

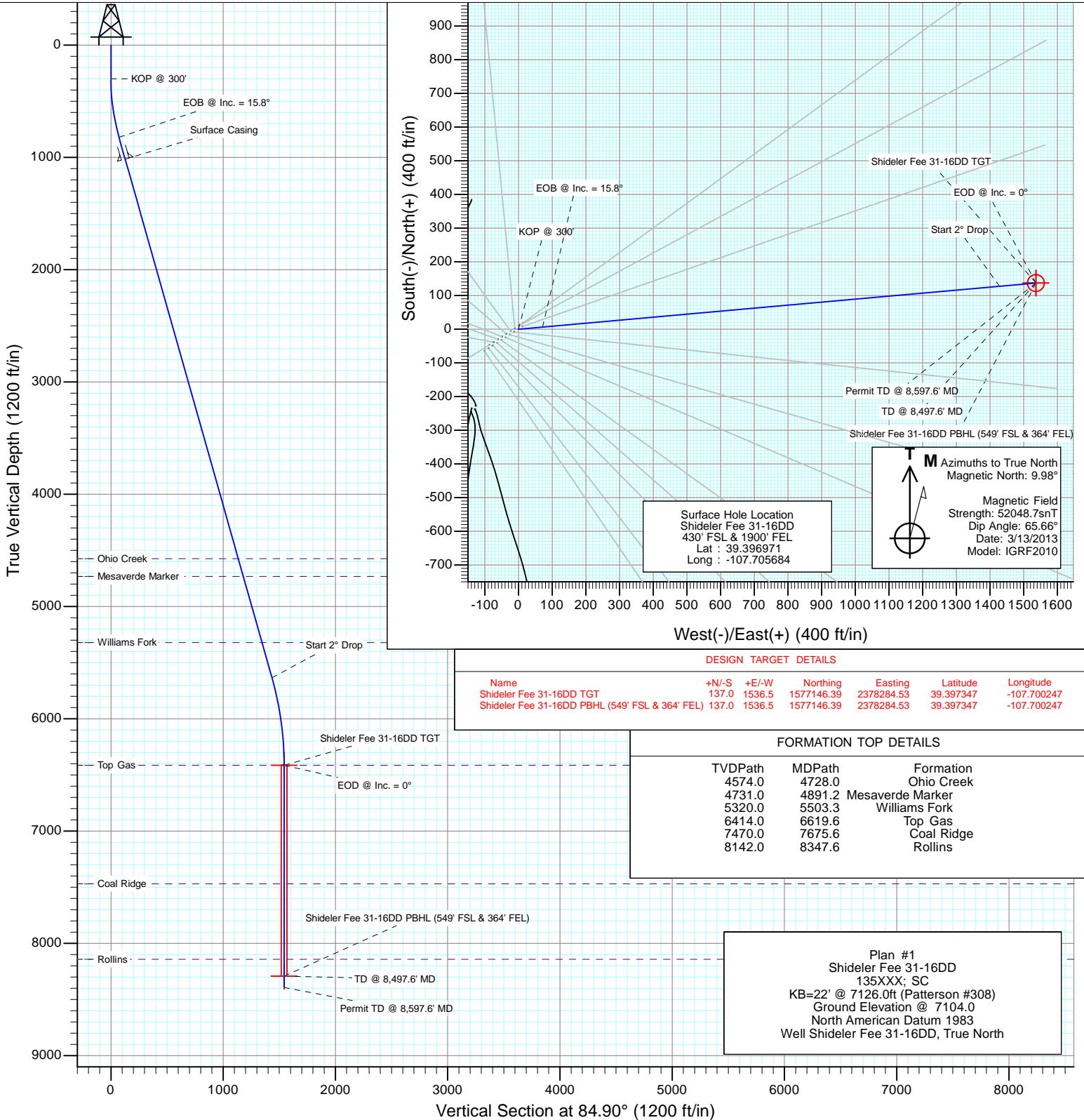


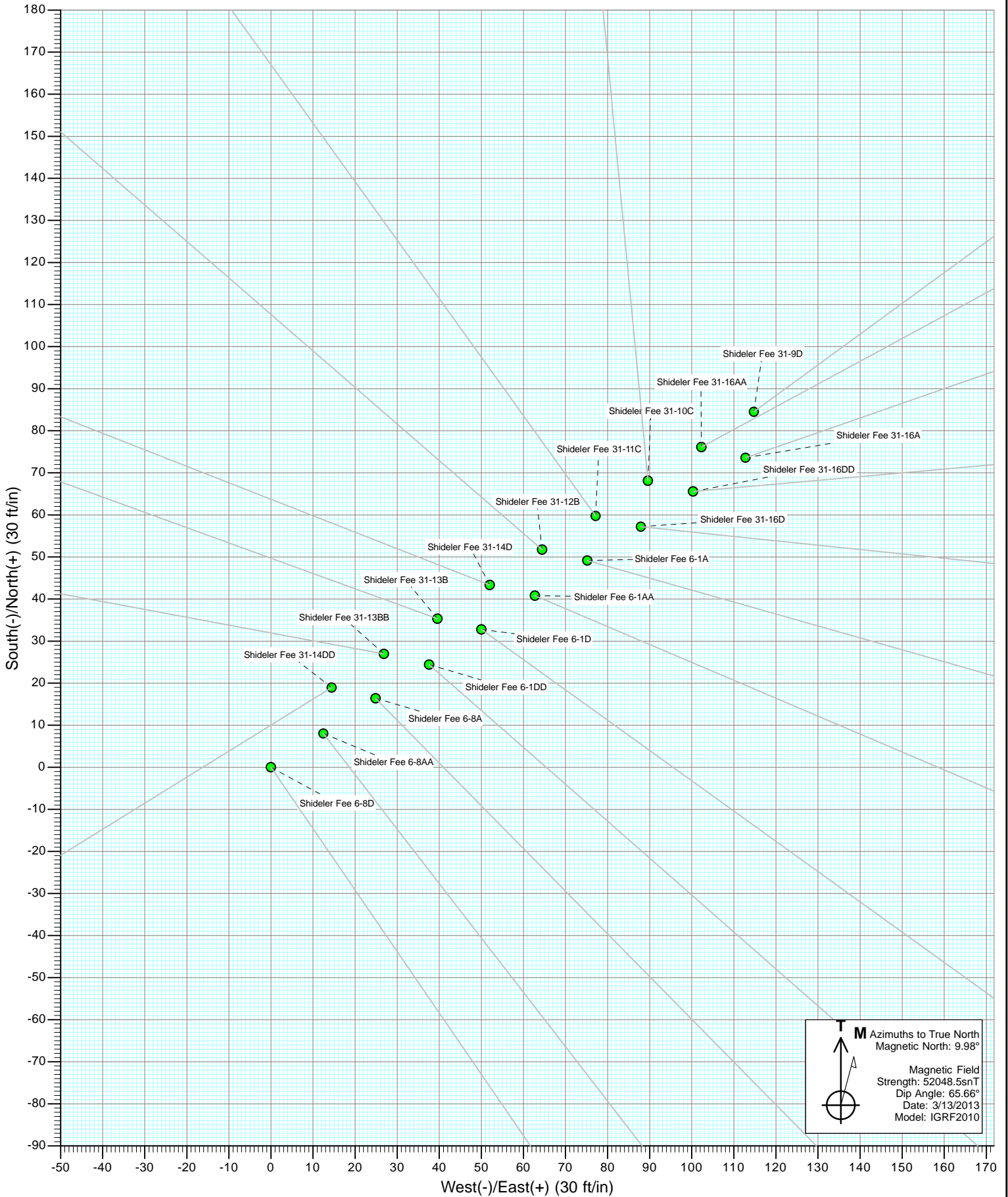
Project: Mamm Creek  
 Site: O31E Pad (2nd Occupation)  
 Well: Shideler Fee 31-16DD  
 Wellbore: OH  
 Design: Plan #1

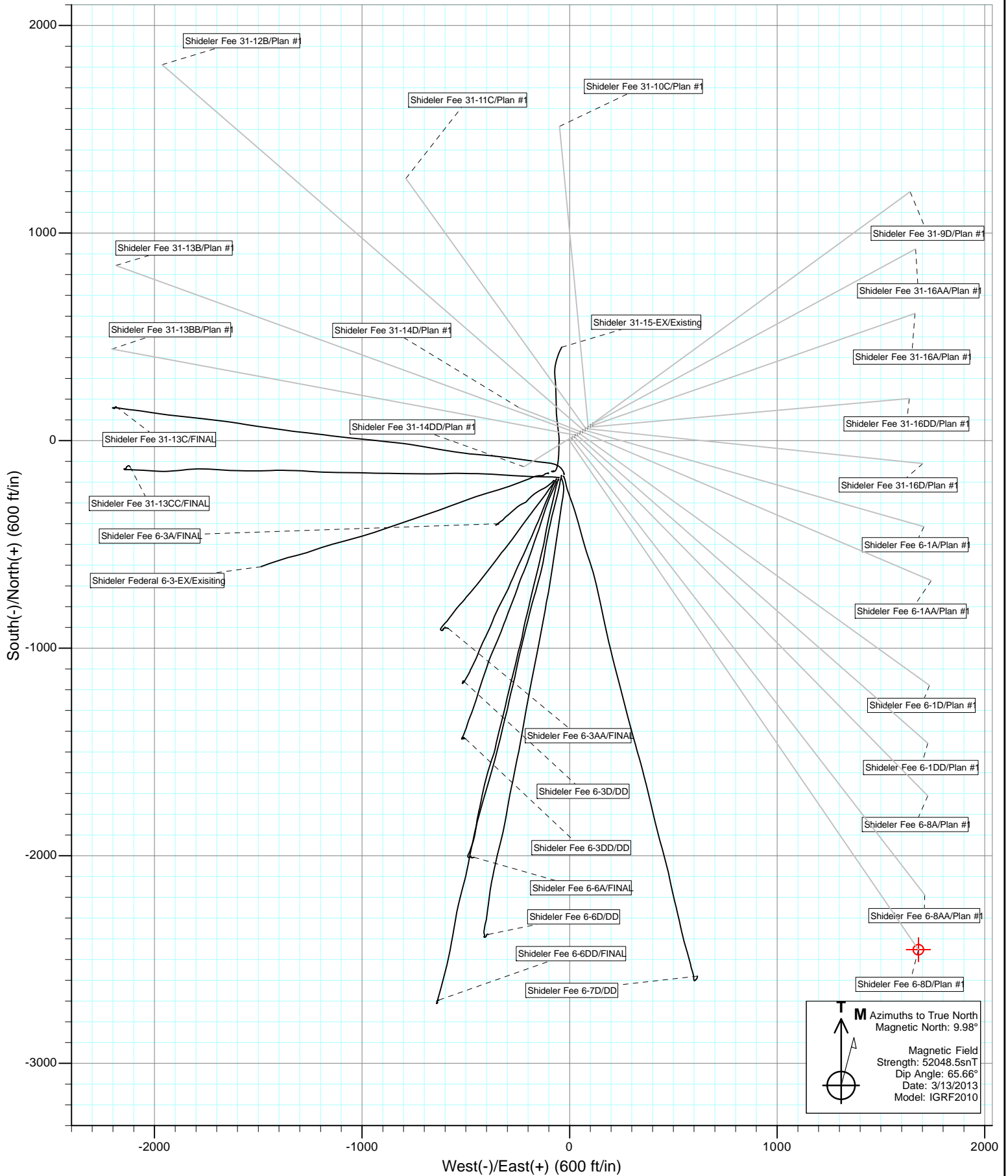


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-/S	+E-/W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	826.7	15.80	84.90	820.0	6.4	71.9	3.00	84.90	72.2	
4	5829.7	15.80	84.90	5634.0	127.4	1428.7	0.00	0.00	1434.3	
5	6619.6	0.00	0.00	6414.0	137.0	1536.5	2.00	180.00	1542.6	Shideler Fee 31-16DD TGT
6	8497.6	0.00	0.00	8292.0	137.0	1536.5	0.00	0.00	1542.6	Shideler Fee 31-16DD PBHL (549' FSL & 364' FEL)
7	8597.6	0.00	0.00	8392.0	137.0	1536.5	0.00	0.00	1542.6	

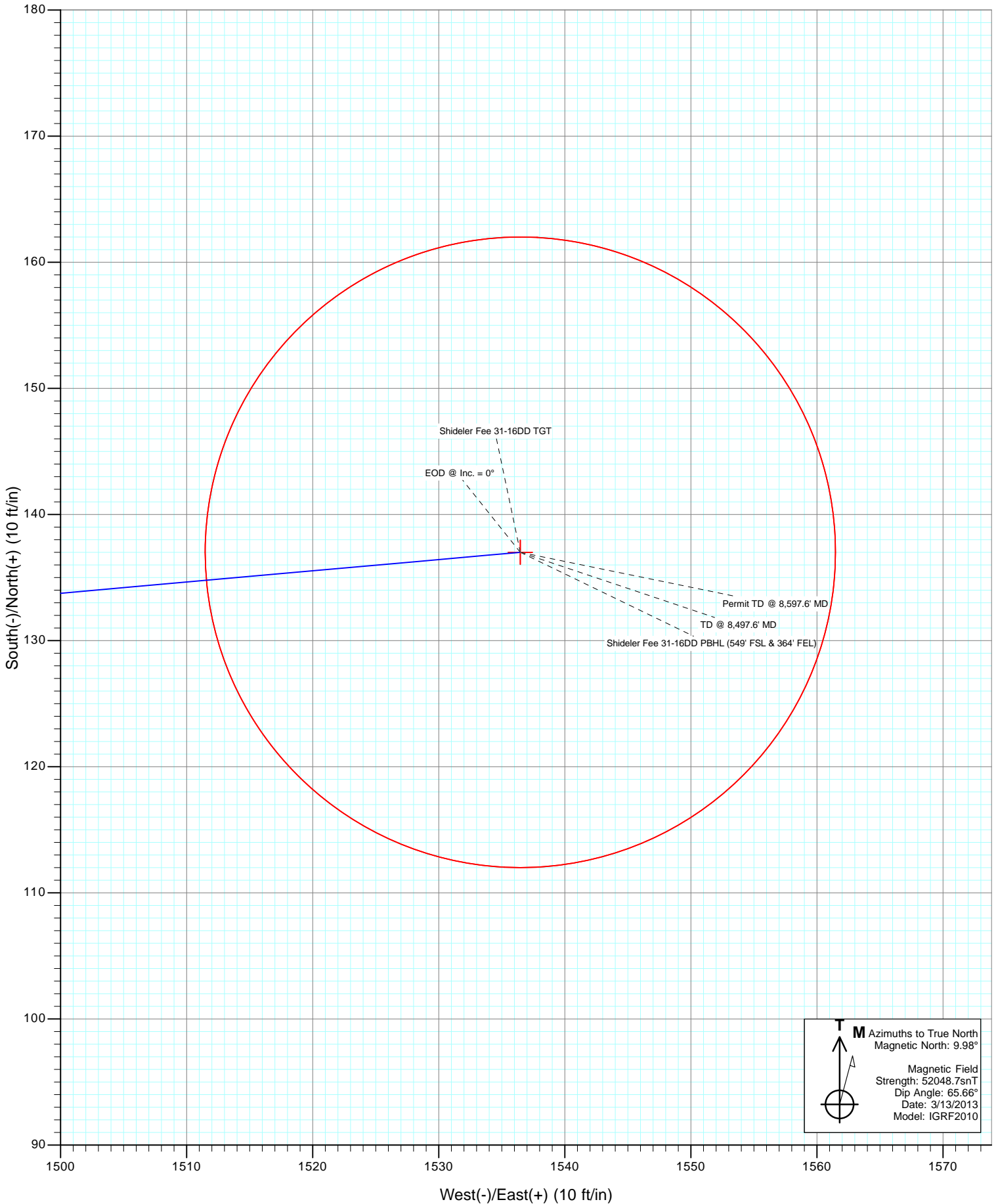








Project: Mamm Creek  
Site: O31E Pad (2nd Occupation)  
Well: Shideler Fee 31-16DD  
Wellbore: OH  
Design: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b> USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b> Well Shideler Fee 31-16DD
<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b> KB=22' @ 7126.0ft (Patterson #308)
<b>Project:</b> Mamm Creek	<b>MD Reference:</b> KB=22' @ 7126.0ft (Patterson #308)
<b>Site:</b> O31E Pad (2nd Occupation)	<b>North Reference:</b> True
<b>Well:</b> Shideler Fee 31-16DD	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> OH	
<b>Design:</b> Plan #1	

<b>Project</b> Mamm Creek		
<b>Map System:</b> US State Plane 1983	<b>System Datum:</b> Mean Sea Level	
<b>Geo Datum:</b> North American Datum 1983		
<b>Map Zone:</b> Colorado Central Zone		

<b>Site</b> O31E Pad (2nd Occupation)					
<b>Site Position:</b>		<b>Northing:</b>	1,577,065.31 ft	<b>Latitude:</b>	39.397023
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,376,760.05 ft	<b>Longitude:</b>	-107.705633
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	-1.39 °

<b>Well</b> Shideler Fee 31-16DD						
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,577,046.72 ft	<b>Latitude:</b>	39.396971
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,376,745.18 ft	<b>Longitude:</b>	-107.705684
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	7,104.0 ft

<b>Wellbore</b> OH					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	IGRF2010	3/13/2013	(°)	(°)	(nT)
			9.98	65.66	52,049

<b>Design</b> Plan #1					
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	84.90	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
826.7	15.80	84.90	820.0	6.4	71.9	3.00	3.00	0.00	84.90	
5,829.7	15.80	84.90	5,634.0	127.4	1,428.7	0.00	0.00	0.00	0.00	
6,619.6	0.00	0.00	6,414.0	137.0	1,536.5	2.00	-2.00	0.00	180.00	Shideler Fee 31-16DI
8,497.6	0.00	0.00	8,292.0	137.0	1,536.5	0.00	0.00	0.00	0.00	Shideler Fee 31-16DI
8,597.6	0.00	0.00	8,392.0	137.0	1,536.5	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** Mamm Creek  
**Site:** O31E Pad (2nd Occupation)  
**Well:** Shideler Fee 31-16DD  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Shideler Fee 31-16DD  
**TVD Reference:** KB=22' @ 7126.0ft (Patterson #308)  
**MD Reference:** KB=22' @ 7126.0ft (Patterson #308)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	KOP @ 300'
400.0	3.00	84.90	400.0	0.2	2.6	2.6	3.00	3.00	
500.0	6.00	84.90	499.6	0.9	10.4	10.5	3.00	3.00	
600.0	9.00	84.90	598.8	2.1	23.4	23.5	3.00	3.00	
700.0	12.00	84.90	697.1	3.7	41.6	41.7	3.00	3.00	
800.0	15.00	84.90	794.3	5.8	64.8	65.1	3.00	3.00	
826.7	15.80	84.90	820.0	6.4	71.9	72.2	3.00	3.00	EOB @ Inc. = 15.8°
900.0	15.80	84.90	890.6	8.2	91.8	92.1	0.00	0.00	
1,000.0	15.80	84.90	986.8	10.6	118.9	119.4	0.00	0.00	
1,029.3	15.80	84.90	1,015.0	11.3	126.8	127.3	0.00	0.00	Surface Casing
1,100.0	15.80	84.90	1,083.0	13.0	146.0	146.6	0.00	0.00	
1,200.0	15.80	84.90	1,179.2	15.4	173.1	173.8	0.00	0.00	
1,300.0	15.80	84.90	1,275.5	17.9	200.2	201.0	0.00	0.00	
1,400.0	15.80	84.90	1,371.7	20.3	227.4	228.3	0.00	0.00	
1,500.0	15.80	84.90	1,467.9	22.7	254.5	255.5	0.00	0.00	
1,600.0	15.80	84.90	1,564.1	25.1	281.6	282.7	0.00	0.00	
1,700.0	15.80	84.90	1,660.4	27.5	308.7	309.9	0.00	0.00	
1,800.0	15.80	84.90	1,756.6	29.9	335.8	337.2	0.00	0.00	
1,900.0	15.80	84.90	1,852.8	32.4	363.0	364.4	0.00	0.00	
2,000.0	15.80	84.90	1,949.0	34.8	390.1	391.6	0.00	0.00	
2,100.0	15.80	84.90	2,045.2	37.2	417.2	418.9	0.00	0.00	
2,200.0	15.80	84.90	2,141.5	39.6	444.3	446.1	0.00	0.00	
2,300.0	15.80	84.90	2,237.7	42.0	471.4	473.3	0.00	0.00	
2,400.0	15.80	84.90	2,333.9	44.5	498.6	500.5	0.00	0.00	
2,500.0	15.80	84.90	2,430.1	46.9	525.7	527.8	0.00	0.00	
2,600.0	15.80	84.90	2,526.4	49.3	552.8	555.0	0.00	0.00	
2,700.0	15.80	84.90	2,622.6	51.7	579.9	582.2	0.00	0.00	
2,800.0	15.80	84.90	2,718.8	54.1	607.0	609.4	0.00	0.00	
2,900.0	15.80	84.90	2,815.0	56.5	634.2	636.7	0.00	0.00	
3,000.0	15.80	84.90	2,911.2	59.0	661.3	663.9	0.00	0.00	
3,100.0	15.80	84.90	3,007.5	61.4	688.4	691.1	0.00	0.00	
3,200.0	15.80	84.90	3,103.7	63.8	715.5	718.4	0.00	0.00	
3,300.0	15.80	84.90	3,199.9	66.2	742.6	745.6	0.00	0.00	
3,400.0	15.80	84.90	3,296.1	68.6	769.8	772.8	0.00	0.00	
3,500.0	15.80	84.90	3,392.4	71.1	796.9	800.0	0.00	0.00	
3,600.0	15.80	84.90	3,488.6	73.5	824.0	827.3	0.00	0.00	
3,700.0	15.80	84.90	3,584.8	75.9	851.1	854.5	0.00	0.00	
3,800.0	15.80	84.90	3,681.0	78.3	878.2	881.7	0.00	0.00	
3,900.0	15.80	84.90	3,777.2	80.7	905.4	908.9	0.00	0.00	
4,000.0	15.80	84.90	3,873.5	83.1	932.5	936.2	0.00	0.00	
4,100.0	15.80	84.90	3,969.7	85.6	959.6	963.4	0.00	0.00	
4,200.0	15.80	84.90	4,065.9	88.0	986.7	990.6	0.00	0.00	
4,300.0	15.80	84.90	4,162.1	90.4	1,013.8	1,017.9	0.00	0.00	
4,400.0	15.80	84.90	4,258.3	92.8	1,041.0	1,045.1	0.00	0.00	
4,500.0	15.80	84.90	4,354.6	95.2	1,068.1	1,072.3	0.00	0.00	
4,600.0	15.80	84.90	4,450.8	97.7	1,095.2	1,099.5	0.00	0.00	
4,700.0	15.80	84.90	4,547.0	100.1	1,122.3	1,126.8	0.00	0.00	
4,728.0	15.80	84.90	4,574.0	100.8	1,129.9	1,134.4	0.00	0.00	Ohio Creek
4,800.0	15.80	84.90	4,643.2	102.5	1,149.4	1,154.0	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site:</b>	O31E Pad (2nd Occupation)	<b>North Reference:</b>	True
<b>Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
4,891.2	15.80	84.90	4,731.0	104.7	1,174.2	1,178.8	0.00	0.00	Mesaverde Marker
4,900.0	15.80	84.90	4,739.5	104.9	1,176.6	1,181.2	0.00	0.00	
5,000.0	15.80	84.90	4,835.7	107.3	1,203.7	1,208.4	0.00	0.00	
5,100.0	15.80	84.90	4,931.9	109.7	1,230.8	1,235.7	0.00	0.00	
5,200.0	15.80	84.90	5,028.1	112.2	1,257.9	1,262.9	0.00	0.00	
5,300.0	15.80	84.90	5,124.3	114.6	1,285.0	1,290.1	0.00	0.00	
5,400.0	15.80	84.90	5,220.6	117.0	1,312.2	1,317.4	0.00	0.00	
5,500.0	15.80	84.90	5,316.8	119.4	1,339.3	1,344.6	0.00	0.00	
5,503.3	15.80	84.90	5,320.0	119.5	1,340.2	1,345.5	0.00	0.00	Williams Fork
5,600.0	15.80	84.90	5,413.0	121.8	1,366.4	1,371.8	0.00	0.00	
5,700.0	15.80	84.90	5,509.2	124.3	1,393.5	1,399.0	0.00	0.00	
5,800.0	15.80	84.90	5,605.5	126.7	1,420.6	1,426.3	0.00	0.00	
5,829.7	15.80	84.90	5,634.0	127.4	1,428.7	1,434.4	0.00	0.00	Start 2° Drop
5,900.0	14.39	84.90	5,701.9	129.0	1,446.9	1,452.7	2.00	-2.00	
6,000.0	12.39	84.90	5,799.2	131.1	1,470.0	1,475.8	2.00	-2.00	
6,100.0	10.39	84.90	5,897.2	132.8	1,489.7	1,495.6	2.00	-2.00	
6,200.0	8.39	84.90	5,995.9	134.3	1,505.9	1,511.9	2.00	-2.00	
6,300.0	6.39	84.90	6,095.0	135.4	1,518.7	1,524.8	2.00	-2.00	
6,400.0	4.39	84.90	6,194.6	136.3	1,528.1	1,534.2	2.00	-2.00	
6,500.0	2.39	84.90	6,294.4	136.8	1,534.0	1,540.1	2.00	-2.00	
6,600.0	0.39	84.90	6,394.4	137.0	1,536.4	1,542.5	2.00	-2.00	
6,619.6	0.00	0.00	6,414.0	137.0	1,536.5	1,542.6	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,700.0	0.00	0.00	6,494.4	137.0	1,536.5	1,542.6	0.00	0.00	
6,800.0	0.00	0.00	6,594.4	137.0	1,536.5	1,542.6	0.00	0.00	
6,900.0	0.00	0.00	6,694.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,000.0	0.00	0.00	6,794.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,100.0	0.00	0.00	6,894.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,200.0	0.00	0.00	6,994.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,300.0	0.00	0.00	7,094.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,400.0	0.00	0.00	7,194.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,500.0	0.00	0.00	7,294.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,600.0	0.00	0.00	7,394.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,675.6	0.00	0.00	7,470.0	137.0	1,536.5	1,542.6	0.00	0.00	Coal Ridge
7,700.0	0.00	0.00	7,494.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,800.0	0.00	0.00	7,594.4	137.0	1,536.5	1,542.6	0.00	0.00	
7,900.0	0.00	0.00	7,694.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,000.0	0.00	0.00	7,794.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,100.0	0.00	0.00	7,894.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,200.0	0.00	0.00	7,994.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,300.0	0.00	0.00	8,094.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,347.6	0.00	0.00	8,142.0	137.0	1,536.5	1,542.6	0.00	0.00	Rollins
8,400.0	0.00	0.00	8,194.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,497.6	0.00	0.00	8,292.0	137.0	1,536.5	1,542.6	0.00	0.00	TD @ 8,497.6' MD
8,500.0	0.00	0.00	8,294.4	137.0	1,536.5	1,542.6	0.00	0.00	
8,597.6	0.00	0.00	8,392.0	137.0	1,536.5	1,542.6	0.00	0.00	Permit TD @ 8,597.6' MD

# Cathedral Energy Services

## Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** Mamm Creek  
**Site:** O31E Pad (2nd Occupation)  
**Well:** Shideler Fee 31-16DD  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Shideler Fee 31-16DD  
**TVD Reference:** KB=22' @ 7126.0ft (Patterson #308)  
**MD Reference:** KB=22' @ 7126.0ft (Patterson #308)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Shideler Fee 31-16DD P - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,292.0	137.0	1,536.5	1,577,146.39	2,378,284.53	39.397347	-107.700247
Shideler Fee 31-16DD T - plan hits target center - Point	0.00	0.00	6,414.0	137.0	1,536.5	1,577,146.39	2,378,284.53	39.397347	-107.700247

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,029.3	1,015.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,728.0	4,574.0	Ohio Creek			
4,891.2	4,731.0	Mesaverde Marker			
5,503.3	5,320.0	Williams Fork			
6,619.6	6,414.0	Top Gas			
7,675.6	7,470.0	Coal Ridge			
8,347.6	8,142.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
300.0	300.0	0.0	0.0	KOP @ 300'	
826.7	820.0	6.4	71.9	EOB @ Inc. = 15.8°	
5,829.7	5,634.0	127.4	1,428.7	Start 2° Drop	
6,619.6	6,414.0	137.0	1,536.5	EOD @ Inc. = 0°	
8,497.6	8,292.0	137.0	1,536.5	TD @ 8,497.6' MD	
8,597.6	8,392.0	137.0	1,536.5	Permit TD @ 8,597.6' MD	

# **EnCana Oil & Gas (USA) Inc**

**Mamm Creek**

**O31E Pad (2nd Occupation)**

**Shideler Fee 31-16DD**

**OH**

**Plan #1**

## **Anticollision Report**

**21 March, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	Systematic Ellipse
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 500.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>		<b>Date</b>	3/14/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	8,597.6	Plan #1 (OH)	MWD	Geolink MWD	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

### Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
O31E Pad						
Shideler 31-15-EX - Existing - Existing	310.3	289.4	282.8	282.0	373.446	CC, ES
Shideler 31-15-EX - Existing - Existing	1,500.0	1,450.7	490.6	486.0	107.893	SF
Shideler Federal 6-3-EX - Existing - Existing	286.9	264.9	300.7	300.0	433.432	CC
Shideler Federal 6-3-EX - Existing - Existing	300.0	277.6	300.7	299.9	413.199	ES
Shideler Federal 6-3-EX - Existing - Existing	1,300.0	1,239.9	488.1	484.2	125.263	SF
Shideler Fee 31-13C - OH - FINAL	473.0	490.4	257.6	256.0	156.792	CC, ES
Shideler Fee 31-13C - OH - FINAL	900.0	853.5	326.6	322.9	88.445	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	286.8			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.2	286.9	286.6	1,027.768	ES
Shideler Fee 31-13CC - OH - FINAL	1,000.0	888.9	462.7	458.7	114.690	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	312.9			
Shideler Fee 6-3A - DD - FINAL	100.0	102.0	313.0	312.7	1,122.044	ES
Shideler Fee 6-3A - DD - FINAL	1,200.0	1,153.6	497.2	492.5	105.157	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	322.9			
Shideler Fee 6-3AA - DD - FINAL	900.0	825.9	482.8	479.4	142.439	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	299.9			
Shideler Fee 6-3D - DD - DD	200.0	201.8	300.4	299.7	480.801	ES
Shideler Fee 6-3D - DD - DD	1,000.0	912.7	473.1	469.1	119.957	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	309.9			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	310.0	309.7	1,110.492	ES
Shideler Fee 6-3DD - DD - DD	900.0	802.3	461.3	457.8	133.485	SF
Shideler Fee 6-6A - DD - FINAL	310.9	314.9	296.4	295.4	291.579	CC, ES
Shideler Fee 6-6A - DD - FINAL	1,100.0	987.2	473.5	469.0	105.426	SF
Shideler Fee 6-6D - DD - DD	135.2	138.3	282.6	282.2	705.760	CC, ES
Shideler Fee 6-6D - DD - DD	1,000.0	863.7	467.5	463.1	107.388	SF
Shideler Fee 6-6DD - DD - FINAL	153.3	156.3	272.7	272.2	588.089	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.4	272.8	272.2	438.637	ES
Shideler Fee 6-6DD - DD - FINAL	1,000.0	857.7	478.6	474.5	116.563	SF
Shideler Fee 6-7D - DD - DD	140.2	140.2	270.2	269.7	646.272	CC, ES
Shideler Fee 6-7D - DD - DD	1,100.0	970.4	486.4	480.7	84.618	SF

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	203.0	203.0	11.0	10.4	17.465	CC, ES
Shideler Fee 31-10C - OH - Plan #1	300.0	299.8	11.6	10.6	11.942	SF
Shideler Fee 31-11C - OH - Plan #1	235.2	235.2	23.9	23.2	32.102	CC, ES
Shideler Fee 31-11C - OH - Plan #1	400.0	398.9	29.2	27.9	21.980	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	38.5	37.8	61.909	CC, ES
Shideler Fee 31-12B - OH - Plan #1	400.0	397.2	46.9	45.5	34.846	SF
Shideler Fee 31-13B - OH - Plan #1	200.0	200.0	67.9	67.2	109.223	CC, ES
Shideler Fee 31-13B - OH - Plan #1	500.0	488.8	95.4	93.7	56.279	SF
Shideler Fee 31-13BB - OH - Plan #1	300.0	300.0	83.0	82.0	85.533	CC, ES
Shideler Fee 31-13BB - OH - Plan #1	500.0	492.6	99.1	97.4	59.600	SF
Shideler Fee 31-14D - OH - Plan #1	300.0	300.0	53.2	52.2	54.809	CC, ES
Shideler Fee 31-14D - OH - Plan #1	500.0	499.6	63.1	61.5	37.880	SF
Shideler Fee 31-14DD - OH - Plan #1	300.0	300.0	97.7	96.8	100.726	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	700.0	690.7	152.5	150.1	64.645	SF
Shideler Fee 31-16A - OH - Plan #1	544.6	543.7	8.6	6.7	4.507	CC, ES
Shideler Fee 31-16A - OH - Plan #1	600.0	598.9	9.4	7.2	4.292	SF
Shideler Fee 31-16AA - OH - Plan #1	300.0	300.0	10.7	9.8	11.074	CC, ES
Shideler Fee 31-16AA - OH - Plan #1	500.0	499.2	14.6	12.9	8.386	SF
Shideler Fee 31-16D - OH - Plan #1	300.0	300.0	15.0	14.0	15.450	CC, ES
Shideler Fee 31-16D - OH - Plan #1	8,597.6	8,620.8	319.8	256.6	5.061	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	23.8	23.2	38.310	CC, ES
Shideler Fee 31-9D - OH - Plan #1	3,300.0	3,246.3	498.4	469.6	17.351	SF
Shideler Fee 6-1A - OH - Plan #1	300.0	300.0	30.0	29.1	30.939	CC, ES
Shideler Fee 6-1A - OH - Plan #1	2,600.0	2,596.3	228.4	205.8	10.090	SF
Shideler Fee 6-1AA - OH - Plan #1	300.0	300.0	45.0	44.0	46.385	CC, ES
Shideler Fee 6-1AA - OH - Plan #1	2,200.0	2,190.2	264.5	245.9	14.229	SF
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	60.0	59.1	61.872	CC, ES
Shideler Fee 6-1D - OH - Plan #1	1,600.0	1,578.9	266.1	253.9	21.819	SF
Shideler Fee 6-1DD - OH - Plan #1	310.8	311.2	75.0	74.0	74.253	CC, ES
Shideler Fee 6-1DD - OH - Plan #1	1,600.0	1,565.3	318.1	305.9	26.100	SF
Shideler Fee 6-8A - OH - Plan #1	313.7	314.3	89.9	88.9	87.959	CC, ES
Shideler Fee 6-8A - OH - Plan #1	1,600.0	1,550.2	365.2	353.0	29.907	SF
Shideler Fee 6-8AA - OH - Plan #1	305.8	306.1	104.9	103.9	105.432	CC, ES
Shideler Fee 6-8AA - OH - Plan #1	1,400.0	1,332.7	358.8	348.9	36.092	SF
Shideler Fee 6-8D - OH - Plan #1	300.0	300.0	119.8	118.8	123.448	CC, ES
Shideler Fee 6-8D - OH - Plan #1	1,400.0	1,313.6	394.5	384.7	39.966	SF

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-Gyro													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-139.04	-214.1	-185.9	284.4						
100.0	100.0	78.5	78.5	0.1	0.1	-139.08	-214.2	-185.7	283.5	283.2	0.20	1,384.933			
200.0	200.0	179.0	179.0	0.3	0.2	-139.22	-214.5	-185.0	283.2	282.7	0.47	606.483			
300.0	300.0	279.1	279.1	0.5	0.2	-139.42	-214.8	-184.0	282.8	282.1	0.73	387.967			
310.3	310.3	289.4	289.4	0.5	0.3	135.65	-214.9	-183.8	282.8	282.0	0.76	373.446	CC, ES		
400.0	400.0	379.9	379.9	0.7	0.3	135.67	-215.5	-182.3	284.2	283.2	1.00	285.118			
500.0	499.6	481.2	481.2	0.9	0.4	136.29	-216.1	-180.3	288.9	287.6	1.28	226.011			
600.0	598.8	583.4	583.4	1.1	0.5	137.80	-215.2	-178.6	296.8	295.2	1.58	187.302			
700.0	697.1	681.0	680.9	1.5	0.6	139.98	-213.0	-177.9	308.4	306.5	1.92	160.977			
800.0	794.3	773.6	773.5	1.9	0.7	142.40	-211.2	-178.0	325.6	323.4	2.27	143.342			
900.0	890.6	868.2	868.1	2.4	0.8	145.06	-210.7	-178.5	347.8	345.2	2.63	132.339			
1,000.0	986.8	964.5	964.4	2.9	0.8	147.37	-211.1	-178.4	370.8	367.8	2.97	124.667			
1,100.0	1,083.0	1,061.2	1,061.1	3.4	0.9	149.33	-212.1	-177.8	394.3	391.0	3.31	119.105			
1,200.0	1,179.2	1,157.8	1,157.6	3.9	1.0	151.05	-213.0	-177.0	418.1	414.5	3.64	115.004			
1,300.0	1,275.5	1,254.5	1,254.3	4.4	1.1	152.69	-213.4	-176.7	442.2	438.2	3.95	112.034			
1,400.0	1,371.7	1,351.9	1,351.8	5.0	1.2	154.13	-213.9	-176.0	466.4	462.2	4.25	109.729			
1,500.0	1,467.9	1,450.7	1,450.5	5.5	1.3	155.45	-214.2	-175.1	490.6	486.0	4.55	107.893	SF		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-Gyro													Offset Well Error:		0.0 ft
O31E Pad - Shideler Federal 6-3-EX - Exisiting - Exisiting															
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	-137.70	-223.2	-203.1	302.6						
100.0	100.0	79.5	79.5	0.1	0.1	-137.71	-223.1	-202.9	301.6	301.4	0.21	1,466.215			
200.0	200.0	179.9	179.9	0.3	0.2	-137.75	-222.8	-202.4	301.0	300.5	0.47	643.146			
286.9	286.9	264.9	264.9	0.5	0.2	-137.75	-222.6	-202.1	300.7	300.0	0.69	433.432 CC			
300.0	300.0	277.6	277.6	0.5	0.2	-137.74	-222.5	-202.2	300.7	299.9	0.73	413.199 ES			
400.0	400.0	376.6	376.6	0.7	0.3	137.72	-222.5	-202.7	303.0	302.0	0.99	305.679			
500.0	499.6	475.6	475.6	0.9	0.4	138.68	-222.5	-203.5	309.4	308.1	1.27	243.912			
600.0	598.8	573.9	573.9	1.1	0.5	140.14	-222.5	-204.6	320.1	318.5	1.57	204.055			
700.0	697.1	670.5	670.4	1.5	0.6	141.93	-222.7	-205.9	335.4	333.5	1.90	176.923			
800.0	794.3	765.0	765.0	1.9	0.7	143.97	-223.0	-207.8	355.9	353.7	2.25	158.235			
900.0	890.6	858.7	858.6	2.4	0.8	146.35	-223.5	-210.2	380.7	378.1	2.60	146.344			
1,000.0	986.8	952.5	952.4	2.9	0.8	148.60	-224.2	-213.0	406.7	403.8	2.94	138.303			
1,100.0	1,083.0	1,047.4	1,047.2	3.4	0.9	150.59	-225.0	-216.1	433.6	430.3	3.27	132.668			
1,200.0	1,179.2	1,143.4	1,143.1	3.9	1.0	152.31	-226.3	-218.9	460.7	457.2	3.59	128.489			
1,300.0	1,275.5	1,239.9	1,239.7	4.4	1.1	153.78	-228.0	-221.2	488.1	484.2	3.90	125.263 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	3.0	3.0	0.0	0.0	-150.84	-226.9	-126.6	259.9						
100.0	100.0	102.2	102.2	0.1	0.1	-150.86	-227.1	-126.6	260.0	259.7	0.28	931.033			
200.0	200.0	203.1	203.1	0.3	0.3	-150.87	-227.3	-126.7	260.2	259.6	0.63	415.091			
300.0	300.0	306.2	306.2	0.5	0.5	-150.78	-226.6	-126.8	259.7	258.7	0.98	264.644			
400.0	400.0	414.5	414.4	0.7	0.7	125.52	-222.4	-127.7	258.2	256.9	1.35	190.978			
473.0	472.8	490.4	490.0	0.8	0.8	127.60	-216.5	-130.0	257.6	256.0	1.64	156.792	CC, ES		
500.0	499.6	517.5	517.0	0.9	0.9	128.61	-213.9	-131.3	257.7	256.0	1.75	147.098			
600.0	598.8	613.6	612.4	1.1	1.1	132.96	-203.8	-137.2	261.3	259.1	2.21	118.487			
700.0	697.1	701.6	699.3	1.5	1.4	137.92	-193.7	-145.7	272.1	269.4	2.71	100.515			
800.0	794.3	780.1	776.5	1.9	1.7	142.80	-185.3	-157.4	293.8	290.6	3.22	91.357			
900.0	890.6	853.5	848.2	2.4	1.9	147.49	-179.3	-171.8	326.6	322.9	3.69	88.445	SF		
1,000.0	986.8	928.3	920.9	2.9	2.2	151.66	-175.1	-189.0	366.1	362.0	4.13	88.668			
1,100.0	1,083.0	1,001.6	991.7	3.4	2.5	155.06	-172.3	-208.0	410.5	406.0	4.53	90.645			
1,200.0	1,179.2	1,074.7	1,061.6	3.9	2.9	157.97	-170.1	-229.0	459.0	454.1	4.91	93.516			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD, 1242-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	3.0	3.0	0.0	0.0	-148.05	-243.3	-151.8	286.8						
100.0	100.0	102.2	102.2	0.1	0.1	-148.04	-243.4	-151.9	286.9	286.6	0.28	1,027.768	ES		
200.0	200.0	201.3	201.3	0.3	0.3	-148.05	-243.8	-152.1	287.4	286.7	0.62	460.619			
300.0	300.0	297.6	297.6	0.5	0.5	-147.62	-243.8	-154.6	288.7	287.7	0.97	298.172			
400.0	400.0	393.0	392.7	0.7	0.7	128.89	-242.7	-160.7	292.9	291.6	1.33	220.293			
500.0	499.6	479.0	478.2	0.9	0.9	131.19	-241.7	-169.9	303.3	301.5	1.71	177.391			
600.0	598.8	571.0	569.3	1.1	1.1	134.40	-241.3	-183.1	320.8	318.6	2.16	148.838			
700.0	697.1	657.7	654.6	1.5	1.4	137.88	-240.7	-198.5	345.6	343.0	2.63	131.259			
800.0	794.3	738.3	733.3	1.9	1.8	141.26	-240.1	-215.5	378.3	375.2	3.12	121.080			
900.0	890.6	814.7	807.5	2.4	2.1	144.90	-239.7	-234.1	418.4	414.8	3.60	116.324			
1,000.0	986.8	888.9	878.8	2.9	2.5	148.28	-239.2	-254.5	462.7	458.7	4.03	114.690	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	3.0	3.0	0.0	0.0	-145.75	-258.6	-176.1	312.9						
100.0	100.0	102.0	102.0	0.1	0.1	-145.75	-258.7	-176.2	313.0	312.7	0.28	1,122.044	ES		
200.0	200.0	199.0	199.0	0.3	0.3	-145.68	-259.2	-176.9	313.8	313.2	0.62	505.831			
300.0	300.0	295.0	295.0	0.5	0.5	-145.56	-260.1	-178.4	315.5	314.5	0.96	327.024			
400.0	400.0	387.0	386.9	0.7	0.7	129.91	-262.7	-181.3	321.3	320.0	1.30	246.950			
500.0	499.6	481.8	481.5	0.9	0.8	130.83	-266.8	-185.4	332.4	330.7	1.66	200.095			
600.0	598.8	583.1	582.6	1.1	1.0	132.36	-270.9	-189.8	346.9	344.9	2.06	168.295			
700.0	697.1	679.7	679.1	1.5	1.2	134.18	-274.7	-193.8	365.2	362.7	2.49	146.685			
800.0	794.3	774.9	774.1	1.9	1.4	136.31	-278.2	-198.3	387.8	384.9	2.95	131.455			
900.0	890.6	869.5	868.5	2.4	1.6	138.87	-281.6	-203.0	414.1	410.7	3.41	121.296			
1,000.0	986.8	964.6	963.4	2.9	1.8	141.26	-285.1	-207.6	441.3	437.4	3.87	114.116			
1,100.0	1,083.0	1,059.8	1,058.5	3.4	2.0	143.44	-288.2	-212.3	468.9	464.6	4.31	108.920			
1,200.0	1,179.2	1,153.6	1,152.1	3.9	2.2	145.37	-291.1	-217.1	497.2	492.5	4.73	105.157	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	-146.72	-269.9	-177.2	322.9						
100.0	100.0	96.6	96.6	0.1	0.1	-146.72	-270.3	-177.5	323.4	323.1	0.27	1,187.824			
200.0	200.0	186.1	186.0	0.3	0.3	-146.71	-272.1	-178.7	325.8	325.2	0.60	539.670			
300.0	300.0	271.7	271.5	0.5	0.5	-146.64	-276.4	-182.0	332.2	331.2	0.95	348.661			
400.0	400.0	357.9	357.1	0.7	0.7	128.60	-283.8	-187.8	344.6	343.4	1.25	275.670			
500.0	499.6	447.1	445.5	0.9	0.9	129.13	-293.6	-195.0	363.1	361.5	1.60	226.924			
600.0	598.8	534.8	532.1	1.1	1.2	129.96	-305.2	-203.3	387.6	385.7	1.98	195.878			
700.0	697.1	629.7	625.5	1.5	1.6	131.12	-318.9	-212.6	416.9	414.5	2.41	172.842			
800.0	794.3	729.6	724.1	1.9	1.9	132.70	-332.1	-222.3	448.9	446.0	2.90	154.949			
900.0	890.6	825.9	819.2	2.4	2.2	134.83	-343.8	-231.0	482.8	479.4	3.39	142.439 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	3.0	3.0	0.0	0.0	-146.93	-251.3	-163.6	299.9						
100.0	100.0	102.1	102.1	0.1	0.1	-146.93	-251.4	-163.7	300.1	299.8	0.28	1,075.293			
200.0	200.0	201.8	201.8	0.3	0.3	-146.94	-251.7	-163.8	300.4	299.7	0.62	480.801 ES			
300.0	300.0	295.0	295.0	0.5	0.5	-146.95	-252.7	-164.4	301.6	300.6	0.96	313.193			
400.0	400.0	384.1	384.0	0.7	0.6	128.41	-255.8	-166.8	307.6	306.3	1.30	237.489			
500.0	499.6	469.3	468.9	0.9	0.8	129.02	-261.8	-170.7	320.9	319.2	1.64	195.754			
600.0	598.8	555.8	554.7	1.1	1.0	129.86	-271.3	-175.8	341.5	339.5	2.02	169.207			
700.0	697.1	642.4	640.3	1.5	1.3	130.85	-283.2	-181.6	368.4	365.9	2.44	150.724			
800.0	794.3	732.8	729.3	1.9	1.6	131.90	-297.8	-187.6	400.6	397.7	2.93	136.806			
900.0	890.6	822.1	817.1	2.4	1.9	133.54	-313.0	-193.4	436.3	432.9	3.43	127.062			
1,000.0	986.8	912.7	906.1	2.9	2.2	135.21	-328.7	-200.0	473.1	469.1	3.94	119.957 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	3.0	3.0	0.0	0.0	-147.82	-262.3	-165.0	309.9						
100.0	100.0	102.2	102.2	0.1	0.1	-147.86	-262.5	-164.9	310.0	309.7	0.28	1,110.492	ES		
200.0	200.0	199.6	199.6	0.3	0.3	-147.99	-263.4	-164.7	310.7	310.1	0.62	500.200			
300.0	300.0	288.6	288.5	0.5	0.5	-148.14	-266.0	-165.3	313.5	312.5	0.96	328.112			
400.0	400.0	376.1	375.9	0.7	0.6	126.89	-271.4	-167.4	321.6	320.3	1.28	250.523			
500.0	499.6	461.9	461.1	0.9	0.9	127.17	-279.8	-170.6	336.7	335.0	1.63	206.124			
600.0	598.8	548.6	547.0	1.1	1.1	127.74	-291.3	-175.2	358.5	356.5	2.02	177.405			
700.0	697.1	629.1	626.3	1.5	1.4	128.45	-304.2	-180.6	386.8	384.4	2.45	158.063			
800.0	794.3	711.5	706.8	1.9	1.7	129.30	-320.2	-187.6	422.1	419.2	2.93	143.990			
900.0	890.6	802.3	795.3	2.4	2.1	131.04	-338.7	-195.9	461.3	457.8	3.46	133.485	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
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	3.0	3.0	0.0	0.0	-148.93	-254.2	-153.2	296.8						
100.0	100.0	103.0	103.0	0.1	0.1	-148.90	-254.2	-153.3	296.8	296.5	0.28	1,059.082			
200.0	200.0	203.3	203.3	0.3	0.3	-148.80	-253.9	-153.7	296.8	296.1	0.63	473.203			
300.0	300.0	304.2	304.2	0.5	0.5	-148.71	-253.3	-154.0	296.4	295.5	0.98	303.185			
310.9	310.9	314.9	314.9	0.5	0.5	126.40	-253.3	-154.0	296.4	295.4	1.02	291.579	CC, ES		
400.0	400.0	400.9	400.9	0.7	0.7	126.86	-253.1	-154.6	298.2	296.8	1.33	224.928			
500.0	499.6	493.6	493.6	0.9	0.8	127.82	-254.4	-155.5	304.7	303.0	1.68	180.951			
600.0	598.8	581.9	581.7	1.1	1.0	129.00	-258.2	-156.8	317.3	315.2	2.07	153.420			
700.0	697.1	668.2	667.8	1.5	1.2	130.30	-265.1	-159.0	337.0	334.5	2.49	135.154			
800.0	794.3	753.0	751.9	1.9	1.4	131.60	-275.1	-162.0	363.8	360.9	2.97	122.622			
900.0	890.6	830.4	828.3	2.4	1.6	133.08	-287.3	-165.3	397.0	393.6	3.46	114.847			
1,000.0	986.8	910.2	906.5	2.9	1.9	134.33	-303.0	-169.1	433.8	429.8	3.97	109.334			
1,100.0	1,083.0	987.2	981.2	3.4	2.2	135.15	-320.8	-173.0	473.5	469.0	4.49	105.426	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
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	3.0	3.0	0.0	0.0	-150.14	-245.1	-140.7	282.7						
100.0	100.0	103.1	103.1	0.1	0.1	-150.12	-245.1	-140.8	282.6	282.4	0.28	1,007.786			
135.2	135.2	138.3	138.3	0.2	0.2	-150.12	-245.1	-140.8	282.6	282.2	0.40	705.760	CC, ES		
200.0	200.0	198.9	198.8	0.3	0.3	-150.25	-245.7	-140.4	283.0	282.4	0.62	456.894			
300.0	300.0	289.9	289.8	0.5	0.5	-150.92	-249.4	-138.7	285.7	284.7	0.96	298.894			
400.0	400.0	382.7	382.2	0.7	0.7	123.09	-257.2	-135.5	292.9	291.6	1.32	221.155			
500.0	499.6	471.1	469.9	0.9	0.9	122.33	-267.9	-132.1	306.0	304.3	1.72	177.637			
600.0	598.8	558.3	555.9	1.1	1.2	122.01	-281.5	-129.4	325.4	323.3	2.16	150.445			
700.0	697.1	639.4	635.6	1.5	1.5	122.12	-296.9	-128.6	351.4	348.7	2.65	132.612			
800.0	794.3	716.5	710.6	1.9	1.8	122.46	-314.5	-129.5	384.5	381.3	3.19	120.525			
900.0	890.6	790.5	781.9	2.4	2.2	123.61	-334.1	-132.1	424.0	420.2	3.76	112.669			
1,000.0	986.8	863.7	851.6	2.9	2.6	124.74	-356.3	-135.7	467.5	463.1	4.35	107.388	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	3.0	3.0	0.0	0.0	-149.43	-234.9	-138.8	272.9						
100.0	100.0	103.6	103.6	0.1	0.1	-149.46	-234.9	-138.6	272.7	272.5	0.28	970.064			
153.3	153.3	156.3	156.3	0.2	0.2	-149.47	-234.9	-138.5	272.7	272.2	0.46	588.089 CC			
200.0	200.0	200.4	200.4	0.3	0.3	-149.47	-235.0	-138.6	272.8	272.2	0.62	438.637 ES			
300.0	300.0	289.8	289.7	0.5	0.5	-149.54	-237.5	-139.6	275.8	274.8	0.96	288.464			
400.0	400.0	377.3	377.1	0.7	0.6	125.36	-243.6	-141.2	284.3	283.0	1.29	221.160			
500.0	499.6	462.6	461.7	0.9	0.9	125.47	-253.4	-143.6	300.1	298.5	1.64	183.386			
600.0	598.8	547.5	545.4	1.1	1.1	125.76	-267.1	-146.8	323.4	321.4	2.03	159.159			
700.0	697.1	628.6	624.7	1.5	1.4	126.01	-283.7	-149.7	353.3	350.9	2.48	142.322			
800.0	794.3	706.6	700.3	1.9	1.8	126.31	-302.8	-153.7	390.4	387.4	3.00	130.288			
900.0	890.6	783.0	773.5	2.4	2.2	127.30	-324.2	-158.3	432.9	429.4	3.55	122.086			
1,000.0	986.8	857.7	844.4	2.9	2.6	128.36	-347.0	-164.0	478.6	474.5	4.11	116.563 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 111-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			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	-151.55	-237.9	-128.9	270.5						
100.0	100.0	101.3	101.3	0.1	0.1	-151.54	-237.6	-128.8	270.3	270.0	0.28	955.658			
140.2	140.2	140.2	140.2	0.2	0.2	-151.54	-237.5	-128.7	270.2	269.7	0.42	646.272 CC, ES			
200.0	200.0	194.1	194.1	0.3	0.3	-151.71	-238.3	-128.3	270.7	270.1	0.62	439.116			
300.0	300.0	287.9	287.7	0.5	0.5	-152.52	-243.0	-126.3	274.1	273.2	0.96	286.029			
400.0	400.0	377.1	376.5	0.7	0.7	121.51	-251.1	-123.6	282.2	280.9	1.32	213.491			
500.0	499.6	463.9	462.5	0.9	0.9	120.78	-262.5	-120.8	296.6	294.9	1.71	173.256			
600.0	598.8	551.9	549.0	1.1	1.2	120.15	-277.9	-116.8	317.1	314.9	2.17	146.026			
700.0	697.1	641.8	636.8	1.5	1.6	119.89	-297.0	-113.1	343.5	340.7	2.74	125.329			
800.0	794.3	728.2	720.1	1.9	2.0	119.25	-318.6	-105.5	373.8	370.4	3.42	109.392			
900.0	890.6	810.3	798.2	2.4	2.5	119.17	-342.4	-96.8	408.6	404.5	4.16	98.218			
1,000.0	986.8	891.1	874.0	2.9	3.0	119.01	-368.8	-87.4	446.3	441.4	4.95	90.239			
1,100.0	1,083.0	970.4	947.3	3.4	3.6	118.64	-397.2	-77.5	486.4	480.7	5.75	84.618 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-76.67	2.5	-10.7	11.0						
100.0	100.0	100.0	100.0	0.1	0.1	-76.67	2.5	-10.7	11.0	10.8	0.27	40.534			
200.0	200.0	200.0	200.0	0.3	0.3	-76.67	2.5	-10.7	11.0	10.4	0.62	17.762			
203.0	203.0	203.0	203.0	0.3	0.3	-76.67	2.5	-10.7	11.0	10.4	0.63	17.465 CC, ES			
300.0	300.0	299.8	299.8	0.5	0.5	-69.79	4.0	-10.9	11.6	10.6	0.97	11.942 SF			
400.0	400.0	399.1	398.9	0.7	0.7	-138.83	10.4	-11.5	17.4	16.1	1.34	13.030			
500.0	499.6	497.3	496.3	0.9	0.9	-132.01	21.8	-12.6	31.3	29.5	1.74	17.979			
600.0	598.8	593.4	591.1	1.1	1.3	-129.94	37.8	-14.1	52.4	50.2	2.20	23.823			
700.0	697.1	686.9	682.4	1.5	1.7	-129.30	57.9	-16.0	80.4	77.7	2.74	29.391			
800.0	794.3	780.6	773.2	1.9	2.1	-129.59	80.9	-18.2	113.9	110.6	3.34	34.080			
900.0	890.6	873.8	863.5	2.4	2.5	-131.13	103.9	-20.4	149.9	145.9	4.00	37.507			
1,000.0	986.8	967.0	953.8	2.9	2.9	-132.27	126.8	-22.6	186.1	181.4	4.67	39.863			
1,100.0	1,083.0	1,060.2	1,044.1	3.4	3.3	-133.04	149.8	-24.8	222.2	216.9	5.35	41.574			
1,200.0	1,179.2	1,153.4	1,134.4	3.9	3.8	-133.59	172.8	-27.0	258.5	252.4	6.03	42.867			
1,300.0	1,275.5	1,246.5	1,224.7	4.4	4.2	-134.01	195.7	-29.2	294.7	288.0	6.72	43.876			
1,400.0	1,371.7	1,339.7	1,314.9	5.0	4.6	-134.33	218.7	-31.4	331.0	323.5	7.41	44.684			
1,500.0	1,467.9	1,432.9	1,405.2	5.5	5.0	-134.59	241.7	-33.5	367.2	359.1	8.10	45.344			
1,600.0	1,564.1	1,526.1	1,495.5	6.0	5.5	-134.81	264.6	-35.7	403.5	394.7	8.79	45.894			
1,700.0	1,660.4	1,619.3	1,585.8	6.5	5.9	-134.99	287.6	-37.9	439.7	430.2	9.49	46.358			
1,800.0	1,756.6	1,712.5	1,676.1	7.0	6.3	-135.14	310.6	-40.1	476.0	465.8	10.18	46.755			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-104.12	-5.8	-23.2	23.9						
100.0	100.0	100.0	100.0	0.1	0.1	-104.12	-5.8	-23.2	23.9	23.6	0.27	87.760			
200.0	200.0	200.0	200.0	0.3	0.3	-104.12	-5.8	-23.2	23.9	23.3	0.62	38.457			
235.2	235.2	235.2	235.2	0.4	0.4	-104.12	-5.8	-23.2	23.9	23.2	0.74	32.102	CC, ES		
300.0	300.0	299.8	299.8	0.5	0.5	-102.69	-5.3	-23.6	24.1	23.2	0.97	24.886			
400.0	400.0	398.9	398.7	0.7	0.7	-177.55	-1.1	-26.6	29.2	27.9	1.33	21.980	SF		
500.0	499.6	496.4	495.7	0.9	0.9	-166.57	7.1	-32.4	43.5	41.8	1.70	25.532			
600.0	598.8	591.3	589.5	1.1	1.2	-159.63	18.9	-40.9	67.1	65.1	2.09	32.081			
700.0	697.1	682.6	678.9	1.5	1.6	-155.64	33.8	-51.7	99.6	97.1	2.51	39.695			
800.0	794.3	771.5	765.2	1.9	1.9	-153.25	51.3	-64.3	140.0	137.0	2.95	47.417			
900.0	890.6	861.3	852.0	2.4	2.3	-152.50	69.6	-77.4	184.1	180.7	3.44	53.575			
1,000.0	986.8	950.9	938.8	2.9	2.8	-152.17	87.9	-90.6	228.4	224.4	3.94	57.984			
1,100.0	1,083.0	1,040.6	1,025.6	3.4	3.2	-151.95	106.2	-103.7	272.6	268.2	4.45	61.286			
1,200.0	1,179.2	1,130.3	1,112.4	3.9	3.6	-151.79	124.4	-116.9	316.9	311.9	4.96	63.837			
1,300.0	1,275.5	1,219.9	1,199.2	4.4	4.0	-151.67	142.7	-130.0	361.2	355.7	5.48	65.860			
1,400.0	1,371.7	1,309.6	1,286.0	5.0	4.4	-151.58	160.9	-143.1	405.5	399.4	6.01	67.500			
1,500.0	1,467.9	1,399.2	1,372.8	5.5	4.9	-151.50	179.2	-156.3	449.7	443.2	6.53	68.854			
1,600.0	1,564.1	1,488.9	1,459.6	6.0	5.3	-151.44	197.5	-169.4	494.0	486.9	7.06	69.989			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-111.09	-13.8	-35.9	38.5						
100.0	100.0	100.0	100.0	0.1	0.1	-111.09	-13.8	-35.9	38.5	38.2	0.27	141.279			
200.0	200.0	200.0	200.0	0.3	0.3	-111.09	-13.8	-35.9	38.5	37.8	0.62	61.909 CC, ES			
300.0	300.0	299.0	298.9	0.5	0.5	-107.82	-12.2	-37.8	39.7	38.8	0.97	40.908			
400.0	400.0	397.2	396.8	0.7	0.7	175.96	-7.2	-43.6	46.9	45.5	1.35	34.846 SF			
500.0	499.6	493.4	492.2	0.9	1.0	-174.84	0.9	-52.9	63.7	62.0	1.72	37.029			
600.0	598.8	586.4	583.7	1.1	1.3	-168.28	11.7	-65.3	90.5	88.4	2.10	43.179			
700.0	697.1	675.1	670.2	1.5	1.7	-164.09	24.7	-80.3	126.5	124.1	2.48	51.123			
800.0	794.3	758.8	750.8	1.9	2.1	-161.35	39.4	-97.2	171.1	168.2	2.86	59.731			
900.0	890.6	837.4	825.6	2.4	2.6	-159.75	55.2	-115.5	222.2	218.9	3.28	67.680			
1,000.0	986.8	912.3	895.9	2.9	3.1	-158.53	72.2	-135.1	276.7	272.9	3.72	74.370			
1,100.0	1,083.0	983.7	961.9	3.4	3.6	-157.46	90.1	-155.6	334.1	329.9	4.17	80.165			
1,200.0	1,179.2	1,051.6	1,023.7	3.9	4.1	-156.53	108.6	-176.9	394.2	389.6	4.62	85.377			
1,300.0	1,275.5	1,124.0	1,088.6	4.4	4.7	-155.63	129.5	-201.1	456.6	451.5	5.09	89.761			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-116.45	-30.2	-60.8	67.9						
100.0	100.0	100.0	100.0	0.1	0.1	-116.45	-30.2	-60.8	67.9	67.6	0.27	249.251			
200.0	200.0	200.0	200.0	0.3	0.3	-116.45	-30.2	-60.8	67.9	67.2	0.62	109.223	CC, ES		
300.0	300.0	297.5	297.5	0.5	0.5	-114.97	-29.4	-63.1	69.6	68.7	0.97	71.726			
400.0	400.0	394.3	393.9	0.7	0.7	164.56	-26.9	-70.0	77.8	76.4	1.33	58.427			
500.0	499.6	488.8	487.7	0.9	1.0	170.41	-22.8	-81.2	95.4	93.7	1.70	56.279	SF		
600.0	598.8	579.9	577.4	1.1	1.3	175.68	-17.4	-96.2	123.0	121.0	2.05	60.012			
700.0	697.1	666.5	661.9	1.5	1.7	179.72	-10.9	-114.0	160.2	157.8	2.39	67.125			
800.0	794.3	747.6	740.1	1.9	2.1	-177.33	-3.6	-134.0	206.3	203.6	2.71	76.267			
900.0	890.6	823.4	812.4	2.4	2.5	-175.24	4.2	-155.5	259.4	256.4	3.03	85.557			
1,000.0	986.8	900.0	884.4	2.9	3.0	-173.59	13.1	-180.0	315.9	312.5	3.37	93.642			
1,100.0	1,083.0	964.7	944.4	3.4	3.5	-172.44	21.3	-202.7	375.4	371.7	3.70	101.533			
1,200.0	1,179.2	1,042.5	1,016.0	3.9	4.0	-171.33	31.7	-231.2	436.3	432.3	4.05	107.750			
1,300.0	1,275.5	1,121.5	1,088.8	4.4	4.6	-170.48	42.2	-260.2	497.4	493.0	4.41	112.889			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference: O31E Pad (2nd Occupation) - Shideler Fee 31-13BB - OH - Plan #1															
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	-117.72	-38.6	-73.5	83.0						
100.0	100.0	100.0	100.0	0.1	0.1	-117.72	-38.6	-73.5	83.0	82.7	0.27	304.848			
200.0	200.0	200.0	200.0	0.3	0.3	-117.72	-38.6	-73.5	83.0	82.4	0.62	133.585			
300.0	300.0	300.0	300.0	0.5	0.5	-117.72	-38.6	-73.5	83.0	82.0	0.97	85.533 CC, ES			
400.0	400.0	397.4	397.3	0.7	0.7	158.54	-38.4	-74.8	86.6	85.2	1.32	65.800			
500.0	499.6	492.6	492.4	0.9	0.8	162.13	-37.3	-80.7	99.1	97.4	1.66	59.600 SF			
600.0	598.8	585.1	584.3	1.1	1.1	166.53	-35.4	-90.9	121.1	119.1	2.01	60.348			
700.0	697.1	673.7	671.8	1.5	1.3	170.54	-32.8	-104.7	152.9	150.5	2.34	65.320			
800.0	794.3	757.3	753.6	1.9	1.7	173.75	-29.7	-121.4	193.9	191.2	2.65	73.045			
900.0	890.6	835.9	829.8	2.4	2.0	176.26	-26.2	-140.3	242.3	239.3	2.97	81.661			
1,000.0	986.8	910.7	901.5	2.9	2.4	178.17	-22.3	-161.1	294.5	291.2	3.28	89.816			
1,100.0	1,083.0	981.9	969.0	3.4	2.9	179.64	-18.2	-183.5	350.0	346.4	3.59	97.589			
1,200.0	1,179.2	1,049.6	1,032.4	3.9	3.3	-179.19	-13.8	-207.0	408.6	404.7	3.89	105.075			
1,300.0	1,275.5	1,124.0	1,101.2	4.4	3.8	-178.11	-8.6	-234.8	469.4	465.2	4.20	111.703			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-114.69	-22.2	-48.3	53.2						
100.0	100.0	100.0	100.0	0.1	0.1	-114.69	-22.2	-48.3	53.2	52.9	0.27	195.346			
200.0	200.0	200.0	200.0	0.3	0.3	-114.69	-22.2	-48.3	53.2	52.6	0.62	85.601			
300.0	300.0	300.0	300.0	0.5	0.5	-114.69	-22.2	-48.3	53.2	52.2	0.97	54.809	CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	161.28	-22.2	-48.3	55.7	54.3	1.32	42.197			
500.0	499.6	499.6	499.6	0.9	0.8	163.50	-22.2	-48.3	63.1	61.5	1.67	37.880	SF		
600.0	598.8	595.8	595.7	1.1	1.0	167.29	-21.3	-50.6	77.7	75.7	2.01	38.702			
700.0	697.1	692.9	692.7	1.5	1.2	171.40	-19.4	-55.4	99.8	97.5	2.34	42.640			
800.0	794.3	788.8	788.5	1.9	1.4	174.26	-17.6	-60.2	127.3	124.7	2.66	47.787			
900.0	890.6	883.7	883.2	2.4	1.5	176.24	-15.7	-65.0	158.7	155.7	3.00	52.961			
1,000.0	986.8	978.4	977.8	2.9	1.7	177.59	-13.8	-69.7	190.4	187.0	3.33	57.092			
1,100.0	1,083.0	1,073.2	1,072.5	3.4	1.9	178.55	-12.0	-74.4	222.1	218.4	3.67	60.475			
1,200.0	1,179.2	1,168.0	1,167.1	3.9	2.1	179.27	-10.1	-79.2	253.9	249.9	4.01	63.291			
1,300.0	1,275.5	1,262.7	1,261.7	4.4	2.3	179.83	-8.3	-83.9	285.7	281.3	4.35	65.667			
1,400.0	1,371.7	1,357.5	1,356.4	5.0	2.5	-179.72	-6.4	-88.7	317.5	312.8	4.69	67.699			
1,500.0	1,467.9	1,452.3	1,451.0	5.5	2.7	-179.35	-4.6	-93.4	349.4	344.3	5.03	69.454			
1,600.0	1,564.1	1,547.1	1,545.7	6.0	2.8	-179.05	-2.7	-98.1	381.2	375.8	5.37	70.985			
1,700.0	1,660.4	1,641.8	1,640.3	6.5	3.0	-178.79	-0.8	-102.9	413.1	407.4	5.71	72.331			
1,800.0	1,756.6	1,736.6	1,734.9	7.0	3.2	-178.56	1.0	-107.6	444.9	438.9	6.05	73.525			
1,900.0	1,852.8	1,831.4	1,829.6	7.5	3.4	-178.37	2.9	-112.4	476.8	470.4	6.39	74.589			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-118.49	-46.6	-85.9	97.7						
100.0	100.0	100.0	100.0	0.1	0.1	-118.49	-46.6	-85.9	97.7	97.5	0.27	358.998			
200.0	200.0	200.0	200.0	0.3	0.3	-118.49	-46.6	-85.9	97.7	97.1	0.62	157.314			
300.0	300.0	300.0	300.0	0.5	0.5	-118.49	-46.6	-85.9	97.7	96.8	0.97	100.726	CC, ES		
400.0	400.0	395.4	395.4	0.7	0.7	157.03	-47.9	-87.9	102.6	101.3	1.31	78.235			
500.0	499.6	494.7	494.6	0.9	0.8	158.29	-50.2	-91.7	114.3	112.6	1.66	68.822			
600.0	598.8	593.2	593.0	1.1	1.0	160.06	-52.5	-95.4	130.9	128.9	2.01	65.105			
700.0	697.1	690.7	690.4	1.5	1.2	161.99	-54.8	-99.1	152.5	150.1	2.36	64.645	SF		
800.0	794.3	786.9	786.5	1.9	1.4	163.84	-57.0	-102.7	179.1	176.4	2.70	66.274			
900.0	890.6	882.0	881.5	2.4	1.6	165.60	-59.3	-106.3	209.4	206.4	3.05	68.643			
1,000.0	986.8	977.1	976.4	2.9	1.7	166.98	-61.5	-109.9	240.1	236.7	3.40	70.584			
1,100.0	1,083.0	1,072.1	1,071.4	3.4	1.9	168.05	-63.7	-113.5	270.9	267.1	3.75	72.232			
1,200.0	1,179.2	1,167.1	1,166.3	3.9	2.1	168.90	-65.9	-117.1	301.7	297.6	4.10	73.646			
1,300.0	1,275.5	1,262.2	1,261.3	4.4	2.3	169.59	-68.2	-120.7	332.6	328.1	4.44	74.870			
1,400.0	1,371.7	1,357.2	1,356.2	5.0	2.5	170.16	-70.4	-124.3	363.5	358.7	4.79	75.938			
1,500.0	1,467.9	1,452.3	1,451.2	5.5	2.7	170.65	-72.6	-127.9	394.4	389.3	5.13	76.878			
1,600.0	1,564.1	1,547.3	1,546.1	6.0	2.8	171.06	-74.8	-131.5	425.4	419.9	5.47	77.710			
1,700.0	1,660.4	1,642.4	1,641.1	6.5	3.0	171.42	-77.1	-135.1	456.4	450.6	5.82	78.452			
1,800.0	1,756.6	1,737.4	1,736.0	7.0	3.2	171.73	-79.3	-138.7	487.4	481.2	6.16	79.117			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	57.20	8.0	12.4	14.8						
100.0	100.0	100.0	100.0	0.1	0.1	57.20	8.0	12.4	14.8	14.5	0.27	54.330			
200.0	200.0	200.0	200.0	0.3	0.3	57.20	8.0	12.4	14.8	14.2	0.62	23.808			
300.0	300.0	300.0	300.0	0.5	0.5	57.20	8.0	12.4	14.8	13.8	0.97	15.244			
400.0	400.0	400.0	400.0	0.7	0.7	-33.31	8.0	12.4	12.5	11.2	1.32	9.492			
500.0	499.6	499.3	499.3	0.9	0.8	-55.55	8.9	14.9	9.1	7.4	1.70	5.360			
544.6	543.9	543.7	543.6	1.0	0.9	-71.64	9.8	17.5	8.6	6.7	1.91	4.507 CC, ES			
600.0	598.8	598.9	598.6	1.1	1.0	-92.08	11.4	22.2	9.4	7.2	2.19	4.292 SF			
700.0	697.1	698.7	697.5	1.5	1.3	-115.49	15.7	34.5	13.9	11.2	2.74	5.083			
800.0	794.3	798.7	795.8	1.9	1.6	-124.71	21.6	51.6	20.7	17.3	3.36	6.151			
900.0	890.6	899.0	893.3	2.4	2.1	-125.75	29.3	73.6	27.9	23.8	4.14	6.747			
1,000.0	986.8	999.1	989.4	2.9	2.6	-118.55	38.6	100.4	33.6	28.4	5.20	6.471			
1,100.0	1,083.0	1,098.9	1,084.6	3.4	3.1	-111.20	48.3	128.4	39.5	33.1	6.33	6.235			
1,200.0	1,179.2	1,198.6	1,179.8	3.9	3.6	-105.81	58.1	156.5	45.8	38.3	7.45	6.148			
1,300.0	1,275.5	1,298.3	1,275.0	4.4	4.2	-101.74	67.8	184.5	52.4	43.8	8.54	6.134			
1,400.0	1,371.7	1,398.0	1,370.2	5.0	4.7	-98.60	77.6	212.6	59.2	49.6	9.62	6.154			
1,500.0	1,467.9	1,497.7	1,465.4	5.5	5.3	-96.11	87.3	240.7	66.2	55.5	10.69	6.191			
1,600.0	1,564.1	1,597.5	1,560.6	6.0	5.8	-94.09	97.1	268.7	73.2	61.5	11.74	6.235			
1,700.0	1,660.4	1,697.2	1,655.7	6.5	6.4	-92.43	106.8	296.8	80.3	67.5	12.79	6.281			
1,800.0	1,756.6	1,796.9	1,750.9	7.0	7.0	-91.05	116.6	324.8	87.5	73.7	13.83	6.327			
1,900.0	1,852.8	1,896.6	1,846.1	7.5	7.5	-89.87	126.3	352.9	94.8	79.9	14.87	6.371			
2,000.0	1,949.0	1,996.3	1,941.3	8.1	8.1	-88.86	136.1	381.0	102.0	86.1	15.91	6.413			
2,100.0	2,045.2	2,096.1	2,036.5	8.6	8.6	-87.99	145.9	409.0	109.3	92.4	16.94	6.453			
2,200.0	2,141.5	2,195.8	2,131.7	9.1	9.2	-87.22	155.6	437.1	116.6	98.6	17.97	6.490			
2,300.0	2,237.7	2,295.5	2,226.9	9.6	9.8	-86.55	165.4	465.1	123.9	105.0	19.00	6.524			
2,400.0	2,333.9	2,395.2	2,322.1	10.1	10.3	-85.95	175.1	493.2	131.3	111.3	20.03	6.556			
2,500.0	2,430.1	2,494.9	2,417.3	10.7	10.9	-85.41	184.9	521.3	138.7	117.6	21.05	6.587			
2,600.0	2,526.4	2,594.7	2,512.5	11.2	11.4	-84.93	194.6	549.3	146.0	123.9	22.08	6.615			
2,700.0	2,622.6	2,694.4	2,607.7	11.7	12.0	-84.50	204.4	577.4	153.4	130.3	23.10	6.641			
2,800.0	2,718.8	2,794.1	2,702.9	12.2	12.6	-84.10	214.1	605.4	160.8	136.7	24.12	6.666			
2,900.0	2,815.0	2,893.8	2,798.1	12.8	13.1	-83.74	223.9	633.5	168.2	143.0	25.14	6.689			
3,000.0	2,911.2	2,993.6	2,893.3	13.3	13.7	-83.41	233.6	661.6	175.6	149.4	26.17	6.711			
3,100.0	3,007.5	3,093.3	2,988.5	13.8	14.3	-83.11	243.4	689.6	183.0	155.8	27.19	6.731			
3,200.0	3,103.7	3,193.0	3,083.7	14.3	14.8	-82.83	253.1	717.7	190.4	162.2	28.21	6.750			
3,300.0	3,199.9	3,292.7	3,178.8	14.8	15.4	-82.57	262.9	745.7	197.8	168.6	29.23	6.768			
3,400.0	3,296.1	3,392.4	3,274.0	15.4	16.0	-82.33	272.6	773.8	205.2	175.0	30.25	6.785			
3,500.0	3,392.4	3,492.2	3,369.2	15.9	16.5	-82.10	282.4	801.9	212.7	181.4	31.27	6.801			
3,600.0	3,488.6	3,591.9	3,464.4	16.4	17.1	-81.89	292.1	829.9	220.1	187.8	32.29	6.817			
3,700.0	3,584.8	3,691.6	3,559.6	16.9	17.7	-81.70	301.9	858.0	227.5	194.2	33.30	6.831			
3,800.0	3,681.0	3,791.3	3,654.8	17.4	18.2	-81.52	311.6	886.0	234.9	200.6	34.32	6.845			
3,900.0	3,777.2	3,891.0	3,750.0	18.0	18.8	-81.35	321.4	914.1	242.4	207.0	35.34	6.858			
4,000.0	3,873.5	3,990.8	3,845.2	18.5	19.4	-81.19	331.1	942.2	249.8	213.4	36.36	6.870			
4,100.0	3,969.7	4,090.5	3,940.4	19.0	19.9	-81.03	340.9	970.2	257.2	219.9	37.38	6.882			
4,200.0	4,065.9	4,190.2	4,035.6	19.5	20.5	-80.89	350.7	998.3	264.7	226.3	38.40	6.893			
4,300.0	4,162.1	4,289.9	4,130.8	20.1	21.0	-80.75	360.4	1,026.3	272.1	232.7	39.41	6.904			
4,400.0	4,258.3	4,389.6	4,226.0	20.6	21.6	-80.63	370.2	1,054.4	279.5	239.1	40.43	6.914			
4,500.0	4,354.6	4,489.4	4,321.2	21.1	22.2	-80.50	379.9	1,082.5	287.0	245.5	41.45	6.924			
4,600.0	4,450.8	4,589.1	4,416.4	21.6	22.7	-80.39	389.7	1,110.5	294.4	252.0	42.47	6.933			
4,700.0	4,547.0	4,688.8	4,511.6	22.1	23.3	-80.28	399.4	1,138.6	301.9	258.4	43.48	6.942			
4,800.0	4,643.2	4,788.5	4,606.7	22.7	23.9	-80.18	409.2	1,166.6	309.3	264.8	44.50	6.951			
4,900.0	4,739.5	4,888.3	4,701.9	23.2	24.4	-80.08	418.9	1,194.7	316.8	271.2	45.52	6.959			
5,000.0	4,835.7	4,988.0	4,797.1	23.7	25.0	-79.98	428.7	1,222.8	324.2	277.7	46.54	6.967			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												O31E Pad (2nd Occupation) - Shideler Fee 31-16A - OH - Plan #1		Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	4,931.9	5,087.7	4,892.3	24.2	25.6	-79.89	438.4	1,250.8	331.7	284.1	47.55	6.975			
5,200.0	5,028.1	5,187.4	4,987.5	24.8	26.1	-79.80	448.2	1,278.9	339.1	290.5	48.57	6.982			
5,300.0	5,124.3	5,287.1	5,082.7	25.3	26.7	-79.72	457.9	1,306.9	346.6	297.0	49.59	6.989			
5,400.0	5,220.6	5,386.9	5,177.9	25.8	27.3	-79.64	467.7	1,335.0	354.0	303.4	50.60	6.996			
5,500.0	5,316.8	5,486.6	5,273.1	26.3	27.8	-79.56	477.4	1,363.1	361.5	309.8	51.62	7.002			
5,600.0	5,413.0	5,586.3	5,368.3	26.8	28.4	-79.49	487.2	1,391.1	368.9	316.3	52.64	7.008			
5,700.0	5,509.2	5,686.0	5,463.5	27.4	29.0	-79.42	496.9	1,419.2	376.4	322.7	53.65	7.015			
5,800.0	5,605.5	5,787.1	5,560.0	27.9	29.5	-79.37	506.8	1,447.5	383.8	329.1	54.68	7.019			
5,900.0	5,701.9	5,892.7	5,661.6	28.4	30.1	-79.64	516.2	1,474.7	390.3	334.6	55.70	7.007			
6,000.0	5,799.2	5,998.4	5,764.3	28.8	30.5	-79.93	524.4	1,498.3	395.9	339.3	56.60	6.994			
6,100.0	5,897.2	6,104.2	5,867.9	29.2	30.9	-80.20	531.4	1,518.3	400.6	343.3	57.38	6.982			
6,200.0	5,995.9	6,210.0	5,972.4	29.5	31.2	-80.44	537.1	1,534.7	404.5	346.5	58.03	6.971			
6,300.0	6,095.0	6,316.0	6,077.4	29.7	31.5	-80.65	541.5	1,547.4	407.5	348.9	58.56	6.958			
6,400.0	6,194.6	6,421.9	6,182.9	29.9	31.6	-80.83	544.7	1,556.5	409.6	350.6	58.97	6.945			
6,500.0	6,294.4	6,527.8	6,288.7	30.0	31.8	-80.98	546.5	1,561.9	410.7	351.5	59.27	6.931			
6,600.0	6,394.4	6,633.5	6,394.4	30.1	31.9	-81.11	547.1	1,563.6	411.0	351.6	59.45	6.913			
6,646.5	6,440.8	6,680.0	6,440.8	30.1	31.9	-81.15	547.1	1,563.6	411.0	351.5	59.53	6.904			
6,700.0	6,494.4	6,733.5	6,494.4	30.2	31.9	3.78	547.1	1,563.6	411.0	351.4	59.59	6.897			
6,800.0	6,594.4	6,833.5	6,594.4	30.2	32.0	3.78	547.1	1,563.6	411.0	351.3	59.73	6.881			
6,900.0	6,694.4	6,933.5	6,694.4	30.3	32.0	3.78	547.1	1,563.6	411.0	351.1	59.87	6.865			
7,000.0	6,794.4	7,033.5	6,794.4	30.4	32.1	3.78	547.1	1,563.6	411.0	351.0	60.01	6.849			
7,100.0	6,894.4	7,133.5	6,894.4	30.4	32.2	3.78	547.1	1,563.6	411.0	350.9	60.15	6.833			
7,200.0	6,994.4	7,233.5	6,994.4	30.5	32.2	3.78	547.1	1,563.6	411.0	350.7	60.30	6.816			
7,300.0	7,094.4	7,333.5	7,094.4	30.6	32.3	3.78	547.1	1,563.6	411.0	350.6	60.44	6.800			
7,400.0	7,194.4	7,433.5	7,194.4	30.7	32.4	3.78	547.1	1,563.6	411.0	350.4	60.59	6.783			
7,500.0	7,294.4	7,533.5	7,294.4	30.7	32.5	3.78	547.1	1,563.6	411.0	350.3	60.74	6.767			
7,600.0	7,394.4	7,633.5	7,394.4	30.8	32.5	3.78	547.1	1,563.6	411.0	350.1	60.89	6.750			
7,700.0	7,494.4	7,733.5	7,494.4	30.9	32.6	3.78	547.1	1,563.6	411.0	350.0	61.05	6.733			
7,800.0	7,594.4	7,833.5	7,594.4	31.0	32.7	3.78	547.1	1,563.6	411.0	349.8	61.20	6.716			
7,900.0	7,694.4	7,933.5	7,694.4	31.0	32.7	3.78	547.1	1,563.6	411.0	349.7	61.36	6.699			
8,000.0	7,794.4	8,033.5	7,794.4	31.1	32.8	3.78	547.1	1,563.6	411.0	349.5	61.51	6.682			
8,100.0	7,894.4	8,133.5	7,894.4	31.2	32.9	3.78	547.1	1,563.6	411.0	349.3	61.67	6.664			
8,200.0	7,994.4	8,233.5	7,994.4	31.3	33.0	3.78	547.1	1,563.6	411.0	349.2	61.83	6.647			
8,300.0	8,094.4	8,333.5	8,094.4	31.4	33.0	3.78	547.1	1,563.6	411.0	349.0	62.00	6.630			
8,400.0	8,194.4	8,433.5	8,194.4	31.4	33.1	3.78	547.1	1,563.6	411.0	348.9	62.16	6.612			
8,500.0	8,294.4	8,533.5	8,294.4	31.5	33.2	3.78	547.1	1,563.6	411.0	348.7	62.33	6.595			
8,597.6	8,392.0	8,631.2	8,392.0	31.6	33.3	3.78	547.1	1,563.6	411.0	348.5	62.49	6.578			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	10.61	10.6	2.0	10.7						
100.0	100.0	100.0	100.0	0.1	0.1	10.61	10.6	2.0	10.7	10.5	0.27	39.469			
200.0	200.0	200.0	200.0	0.3	0.3	10.61	10.6	2.0	10.7	10.1	0.62	17.295			
300.0	300.0	300.0	300.0	0.5	0.5	10.61	10.6	2.0	10.7	9.8	0.97	11.074	CC, ES		
400.0	400.0	399.6	399.6	0.7	0.7	-76.68	11.8	4.3	11.7	10.4	1.33	8.798			
500.0	499.6	499.2	498.8	0.9	0.9	-81.94	15.5	11.1	14.6	12.9	1.74	8.386	SF		
600.0	598.8	598.6	597.4	1.1	1.1	-87.11	21.7	22.5	19.6	17.4	2.27	8.656			
700.0	697.1	697.9	695.0	1.5	1.5	-90.99	30.2	38.3	26.8	23.9	2.95	9.089			
800.0	794.3	796.9	791.3	1.9	1.9	-93.62	41.2	58.5	36.1	32.3	3.80	9.485			
900.0	890.6	895.6	886.0	2.4	2.4	-93.92	54.4	83.0	47.3	42.5	4.78	9.894			
1,000.0	986.8	994.6	979.9	2.9	3.0	-91.02	69.4	110.6	59.8	54.0	5.77	10.349			
1,100.0	1,083.0	1,093.7	1,073.9	3.4	3.6	-89.01	84.4	138.3	72.4	65.6	6.78	10.680			
1,200.0	1,179.2	1,192.9	1,167.9	3.9	4.2	-87.61	99.4	166.1	85.0	77.3	7.78	10.926			
1,300.0	1,275.5	1,292.1	1,261.9	4.4	4.7	-86.56	114.5	193.8	97.8	89.0	8.79	11.115			
1,400.0	1,371.7	1,391.3	1,355.9	5.0	5.3	-85.76	129.5	221.6	110.5	100.7	9.81	11.265			
1,500.0	1,467.9	1,490.4	1,450.0	5.5	5.9	-85.12	144.5	249.4	123.2	112.4	10.82	11.387			
1,600.0	1,564.1	1,589.6	1,544.0	6.0	6.5	-84.61	159.5	277.1	136.0	124.2	11.84	11.488			
1,700.0	1,660.4	1,688.8	1,638.0	6.5	7.1	-84.18	174.6	304.9	148.8	135.9	12.86	11.573			
1,800.0	1,756.6	1,788.0	1,732.0	7.0	7.7	-83.82	189.6	332.6	161.6	147.7	13.87	11.645			
1,900.0	1,852.8	1,887.1	1,826.0	7.5	8.3	-83.51	204.6	360.4	174.4	159.5	14.89	11.707			
2,000.0	1,949.0	1,986.3	1,920.0	8.1	8.9	-83.24	219.7	388.1	187.1	171.2	15.91	11.761			
2,100.0	2,045.2	2,085.5	2,014.1	8.6	9.5	-83.01	234.7	415.9	199.9	183.0	16.93	11.809			
2,200.0	2,141.5	2,184.7	2,108.1	9.1	10.1	-82.81	249.7	443.7	212.7	194.8	17.95	11.851			
2,300.0	2,237.7	2,283.8	2,202.1	9.6	10.7	-82.63	264.8	471.4	225.5	206.6	18.97	11.888			
2,400.0	2,333.9	2,383.0	2,296.1	10.1	11.3	-82.47	279.8	499.2	238.3	218.4	19.99	11.922			
2,500.0	2,430.1	2,482.2	2,390.1	10.7	11.9	-82.32	294.8	526.9	251.1	230.1	21.01	11.952			
2,600.0	2,526.4	2,581.4	2,484.1	11.2	12.5	-82.19	309.8	554.7	264.0	241.9	22.03	11.980			
2,700.0	2,622.6	2,680.5	2,578.2	11.7	13.1	-82.07	324.9	582.4	276.8	253.7	23.05	12.005			
2,800.0	2,718.8	2,779.7	2,672.2	12.2	13.7	-81.97	339.9	610.2	289.6	265.5	24.08	12.027			
2,900.0	2,815.0	2,878.9	2,766.2	12.8	14.2	-81.87	354.9	638.0	302.4	277.3	25.10	12.048			
3,000.0	2,911.2	2,978.1	2,860.2	13.3	14.8	-81.78	370.0	665.7	315.2	289.1	26.12	12.068			
3,100.0	3,007.5	3,077.2	2,954.2	13.8	15.4	-81.69	385.0	693.5	328.0	300.9	27.14	12.086			
3,200.0	3,103.7	3,176.4	3,048.3	14.3	16.0	-81.61	400.0	721.2	340.8	312.6	28.16	12.102			
3,300.0	3,199.9	3,275.6	3,142.3	14.8	16.6	-81.54	415.1	749.0	353.6	324.4	29.18	12.118			
3,400.0	3,296.1	3,374.8	3,236.3	15.4	17.2	-81.47	430.1	776.7	366.4	336.2	30.20	12.132			
3,500.0	3,392.4	3,473.9	3,330.3	15.9	17.8	-81.41	445.1	804.5	379.2	348.0	31.23	12.145			
3,600.0	3,488.6	3,573.1	3,424.3	16.4	18.4	-81.35	460.1	832.3	392.1	359.8	32.25	12.158			
3,700.0	3,584.8	3,672.3	3,518.3	16.9	19.0	-81.30	475.2	860.0	404.9	371.6	33.27	12.169			
3,800.0	3,681.0	3,771.5	3,612.4	17.4	19.6	-81.25	490.2	887.8	417.7	383.4	34.29	12.180			
3,900.0	3,777.2	3,870.6	3,706.4	18.0	20.2	-81.20	505.2	915.5	430.5	395.2	35.31	12.191			
4,000.0	3,873.5	3,969.8	3,800.4	18.5	20.8	-81.15	520.3	943.3	443.3	407.0	36.33	12.201			
4,100.0	3,969.7	4,069.0	3,894.4	19.0	21.4	-81.11	535.3	971.0	456.1	418.8	37.36	12.210			
4,200.0	4,065.9	4,168.2	3,988.4	19.5	22.0	-81.07	550.3	998.8	468.9	430.6	38.38	12.219			
4,300.0	4,162.1	4,267.3	4,082.4	20.1	22.6	-81.03	565.4	1,026.5	481.8	442.4	39.40	12.227			
4,400.0	4,258.3	4,366.5	4,176.5	20.6	23.2	-81.00	580.4	1,054.3	494.6	454.1	40.42	12.235			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.97	-8.4	-12.4	15.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.97	-8.4	-12.4	15.0	14.7	0.27	55.066			
200.0	200.0	200.0	200.0	0.3	0.3	-123.97	-8.4	-12.4	15.0	14.4	0.62	24.130			
300.0	300.0	300.0	300.0	0.5	0.5	-123.97	-8.4	-12.4	15.0	14.0	0.97	15.450	CC, ES		
400.0	400.0	400.5	400.5	0.7	0.7	152.23	-8.5	-11.0	16.2	14.8	1.32	12.221			
500.0	499.6	501.1	500.9	0.9	0.9	150.70	-9.2	-4.4	18.0	16.3	1.69	10.638			
600.0	598.8	601.9	600.9	1.1	1.1	147.08	-10.5	7.5	20.4	18.3	2.11	9.667			
700.0	697.1	702.6	700.1	1.5	1.4	142.30	-12.2	24.6	23.5	20.9	2.64	8.909			
800.0	794.3	803.3	798.3	1.9	1.9	137.14	-14.5	46.8	27.4	24.1	3.34	8.211			
900.0	890.6	903.9	895.1	2.4	2.4	130.48	-17.4	74.1	31.4	27.1	4.27	7.356			
1,000.0	986.8	1,003.7	990.7	2.9	2.9	123.21	-20.4	102.7	35.2	29.8	5.35	6.576			
1,100.0	1,083.0	1,103.6	1,086.3	3.4	3.4	117.42	-23.3	131.3	39.4	32.9	6.46	6.090			
1,200.0	1,179.2	1,203.4	1,181.9	3.9	3.9	112.77	-26.3	159.9	43.9	36.3	7.58	5.785			
1,300.0	1,275.5	1,303.2	1,277.5	4.4	4.5	109.01	-29.3	188.5	48.6	39.9	8.70	5.587			
1,400.0	1,371.7	1,403.1	1,373.1	5.0	5.0	105.93	-32.3	217.1	53.5	43.7	9.81	5.457			
1,500.0	1,467.9	1,502.9	1,468.7	5.5	5.6	103.38	-35.2	245.8	58.6	47.7	10.91	5.370			
1,600.0	1,564.1	1,602.8	1,564.3	6.0	6.1	101.23	-38.2	274.4	63.7	51.7	12.00	5.312			
1,700.0	1,660.4	1,702.6	1,659.9	6.5	6.7	99.41	-41.2	303.0	69.0	55.9	13.08	5.272			
1,800.0	1,756.6	1,802.4	1,755.5	7.0	7.2	97.84	-44.2	331.6	74.2	60.1	14.16	5.245			
1,900.0	1,852.8	1,902.3	1,851.1	7.5	7.7	96.48	-47.1	360.2	79.6	64.4	15.23	5.226			
2,000.0	1,949.0	2,002.1	1,946.8	8.1	8.3	95.30	-50.1	388.8	84.9	68.7	16.29	5.215			
2,100.0	2,045.2	2,102.0	2,042.4	8.6	8.8	94.25	-53.1	417.4	90.3	73.0	17.35	5.208			
2,200.0	2,141.5	2,201.8	2,138.0	9.1	9.4	93.33	-56.1	446.1	95.8	77.4	18.41	5.204			
2,300.0	2,237.7	2,301.7	2,233.6	9.6	9.9	92.50	-59.1	474.7	101.2	81.8	19.46	5.202			
2,400.0	2,333.9	2,401.5	2,329.2	10.1	10.5	91.76	-62.0	503.3	106.7	86.2	20.51	5.203			
2,500.0	2,430.1	2,501.3	2,424.8	10.7	11.0	91.09	-65.0	531.9	112.2	90.6	21.56	5.204			
2,600.0	2,526.4	2,601.2	2,520.4	11.2	11.6	90.48	-68.0	560.5	117.7	95.1	22.60	5.207			
2,700.0	2,622.6	2,701.0	2,616.0	11.7	12.1	89.93	-71.0	589.1	123.2	99.6	23.65	5.210			
2,800.0	2,718.8	2,800.9	2,711.6	12.2	12.7	89.42	-73.9	617.8	128.7	104.0	24.69	5.214			
2,900.0	2,815.0	2,900.7	2,807.2	12.8	13.2	88.96	-76.9	646.4	134.3	108.5	25.73	5.218			
3,000.0	2,911.2	3,000.5	2,902.8	13.3	13.8	88.53	-79.9	675.0	139.8	113.0	26.77	5.222			
3,100.0	3,007.5	3,100.4	2,998.4	13.8	14.3	88.14	-82.9	703.6	145.3	117.5	27.81	5.226			
3,200.0	3,103.7	3,200.2	3,094.0	14.3	14.9	87.77	-85.9	732.2	150.9	122.0	28.85	5.231			
3,300.0	3,199.9	3,300.1	3,189.6	14.8	15.4	87.43	-88.8	760.8	156.5	126.6	29.88	5.235			
3,400.0	3,296.1	3,399.9	3,285.2	15.4	16.0	87.11	-91.8	789.5	162.0	131.1	30.92	5.240			
3,500.0	3,392.4	3,499.7	3,380.8	15.9	16.5	86.82	-94.8	818.1	167.6	135.6	31.96	5.244			
3,600.0	3,488.6	3,599.6	3,476.4	16.4	17.1	86.54	-97.8	846.7	173.2	140.2	32.99	5.249			
3,700.0	3,584.8	3,699.4	3,572.1	16.9	17.6	86.28	-100.7	875.3	178.7	144.7	34.02	5.253			
3,800.0	3,681.0	3,799.3	3,667.7	17.4	18.2	86.04	-103.7	903.9	184.3	149.3	35.06	5.257			
3,900.0	3,777.2	3,899.1	3,763.3	18.0	18.7	85.81	-106.7	932.5	189.9	153.8	36.09	5.262			
4,000.0	3,873.5	3,999.0	3,858.9	18.5	19.3	85.60	-109.7	961.2	195.5	158.4	37.12	5.266			
4,100.0	3,969.7	4,098.8	3,954.5	19.0	19.8	85.39	-112.6	989.8	201.1	162.9	38.16	5.270			
4,200.0	4,065.9	4,198.6	4,050.1	19.5	20.4	85.20	-115.6	1,018.4	206.7	167.5	39.19	5.273			
4,300.0	4,162.1	4,298.5	4,145.7	20.1	20.9	85.02	-118.6	1,047.0	212.3	172.0	40.22	5.277			
4,400.0	4,258.3	4,398.3	4,241.3	20.6	21.5	84.84	-121.6	1,075.6	217.9	176.6	41.25	5.281			
4,500.0	4,354.6	4,498.2	4,336.9	21.1	22.0	84.68	-124.6	1,104.2	223.4	181.2	42.28	5.285			
4,600.0	4,450.8	4,598.0	4,432.5	21.6	22.6	84.52	-127.5	1,132.9	229.0	185.7	43.31	5.288			
4,700.0	4,547.0	4,697.8	4,528.1	22.1	23.1	84.37	-130.5	1,161.5	234.6	190.3	44.35	5.291			
4,800.0	4,643.2	4,797.7	4,623.7	22.7	23.7	84.23	-133.5	1,190.1	240.3	194.9	45.38	5.295			
4,900.0	4,739.5	4,897.5	4,719.3	23.2	24.2	84.09	-136.5	1,218.7	245.9	199.4	46.41	5.298			
5,000.0	4,835.7	4,997.4	4,814.9	23.7	24.8	83.96	-139.4	1,247.3	251.5	204.0	47.44	5.301			
5,100.0	4,931.9	5,097.2	4,910.5	24.2	25.3	83.84	-142.4	1,275.9	257.1	208.6	48.47	5.304			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
5,200.0	5,028.1	5,197.0	5,006.1	24.8	25.9	83.72	-145.4	1,304.6	262.7	213.2	49.50	5.307			
5,300.0	5,124.3	5,296.9	5,101.7	25.3	26.4	83.61	-148.4	1,333.2	268.3	217.8	50.53	5.310			
5,400.0	5,220.6	5,396.7	5,197.4	25.8	27.0	83.50	-151.3	1,361.8	273.9	222.3	51.55	5.313			
5,500.0	5,316.8	5,496.6	5,293.0	26.3	27.5	83.39	-154.3	1,390.4	279.5	226.9	52.58	5.315			
5,600.0	5,413.0	5,596.4	5,388.6	26.8	28.1	83.29	-157.3	1,419.0	285.1	231.5	53.61	5.318			
5,700.0	5,509.2	5,696.3	5,484.2	27.4	28.6	83.20	-160.3	1,447.6	290.7	236.1	54.64	5.321			
5,800.0	5,605.5	5,796.1	5,579.8	27.9	29.2	83.10	-163.3	1,476.3	296.3	240.7	55.67	5.323			
5,900.0	5,701.9	5,896.8	5,678.5	28.4	29.7	83.17	-166.2	1,504.4	301.6	245.0	56.66	5.324			
6,000.0	5,799.2	6,002.0	5,778.6	28.8	30.1	83.27	-168.8	1,529.1	306.3	248.8	57.53	5.324			
6,100.0	5,897.2	6,105.2	5,879.7	29.2	30.5	83.35	-170.9	1,550.2	310.2	252.0	58.26	5.325			
6,200.0	5,995.9	6,208.5	5,981.5	29.5	30.9	83.41	-172.8	1,567.7	313.5	254.6	58.88	5.324			
6,300.0	6,095.0	6,311.9	6,083.9	29.7	31.1	83.45	-174.2	1,581.5	316.1	256.7	59.38	5.323			
6,400.0	6,194.6	6,415.4	6,186.9	29.9	31.3	83.48	-175.3	1,591.6	318.0	258.3	59.77	5.321			
6,500.0	6,294.4	6,518.8	6,290.1	30.0	31.4	83.49	-175.9	1,598.1	319.2	259.2	60.03	5.318			
6,600.0	6,394.4	6,622.3	6,393.5	30.1	31.5	83.47	-176.2	1,600.8	319.8	259.6	60.19	5.312			
6,700.0	6,494.4	6,723.1	6,494.4	30.2	31.6	168.37	-176.2	1,600.9	319.8	259.5	60.33	5.301			
6,800.0	6,594.4	6,823.1	6,594.4	30.2	31.7	168.37	-176.2	1,600.9	319.8	259.3	60.46	5.289			
6,900.0	6,694.4	6,923.1	6,694.4	30.3	31.7	168.37	-176.2	1,600.9	319.8	259.2	60.60	5.277			
7,000.0	6,794.4	7,023.1	6,794.4	30.4	31.8	168.37	-176.2	1,600.9	319.8	259.1	60.74	5.265			
7,100.0	6,894.4	7,123.1	6,894.4	30.4	31.9	168.37	-176.2	1,600.9	319.8	258.9	60.88	5.253			
7,200.0	6,994.4	7,223.1	6,994.4	30.5	31.9	168.37	-176.2	1,600.9	319.8	258.8	61.03	5.240			
7,300.0	7,094.4	7,323.1	7,094.4	30.6	32.0	168.37	-176.2	1,600.9	319.8	258.6	61.17	5.228			
7,400.0	7,194.4	7,423.1	7,194.4	30.7	32.1	168.37	-176.2	1,600.9	319.8	258.5	61.32	5.216			
7,500.0	7,294.4	7,523.1	7,294.4	30.7	32.1	168.37	-176.2	1,600.9	319.8	258.3	61.46	5.203			
7,600.0	7,394.4	7,623.1	7,394.4	30.8	32.2	168.37	-176.2	1,600.9	319.8	258.2	61.61	5.190			
7,700.0	7,494.4	7,723.1	7,494.4	30.9	32.3	168.37	-176.2	1,600.9	319.8	258.0	61.76	5.178			
7,800.0	7,594.4	7,823.1	7,594.4	31.0	32.4	168.37	-176.2	1,600.9	319.8	257.9	61.92	5.165			
7,900.0	7,694.4	7,923.1	7,694.4	31.0	32.4	168.37	-176.2	1,600.9	319.8	257.7	62.07	5.152			
8,000.0	7,794.4	8,023.1	7,794.4	31.1	32.5	168.37	-176.2	1,600.9	319.8	257.6	62.23	5.139			
8,100.0	7,894.4	8,123.1	7,894.4	31.2	32.6	168.37	-176.2	1,600.9	319.8	257.4	62.38	5.126			
8,200.0	7,994.4	8,223.1	7,994.4	31.3	32.7	168.37	-176.2	1,600.9	319.8	257.3	62.54	5.113			
8,300.0	8,094.4	8,323.1	8,094.4	31.4	32.7	168.37	-176.2	1,600.9	319.8	257.1	62.70	5.100			
8,400.0	8,194.4	8,423.1	8,194.4	31.4	32.8	168.37	-176.2	1,600.9	319.8	256.9	62.86	5.087			
8,500.0	8,294.4	8,523.1	8,294.4	31.5	32.9	168.37	-176.2	1,600.9	319.8	256.8	63.03	5.074			
8,597.6	8,392.0	8,620.8	8,392.0	31.6	33.0	168.37	-176.2	1,600.9	319.8	256.6	63.19	5.061 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			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)	Total Uncertainty Axis				
0.0	0.0	0.0	0.0	0.0	0.0	37.26	18.9	14.4	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	37.26	18.9	14.4	23.8	23.5	0.27	87.426			
200.0	200.0	200.0	200.0	0.3	0.3	37.26	18.9	14.4	23.8	23.2	0.62	38.310 CC, ES			
300.0	300.0	298.7	298.7	0.5	0.5	38.85	20.4	16.5	26.3	25.3	0.98	26.929			
400.0	400.0	397.1	396.8	0.7	0.7	-45.72	24.9	22.6	32.0	30.6	1.32	24.185			
500.0	499.6	495.1	493.9	0.9	1.0	-48.96	32.4	32.8	39.0	37.3	1.70	22.920			
600.0	598.8	592.6	589.8	1.1	1.3	-53.81	42.7	46.9	47.7	45.6	2.16	22.121			
700.0	697.1	689.5	684.1	1.5	1.8	-59.06	55.7	64.8	58.4	55.7	2.75	21.263			
800.0	794.3	785.7	776.5	1.9	2.3	-64.02	71.5	86.4	71.4	67.9	3.52	20.268			
900.0	890.6	882.3	867.9	2.4	2.9	-68.04	89.9	111.5	87.1	82.6	4.43	19.669			
1,000.0	986.8	980.8	960.8	2.9	3.4	-70.69	109.2	138.0	103.8	98.4	5.38	19.290			
1,100.0	1,083.0	1,079.3	1,053.7	3.4	4.1	-72.59	128.6	164.5	120.6	114.3	6.36	18.979			
1,200.0	1,179.2	1,177.8	1,146.6	3.9	4.7	-74.04	147.9	190.9	137.6	130.2	7.35	18.728			
1,300.0	1,275.5	1,276.3	1,239.5	4.4	5.3	-75.16	167.2	217.4	154.6	146.2	8.35	18.524			
1,400.0	1,371.7	1,374.8	1,332.4	5.0	5.9	-76.06	186.6	243.9	171.7	162.3	9.35	18.358			
1,500.0	1,467.9	1,473.3	1,425.3	5.5	6.5	-76.80	205.9	270.3	188.8	178.4	10.36	18.220			
1,600.0	1,564.1	1,571.8	1,518.2	6.0	7.1	-77.41	225.2	296.8	205.9	194.5	11.37	18.104			
1,700.0	1,660.4	1,670.3	1,611.0	6.5	7.7	-77.93	244.5	323.3	223.0	210.6	12.39	18.005			
1,800.0	1,756.6	1,768.8	1,703.9	7.0	8.3	-78.38	263.9	349.7	240.2	226.8	13.40	17.920			
1,900.0	1,852.8	1,867.3	1,796.8	7.5	8.9	-78.77	283.2	376.2	257.4	242.9	14.42	17.847			
2,000.0	1,949.0	1,965.8	1,889.7	8.1	9.6	-79.11	302.5	402.7	274.5	259.1	15.44	17.782			
2,100.0	2,045.2	2,064.3	1,982.6	8.6	10.2	-79.40	321.9	429.2	291.7	275.3	16.46	17.725			
2,200.0	2,141.5	2,162.8	2,075.5	9.1	10.8	-79.67	341.2	455.6	308.9	291.5	17.48	17.675			
2,300.0	2,237.7	2,261.3	2,168.4	9.6	11.4	-79.91	360.5	482.1	326.1	307.6	18.50	17.630			
2,400.0	2,333.9	2,359.8	2,261.3	10.1	12.0	-80.12	379.9	508.6	343.3	323.8	19.52	17.589			
2,500.0	2,430.1	2,458.3	2,354.1	10.7	12.6	-80.31	399.2	535.0	360.6	340.0	20.54	17.552			
2,600.0	2,526.4	2,556.8	2,447.0	11.2	13.3	-80.49	418.5	561.5	377.8	356.2	21.56	17.519			
2,700.0	2,622.6	2,655.3	2,539.9	11.7	13.9	-80.65	437.9	588.0	395.0	372.4	22.59	17.489			
2,800.0	2,718.8	2,753.8	2,632.8	12.2	14.5	-80.80	457.2	614.4	412.2	388.6	23.61	17.461			
2,900.0	2,815.0	2,852.3	2,725.7	12.8	15.1	-80.93	476.5	640.9	429.4	404.8	24.63	17.435			
3,000.0	2,911.2	2,950.8	2,818.6	13.3	15.7	-81.06	495.9	667.4	446.7	421.0	25.65	17.412			
3,100.0	3,007.5	3,049.3	2,911.5	13.8	16.3	-81.17	515.2	693.8	463.9	437.2	26.68	17.390			
3,200.0	3,103.7	3,147.8	3,004.3	14.3	16.9	-81.28	534.5	720.3	481.1	453.4	27.70	17.370			
3,300.0	3,199.9	3,246.3	3,097.2	14.8	17.6	-81.38	553.9	746.8	498.4	469.6	28.72	17.351 SF			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: O-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.10	-16.4	-25.2	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.10	-16.4	-25.2	30.0	29.8	0.27	110.268			
200.0	200.0	200.0	200.0	0.3	0.3	-123.10	-16.4	-25.2	30.0	29.4	0.62	48.320			
300.0	300.0	300.0	300.0	0.5	0.5	-123.10	-16.4	-25.2	30.0	29.1	0.97	30.939	CC, ES		
400.0	400.0	400.5	400.5	0.7	0.7	153.29	-16.6	-24.5	31.9	30.6	1.32	24.154			
500.0	499.6	501.7	501.5	0.9	0.9	152.62	-18.0	-19.4	35.4	33.7	1.69	20.969			
600.0	598.8	602.8	602.1	1.1	1.1	149.82	-21.0	-9.1	40.0	37.9	2.10	19.055			
700.0	697.1	704.0	702.0	1.5	1.4	145.75	-25.3	6.3	45.9	43.3	2.61	17.605			
800.0	794.3	805.0	800.8	1.9	1.8	141.16	-31.1	26.8	53.4	50.1	3.28	16.283			
900.0	890.6	906.0	898.2	2.4	2.3	135.78	-38.4	52.2	61.6	57.4	4.16	14.820			
1,000.0	986.8	1,005.9	993.4	2.9	2.8	128.73	-46.6	81.0	68.9	63.7	5.22	13.201			
1,100.0	1,083.0	1,105.3	1,088.1	3.4	3.4	122.93	-54.8	110.0	76.9	70.6	6.33	12.151			
1,200.0	1,179.2	1,204.7	1,182.9	3.9	3.9	118.26	-63.0	139.0	85.6	78.2	7.46	11.479			
1,300.0	1,275.5	1,304.1	1,277.6	4.4	4.5	114.46	-71.3	168.0	94.8	86.2	8.59	11.039			
1,400.0	1,371.7	1,403.5	1,372.3	5.0	5.0	111.35	-79.5	197.0	104.3	94.6	9.71	10.743			
1,500.0	1,467.9	1,502.9	1,467.0	5.5	5.6	108.76	-87.7	226.0	114.0	103.2	10.82	10.542			
1,600.0	1,564.1	1,602.3	1,561.8	6.0	6.2	106.58	-96.0	255.0	124.0	112.1	11.92	10.401			
1,700.0	1,660.4	1,701.7	1,656.5	6.5	6.7	104.72	-104.2	284.0	134.1	121.1	13.01	10.303			
1,800.0	1,756.6	1,801.1	1,751.2	7.0	7.3	103.13	-112.4	313.0	144.3	130.2	14.10	10.233			
1,900.0	1,852.8	1,900.5	1,845.9	7.5	7.9	101.75	-120.7	342.0	154.6	139.4	15.18	10.184			
2,000.0	1,949.0	1,999.9	1,940.6	8.1	8.4	100.54	-128.9	371.0	165.0	148.7	16.26	10.150			
2,100.0	2,045.2	2,099.3	2,035.4	8.6	9.0	99.47	-137.1	400.0	175.5	158.1	17.33	10.126			
2,200.0	2,141.5	2,198.7	2,130.1	9.1	9.6	98.53	-145.4	429.0	186.0	167.6	18.40	10.109			
2,300.0	2,237.7	2,298.1	2,224.8	9.6	10.2	97.69	-153.6	458.0	196.5	177.1	19.46	10.099			
2,400.0	2,333.9	2,397.5	2,319.5	10.1	10.7	96.93	-161.8	486.9	207.1	186.6	20.52	10.093			
2,500.0	2,430.1	2,496.9	2,414.3	10.7	11.3	96.24	-170.1	515.9	217.7	196.2	21.58	10.090			
2,600.0	2,526.4	2,596.3	2,509.0	11.2	11.9	95.62	-178.3	544.9	228.4	205.8	22.64	10.090	SF		
2,700.0	2,622.6	2,695.7	2,603.7	11.7	12.4	95.06	-186.5	573.9	239.1	215.4	23.69	10.091			
2,800.0	2,718.8	2,795.1	2,698.4	12.2	13.0	94.54	-194.8	602.9	249.8	225.0	24.74	10.094			
2,900.0	2,815.0	2,894.5	2,793.1	12.8	13.6	94.07	-203.0	631.9	260.5	234.7	25.80	10.098			
3,000.0	2,911.2	2,993.9	2,887.9	13.3	14.2	93.63	-211.2	660.9	271.2	244.4	26.85	10.103			
3,100.0	3,007.5	3,093.3	2,982.6	13.8	14.7	93.23	-219.5	689.9	282.0	254.1	27.89	10.108			
3,200.0	3,103.7	3,192.7	3,077.3	14.3	15.3	92.85	-227.7	718.9	292.7	263.8	28.94	10.114			
3,300.0	3,199.9	3,292.1	3,172.0	14.8	15.9	92.51	-236.0	747.9	303.5	273.5	29.99	10.120			
3,400.0	3,296.1	3,391.5	3,266.7	15.4	16.5	92.18	-244.2	776.9	314.3	283.2	31.04	10.127			
3,500.0	3,392.4	3,490.9	3,361.5	15.9	17.0	91.88	-252.4	805.9	325.1	293.0	32.08	10.133			
3,600.0	3,488.6	3,590.3	3,456.2	16.4	17.6	91.60	-260.7	834.9	335.9	302.7	33.13	10.139			
3,700.0	3,584.8	3,689.7	3,550.9	16.9	18.2	91.33	-268.9	863.9	346.7	312.5	34.17	10.146			
3,800.0	3,681.0	3,789.1	3,645.6	17.4	18.8	91.08	-277.1	892.9	357.5	322.3	35.21	10.152			
3,900.0	3,777.2	3,888.5	3,740.4	18.0	19.3	90.85	-285.4	921.9	368.3	332.1	36.26	10.159			
4,000.0	3,873.5	3,987.9	3,835.1	18.5	19.9	90.63	-293.6	950.9	379.1	341.8	37.30	10.165			
4,100.0	3,969.7	4,087.3	3,929.8	19.0	20.5	90.42	-301.8	979.9	390.0	351.6	38.34	10.171			
4,200.0	4,065.9	4,186.7	4,024.5	19.5	21.0	90.22	-310.1	1,008.8	400.8	361.4	39.38	10.177			
4,300.0	4,162.1	4,286.1	4,119.2	20.1	21.6	90.03	-318.3	1,037.8	411.6	371.2	40.42	10.183			
4,400.0	4,258.3	4,385.5	4,214.0	20.6	22.2	89.86	-326.5	1,066.8	422.5	381.0	41.46	10.189			
4,500.0	4,354.6	4,484.9	4,308.7	21.1	22.8	89.69	-334.8	1,095.8	433.3	390.8	42.51	10.195			
4,600.0	4,450.8	4,584.3	4,403.4	21.6	23.3	89.53	-343.0	1,124.8	444.2	400.6	43.55	10.201			
4,700.0	4,547.0	4,683.7	4,498.1	22.1	23.9	89.38	-351.2	1,153.8	455.0	410.5	44.59	10.206			
4,800.0	4,643.2	4,783.1	4,592.9	22.7	24.5	89.23	-359.5	1,182.8	465.9	420.3	45.63	10.211			
4,900.0	4,739.5	4,882.5	4,687.6	23.2	25.1	89.09	-367.7	1,211.8	476.8	430.1	46.66	10.217			
5,000.0	4,835.7	4,981.9	4,782.3	23.7	25.6	88.96	-375.9	1,240.8	487.6	439.9	47.70	10.222			
5,100.0	4,931.9	5,081.3	4,877.0	24.2	26.2	88.83	-384.2	1,269.8	498.5	449.7	48.74	10.227			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.38	-24.8	-37.6	45.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.38	-24.8	-37.6	45.0	44.7	0.27	165.321			
200.0	200.0	200.0	200.0	0.3	0.3	-123.38	-24.8	-37.6	45.0	44.4	0.62	72.444			
300.0	300.0	300.0	300.0	0.5	0.5	-123.38	-24.8	-37.6	45.0	44.0	0.97	46.385	CC, ES		
400.0	400.0	401.0	401.0	0.7	0.7	151.69	-25.4	-36.2	46.5	45.2	1.32	35.134			
500.0	499.6	502.3	502.0	0.9	0.9	149.54	-28.0	-30.0	49.8	48.1	1.70	29.261			
600.0	598.8	603.5	602.5	1.1	1.1	145.71	-32.7	-18.9	54.9	52.8	2.15	25.594			
700.0	697.1	704.4	701.9	1.5	1.5	140.98	-39.5	-3.0	62.3	59.6	2.72	22.910			
800.0	794.3	805.1	800.0	1.9	1.9	136.05	-48.3	17.6	72.0	68.5	3.47	20.760			
900.0	890.6	905.3	896.4	2.4	2.4	130.85	-59.0	42.9	83.3	78.9	4.41	18.899			
1,000.0	986.8	1,004.6	990.6	2.9	3.0	124.33	-71.4	72.0	94.6	89.1	5.51	17.168			
1,100.0	1,083.0	1,103.4	1,084.0	3.4	3.5	118.86	-84.0	101.6	106.7	100.1	6.64	16.081			
1,200.0	1,179.2	1,202.2	1,177.4	3.9	4.1	114.54	-96.6	131.2	119.7	111.9	7.77	15.410			
1,300.0	1,275.5	1,301.0	1,270.8	4.4	4.7	111.07	-109.2	160.8	133.2	124.3	8.89	14.985			
1,400.0	1,371.7	1,399.8	1,364.2	5.0	5.3	108.25	-121.8	190.4	147.0	137.0	10.00	14.711			
1,500.0	1,467.9	1,498.6	1,457.7	5.5	5.9	105.91	-134.4	219.9	161.2	150.1	11.09	14.531			
1,600.0	1,564.1	1,597.4	1,551.1	6.0	6.5	103.95	-147.0	249.5	175.6	163.4	12.18	14.413			
1,700.0	1,660.4	1,696.2	1,644.5	6.5	7.1	102.29	-159.6	279.1	190.2	176.9	13.26	14.336			
1,800.0	1,756.6	1,795.0	1,737.9	7.0	7.7	100.87	-172.2	308.7	204.9	190.5	14.34	14.286			
1,900.0	1,852.8	1,893.8	1,831.3	7.5	8.3	99.64	-184.8	338.3	219.7	204.2	15.41	14.256			
2,000.0	1,949.0	1,992.6	1,924.7	8.1	8.9	98.56	-197.4	367.9	234.5	218.1	16.47	14.239			
2,100.0	2,045.2	2,091.4	2,018.2	8.6	9.6	97.61	-210.0	397.4	249.5	232.0	17.53	14.231			
2,200.0	2,141.5	2,190.2	2,111.6	9.1	10.2	96.77	-222.6	427.0	264.5	245.9	18.59	14.229	SF		
2,300.0	2,237.7	2,289.0	2,205.0	9.6	10.8	96.02	-235.2	456.6	279.6	259.9	19.64	14.233			
2,400.0	2,333.9	2,387.8	2,298.4	10.1	11.4	95.35	-247.8	486.2	294.7	274.0	20.70	14.240			
2,500.0	2,430.1	2,486.6	2,391.8	10.7	12.0	94.74	-260.4	515.8	309.9	288.1	21.75	14.249			
2,600.0	2,526.4	2,585.4	2,485.2	11.2	12.6	94.19	-273.0	545.4	325.0	302.2	22.79	14.260			
2,700.0	2,622.6	2,684.2	2,578.6	11.7	13.2	93.69	-285.6	575.0	340.2	316.4	23.84	14.272			
2,800.0	2,718.8	2,783.0	2,672.1	12.2	13.8	93.23	-298.2	604.5	355.5	330.6	24.88	14.285			
2,900.0	2,815.0	2,881.8	2,765.5	12.8	14.4	92.81	-310.8	634.1	370.7	344.8	25.93	14.298			
3,000.0	2,911.2	2,980.5	2,858.9	13.3	15.0	92.42	-323.4	663.7	386.0	359.0	26.97	14.312			
3,100.0	3,007.5	3,079.3	2,952.3	13.8	15.6	92.06	-336.0	693.3	401.3	373.3	28.01	14.325			
3,200.0	3,103.7	3,178.1	3,045.7	14.3	16.2	91.73	-348.6	722.9	416.6	387.5	29.05	14.339			
3,300.0	3,199.9	3,276.9	3,139.1	14.8	16.9	91.42	-361.2	752.5	431.9	401.8	30.09	14.352			
3,400.0	3,296.1	3,375.7	3,232.6	15.4	17.5	91.13	-373.8	782.0	447.2	416.1	31.13	14.366			
3,500.0	3,392.4	3,474.5	3,326.0	15.9	18.1	90.86	-386.4	811.6	462.5	430.4	32.17	14.378			
3,600.0	3,488.6	3,573.3	3,419.4	16.4	18.7	90.61	-399.0	841.2	477.9	444.7	33.21	14.391			
3,700.0	3,584.8	3,672.1	3,512.8	16.9	19.3	90.38	-411.6	870.8	493.2	459.0	34.24	14.403			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.09	-32.8	-50.3	60.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-32.8	-50.3	60.0	59.8	0.27	220.519			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-32.8	-50.3	60.0	59.4	0.62	96.632			
300.0	300.0	300.0	300.0	0.5	0.5	-123.09	-32.8	-50.3	60.0	59.1	0.97	61.872 CC, ES			
400.0	400.0	401.1	401.1	0.7	0.7	150.82	-34.3	-48.1	61.4	60.1	1.33	46.243			
500.0	499.6	502.0	501.6	0.9	0.9	147.55	-39.0	-41.6	65.7	63.9	1.72	38.092			
600.0	598.8	602.5	601.3	1.1	1.2	142.98	-46.8	-30.9	73.1	70.9	2.20	33.154			
700.0	697.1	702.4	699.4	1.5	1.5	137.97	-57.5	-16.0	84.0	81.2	2.82	29.803			
800.0	794.3	801.5	795.8	1.9	1.9	133.17	-71.0	2.8	98.7	95.1	3.60	27.391			
900.0	890.6	899.7	889.9	2.4	2.5	128.69	-87.3	25.5	116.3	111.7	4.55	25.574			
1,000.0	986.8	996.9	981.5	2.9	3.1	123.43	-106.3	51.7	134.9	129.2	5.63	23.961			
1,100.0	1,083.0	1,093.7	1,071.6	3.4	3.7	118.14	-127.1	80.6	155.0	148.2	6.75	22.952			
1,200.0	1,179.2	1,190.8	1,161.7	3.9	4.4	114.00	-148.0	109.7	176.2	168.3	7.87	22.391			
1,300.0	1,275.5	1,287.8	1,251.9	4.4	5.0	110.76	-168.9	138.8	198.0	189.1	8.97	22.083			
1,400.0	1,371.7	1,384.8	1,342.1	5.0	5.7	108.16	-189.9	167.9	220.4	210.3	10.05	21.921			
1,500.0	1,467.9	1,481.8	1,432.2	5.5	6.4	106.04	-210.8	197.0	243.1	232.0	11.13	21.844			
1,600.0	1,564.1	1,578.9	1,522.4	6.0	7.0	104.28	-231.7	226.0	266.1	253.9	12.20	21.819 SF			
1,700.0	1,660.4	1,675.9	1,612.6	6.5	7.7	102.80	-252.7	255.1	289.3	276.0	13.25	21.825			
1,800.0	1,756.6	1,772.9	1,702.7	7.0	8.4	101.54	-273.6	284.2	312.6	298.3	14.31	21.850			
1,900.0	1,852.8	1,869.9	1,792.9	7.5	9.0	100.45	-294.5	313.3	336.0	320.7	15.35	21.887			
2,000.0	1,949.0	1,967.0	1,883.1	8.1	9.7	99.51	-315.5	342.4	359.6	343.2	16.40	21.930			
2,100.0	2,045.2	2,064.0	1,973.2	8.6	10.4	98.68	-336.4	371.4	383.2	365.8	17.44	21.977			
2,200.0	2,141.5	2,161.0	2,063.4	9.1	11.0	97.95	-357.4	400.5	406.9	388.5	18.48	22.026			
2,300.0	2,237.7	2,258.0	2,153.6	9.6	11.7	97.30	-378.3	429.6	430.7	411.2	19.51	22.075			
2,400.0	2,333.9	2,355.1	2,243.7	10.1	12.4	96.71	-399.2	458.7	454.5	434.0	20.54	22.123			
2,500.0	2,430.1	2,452.1	2,333.9	10.7	13.1	96.19	-420.2	487.8	478.4	456.8	21.58	22.171			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.27	-41.2	-62.7	75.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.27	-41.2	-62.7	75.0	74.8	0.27	275.589			
200.0	200.0	200.0	200.0	0.3	0.3	-123.27	-41.2	-62.7	75.0	74.4	0.62	120.764			
300.0	300.0	300.3	300.3	0.5	0.5	-123.39	-41.3	-62.6	75.0	74.0	0.97	77.240			
310.8	310.8	311.2	311.2	0.5	0.5	151.59	-41.4	-62.5	75.0	74.0	1.01	74.253 CC, ES			
400.0	400.0	401.2	401.1	0.7	0.7	149.72	-43.9	-59.6	76.3	75.0	1.33	57.227			
500.0	499.6	501.8	501.3	0.9	0.9	146.07	-50.0	-52.6	81.1	79.3	1.74	46.503			
600.0	598.8	601.8	600.2	1.1	1.2	141.44	-59.6	-41.8	89.7	87.5	2.25	39.923			
700.0	697.1	700.9	697.4	1.5	1.6	136.60	-72.4	-27.2	102.5	99.7	2.89	35.533			
800.0	794.3	799.0	792.5	1.9	2.0	132.07	-88.3	-9.0	119.6	115.9	3.68	32.476			
900.0	890.6	895.9	885.0	2.4	2.6	128.03	-107.2	12.5	140.1	135.5	4.62	30.291			
1,000.0	986.8	991.5	974.8	2.9	3.2	123.48	-128.8	37.1	162.0	156.4	5.68	28.523			
1,100.0	1,083.0	1,086.3	1,062.2	3.4	3.8	118.69	-152.9	64.6	186.0	179.2	6.79	27.396			
1,200.0	1,179.2	1,182.1	1,150.2	3.9	4.5	114.70	-177.9	93.1	211.3	203.4	7.90	26.753			
1,300.0	1,275.5	1,277.9	1,238.2	4.4	5.2	111.56	-202.9	121.6	237.3	228.3	8.99	26.400			
1,400.0	1,371.7	1,373.7	1,326.2	5.0	5.9	109.03	-227.9	150.1	263.9	253.8	10.07	26.215			
1,500.0	1,467.9	1,469.5	1,414.2	5.5	6.6	106.97	-252.9	178.5	290.9	279.7	11.13	26.127			
1,600.0	1,564.1	1,565.3	1,502.2	6.0	7.3	105.26	-277.9	207.0	318.1	305.9	12.19	26.100 SF			
1,700.0	1,660.4	1,661.1	1,590.2	6.5	8.0	103.81	-302.9	235.5	345.6	332.4	13.24	26.108			
1,800.0	1,756.6	1,756.9	1,678.2	7.0	8.7	102.58	-327.9	264.0	373.3	359.0	14.28	26.139			
1,900.0	1,852.8	1,852.7	1,766.2	7.5	9.4	101.52	-352.9	292.5	401.1	385.8	15.32	26.183			
2,000.0	1,949.0	1,948.6	1,854.2	8.1	10.1	100.59	-377.9	320.9	429.0	412.7	16.35	26.235			
2,100.0	2,045.2	2,044.4	1,942.2	8.6	10.8	99.78	-402.9	349.4	457.0	439.6	17.38	26.291			
2,200.0	2,141.5	2,140.2	2,030.2	9.1	11.5	99.06	-427.8	377.9	485.1	466.7	18.41	26.350			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.09	-49.2	-75.5	90.1						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-49.2	-75.5	90.1	89.8	0.27	330.778			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-49.2	-75.5	90.1	89.4	0.62	144.948			
300.0	300.0	300.5	300.5	0.5	0.5	-123.51	-49.6	-75.0	89.9	89.0	0.97	92.592			
313.7	313.7	314.3	314.3	0.5	0.5	151.34	-49.9	-74.7	89.9	88.9	1.02	87.959 CC, ES			
400.0	400.0	401.2	401.0	0.7	0.7	149.08	-53.4	-71.3	91.3	90.0	1.34	68.049			
500.0	499.6	501.4	500.7	0.9	0.9	145.19	-60.9	-63.9	96.7	94.9	1.77	54.644			
600.0	598.8	600.9	598.9	1.1	1.2	140.58	-72.1	-52.9	106.4	104.1	2.29	46.382			
700.0	697.1	699.3	695.1	1.5	1.6	135.89	-86.7	-38.6	120.8	117.8	2.95	40.938			
800.0	794.3	796.3	788.9	1.9	2.1	131.57	-104.5	-21.0	139.8	136.1	3.76	37.215			
900.0	890.6	892.0	879.9	2.4	2.7	127.83	-125.3	-0.5	162.6	157.9	4.70	34.635			
1,000.0	986.8	986.1	968.0	2.9	3.3	123.76	-149.0	22.8	187.2	181.5	5.73	32.655			
1,100.0	1,083.0	1,078.3	1,052.6	3.4	4.0	119.50	-175.2	48.6	214.1	207.2	6.83	31.349			
1,200.0	1,179.2	1,172.4	1,137.7	3.9	4.7	115.48	-203.6	76.6	243.0	235.0	7.94	30.615			
1,300.0	1,275.5	1,266.8	1,223.2	4.4	5.4	112.29	-232.2	104.8	272.7	263.7	9.03	30.215			
1,400.0	1,371.7	1,361.3	1,308.7	5.0	6.2	109.72	-260.8	132.9	303.2	293.1	10.10	30.012			
1,500.0	1,467.9	1,455.7	1,394.2	5.5	6.9	107.62	-289.4	161.1	334.0	322.9	11.16	29.925			
1,600.0	1,564.1	1,550.2	1,479.7	6.0	7.6	105.87	-318.0	189.3	365.2	353.0	12.21	29.907 SF			
1,700.0	1,660.4	1,644.6	1,565.3	6.5	8.4	104.40	-346.7	217.4	396.7	383.5	13.25	29.932			
1,800.0	1,756.6	1,739.1	1,650.8	7.0	9.1	103.14	-375.3	245.6	428.4	414.1	14.29	29.982			
1,900.0	1,852.8	1,833.6	1,736.3	7.5	9.9	102.05	-403.9	273.7	460.2	444.9	15.32	30.047			
2,000.0	1,949.0	1,928.0	1,821.8	8.1	10.6	101.10	-432.5	301.9	492.2	475.9	16.34	30.120			

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.22	-57.5	-87.9	105.1						
100.0	100.0	100.0	100.0	0.1	0.1	-123.22	-57.5	-87.9	105.1	104.8	0.27	385.839			
200.0	200.0	200.0	200.0	0.3	0.3	-123.22	-57.5	-87.9	105.1	104.4	0.62	169.076			
300.0	300.0	300.3	300.3	0.5	0.5	-124.02	-58.7	-87.0	104.9	104.0	0.97	108.083			
305.8	305.8	306.1	306.0	0.5	0.5	150.95	-58.9	-86.8	104.9	103.9	1.00	105.432 CC, ES			
400.0	400.0	400.3	400.1	0.7	0.7	148.21	-63.9	-83.0	106.9	105.6	1.35	78.969			
500.0	499.6	499.7	498.8	0.9	1.0	144.26	-73.2	-75.8	113.7	111.9	1.80	63.218			
600.0	598.8	598.1	595.7	1.1	1.3	139.84	-86.3	-65.7	125.5	123.2	2.34	53.672			
700.0	697.1	695.1	690.3	1.5	1.7	135.49	-103.1	-52.7	142.6	139.6	3.00	47.548			
800.0	794.3	790.4	782.2	1.9	2.2	131.56	-123.3	-37.1	164.9	161.1	3.79	43.466			
900.0	890.6	883.9	870.9	2.4	2.7	128.33	-146.6	-19.0	191.4	186.7	4.70	40.694			
1,000.0	986.8	975.7	956.5	2.9	3.4	124.92	-172.8	1.2	220.0	214.3	5.69	38.638			
1,100.0	1,083.0	1,065.3	1,038.5	3.4	4.0	121.40	-201.5	23.4	251.0	244.3	6.74	37.267			
1,200.0	1,179.2	1,152.5	1,116.5	3.9	4.8	117.91	-232.3	47.2	284.9	277.1	7.80	36.518			
1,300.0	1,275.5	1,241.4	1,194.5	4.4	5.5	114.53	-266.0	73.3	321.3	312.5	8.87	36.208			
1,400.0	1,371.7	1,332.7	1,274.4	5.0	6.4	111.70	-300.9	100.2	358.8	348.9	9.94	36.092 SF			
1,500.0	1,467.9	1,424.1	1,354.4	5.5	7.2	109.39	-335.8	127.2	397.0	386.0	10.99	36.116			
1,600.0	1,564.1	1,515.4	1,434.4	6.0	8.0	107.48	-370.7	154.2	435.5	423.5	12.03	36.218			
1,700.0	1,660.4	1,606.8	1,514.4	6.5	8.8	105.88	-405.6	181.2	474.5	461.4	13.05	36.362			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-16DD
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Reference Site:</b>	O31E Pad (2nd Occupation)	<b>MD Reference:</b>	KB=22' @ 7126.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shideler Fee 31-16DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

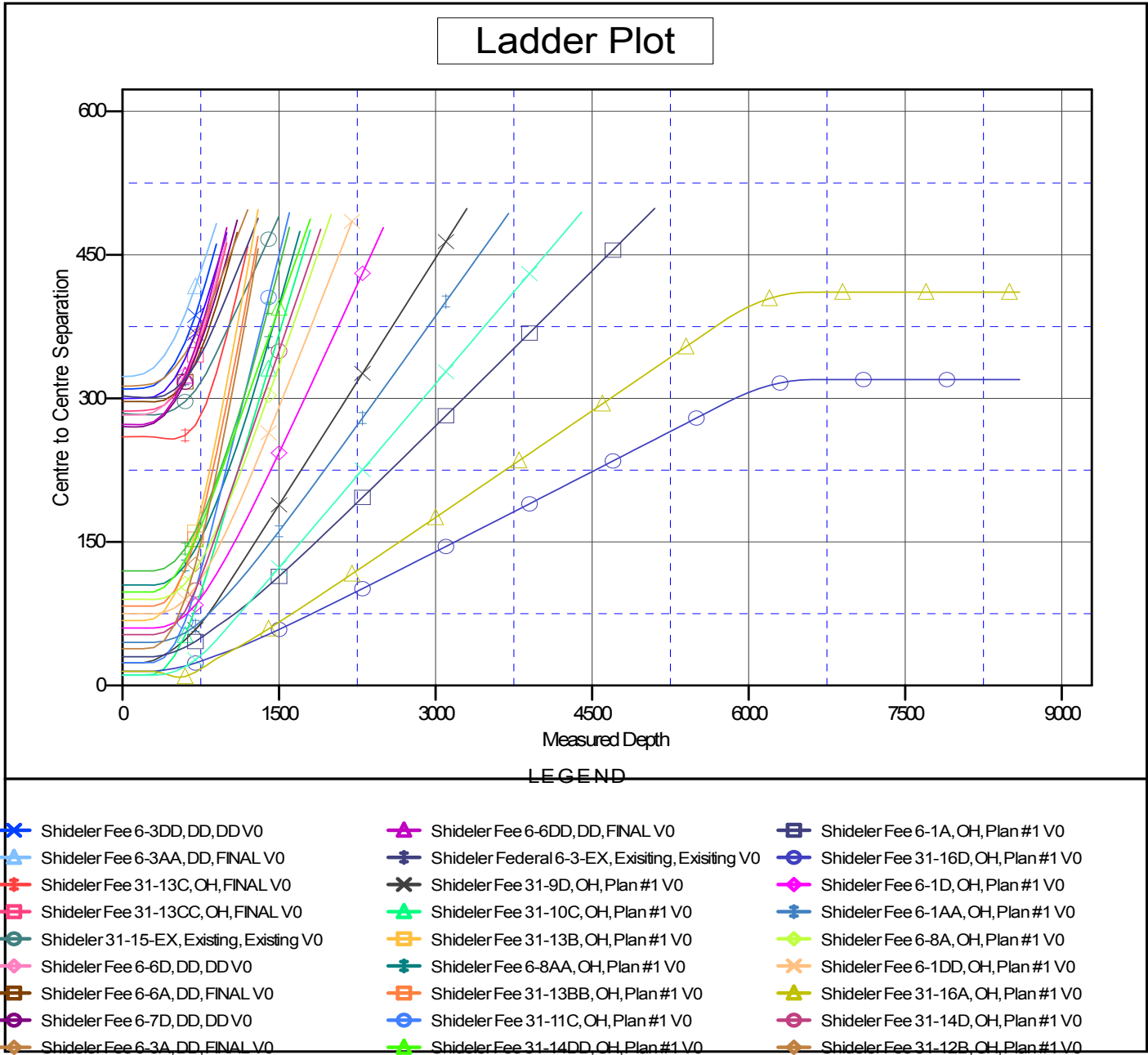
Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference															
Offset				Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-123.16	-65.6	-100.3	119.8						
100.0	100.0	100.0	100.0	0.1	0.1	-123.16	-65.6	-100.3	119.8	119.6	0.27	440.168			
200.0	200.0	200.0	200.0	0.3	0.3	-123.16	-65.6	-100.3	119.8	119.2	0.62	192.883			
300.0	300.0	300.0	300.0	0.5	0.5	-124.42	-67.7	-98.8	119.8	118.8	0.97	123.448			
300.0	300.0	300.0	300.0	0.5	0.5	-124.42	-67.7	-98.8	119.8	118.8	0.97	123.448	CC, ES		
400.0	400.0	399.6	399.3	0.7	0.7	147.58	-74.2	-94.4	122.3	120.9	1.37	88.985			
500.0	499.6	498.4	497.2	0.9	1.0	143.60	-84.8	-87.2	129.9	128.1	1.84	70.705			
600.0	598.8	596.0	593.1	1.1	1.3	139.30	-99.3	-77.2	143.0	140.6	2.39	59.730			
700.0	697.1	692.0	686.6	1.5	1.8	135.14	-117.5	-64.7	161.6	158.5	3.06	52.764			
800.0	794.3	786.1	777.0	1.9	2.3	131.40	-139.2	-49.9	185.7	181.8	3.86	48.154			
900.0	890.6	878.3	864.1	2.4	2.8	128.40	-163.9	-33.0	214.2	209.4	4.76	45.036			
1,000.0	986.8	968.4	947.9	2.9	3.5	125.31	-191.4	-14.1	244.9	239.2	5.73	42.769			
1,100.0	1,083.0	1,056.4	1,028.0	3.4	4.2	122.14	-221.3	6.4	278.3	271.5	6.74	41.265			
1,200.0	1,179.2	1,141.8	1,104.1	3.9	4.9	119.01	-253.3	28.3	314.4	306.6	7.78	40.398			
1,300.0	1,275.5	1,224.5	1,176.1	4.4	5.6	116.02	-286.9	51.3	353.4	344.6	8.81	40.108			
1,400.0	1,371.7	1,313.6	1,252.5	5.0	6.5	113.13	-324.5	77.1	394.5	384.7	9.87	39.966	SF		
1,500.0	1,467.9	1,403.0	1,329.3	5.5	7.3	110.77	-362.4	103.0	436.4	425.4	10.91	39.983			
1,600.0	1,564.1	1,492.5	1,406.1	6.0	8.1	108.80	-400.2	129.0	478.7	466.8	11.94	40.095			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Shideler Fee 31-16DD	
<b>Project:</b> Mamm Creek	<b>TVD Reference:</b> KB=22' @ 7126.0ft (Patterson #308)	
<b>Reference Site:</b> O31E Pad (2nd Occupation)	<b>MD Reference:</b> KB=22' @ 7126.0ft (Patterson #308)	
<b>Site Error:</b> 0.0ft	<b>North Reference:</b> True	
<b>Reference Well:</b> Shideler Fee 31-16DD	<b>Survey Calculation Method:</b> Minimum Curvature	
<b>Well Error:</b> 0.0ft	<b>Output errors are at</b> 2.00 sigma	
<b>Reference Wellbore</b> OH	<b>Database:</b> USA EDM 5000 Multi Users DB	
<b>Reference Design:</b> Plan #1	<b>Offset TVD Reference:</b> Offset Datum	

Reference Depths are relative to KB=22' @ 7126.0ft (Patterson #308)      Coordinates are relative to: Shideler Fee 31-16DD  
 Offset Depths are relative to Offset Datum      Coordinate System is US State Plane 1983, Colorado Central Zone  
 Central Meridian is -105.500000 °      Grid Convergence at Surface is: -1.39°



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