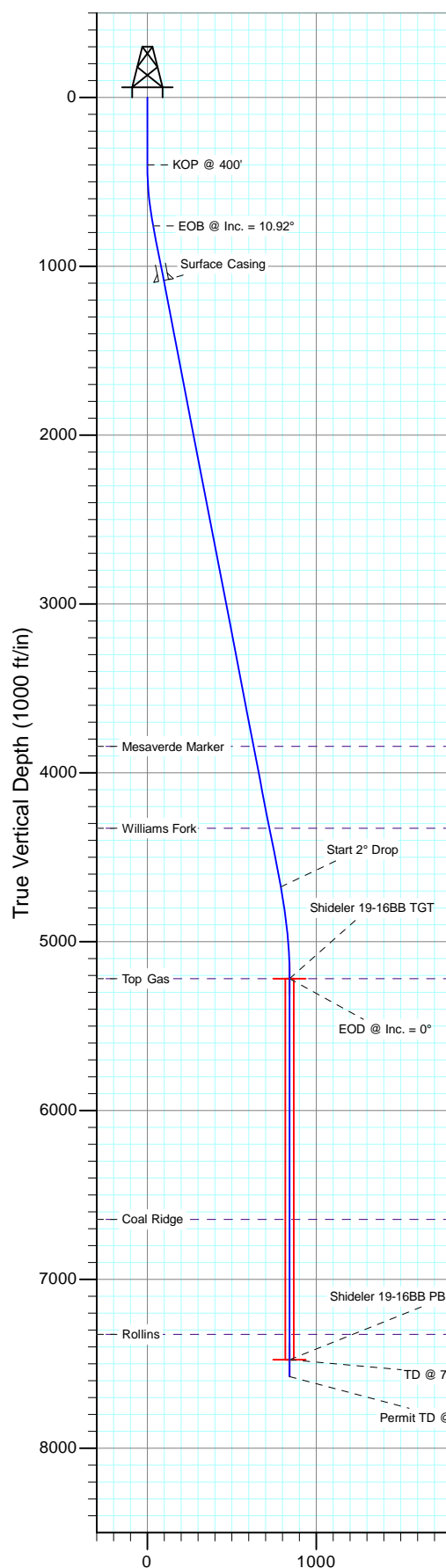
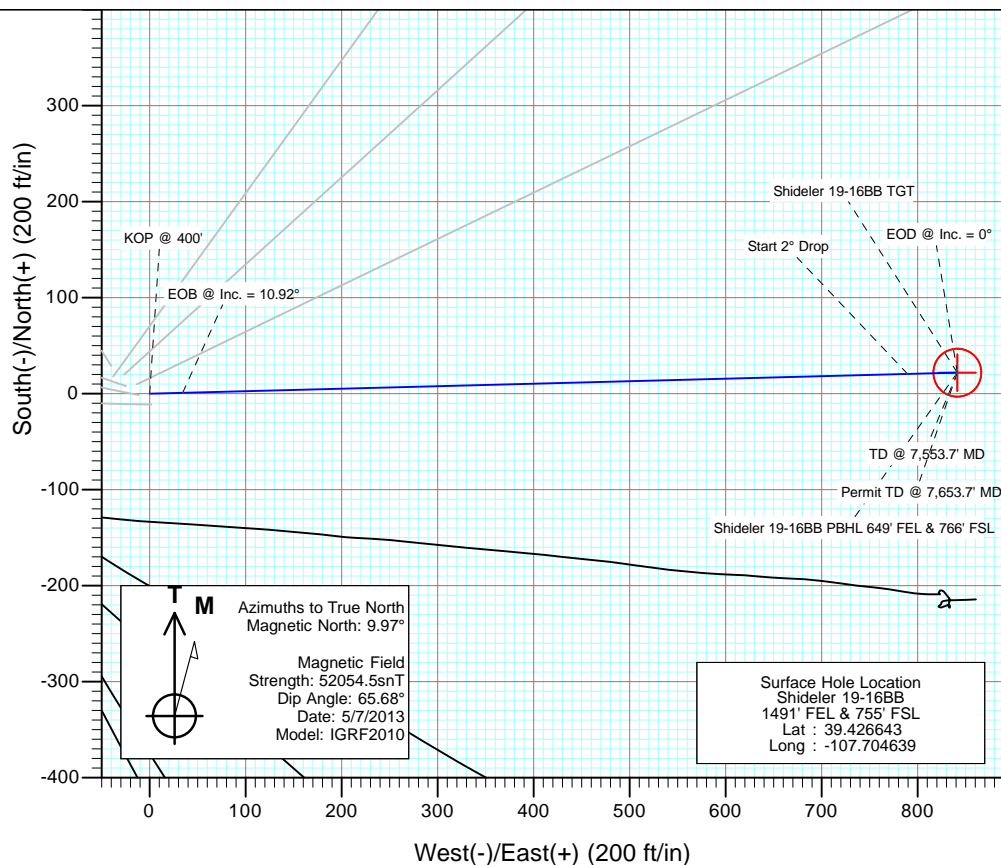




Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler 19-16BB
Wellbore: OH
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	764.0	10.92	88.51	761.8	0.9	34.6	3.00	88.51	34.6	
4	4750.6	10.92	88.51	4676.2	20.5	789.6	0.00	0.00	789.9	
5	5296.7	0.00	0.00	5219.0	21.9	841.5	2.00	180.00	841.8	Shideler 19-16BB TGT
6	7553.7	0.00	0.00	7476.0	21.9	841.5	0.00	0.00	841.8	Shideler 19-16BB PBHL 649' FEL & 766' FSL
7	7653.7	0.00	0.00	7576.0	21.9	841.5	0.00	0.00	841.8	

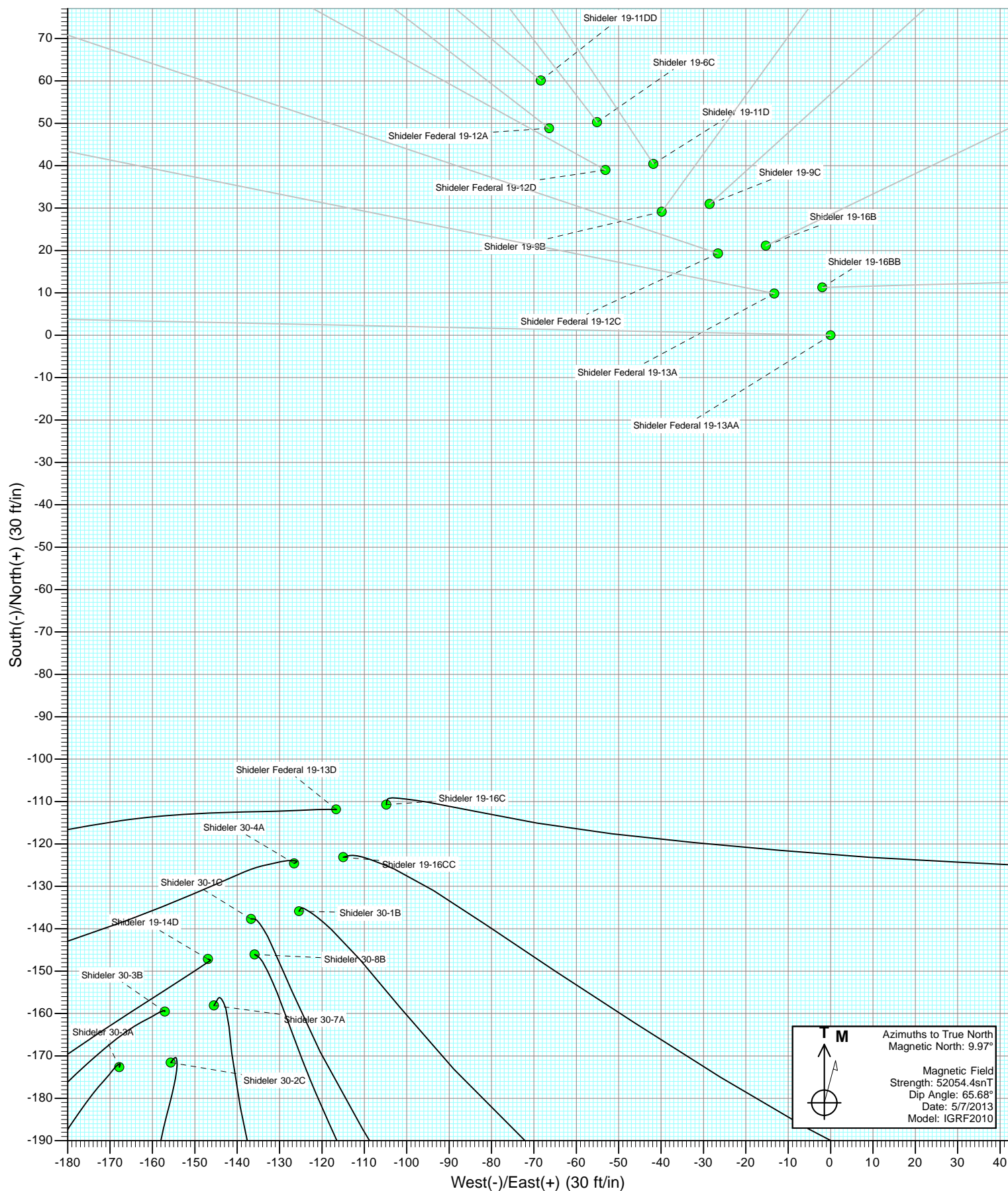


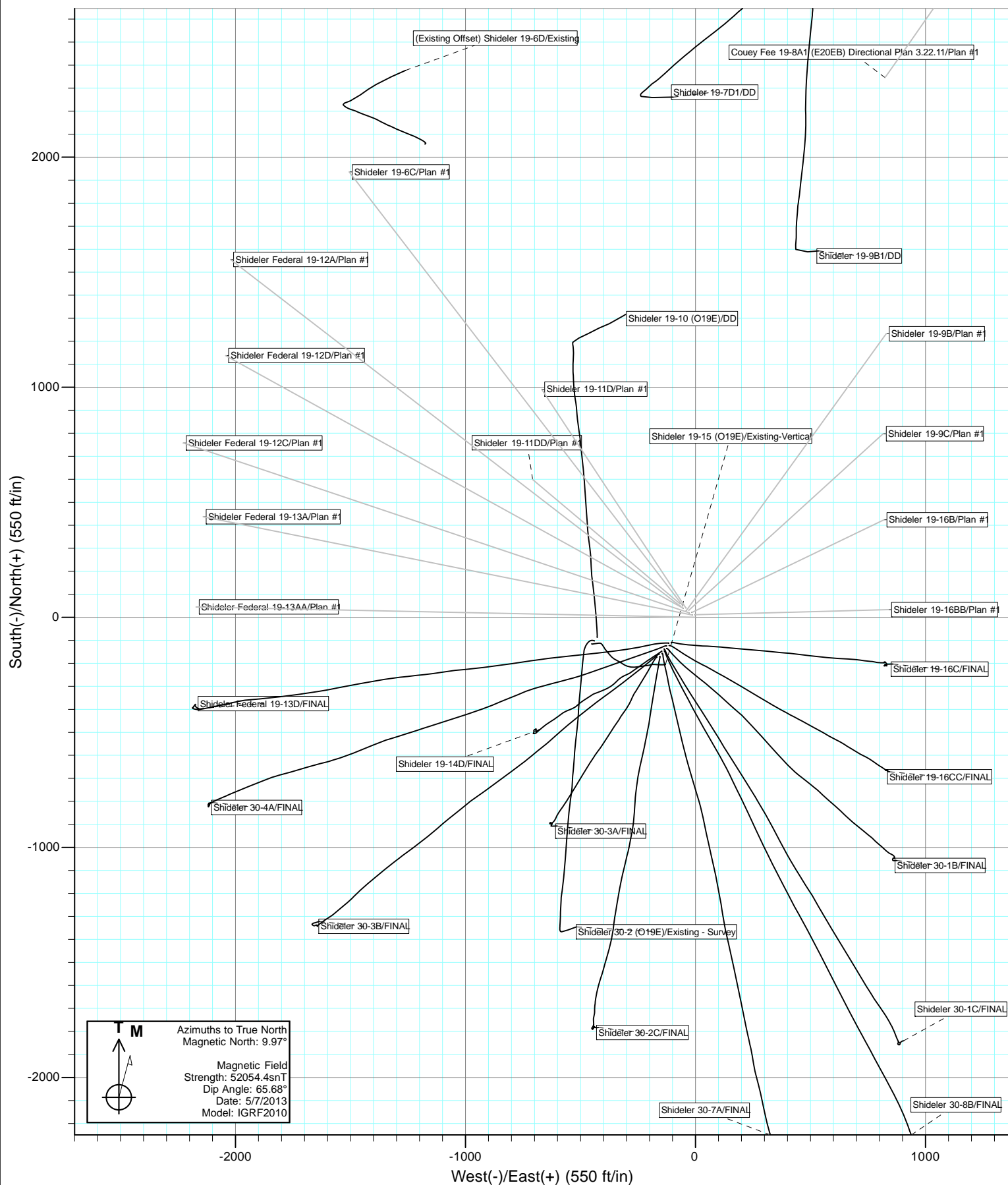
DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shideler 19-16BB TGT	21.9	841.5	1587845.31	2378144.44	39.426703	-107.701660
Shideler 19-16BB PBHL 649' FEL & 766' FSL	21.9	841.5	1587845.31	2378144.44	39.426703	-107.701660

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3843.0	3902.0	Mesaverde Marker
4328.0	4396.0	Williams Fork
5219.0	5296.7	Top Gas
6645.0	6722.7	Coal Ridge
7326.0	7403.7	Rollins

Plan #1
Shideler 19-16BB
135XXX; SC
KB=22' @ 6531.0ft (Original Well Elev)
Ground Elevation @ 6509.0
North American Datum 1983
Well Shideler 19-16BB, True North

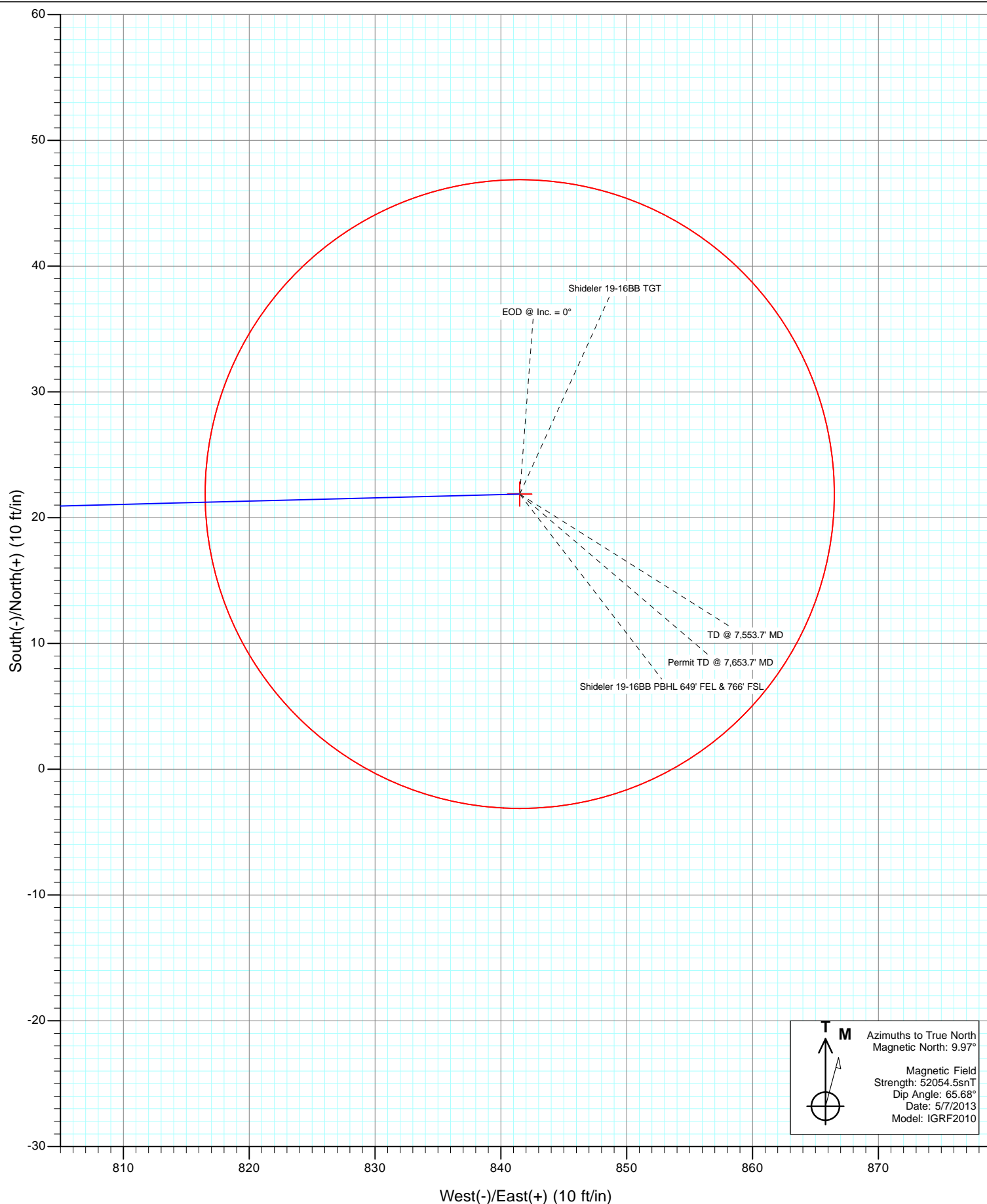
Vertical Section at 88.51° (1000 ft/in)







Project: Mamm Creek
Site: O19EB Pad (2nd Occupation)
Well: Shideler 19-16BB
Wellbore: OH
Design: Plan #1



T M

Azimuths to True North
Magnetic North: 9.97°

Magnetic Field
Strength: 52054.5snT
Dip Angle: 65.68°
Date: 5/7/2013
Model: IGRF2010

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-16BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler 19-16BB	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 19-16BB					
Well Position	+N/-S	0.0 ft	Northing:	1,587,843.86 ft	Latitude:	39.426643
	+E/-W	0.0 ft	Easting:	2,377,302.65 ft	Longitude:	-107.704639
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,509.0 ft

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

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	88.51

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
764.0	10.92	88.51	761.8	0.9	34.6	3.00	3.00	0.00	88.51	
4,750.6	10.92	88.51	4,676.2	20.5	789.6	0.00	0.00	0.00	0.00	
5,296.7	0.00	0.00	5,219.0	21.9	841.5	2.00	-2.00	0.00	180.00	Shideler 19-16BB TG`
7,553.7	0.00	0.00	7,476.0	21.9	841.5	0.00	0.00	0.00	0.00	Shideler 19-16BB PBI
7,653.7	0.00	0.00	7,576.0	21.9	841.5	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 19-16BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler 19-16BB	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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	3.00	88.51	500.0	0.1	2.6	2.6	3.00	3.00	
600.0	6.00	88.51	599.6	0.3	10.5	10.5	3.00	3.00	
700.0	9.00	88.51	698.8	0.6	23.5	23.5	3.00	3.00	
764.0	10.92	88.51	761.8	0.9	34.6	34.6	3.00	3.00	EOB @ Inc. = 10.92°
800.0	10.92	88.51	797.1	1.1	41.4	41.4	0.00	0.00	
900.0	10.92	88.51	895.3	1.6	60.3	60.3	0.00	0.00	
1,000.0	10.92	88.51	993.5	2.1	79.3	79.3	0.00	0.00	
1,093.2	10.92	88.51	1,085.0	2.5	96.9	96.9	0.00	0.00	Surface Casing
1,100.0	10.92	88.51	1,091.7	2.6	98.2	98.2	0.00	0.00	
1,200.0	10.92	88.51	1,189.9	3.0	117.1	117.2	0.00	0.00	
1,300.0	10.92	88.51	1,288.1	3.5	136.1	136.1	0.00	0.00	
1,400.0	10.92	88.51	1,386.3	4.0	155.0	155.1	0.00	0.00	
1,500.0	10.92	88.51	1,484.5	4.5	174.0	174.0	0.00	0.00	
1,600.0	10.92	88.51	1,582.7	5.0	192.9	193.0	0.00	0.00	
1,700.0	10.92	88.51	1,680.8	5.5	211.8	211.9	0.00	0.00	
1,800.0	10.92	88.51	1,779.0	6.0	230.8	230.9	0.00	0.00	
1,900.0	10.92	88.51	1,877.2	6.5	249.7	249.8	0.00	0.00	
2,000.0	10.92	88.51	1,975.4	7.0	268.7	268.8	0.00	0.00	
2,100.0	10.92	88.51	2,073.6	7.5	287.6	287.7	0.00	0.00	
2,200.0	10.92	88.51	2,171.8	8.0	306.5	306.7	0.00	0.00	
2,300.0	10.92	88.51	2,270.0	8.5	325.5	325.6	0.00	0.00	
2,400.0	10.92	88.51	2,368.2	9.0	344.4	344.5	0.00	0.00	
2,500.0	10.92	88.51	2,466.4	9.4	363.4	363.5	0.00	0.00	
2,600.0	10.92	88.51	2,564.5	9.9	382.3	382.4	0.00	0.00	
2,700.0	10.92	88.51	2,662.7	10.4	401.2	401.4	0.00	0.00	
2,800.0	10.92	88.51	2,760.9	10.9	420.2	420.3	0.00	0.00	
2,900.0	10.92	88.51	2,859.1	11.4	439.1	439.3	0.00	0.00	
3,000.0	10.92	88.51	2,957.3	11.9	458.1	458.2	0.00	0.00	
3,100.0	10.92	88.51	3,055.5	12.4	477.0	477.2	0.00	0.00	
3,200.0	10.92	88.51	3,153.7	12.9	495.9	496.1	0.00	0.00	
3,300.0	10.92	88.51	3,251.9	13.4	514.9	515.1	0.00	0.00	
3,400.0	10.92	88.51	3,350.1	13.9	533.8	534.0	0.00	0.00	
3,500.0	10.92	88.51	3,448.2	14.4	552.8	553.0	0.00	0.00	
3,600.0	10.92	88.51	3,546.4	14.9	571.7	571.9	0.00	0.00	
3,700.0	10.92	88.51	3,644.6	15.4	590.6	590.8	0.00	0.00	
3,800.0	10.92	88.51	3,742.8	15.8	609.6	609.8	0.00	0.00	
3,900.0	10.92	88.51	3,841.0	16.3	628.5	628.7	0.00	0.00	
3,902.0	10.92	88.51	3,843.0	16.3	628.9	629.1	0.00	0.00	Mesaverde Marker
4,000.0	10.92	88.51	3,939.2	16.8	647.5	647.7	0.00	0.00	
4,100.0	10.92	88.51	4,037.4	17.3	666.4	666.6	0.00	0.00	
4,200.0	10.92	88.51	4,135.6	17.8	685.3	685.6	0.00	0.00	
4,300.0	10.92	88.51	4,233.8	18.3	704.3	704.5	0.00	0.00	
4,396.0	10.92	88.51	4,328.0	18.8	722.5	722.7	0.00	0.00	Williams Fork
4,400.0	10.92	88.51	4,331.9	18.8	723.2	723.5	0.00	0.00	
4,500.0	10.92	88.51	4,430.1	19.3	742.2	742.4	0.00	0.00	
4,600.0	10.92	88.51	4,528.3	19.8	761.1	761.4	0.00	0.00	
4,700.0	10.92	88.51	4,626.5	20.3	780.0	780.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-16BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler 19-16BB	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
4,750.6	10.92	88.51	4,676.2	20.5	789.6	789.9	0.00	0.00	Start 2° Drop
4,800.0	9.93	88.51	4,724.8	20.8	798.6	798.8	2.00	-2.00	
4,900.0	7.93	88.51	4,823.6	21.2	814.1	814.4	2.00	-2.00	
5,000.0	5.93	88.51	4,922.8	21.5	826.2	826.4	2.00	-2.00	
5,100.0	3.93	88.51	5,022.4	21.7	834.8	835.0	2.00	-2.00	
5,200.0	1.93	88.51	5,122.3	21.8	839.9	840.2	2.00	-2.00	
5,296.7	0.00	0.00	5,219.0	21.9	841.5	841.8	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
5,300.0	0.00	0.00	5,222.3	21.9	841.5	841.8	0.00	0.00	
5,400.0	0.00	0.00	5,322.3	21.9	841.5	841.8	0.00	0.00	
5,500.0	0.00	0.00	5,422.3	21.9	841.5	841.8	0.00	0.00	
5,600.0	0.00	0.00	5,522.3	21.9	841.5	841.8	0.00	0.00	
5,700.0	0.00	0.00	5,622.3	21.9	841.5	841.8	0.00	0.00	
5,800.0	0.00	0.00	5,722.3	21.9	841.5	841.8	0.00	0.00	
5,900.0	0.00	0.00	5,822.3	21.9	841.5	841.8	0.00	0.00	
6,000.0	0.00	0.00	5,922.3	21.9	841.5	841.8	0.00	0.00	
6,100.0	0.00	0.00	6,022.3	21.9	841.5	841.8	0.00	0.00	
6,200.0	0.00	0.00	6,122.3	21.9	841.5	841.8	0.00	0.00	
6,300.0	0.00	0.00	6,222.3	21.9	841.5	841.8	0.00	0.00	
6,400.0	0.00	0.00	6,322.3	21.9	841.5	841.8	0.00	0.00	
6,500.0	0.00	0.00	6,422.3	21.9	841.5	841.8	0.00	0.00	
6,600.0	0.00	0.00	6,522.3	21.9	841.5	841.8	0.00	0.00	
6,700.0	0.00	0.00	6,622.3	21.9	841.5	841.8	0.00	0.00	
6,722.7	0.00	0.00	6,645.0	21.9	841.5	841.8	0.00	0.00	Coal Ridge
6,800.0	0.00	0.00	6,722.3	21.9	841.5	841.8	0.00	0.00	
6,900.0	0.00	0.00	6,822.3	21.9	841.5	841.8	0.00	0.00	
7,000.0	0.00	0.00	6,922.3	21.9	841.5	841.8	0.00	0.00	
7,100.0	0.00	0.00	7,022.3	21.9	841.5	841.8	0.00	0.00	
7,200.0	0.00	0.00	7,122.3	21.9	841.5	841.8	0.00	0.00	
7,300.0	0.00	0.00	7,222.3	21.9	841.5	841.8	0.00	0.00	
7,400.0	0.00	0.00	7,322.3	21.9	841.5	841.8	0.00	0.00	
7,403.7	0.00	0.00	7,326.0	21.9	841.5	841.8	0.00	0.00	Rollins
7,500.0	0.00	0.00	7,422.3	21.9	841.5	841.8	0.00	0.00	
7,553.7	0.00	0.00	7,476.0	21.9	841.5	841.8	0.00	0.00	TD @ 7,553.7' MD
7,600.0	0.00	0.00	7,522.3	21.9	841.5	841.8	0.00	0.00	
7,653.7	0.00	0.00	7,576.0	21.9	841.5	841.8	0.00	0.00	Permit TD @ 7,653.7' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Shideler 19-16BB PBHL - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,476.0	21.9	841.5	1,587,845.31	2,378,144.44	39.426703	-107.701660
Shideler 19-16BB TGT - plan hits target center - Point	0.00	0.00	5,219.0	21.9	841.5	1,587,845.31	2,378,144.44	39.426703	-107.701660

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-16BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site:	O19EB Pad (2nd Occupation)	North Reference:	True
Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,093.2	1,085.0	Surface Casing		

Formations				
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip Direction (°)
3,902.0	3,843.0	Mesaverde Marker		
4,396.0	4,328.0	Williams Fork		
5,296.7	5,219.0	Top Gas		
6,722.7	6,645.0	Coal Ridge		
7,403.7	7,326.0	Rollins		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
400.0	400.0	0.0	0.0	KOP @ 400'
764.0	761.8	0.9	34.6	EOB @ Inc. = 10.92°
4,750.6	4,676.2	20.5	789.6	Start 2° Drop
5,296.7	5,219.0	21.9	841.5	EOD @ Inc. = 0°
7,553.7	7,476.0	21.9	841.5	TD @ 7,553.7' MD
7,653.7	7,576.0	21.9	841.5	Permit TD @ 7,653.7' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O19EB Pad (2nd Occupation)

Shideler 19-16BB

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 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	7,653.7	Plan #1 (OH)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
O19EB Pad (1st Occupation)						
(Existing Offset) Shideler 19-6D - Existing - Existing						Out of range
Shideler 19-14D - OH - FINAL	210.7	210.7	214.5	213.8	325.683	CC, ES
Shideler 19-14D - OH - FINAL	1,400.0	1,329.7	471.3	466.3	93.518	SF
Shideler 19-16C - OH - FINAL	706.6	721.4	147.3	144.4	50.205	CC
Shideler 19-16C - OH - FINAL	1,200.0	1,216.2	149.7	143.1	22.678	ES
Shideler 19-16C - OH - FINAL	7,653.7	7,673.8	243.4	202.2	5.909	SF
Shideler 19-16CC - OH - FINAL	465.0	469.0	171.3	169.7	108.149	CC, ES
Shideler 19-16CC - OH - FINAL	3,300.0	3,288.4	495.0	471.7	21.170	SF
Shideler 30-1B - OH - FINAL	407.5	408.1	190.5	189.1	140.888	CC, ES
Shideler 30-1B - OH - FINAL	2,200.0	2,149.3	488.8	474.1	33.232	SF
Shideler 30-1C - OH - FINAL	255.5	255.5	200.2	199.4	245.582	CC, ES
Shideler 30-1C - OH - FINAL	1,400.0	1,293.8	462.4	454.0	55.520	SF
Shideler 30-2C - OH - FINAL	241.8	241.8	237.2	236.4	308.399	CC, ES
Shideler 30-2C - OH - FINAL	1,200.0	1,055.8	492.2	487.2	98.364	SF
Shideler 30-3A - OH - FINAL	216.0	216.1	246.9	246.3	364.305	CC, ES
Shideler 30-3A - OH - FINAL	1,200.0	1,112.4	469.2	464.7	104.504	SF
Shideler 30-3B - OH - FINAL	209.8	209.8	230.5	229.9	351.657	CC, ES
Shideler 30-3B - OH - FINAL	900.0	790.5	375.5	372.4	123.484	SF
Shideler 30-4A - OH - FINAL	196.1	196.1	183.5	182.9	301.826	CC
Shideler 30-4A - OH - FINAL	200.0	199.9	183.5	182.9	295.297	ES
Shideler 30-4A - OH - FINAL	800.0	730.2	289.1	286.4	105.795	SF
Shideler 30-7A - OH - FINAL	271.1	271.2	219.7	218.8	251.613	CC, ES
Shideler 30-7A - OH - FINAL	1,300.0	1,152.2	481.6	475.1	74.874	SF
Shideler 30-8B - OH - FINAL	198.1	198.1	206.4	205.8	335.771	CC
Shideler 30-8B - OH - FINAL	200.0	200.0	206.4	205.8	332.276	ES
Shideler 30-8B - OH - FINAL	1,400.0	1,262.2	494.6	486.6	61.739	SF
Shideler Federal 19-13D - OH - FINAL	154.6	154.6	168.2	167.8	363.409	CC
Shideler Federal 19-13D - OH - FINAL	200.0	199.4	168.3	167.7	271.330	ES
Shideler Federal 19-13D - OH - FINAL	700.0	651.0	237.6	235.2	97.349	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
O19EB Pad (2nd Occupation)						
Shideler 19-11D - OH - Plan #1	400.0	400.0	49.4	48.0	37.402	CC, ES
Shideler 19-11D - OH - Plan #1	500.0	497.4	53.8	52.2	32.311	SF
Shideler 19-11DD - OH - Plan #1	200.0	200.0	82.4	81.8	132.603	CC, ES
Shideler 19-11DD - OH - Plan #1	500.0	486.7	103.3	101.6	62.710	SF
Shideler 19-16B - OH - Plan #1	445.1	445.4	15.1	13.6	10.050	CC, ES
Shideler 19-16B - OH - Plan #1	500.0	500.3	15.7	14.0	9.148	SF
Shideler 19-6C - OH - Plan #1	333.4	333.4	65.9	64.8	60.609	CC, ES
Shideler 19-6C - OH - Plan #1	500.0	494.8	73.4	71.7	44.178	SF
Shideler 19-9B - OH - Plan #1	413.9	414.3	41.4	40.0	30.007	CC, ES
Shideler 19-9B - OH - Plan #1	700.0	697.6	63.0	60.3	23.176	SF
Shideler 19-9C - OH - Plan #1	356.8	357.0	32.4	31.2	27.684	CC, ES
Shideler 19-9C - OH - Plan #1	500.0	498.8	37.3	35.5	20.618	SF
Shideler Federal 19-12A - OH - Plan #1	200.0	200.0	74.5	73.9	119.959	CC, ES
Shideler Federal 19-12A - OH - Plan #1	500.0	486.3	99.1	97.5	60.175	SF
Shideler Federal 19-12C - OH - Plan #1	333.3	333.3	25.8	24.8	23.784	CC, ES
Shideler Federal 19-12C - OH - Plan #1	400.0	399.3	26.5	25.2	20.091	SF
Shideler Federal 19-12D - OH - Plan #1	300.0	300.0	58.1	57.2	59.915	CC, ES
Shideler Federal 19-12D - OH - Plan #1	500.0	494.1	68.2	66.5	41.109	SF
Shideler Federal 19-13A - OH - Plan #1	233.5	233.5	11.4	10.7	15.431	CC, ES
Shideler Federal 19-13A - OH - Plan #1	300.0	299.7	12.0	11.0	12.377	SF
Shideler Federal 19-13AA - OH - Plan #1	291.9	291.9	11.2	10.3	11.939	CC
Shideler Federal 19-13AA - OH - Plan #1	300.0	300.0	11.3	10.3	11.597	ES
Shideler Federal 19-13AA - OH - Plan #1	400.0	399.5	13.9	12.6	10.411	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-137.55	-158.4	-144.9	214.7				
100.0	100.0	100.3	100.3	0.1	0.2	-137.59	-158.5	-144.8	214.7	214.4	0.29	743.356	
200.0	200.0	200.3	200.3	0.3	0.3	-137.70	-158.6	-144.4	214.5	213.9	0.62	344.937	
210.7	210.7	210.7	210.7	0.3	0.3	-137.70	-158.7	-144.3	214.5	213.8	0.66	325.683	CC, ES
300.0	300.0	295.9	295.9	0.5	0.5	-137.68	-159.1	-144.9	215.2	214.3	0.96	223.398	
400.0	400.0	386.0	385.9	0.7	0.6	-137.46	-161.1	-147.8	219.1	217.8	1.30	168.497	
500.0	500.0	478.0	477.6	0.8	0.8	134.76	-165.4	-154.5	229.3	227.6	1.63	140.388	
600.0	599.6	569.2	568.1	1.0	1.1	136.23	-171.5	-163.9	246.8	244.8	1.98	124.597	
700.0	698.8	665.9	663.9	1.3	1.3	138.22	-178.4	-174.4	269.2	266.8	2.35	114.293	
800.0	797.1	760.5	757.7	1.6	1.6	140.53	-185.4	-184.8	295.8	293.1	2.74	107.900	
900.0	895.3	856.1	852.5	2.0	1.9	142.90	-192.6	-195.3	323.9	320.7	3.13	103.376	
1,000.0	993.5	950.1	945.6	2.3	2.1	144.86	-199.6	-205.8	352.5	349.0	3.52	100.170	
1,100.0	1,091.7	1,044.5	1,039.1	2.7	2.4	146.53	-206.9	-216.5	381.7	377.8	3.90	97.815	
1,200.0	1,189.9	1,138.4	1,132.1	3.0	2.7	147.94	-214.3	-227.3	411.4	407.1	4.28	96.078	
1,300.0	1,288.1	1,234.0	1,226.8	3.4	3.0	149.19	-221.9	-238.3	441.3	436.6	4.66	94.670	
1,400.0	1,386.3	1,329.7	1,321.6	3.8	3.2	150.26	-229.6	-249.1	471.3	466.3	5.04	93.518	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-139.88	-122.0	-102.8	159.6					
100.0	100.0	100.7	100.7	0.1	0.2	-139.83	-121.8	-102.8	159.4	159.1	0.29	549.674		
200.0	200.0	201.2	201.2	0.3	0.3	-139.69	-121.0	-102.7	158.7	158.1	0.62	254.256		
300.0	300.0	303.6	303.5	0.5	0.5	-139.99	-120.4	-101.1	157.3	156.3	0.98	160.556		
400.0	400.0	407.6	407.3	0.7	0.7	-142.24	-121.3	-93.9	153.6	152.2	1.34	114.206		
500.0	500.0	509.5	508.4	0.8	1.0	125.84	-123.6	-81.6	149.9	148.1	1.77	84.656		
600.0	599.6	612.1	609.7	1.0	1.3	122.39	-126.8	-65.0	148.1	145.8	2.28	64.928		
700.0	698.8	714.8	710.2	1.3	1.7	119.53	-129.4	-44.8	147.3	144.5	2.89	50.975		
706.6	705.3	721.4	716.7	1.3	1.7	119.37	-129.6	-43.5	147.3	144.4	2.93	50.205 CC		
800.0	797.1	815.7	808.8	1.6	2.1	117.81	-131.6	-23.3	148.1	144.5	3.57	41.463		
900.0	895.3	916.6	907.1	2.0	2.5	116.24	-133.5	-0.9	148.8	144.5	4.30	34.579		
1,000.0	993.5	1,017.3	1,005.2	2.3	2.9	114.42	-135.1	22.3	149.0	143.9	5.07	29.400		
1,066.3	1,058.6	1,083.7	1,069.8	2.6	3.2	113.36	-135.8	37.4	148.9	143.3	5.58	26.700		
1,100.0	1,091.7	1,116.8	1,102.1	2.7	3.4	112.89	-136.1	44.8	149.0	143.1	5.83	25.544		
1,200.0	1,189.9	1,216.2	1,199.1	3.0	3.8	111.63	-137.5	66.3	149.7	143.1	6.60	22.678 ES		
1,300.0	1,288.1	1,316.2	1,296.7	3.4	4.2	110.27	-139.0	88.3	150.6	143.2	7.40	20.357		
1,400.0	1,386.3	1,415.8	1,393.7	3.8	4.6	108.81	-140.7	110.4	151.6	143.4	8.20	18.484		
1,500.0	1,484.5	1,515.7	1,491.2	4.1	5.1	107.46	-142.4	132.4	152.9	143.9	9.01	16.960		
1,600.0	1,582.7	1,615.5	1,588.4	4.5	5.5	105.98	-144.3	154.6	154.3	144.4	9.84	15.674		
1,700.0	1,680.8	1,714.6	1,685.1	4.9	5.9	104.67	-146.4	176.4	156.1	145.4	10.65	14.657		
1,800.0	1,779.0	1,814.5	1,782.6	5.3	6.3	103.54	-148.8	197.8	158.3	146.9	11.46	13.820		
1,900.0	1,877.2	1,915.7	1,881.8	5.6	6.7	102.89	-150.4	218.3	160.1	147.8	12.24	13.079		
2,000.0	1,975.4	2,015.4	1,979.4	6.0	7.1	102.25	-151.6	238.7	161.4	148.4	13.03	12.393		
2,100.0	2,073.6	2,114.6	2,076.3	6.4	7.5	101.43	-153.4	259.3	163.4	149.5	13.82	11.818		
2,200.0	2,171.8	2,214.5	2,173.9	6.8	8.0	100.47	-155.5	280.6	165.5	150.9	14.64	11.309		
2,300.0	2,270.0	2,314.4	2,271.4	7.1	8.4	99.35	-157.7	302.3	167.8	152.3	15.46	10.852		
2,400.0	2,368.2	2,414.1	2,368.8	7.5	8.8	98.27	-159.9	324.0	170.1	153.8	16.28	10.449		
2,500.0	2,466.4	2,514.9	2,467.1	7.9	9.3	97.11	-162.1	346.2	172.4	155.3	17.11	10.075		
2,600.0	2,564.5	2,614.3	2,563.8	8.3	9.7	95.82	-164.0	368.7	174.5	156.5	17.94	9.725		
2,700.0	2,662.7	2,714.6	2,661.4	8.7	10.2	94.39	-166.1	391.8	176.8	158.0	18.78	9.417		
2,800.0	2,760.9	2,814.1	2,758.5	9.0	10.6	93.40	-168.2	413.5	179.2	159.7	19.56	9.161		
2,900.0	2,859.1	2,913.5	2,855.7	9.4	11.0	92.82	-170.5	434.1	182.0	161.6	20.35	8.945		
3,000.0	2,957.3	3,014.0	2,953.9	9.8	11.4	92.06	-172.7	455.5	184.7	163.5	21.14	8.734		
3,100.0	3,055.5	3,113.5	3,051.1	10.2	11.8	91.32	-174.8	476.6	187.3	165.4	21.92	8.546		
3,200.0	3,153.7	3,213.2	3,148.8	10.5	12.2	91.15	-177.4	496.1	190.4	167.7	22.67	8.396		
3,300.0	3,251.9	3,312.7	3,246.4	10.9	12.6	91.02	-179.8	515.3	193.3	169.8	23.43	8.248		
3,400.0	3,350.1	3,413.0	3,344.8	11.3	13.0	90.95	-182.7	534.6	196.7	172.5	24.19	8.128		
3,500.0	3,448.2	3,514.7	3,444.7	11.7	13.3	90.91	-184.8	554.0	199.2	174.3	24.96	7.982		
3,600.0	3,546.4	3,614.7	3,542.7	12.1	13.7	90.88	-186.4	573.1	201.3	175.6	25.72	7.826		
3,700.0	3,644.6	3,715.9	3,642.1	12.4	14.1	90.79	-187.8	592.6	203.2	176.7	26.49	7.672		
3,800.0	3,742.8	3,816.5	3,740.8	12.8	14.5	90.76	-188.7	611.8	204.6	177.3	27.24	7.509		
3,900.0	3,841.0	3,913.9	3,836.3	13.2	14.9	90.59	-190.1	630.8	206.5	178.5	28.00	7.375		
4,000.0	3,939.2	4,015.4	3,935.8	13.6	15.3	90.37	-191.8	650.9	208.7	180.0	28.77	7.255		
4,100.0	4,037.4	4,116.4	4,034.9	13.9	15.7	90.33	-192.7	670.2	210.0	180.5	29.54	7.112		
4,200.0	4,135.6	4,214.3	4,131.0	14.3	16.1	90.14	-194.0	689.4	211.9	181.6	30.29	6.993		
4,300.0	4,233.8	4,312.5	4,227.1	14.7	16.4	89.91	-196.1	708.9	214.5	183.5	31.05	6.909		
4,400.0	4,331.9	4,412.4	4,325.0	15.1	16.8	89.67	-198.9	728.8	217.9	186.1	31.81	6.849		
4,500.0	4,430.1	4,514.0	4,424.6	15.5	17.2	89.60	-201.2	748.4	220.6	188.1	32.58	6.773		
4,600.0	4,528.3	4,613.3	4,522.3	15.8	17.6	89.78	-203.1	766.6	223.1	189.7	33.31	6.697		
4,700.0	4,626.5	4,712.5	4,620.2	16.2	17.9	90.62	-205.6	782.2	226.0	191.9	34.02	6.642		
4,800.0	4,724.8	4,814.6	4,721.3	16.6	18.2	91.91	-207.9	796.2	228.6	194.0	34.69	6.591		
4,900.0	4,823.6	4,917.7	4,823.7	16.9	18.4	93.03	-208.8	807.8	230.0	194.8	35.25	6.526		

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 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 173-MWD												Offset Well Error:	0.0 ft
O19EB Pad (1st Occupation) - Shideler 19-16C - OH - FINAL													
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,000.0	4,922.8	5,017.9	4,923.6	17.1	18.6	93.91	-208.8	816.4	230.5	194.8	35.68	6.460	
5,100.0	5,022.4	5,117.2	5,022.8	17.3	18.7	94.73	-208.9	821.7	231.0	195.0	36.01	6.415	
5,200.0	5,122.3	5,217.7	5,123.2	17.5	18.8	95.51	-208.8	823.7	231.2	194.9	36.23	6.381	
5,300.0	5,222.3	5,318.1	5,223.6	17.5	18.9	-175.33	-208.2	822.7	230.9	194.5	36.37	6.347	
5,400.0	5,322.3	5,418.8	5,324.3	17.6	19.0	-175.18	-207.5	822.2	230.2	193.6	36.55	6.298	
5,500.0	5,422.3	5,520.1	5,425.6	17.7	19.1	-175.25	-206.4	822.5	229.1	192.3	36.74	6.234	
5,600.0	5,522.3	5,618.0	5,523.5	17.8	19.2	-175.44	-205.2	823.4	227.8	190.9	36.93	6.170	
5,700.0	5,622.3	5,717.3	5,622.8	17.9	19.3	-175.38	-205.0	823.2	227.7	190.5	37.12	6.134	
5,800.0	5,722.3	5,817.3	5,722.7	18.0	19.4	-175.74	-204.9	824.6	227.4	190.1	37.35	6.090	
5,814.1	5,736.3	5,831.0	5,736.4	18.0	19.4	-175.83	-204.9	825.0	227.4	190.0	37.38	6.084	
5,900.0	5,822.3	5,911.4	5,816.8	18.1	19.5	-176.45	-206.1	827.3	228.4	190.9	37.59	6.078	
6,000.0	5,922.3	6,010.0	5,915.3	18.2	19.6	-177.07	-209.0	829.7	231.3	193.4	37.81	6.116	
6,100.0	6,022.3	6,111.4	6,016.7	18.3	19.8	-177.68	-211.8	832.0	233.9	195.9	38.05	6.149	
6,200.0	6,122.3	6,211.1	6,116.4	18.4	19.9	-178.08	-214.2	833.6	236.3	198.0	38.25	6.176	
6,300.0	6,222.3	6,308.7	6,213.9	18.5	20.0	-177.93	-217.3	832.9	239.4	201.0	38.43	6.230	
6,400.0	6,322.3	6,410.4	6,315.5	18.6	20.1	-177.83	-220.6	832.3	242.7	204.1	38.64	6.282	
6,500.0	6,422.3	6,515.0	6,420.0	18.7	20.2	-178.02	-222.7	833.1	244.7	205.8	38.86	6.297	
6,600.0	6,522.3	6,619.5	6,524.6	18.8	20.3	-178.18	-222.6	833.8	244.6	205.5	39.07	6.260	
6,700.0	6,622.3	6,719.8	6,624.9	18.9	20.4	-178.17	-221.4	833.7	243.4	204.1	39.28	6.196	
6,800.0	6,722.3	6,818.2	6,723.2	19.1	20.5	-178.14	-220.6	833.6	242.6	203.2	39.48	6.146	
6,874.2	6,796.5	6,891.5	6,796.5	19.1	20.5	-177.95	-220.5	832.8	242.5	202.9	39.62	6.121	
6,900.0	6,822.3	6,916.9	6,822.0	19.2	20.6	-177.86	-220.5	832.4	242.5	202.8	39.67	6.114	
7,000.0	6,922.3	7,017.4	6,922.4	19.3	20.7	-177.61	-220.5	831.4	242.6	202.7	39.87	6.084	
7,012.3	6,934.6	7,029.6	6,934.6	19.3	20.7	-177.59	-220.5	831.3	242.6	202.7	39.90	6.080	
7,100.0	7,022.3	7,116.1	7,021.1	19.4	20.7	-177.45	-220.6	830.7	242.8	202.7	40.07	6.058	
7,200.0	7,122.3	7,214.4	7,119.5	19.5	20.8	-176.94	-221.4	828.5	243.6	203.4	40.25	6.054	
7,300.0	7,222.3	7,315.0	7,219.9	19.6	20.9	-176.33	-222.3	825.8	244.7	204.3	40.43	6.053	
7,400.0	7,322.3	7,417.3	7,322.2	19.7	21.0	-175.95	-222.8	824.2	245.3	204.7	40.63	6.038	
7,500.0	7,422.3	7,519.2	7,424.2	19.8	21.1	-175.51	-222.1	822.3	244.8	203.9	40.83	5.995	
7,600.0	7,522.3	7,619.7	7,524.6	19.9	21.2	-175.38	-221.3	821.8	243.9	202.9	41.06	5.942	
7,653.7	7,576.0	7,673.8	7,578.7	20.0	21.2	-175.51	-220.8	822.5	243.4	202.2	41.19	5.909 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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							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	-139.95	-134.4	-113.0	175.6					
100.0	100.0	100.6	100.6	0.1	0.2	-139.99	-134.4	-112.8	175.4	175.1	0.29	598.594		
200.0	200.0	201.2	201.2	0.3	0.3	-140.11	-134.2	-112.1	174.9	174.3	0.62	280.044		
300.0	300.0	302.6	302.6	0.5	0.5	-140.46	-134.0	-110.6	173.8	172.8	0.98	177.871		
400.0	400.0	403.5	403.3	0.7	0.7	-141.75	-135.0	-106.4	172.0	170.6	1.33	129.265		
465.0	465.0	469.0	468.7	0.8	0.8	128.44	-136.8	-101.8	171.3	169.7	1.58	108.149	CC, ES	
500.0	500.0	503.4	502.9	0.8	0.9	127.72	-138.3	-98.7	171.5	169.8	1.73	99.327		
600.0	599.6	601.6	600.3	1.0	1.2	125.43	-144.8	-87.7	175.2	173.0	2.19	80.000		
700.0	698.8	700.4	697.4	1.3	1.5	122.91	-154.7	-72.8	182.8	180.0	2.77	66.053		
800.0	797.1	799.7	794.1	1.6	1.9	120.40	-167.3	-53.9	193.5	190.0	3.47	55.824		
900.0	895.3	899.1	890.2	2.0	2.4	117.84	-180.8	-32.7	204.8	200.6	4.24	48.354		
1,000.0	993.5	1,000.5	988.0	2.3	2.9	115.17	-194.8	-9.8	216.2	211.1	5.05	42.815		
1,100.0	1,091.7	1,101.8	1,085.8	2.7	3.4	112.79	-207.4	13.6	226.4	220.6	5.88	38.498		
1,200.0	1,189.9	1,200.7	1,181.1	3.0	3.9	110.48	-219.6	37.3	236.7	230.0	6.74	35.149		
1,300.0	1,288.1	1,298.1	1,274.6	3.4	4.4	108.25	-232.1	61.1	247.6	240.1	7.57	32.705		
1,400.0	1,386.3	1,396.2	1,369.2	3.8	4.8	106.42	-245.1	84.0	259.7	251.3	8.40	30.922		
1,500.0	1,484.5	1,496.1	1,465.5	4.1	5.3	104.79	-258.1	107.0	271.7	262.5	9.23	29.438		
1,600.0	1,582.7	1,594.8	1,560.6	4.5	5.8	103.27	-270.9	130.0	283.8	273.8	10.06	28.219		
1,700.0	1,680.8	1,693.2	1,655.5	4.9	6.3	101.88	-283.8	152.8	296.3	285.5	10.87	27.254		
1,800.0	1,779.0	1,790.8	1,749.6	5.3	6.8	100.68	-296.8	175.1	309.2	297.6	11.68	26.472		
1,900.0	1,877.2	1,890.0	1,845.1	5.6	7.3	99.49	-310.3	198.1	322.5	310.0	12.50	25.804		
2,000.0	1,975.4	1,989.4	1,940.8	6.0	7.8	98.29	-323.7	221.7	335.8	322.5	13.32	25.214		
2,100.0	2,073.6	2,088.2	2,036.1	6.4	8.3	97.40	-336.9	243.9	349.1	335.0	14.10	24.763		
2,200.0	2,171.8	2,186.5	2,131.1	6.8	8.8	96.69	-350.1	265.4	362.7	347.8	14.89	24.367		
2,300.0	2,270.0	2,286.2	2,227.5	7.1	9.3	95.98	-363.4	287.4	376.2	360.5	15.68	24.000		
2,400.0	2,368.2	2,387.6	2,325.5	7.5	9.8	95.34	-376.9	309.6	389.7	373.3	16.46	23.680		
2,500.0	2,466.4	2,491.3	2,426.3	7.9	10.2	94.96	-389.0	330.8	401.8	384.5	17.24	23.307		
2,600.0	2,564.5	2,590.7	2,523.0	8.3	10.7	94.67	-400.4	350.9	413.6	395.6	18.00	22.974		
2,700.0	2,662.7	2,690.7	2,620.2	8.7	11.1	94.38	-411.7	371.2	425.4	406.6	18.78	22.653		
2,800.0	2,760.9	2,790.1	2,716.7	9.0	11.6	94.04	-422.9	391.8	437.0	417.4	19.55	22.353		
2,900.0	2,859.1	2,888.3	2,812.1	9.4	12.0	93.69	-434.1	412.4	448.7	428.4	20.32	22.089		
3,000.0	2,957.3	2,988.4	2,909.3	9.8	12.5	93.33	-445.5	433.6	460.6	439.5	21.09	21.839		
3,100.0	3,055.5	3,088.8	3,006.7	10.2	13.0	92.96	-456.8	455.1	472.2	450.3	21.87	21.595		
3,200.0	3,153.7	3,188.5	3,103.7	10.5	13.4	92.74	-467.8	475.4	483.7	461.1	22.62	21.385		
3,300.0	3,251.9	3,288.4	3,201.1	10.9	13.9	92.59	-478.6	495.3	495.0	471.7	23.38	21.170	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	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	-140.01	-147.2	-123.4	192.1				
100.0	100.0	100.5	100.5	0.1	0.2	-140.01	-147.1	-123.4	191.9	191.7	0.29	655.900	
200.0	200.0	201.0	201.0	0.3	0.3	-140.00	-146.7	-123.1	191.6	190.9	0.62	307.136	
300.0	300.0	301.2	301.2	0.5	0.5	-140.07	-146.4	-122.5	190.9	189.9	0.97	196.148	
400.0	400.0	400.7	400.6	0.7	0.7	-141.02	-148.1	-119.8	190.5	189.1	1.32	144.106	
407.5	407.5	408.1	408.0	0.7	0.7	130.35	-148.3	-119.5	190.5	189.1	1.35	140.888	CC, ES
500.0	500.0	498.1	497.8	0.8	0.9	128.92	-152.6	-114.6	192.5	190.8	1.70	113.436	
600.0	599.6	593.7	592.7	1.0	1.1	127.19	-161.1	-106.9	199.7	197.6	2.13	93.838	
700.0	698.8	690.1	687.6	1.3	1.4	125.19	-173.9	-96.1	211.9	209.2	2.66	79.564	
800.0	797.1	788.5	783.4	1.6	1.8	123.04	-190.6	-81.1	227.9	224.6	3.33	68.365	
900.0	895.3	888.5	879.5	2.0	2.3	120.32	-209.6	-61.1	244.1	240.0	4.11	59.358	
1,000.0	993.5	986.7	973.2	2.3	2.8	117.39	-229.2	-39.1	260.5	255.6	4.94	52.747	
1,100.0	1,091.7	1,085.2	1,066.6	2.7	3.4	114.43	-249.4	-15.3	277.5	271.7	5.80	47.842	
1,200.0	1,189.9	1,183.4	1,159.4	3.0	4.0	111.59	-269.7	9.6	294.8	288.1	6.68	44.127	
1,300.0	1,288.1	1,280.5	1,251.1	3.4	4.6	108.98	-289.8	34.7	312.6	305.0	7.55	41.376	
1,400.0	1,386.3	1,376.8	1,341.8	3.8	5.2	106.65	-310.2	59.7	331.4	323.0	8.41	39.417	
1,500.0	1,484.5	1,475.8	1,435.7	4.1	5.7	104.81	-330.5	83.7	350.4	341.2	9.23	37.967	
1,600.0	1,582.7	1,573.2	1,528.7	4.5	6.3	103.57	-349.8	105.0	369.5	359.5	10.03	36.839	
1,700.0	1,680.8	1,670.5	1,621.5	4.9	6.8	102.43	-369.4	126.5	389.1	378.2	10.83	35.909	
1,800.0	1,779.0	1,769.8	1,716.2	5.3	7.4	101.29	-389.3	149.0	408.6	396.9	11.64	35.096	
1,900.0	1,877.2	1,867.8	1,809.7	5.6	7.9	100.34	-408.6	170.8	427.9	415.5	12.43	34.417	
2,000.0	1,975.4	1,971.1	1,908.5	6.0	8.5	99.43	-428.6	193.8	447.0	433.7	13.25	33.732	
2,100.0	2,073.6	2,054.7	1,988.4	6.4	8.9	98.82	-445.1	211.7	466.7	452.8	13.95	33.451	
2,200.0	2,171.8	2,149.3	2,078.8	6.8	9.5	98.34	-465.9	230.5	488.8	474.1	14.71	33.232	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-137.87	-149.0	-134.7	200.9				
100.0	100.0	100.3	100.3	0.1	0.1	-137.89	-149.0	-134.7	200.8	200.5	0.28	726.409	
200.0	200.0	201.3	201.3	0.3	0.3	-138.02	-149.0	-134.1	200.4	199.8	0.62	321.339	
255.5	255.5	255.5	255.5	0.4	0.4	-138.21	-149.3	-133.4	200.2	199.4	0.82	245.582	CC, ES
300.0	300.0	298.1	298.1	0.5	0.5	-138.57	-150.2	-132.6	200.4	199.4	0.97	207.213	
400.0	400.0	391.2	390.9	0.7	0.7	-140.28	-155.9	-129.6	202.9	201.6	1.31	155.436	
500.0	500.0	485.1	484.1	0.8	0.9	128.65	-166.8	-124.8	210.5	208.8	1.72	122.042	
600.0	599.6	579.9	577.2	1.0	1.2	125.86	-182.3	-117.4	224.0	221.8	2.21	101.436	
700.0	698.8	675.4	670.1	1.3	1.6	122.98	-201.8	-106.5	242.2	239.4	2.80	86.609	
800.0	797.1	766.9	757.9	1.6	2.1	120.50	-223.8	-93.2	265.0	261.6	3.47	76.269	
900.0	895.3	855.7	841.7	2.0	2.7	118.13	-248.9	-77.9	291.1	286.8	4.22	68.956	
1,000.0	993.5	938.0	917.9	2.3	3.2	115.61	-275.4	-61.7	320.3	315.3	4.98	64.250	
1,100.0	1,091.7	1,025.0	996.8	2.7	3.9	112.74	-306.8	-42.6	352.9	347.1	5.82	60.684	
1,200.0	1,189.9	1,114.1	1,076.1	3.0	4.7	109.87	-341.3	-21.3	388.2	381.5	6.65	58.339	
1,300.0	1,288.1	1,203.7	1,155.3	3.4	5.4	107.27	-376.7	1.1	424.8	417.3	7.49	56.715	
1,400.0	1,386.3	1,293.8	1,234.6	3.8	6.2	104.91	-412.7	24.4	462.4	454.0	8.33	55.520	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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				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	-139.96	-182.8	-153.7	238.8					
100.0	100.0	101.7	101.7	0.1	0.2	-139.95	-182.6	-153.4	238.5	238.2	0.29	816.413		
200.0	200.0	202.0	202.0	0.3	0.3	-139.95	-181.8	-152.8	237.4	236.8	0.63	378.611		
241.8	241.8	241.8	241.8	0.4	0.4	-140.00	-181.7	-152.5	237.2	236.4	0.77	308.399	CC, ES	
300.0	300.0	295.9	295.8	0.5	0.5	-140.17	-182.5	-152.2	237.7	236.7	0.96	246.608		
400.0	400.0	386.0	385.9	0.7	0.6	-140.73	-186.6	-152.6	241.5	240.2	1.30	186.270		
500.0	500.0	478.0	477.4	0.8	0.8	130.07	-195.4	-154.7	251.9	250.2	1.65	153.083		
600.0	599.6	560.8	559.3	1.0	1.1	129.51	-207.5	-157.1	270.0	267.9	2.01	134.611		
700.0	698.8	644.6	641.4	1.3	1.4	128.97	-223.8	-159.6	295.3	292.9	2.41	122.385		
800.0	797.1	725.4	719.8	1.6	1.8	128.79	-243.5	-163.0	328.0	325.1	2.87	114.274		
900.0	895.3	803.9	794.7	2.0	2.2	128.85	-266.1	-166.9	365.3	361.9	3.36	108.600		
1,000.0	993.5	883.8	870.0	2.3	2.6	128.62	-292.6	-171.3	406.1	402.2	3.88	104.571		
1,100.0	1,091.7	968.5	949.2	2.7	3.2	128.32	-322.3	-176.6	448.7	444.3	4.43	101.226		
1,200.0	1,189.9	1,055.8	1,030.4	3.0	3.7	127.96	-353.9	-181.8	492.2	487.2	5.00	98.364	SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-137.97	-183.9	-165.8	247.6					
100.0	100.0	100.9	100.9	0.1	0.2	-137.95	-183.7	-165.8	247.5	247.2	0.29	853.124		
200.0	200.0	200.7	200.7	0.3	0.3	-137.89	-183.2	-165.6	247.0	246.3	0.62	396.435		
216.0	216.0	216.1	216.1	0.3	0.3	-137.87	-183.1	-165.7	246.9	246.3	0.68	364.305 CC, ES		
300.0	300.0	294.0	294.0	0.5	0.5	-137.81	-183.7	-166.5	248.0	247.0	0.96	258.329		
400.0	400.0	382.1	381.9	0.7	0.6	-137.84	-187.1	-169.4	253.0	251.7	1.30	195.282		
500.0	500.0	468.2	467.7	0.8	0.8	133.64	-193.6	-174.6	264.5	262.8	1.62	163.722		
600.0	599.6	556.4	555.0	1.0	1.1	133.82	-204.2	-181.4	283.9	281.9	1.96	144.941		
700.0	698.8	647.8	645.0	1.3	1.4	134.25	-217.7	-189.2	309.6	307.2	2.33	132.609		
800.0	797.1	739.6	735.2	1.6	1.7	135.24	-232.3	-197.8	339.9	337.1	2.74	123.915		
900.0	895.3	832.2	826.1	2.0	2.0	136.45	-248.0	-206.4	371.8	368.6	3.17	117.170		
1,000.0	993.5	926.7	918.7	2.3	2.4	137.48	-264.1	-215.4	404.1	400.5	3.61	111.901		
1,100.0	1,091.7	1,021.0	1,011.2	2.7	2.7	138.48	-279.6	-224.9	436.5	432.4	4.05	107.732		
1,200.0	1,189.9	1,112.4	1,100.9	3.0	3.1	139.32	-294.7	-234.3	469.2	464.7	4.49	104.504 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad (1st Occupation) - Shideler 30-3B - OH - FINAL												Offset Site Error:	0.0 ft		
Survey Program: 160-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (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	-137.77	-170.8	-155.1	230.7						
100.0	100.0	100.2	100.2	0.1	0.2	-137.76	-170.8	-155.1	230.7	230.4	0.29	803.971			
200.0	200.0	200.6	200.6	0.3	0.3	-137.73	-170.6	-155.1	230.6	229.9	0.62	370.467			
209.8	209.8	209.8	209.8	0.3	0.3	-137.72	-170.6	-155.1	230.5	229.9	0.66	351.657 CC, ES			
300.0	300.0	294.0	294.0	0.5	0.5	-137.57	-171.0	-156.3	231.7	230.8	0.96	241.271			
400.0	400.0	382.9	382.8	0.7	0.6	-137.20	-173.2	-160.4	236.7	235.4	1.30	182.089			
500.0	500.0	470.0	469.4	0.8	0.8	134.87	-178.2	-167.6	248.3	246.7	1.62	153.176			
600.0	599.6	554.9	553.3	1.0	1.1	135.71	-186.5	-177.0	268.7	266.7	1.96	137.343			
700.0	698.8	638.0	634.9	1.3	1.4	136.82	-197.3	-189.0	297.3	295.0	2.31	128.711			
800.0	797.1	716.7	711.4	1.6	1.8	138.42	-209.0	-203.5	333.8	331.1	2.68	124.695			
900.0	895.3	790.5	782.3	2.0	2.1	140.15	-221.9	-219.4	375.5	372.4	3.04	123.484 SF			
1,000.0	993.5	859.6	847.6	2.3	2.6	141.53	-235.7	-237.0	421.7	418.3	3.39	124.220			
1,100.0	1,091.7	924.8	908.3	2.7	3.0	142.65	-250.4	-255.9	472.3	468.5	3.74	126.178			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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						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	-137.48	-135.9	-124.6	184.3					
100.0	100.0	101.1	101.1	0.1	0.1	-137.52	-135.7	-124.3	184.0	183.8	0.28	662.288		
196.1	196.1	196.1	196.1	0.3	0.3	-137.53	-135.4	-123.9	183.5	182.9	0.61	301.826 CC		
200.0	200.0	199.9	199.9	0.3	0.3	-137.53	-135.4	-123.9	183.5	182.9	0.62	295.297 ES		
300.0	300.0	294.0	294.0	0.5	0.5	-137.00	-135.2	-126.1	185.0	184.0	0.96	192.642		
400.0	400.0	386.0	385.7	0.7	0.7	-135.92	-136.5	-132.2	190.5	189.2	1.31	145.846		
500.0	500.0	474.7	473.9	0.8	0.9	136.97	-140.1	-141.4	202.6	201.0	1.64	123.359		
600.0	599.6	563.6	561.7	1.0	1.1	139.16	-145.6	-154.4	223.4	221.4	2.00	111.814		
700.0	698.8	650.0	646.3	1.3	1.5	141.85	-151.6	-170.5	252.2	249.8	2.37	106.536		
800.0	797.1	730.2	724.1	1.6	1.8	144.72	-157.9	-188.8	289.1	286.4	2.73	105.795 SF		
900.0	895.3	805.3	796.2	2.0	2.2	147.45	-164.9	-208.8	331.6	328.6	3.08	107.536		
1,000.0	993.5	877.3	864.2	2.3	2.7	149.67	-172.6	-231.1	378.9	375.4	3.42	110.767		
1,100.0	1,091.7	948.7	930.7	2.7	3.2	151.53	-181.0	-255.6	429.9	426.2	3.75	114.786		
1,200.0	1,189.9	1,025.7	1,001.8	3.0	3.7	153.18	-190.8	-283.6	483.3	479.2	4.07	118.758		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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						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	-139.73	-169.4	-143.5	222.0				
100.0	100.0	102.0	102.0	0.1	0.2	-139.71	-169.0	-143.2	221.5	221.2	0.29	755.285	
200.0	200.0	203.0	203.0	0.3	0.3	-139.65	-167.8	-142.6	220.2	219.6	0.63	349.497	
271.1	271.1	271.2	271.1	0.4	0.4	-139.74	-167.6	-142.0	219.7	218.8	0.87	251.613	CC, ES
300.0	300.0	298.4	298.3	0.5	0.5	-139.88	-168.0	-141.6	219.8	218.8	0.97	226.526	
400.0	400.0	389.3	389.2	0.7	0.6	-140.86	-172.3	-140.2	222.4	221.1	1.30	170.787	
500.0	500.0	480.9	480.3	0.8	0.8	129.33	-181.0	-139.3	230.9	229.2	1.67	138.594	
600.0	599.6	573.3	571.8	1.0	1.1	128.01	-194.1	-137.1	245.7	243.6	2.08	118.374	
700.0	698.8	661.0	657.8	1.3	1.4	126.64	-210.9	-133.7	266.7	264.2	2.55	104.779	
800.0	797.1	749.3	743.2	1.6	1.8	125.45	-232.3	-128.9	293.9	290.8	3.11	94.564	
900.0	895.3	832.1	822.4	2.0	2.3	124.43	-256.3	-123.8	325.1	321.4	3.71	87.682	
1,000.0	993.5	914.7	900.1	2.3	2.8	123.19	-283.8	-118.4	359.9	355.5	4.35	82.742	
1,100.0	1,091.7	996.6	975.7	2.7	3.3	121.72	-314.4	-112.0	397.6	392.6	5.03	78.969	
1,200.0	1,189.9	1,075.3	1,047.0	3.0	3.9	120.05	-347.0	-104.2	438.1	432.3	5.73	76.414	
1,300.0	1,288.1	1,152.2	1,115.1	3.4	4.6	118.38	-381.4	-95.8	481.6	475.1	6.43	74.874	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-139.60	-157.4	-133.9	206.6				
100.0	100.0	100.1	100.1	0.1	0.1	-139.67	-157.5	-133.7	206.6	206.3	0.28	727.825	
198.1	198.1	198.1	198.1	0.3	0.3	-139.91	-157.9	-133.0	206.4	205.8	0.61	335.771 CC	
200.0	200.0	200.0	200.0	0.3	0.3	-139.92	-157.9	-132.9	206.4	205.8	0.62	332.276 ES	
300.0	300.0	295.9	295.8	0.5	0.5	-140.74	-160.5	-131.2	207.4	206.4	0.96	215.249	
400.0	400.0	390.0	389.7	0.7	0.7	-142.41	-166.8	-128.4	210.8	209.5	1.31	161.258	
500.0	500.0	482.6	481.6	0.8	0.9	126.82	-177.6	-124.4	219.2	217.4	1.72	127.106	
600.0	599.6	576.3	573.7	1.0	1.2	124.48	-192.8	-118.3	233.5	231.3	2.18	107.262	
700.0	698.8	667.4	662.4	1.3	1.6	122.14	-211.9	-109.7	253.5	250.7	2.72	93.213	
800.0	797.1	754.0	745.5	1.6	2.0	120.11	-234.1	-99.2	278.8	275.5	3.35	83.177	
900.0	895.3	846.0	832.1	2.0	2.6	118.03	-261.9	-85.8	307.9	303.8	4.09	75.308	
1,000.0	993.5	931.5	911.1	2.3	3.2	115.74	-291.0	-71.0	339.5	334.6	4.85	69.966	
1,100.0	1,091.7	1,014.3	986.2	2.7	3.9	113.32	-321.8	-54.4	373.7	368.1	5.64	66.304	
1,200.0	1,189.9	1,093.1	1,056.0	3.0	4.5	110.97	-354.0	-37.2	411.4	405.0	6.41	64.145	
1,300.0	1,288.1	1,175.6	1,127.7	3.4	5.3	108.57	-390.2	-18.0	452.3	445.1	7.21	62.746	
1,400.0	1,386.3	1,262.2	1,202.1	3.8	6.1	106.29	-429.0	3.0	494.6	486.6	8.01	61.739 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-137.03	-123.1	-114.7	168.3					
100.0	100.0	100.0	100.0	0.1	0.1	-137.06	-123.2	-114.6	168.2	168.0	0.28	609.247		
154.6	154.6	154.6	154.6	0.2	0.2	-137.07	-123.2	-114.6	168.2	167.8	0.46	363.409 CC		
200.0	200.0	199.4	199.4	0.3	0.3	-137.05	-123.2	-114.7	168.3	167.7	0.62	271.330 ES		
300.0	300.0	294.0	294.0	0.5	0.5	-136.48	-123.1	-116.9	169.9	168.9	0.96	176.741		
400.0	400.0	386.0	385.7	0.7	0.7	-134.96	-123.4	-123.5	175.2	173.9	1.31	133.788		
500.0	500.0	478.0	476.9	0.8	0.9	139.35	-123.7	-135.5	186.9	185.2	1.68	111.141		
600.0	599.6	569.0	566.4	1.0	1.2	143.28	-124.4	-152.2	207.6	205.5	2.07	100.167		
700.0	698.8	651.0	646.3	1.3	1.6	146.78	-126.5	-170.3	237.6	235.2	2.44	97.349 SF		
800.0	797.1	730.5	723.1	1.6	2.0	150.00	-130.3	-190.6	276.8	274.0	2.80	98.850		
900.0	895.3	805.4	794.5	2.0	2.4	152.85	-135.0	-212.7	321.5	318.4	3.14	102.412		
1,000.0	993.5	877.0	861.8	2.3	2.9	155.13	-140.1	-236.8	370.8	367.3	3.47	106.971		
1,100.0	1,091.7	938.0	918.1	2.7	3.3	156.87	-144.3	-259.5	423.9	420.1	3.77	112.474		
1,200.0	1,189.9	1,011.5	985.0	3.0	3.9	158.76	-149.2	-289.6	480.2	476.1	4.09	117.483		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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		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	-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	-53.81	29.1	-39.8	49.4	48.4	0.97	50.855		
400.0	400.0	400.0	400.0	0.7	0.7	-53.81	29.1	-39.8	49.4	48.0	1.32	37.402 CC, ES		
500.0	500.0	497.4	497.4	0.8	0.8	-142.98	31.2	-41.2	53.8	52.2	1.67	32.311 SF		
600.0	599.6	593.7	593.4	1.0	1.0	-144.39	37.3	-45.2	67.2	65.2	2.02	33.266		
700.0	698.8	687.7	686.6	1.3	1.3	-145.72	47.2	-51.7	89.3	86.9	2.39	37.362		
800.0	797.1	778.4	776.0	1.6	1.6	-146.75	60.3	-60.4	119.7	116.9	2.79	42.960		
900.0	895.3	866.4	861.7	2.0	1.9	-147.03	76.4	-71.0	154.9	151.7	3.20	48.358		
1,000.0	993.5	957.4	949.9	2.3	2.3	-146.80	95.5	-83.6	192.8	189.1	3.64	52.936		
1,100.0	1,091.7	1,049.9	1,039.4	2.7	2.7	-146.63	115.0	-96.4	230.8	226.7	4.09	56.401		
1,200.0	1,189.9	1,142.4	1,128.9	3.0	3.1	-146.51	134.4	-109.3	268.8	264.2	4.55	59.097		
1,300.0	1,288.1	1,234.9	1,218.4	3.4	3.5	-146.41	153.9	-122.1	306.8	301.8	5.01	61.245		
1,400.0	1,386.3	1,327.4	1,307.9	3.8	4.0	-146.34	173.3	-134.9	344.8	339.3	5.47	62.991		
1,500.0	1,484.5	1,419.9	1,397.4	4.1	4.4	-146.28	192.8	-147.8	382.8	376.9	5.94	64.436		
1,600.0	1,582.7	1,512.4	1,486.9	4.5	4.8	-146.23	212.2	-160.6	420.8	414.4	6.41	65.649		
1,700.0	1,680.8	1,604.9	1,576.4	4.9	5.3	-146.19	231.7	-173.4	458.8	451.9	6.88	66.681		
1,800.0	1,779.0	1,697.4	1,666.0	5.3	5.7	-146.16	251.1	-186.3	496.8	489.5	7.35	67.569		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-53.68	48.8	-66.4	82.4					
100.0	100.0	100.0	100.0	0.1	0.1	-53.68	48.8	-66.4	82.4	82.1	0.27	302.608		
200.0	200.0	200.0	200.0	0.3	0.3	-53.68	48.8	-66.4	82.4	81.8	0.62	132.603 CC, ES		
300.0	300.0	296.9	296.9	0.5	0.5	-53.62	49.7	-67.4	83.8	82.8	0.97	86.615		
400.0	400.0	392.3	392.1	0.7	0.7	-53.37	53.5	-72.0	90.0	88.7	1.34	67.377		
500.0	500.0	486.7	485.9	0.8	0.9	-142.13	60.3	-80.1	103.3	101.6	1.65	62.710 SF		
600.0	599.6	580.1	578.1	1.0	1.2	-143.39	69.9	-91.5	125.3	123.3	1.99	62.935		
700.0	698.8	676.0	672.6	1.3	1.5	-145.21	80.6	-104.2	152.9	150.6	2.35	64.956		
800.0	797.1	770.6	765.7	1.6	1.8	-147.34	91.2	-116.7	184.6	181.9	2.73	67.611		
900.0	895.3	864.9	858.5	2.0	2.2	-149.25	101.7	-129.1	217.4	214.3	3.12	69.713		
1,000.0	993.5	959.1	951.4	2.3	2.5	-150.66	112.2	-141.6	250.4	246.9	3.51	71.336		
1,100.0	1,091.7	1,053.4	1,044.2	2.7	2.8	-151.74	122.7	-154.1	283.5	279.6	3.90	72.627		
1,200.0	1,189.9	1,147.6	1,137.0	3.0	3.1	-152.60	133.2	-166.6	316.6	312.3	4.30	73.678		
1,300.0	1,288.1	1,241.9	1,229.9	3.4	3.5	-153.29	143.7	-179.1	349.8	345.1	4.69	74.550		
1,400.0	1,386.3	1,336.1	1,322.7	3.8	3.8	-153.86	154.2	-191.5	383.0	377.9	5.09	75.285		
1,500.0	1,484.5	1,430.4	1,415.5	4.1	4.1	-154.34	164.7	-204.0	416.3	410.8	5.48	75.913		
1,600.0	1,582.7	1,524.6	1,508.4	4.5	4.4	-154.76	175.2	-216.5	449.5	443.7	5.88	76.455		
1,700.0	1,680.8	1,618.9	1,601.2	4.9	4.8	-155.11	185.7	-229.0	482.8	476.6	6.28	76.928		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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: O-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	-53.47	9.8	-13.3	16.5					
100.0	100.0	100.0	100.0	0.1	0.1	-53.47	9.8	-13.3	16.5	16.2	0.27	60.682		
200.0	200.0	200.0	200.0	0.3	0.3	-53.47	9.8	-13.3	16.5	15.9	0.62	26.591		
300.0	300.0	300.0	300.0	0.5	0.5	-53.47	9.8	-13.3	16.5	15.6	0.97	17.026		
400.0	400.0	400.3	400.3	0.7	0.7	-44.80	11.0	-10.9	15.5	14.2	1.32	11.719		
445.1	445.1	445.4	445.3	0.7	0.8	-124.34	12.2	-8.3	15.1	13.6	1.50	10.050 CC, ES		
500.0	500.0	500.3	499.9	0.8	0.9	-112.70	14.4	-3.8	15.7	14.0	1.72	9.148 SF		
600.0	599.6	600.0	598.8	1.0	1.1	-95.59	20.1	7.9	20.0	17.8	2.18	9.158		
700.0	698.8	699.1	696.2	1.3	1.5	-86.39	27.9	24.1	27.4	24.7	2.73	10.026		
800.0	797.1	798.7	793.7	1.6	1.9	-85.75	36.8	42.5	35.9	32.5	3.38	10.619		
900.0	895.3	898.3	891.2	2.0	2.2	-86.85	45.6	60.9	44.3	40.2	4.07	10.880		
1,000.0	993.5	998.0	988.8	2.3	2.6	-87.60	54.5	79.2	52.6	47.9	4.78	11.021		
1,100.0	1,091.7	1,097.6	1,086.3	2.7	3.0	-88.14	63.4	97.6	61.1	55.6	5.50	11.102		
1,200.0	1,189.9	1,197.3	1,183.8	3.0	3.4	-88.55	72.2	116.0	69.5	63.2	6.23	11.151		
1,300.0	1,288.1	1,296.9	1,281.4	3.4	3.8	-88.88	81.1	134.3	77.9	70.9	6.96	11.181		
1,400.0	1,386.3	1,396.6	1,378.9	3.8	4.2	-89.14	90.0	152.7	86.3	78.6	7.70	11.200		
1,500.0	1,484.5	1,496.2	1,476.4	4.1	4.6	-89.35	98.8	171.1	94.7	86.2	8.45	11.212		
1,600.0	1,582.7	1,595.9	1,574.0	4.5	5.0	-89.53	107.7	189.4	103.1	93.9	9.19	11.219		
1,700.0	1,680.8	1,695.5	1,671.5	4.9	5.4	-89.68	116.6	207.8	111.5	101.6	9.94	11.224		
1,800.0	1,779.0	1,795.2	1,769.0	5.3	5.8	-89.81	125.4	226.2	119.9	109.3	10.68	11.227		
1,900.0	1,877.2	1,894.8	1,866.6	5.6	6.2	-89.92	134.3	244.5	128.4	116.9	11.43	11.228		
2,000.0	1,975.4	1,994.4	1,964.1	6.0	6.6	-90.02	143.2	262.9	136.8	124.6	12.18	11.228		
2,100.0	2,073.6	2,094.1	2,061.7	6.4	7.0	-90.11	152.0	281.3	145.2	132.3	12.93	11.228		
2,200.0	2,171.8	2,193.7	2,159.2	6.8	7.4	-90.19	160.9	299.6	153.6	139.9	13.68	11.227		
2,300.0	2,270.0	2,293.4	2,256.7	7.1	7.8	-90.26	169.8	318.0	162.0	147.6	14.43	11.227		
2,400.0	2,368.2	2,393.0	2,354.3	7.5	8.2	-90.32	178.6	336.4	170.4	155.3	15.18	11.225		
2,500.0	2,466.4	2,492.7	2,451.8	7.9	8.6	-90.38	187.5	354.7	178.9	162.9	15.94	11.224		
2,600.0	2,564.5	2,592.3	2,549.3	8.3	9.0	-90.43	196.4	373.1	187.3	170.6	16.69	11.223		
2,700.0	2,662.7	2,692.0	2,646.9	8.7	9.4	-90.48	205.2	391.5	195.7	178.3	17.44	11.221		
2,800.0	2,760.9	2,791.6	2,744.4	9.0	9.8	-90.52	214.1	409.8	204.1	185.9	18.19	11.220		
2,900.0	2,859.1	2,891.2	2,841.9	9.4	10.2	-90.56	223.0	428.2	212.5	193.6	18.95	11.218		
3,000.0	2,957.3	2,990.9	2,939.5	9.8	10.6	-90.60	231.8	446.6	221.0	201.3	19.70	11.217		
3,100.0	3,055.5	3,090.5	3,037.0	10.2	11.0	-90.63	240.7	464.9	229.4	208.9	20.45	11.216		
3,200.0	3,153.7	3,190.2	3,134.5	10.5	11.4	-90.66	249.6	483.3	237.8	216.6	21.20	11.214		
3,300.0	3,251.9	3,289.8	3,232.1	10.9	11.8	-90.69	258.4	501.7	246.2	224.3	21.96	11.213		
3,400.0	3,350.1	3,389.5	3,329.6	11.3	12.2	-90.72	267.3	520.0	254.6	231.9	22.71	11.212		
3,500.0	3,448.2	3,489.1	3,427.1	11.7	12.6	-90.75	276.2	538.4	263.1	239.6	23.47	11.210		
3,600.0	3,546.4	3,588.8	3,524.7	12.1	13.0	-90.77	285.1	556.8	271.5	247.3	24.22	11.209		
3,700.0	3,644.6	3,688.4	3,622.2	12.4	13.4	-90.80	293.9	575.1	279.9	254.9	24.97	11.208		
3,800.0	3,742.8	3,788.0	3,719.8	12.8	13.8	-90.82	302.8	593.5	288.3	262.6	25.73	11.207		
3,900.0	3,841.0	3,887.7	3,817.3	13.2	14.2	-90.84	311.7	611.9	296.7	270.3	26.48	11.205		
4,000.0	3,939.2	3,987.3	3,914.8	13.6	14.6	-90.86	320.5	630.2	305.2	277.9	27.24	11.204		
4,100.0	4,037.4	4,087.0	4,012.4	13.9	15.0	-90.88	329.4	648.6	313.6	285.6	27.99	11.203		
4,200.0	4,135.6	4,186.6	4,109.9	14.3	15.4	-90.89	338.3	667.0	322.0	293.2	28.74	11.202		
4,300.0	4,233.8	4,286.3	4,207.4	14.7	15.8	-90.91	347.1	685.3	330.4	300.9	29.50	11.201		
4,400.0	4,331.9	4,385.9	4,305.0	15.1	16.2	-90.92	356.0	703.7	338.8	308.6	30.25	11.200		
4,500.0	4,430.1	4,485.6	4,402.5	15.5	16.6	-90.94	364.9	722.1	347.3	316.2	31.01	11.199		
4,600.0	4,528.3	4,585.2	4,500.0	15.8	17.0	-90.95	373.7	740.4	355.7	323.9	31.76	11.198		
4,700.0	4,626.5	4,684.9	4,597.6	16.2	17.4	-90.97	382.6	758.8	364.1	331.6	32.52	11.198		
4,800.0	4,724.8	4,787.6	4,698.2	16.6	17.8	-91.08	391.5	777.2	372.3	339.0	33.26	11.194		
4,900.0	4,823.6	4,892.7	4,801.9	16.9	18.1	-91.26	399.0	792.9	379.1	345.2	33.88	11.189		
5,000.0	4,922.8	4,998.0	4,906.3	17.1	18.4	-91.38	405.0	805.1	384.4	350.0	34.39	11.177		

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 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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		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	5,022.4	5,103.4	5,011.2	17.3	18.6	-91.47	409.2	814.0	388.2	353.4	34.80	11.158		
5,200.0	5,122.3	5,208.9	5,116.6	17.5	18.8	-91.50	411.8	819.3	390.6	355.5	35.09	11.130		
5,300.0	5,222.3	5,314.5	5,222.1	17.5	18.9	-2.98	412.7	821.2	391.4	356.1	35.28	11.092		
5,400.0	5,322.3	5,414.6	5,322.3	17.6	18.9	-2.98	412.7	821.2	391.4	355.9	35.47	11.035		
5,500.0	5,422.3	5,514.6	5,422.3	17.7	19.0	-2.98	412.7	821.2	391.4	355.7	35.65	10.977		
5,600.0	5,522.3	5,614.6	5,522.3	17.8	19.1	-2.98	412.7	821.2	391.4	355.5	35.84	10.919		
5,700.0	5,622.3	5,714.6	5,622.3	17.9	19.2	-2.98	412.7	821.2	391.4	355.3	36.03	10.861		
5,800.0	5,722.3	5,814.6	5,722.3	18.0	19.3	-2.98	412.7	821.2	391.4	355.1	36.23	10.803		
5,900.0	5,822.3	5,914.6	5,822.3	18.1	19.4	-2.98	412.7	821.2	391.4	354.9	36.42	10.745		
6,000.0	5,922.3	6,014.6	5,922.3	18.2	19.5	-2.98	412.7	821.2	391.4	354.7	36.62	10.687		
6,100.0	6,022.3	6,114.6	6,022.3	18.3	19.6	-2.98	412.7	821.2	391.4	354.5	36.82	10.629		
6,200.0	6,122.3	6,214.6	6,122.3	18.4	19.7	-2.98	412.7	821.2	391.4	354.3	37.02	10.571		
6,300.0	6,222.3	6,314.6	6,222.3	18.5	19.8	-2.98	412.7	821.2	391.4	354.1	37.23	10.513		
6,400.0	6,322.3	6,414.6	6,322.3	18.6	19.9	-2.98	412.7	821.2	391.4	353.9	37.43	10.455		
6,500.0	6,422.3	6,514.6	6,422.3	18.7	20.0	-2.98	412.7	821.2	391.4	353.7	37.64	10.397		
6,600.0	6,522.3	6,614.6	6,522.3	18.8	20.1	-2.98	412.7	821.2	391.4	353.5	37.85	10.339		
6,700.0	6,622.3	6,714.6	6,622.3	18.9	20.2	-2.98	412.7	821.2	391.4	353.3	38.07	10.281		
6,800.0	6,722.3	6,814.6	6,722.3	19.1	20.3	-2.98	412.7	821.2	391.4	353.1	38.28	10.223		
6,900.0	6,822.3	6,914.6	6,822.3	19.2	20.4	-2.98	412.7	821.2	391.4	352.9	38.50	10.165		
7,000.0	6,922.3	7,014.6	6,922.3	19.3	20.5	-2.98	412.7	821.2	391.4	352.6	38.72	10.108		
7,100.0	7,022.3	7,114.6	7,022.3	19.4	20.6	-2.98	412.7	821.2	391.4	352.4	38.94	10.051		
7,200.0	7,122.3	7,214.6	7,122.3	19.5	20.7	-2.98	412.7	821.2	391.4	352.2	39.16	9.993		
7,300.0	7,222.3	7,314.6	7,222.3	19.6	20.8	-2.98	412.7	821.2	391.4	352.0	39.39	9.937		
7,400.0	7,322.3	7,414.6	7,322.3	19.7	20.9	-2.98	412.7	821.2	391.4	351.7	39.61	9.880		
7,500.0	7,422.3	7,514.6	7,422.3	19.8	21.0	-2.98	412.7	821.2	391.4	351.5	39.84	9.823		
7,600.0	7,522.3	7,614.6	7,522.3	19.9	21.1	-2.98	412.7	821.2	391.4	351.3	40.07	9.767		
7,653.7	7,576.0	7,668.3	7,576.0	20.0	21.2	-2.98	412.7	821.2	391.4	351.2	40.19	9.737		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-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		
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	300.0	300.0	0.5	0.5	-53.73	39.0	-53.1	65.9	64.9	0.97	67.881		
333.4	333.4	333.4	333.4	0.5	0.5	-53.73	39.0	-53.1	65.9	64.8	1.09	60.609 CC, ES		
400.0	400.0	398.4	398.4	0.7	0.7	-53.58	39.5	-53.5	66.5	65.2	1.32	50.479		
500.0	500.0	494.8	494.6	0.8	0.8	-142.12	43.3	-56.4	73.4	71.7	1.66	44.178 SF		
600.0	599.6	589.6	589.0	1.0	1.1	-143.09	50.9	-62.3	89.2	87.2	2.01	44.301		
700.0	698.8	681.9	680.2	1.3	1.3	-144.30	61.8	-70.6	113.8	111.4	2.38	47.756		
800.0	797.1	770.6	767.2	1.6	1.6	-145.46	75.5	-81.2	146.5	143.8	2.77	52.854		
900.0	895.3	856.3	850.4	2.0	2.0	-146.13	91.9	-93.8	184.2	181.0	3.18	57.882		
1,000.0	993.5	939.1	929.8	2.3	2.5	-146.19	110.4	-108.1	225.6	222.0	3.60	62.633		
1,100.0	1,091.7	1,018.7	1,005.2	2.7	2.9	-145.94	130.8	-123.8	270.6	266.6	4.03	67.165		
1,200.0	1,189.9	1,100.0	1,080.9	3.0	3.5	-145.49	154.2	-141.7	319.0	314.5	4.47	71.338		
1,300.0	1,288.1	1,168.5	1,143.7	3.4	4.0	-145.03	175.9	-158.4	370.5	365.6	4.90	75.614		
1,400.0	1,386.3	1,238.5	1,206.8	3.8	4.5	-144.52	199.9	-176.9	425.1	419.8	5.34	79.643		
1,500.0	1,484.5	1,300.0	1,261.3	4.1	5.1	-144.05	222.4	-194.2	482.5	476.8	5.76	83.846		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-64.76	17.8	-37.9	41.8					
100.0	100.0	100.0	100.0	0.1	0.1	-64.76	17.8	-37.9	41.8	41.6	0.27	153.702		
200.0	200.0	200.0	200.0	0.3	0.3	-64.76	17.8	-37.9	41.8	41.2	0.62	67.353		
300.0	300.0	300.0	300.0	0.5	0.5	-64.76	17.8	-37.9	41.8	40.9	0.97	43.125		
400.0	400.0	400.3	400.3	0.7	0.7	-61.17	20.0	-36.3	41.4	40.1	1.32	31.396		
413.9	413.9	414.3	414.2	0.7	0.7	-148.65	20.6	-35.9	41.4	40.0	1.38	30.007 CC, ES		
500.0	500.0	500.2	499.8	0.8	0.9	-141.04	26.3	-31.7	43.2	41.5	1.71	25.225		
600.0	599.6	599.4	598.2	1.0	1.1	-131.65	36.8	-24.1	50.4	48.2	2.17	23.234		
700.0	698.8	697.6	694.7	1.3	1.5	-124.00	51.3	-13.7	63.0	60.3	2.72	23.176 SF		
800.0	797.1	794.5	789.0	1.6	1.9	-118.63	69.5	-0.6	80.6	77.3	3.38	23.884		
900.0	895.3	890.0	880.6	2.0	2.4	-113.45	91.1	15.1	101.4	97.3	4.11	24.687		
1,000.0	993.5	984.2	969.7	2.3	3.0	-108.21	116.1	33.1	125.3	120.4	4.86	25.782		
1,100.0	1,091.7	1,080.4	1,060.1	2.7	3.5	-104.08	142.8	52.4	150.9	145.2	5.61	26.885		
1,200.0	1,189.9	1,176.6	1,150.5	3.0	4.1	-101.14	169.4	71.6	176.9	170.6	6.35	27.843		
1,300.0	1,288.1	1,272.8	1,240.9	3.4	4.7	-98.96	196.1	90.9	203.3	196.2	7.09	28.662		
1,400.0	1,386.3	1,369.0	1,331.3	3.8	5.3	-97.28	222.8	110.1	230.0	222.1	7.83	29.364		
1,500.0	1,484.5	1,465.2	1,421.7	4.1	5.9	-95.94	249.4	129.4	256.7	248.2	8.57	29.969		
1,600.0	1,582.7	1,561.4	1,512.1	4.5	6.5	-94.86	276.1	148.7	283.6	274.3	9.30	30.493		
1,700.0	1,680.8	1,657.6	1,602.5	4.9	7.1	-93.97	302.8	167.9	310.5	300.5	10.03	30.951		
1,800.0	1,779.0	1,753.8	1,692.9	5.3	7.7	-93.22	329.4	187.2	337.5	326.8	10.77	31.354		
1,900.0	1,877.2	1,850.0	1,783.3	5.6	8.3	-92.58	356.1	206.4	364.6	353.1	11.50	31.712		
2,000.0	1,975.4	1,946.2	1,873.7	6.0	8.9	-92.03	382.8	225.7	391.7	379.4	12.23	32.030		
2,100.0	2,073.6	2,042.4	1,964.1	6.4	9.5	-91.54	409.4	245.0	418.8	405.8	12.96	32.315		
2,200.0	2,171.8	2,138.6	2,054.5	6.8	10.1	-91.12	436.1	264.2	445.9	432.2	13.69	32.572		
2,300.0	2,270.0	2,234.8	2,144.9	7.1	10.8	-90.75	462.8	283.5	473.1	458.7	14.42	32.805		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-53.48	19.7	-26.6	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-53.48	19.7	-26.6	33.0	32.8	0.27	121.355		
200.0	200.0	200.0	200.0	0.3	0.3	-53.48	19.7	-26.6	33.0	32.4	0.62	53.178		
300.0	300.0	300.2	300.2	0.5	0.5	-48.94	21.4	-24.6	32.6	31.7	0.97	33.607		
356.8	356.8	357.0	356.8	0.6	0.6	-42.23	24.0	-21.8	32.4	31.2	1.17	27.684 CC, ES		
400.0	400.0	400.0	399.6	0.7	0.7	-35.16	26.7	-18.8	32.7	31.3	1.32	24.725		
500.0	500.0	498.8	497.6	0.8	1.0	-106.94	35.3	-9.3	37.3	35.5	1.81	20.618 SF		
600.0	599.6	596.9	594.0	1.0	1.4	-95.75	47.3	3.9	47.8	45.5	2.29	20.853		
700.0	698.8	694.1	688.6	1.3	1.8	-89.82	62.4	20.5	62.7	59.8	2.85	21.974		
800.0	797.1	792.7	784.1	1.6	2.2	-88.62	78.9	38.8	79.0	75.5	3.50	22.558		
900.0	895.3	891.4	879.6	2.0	2.7	-88.70	95.5	57.0	95.3	91.1	4.19	22.725		
1,000.0	993.5	990.1	975.2	2.3	3.1	-88.75	112.1	75.3	111.7	106.8	4.90	22.767		
1,100.0	1,091.7	1,088.7	1,070.7	2.7	3.6	-88.79	128.7	93.6	128.0	122.4	5.62	22.756		
1,200.0	1,189.9	1,187.4	1,166.2	3.0	4.1	-88.82	145.3	111.9	144.3	138.0	6.35	22.723		
1,300.0	1,288.1	1,286.0	1,261.7	3.4	4.5	-88.84	161.9	130.1	160.6	153.6	7.08	22.682		
1,400.0	1,386.3	1,384.7	1,357.2	3.8	5.0	-88.86	178.5	148.4	177.0	169.2	7.82	22.640		
1,500.0	1,484.5	1,483.4	1,452.8	4.1	5.5	-88.88	195.1	166.7	193.3	184.7	8.55	22.598		
1,600.0	1,582.7	1,582.0	1,548.3	4.5	5.9	-88.89	211.7	185.0	209.6	200.3	9.29	22.558		
1,700.0	1,680.8	1,680.7	1,643.8	4.9	6.4	-88.90	228.2	203.3	226.0	215.9	10.03	22.521		
1,800.0	1,779.0	1,779.3	1,739.3	5.3	6.9	-88.91	244.8	221.5	242.3	231.5	10.77	22.487		
1,900.0	1,877.2	1,878.0	1,834.9	5.6	7.3	-88.92	261.4	239.8	258.6	247.1	11.52	22.455		
2,000.0	1,975.4	1,976.6	1,930.4	6.0	7.8	-88.93	278.0	258.1	274.9	262.7	12.26	22.426		
2,100.0	2,073.6	2,075.3	2,025.9	6.4	8.3	-88.94	294.6	276.4	291.3	278.3	13.00	22.399		
2,200.0	2,171.8	2,174.0	2,121.4	6.8	8.8	-88.94	311.2	294.6	307.6	293.9	13.75	22.374		
2,300.0	2,270.0	2,272.6	2,216.9	7.1	9.2	-88.95	327.8	312.9	323.9	309.4	14.49	22.351		
2,400.0	2,368.2	2,371.3	2,312.5	7.5	9.7	-88.96	344.4	331.2	340.3	325.0	15.24	22.330		
2,500.0	2,466.4	2,469.9	2,408.0	7.9	10.2	-88.96	361.0	349.5	356.6	340.6	15.98	22.310		
2,600.0	2,564.5	2,568.6	2,503.5	8.3	10.6	-88.96	377.5	367.7	372.9	356.2	16.73	22.292		
2,700.0	2,662.7	2,667.2	2,599.0	8.7	11.1	-88.97	394.1	386.0	389.3	371.8	17.47	22.275		
2,800.0	2,760.9	2,765.9	2,694.5	9.0	11.6	-88.97	410.7	404.3	405.6	387.4	18.22	22.259		
2,900.0	2,859.1	2,864.6	2,790.1	9.4	12.0	-88.98	427.3	422.6	421.9	402.9	18.97	22.244		
3,000.0	2,957.3	2,963.2	2,885.6	9.8	12.5	-88.98	443.9	440.8	438.2	418.5	19.71	22.230		
3,100.0	3,055.5	3,061.9	2,981.1	10.2	13.0	-88.98	460.5	459.1	454.6	434.1	20.46	22.217		
3,200.0	3,153.7	3,160.5	3,076.6	10.5	13.5	-88.98	477.1	477.4	470.9	449.7	21.21	22.205		
3,300.0	3,251.9	3,259.2	3,172.1	10.9	13.9	-88.99	493.7	495.7	487.2	465.3	21.95	22.193		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	-59.78	37.5	-64.4	74.5					
100.0	100.0	100.0	100.0	0.1	0.1	-59.78	37.5	-64.4	74.5	74.3	0.27	273.753		
200.0	200.0	200.0	200.0	0.3	0.3	-59.78	37.5	-64.4	74.5	73.9	0.62	119.959 CC, ES		
300.0	300.0	296.2	296.2	0.5	0.5	-59.55	39.0	-66.3	77.0	76.1	0.97	79.269		
400.0	400.0	391.9	391.6	0.7	0.7	-58.94	43.4	-72.0	84.5	83.2	1.36	62.344		
500.0	500.0	486.3	485.2	0.8	1.0	-147.20	50.6	-81.4	99.1	97.5	1.65	60.175 SF		
600.0	599.6	578.2	575.7	1.0	1.3	-147.85	60.3	-94.0	122.8	120.8	1.99	61.753		
700.0	698.8	666.3	661.7	1.3	1.7	-148.76	72.1	-109.3	155.3	153.0	2.34	66.486		
800.0	797.1	750.0	742.4	1.6	2.1	-149.79	85.5	-126.7	195.9	193.2	2.69	72.758		
900.0	895.3	830.1	818.7	2.0	2.6	-150.69	100.4	-146.0	241.3	238.2	3.06	78.830		
1,000.0	993.5	906.8	890.8	2.3	3.0	-151.15	116.4	-166.8	290.2	286.8	3.43	84.638		
1,100.0	1,091.7	980.2	958.7	2.7	3.6	-151.37	133.4	-188.9	342.4	338.6	3.80	90.132		
1,200.0	1,189.9	1,050.2	1,022.4	3.0	4.2	-151.42	151.1	-211.9	397.8	393.6	4.17	95.420		
1,300.0	1,288.1	1,117.0	1,082.1	3.4	4.7	-151.39	169.3	-235.5	456.0	451.5	4.53	100.579		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-71.95	8.0	-24.6	25.8				
100.0	100.0	100.0	100.0	0.1	0.1	-71.95	8.0	-24.6	25.8	25.6	0.27	94.933	
200.0	200.0	200.0	200.0	0.3	0.3	-71.95	8.0	-24.6	25.8	25.2	0.62	41.600	
300.0	300.0	300.0	300.0	0.5	0.5	-71.95	8.0	-24.6	25.8	24.9	0.97	26.636	
333.3	333.3	333.3	333.3	0.5	0.5	-71.95	8.0	-24.6	25.8	24.8	1.09	23.784 CC, ES	
400.0	400.0	399.3	399.3	0.7	0.7	-71.94	8.2	-25.2	26.5	25.2	1.32	20.091 SF	
500.0	500.0	497.5	497.3	0.8	0.8	-161.76	9.8	-30.0	34.1	32.5	1.66	20.513	
600.0	599.6	593.7	593.1	1.0	1.1	-163.92	12.9	-39.3	51.8	49.8	2.00	25.849	
700.0	698.8	686.7	685.0	1.3	1.3	-165.49	17.4	-52.6	79.2	76.9	2.33	33.928	
800.0	797.1	775.3	771.8	1.6	1.7	-166.49	23.0	-69.3	115.6	113.0	2.66	43.451	
900.0	895.3	860.2	854.2	2.0	2.1	-166.99	29.6	-88.8	157.2	154.2	2.99	52.525	
1,000.0	993.5	941.7	932.3	2.3	2.5	-167.12	36.9	-110.8	202.7	199.4	3.32	61.035	
1,100.0	1,091.7	1,019.6	1,006.0	2.7	3.0	-167.09	45.0	-134.7	251.8	248.2	3.64	69.107	
1,200.0	1,189.9	1,100.0	1,080.9	3.0	3.5	-166.96	54.3	-162.4	304.4	300.4	3.97	76.639	
1,300.0	1,288.1	1,164.9	1,140.4	3.4	4.0	-166.83	62.5	-186.9	360.0	355.7	4.28	84.190	
1,400.0	1,386.3	1,232.3	1,201.2	3.8	4.6	-166.66	71.7	-214.4	418.7	414.1	4.58	91.315	
1,500.0	1,484.5	1,300.0	1,261.3	4.1	5.2	-166.49	81.6	-244.0	480.0	475.2	4.89	98.102	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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: 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	-61.57	27.7	-51.1	58.1					
100.0	100.0	100.0	100.0	0.1	0.1	-61.57	27.7	-51.1	58.1	57.9	0.27	213.542		
200.0	200.0	200.0	200.0	0.3	0.3	-61.57	27.7	-51.1	58.1	57.5	0.62	93.575		
300.0	300.0	300.0	300.0	0.5	0.5	-61.57	27.7	-51.1	58.1	57.2	0.97	59.915 CC, ES		
400.0	400.0	397.7	397.7	0.7	0.7	-61.56	28.4	-52.3	59.6	58.3	1.32	45.216		
500.0	500.0	494.1	493.9	0.8	0.8	-150.97	31.3	-57.7	68.2	66.5	1.66	41.109 SF		
600.0	599.6	588.6	587.8	1.0	1.1	-152.97	36.5	-67.0	86.3	84.3	2.00	43.177		
700.0	698.8	679.9	677.8	1.3	1.4	-154.97	43.6	-79.9	113.9	111.6	2.34	48.690		
800.0	797.1	767.0	763.0	1.6	1.7	-156.64	52.3	-95.7	150.3	147.6	2.68	56.048		
900.0	895.3	850.5	843.9	2.0	2.1	-157.76	62.4	-114.0	191.7	188.7	3.03	63.297		
1,000.0	993.5	930.8	920.7	2.3	2.5	-158.32	73.7	-134.5	237.0	233.6	3.37	70.229		
1,100.0	1,091.7	1,007.7	993.3	2.7	3.0	-158.57	86.0	-156.8	285.8	282.1	3.72	76.894		
1,200.0	1,189.9	1,081.2	1,061.6	3.0	3.5	-158.65	99.1	-180.5	338.0	334.0	4.06	83.257		
1,300.0	1,288.1	1,151.3	1,125.7	3.4	4.1	-158.62	112.7	-205.2	393.4	389.0	4.40	89.388		
1,400.0	1,386.3	1,218.0	1,185.9	3.8	4.6	-158.53	126.8	-230.6	451.6	446.9	4.74	95.361		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad (2nd Occupation) - Shideler Federal 19-13A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					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	-97.35	-1.5	-11.3	11.4					
100.0	100.0	100.0	100.0	0.1	0.1	-97.35	-1.5	-11.3	11.4	11.1	0.27	41.843		
200.0	200.0	200.0	200.0	0.3	0.3	-97.35	-1.5	-11.3	11.4	10.8	0.62	18.336		
233.5	233.5	233.5	233.5	0.4	0.4	-97.35	-1.5	-11.3	11.4	10.7	0.74	15.431	CC, ES	
300.0	300.0	299.7	299.7	0.5	0.5	-96.36	-1.3	-11.9	12.0	11.0	0.97	12.377	SF	
400.0	400.0	398.9	398.7	0.7	0.7	-91.06	-0.3	-17.0	17.0	15.7	1.34	12.754		
500.0	500.0	496.8	496.1	0.8	0.9	-175.35	1.7	-26.9	29.8	28.2	1.66	17.935		
600.0	599.6	592.1	590.3	1.0	1.2	-173.62	4.6	-41.3	52.7	50.7	2.00	26.396		
700.0	698.8	683.4	679.7	1.3	1.6	-172.95	8.2	-59.3	85.3	83.0	2.32	36.763		
800.0	797.1	769.7	763.3	1.6	2.0	-172.69	12.4	-80.2	126.7	124.1	2.64	48.067		
900.0	895.3	851.9	842.0	2.0	2.4	-172.52	17.1	-103.5	173.0	170.1	2.96	58.545		
1,000.0	993.5	930.4	916.1	2.3	2.9	-172.32	22.2	-128.9	223.0	219.7	3.27	68.235		
1,100.0	1,091.7	1,000.0	980.9	2.7	3.4	-172.14	27.2	-153.8	276.4	272.9	3.57	77.540		
1,200.0	1,189.9	1,076.4	1,050.8	3.0	4.0	-171.95	33.2	-183.9	333.0	329.1	3.87	85.936		
1,300.0	1,288.1	1,144.0	1,111.7	3.4	4.6	-171.78	39.0	-212.7	392.5	388.3	4.17	94.163		
1,400.0	1,386.3	1,217.7	1,177.2	3.8	5.2	-171.61	45.7	-246.0	454.2	449.7	4.47	101.574		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad (2nd Occupation) - Shideler Federal 19-13AA - OH - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	170.07	-11.3	2.0	11.5				
100.0	100.0	100.0	100.0	0.1	0.1	170.07	-11.3	2.0	11.5	11.2	0.27	42.102	
200.0	200.0	200.0	200.0	0.3	0.3	170.07	-11.3	2.0	11.5	10.8	0.62	18.449	
291.9	291.9	291.9	291.9	0.5	0.5	-178.81	-11.2	-0.2	11.2	10.3	0.94	11.939 CC	
300.0	300.0	300.0	300.0	0.5	0.5	-176.74	-11.2	-0.6	11.3	10.3	0.97	11.597 ES	
400.0	400.0	399.5	399.1	0.7	0.7	-142.72	-11.1	-8.4	13.9	12.6	1.34	10.411 SF	
500.0	500.0	497.5	496.3	0.8	1.0	156.68	-10.8	-21.1	26.4	24.7	1.70	15.554	
600.0	599.6	592.3	589.6	1.0	1.3	168.74	-10.5	-38.2	50.8	48.8	2.02	25.173	
700.0	698.8	682.7	677.6	1.3	1.7	173.78	-10.0	-58.7	85.5	83.2	2.33	36.719	
800.0	797.1	767.8	759.5	1.6	2.2	176.27	-9.6	-81.8	129.2	126.6	2.63	49.086	
900.0	895.3	848.7	836.3	2.0	2.7	177.67	-9.0	-107.1	177.9	174.9	2.94	60.497	
1,000.0	993.5	925.7	908.4	2.3	3.2	178.53	-8.5	-134.2	230.1	226.8	3.24	71.007	
1,100.0	1,091.7	1,000.0	976.8	2.7	3.8	179.11	-7.9	-163.1	285.7	282.1	3.54	80.794	
1,200.0	1,189.9	1,068.5	1,038.9	3.0	4.4	179.52	-7.3	-192.1	344.3	340.5	3.82	90.118	
1,300.0	1,288.1	1,142.7	1,105.1	3.4	5.0	179.87	-6.6	-225.4	405.3	401.2	4.11	98.531	
1,400.0	1,386.3	1,221.7	1,175.7	3.8	5.7	-179.85	-5.9	-261.1	466.5	462.1	4.41	105.709	

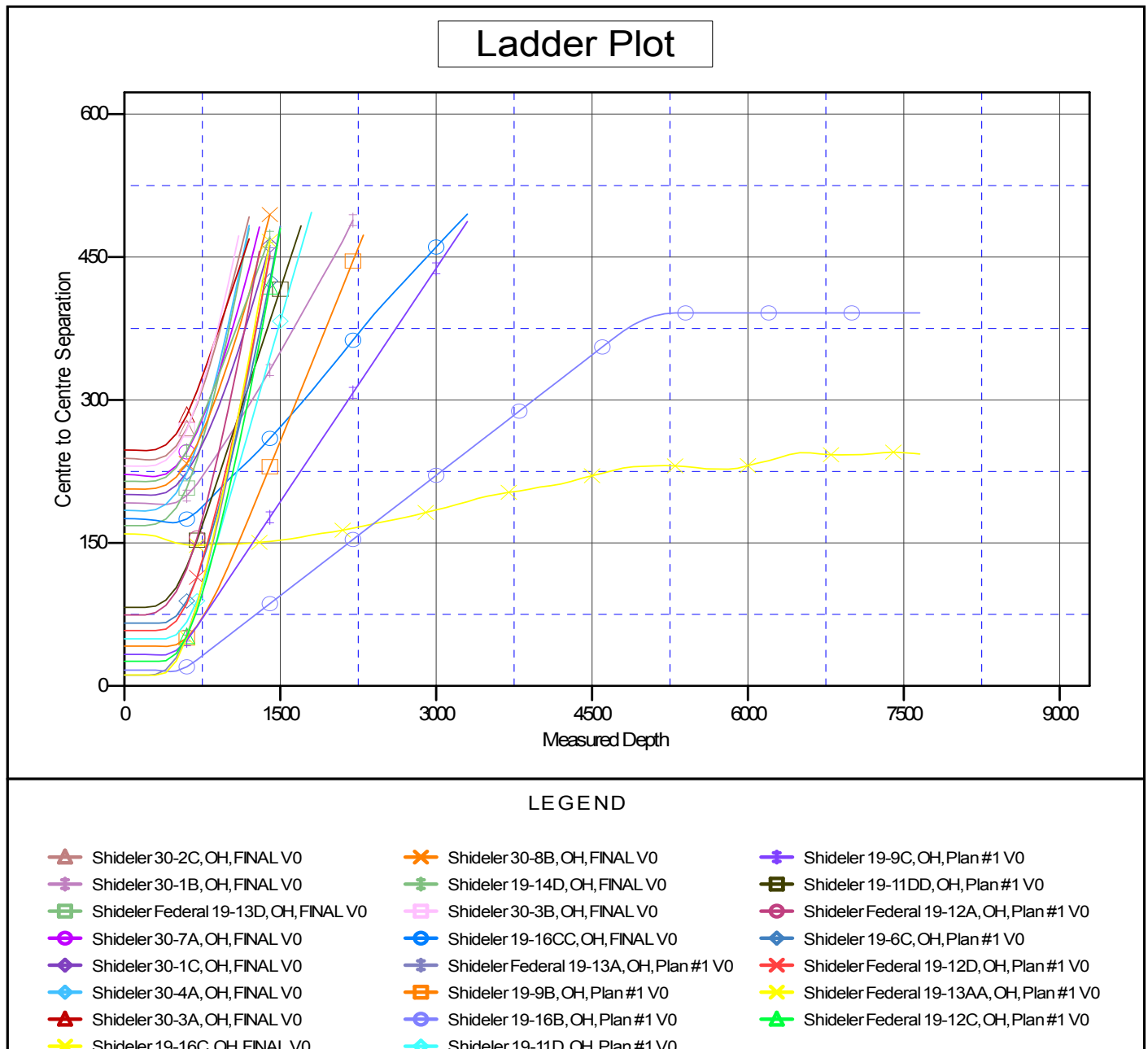
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-16BB
Project:	Mamm Creek	TVD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Reference Site:	O19EB Pad (2nd Occupation)	MD Reference:	KB=22' @ 6531.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-16BB	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 (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Shideler 19-16BB
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