.3	399.3	0.7	0.7	106.95	12.4	0.3	12.8	11.5	1.34	9.585 SF		
500.0	499.3	496.9	496.6	0.9	0.9	139.59	15.7	7.2	26.5	24.8	1.70	15.606		
600.0	598.0	591.4	590.2	1.2	1.1	150.94	20.9	18.0	52.1	50.0	2.05	25.434		
700.0	695.8	681.5	679.0	1.6	1.4	155.21	27.8	32.2	87.4	85.0	2.41	36.326		
800.0	792.4	771.3	766.9	2.1	1.8	157.38	35.8	48.7	130.0	127.2	2.78	46.827		
900.0	887.5	859.4	853.1	2.7	2.1	158.87	43.6	65.0	177.2	174.0	3.15	56.184		
1,000.0	980.9	944.9	936.8	3.4	2.4	159.96	51.2	80.7	228.7	225.2	3.53	64.716		
1,100.0	1,072.2	1,027.6	1,017.8	4.2	2.7	160.78	58.6	96.0	284.5	280.6	3.92	72.624		
1,200.0	1,161.4	1,107.6	1,096.1	5.1	3.1	161.63	65.7	110.7	344.3	340.0	4.31	79.887		
1,300.0	1,250.1	1,186.9	1,173.7	6.0	3.4	162.63	72.8	125.3	405.0	400.3	4.72	85.829		
1,400.0	1,338.8	1,266.1	1,251.2	6.8	3.7	163.37	79.8	140.0	465.8	460.7	5.13	90.825		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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	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	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
228.0	228.0	228.0	228.0	0.4	0.4	161.46	1.5	11.3	11.5	10.8	0.72	15.981	ES
300.0	300.0	300.0	300.0	0.5	0.5	162.29	1.5	11.3	12.0	11.0	0.97	12.383	SF
400.0	399.8	399.8	399.8	0.7	0.7	167.61	1.5	11.3	17.1	15.8	1.32	12.955	
500.0	499.3	497.8	497.8	0.9	0.8	171.77	1.5	13.8	29.9	28.2	1.66	18.027	
600.0	598.0	593.1	592.7	1.2	1.0	173.42	1.7	21.0	52.9	50.9	1.99	26.549	
700.0	695.8	684.3	683.3	1.6	1.3	173.96	2.0	32.4	85.5	83.2	2.31	36.986	
800.0	792.4	770.8	768.5	2.1	1.5	174.10	2.4	47.2	127.2	124.6	2.62	48.593	
900.0	887.5	858.5	854.6	2.7	1.8	174.19	2.8	63.8	175.3	172.4	2.92	60.038	
1,000.0	980.9	943.5	938.1	3.4	2.1	174.31	3.2	79.9	227.9	224.7	3.21	70.984	
1,100.0	1,072.2	1,025.7	1,018.8	4.2	2.4	174.42	3.6	95.4	284.9	281.4	3.49	81.629	
1,200.0	1,161.4	1,105.0	1,096.6	5.1	2.7	174.57	4.0	110.5	345.8	342.0	3.77	91.647	
1,300.0	1,250.1	1,183.5	1,173.7	6.0	3.0	174.80	4.4	125.3	407.7	403.6	4.09	99.756	
1,400.0	1,338.8	1,262.1	1,250.9	6.8	3.3	174.97	4.8	140.2	469.6	465.2	4.40	106.716	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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: 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	-45.96	40.4	-41.8	58.2					
100.0	100.0	100.0	100.0	0.1	0.1	-45.96	40.4	-41.8	58.2	57.9	0.27	213.604		
200.0	200.0	200.0	200.0	0.3	0.3	-45.96	40.4	-41.8	58.2	57.5	0.62	93.602		
300.0	300.0	300.0	300.0	0.5	0.5	33.05	40.4	-41.8	57.6	56.6	0.97	59.366		
400.0	399.8	398.5	398.5	0.7	0.7	36.18	40.9	-42.2	53.9	52.6	1.32	40.790		
500.0	499.3	495.6	495.4	0.9	0.8	43.46	44.8	-45.2	51.0	49.3	1.70	29.983		
557.4	556.0	551.2	550.8	1.1	1.0	49.58	48.8	-48.3	50.4	48.4	1.96	25.743	CC, ES	
600.0	598.0	592.5	591.8	1.2	1.1	54.86	52.6	-51.2	50.8	48.6	2.16	23.486		
700.0	695.8	689.1	687.3	1.6	1.3	68.36	64.2	-60.1	55.1	52.4	2.79	19.791		
800.0	792.4	785.1	781.4	2.1	1.7	80.81	79.6	-71.9	65.2	61.6	3.61	18.057		
900.0	887.5	880.6	873.8	2.7	2.1	90.36	98.5	-86.5	80.9	76.3	4.62	17.520	SF	
1,000.0	980.9	975.2	964.1	3.4	2.7	97.00	120.8	-103.6	101.5	95.7	5.78	17.568		
1,100.0	1,072.2	1,068.9	1,052.1	4.2	3.3	101.42	146.4	-123.3	126.3	119.2	7.08	17.841		
1,200.0	1,161.4	1,161.6	1,137.4	5.1	3.9	104.49	175.1	-145.4	154.8	146.3	8.50	18.212		
1,300.0	1,250.1	1,253.6	1,220.3	6.0	4.7	106.00	206.7	-169.7	185.7	175.7	10.00	18.572		
1,400.0	1,338.8	1,344.8	1,300.4	6.8	5.5	105.94	241.2	-196.2	218.2	206.7	11.57	18.866		
1,500.0	1,427.5	1,434.7	1,377.3	7.7	6.3	104.93	278.1	-224.6	252.4	239.2	13.19	19.138		
1,600.0	1,516.2	1,526.0	1,453.5	8.6	7.3	103.44	318.0	-255.3	288.0	273.1	14.85	19.399		
1,700.0	1,604.9	1,619.1	1,530.9	9.5	8.2	102.18	358.9	-286.8	323.9	307.4	16.52	19.613		
1,800.0	1,693.5	1,712.2	1,608.4	10.4	9.2	101.17	399.8	-318.3	360.0	341.8	18.18	19.797		
1,900.0	1,782.2	1,805.3	1,685.9	11.3	10.1	100.34	440.8	-349.7	396.1	376.2	19.85	19.957		
2,000.0	1,870.9	1,898.4	1,763.3	12.2	11.1	99.65	481.7	-381.2	432.3	410.7	21.51	20.096		
2,100.0	1,959.6	1,991.5	1,840.8	13.1	12.0	99.07	522.7	-412.7	468.5	445.3	23.17	20.218		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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						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	-53.98	19.3	-26.6	32.8				
100.0	100.0	100.0	100.0	0.1	0.1	-53.98	19.3	-26.6	32.8	32.6	0.27	120.573	
200.0	200.0	200.0	200.0	0.3	0.3	-53.98	19.3	-26.6	32.8	32.2	0.62	52.835	
300.0	300.0	300.0	300.0	0.5	0.5	25.15	19.3	-26.6	32.2	31.3	0.97	33.221	
400.0	399.8	399.6	399.6	0.7	0.7	35.14	21.4	-25.0	27.9	26.6	1.33	21.018	
485.7	485.1	483.9	483.6	0.9	0.8	61.65	26.5	-21.4	24.7	23.0	1.70	14.553 CC, ES	
500.0	499.3	497.9	497.5	0.9	0.9	67.78	27.6	-20.6	24.9	23.1	1.76	14.118 SF	
600.0	598.0	593.6	592.5	1.2	1.1	106.72	37.6	-13.4	36.5	34.3	2.22	16.471	
700.0	695.8	686.0	683.4	1.6	1.4	125.54	50.8	-3.8	63.9	61.3	2.65	24.098	
800.0	792.4	774.2	769.3	2.1	1.8	133.47	66.8	7.7	101.8	98.7	3.14	32.407	
900.0	887.5	857.5	849.6	2.7	2.2	137.15	84.8	20.7	147.8	144.2	3.69	40.110	
1,000.0	980.9	935.5	923.8	3.4	2.7	138.91	104.2	34.8	201.0	196.7	4.28	46.956	
1,100.0	1,072.2	1,012.7	996.5	4.2	3.1	139.83	125.4	50.1	260.2	255.2	4.93	52.730	
1,200.0	1,161.4	1,090.2	1,069.3	5.1	3.6	141.00	146.9	65.6	322.8	317.2	5.62	57.443	
1,300.0	1,250.1	1,167.0	1,141.4	6.0	4.1	142.63	168.2	81.0	386.4	380.1	6.31	61.186	
1,400.0	1,338.8	1,243.7	1,213.6	6.8	4.5	143.81	189.5	96.4	450.1	443.1	7.02	64.145	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-35.84	21.1	-15.3	26.1				
100.0	100.0	100.0	100.0	0.1	0.1	-35.84	21.1	-15.3	26.1	25.8	0.27	95.689	
200.0	200.0	200.0	200.0	0.3	0.3	-35.84	21.1	-15.3	26.1	25.4	0.62	41.931	
300.0	300.0	299.7	299.7	0.5	0.5	49.49	22.9	-13.3	26.0	25.1	0.98	26.621	
338.1	338.0	337.5	337.4	0.6	0.6	56.85	24.4	-11.6	25.9	24.8	1.13	22.930 CC, ES	
400.0	399.8	398.5	398.1	0.7	0.7	74.47	28.0	-7.6	27.0	25.6	1.37	19.733 SF	
500.0	499.3	495.0	493.8	0.9	1.0	105.39	36.4	1.6	38.0	36.2	1.76	21.544	
600.0	598.0	588.1	585.4	1.2	1.3	124.02	47.5	13.8	62.5	60.3	2.15	29.060	
700.0	695.8	676.9	672.0	1.6	1.7	133.18	60.9	28.6	97.9	95.3	2.57	38.108	
800.0	792.4	766.3	758.5	2.1	2.1	138.40	76.0	45.2	140.6	137.5	3.03	46.371	
900.0	887.5	853.8	843.2	2.7	2.5	141.81	90.7	61.4	187.7	184.1	3.52	53.241	
1,000.0	980.9	938.9	925.6	3.4	2.9	144.23	105.0	77.1	239.0	235.0	4.04	59.106	
1,100.0	1,072.2	1,021.3	1,005.4	4.2	3.3	146.01	118.8	92.4	294.5	289.9	4.58	64.238	
1,200.0	1,161.4	1,100.9	1,082.5	5.1	3.7	147.72	132.2	107.2	353.8	348.7	5.14	68.863	
1,300.0	1,250.1	1,179.9	1,159.0	6.0	4.0	149.63	145.5	121.8	414.3	408.6	5.70	72.736	
1,400.0	1,338.8	1,258.9	1,235.5	6.8	4.4	151.06	158.8	136.4	474.9	468.7	6.25	75.977	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 19-12A - 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	-53.73	39.0	-53.1	65.9					
100.0	100.0	100.0	100.0	0.1	0.1	-53.73	39.0	-53.1	65.9	65.6	0.27	241.935	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	-53.73	39.0	-53.1	65.9	65.3	0.62	106.017		
300.0	300.0	296.6	296.6	0.5	0.5	25.17	40.5	-55.0	67.8	66.8	0.96	70.300		
400.0	399.8	393.0	392.7	0.7	0.7	26.99	44.9	-60.8	70.7	69.4	1.31	53.939		
500.0	499.3	489.2	488.1	0.9	1.0	30.35	52.3	-70.4	74.1	72.5	1.67	44.349		
600.0	598.0	585.1	582.5	1.2	1.3	34.93	62.6	-83.8	78.5	76.4	2.08	37.788		
700.0	695.8	680.7	675.6	1.6	1.7	40.36	75.7	-100.8	84.1	81.6	2.58	32.596		
800.0	792.4	775.8	767.1	2.1	2.2	46.21	91.5	-121.3	91.6	88.3	3.26	28.096		
900.0	887.5	870.4	856.7	2.7	2.8	52.07	110.0	-145.4	101.1	96.9	4.17	24.224		
1,000.0	980.9	964.5	944.3	3.4	3.5	57.60	131.1	-172.7	112.9	107.6	5.35	21.101		
1,100.0	1,072.2	1,058.1	1,029.5	4.2	4.2	62.61	154.6	-203.3	127.2	120.4	6.79	18.733		
1,200.0	1,161.4	1,151.1	1,112.3	5.1	5.0	67.06	180.5	-236.9	144.0	135.6	8.44	17.065		
1,300.0	1,250.1	1,243.4	1,192.3	6.0	5.9	70.02	208.6	-273.4	164.5	154.4	10.12	16.256		
1,400.0	1,338.8	1,338.2	1,272.5	6.8	6.9	71.48	239.5	-313.4	187.9	176.1	11.78	15.948		
1,500.0	1,427.5	1,435.3	1,354.4	7.7	7.9	72.56	271.3	-354.7	211.7	198.2	13.47	15.716		
1,600.0	1,516.2	1,532.4	1,436.2	8.6	8.9	73.43	303.1	-396.0	235.5	220.3	15.16	15.529		
1,700.0	1,604.9	1,629.4	1,518.1	9.5	9.9	74.14	334.9	-437.3	259.4	242.5	16.87	15.377		
1,800.0	1,693.5	1,726.5	1,600.0	10.4	10.8	74.72	366.7	-478.6	283.3	264.7	18.57	15.251		
1,900.0	1,782.2	1,823.6	1,681.9	11.3	11.8	75.22	398.5	-519.9	307.2	286.9	20.28	15.145		
2,000.0	1,870.9	1,920.6	1,763.8	12.2	12.8	75.64	430.3	-561.2	331.1	309.1	21.99	15.054		
2,100.0	1,959.6	2,017.7	1,845.7	13.1	13.8	76.01	462.2	-602.4	355.1	331.3	23.71	14.976		
2,200.0	2,048.3	2,114.8	1,927.5	14.0	14.8	76.33	494.0	-643.7	379.0	353.6	25.42	14.908		
2,300.0	2,137.0	2,211.8	2,009.4	14.9	15.8	76.61	525.8	-685.0	403.0	375.8	27.14	14.848		
2,400.0	2,225.7	2,308.9	2,091.3	15.8	16.8	76.86	557.6	-726.3	427.0	398.1	28.86	14.795		
2,500.0	2,314.3	2,406.0	2,173.2	16.7	17.8	77.09	589.4	-767.6	451.0	420.4	30.58	14.748		
2,600.0	2,403.0	2,503.0	2,255.1	17.6	18.8	77.29	621.2	-808.9	474.9	442.7	32.30	14.706		
2,700.0	2,491.7	2,600.1	2,337.0	18.5	19.8	77.47	653.0	-850.2	498.9	464.9	34.02	14.668	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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			
0.0	0.0	0.0	0.0	0.0	0.0	-54.51	9.5	-13.3	16.3					
100.0	100.0	100.0	100.0	0.1	0.1	-54.51	9.5	-13.3	16.3	16.0	0.27	59.886		
200.0	200.0	200.0	200.0	0.3	0.3	-54.51	9.5	-13.3	16.3	15.7	0.62	26.242		
300.0	300.0	300.0	300.0	0.5	0.5	25.12	9.5	-13.3	15.7	14.7	0.97	16.191		
400.0	399.8	399.6	399.6	0.7	0.7	35.03	9.7	-13.9	11.8	10.4	1.32	8.886		
500.0	499.3	499.0	498.9	0.9	0.8	59.68	11.3	-18.8	8.6	6.8	1.74	4.923		
545.8	544.6	544.7	544.3	1.1	1.0	76.66	12.6	-22.7	8.1	6.1	2.01	4.053 CC, ES		
600.0	598.0	598.7	598.0	1.2	1.1	96.78	14.6	-28.6	8.8	6.4	2.31	3.790		
700.0	695.8	698.7	696.8	1.6	1.4	121.15	19.6	-43.4	12.4	9.6	2.87	4.340		
800.0	792.4	798.9	794.8	2.1	1.8	131.84	26.2	-63.1	17.8	14.4	3.45	5.156		
900.0	887.5	899.4	891.8	2.7	2.2	136.35	34.4	-87.7	23.9	19.8	4.14	5.776		
1,000.0	980.9	1,000.1	987.6	3.4	2.8	138.08	44.3	-117.2	30.6	25.6	4.98	6.140		
1,100.0	1,072.2	1,101.1	1,081.8	4.2	3.5	138.43	55.8	-151.5	37.7	31.7	5.99	6.284		
1,200.0	1,161.4	1,202.2	1,174.2	5.1	4.3	137.83	69.0	-190.6	44.9	37.7	7.20	6.234		
1,300.0	1,250.1	1,303.7	1,264.5	6.0	5.2	133.71	83.6	-234.4	49.6	40.7	8.91	5.575		
1,400.0	1,338.8	1,404.5	1,351.8	6.8	6.2	125.70	99.7	-282.1	51.9	40.7	11.24	4.623		
1,500.0	1,427.5	1,504.1	1,437.5	7.7	7.2	117.32	115.9	-330.4	54.7	41.0	13.71	3.988		
1,600.0	1,516.2	1,603.8	1,523.2	8.6	8.1	109.87	132.1	-378.7	58.5	42.4	16.10	3.631		
1,700.0	1,604.9	1,703.4	1,608.8	9.5	9.1	103.42	148.3	-426.9	63.1	44.8	18.34	3.440		
1,800.0	1,693.5	1,803.1	1,694.5	10.4	10.1	97.91	164.5	-475.2	68.4	48.0	20.43	3.350		
1,900.0	1,782.2	1,902.7	1,780.1	11.3	11.1	93.23	180.7	-523.5	74.3	51.9	22.38	3.320 SF		
2,000.0	1,870.9	2,002.4	1,865.8	12.2	12.1	89.26	196.9	-571.8	80.6	56.4	24.21	3.329		
2,100.0	1,959.6	2,102.1	1,951.5	13.1	13.1	85.87	213.1	-620.1	87.2	61.3	25.96	3.360		
2,200.0	2,048.3	2,201.7	2,037.1	14.0	14.1	82.97	229.3	-668.3	94.1	66.5	27.63	3.406		
2,300.0	2,137.0	2,301.4	2,122.8	14.9	15.1	80.47	245.5	-716.6	101.2	72.0	29.25	3.460		
2,400.0	2,225.7	2,401.0	2,208.5	15.8	16.1	78.30	261.7	-764.9	108.5	77.6	30.83	3.518		
2,500.0	2,314.3	2,500.7	2,294.1	16.7	17.1	76.40	277.9	-813.2	115.9	83.5	32.38	3.578		
2,600.0	2,403.0	2,600.3	2,379.8	17.6	18.1	74.73	294.1	-861.4	123.4	89.5	33.90	3.639		
2,700.0	2,491.7	2,700.0	2,465.5	18.5	19.1	73.26	310.2	-909.7	131.0	95.6	35.40	3.700		
2,800.0	2,580.4	2,799.7	2,551.1	19.4	20.1	71.95	326.4	-958.0	138.6	101.8	36.89	3.759		
2,900.0	2,669.1	2,899.3	2,636.8	20.3	21.1	70.77	342.6	-1,006.3	146.4	108.0	38.36	3.816		
3,000.0	2,757.8	2,999.0	2,722.5	21.2	22.1	69.72	358.8	-1,054.6	154.2	114.4	39.83	3.871		
3,100.0	2,846.5	3,098.6	2,808.1	22.1	23.1	68.76	375.0	-1,102.8	162.0	120.7	41.28	3.925		
3,200.0	2,935.1	3,198.3	2,893.8	23.0	24.1	67.90	391.2	-1,151.1	169.9	127.2	42.73	3.976		
3,300.0	3,023.8	3,298.0	2,979.5	23.9	25.1	67.11	407.4	-1,199.4	177.8	133.7	44.18	4.025		
3,400.0	3,112.5	3,397.6	3,065.1	24.8	26.1	66.39	423.6	-1,247.7	185.8	140.2	45.62	4.072		
3,500.0	3,201.2	3,497.3	3,150.8	25.7	27.1	65.72	439.8	-1,295.9	193.8	146.7	47.06	4.117		
3,600.0	3,289.9	3,596.9	3,236.4	26.6	28.1	65.11	456.0	-1,344.2	201.8	153.3	48.49	4.161		
3,700.0	3,378.6	3,696.6	3,322.1	27.5	29.1	64.55	472.2	-1,392.5	209.8	159.9	49.92	4.202		
3,800.0	3,467.3	3,796.2	3,407.8	28.4	30.1	64.03	488.4	-1,440.8	217.8	166.5	51.35	4.242		
3,900.0	3,555.9	3,895.9	3,493.4	29.3	31.1	63.54	504.6	-1,489.1	225.9	173.1	52.78	4.279		
4,000.0	3,644.6	3,995.6	3,579.1	30.2	32.1	63.09	520.8	-1,537.3	233.9	179.7	54.21	4.316		
4,100.0	3,733.3	4,095.2	3,664.8	31.1	33.1	62.67	537.0	-1,585.6	242.0	186.4	55.63	4.351		
4,200.0	3,822.0	4,194.9	3,750.4	32.0	34.1	62.28	553.2	-1,633.9	250.1	193.1	57.06	4.384		
4,300.0	3,910.7	4,294.5	3,836.1	32.9	35.1	61.91	569.4	-1,682.2	258.2	199.8	58.48	4.416		
4,400.0	3,999.4	4,394.2	3,921.8	33.8	36.1	61.56	585.6	-1,730.4	266.4	206.5	59.90	4.447		
4,500.0	4,088.1	4,493.8	4,007.4	34.7	37.1	61.23	601.8	-1,778.7	274.5	213.2	61.32	4.476		
4,600.0	4,176.7	4,593.5	4,093.1	35.6	38.1	60.93	618.0	-1,827.0	282.6	219.9	62.74	4.504		
4,700.0	4,265.4	4,698.7	4,184.3	36.5	39.1	60.87	634.7	-1,876.7	289.9	225.6	64.32	4.508		
4,800.0	4,355.0	4,804.7	4,278.1	37.4	40.0	61.19	650.4	-1,923.6	296.0	230.1	65.99	4.486		
4,900.0	4,446.0	4,911.0	4,373.8	38.1	40.9	61.49	665.1	-1,967.2	301.7	234.2	67.53	4.467		
5,000.0	4,538.5	5,017.3	4,471.3	38.8	41.7	61.76	678.6	-2,007.5	306.9	237.9	68.95	4.451		

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 19-13A
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 19-13A	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: 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			
5,100.0	4,632.2	5,123.7	4,570.4	39.5	42.4	62.01	691.0	-2,044.4	311.6	241.4	70.24	4.436		
5,200.0	4,727.0	5,230.3	4,670.9	40.0	43.0	62.25	702.2	-2,077.7	315.9	244.5	71.41	4.423		
5,300.0	4,822.9	5,336.9	4,772.8	40.5	43.5	62.46	712.2	-2,107.6	319.6	247.2	72.46	4.411		
5,400.0	4,919.8	5,443.6	4,875.9	41.0	44.0	62.66	721.0	-2,133.8	322.9	249.5	73.38	4.400		
5,500.0	5,017.4	5,550.4	4,979.9	41.3	44.4	62.84	728.5	-2,156.4	325.7	251.5	74.18	4.390		
5,600.0	5,115.8	5,657.2	5,084.9	41.7	44.8	63.01	734.9	-2,175.3	328.0	253.1	74.86	4.381		
5,700.0	5,214.7	5,764.0	5,190.5	41.9	45.1	63.17	740.0	-2,190.4	329.7	254.3	75.43	4.371		
5,800.0	5,314.1	5,870.9	5,296.7	42.1	45.3	63.30	743.8	-2,201.9	331.0	255.1	75.88	4.362		
5,900.0	5,413.8	5,977.8	5,403.2	42.2	45.4	63.43	746.4	-2,209.6	331.8	255.5	76.22	4.353		
6,000.0	5,513.7	6,084.6	5,510.0	42.3	45.5	63.54	747.7	-2,213.5	332.0	255.6	76.45	4.343		
6,100.0	5,613.7	6,188.3	5,613.7	42.4	45.5	-15.04	747.9	-2,214.0	331.9	255.3	76.59	4.334		
6,200.0	5,713.7	6,288.3	5,713.7	42.4	45.6	-15.04	747.9	-2,214.0	331.9	255.2	76.69	4.328		
6,300.0	5,813.7	6,388.3	5,813.7	42.5	45.6	-15.04	747.9	-2,214.0	331.9	255.1	76.79	4.322		
6,400.0	5,913.7	6,488.3	5,913.7	42.5	45.7	-15.04	747.9	-2,214.0	331.9	255.0	76.89	4.317		
6,500.0	6,013.7	6,588.3	6,013.7	42.5	45.7	-15.04	747.9	-2,214.0	331.9	254.9	76.99	4.311		
6,600.0	6,113.7	6,688.3	6,113.7	42.6	45.7	-15.04	747.9	-2,214.0	331.9	254.8	77.09	4.305		
6,700.0	6,213.7	6,788.3	6,213.7	42.6	45.8	-15.04	747.9	-2,214.0	331.9	254.7	77.20	4.299		
6,800.0	6,313.7	6,888.3	6,313.7	42.7	45.8	-15.04	747.9	-2,214.0	331.9	254.6	77.31	4.293		
6,900.0	6,413.7	6,988.3	6,413.7	42.7	45.9	-15.04	747.9	-2,214.0	331.9	254.5	77.41	4.287		
7,000.0	6,513.7	7,088.3	6,513.7	42.8	45.9	-15.04	747.9	-2,214.0	331.9	254.4	77.52	4.281		
7,100.0	6,613.7	7,188.3	6,613.7	42.8	46.0	-15.04	747.9	-2,214.0	331.9	254.3	77.63	4.275		
7,200.0	6,713.7	7,288.3	6,713.7	42.9	46.0	-15.04	747.9	-2,214.0	331.9	254.2	77.75	4.269		
7,300.0	6,813.7	7,388.3	6,813.7	42.9	46.1	-15.04	747.9	-2,214.0	331.9	254.0	77.86	4.263		
7,400.0	6,913.7	7,488.3	6,913.7	43.0	46.1	-15.04	747.9	-2,214.0	331.9	253.9	77.98	4.256		
7,500.0	7,013.7	7,588.3	7,013.7	43.0	46.2	-15.04	747.9	-2,214.0	331.9	253.8	78.09	4.250		
7,600.0	7,113.7	7,688.3	7,113.7	43.1	46.2	-15.04	747.9	-2,214.0	331.9	253.7	78.21	4.244		
7,700.0	7,213.7	7,788.3	7,213.7	43.2	46.3	-15.04	747.9	-2,214.0	331.9	253.6	78.33	4.237		
7,800.0	7,313.7	7,888.3	7,313.7	43.2	46.3	-15.04	747.9	-2,214.0	331.9	253.5	78.45	4.231		
7,900.0	7,413.7	7,988.3	7,413.7	43.3	46.4	-15.04	747.9	-2,214.0	331.9	253.3	78.57	4.224		
8,000.0	7,513.7	8,088.3	7,513.7	43.3	46.4	-15.04	747.9	-2,214.0	331.9	253.2	78.70	4.217		
8,100.0	7,613.7	8,188.3	7,613.7	43.4	46.5	-15.04	747.9	-2,214.0	331.9	253.1	78.82	4.211		
8,200.0	7,713.7	8,288.3	7,713.7	43.4	46.5	-15.04	747.9	-2,214.0	331.9	253.0	78.95	4.204		
8,300.0	7,813.7	8,388.3	7,813.7	43.5	46.6	-15.04	747.9	-2,214.0	331.9	252.8	79.08	4.197		
8,400.0	7,913.7	8,488.3	7,913.7	43.5	46.6	-15.04	747.9	-2,214.0	331.9	252.7	79.20	4.190		
8,500.0	8,013.7	8,498.6	7,924.0	43.6	46.6	-15.04	747.9	-2,214.0	343.8	264.5	79.28	4.337		
8,600.0	8,113.7	8,498.6	7,924.0	43.7	46.6	-15.04	747.9	-2,214.0	382.3	302.9	79.34	4.818		
8,700.0	8,213.7	8,498.6	7,924.0	43.7	46.6	-15.04	747.9	-2,214.0	440.5	361.1	79.41	5.548		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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			
0.0	0.0	0.0	0.0	0.0	0.0	-53.81	29.1	-39.8	49.4					
100.0	100.0	100.0	100.0	0.1	0.1	-53.81	29.1	-39.8	49.4	49.1	0.27	181.254		
200.0	200.0	200.0	200.0	0.3	0.3	-53.81	29.1	-39.8	49.4	48.7	0.62	79.426		
300.0	300.0	300.0	300.0	0.5	0.5	25.16	29.1	-39.8	48.8	47.8	0.97	50.249		
400.0	399.8	398.1	398.1	0.7	0.7	27.72	29.8	-41.1	45.5	44.2	1.32	34.492		
500.0	499.3	495.8	495.6	0.9	0.9	32.68	32.8	-46.5	42.7	41.0	1.68	25.322		
600.0	598.0	593.6	592.8	1.2	1.1	40.21	38.3	-56.3	40.9	38.8	2.12	19.342		
653.4	650.4	645.9	644.4	1.4	1.3	45.21	42.1	-63.4	40.6	38.2	2.41	16.843 CC		
700.0	695.8	691.5	689.3	1.6	1.4	49.98	46.1	-70.5	40.9	38.2	2.70	15.126 ES		
800.0	792.4	789.5	784.9	2.1	1.8	60.81	56.3	-89.0	43.2	39.6	3.55	12.174		
900.0	887.5	887.5	879.4	2.7	2.3	71.11	68.9	-111.8	48.2	43.5	4.68	10.311		
1,000.0	980.9	985.5	972.4	3.4	2.9	79.75	83.8	-138.8	55.9	49.9	6.04	9.265		
1,100.0	1,072.2	1,083.5	1,063.7	4.2	3.5	86.43	101.0	-170.0	66.1	58.5	7.58	8.718		
1,200.0	1,161.4	1,181.5	1,153.1	5.1	4.3	91.30	120.4	-205.2	78.4	69.1	9.26	8.467		
1,300.0	1,250.1	1,279.5	1,240.3	6.0	5.2	92.64	142.0	-244.3	92.2	81.2	10.99	8.394 SF		
1,400.0	1,338.8	1,377.7	1,325.5	6.8	6.1	91.23	165.6	-287.1	107.1	94.4	12.73	8.414		
1,500.0	1,427.5	1,476.5	1,410.8	7.7	7.0	89.79	189.7	-330.7	122.3	107.8	14.49	8.443		
1,600.0	1,516.2	1,575.3	1,496.1	8.6	8.0	88.67	213.8	-374.3	137.6	121.3	16.24	8.470		
1,700.0	1,604.9	1,674.1	1,581.4	9.5	8.9	87.77	237.9	-418.0	152.9	134.9	18.00	8.494		
1,800.0	1,693.5	1,772.9	1,666.7	10.4	9.9	87.04	262.0	-461.6	168.2	148.4	19.75	8.515		
1,900.0	1,782.2	1,871.7	1,752.0	11.3	10.9	86.42	286.1	-505.2	183.5	162.0	21.51	8.533		
2,000.0	1,870.9	1,970.5	1,837.3	12.2	11.8	85.91	310.1	-548.8	198.9	175.6	23.26	8.550		
2,100.0	1,959.6	2,069.3	1,922.7	13.1	12.8	85.46	334.2	-592.5	214.2	189.2	25.01	8.565		
2,200.0	2,048.3	2,168.1	2,008.0	14.0	13.7	85.08	358.3	-636.1	229.6	202.9	26.77	8.579		
2,300.0	2,137.0	2,266.9	2,093.3	14.9	14.7	84.74	382.4	-679.7	245.0	216.5	28.52	8.591		
2,400.0	2,225.7	2,365.7	2,178.6	15.8	15.7	84.45	406.5	-723.3	260.4	230.1	30.27	8.602		
2,500.0	2,314.3	2,464.5	2,263.9	16.7	16.6	84.19	430.6	-766.9	275.8	243.8	32.03	8.612		
2,600.0	2,403.0	2,563.3	2,349.2	17.6	17.6	83.95	454.6	-810.6	291.2	257.4	33.78	8.621		
2,700.0	2,491.7	2,662.1	2,434.5	18.5	18.5	83.74	478.7	-854.2	306.6	271.1	35.53	8.630		
2,800.0	2,580.4	2,760.9	2,519.8	19.4	19.5	83.55	502.8	-897.8	322.1	284.8	37.29	8.637		
2,900.0	2,669.1	2,859.7	2,605.2	20.3	20.5	83.37	526.9	-941.4	337.5	298.4	39.04	8.644		
3,000.0	2,757.8	2,958.5	2,690.5	21.2	21.4	83.22	551.0	-985.1	352.9	312.1	40.79	8.651		
3,100.0	2,846.5	3,057.3	2,775.8	22.1	22.4	83.07	575.1	-1,028.7	368.3	325.8	42.55	8.657		
3,200.0	2,935.1	3,156.1	2,861.1	23.0	23.4	82.94	599.1	-1,072.3	383.8	339.5	44.30	8.663		
3,300.0	3,023.8	3,254.9	2,946.4	23.9	24.3	82.81	623.2	-1,115.9	399.2	353.1	46.05	8.668		
3,400.0	3,112.5	3,353.7	3,031.7	24.8	25.3	82.70	647.3	-1,159.6	414.6	366.8	47.80	8.673		
3,500.0	3,201.2	3,452.5	3,117.0	25.7	26.3	82.59	671.4	-1,203.2	430.0	380.5	49.56	8.678		
3,600.0	3,289.9	3,551.3	3,202.3	26.6	27.2	82.49	695.5	-1,246.8	445.5	394.2	51.31	8.682		
3,700.0	3,378.6	3,650.1	3,287.7	27.5	28.2	82.40	719.6	-1,290.4	460.9	407.9	53.06	8.686		
3,800.0	3,467.3	3,748.9	3,373.0	28.4	29.1	82.32	743.6	-1,334.0	476.3	421.5	54.82	8.690		
3,900.0	3,555.9	3,847.7	3,458.3	29.3	30.1	82.24	767.7	-1,377.7	491.8	435.2	56.57	8.694		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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: O-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	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			
300.0	300.0	300.6	300.6	0.5	0.5	-150.05	-9.8	10.6	15.0	14.0	0.98	15.398			
400.0	399.8	401.1	400.8	0.7	0.7	-139.63	-9.6	2.7	13.7	12.4	1.36	10.080			
449.2	448.8	450.5	449.8	0.8	0.9	-132.94	-9.5	-3.1	13.6	12.0	1.60	8.467 CC			
500.0	499.3	501.5	500.2	0.9	1.0	-125.40	-9.3	-10.5	13.8	11.9	1.87	7.372 ES			
600.0	598.0	601.6	598.7	1.2	1.4	-110.98	-9.0	-28.8	15.5	12.9	2.57	6.030			
700.0	695.8	701.6	695.8	1.6	1.8	-99.68	-8.5	-52.2	18.9	15.4	3.45	5.465			
800.0	792.4	801.3	791.5	2.1	2.4	-92.09	-7.9	-80.6	23.7	19.2	4.50	5.261			
900.0	887.5	900.9	885.3	2.7	3.0	-87.30	-7.2	-113.9	29.6	23.9	5.70	5.191			
1,000.0	980.9	1,000.0	976.8	3.4	3.8	-84.36	-6.4	-151.8	36.5	29.4	7.07	5.157			
1,100.0	1,072.2	1,099.4	1,066.5	4.2	4.6	-82.56	-5.5	-194.6	44.3	35.6	8.64	5.124			
1,200.0	1,161.4	1,199.1	1,155.4	5.1	5.5	-84.20	-4.6	-239.6	52.1	41.7	10.37	5.025			
1,300.0	1,250.1	1,298.7	1,244.3	6.0	6.3	-86.66	-3.7	-284.6	59.9	47.8	12.15	4.932			
1,400.0	1,338.8	1,398.4	1,333.2	6.8	7.2	-88.56	-2.7	-329.6	67.8	53.9	13.93	4.869			
1,500.0	1,427.5	1,498.0	1,422.2	7.7	8.1	-90.05	-1.8	-374.6	75.8	60.1	15.71	4.825			
1,600.0	1,516.2	1,597.7	1,511.1	8.6	9.0	-91.26	-0.9	-419.7	83.8	66.3	17.48	4.793			
1,700.0	1,604.9	1,697.4	1,600.0	9.5	9.8	-92.26	0.0	-464.7	91.8	72.6	19.25	4.769			
1,800.0	1,693.5	1,797.0	1,688.9	10.4	10.7	-93.10	1.0	-509.7	99.9	78.9	21.02	4.751			
1,900.0	1,782.2	1,896.7	1,777.8	11.3	11.6	-93.82	1.9	-554.7	107.9	85.2	22.79	4.737			
2,000.0	1,870.9	1,996.4	1,866.7	12.2	12.5	-94.43	2.8	-599.8	116.0	91.5	24.56	4.725			
2,100.0	1,959.6	2,096.0	1,955.6	13.1	13.3	-94.97	3.8	-644.8	124.1	97.8	26.32	4.716			
2,200.0	2,048.3	2,195.7	2,044.5	14.0	14.2	-95.43	4.7	-689.8	132.2	104.2	28.09	4.708			
2,300.0	2,137.0	2,295.4	2,133.5	14.9	15.1	-95.85	5.6	-734.8	140.4	110.5	29.85	4.702			
2,400.0	2,225.7	2,395.0	2,222.4	15.8	16.0	-96.22	6.6	-779.8	148.5	116.9	31.61	4.697			
2,500.0	2,314.3	2,494.7	2,311.3	16.7	16.8	-96.55	7.5	-824.9	156.6	123.2	33.38	4.692			
2,600.0	2,403.0	2,594.4	2,400.2	17.6	17.7	-96.85	8.4	-869.9	164.7	129.6	35.14	4.688			
2,700.0	2,491.7	2,694.0	2,489.1	18.5	18.6	-97.12	9.4	-914.9	172.9	136.0	36.90	4.685			
2,800.0	2,580.4	2,793.7	2,578.0	19.4	19.5	-97.36	10.3	-959.9	181.0	142.3	38.66	4.682			
2,900.0	2,669.1	2,893.4	2,666.9	20.3	20.4	-97.59	11.2	-1,004.9	189.2	148.7	40.42	4.679			
3,000.0	2,757.8	2,993.0	2,755.8	21.2	21.2	-97.79	12.1	-1,050.0	197.3	155.1	42.18	4.677			
3,100.0	2,846.5	3,092.7	2,844.8	22.1	22.1	-97.98	13.1	-1,095.0	205.4	161.5	43.94	4.675			
3,200.0	2,935.1	3,192.4	2,933.7	23.0	23.0	-98.16	14.0	-1,140.0	213.6	167.9	45.70	4.674			
3,300.0	3,023.8	3,292.0	3,022.6	23.9	23.9	-98.32	14.9	-1,185.0	221.7	174.3	47.46	4.672			
3,400.0	3,112.5	3,391.7	3,111.5	24.8	24.7	-98.47	15.9	-1,230.1	229.9	180.7	49.22	4.671			
3,500.0	3,201.2	3,491.4	3,200.4	25.7	25.6	-98.61	16.8	-1,275.1	238.1	187.1	50.98	4.669			
3,600.0	3,289.9	3,591.0	3,289.3	26.6	26.5	-98.74	17.7	-1,320.1	246.2	193.5	52.74	4.668			
3,700.0	3,378.6	3,690.7	3,378.2	27.5	27.4	-98.87	18.7	-1,365.1	254.4	199.9	54.50	4.667			
3,800.0	3,467.3	3,790.3	3,467.1	28.4	28.3	-98.98	19.6	-1,410.1	262.5	206.3	56.26	4.666			
3,900.0	3,555.9	3,890.0	3,556.1	29.3	29.1	-99.09	20.5	-1,455.2	270.7	212.7	58.02	4.666			
4,000.0	3,644.6	3,989.7	3,645.0	30.2	30.0	-99.19	21.5	-1,500.2	278.8	219.1	59.78	4.665			
4,100.0	3,733.3	4,089.3	3,733.9	31.1	30.9	-99.29	22.4	-1,545.2	287.0	225.5	61.54	4.664			
4,200.0	3,822.0	4,189.0	3,822.8	32.0	31.8	-99.38	23.3	-1,590.2	295.2	231.9	63.29	4.663			
4,300.0	3,910.7	4,288.7	3,911.7	32.9	32.7	-99.47	24.2	-1,635.2	303.3	238.3	65.05	4.663			
4,400.0	3,999.4	4,388.3	4,000.6	33.8	33.5	-99.55	25.2	-1,680.3	311.5	244.7	66.81	4.662			
4,500.0	4,088.1	4,488.0	4,089.5	34.7	34.4	-99.62	26.1	-1,725.3	319.7	251.1	68.57	4.662			
4,600.0	4,176.7	4,587.7	4,178.4	35.6	35.3	-99.70	27.0	-1,770.3	327.8	257.5	70.33	4.661			
4,700.0	4,265.4	4,687.3	4,267.3	36.5	36.2	-99.78	28.0	-1,815.3	336.0	263.9	72.09	4.661			
4,800.0	4,355.0	4,787.0	4,356.3	37.4	37.0	-99.70	28.9	-1,860.3	343.8	270.0	73.80	4.659			
4,900.0	4,446.0	4,886.6	4,446.3	38.1	37.8	-99.47	29.8	-1,903.0	351.1	275.7	75.39	4.657			
5,000.0	4,538.5	4,986.4	4,537.9	38.8	38.6	-99.24	30.6	-1,942.5	357.9	281.0	76.84	4.657			

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 19-13A
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 19-13A	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				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		
5,100.0	4,632.2	5,086.3	4,630.9	39.5	39.2	-99.02	31.4	-1,979.0	364.0	285.9	78.17	4.657		
5,200.0	4,727.0	5,186.3	4,725.2	40.0	39.8	-98.81	32.0	-2,012.1	369.6	290.3	79.36	4.658		
5,300.0	4,822.9	5,286.3	4,820.7	40.5	40.4	-98.60	32.7	-2,042.0	374.7	294.3	80.41	4.659		
5,400.0	4,919.8	5,386.5	4,917.3	41.0	40.8	-98.39	33.2	-2,068.6	379.1	297.8	81.34	4.661		
5,500.0	5,017.4	5,486.8	5,014.9	41.3	41.2	-98.18	33.7	-2,091.8	383.0	300.8	82.15	4.662		
5,600.0	5,115.8	5,587.2	5,113.3	41.7	41.6	-97.97	34.1	-2,111.6	386.2	303.4	82.83	4.663		
5,700.0	5,214.7	5,687.7	5,212.4	41.9	41.9	-97.76	34.4	-2,128.0	388.9	305.5	83.38	4.664		
5,800.0	5,314.1	5,788.2	5,312.1	42.1	42.1	-97.55	34.7	-2,140.8	391.0	307.1	83.81	4.664		
5,900.0	5,413.8	5,888.9	5,412.3	42.2	42.3	-97.33	34.9	-2,150.2	392.4	308.3	84.13	4.664		
6,000.0	5,513.7	5,989.6	5,512.8	42.3	42.4	-97.11	35.0	-2,156.1	393.2	308.9	84.33	4.663		
6,100.0	5,613.7	6,090.3	5,613.5	42.4	42.4	-175.55	35.1	-2,158.4	393.5	309.0	84.44	4.660		
6,200.0	5,713.7	6,190.4	5,713.7	42.4	42.5	-175.55	35.1	-2,158.4	393.5	308.9	84.53	4.655		
6,300.0	5,813.7	6,290.4	5,813.7	42.5	42.5	-175.55	35.1	-2,158.4	393.5	308.8	84.62	4.650		
6,400.0	5,913.7	6,390.4	5,913.7	42.5	42.6	-175.55	35.1	-2,158.4	393.5	308.8	84.71	4.645		
6,500.0	6,013.7	6,490.4	6,013.7	42.5	42.6	-175.55	35.1	-2,158.4	393.5	308.7	84.80	4.640		
6,600.0	6,113.7	6,590.4	6,113.7	42.6	42.6	-175.55	35.1	-2,158.4	393.5	308.6	84.89	4.635		
6,700.0	6,213.7	6,690.4	6,213.7	42.6	42.7	-175.55	35.1	-2,158.4	393.5	308.5	84.99	4.630		
6,800.0	6,313.7	6,790.4	6,313.7	42.7	42.7	-175.55	35.1	-2,158.4	393.5	308.4	85.08	4.624		
6,900.0	6,413.7	6,890.4	6,413.7	42.7	42.8	-175.55	35.1	-2,158.4	393.5	308.3	85.18	4.619		
7,000.0	6,513.7	6,990.4	6,513.7	42.8	42.8	-175.55	35.1	-2,158.4	393.5	308.2	85.28	4.614		
7,100.0	6,613.7	7,090.4	6,613.7	42.8	42.9	-175.55	35.1	-2,158.4	393.5	308.1	85.38	4.608		
7,200.0	6,713.7	7,190.4	6,713.7	42.9	42.9	-175.55	35.1	-2,158.4	393.5	308.0	85.48	4.603		
7,300.0	6,813.7	7,290.4	6,813.7	42.9	43.0	-175.55	35.1	-2,158.4	393.5	307.9	85.59	4.597		
7,400.0	6,913.7	7,390.4	6,913.7	43.0	43.0	-175.55	35.1	-2,158.4	393.5	307.8	85.69	4.592		
7,500.0	7,013.7	7,490.4	7,013.7	43.0	43.1	-175.55	35.1	-2,158.4	393.5	307.7	85.80	4.586		
7,600.0	7,113.7	7,590.4	7,113.7	43.1	43.2	-175.55	35.1	-2,158.4	393.5	307.6	85.90	4.580		
7,700.0	7,213.7	7,690.4	7,213.7	43.2	43.2	-175.55	35.1	-2,158.4	393.5	307.5	86.01	4.575		
7,800.0	7,313.7	7,790.4	7,313.7	43.2	43.3	-175.55	35.1	-2,158.4	393.5	307.3	86.12	4.569		
7,900.0	7,413.7	7,890.4	7,413.7	43.3	43.3	-175.55	35.1	-2,158.4	393.5	307.2	86.23	4.563		
8,000.0	7,513.7	7,990.4	7,513.7	43.3	43.4	-175.55	35.1	-2,158.4	393.5	307.1	86.34	4.557		
8,100.0	7,613.7	8,090.4	7,613.7	43.4	43.4	-175.55	35.1	-2,158.4	393.5	307.0	86.46	4.551		
8,200.0	7,713.7	8,190.4	7,713.7	43.4	43.5	-175.55	35.1	-2,158.4	393.5	306.9	86.57	4.545		
8,300.0	7,813.7	8,290.4	7,813.7	43.5	43.5	-175.55	35.1	-2,158.4	393.5	306.8	86.69	4.539		
8,400.0	7,913.7	8,390.4	7,913.7	43.5	43.6	-175.55	35.1	-2,158.4	393.5	306.7	86.80	4.533		
8,453.9	7,967.6	8,444.4	7,967.6	43.6	43.6	-175.55	35.1	-2,158.4	393.5	306.6	86.87	4.530 SF		
8,500.0	8,013.7	8,462.8	7,986.0	43.6	43.6	-175.55	35.1	-2,158.4	394.4	307.5	86.90	4.539		
8,600.0	8,113.7	8,462.8	7,986.0	43.7	43.6	-175.55	35.1	-2,158.4	413.7	326.7	86.96	4.757		
8,700.0	8,213.7	8,462.8	7,986.0	43.7	43.6	-175.55	35.1	-2,158.4	454.6	367.6	87.02	5.224		

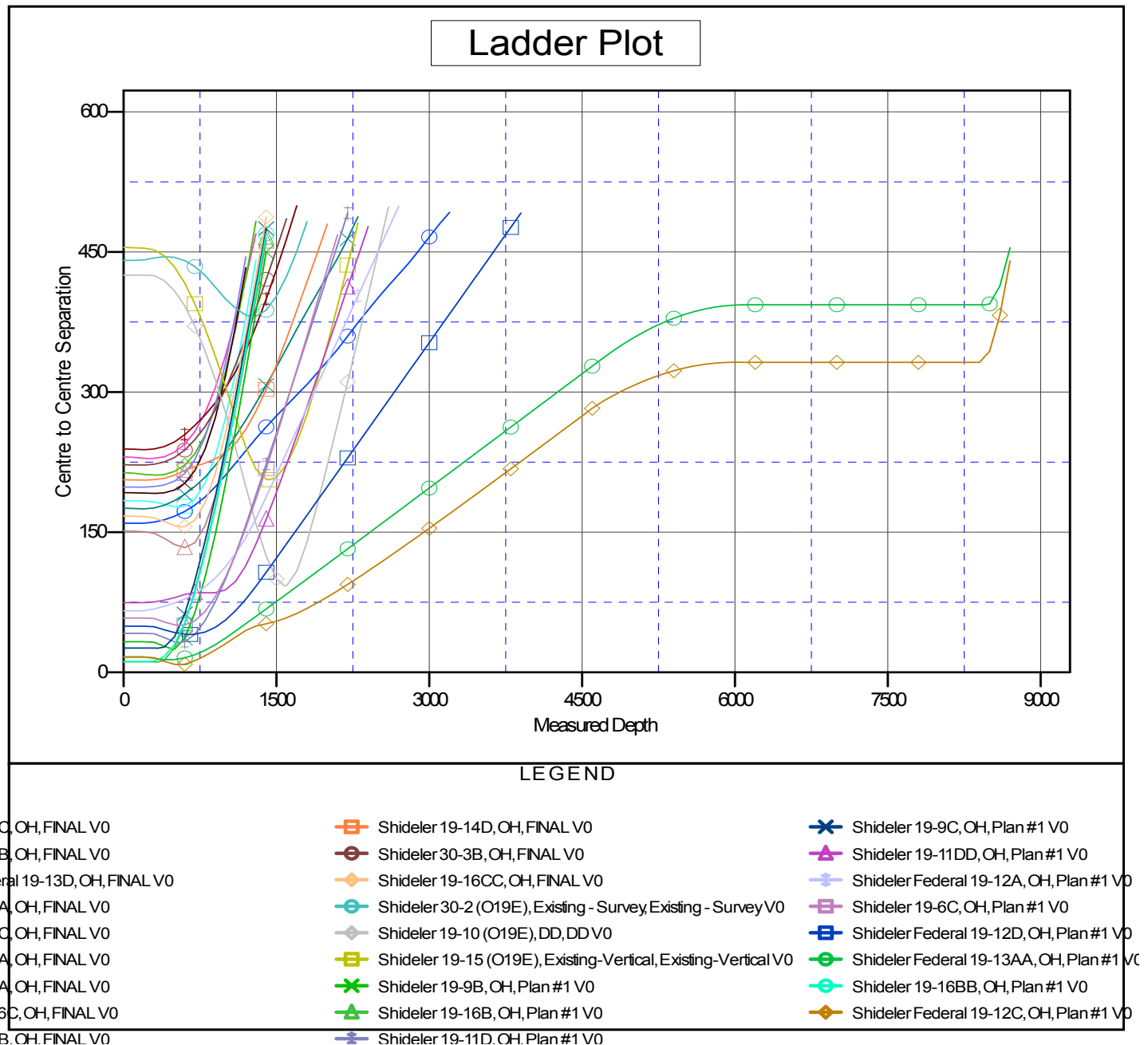
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler Federal 19-13A
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 19-13A	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 19-13A
 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