

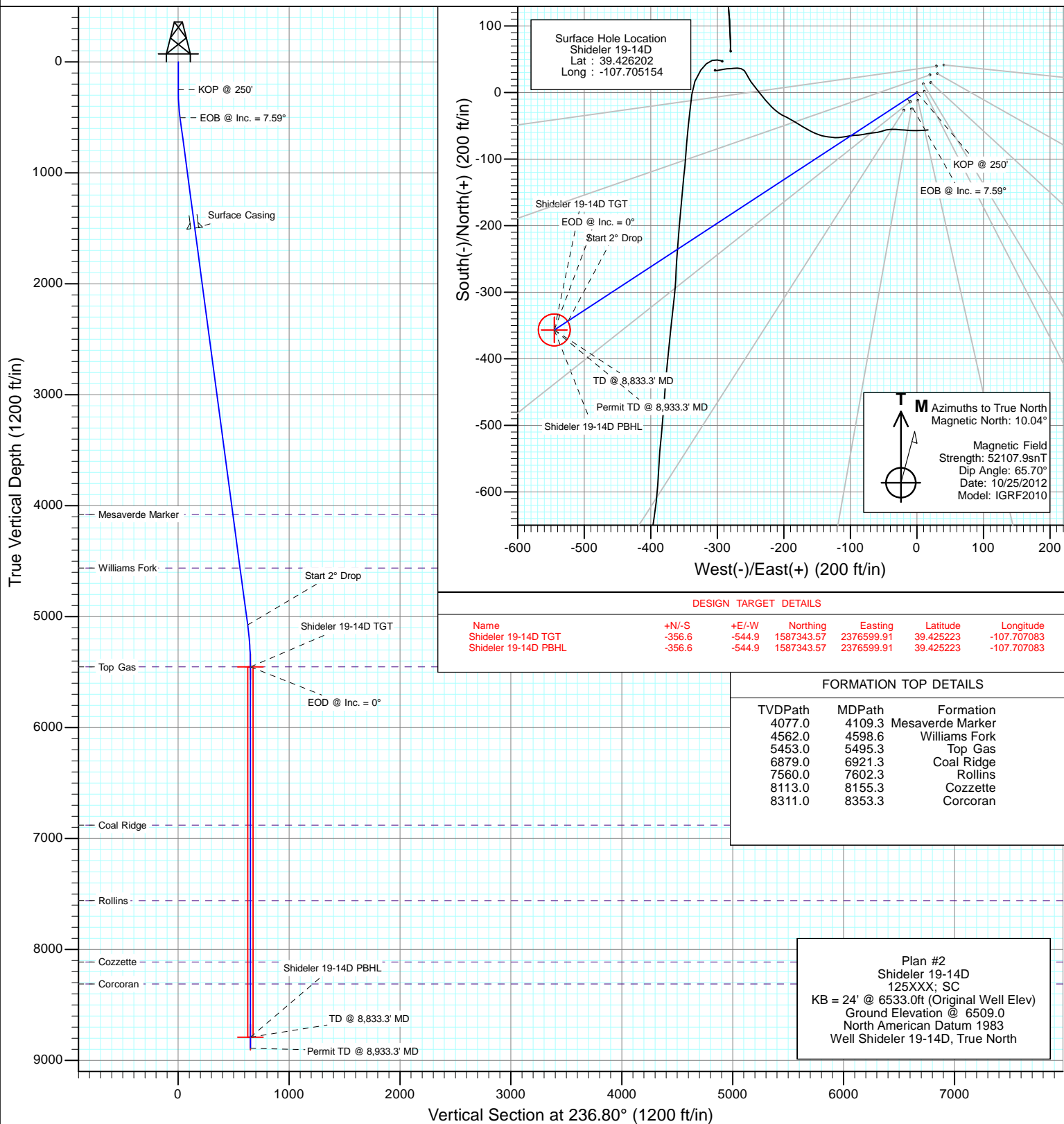


Project: Mamm Creek
Site: O19EB Pad
Well: Shideler 19-14D
Wellbore: OH
Design: Plan #2



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	250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	
3	503.0	7.59	236.80	502.3	-9.2	-14.0	3.00	236.80	16.7	
4	5115.7	7.59	236.80	5074.5	-342.8	-523.9	0.00	0.00	626.1	
5	5495.3	0.00	0.00	5453.0	-356.6	-544.9	2.00	180.00	651.2	Shideler 19-14D TGT
6	8833.3	0.00	0.00	8791.0	-356.6	-544.9	0.00	0.00	651.2	Shideler 19-14D PBHL
7	8933.3	0.00	0.00	8891.0	-356.6	-544.9	0.00	0.00	651.2	



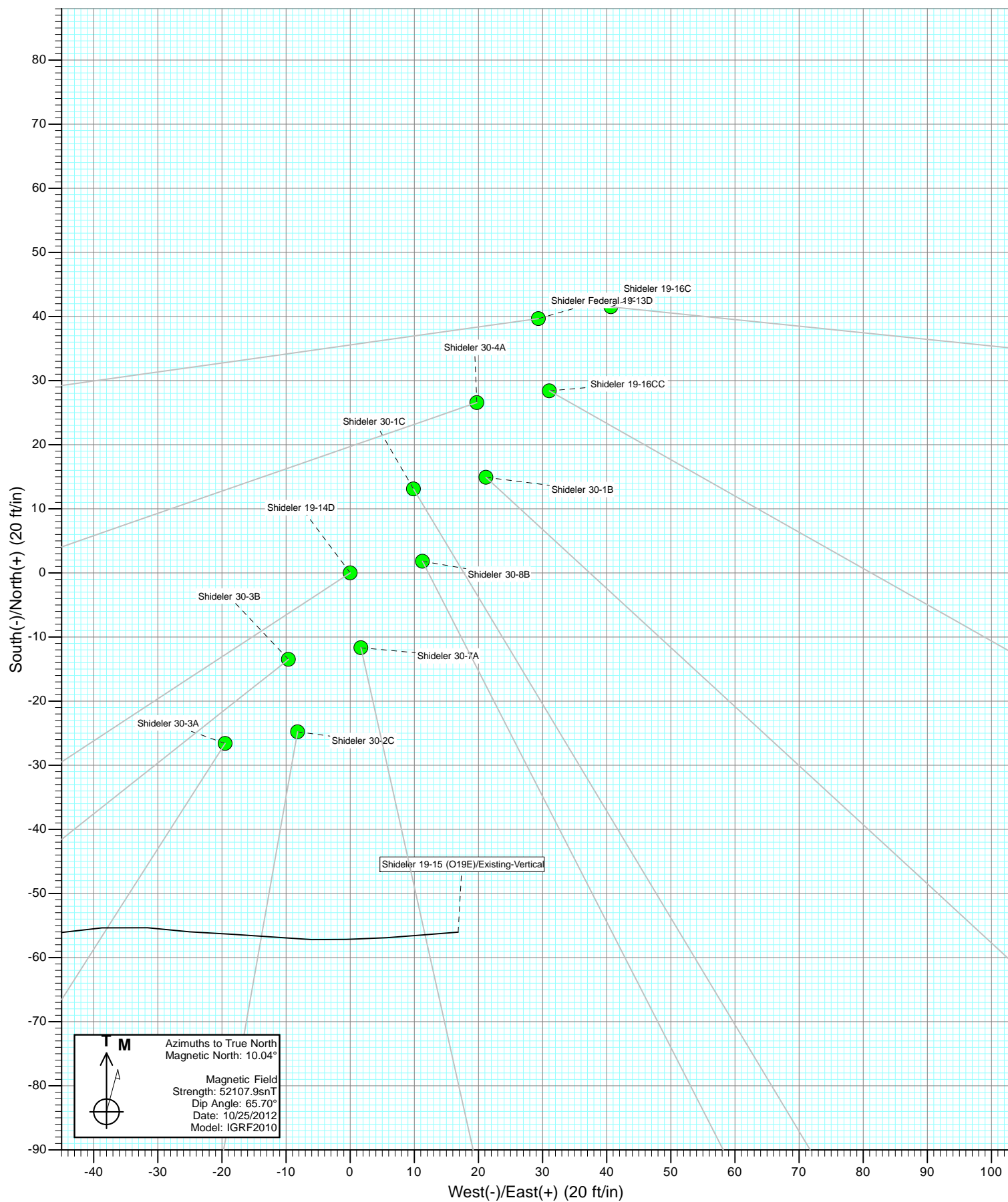
DESIGN TARGET DETAILS

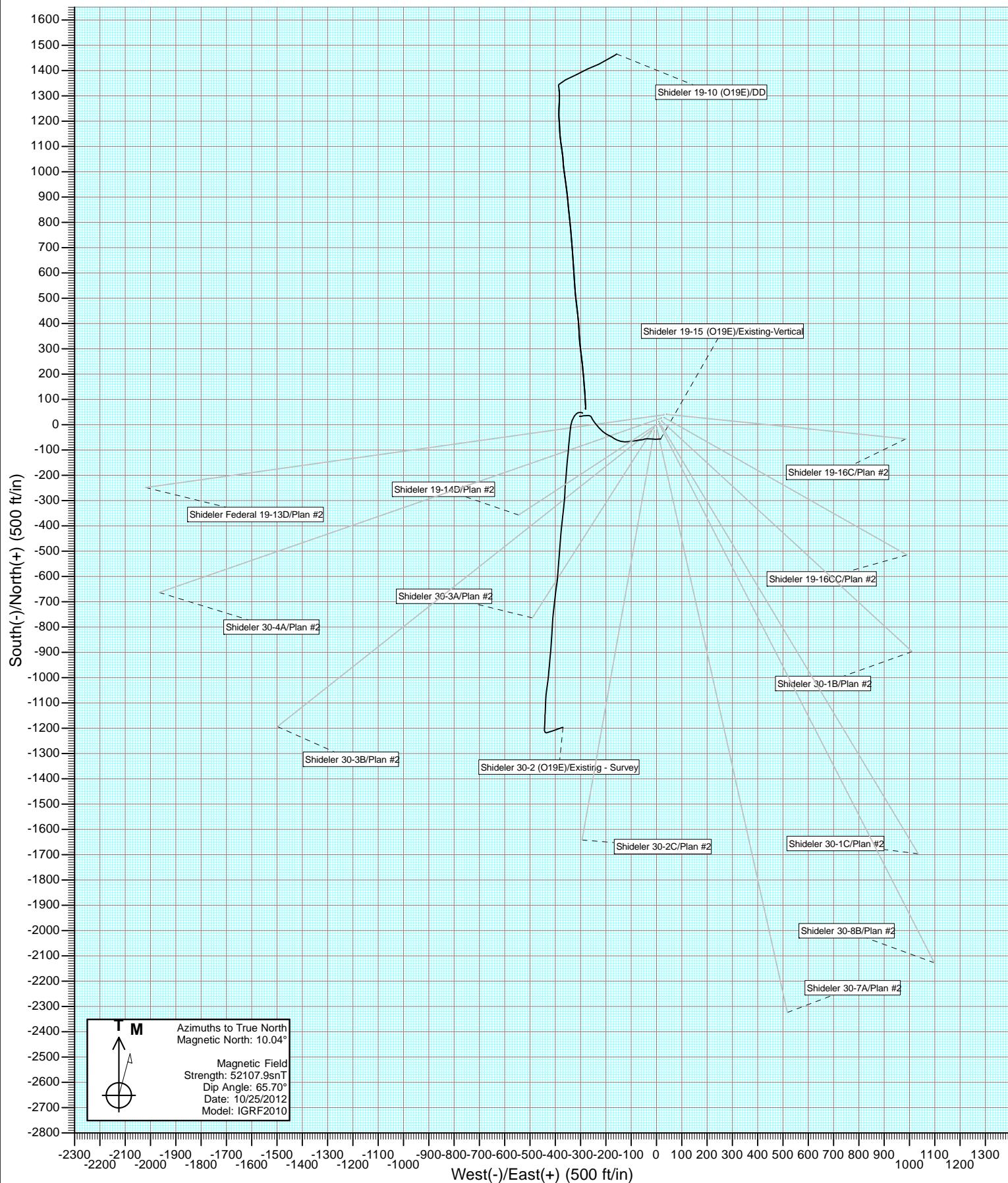
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shideler 19-14D TGT	-356.6	-544.9	1587343.57	2376599.91	39.425223	-107.707083
Shideler 19-14D PBHL	-356.6	-544.9	1587343.57	2376599.91	39.425223	-107.707083

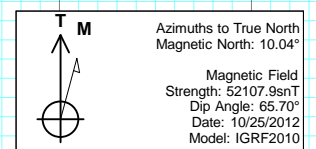
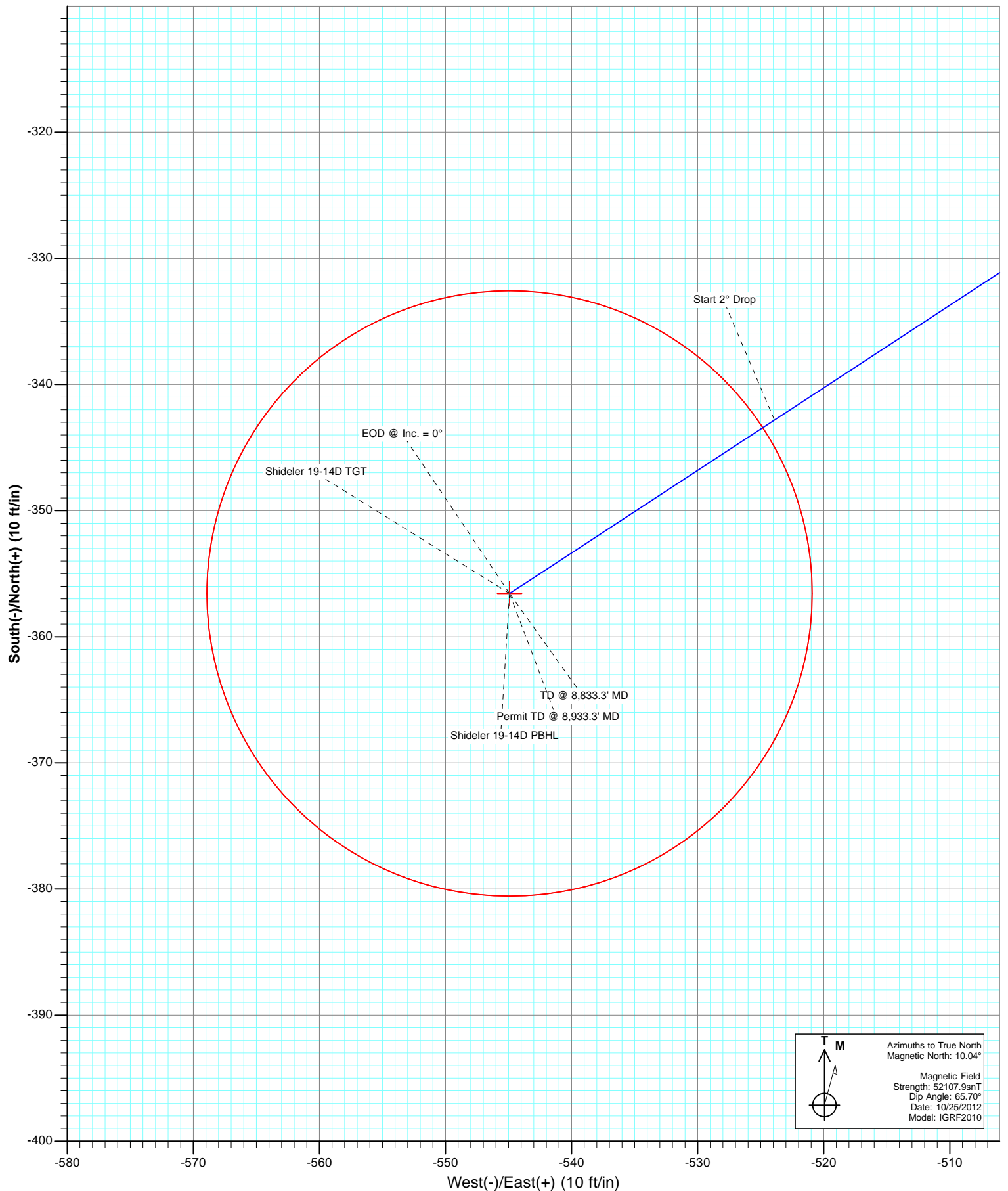
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4077.0	4109.3	Mesaverde Marker
4562.0	4598.6	Williams Fork
5453.0	5495.3	Top Gas
6879.0	6921.3	Coal Ridge
7560.0	7602.3	Rollins
8113.0	8155.3	Cozzette
8311.0	8353.3	Corcoran

Plan #2
Shideler 19-14D
125XXX; SC
KB = 24' @ 6533.0ft (Original Well Elev)
Ground Elevation @ 6509.0
North American Datum 1983
Well Shideler 19-14D, True North







Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-14D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site:	O19EB Pad	North Reference:	True
Well:	Shideler 19-14D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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				
Site Position:		Northing:	1,587,688.01 ft	Latitude:	39.426206
From:	Lat/Long	Easting:	2,377,164.37 ft	Longitude:	-107.705115
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	Shideler 19-14D					
Well Position	+N/-S	0.0 ft	Northing:	1,587,686.81 ft	Latitude:	39.426202
	+E/-W	0.0 ft	Easting:	2,377,153.32 ft	Longitude:	-107.705154
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	10/25/2012	10.04	65.70	52,108

Design	Plan #2			
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	236.80

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	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
503.0	7.59	236.80	502.3	-9.2	-14.0	3.00	3.00	0.00	236.80	
5,115.7	7.59	236.80	5,074.5	-342.8	-523.9	0.00	0.00	0.00	0.00	
5,495.3	0.00	0.00	5,453.0	-356.6	-544.9	2.00	-2.00	0.00	180.00	Shideler 19-14D TGT
8,833.3	0.00	0.00	8,791.0	-356.6	-544.9	0.00	0.00	0.00	0.00	Shideler 19-14D PBH
8,933.3	0.00	0.00	8,891.0	-356.6	-544.9	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 19-14D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site:	O19EB Pad	North Reference:	True
Well:	Shideler 19-14D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	236.80	300.0	-0.4	-0.5	0.7	3.00	3.00	
400.0	4.50	236.80	399.8	-3.2	-4.9	5.9	3.00	3.00	
503.0	7.59	236.80	502.3	-9.2	-14.0	16.7	3.00	3.00	EOB @ Inc. = 7.59°
600.0	7.59	236.80	598.4	-16.2	-24.7	29.5	0.00	0.00	
700.0	7.59	236.80	697.5	-23.4	-35.8	42.8	0.00	0.00	
800.0	7.59	236.80	796.7	-30.6	-46.8	56.0	0.00	0.00	
900.0	7.59	236.80	895.8	-37.9	-57.9	69.2	0.00	0.00	
1,000.0	7.59	236.80	994.9	-45.1	-68.9	82.4	0.00	0.00	
1,100.0	7.59	236.80	1,094.0	-52.3	-80.0	95.6	0.00	0.00	
1,200.0	7.59	236.80	1,193.2	-59.6	-91.1	108.8	0.00	0.00	
1,300.0	7.59	236.80	1,292.3	-66.8	-102.1	122.0	0.00	0.00	
1,400.0	7.59	236.80	1,391.4	-74.0	-113.2	135.2	0.00	0.00	
1,500.0	7.59	236.80	1,490.5	-81.3	-124.2	148.4	0.00	0.00	
1,509.6	7.59	236.80	1,500.0	-82.0	-125.3	149.7	0.00	0.00	Surface Casing
1,600.0	7.59	236.80	1,589.6	-88.5	-135.3	161.7	0.00	0.00	
1,700.0	7.59	236.80	1,688.8	-95.7	-146.3	174.9	0.00	0.00	
1,800.0	7.59	236.80	1,787.9	-103.0	-157.4	188.1	0.00	0.00	
1,900.0	7.59	236.80	1,887.0	-110.2	-168.4	201.3	0.00	0.00	
2,000.0	7.59	236.80	1,986.1	-117.4	-179.5	214.5	0.00	0.00	
2,100.0	7.59	236.80	2,085.3	-124.7	-190.5	227.7	0.00	0.00	
2,200.0	7.59	236.80	2,184.4	-131.9	-201.6	240.9	0.00	0.00	
2,300.0	7.59	236.80	2,283.5	-139.1	-212.6	254.1	0.00	0.00	
2,400.0	7.59	236.80	2,382.6	-146.4	-223.7	267.3	0.00	0.00	
2,500.0	7.59	236.80	2,481.8	-153.6	-234.8	280.5	0.00	0.00	
2,600.0	7.59	236.80	2,580.9	-160.8	-245.8	293.8	0.00	0.00	
2,700.0	7.59	236.80	2,680.0	-168.1	-256.9	307.0	0.00	0.00	
2,800.0	7.59	236.80	2,779.1	-175.3	-267.9	320.2	0.00	0.00	
2,900.0	7.59	236.80	2,878.3	-182.5	-279.0	333.4	0.00	0.00	
3,000.0	7.59	236.80	2,977.4	-189.8	-290.0	346.6	0.00	0.00	
3,100.0	7.59	236.80	3,076.5	-197.0	-301.1	359.8	0.00	0.00	
3,200.0	7.59	236.80	3,175.6	-204.2	-312.1	373.0	0.00	0.00	
3,300.0	7.59	236.80	3,274.7	-211.5	-323.2	386.2	0.00	0.00	
3,400.0	7.59	236.80	3,373.9	-218.7	-334.2	399.4	0.00	0.00	
3,500.0	7.59	236.80	3,473.0	-225.9	-345.3	412.7	0.00	0.00	
3,600.0	7.59	236.80	3,572.1	-233.2	-356.4	425.9	0.00	0.00	
3,700.0	7.59	236.80	3,671.2	-240.4	-367.4	439.1	0.00	0.00	
3,800.0	7.59	236.80	3,770.4	-247.6	-378.5	452.3	0.00	0.00	
3,900.0	7.59	236.80	3,869.5	-254.9	-389.5	465.5	0.00	0.00	
4,000.0	7.59	236.80	3,968.6	-262.1	-400.6	478.7	0.00	0.00	
4,100.0	7.59	236.80	4,067.7	-269.4	-411.6	491.9	0.00	0.00	
4,109.3	7.59	236.80	4,077.0	-270.0	-412.7	493.2	0.00	0.00	Mesaverde Marker
4,200.0	7.59	236.80	4,166.9	-276.6	-422.7	505.1	0.00	0.00	
4,300.0	7.59	236.80	4,266.0	-283.8	-433.7	518.3	0.00	0.00	
4,400.0	7.59	236.80	4,365.1	-291.1	-444.8	531.6	0.00	0.00	
4,500.0	7.59	236.80	4,464.2	-298.3	-455.8	544.8	0.00	0.00	
4,598.6	7.59	236.80	4,562.0	-305.4	-466.7	557.8	0.00	0.00	Williams Fork
4,600.0	7.59	236.80	4,563.4	-305.5	-466.9	558.0	0.00	0.00	
4,700.0	7.59	236.80	4,662.5	-312.8	-477.9	571.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-14D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site:	O19EB Pad	North Reference:	True
Well:	Shideler 19-14D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	7.59	236.80	4,761.6	-320.0	-489.0	584.4	0.00	0.00	
4,900.0	7.59	236.80	4,860.7	-327.2	-500.1	597.6	0.00	0.00	
5,000.0	7.59	236.80	4,959.8	-334.5	-511.1	610.8	0.00	0.00	
5,100.0	7.59	236.80	5,059.0	-341.7	-522.2	624.0	0.00	0.00	
5,115.7	7.59	236.80	5,074.5	-342.8	-523.9	626.1	0.00	0.00	Start 2° Drop
5,200.0	5.91	236.80	5,158.2	-348.2	-532.2	636.0	2.00	-2.00	
5,300.0	3.91	236.80	5,257.9	-352.9	-539.3	644.6	2.00	-2.00	
5,400.0	1.91	236.80	5,357.7	-355.7	-543.6	649.6	2.00	-2.00	
5,495.3	0.00	0.00	5,453.0	-356.6	-544.9	651.2	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
5,500.0	0.00	0.00	5,457.7	-356.6	-544.9	651.2	0.00	0.00	
5,600.0	0.00	0.00	5,557.7	-356.6	-544.9	651.2	0.00	0.00	
5,700.0	0.00	0.00	5,657.7	-356.6	-544.9	651.2	0.00	0.00	
5,800.0	0.00	0.00	5,757.7	-356.6	-544.9	651.2	0.00	0.00	
5,900.0	0.00	0.00	5,857.7	-356.6	-544.9	651.2	0.00	0.00	
6,000.0	0.00	0.00	5,957.7	-356.6	-544.9	651.2	0.00	0.00	
6,100.0	0.00	0.00	6,057.7	-356.6	-544.9	651.2	0.00	0.00	
6,200.0	0.00	0.00	6,157.7	-356.6	-544.9	651.2	0.00	0.00	
6,300.0	0.00	0.00	6,257.7	-356.6	-544.9	651.2	0.00	0.00	
6,400.0	0.00	0.00	6,357.7	-356.6	-544.9	651.2	0.00	0.00	
6,500.0	0.00	0.00	6,457.7	-356.6	-544.9	651.2	0.00	0.00	
6,600.0	0.00	0.00	6,557.7	-356.6	-544.9	651.2	0.00	0.00	
6,700.0	0.00	0.00	6,657.7	-356.6	-544.9	651.2	0.00	0.00	
6,800.0	0.00	0.00	6,757.7	-356.6	-544.9	651.2	0.00	0.00	
6,900.0	0.00	0.00	6,857.7	-356.6	-544.9	651.2	0.00	0.00	
6,921.3	0.00	0.00	6,879.0	-356.6	-544.9	651.2	0.00	0.00	Coal Ridge
7,000.0	0.00	0.00	6,957.7	-356.6	-544.9	651.2	0.00	0.00	
7,100.0	0.00	0.00	7,057.7	-356.6	-544.9	651.2	0.00	0.00	
7,200.0	0.00	0.00	7,157.7	-356.6	-544.9	651.2	0.00	0.00	
7,300.0	0.00	0.00	7,257.7	-356.6	-544.9	651.2	0.00	0.00	
7,400.0	0.00	0.00	7,357.7	-356.6	-544.9	651.2	0.00	0.00	
7,500.0	0.00	0.00	7,457.7	-356.6	-544.9	651.2	0.00	0.00	
7,600.0	0.00	0.00	7,557.7	-356.6	-544.9	651.2	0.00	0.00	
7,602.3	0.00	0.00	7,560.0	-356.6	-544.9	651.2	0.00	0.00	Rollins
7,700.0	0.00	0.00	7,657.7	-356.6	-544.9	651.2	0.00	0.00	
7,800.0	0.00	0.00	7,757.7	-356.6	-544.9	651.2	0.00	0.00	
7,900.0	0.00	0.00	7,857.7	-356.6	-544.9	651.2	0.00	0.00	
8,000.0	0.00	0.00	7,957.7	-356.6	-544.9	651.2	0.00	0.00	
8,100.0	0.00	0.00	8,057.7	-356.6	-544.9	651.2	0.00	0.00	
8,155.3	0.00	0.00	8,113.0	-356.6	-544.9	651.2	0.00	0.00	Cozzette
8,200.0	0.00	0.00	8,157.7	-356.6	-544.9	651.2	0.00	0.00	
8,300.0	0.00	0.00	8,257.7	-356.6	-544.9	651.2	0.00	0.00	
8,353.3	0.00	0.00	8,311.0	-356.6	-544.9	651.2	0.00	0.00	Corcoran
8,400.0	0.00	0.00	8,357.7	-356.6	-544.9	651.2	0.00	0.00	
8,500.0	0.00	0.00	8,457.7	-356.6	-544.9	651.2	0.00	0.00	
8,600.0	0.00	0.00	8,557.7	-356.6	-544.9	651.2	0.00	0.00	
8,700.0	0.00	0.00	8,657.7	-356.6	-544.9	651.2	0.00	0.00	
8,800.0	0.00	0.00	8,757.7	-356.6	-544.9	651.2	0.00	0.00	
8,833.3	0.00	0.00	8,791.0	-356.6	-544.9	651.2	0.00	0.00	TD @ 8,833.3' MD
8,900.0	0.00	0.00	8,857.7	-356.6	-544.9	651.2	0.00	0.00	
8,933.3	0.00	0.00	8,891.0	-356.6	-544.9	651.2	0.00	0.00	Permit TD @ 8,933.3' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler 19-14D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site:	O19EB Pad	North Reference:	True
Well:	Shideler 19-14D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Shideler 19-14D TGT	0.00	0.00	5,453.0	-356.6	-544.9	1,587,343.57	2,376,599.91	39.425223	-107.707083
- plan hits target center									
- Point									
Shideler 19-14D PBHL	0.00	0.00	8,791.0	-356.6	-544.9	1,587,343.57	2,376,599.91	39.425223	-107.707083
- plan hits target center									
- Circle (radius 24.0)									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(ft)	(ft)	Name	(in)	(in)
1,509.6	1,500.0	Surface Casing		

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
4,109.3	4,077.0	Mesaverde Marker				
4,598.6	4,562.0	Williams Fork				
5,495.3	5,453.0	Top Gas				
6,921.3	6,879.0	Coal Ridge				
7,602.3	7,560.0	Rollins				
8,155.3	8,113.0	Cozzette				
8,353.3	8,311.0	Corcoran				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
250.0	250.0	0.0	0.0	KOP @ 250'
503.0	502.3	-9.2	-14.0	EOB @ Inc. = 7.59°
5,115.7	5,074.5	-342.8	-523.9	Start 2° Drop
5,495.3	5,453.0	-356.6	-544.9	EOD @ Inc. = 0°
8,833.3	8,791.0	-356.6	-544.9	TD @ 8,833.3' MD
8,933.3	8,891.0	-356.6	-544.9	Permit TD @ 8,933.3' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

O19EB Pad

Shideler 19-14D

OH

Plan #2

Anticollision Report

13 November, 2012

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
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	11/13/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	8,933.3	Plan #2 (OH)	MWD	Geolink MWD

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Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
O19E Pad						
Shideler 19-10 (O19E) - DD - DD	683.5	687.2	272.0	269.3	102.854	CC
Shideler 19-10 (O19E) - DD - DD	700.0	702.2	272.0	269.3	99.649	ES
Shideler 19-10 (O19E) - DD - DD	1,300.0	1,235.6	365.3	359.5	62.623	SF
Shideler 19-10 (O19E) - Surveys - Surveys	683.5	687.2	272.0	269.3	102.854	CC
Shideler 19-10 (O19E) - Surveys - Surveys	700.0	702.2	272.0	269.3	99.649	ES
Shideler 19-10 (O19E) - Surveys - Surveys	1,300.0	1,235.6	365.3	359.5	62.623	SF
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	2,224.8	2,242.3	120.3	110.7	12.479	CC, ES
Shideler 19-15 (O19E) - Existing-Vertical - Existing-Vertic	2,400.0	2,415.1	123.6	113.5	12.181	SF
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	1,505.7	1,517.1	250.6	243.7	36.254	CC, ES
Shideler 30-2 (O19E) - Existing - Survey - Existing - Surv	2,100.0	2,098.0	279.1	270.3	31.671	SF
O19EB Pad						
(Existing Offset) Shideler 19-6D - Existing - Existing						Out of range
Shideler 19-16C - OH - Plan #2	200.0	200.0	58.1	57.5	94.615	CC, ES
Shideler 19-16C - OH - Plan #2	500.0	491.8	85.4	83.7	51.016	SF
Shideler 19-16CC - OH - Plan #2	200.0	200.0	42.1	41.5	68.532	CC, ES
Shideler 19-16CC - OH - Plan #2	400.0	398.9	48.8	47.5	37.169	SF
Shideler 30-1B - OH - Plan #2	200.0	200.0	25.9	25.3	42.187	CC, ES
Shideler 30-1B - OH - Plan #2	400.0	399.5	32.2	30.8	24.520	SF
Shideler 30-1C - OH - Plan #2	300.0	300.2	16.3	15.3	16.742	CC, ES
Shideler 30-1C - OH - Plan #2	400.0	399.8	21.5	20.1	15.764	SF
Shideler 30-2C - OH - Plan #2	200.0	200.0	26.1	25.5	42.463	CC, ES
Shideler 30-2C - OH - Plan #2	500.0	494.7	38.6	36.9	22.410	SF
Shideler 30-3A - OH - Plan #2	200.0	200.0	33.0	32.4	53.663	CC, ES
Shideler 30-3A - OH - Plan #2	7,847.6	7,880.7	410.5	376.5	12.075	SF
Shideler 30-3B - OH - Plan #2	200.0	200.0	16.5	15.9	26.937	CC, ES
Shideler 30-3B - OH - Plan #2	600.0	595.5	28.8	26.8	14.062	SF
Shideler 30-4A - OH - Plan #2	715.4	720.1	30.4	27.1	9.386	CC, ES
Shideler 30-4A - OH - Plan #2	800.0	803.8	32.7	28.7	8.217	SF
Shideler 30-7A - OH - Plan #2	240.9	240.9	11.7	10.9	15.433	CC, ES
Shideler 30-7A - OH - Plan #2	400.0	398.8	16.2	14.9	12.160	SF
Shideler 30-8B - OH - Plan #2	200.0	200.0	11.4	10.8	18.629	CC, ES
Shideler 30-8B - OH - Plan #2	300.0	299.7	13.0	12.1	13.443	SF
Shideler Federal 19-13D - OH - Plan #2	374.2	377.2	47.7	46.5	37.933	CC
Shideler Federal 19-13D - OH - Plan #2	400.0	403.3	47.8	46.4	35.165	ES
Shideler Federal 19-13D - OH - Plan #2	800.0	803.6	59.9	55.8	14.666	SF

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Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	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						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	23.9	23.9	0.0	0.0	-77.50	62.0	-279.8	286.6					
100.0	100.0	123.5	123.5	0.1	0.2	-77.48	62.2	-279.9	286.7	286.4	0.33	872.157		
200.0	200.0	223.2	223.2	0.3	0.4	-77.41	62.5	-280.0	286.9	286.2	0.67	426.449		
300.0	300.0	323.0	323.0	0.5	0.5	46.02	63.2	-280.2	286.7	285.7	1.02	280.539		
400.0	399.8	422.5	422.5	0.7	0.7	47.26	65.3	-280.0	283.5	282.1	1.38	204.850		
500.0	499.3	517.3	517.2	0.9	0.9	49.90	70.4	-279.9	277.9	276.1	1.78	155.923		
600.0	598.4	609.4	608.7	1.2	1.1	53.61	79.3	-280.4	273.2	271.0	2.23	122.749		
683.5	681.2	687.2	685.8	1.4	1.3	57.47	90.3	-280.8	272.0	269.3	2.64	102.854	CC	
700.0	697.5	702.2	700.6	1.5	1.4	58.29	92.8	-280.9	272.0	269.3	2.73	99.649	ES	
800.0	796.7	788.0	784.8	1.7	1.7	63.25	108.9	-281.6	275.5	272.2	3.25	84.652		
900.0	895.8	881.0	875.4	2.0	2.1	68.96	130.1	-283.2	284.5	280.7	3.82	74.416		
1,000.0	994.9	970.0	961.4	2.3	2.5	74.39	153.0	-285.1	298.8	294.4	4.37	68.345		
1,100.0	1,094.0	1,058.6	1,046.5	2.6	2.9	79.51	177.2	-287.0	317.3	312.4	4.89	64.849		
1,200.0	1,193.2	1,147.5	1,131.7	2.9	3.4	84.21	202.6	-289.2	339.6	334.2	5.38	63.086		
1,300.0	1,292.3	1,235.6	1,215.9	3.2	3.8	88.36	228.8	-291.7	365.3	359.5	5.83	62.623	SF	
1,400.0	1,391.4	1,326.7	1,302.6	3.5	4.3	92.10	256.4	-294.8	393.6	387.3	6.26	62.877		
1,500.0	1,490.5	1,416.5	1,387.9	3.7	4.8	95.33	284.3	-298.1	424.2	417.5	6.66	63.697		
1,600.0	1,589.6	1,515.0	1,481.6	4.0	5.3	98.37	314.2	-301.8	455.4	448.3	7.05	64.604		
1,700.0	1,688.8	1,601.0	1,563.4	4.3	5.8	100.81	340.7	-304.1	487.5	480.1	7.43	65.595		

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Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design													O19E Pad - Shideler 19-10 (O19E) - Surveys - Surveys		Offset Site Error:		0.0 ft
Survey Program:													154-MWD2, 1295-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	23.9	23.9	0.0	0.0	-77.50	62.0	-279.8	286.6								
100.0	100.0	123.5	123.5	0.1	0.2	-77.48	62.2	-279.9	286.7	286.4	0.33	872.157					
200.0	200.0	223.2	223.2	0.3	0.4	-77.41	62.5	-280.0	286.9	286.2	0.67	426.449					
300.0	300.0	323.0	323.0	0.5	0.5	46.02	63.2	-280.2	286.7	285.7	1.02	280.539					
400.0	399.8	422.5	422.5	0.7	0.7	47.26	65.3	-280.0	283.5	282.1	1.38	204.850					
500.0	499.3	517.3	517.2	0.9	0.9	49.90	70.4	-279.9	277.9	276.1	1.78	155.923					
600.0	598.4	609.4	608.7	1.2	1.1	53.61	79.3	-280.4	273.2	271.0	2.23	122.749					
683.5	681.2	687.2	685.8	1.4	1.3	57.47	90.3	-280.8	272.0	269.3	2.64	102.854	CC				
700.0	697.5	702.2	700.6	1.5	1.4	58.29	92.8	-280.9	272.0	269.3	2.73	99.649	ES				
800.0	796.7	788.0	784.8	1.7	1.7	63.25	108.9	-281.6	275.5	272.2	3.25	84.652					
900.0	895.8	881.0	875.4	2.0	2.1	68.96	130.1	-283.2	284.5	280.7	3.82	74.416					
1,000.0	994.9	970.0	961.4	2.3	2.5	74.39	153.0	-285.1	298.8	294.4	4.37	68.345					
1,100.0	1,094.0	1,058.6	1,046.5	2.6	2.9	79.51	177.2	-287.0	317.3	312.4	4.89	64.849					
1,200.0	1,193.2	1,147.5	1,131.7	2.9	3.4	84.21	202.6	-289.2	339.6	334.2	5.38	63.086					
1,300.0	1,292.3	1,235.6	1,215.9	3.2	3.8	88.36	228.8	-291.7	365.3	359.5	5.83	62.623	SF				
1,400.0	1,391.4	1,326.7	1,302.6	3.5	4.3	92.10	256.4	-294.8	393.6	387.3	6.26	62.877					
1,500.0	1,490.5	1,416.5	1,387.9	3.7	4.8	95.33	284.3	-298.1	424.2	417.5	6.66	63.697					
1,600.0	1,589.6	1,515.0	1,481.6	4.0	5.3	98.37	314.2	-301.8	455.4	448.3	7.05	64.604					
1,700.0	1,688.8	1,601.0	1,563.4	4.3	5.8	100.81	340.7	-304.1	487.5	480.1	7.43	65.595					

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Reference Well:	Shideler 19-14D	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 #2	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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	24.3	24.3	0.0	0.0	-83.69	33.5	-303.1	304.9					
100.0	100.0	125.5	125.5	0.1	0.2	-83.68	33.5	-302.8	304.6	0.33	930.246			
200.0	200.0	226.6	226.6	0.3	0.4	-83.73	33.2	-302.2	304.0	0.68	447.699			
300.0	300.0	328.7	328.7	0.5	0.6	39.57	33.1	-300.9	302.2	1.03	293.168			
400.0	399.8	430.0	430.0	0.7	0.7	40.43	33.3	-299.1	296.5	1.39	213.437			
500.0	499.3	531.8	531.7	0.9	0.9	42.19	33.8	-296.4	286.1	1.77	161.544			
600.0	598.4	633.0	632.8	1.2	1.1	44.35	34.4	-292.8	273.0	2.17	125.637			
700.0	697.5	732.8	732.6	1.5	1.3	46.78	35.4	-288.5	259.7	2.59	100.338			
800.0	796.7	832.3	831.9	1.7	1.5	49.34	35.7	-283.8	246.4	3.02	81.687			
900.0	895.8	931.0	930.6	2.0	1.7	52.22	36.1	-279.0	233.4	3.46	67.490			
1,000.0	994.9	1,030.4	1,029.8	2.3	1.9	55.50	36.6	-273.8	220.8	3.92	56.357			
1,100.0	1,094.0	1,130.0	1,129.3	2.6	2.1	59.06	36.6	-268.2	208.4	4.39	47.442			
1,200.0	1,193.2	1,229.0	1,228.1	2.9	2.2	62.78	35.5	-262.6	196.5	4.87	40.307			
1,300.0	1,292.3	1,328.3	1,327.2	3.2	2.4	66.02	31.6	-258.2	184.9	5.35	34.558			
1,400.0	1,391.4	1,427.0	1,425.7	3.5	2.6	68.96	25.9	-255.0	173.9	5.82	29.858			
1,500.0	1,490.5	1,526.0	1,524.4	3.7	2.8	72.30	20.3	-251.9	163.4	6.31	25.902			
1,600.0	1,589.6	1,624.9	1,623.1	4.0	3.0	76.24	15.0	-248.4	153.6	6.80	22.577			
1,700.0	1,688.8	1,723.8	1,721.9	4.3	3.2	80.75	9.8	-244.8	144.7	7.31	19.803			
1,800.0	1,787.9	1,822.7	1,820.6	4.6	3.4	86.08	5.1	-240.7	136.7	7.81	17.514			
1,900.0	1,887.0	1,921.6	1,919.2	4.9	3.6	91.90	0.1	-236.8	130.1	8.29	15.682			
2,000.0	1,986.1	2,020.0	2,017.5	5.2	3.8	98.21	-4.6	-233.0	125.1	8.76	14.287			
2,100.0	2,085.3	2,119.0	2,116.3	5.5	4.0	105.03	-9.3	-229.1	121.9	9.18	13.273			
2,200.0	2,184.4	2,217.9	2,215.0	5.8	4.2	112.05	-14.1	-225.3	120.4	9.56	12.597			
2,224.8	2,208.9	2,242.3	2,239.3	5.8	4.2	113.81	-15.2	-224.3	120.3	9.64	12.479 CC, ES			
2,300.0	2,283.5	2,316.5	2,313.4	6.1	4.4	119.26	-18.7	-221.2	120.9	9.88	12.242			
2,400.0	2,382.6	2,415.1	2,411.8	6.3	4.6	126.49	-23.1	-216.6	123.6	10.15	12.181 SF			
2,500.0	2,481.8	2,513.3	2,509.9	6.6	4.8	133.38	-27.3	-211.9	128.4	10.37	12.379			
2,600.0	2,580.9	2,610.9	2,607.2	6.9	5.0	139.70	-31.0	-206.9	135.6	10.57	12.825			
2,700.0	2,680.0	2,709.3	2,705.4	7.2	5.2	145.39	-34.2	-201.7	144.8	10.77	13.444			
2,800.0	2,779.1	2,806.9	2,802.8	7.5	5.4	150.33	-37.1	-196.4	155.7	10.97	14.185			
2,900.0	2,878.3	2,905.8	2,901.5	7.8	5.6	154.67	-39.8	-190.9	167.7	11.19	14.983			
3,000.0	2,977.4	3,004.2	2,999.7	8.1	5.8	158.44	-42.7	-185.4	180.5	11.43	15.791			
3,100.0	3,076.5	3,103.4	3,098.7	8.4	6.0	161.94	-46.2	-179.3	193.9	11.69	16.582			
3,200.0	3,175.6	3,202.9	3,198.0	8.7	6.2	164.95	-49.8	-173.6	207.4	11.96	17.337			
3,300.0	3,274.7	3,300.8	3,295.7	9.0	6.4	167.39	-53.1	-168.6	221.3	12.26	18.056			
3,400.0	3,373.9	3,398.9	3,393.6	9.2	6.6	169.56	-56.3	-163.2	235.9	12.57	18.771			
3,500.0	3,473.0	3,496.9	3,491.4	9.5	6.8	171.39	-59.0	-158.0	250.9	12.88	19.481			
3,600.0	3,572.1	3,595.1	3,589.4	9.8	7.0	172.89	-61.2	-153.0	266.4	13.20	20.173			
3,700.0	3,671.2	3,693.6	3,687.8	10.1	7.2	174.15	-63.1	-148.2	282.1	13.53	20.841			
3,800.0	3,770.4	3,791.5	3,785.6	10.4	7.4	175.21	-64.6	-143.5	298.0	13.87	21.488			
3,900.0	3,869.5	3,888.3	3,882.2	10.7	7.6	176.12	-65.7	-138.7	314.4	14.20	22.137			
4,000.0	3,968.6	3,986.6	3,980.5	11.0	7.8	176.89	-66.3	-133.7	331.2	14.54	22.779			
4,100.0	4,067.7	4,085.4	4,079.1	11.3	7.9	177.57	-67.0	-128.8	348.0	14.88	23.383			
4,200.0	4,166.9	4,182.2	4,175.8	11.6	8.1	178.20	-67.6	-123.9	365.0	15.22	23.979			
4,300.0	4,266.0	4,278.7	4,272.1	11.9	8.3	178.71	-67.5	-118.7	382.5	15.56	24.589			
4,400.0	4,365.1	4,376.2	4,369.5	12.1	8.5	179.12	-67.0	-113.4	400.5	15.90	25.192			
4,500.0	4,464.2	4,473.2	4,466.3	12.4	8.7	179.51	-66.4	-107.9	418.7	16.24	25.787			
4,600.0	4,563.4	4,568.1	4,561.1	12.7	8.9	179.82	-65.3	-102.3	437.4	16.57	26.392			
4,700.0	4,662.5	4,668.8	4,661.5	13.0	9.1	-179.83	-64.3	-95.8	456.5	16.92	26.975			
4,800.0	4,761.6	4,766.2	4,758.7	13.3	9.3	-179.44	-64.1	-89.7	475.0	17.27	27.505			
4,900.0	4,860.7	4,860.5	4,852.9	13.6	9.5	-179.12	-63.5	-83.4	494.2	17.61	28.068			

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 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	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		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	23.9	23.9	0.0	0.0	-80.90	46.8	-292.3	296.1					
100.0	100.0	123.4	123.4	0.1	0.2	-80.88	46.9	-292.4	296.2	295.9	0.33	898.380		
200.0	200.0	219.6	219.6	0.3	0.4	-80.83	47.3	-292.9	296.7	296.0	0.67	444.599		
300.0	300.0	309.3	309.3	0.5	0.5	42.47	48.0	-295.6	299.4	298.4	1.00	300.083		
400.0	399.8	399.6	399.3	0.7	0.7	43.03	49.1	-301.7	302.3	301.0	1.34	225.912		
500.0	499.3	499.3	498.7	0.9	0.9	43.74	47.2	-310.4	303.0	301.3	1.73	175.642		
600.0	598.4	601.8	600.4	1.2	1.2	43.81	39.8	-319.8	301.2	299.0	2.17	138.942		
700.0	697.5	708.4	705.7	1.5	1.5	42.79	26.3	-329.4	298.2	295.5	2.67	111.497		
800.0	796.7	820.0	815.2	1.7	1.8	40.63	6.3	-336.4	292.0	288.7	3.25	89.782		
900.0	895.8	923.7	916.0	2.0	2.3	37.40	-18.1	-339.9	282.8	278.9	3.85	73.405		
1,000.0	994.9	1,022.4	1,011.1	2.3	2.7	33.50	-44.2	-342.9	274.1	269.6	4.43	61.812		
1,100.0	1,094.0	1,121.6	1,106.7	2.6	3.1	29.35	-70.5	-345.5	266.3	261.3	4.99	53.333		
1,200.0	1,193.2	1,221.1	1,202.8	2.9	3.6	25.07	-96.3	-347.5	259.5	253.9	5.52	46.982		
1,300.0	1,292.3	1,314.8	1,293.1	3.2	4.0	20.76	-121.1	-349.6	254.4	248.4	6.01	42.302		
1,400.0	1,391.4	1,414.5	1,389.0	3.5	4.5	15.85	-148.4	-352.3	251.9	245.4	6.47	38.908		
1,500.0	1,490.5	1,511.5	1,482.4	3.7	5.0	11.03	-174.7	-354.5	250.6	243.7	6.89	36.372		
1,505.7	1,496.2	1,517.1	1,487.7	3.8	5.0	10.75	-176.2	-354.6	250.6	243.7	6.91	36.254	CC, ES	
1,600.0	1,589.6	1,608.1	1,575.2	4.0	5.5	6.18	-201.2	-356.9	251.6	244.4	7.26	34.647		
1,700.0	1,688.8	1,707.0	1,670.2	4.3	6.0	1.27	-228.4	-359.3	254.5	246.9	7.61	33.446		
1,800.0	1,787.9	1,806.1	1,765.5	4.6	6.4	-3.54	-255.4	-361.2	258.7	250.8	7.93	32.626		
1,900.0	1,887.0	1,907.7	1,863.5	4.9	6.9	-8.22	-282.1	-362.4	263.5	255.3	8.23	32.016		
2,000.0	1,986.1	2,000.7	1,953.5	5.2	7.4	-12.12	-306.0	-364.4	270.2	261.6	8.51	31.741		
2,100.0	2,085.3	2,098.0	2,047.3	5.5	7.9	-15.92	-331.5	-367.4	279.1	270.3	8.81	31.671	SF	
2,200.0	2,184.4	2,194.9	2,140.6	5.8	8.3	-19.58	-357.3	-370.0	289.5	280.3	9.11	31.782		
2,300.0	2,283.5	2,290.0	2,232.1	6.1	8.8	-23.00	-383.4	-372.6	301.6	292.2	9.41	32.044		
2,400.0	2,382.6	2,385.3	2,323.4	6.3	9.3	-26.21	-410.3	-375.3	315.6	305.8	9.72	32.460		
2,500.0	2,481.8	2,486.2	2,420.3	6.6	9.8	-29.35	-438.7	-377.9	330.3	320.2	10.05	32.846		
2,600.0	2,580.9	2,586.6	2,516.8	6.9	10.3	-32.26	-466.1	-379.8	344.8	334.4	10.40	33.151		
2,700.0	2,680.0	2,682.9	2,609.5	7.2	10.8	-34.78	-492.2	-381.8	360.0	349.2	10.75	33.473		
2,800.0	2,779.1	2,780.3	2,703.2	7.5	11.3	-37.04	-518.7	-384.4	376.1	365.0	11.13	33.789		
2,900.0	2,878.3	2,883.0	2,802.1	7.8	11.8	-39.25	-545.9	-386.8	392.0	380.5	11.54	33.974		
3,000.0	2,977.4	2,982.7	2,898.5	8.1	12.3	-41.31	-571.5	-388.2	407.4	395.4	11.96	34.062		
3,100.0	3,076.5	3,076.2	2,988.7	8.4	12.7	-43.08	-596.0	-389.9	423.8	411.4	12.38	34.224		
3,200.0	3,175.6	3,172.4	3,081.4	8.7	13.2	-44.66	-621.6	-392.5	441.1	428.3	12.82	34.407		
3,300.0	3,274.7	3,268.9	3,174.4	9.0	13.7	-46.01	-647.4	-396.2	459.1	445.9	13.27	34.592		
3,400.0	3,373.9	3,365.7	3,267.5	9.2	14.2	-47.31	-673.5	-399.4	477.6	463.8	13.74	34.758		
3,500.0	3,473.0	3,461.6	3,359.7	9.5	14.7	-48.53	-699.7	-402.5	496.5	482.3	14.22	34.925		

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 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 19-16C - OH - Plan #2														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
0.0	0.0	0.0	0.0	0.0	0.0	44.41	41.5	40.7	58.1						
100.0	100.0	100.0	100.0	0.1	0.1	44.41	41.5	40.7	58.1	57.9	0.27	219.107			
200.0	200.0	200.0	200.0	0.3	0.3	44.41	41.5	40.7	58.1	57.5	0.61	94.615 CC, ES			
228.0	228.0	228.0	228.0	0.4	0.4	167.63	41.5	40.7	58.2	57.5	0.71	81.764			
300.0	300.0	299.0	299.0	0.5	0.5	168.21	41.5	41.3	59.2	58.2	0.96	61.515			
400.0	399.8	396.4	396.3	0.7	0.7	172.35	40.9	46.3	67.7	66.4	1.31	51.525			
500.0	499.3	491.8	491.1	0.9	0.9	178.04	40.0	55.9	85.4	83.7	1.67	51.016 SF			
600.0	598.4	584.5	582.8	1.2	1.2	-176.79	38.5	69.7	110.3	108.2	2.05	53.867			
700.0	697.5	676.2	672.7	1.5	1.5	-172.53	36.7	87.6	139.5	137.1	2.42	57.585			
800.0	796.7	771.0	765.4	1.7	1.9	-169.42	34.7	107.3	170.3	167.4	2.80	60.723			
900.0	895.8	865.8	858.2	2.0	2.2	-167.27	32.7	126.9	201.3	198.2	3.18	63.223			
1,000.0	994.9	960.6	950.9	2.3	2.6	-165.69	30.6	146.5	232.6	229.0	3.57	65.244			
1,100.0	1,094.0	1,055.5	1,043.7	2.6	3.0	-164.48	28.6	166.2	264.0	260.1	3.95	66.905			
1,200.0	1,193.2	1,150.3	1,136.4	2.9	3.4	-163.53	26.6	185.8	295.5	291.2	4.33	68.292			
1,300.0	1,292.3	1,245.1	1,229.1	3.2	3.8	-162.76	24.6	205.5	327.0	322.3	4.71	69.465			
1,400.0	1,391.4	1,339.9	1,321.9	3.5	4.2	-162.13	22.5	225.1	358.6	353.5	5.09	70.470			
1,500.0	1,490.5	1,434.7	1,414.6	3.7	4.5	-161.60	20.5	244.8	390.2	384.7	5.47	71.339			
1,600.0	1,589.6	1,529.5	1,507.3	4.0	4.9	-161.15	18.5	264.4	421.8	416.0	5.85	72.098			
1,700.0	1,688.8	1,624.3	1,600.1	4.3	5.3	-160.76	16.5	284.0	453.5	447.3	6.23	72.767			
1,800.0	1,787.9	1,719.2	1,692.8	4.6	5.7	-160.43	14.5	303.7	485.2	478.6	6.61	73.360			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 19-16CC - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	47.56	28.4	31.1	42.1					
100.0	100.0	100.0	100.0	0.1	0.1	47.56	28.4	31.1	42.1	41.8	0.27	158.705		
200.0	200.0	200.0	200.0	0.3	0.3	47.56	28.4	31.1	42.1	41.5	0.61	68.532 CC, ES		
227.8	227.8	227.8	227.8	0.4	0.4	170.78	28.4	31.1	42.2	41.5	0.71	59.321		
300.0	300.0	300.0	300.0	0.5	0.5	170.90	28.4	31.1	42.7	41.8	0.96	44.381		
400.0	399.8	398.9	398.9	0.7	0.7	174.71	27.1	33.3	48.8	47.5	1.31	37.169 SF		
500.0	499.3	496.5	496.1	0.9	0.9	-177.94	23.4	39.9	62.6	61.0	1.68	37.288		
600.0	598.4	592.0	590.9	1.2	1.1	-170.70	17.4	50.5	82.7	80.6	2.08	39.788		
700.0	697.5	685.5	682.9	1.5	1.4	-164.41	9.3	64.8	106.8	104.3	2.51	42.601		
800.0	796.7	776.6	771.7	1.7	1.8	-159.14	-0.7	82.6	135.1	132.2	2.95	45.793		
900.0	895.8	871.0	863.1	2.0	2.2	-155.01	-12.3	103.0	166.1	162.7	3.41	48.772		
1,000.0	994.9	965.5	954.6	2.3	2.7	-152.16	-23.9	123.4	197.7	193.8	3.86	51.215		
1,100.0	1,094.0	1,060.0	1,046.2	2.6	3.1	-150.10	-35.4	143.9	229.6	225.2	4.31	53.231		
1,200.0	1,193.2	1,154.5	1,137.7	2.9	3.5	-148.54	-47.0	164.3	261.6	256.9	4.76	54.917		
1,300.0	1,292.3	1,249.0	1,229.2	3.2	4.0	-147.32	-58.6	184.8	293.8	288.6	5.22	56.343		
1,400.0	1,391.4	1,343.5	1,320.8	3.5	4.4	-146.34	-70.1	205.2	326.1	320.5	5.67	57.563		
1,500.0	1,490.5	1,438.0	1,412.3	3.7	4.9	-145.54	-81.7	225.7	358.5	352.4	6.12	58.618		
1,600.0	1,589.6	1,532.5	1,503.9	4.0	5.3	-144.87	-93.3	246.1	390.9	384.4	6.57	59.539		
1,700.0	1,688.8	1,627.0	1,595.4	4.3	5.8	-144.30	-104.8	266.6	423.4	416.4	7.02	60.349		
1,800.0	1,787.9	1,721.5	1,686.9	4.6	6.2	-143.81	-116.4	287.0	455.9	448.4	7.47	61.066		
1,900.0	1,887.0	1,816.0	1,778.5	4.9	6.7	-143.39	-128.0	307.4	488.4	480.5	7.92	61.707		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-1B - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	54.83	14.9	21.2	25.9					
100.0	100.0	100.0	100.0	0.1	0.1	54.83	14.9	21.2	25.9	25.7	0.27	97.696		
200.0	200.0	200.0	200.0	0.3	0.3	54.83	14.9	21.2	25.9	25.3	0.61	42.187 CC, ES		
227.8	227.8	227.8	227.8	0.4	0.4	178.04	14.9	21.2	26.0	25.3	0.71	36.575		
300.0	300.0	300.0	300.0	0.5	0.5	178.08	14.9	21.2	26.6	25.6	0.96	27.587		
400.0	399.8	399.5	399.5	0.7	0.7	-179.07	13.9	22.3	32.2	30.8	1.31	24.520 SF		
500.0	499.3	498.0	497.7	0.9	0.9	-171.26	9.6	26.9	44.7	43.0	1.67	26.687		
600.0	598.4	594.8	593.9	1.2	1.1	-163.42	2.0	35.2	62.8	60.7	2.08	30.169		
700.0	697.5	689.9	687.7	1.5	1.4	-156.42	-8.6	46.8	84.4	81.9	2.53	33.353		
800.0	796.7	783.0	778.6	1.7	1.8	-150.48	-22.1	61.4	110.0	107.0	3.02	36.496		
900.0	895.8	873.6	866.1	2.0	2.2	-145.55	-38.1	78.7	139.8	136.3	3.52	39.727		
1,000.0	994.9	964.4	952.7	2.3	2.7	-141.45	-56.6	98.8	173.4	169.3	4.02	43.088		
1,100.0	1,094.0	1,057.7	1,041.5	2.6	3.2	-138.49	-76.0	119.9	208.0	203.5	4.53	45.900		
1,200.0	1,193.2	1,151.1	1,130.4	2.9	3.7	-136.37	-95.4	140.9	243.0	237.9	5.03	48.261		
1,300.0	1,292.3	1,244.5	1,219.2	3.2	4.2	-134.79	-114.8	162.0	278.1	272.6	5.53	50.258		
1,400.0	1,391.4	1,337.8	1,308.1	3.5	4.8	-133.56	-134.2	183.0	313.5	307.5	6.03	51.964		
1,500.0	1,490.5	1,431.2	1,397.0	3.7	5.3	-132.57	-153.6	204.1	348.9	342.4	6.53	53.436		
1,600.0	1,589.6	1,524.5	1,485.8	4.0	5.8	-131.77	-173.0	225.1	384.4	377.4	7.03	54.717		
1,700.0	1,688.8	1,617.9	1,574.7	4.3	6.3	-131.11	-192.3	246.2	420.0	412.5	7.52	55.842		
1,800.0	1,787.9	1,711.3	1,663.6	4.6	6.9	-130.54	-211.7	267.2	455.6	447.6	8.02	56.837		
1,900.0	1,887.0	1,804.6	1,752.4	4.9	7.4	-130.06	-231.1	288.3	491.2	482.7	8.51	57.723		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-1C - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	37.02	13.1	9.9	16.4					
100.0	100.0	100.0	100.0	0.1	0.1	37.02	13.1	9.9	16.4	16.2	0.27	61.902		
200.0	200.0	200.0	200.0	0.3	0.3	37.02	13.1	9.9	16.4	15.8	0.61	26.731		
272.5	272.5	272.7	272.7	0.4	0.4	165.44	11.9	10.6	16.6	15.7	0.87	19.041		
300.0	300.0	300.2	300.2	0.5	0.5	169.62	10.9	11.2	16.3	15.3	0.97	16.742 CC, ES		
400.0	399.8	399.8	399.4	0.7	0.7	-166.83	4.2	15.3	21.5	20.1	1.36	15.764 SF		
500.0	499.3	497.9	496.7	0.9	1.0	-149.82	-6.8	21.8	35.6	33.8	1.80	19.781		
600.0	598.4	594.2	591.5	1.2	1.3	-140.30	-21.7	30.7	56.2	53.9	2.29	24.488		
700.0	697.5	688.6	683.3	1.5	1.8	-133.36	-40.2	41.9	80.7	77.9	2.82	28.650		
800.0	796.7	780.7	771.8	1.7	2.2	-128.03	-62.0	54.9	109.4	106.0	3.35	32.612		
900.0	895.8	870.1	856.4	2.0	2.8	-123.82	-86.7	69.7	142.2	138.3	3.89	36.522		
1,000.0	994.9	956.6	937.0	2.3	3.4	-120.44	-113.7	86.0	179.1	174.6	4.43	40.439		
1,100.0	1,094.0	1,040.0	1,013.2	2.6	4.0	-117.67	-142.8	103.4	219.9	214.9	4.95	44.377		
1,200.0	1,193.2	1,122.3	1,086.9	2.9	4.7	-115.34	-174.1	122.2	264.3	258.9	5.47	48.324		
1,300.0	1,292.3	1,210.8	1,165.7	3.2	5.4	-113.42	-208.6	142.9	310.1	304.1	6.00	51.721		
1,400.0	1,391.4	1,299.3	1,244.5	3.5	6.1	-111.99	-243.2	163.6	356.1	349.5	6.52	54.623		
1,500.0	1,490.5	1,387.8	1,323.3	3.7	6.9	-110.89	-277.7	184.3	402.2	395.1	7.04	57.122		
1,600.0	1,589.6	1,476.3	1,402.1	4.0	7.6	-110.01	-312.3	205.0	448.4	440.8	7.56	59.296		
1,700.0	1,688.8	1,564.8	1,480.9	4.3	8.3	-109.30	-346.8	225.7	494.7	486.6	8.08	61.204		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-2C - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-161.70	-24.8	-8.2	26.1					
100.0	100.0	100.0	100.0	0.1	0.1	-161.70	-24.8	-8.2	26.1	25.8	0.27	98.335		
200.0	200.0	200.0	200.0	0.3	0.3	-161.70	-24.8	-8.2	26.1	25.5	0.61	42.463 CC, ES		
300.0	300.0	298.6	298.6	0.5	0.5	-40.04	-27.3	-8.6	28.1	27.2	0.96	29.275		
400.0	399.8	396.9	396.5	0.7	0.7	-47.48	-34.8	-10.0	32.1	30.8	1.32	24.370		
500.0	499.3	494.7	493.5	0.9	1.0	-58.35	-47.1	-12.1	38.6	36.9	1.72	22.410 SF		
600.0	598.4	591.7	588.9	1.2	1.3	-66.90	-64.2	-15.2	49.9	47.7	2.19	22.715		
700.0	697.5	687.6	682.3	1.5	1.7	-70.37	-85.7	-19.0	66.3	63.6	2.70	24.546		
800.0	796.7	781.9	772.9	1.7	2.2	-71.04	-111.4	-23.5	87.3	84.1	3.22	27.121		
900.0	895.8	874.7	860.7	2.0	2.8	-70.43	-140.9	-28.7	112.7	108.9	3.73	30.182		
1,000.0	994.9	970.9	951.1	2.3	3.4	-69.68	-173.3	-34.4	139.8	135.5	4.25	32.881		
1,100.0	1,094.0	1,067.1	1,041.6	2.6	3.9	-69.17	-205.7	-40.1	166.9	162.1	4.77	34.976		
1,200.0	1,193.2	1,163.4	1,132.0	2.9	4.5	-68.81	-238.1	-45.9	194.0	188.8	5.30	36.644		
1,300.0	1,292.3	1,259.6	1,222.5	3.2	5.1	-68.54	-270.5	-51.6	221.2	215.4	5.82	38.002		
1,400.0	1,391.4	1,355.8	1,312.9	3.5	5.7	-68.32	-302.9	-57.3	248.3	242.0	6.35	39.129		
1,500.0	1,490.5	1,452.1	1,403.3	3.7	6.3	-68.15	-335.4	-63.0	275.5	268.6	6.87	40.078		
1,600.0	1,589.6	1,548.3	1,493.8	4.0	6.9	-68.01	-367.8	-68.8	302.7	295.3	7.40	40.888		
1,700.0	1,688.8	1,644.6	1,584.2	4.3	7.5	-67.89	-400.2	-74.5	329.8	321.9	7.93	41.588		
1,800.0	1,787.9	1,740.8	1,674.6	4.6	8.1	-67.79	-432.6	-80.2	357.0	348.5	8.46	42.197		
1,900.0	1,887.0	1,837.0	1,765.1	4.9	8.7	-67.70	-465.0	-85.9	384.1	375.1	8.99	42.734		
2,000.0	1,986.1	1,933.3	1,855.5	5.2	9.3	-67.63	-497.4	-91.7	411.3	401.8	9.52	43.209		
2,100.0	2,085.3	2,029.5	1,945.9	5.5	9.9	-67.56	-529.8	-97.4	438.4	428.4	10.05	43.633		
2,200.0	2,184.4	2,125.8	2,036.4	5.8	10.5	-67.51	-562.3	-103.1	465.6	455.0	10.58	44.014		
2,300.0	2,283.5	2,222.0	2,126.8	6.1	11.1	-67.45	-594.7	-108.8	492.8	481.7	11.11	44.357		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-3A - OH - Plan #2													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	-143.76	-26.6	-19.5	33.0					
100.0	100.0	100.0	100.0	0.1	0.1	-143.76	-26.6	-19.5	33.0	32.7	0.27	124.271	CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	-143.76	-26.6	-19.5	33.0	32.4	0.61	53.663		
300.0	300.0	298.7	298.7	0.5	0.5	-21.09	-27.8	-20.3	33.8	32.8	0.96	35.169		
400.0	399.8	396.9	396.7	0.7	0.7	-24.62	-33.1	-23.7	35.4	34.1	1.31	27.044		
500.0	499.3	494.9	494.0	0.9	0.9	-30.97	-42.6	-29.7	37.7	36.0	1.68	22.493		
600.0	598.4	593.3	591.1	1.2	1.2	-37.36	-56.2	-38.4	43.0	40.9	2.08	20.639		
700.0	697.5	693.0	689.2	1.5	1.6	-41.94	-71.0	-47.9	49.8	47.3	2.52	19.746		
800.0	796.7	792.7	787.3	1.7	1.9	-45.39	-85.8	-57.3	56.9	53.9	2.99	19.030		
900.0	895.8	892.4	885.5	2.0	2.3	-48.07	-100.6	-66.8	64.2	60.7	3.48	18.448		
1,000.0	994.9	992.1	983.6	2.3	2.6	-50.20	-115.4	-76.2	71.6	67.6	3.98	17.972		
1,100.0	1,094.0	1,091.8	1,081.7	2.6	3.0	-51.93	-130.2	-85.7	79.0	74.5	4.50	17.580		
1,200.0	1,193.2	1,191.5	1,179.9	2.9	3.3	-53.36	-145.0	-95.1	86.6	81.5	5.02	17.253		
1,300.0	1,292.3	1,291.2	1,278.0	3.2	3.7	-54.56	-159.8	-104.6	94.1	88.6	5.54	16.978		
1,400.0	1,391.4	1,390.9	1,376.2	3.5	4.0	-55.58	-174.6	-114.0	101.7	95.6	6.07	16.745		
1,500.0	1,490.5	1,490.5	1,474.3	3.7	4.4	-56.47	-189.4	-123.5	109.3	102.7	6.61	16.545		
1,600.0	1,589.6	1,590.2	1,572.4	4.0	4.7	-57.23	-204.2	-132.9	117.0	109.8	7.15	16.371		
1,700.0	1,688.8	1,689.9	1,670.6	4.3	5.1	-57.90	-219.0	-142.4	124.7	117.0	7.69	16.220		
1,800.0	1,787.9	1,789.6	1,768.7	4.6	5.4	-58.50	-233.8	-151.8	132.3	124.1	8.23	16.087		
1,900.0	1,887.0	1,889.3	1,866.8	4.9	5.8	-59.02	-248.6	-161.3	140.0	131.3	8.77	15.969		
2,000.0	1,986.1	1,989.0	1,965.0	5.2	6.1	-59.50	-263.4	-170.7	147.7	138.4	9.31	15.864		
2,100.0	2,085.3	2,088.7	2,063.1	5.5	6.5	-59.92	-278.2	-180.2	155.4	145.6	9.86	15.770		
2,200.0	2,184.4	2,188.4	2,161.2	5.8	6.8	-60.31	-293.0	-189.6	163.2	152.8	10.40	15.685		
2,300.0	2,283.5	2,288.1	2,259.4	6.1	7.2	-60.66	-307.8	-199.1	170.9	159.9	10.95	15.608		
2,400.0	2,382.6	2,387.8	2,357.5	6.3	7.5	-60.98	-322.6	-208.6	178.6	167.1	11.50	15.539		
2,500.0	2,481.8	2,487.5	2,455.7	6.6	7.9	-61.28	-337.4	-218.0	186.4	174.3	12.04	15.475		
2,600.0	2,580.9	2,587.2	2,553.8	6.9	8.2	-61.55	-352.2	-227.5	194.1	181.5	12.59	15.417		
2,700.0	2,680.0	2,686.9	2,651.9	7.2	8.6	-61.80	-367.0	-236.9	201.9	188.7	13.14	15.363		
2,800.0	2,779.1	2,786.6	2,750.1	7.5	8.9	-62.03	-381.8	-246.4	209.6	195.9	13.69	15.314		
2,900.0	2,878.3	2,886.3	2,848.2	7.8	9.3	-62.24	-396.6	-255.8	217.4	203.1	14.24	15.268		
3,000.0	2,977.4	2,986.0	2,946.3	8.1	9.6	-62.44	-411.4	-265.3	225.1	210.3	14.79	15.225		
3,100.0	3,076.5	3,085.7	3,044.5	8.4	10.0	-62.63	-426.2	-274.7	232.9	217.5	15.34	15.186		
3,200.0	3,175.6	3,185.4	3,142.6	8.7	10.3	-62.81	-441.0	-284.2	240.6	224.8	15.88	15.149		
3,300.0	3,274.7	3,285.1	3,240.8	9.0	10.7	-62.97	-455.8	-293.6	248.4	232.0	16.43	15.115		
3,400.0	3,373.9	3,384.8	3,338.9	9.2	11.1	-63.12	-470.6	-303.1	256.2	239.2	16.98	15.083		
3,500.0	3,473.0	3,484.5	3,437.0	9.5	11.4	-63.27	-485.4	-312.5	263.9	246.4	17.53	15.052		
3,600.0	3,572.1	3,584.2	3,535.2	9.8	11.8	-63.41	-500.2	-322.0	271.7	253.6	18.09	15.024		
3,700.0	3,671.2	3,683.9	3,633.3	10.1	12.1	-63.53	-515.0	-331.4	279.5	260.8	18.64	14.997		
3,800.0	3,770.4	3,783.6	3,731.4	10.4	12.5	-63.66	-529.8	-340.9	287.3	268.1	19.19	14.972		
3,900.0	3,869.5	3,883.2	3,829.6	10.7	12.8	-63.77	-544.6	-350.3	295.0	275.3	19.74	14.948		
4,000.0	3,968.6	3,982.9	3,927.7	11.0	13.2	-63.88	-559.4	-359.8	302.8	282.5	20.29	14.925		
4,100.0	4,067.7	4,082.6	4,025.9	11.3	13.5	-63.99	-574.2	-369.2	310.6	289.7	20.84	14.904		
4,200.0	4,166.9	4,182.3	4,124.0	11.6	13.9	-64.08	-589.0	-378.7	318.3	297.0	21.39	14.884		
4,300.0	4,266.0	4,282.0	4,222.1	11.9	14.2	-64.18	-603.7	-388.1	326.1	304.2	21.94	14.864		
4,400.0	4,365.1	4,381.7	4,320.3	12.1	14.6	-64.27	-618.5	-397.6	333.9	311.4	22.49	14.846		
4,500.0	4,464.2	4,481.4	4,418.4	12.4	14.9	-64.36	-633.3	-407.0	341.7	318.6	23.04	14.828		
4,600.0	4,563.4	4,581.1	4,516.5	12.7	15.3	-64.44	-648.1	-416.5	349.5	325.9	23.59	14.812		
4,700.0	4,662.5	4,680.8	4,614.7	13.0	15.6	-64.52	-662.9	-425.9	357.2	333.1	24.15	14.796		
4,800.0	4,761.6	4,780.5	4,712.8	13.3	16.0	-64.59	-677.7	-435.4	365.0	340.3	24.70	14.780		
4,900.0	4,860.7	4,880.2	4,811.0	13.6	16.4	-64.66	-692.5	-444.8	372.8	347.6	25.25	14.766		
5,000.0	4,959.8	4,979.9	4,909.1	13.9	16.7	-64.73	-707.3	-454.3	380.6	354.8	25.80	14.752		
5,100.0	5,059.0	5,079.6	5,007.2	14.2	17.1	-64.80	-722.1	-463.7	388.4	362.0	26.35	14.738		

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 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-3A - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
5,200.0	5,158.2	5,188.1	5,114.2	14.4	17.4	-64.92	-737.2	-473.4	395.8	369.0	26.87	14.729		
5,300.0	5,257.9	5,299.7	5,224.9	14.6	17.7	-64.93	-749.2	-481.0	401.9	374.6	27.30	14.723		
5,400.0	5,357.7	5,411.5	5,336.3	14.8	17.9	-64.82	-757.6	-486.4	406.5	378.9	27.62	14.719		
5,500.0	5,457.7	5,523.6	5,448.2	14.9	18.1	172.21	-762.3	-489.4	409.6	381.8	27.84	14.714		
5,600.0	5,557.7	5,633.1	5,557.7	15.0	18.2	172.33	-763.4	-490.1	410.5	382.5	28.07	14.625		
5,700.0	5,657.7	5,733.1	5,657.7	15.1	18.3	172.33	-763.4	-490.1	410.5	382.2	28.31	14.499		
5,800.0	5,757.7	5,833.1	5,757.7	15.2	18.4	172.33	-763.4	-490.1	410.5	382.0	28.56	14.374		
5,900.0	5,857.7	5,933.1	5,857.7	15.4	18.5	172.33	-763.4	-490.1	410.5	381.7	28.81	14.250		
6,000.0	5,957.7	6,033.1	5,957.7	15.5	18.6	172.33	-763.4	-490.1	410.5	381.5	29.06	14.128		
6,100.0	6,057.7	6,133.1	6,057.7	15.6	18.7	172.33	-763.4	-490.1	410.5	381.2	29.31	14.006		
6,200.0	6,157.7	6,233.1	6,157.7	15.7	18.8	172.33	-763.4	-490.1	410.5	381.0	29.56	13.886		
6,300.0	6,257.7	6,333.1	6,257.7	15.8	18.9	172.33	-763.4	-490.1	410.5	380.7	29.82	13.766		
6,400.0	6,357.7	6,433.1	6,357.7	16.0	19.0	172.33	-763.4	-490.1	410.5	380.4	30.08	13.648		
6,500.0	6,457.7	6,533.1	6,457.7	16.1	19.1	172.33	-763.4	-490.1	410.5	380.2	30.34	13.531		
6,600.0	6,557.7	6,633.1	6,557.7	16.2	19.2	172.33	-763.4	-490.1	410.5	379.9	30.60	13.416		
6,700.0	6,657.7	6,733.1	6,657.7	16.3	19.3	172.33	-763.4	-490.1	410.5	379.7	30.86	13.301		
6,800.0	6,757.7	6,833.1	6,757.7	16.4	19.4	172.33	-763.4	-490.1	410.5	379.4	31.13	13.188		
6,900.0	6,857.7	6,933.1	6,857.7	16.6	19.5	172.33	-763.4	-490.1	410.5	379.1	31.40	13.076		
7,000.0	6,957.7	7,033.1	6,957.7	16.7	19.6	172.33	-763.4	-490.1	410.5	378.9	31.66	12.965		
7,100.0	7,057.7	7,133.1	7,057.7	16.8	19.7	172.33	-763.4	-490.1	410.5	378.6	31.93	12.855		
7,200.0	7,157.7	7,233.1	7,157.7	17.0	19.8	172.33	-763.4	-490.1	410.5	378.3	32.21	12.747		
7,300.0	7,257.7	7,333.1	7,257.7	17.1	19.9	172.33	-763.4	-490.1	410.5	378.0	32.48	12.640		
7,400.0	7,357.7	7,433.1	7,357.7	17.2	20.0	172.33	-763.4	-490.1	410.5	377.8	32.75	12.534		
7,500.0	7,457.7	7,533.1	7,457.7	17.3	20.2	172.33	-763.4	-490.1	410.5	377.5	33.03	12.429		
7,600.0	7,557.7	7,633.1	7,557.7	17.5	20.3	172.33	-763.4	-490.1	410.5	377.2	33.31	12.326		
7,700.0	7,657.7	7,733.1	7,657.7	17.6	20.4	172.33	-763.4	-490.1	410.5	376.9	33.58	12.224		
7,800.0	7,757.7	7,833.1	7,757.7	17.7	20.5	172.33	-763.4	-490.1	410.5	376.7	33.86	12.123		
7,847.6	7,805.3	7,880.7	7,805.3	17.8	20.6	172.33	-763.4	-490.1	410.5	376.5	34.00	12.075 SF		
7,900.0	7,857.7	7,896.7	7,821.3	17.9	20.6	172.33	-763.4	-490.1	412.1	378.0	34.09	12.089		
8,000.0	7,957.7	7,896.7	7,821.3	18.0	20.6	172.33	-763.4	-490.1	432.6	398.4	34.23	12.637		
8,100.0	8,057.7	7,896.7	7,821.3	18.1	20.6	172.33	-763.4	-490.1	473.7	439.4	34.37	13.782		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-3B - OH - Plan #2													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	-144.52	-13.5	-9.6	16.5					
100.0	100.0	100.0	100.0	0.1	0.1	-144.52	-13.5	-9.6	16.5	16.3	0.27	62.380		
200.0	200.0	200.0	200.0	0.3	0.3	-144.52	-13.5	-9.6	16.5	15.9	0.61	26.937 CC, ES		
300.0	300.0	299.1	299.1	0.5	0.5	-19.82	-15.1	-11.6	18.4	17.5	0.96	19.159		
400.0	399.8	398.1	397.7	0.7	0.7	-19.29	-19.9	-17.6	21.0	19.7	1.31	16.021		
500.0	499.3	496.9	495.7	0.9	1.0	-19.99	-27.8	-27.7	23.7	22.1	1.68	14.166		
600.0	598.4	595.5	592.7	1.2	1.3	-19.78	-38.8	-41.6	28.8	26.8	2.05	14.062 SF		
700.0	697.5	693.3	687.8	1.5	1.8	-17.77	-52.8	-59.3	38.9	36.5	2.41	16.104		
800.0	796.7	789.9	780.5	1.7	2.3	-15.54	-69.6	-80.4	53.9	51.1	2.77	19.484		
900.0	895.8	884.7	870.1	2.0	2.9	-13.68	-88.9	-104.8	73.9	70.8	3.11	23.737		
1,000.0	994.9	978.8	957.4	2.3	3.5	-12.26	-110.6	-132.2	98.5	95.0	3.45	28.519		
1,100.0	1,094.0	1,075.4	1,046.6	2.6	4.2	-11.32	-133.6	-161.2	124.3	120.5	3.80	32.716		
1,200.0	1,193.2	1,171.9	1,135.9	2.9	4.9	-10.70	-156.7	-190.2	150.1	146.0	4.15	36.212		
1,300.0	1,292.3	1,268.5	1,225.1	3.2	5.6	-10.26	-179.7	-219.2	176.0	171.5	4.49	39.165		
1,400.0	1,391.4	1,365.1	1,314.3	3.5	6.3	-9.94	-202.7	-248.3	201.9	197.0	4.84	41.693		
1,500.0	1,490.5	1,461.7	1,403.5	3.7	7.0	-9.69	-225.7	-277.3	227.7	222.5	5.19	43.881		
1,600.0	1,589.6	1,558.3	1,492.7	4.0	7.7	-9.49	-248.7	-306.3	253.6	248.1	5.54	45.795		
1,700.0	1,688.8	1,654.9	1,581.9	4.3	8.3	-9.32	-271.7	-335.3	279.5	273.6	5.89	47.481		
1,800.0	1,787.9	1,751.5	1,671.1	4.6	9.0	-9.19	-294.7	-364.4	305.3	299.1	6.23	48.980		
1,900.0	1,887.0	1,848.1	1,760.3	4.9	9.7	-9.07	-317.7	-393.4	331.2	324.6	6.58	50.320		
2,000.0	1,986.1	1,944.7	1,849.5	5.2	10.4	-8.97	-340.7	-422.4	357.1	350.2	6.93	51.525		
2,100.0	2,085.3	2,041.3	1,938.7	5.5	11.1	-8.89	-363.7	-451.4	383.0	375.7	7.28	52.616		
2,200.0	2,184.4	2,137.9	2,027.9	5.8	11.8	-8.82	-386.7	-480.5	408.9	401.2	7.63	53.606		
2,300.0	2,283.5	2,234.5	2,117.2	6.1	12.5	-8.75	-409.7	-509.5	434.7	426.8	7.98	54.511		
2,400.0	2,382.6	2,331.0	2,206.4	6.3	13.2	-8.69	-432.7	-538.5	460.6	452.3	8.32	55.339		
2,500.0	2,481.8	2,427.6	2,295.6	6.6	13.9	-8.64	-455.7	-567.5	486.5	477.8	8.67	56.102		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-4A - OH - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	36.64	26.6	19.8	33.1					
100.0	100.0	100.0	100.0	0.1	0.1	36.64	26.6	19.8	33.1	32.9	0.27	124.903		
200.0	200.0	200.0	200.0	0.3	0.3	36.64	26.6	19.8	33.1	32.5	0.61	53.936		
300.0	300.0	301.1	301.1	0.5	0.5	158.74	26.1	18.3	32.5	31.6	0.97	33.655		
400.0	399.8	402.4	402.4	0.7	0.7	155.24	23.9	12.0	32.0	30.7	1.33	24.039		
413.1	412.9	415.7	415.4	0.7	0.7	154.62	23.5	10.8	32.0	30.6	1.39	23.089		
500.0	499.3	503.6	502.7	0.9	1.0	149.69	19.9	0.6	32.4	30.6	1.75	18.490		
600.0	598.4	604.6	602.1	1.2	1.3	139.96	14.2	-15.7	31.9	29.6	2.30	13.909		
700.0	697.5	704.9	699.8	1.5	1.7	121.40	6.9	-36.9	30.4	27.3	3.09	9.854		
715.4	712.8	720.1	714.6	1.5	1.8	117.65	5.6	-40.5	30.4	27.1	3.24	9.386 CC, ES		
800.0	796.7	803.8	795.0	1.7	2.3	94.20	-2.0	-62.4	32.7	28.7	3.98	8.217 SF		
900.0	895.8	901.0	887.0	2.0	2.9	68.76	-12.3	-92.1	43.6	39.1	4.47	9.763		
1,000.0	994.9	996.0	975.2	2.3	3.6	52.22	-23.8	-125.2	63.3	58.7	4.67	13.556		
1,100.0	1,094.0	1,089.5	1,060.3	2.6	4.3	42.38	-36.5	-161.7	89.8	85.0	4.85	18.527		
1,200.0	1,193.2	1,184.7	1,146.6	2.9	5.0	36.69	-49.7	-199.8	118.8	113.7	5.08	23.354		
1,300.0	1,292.3	1,279.9	1,232.8	3.2	5.8	33.24	-62.9	-238.0	148.4	143.0	5.37	27.615		
1,400.0	1,391.4	1,375.1	1,319.0	3.5	6.6	30.93	-76.2	-276.1	178.3	172.6	5.69	31.348		
1,500.0	1,490.5	1,470.3	1,405.3	3.7	7.3	29.29	-89.4	-314.2	208.4	202.4	6.02	34.624		
1,600.0	1,589.6	1,565.5	1,491.5	4.0	8.1	28.06	-102.7	-352.3	238.6	232.3	6.36	37.514		
1,700.0	1,688.8	1,660.7	1,577.7	4.3	8.9	27.11	-115.9	-390.5	268.9	262.2	6.71	40.080		
1,800.0	1,787.9	1,755.9	1,664.0	4.6	9.6	26.35	-129.2	-428.6	299.3	292.2	7.06	42.370		
1,900.0	1,887.0	1,851.2	1,750.2	4.9	10.4	25.73	-142.4	-466.7	329.7	322.3	7.42	44.425		
2,000.0	1,986.1	1,946.4	1,836.5	5.2	11.2	25.22	-155.7	-504.8	360.2	352.4	7.78	46.280		
2,100.0	2,085.3	2,041.6	1,922.7	5.5	12.0	24.78	-168.9	-542.9	390.6	382.5	8.14	47.962		
2,200.0	2,184.4	2,136.8	2,008.9	5.8	12.7	24.41	-182.1	-581.1	421.1	412.6	8.51	49.494		
2,300.0	2,283.5	2,232.0	2,095.2	6.1	13.5	24.09	-195.4	-619.2	451.6	442.7	8.87	50.895		
2,400.0	2,382.6	2,327.2	2,181.4	6.3	14.3	23.81	-208.6	-657.3	482.1	472.8	9.24	52.181		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler 30-7A - OH - Plan #2												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	171.73	-11.7	1.7	11.8				
100.0	100.0	100.0	100.0	0.1	0.1	171.73	-11.7	1.7	11.8	11.5	0.27	44.397	
200.0	200.0	200.0	200.0	0.3	0.3	171.73	-11.7	1.7	11.8	11.2	0.61	19.171	
240.9	240.9	240.9	240.9	0.4	0.4	-66.05	-11.7	1.7	11.7	10.9	0.76	15.433 CC, ES	
300.0	300.0	299.7	299.7	0.5	0.5	-68.07	-12.3	1.8	12.2	11.2	0.96	12.631	
400.0	399.8	398.8	398.6	0.7	0.7	-85.71	-17.3	3.0	16.2	14.9	1.33	12.160 SF	
500.0	499.3	497.1	496.4	0.9	0.9	-101.76	-27.2	5.2	26.4	24.7	1.77	14.964	
600.0	598.4	594.4	592.5	1.2	1.2	-107.86	-41.9	8.4	42.4	40.1	2.25	18.835	
700.0	697.5	690.3	686.4	1.5	1.6	-107.57	-61.0	12.7	62.3	59.6	2.77	22.495	
800.0	796.7	784.5	777.6	1.7	2.0	-105.40	-84.2	17.9	86.1	82.8	3.31	25.993	
900.0	895.8	876.6	865.4	2.0	2.5	-102.80	-111.1	23.9	113.9	110.0	3.86	29.473	
1,000.0	994.9	966.1	949.5	2.3	3.1	-100.27	-141.2	30.6	145.6	141.2	4.41	33.008	
1,100.0	1,094.0	1,052.9	1,029.5	2.6	3.7	-97.97	-174.0	37.9	181.3	176.3	4.95	36.624	
1,200.0	1,193.2	1,136.7	1,105.2	2.9	4.4	-95.93	-209.0	45.7	220.8	215.4	5.48	40.322	
1,300.0	1,292.3	1,217.4	1,176.5	3.2	5.1	-94.15	-245.7	53.9	264.1	258.1	5.99	44.091	
1,400.0	1,391.4	1,300.0	1,247.9	3.5	5.8	-92.50	-286.3	63.0	311.0	304.5	6.50	47.819	
1,500.0	1,490.5	1,379.2	1,315.2	3.7	6.5	-91.15	-327.0	72.1	360.1	353.1	7.00	51.467	
1,600.0	1,589.6	1,465.9	1,388.9	4.0	7.4	-90.01	-371.6	82.1	409.5	402.0	7.51	54.535	
1,700.0	1,688.8	1,552.5	1,462.5	4.3	8.2	-89.12	-416.2	92.0	459.0	451.0	8.02	57.229	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design													O19EB Pad - Shideler 30-8B - OH - Plan #2		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	80.84	1.8	11.3	11.4								
100.0	100.0	100.0	100.0	0.1	0.1	80.84	1.8	11.3	11.4	11.2	0.27	43.142					
200.0	200.0	200.0	200.0	0.3	0.3	80.84	1.8	11.3	11.4	10.8	0.61	18.629	CC, ES				
300.0	300.0	299.7	299.7	0.5	0.5	-146.16	-0.5	12.5	13.0	12.1	0.97	13.443	SF				
400.0	399.8	398.8	398.5	0.7	0.7	-135.26	-7.4	16.0	21.4	20.0	1.35	15.814					
500.0	499.3	496.6	495.4	0.9	1.0	-130.64	-18.6	21.8	36.9	35.1	1.79	20.622					
600.0	598.4	592.7	589.9	1.2	1.3	-127.49	-34.0	29.6	57.8	55.5	2.28	25.352					
700.0	697.5	687.0	681.7	1.5	1.7	-123.73	-53.2	39.4	82.4	79.6	2.80	29.433					
800.0	796.7	779.0	770.2	1.7	2.2	-120.19	-75.7	50.9	110.9	107.5	3.33	33.264					
900.0	895.8	868.5	854.9	2.0	2.8	-117.08	-101.3	64.0	143.3	139.5	3.87	37.026					
1,000.0	994.9	955.1	935.6	2.3	3.4	-114.39	-129.4	78.3	179.7	175.3	4.41	40.796					
1,100.0	1,094.0	1,038.7	1,012.0	2.6	4.0	-112.10	-159.6	93.7	220.0	215.1	4.93	44.600					
1,200.0	1,193.2	1,119.2	1,084.1	2.9	4.7	-110.13	-191.4	110.0	264.0	258.5	5.45	48.444					
1,300.0	1,292.3	1,200.0	1,154.9	3.2	5.4	-108.37	-226.1	127.7	311.5	305.5	5.96	52.229					
1,400.0	1,391.4	1,270.2	1,215.0	3.5	6.1	-106.98	-258.3	144.1	362.3	355.8	6.45	56.136					
1,500.0	1,490.5	1,346.9	1,279.4	3.7	6.8	-105.63	-295.5	163.1	416.0	409.0	6.95	59.876					
1,600.0	1,589.6	1,430.5	1,349.3	4.0	7.6	-104.46	-336.4	184.0	470.3	462.8	7.46	63.071					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Offset Design O19EB Pad - Shideler Federal 19-13D - OH - Plan #2													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	36.50	39.7	29.4	49.4					
100.0	100.0	100.0	100.0	0.1	0.1	36.50	39.7	29.4	49.4	49.1	0.27	186.156		
200.0	200.0	200.0	200.0	0.3	0.3	36.50	39.7	29.4	49.4	48.8	0.61	80.386		
300.0	300.0	301.8	301.7	0.5	0.5	157.68	39.3	26.7	48.2	47.2	0.97	49.566		
374.2	374.2	377.2	377.0	0.6	0.7	154.38	38.6	21.2	47.7	46.5	1.26	37.933 CC		
400.0	399.8	403.3	403.0	0.7	0.7	152.93	38.2	18.7	47.8	46.4	1.36	35.165 ES		
500.0	499.3	504.6	503.3	0.9	1.0	146.13	36.3	5.4	49.3	47.5	1.83	26.994		
600.0	598.4	605.4	602.4	1.2	1.4	136.49	33.7	-13.1	51.4	49.0	2.43	21.121		
700.0	697.5	705.3	699.4	1.5	1.8	122.51	30.5	-36.4	53.9	50.7	3.22	16.743		
800.0	796.7	803.6	793.6	1.7	2.4	105.71	26.5	-64.3	59.9	55.8	4.08	14.666 SF		
900.0	895.8	900.0	884.4	2.0	3.0	89.37	22.1	-96.2	72.1	67.2	4.82	14.951		
1,000.0	994.9	994.0	971.3	2.3	3.7	76.07	17.1	-131.7	91.5	86.1	5.36	17.067		
1,100.0	1,094.0	1,087.4	1,056.1	2.6	4.5	66.23	11.6	-170.6	117.2	111.4	5.74	20.399		
1,200.0	1,193.2	1,182.2	1,142.0	2.9	5.2	59.73	6.0	-210.5	145.5	139.4	6.10	23.857		
1,300.0	1,292.3	1,277.1	1,227.8	3.2	6.0	55.35	0.4	-250.3	175.1	168.6	6.46	27.093		
1,400.0	1,391.4	1,371.9	1,313.6	3.5	6.8	52.23	-5.2	-290.2	205.3	198.5	6.83	30.038		
1,500.0	1,490.5	1,466.7	1,399.5	3.7	7.5	49.91	-10.8	-330.1	235.9	228.7	7.22	32.692		
1,600.0	1,589.6	1,561.5	1,485.3	4.0	8.3	48.13	-16.4	-370.0	266.8	259.2	7.61	35.078		
1,700.0	1,688.8	1,656.3	1,571.1	4.3	9.1	46.71	-22.0	-409.9	297.9	289.9	8.00	37.226		
1,800.0	1,787.9	1,751.1	1,657.0	4.6	9.9	45.56	-27.6	-449.8	329.1	320.7	8.40	39.165		
1,900.0	1,887.0	1,845.9	1,742.8	4.9	10.6	44.61	-33.2	-489.6	360.4	351.6	8.81	40.921		
2,000.0	1,986.1	1,940.8	1,828.6	5.2	11.4	43.81	-38.8	-529.5	391.8	382.6	9.22	42.516		
2,100.0	2,085.3	2,035.6	1,914.5	5.5	12.2	43.13	-44.4	-569.4	423.3	413.6	9.63	43.971		
2,200.0	2,184.4	2,130.4	2,000.3	5.8	13.0	42.54	-50.0	-609.3	454.8	444.7	10.04	45.302		
2,300.0	2,283.5	2,225.2	2,086.1	6.1	13.8	42.03	-55.6	-649.2	486.3	475.8	10.45	46.525		

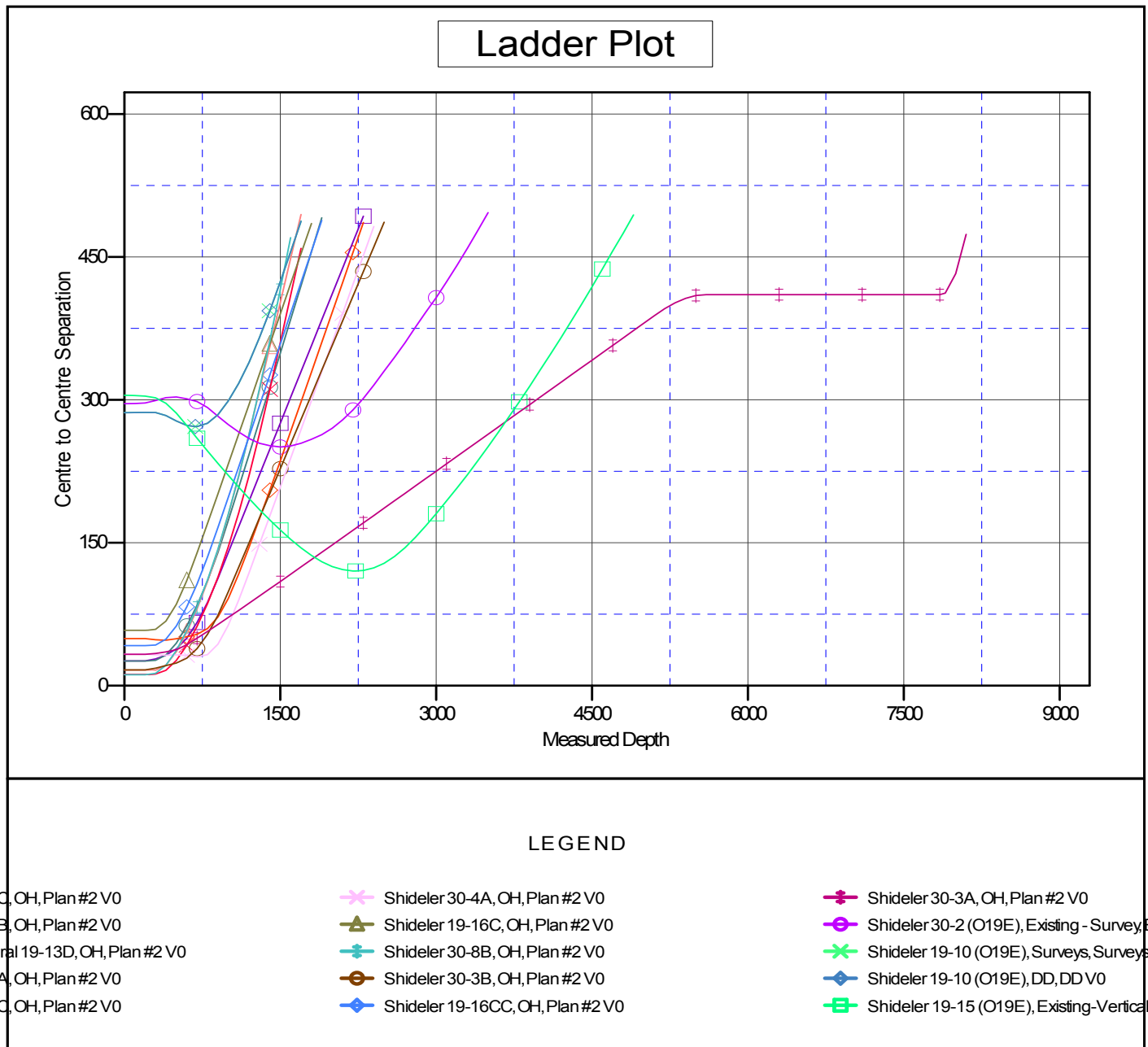
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Shideler 19-14D
Project:	Mamm Creek	TVD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Reference Site:	O19EB Pad	MD Reference:	KB = 24' @ 6533.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Shideler 19-14D	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 #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB = 24' @ 6533.0ft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Shideler 19-14D
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