

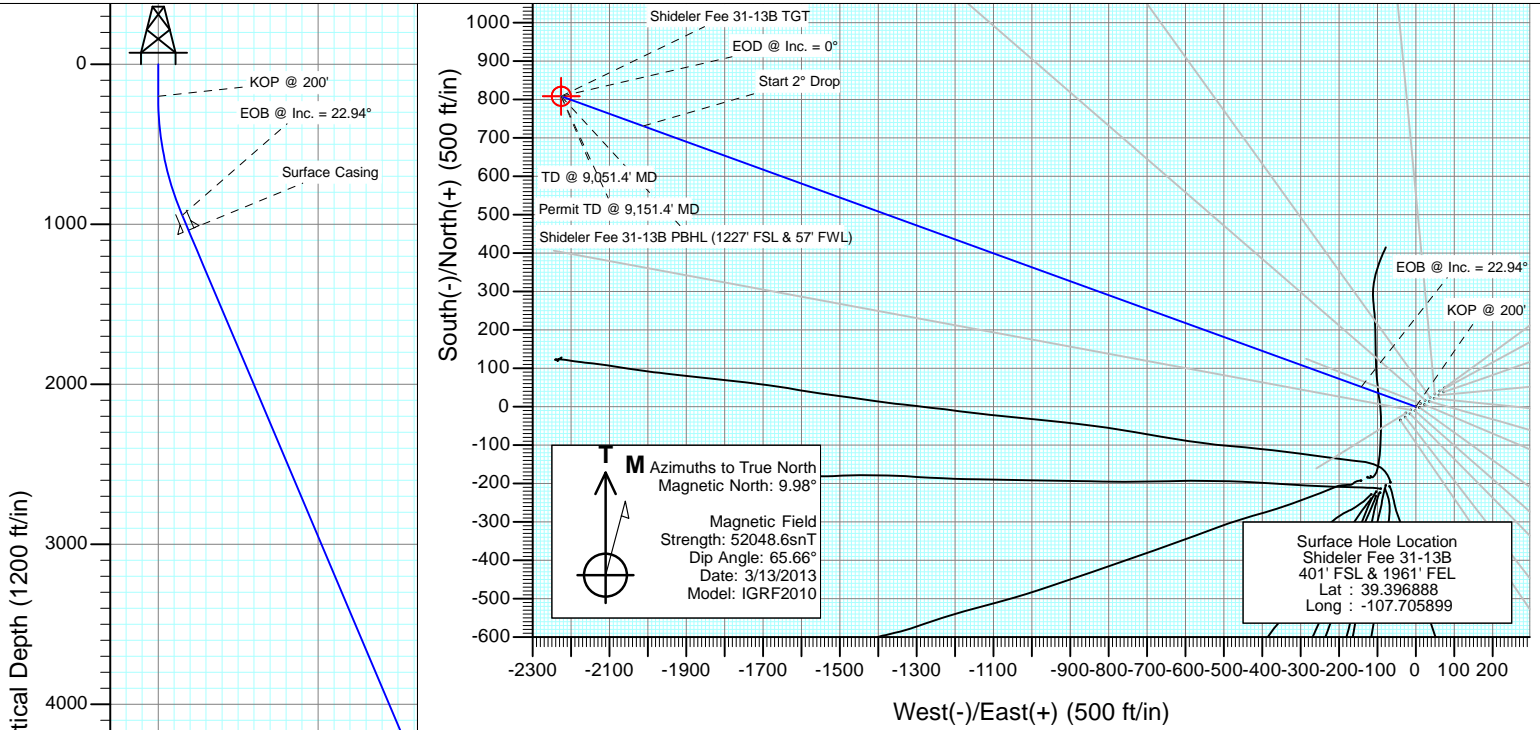


Project: Mamm Creek  
 Site: O31E Pad (2nd Occupation)  
 Well: Shideler Fee 31-13B  
 Wellbore: OH  
 Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSept	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	964.7	22.94	289.96	944.4	51.6	-142.0	3.00	289.96	151.1	
4	6069.4	22.94	289.96	5645.3	731.0	-2012.1	0.00	0.00	2140.8	
5	7216.4	0.00	0.00	6762.0	808.3	-2225.1	2.00	180.00	2367.4	Shideler Fee 31-13B TGT
6	9051.4	0.00	0.00	8597.0	808.3	-2225.1	0.00	0.00	2367.4	Shideler Fee 31-13B PBHL (1227' FSL & 57' FWL)
7	9151.4	0.00	0.00	8697.0	808.3	-2225.1	0.00	0.00	2367.4	

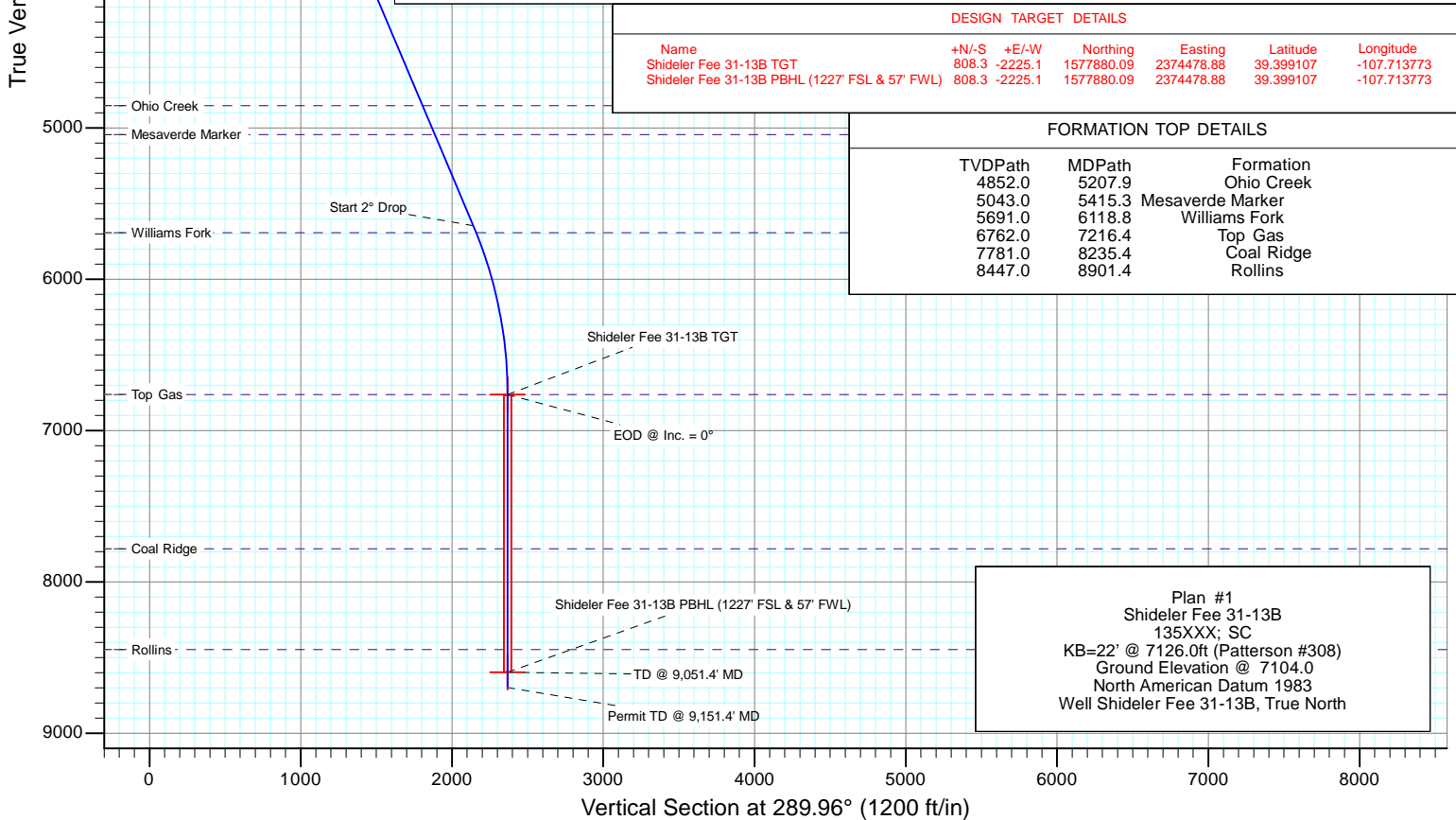


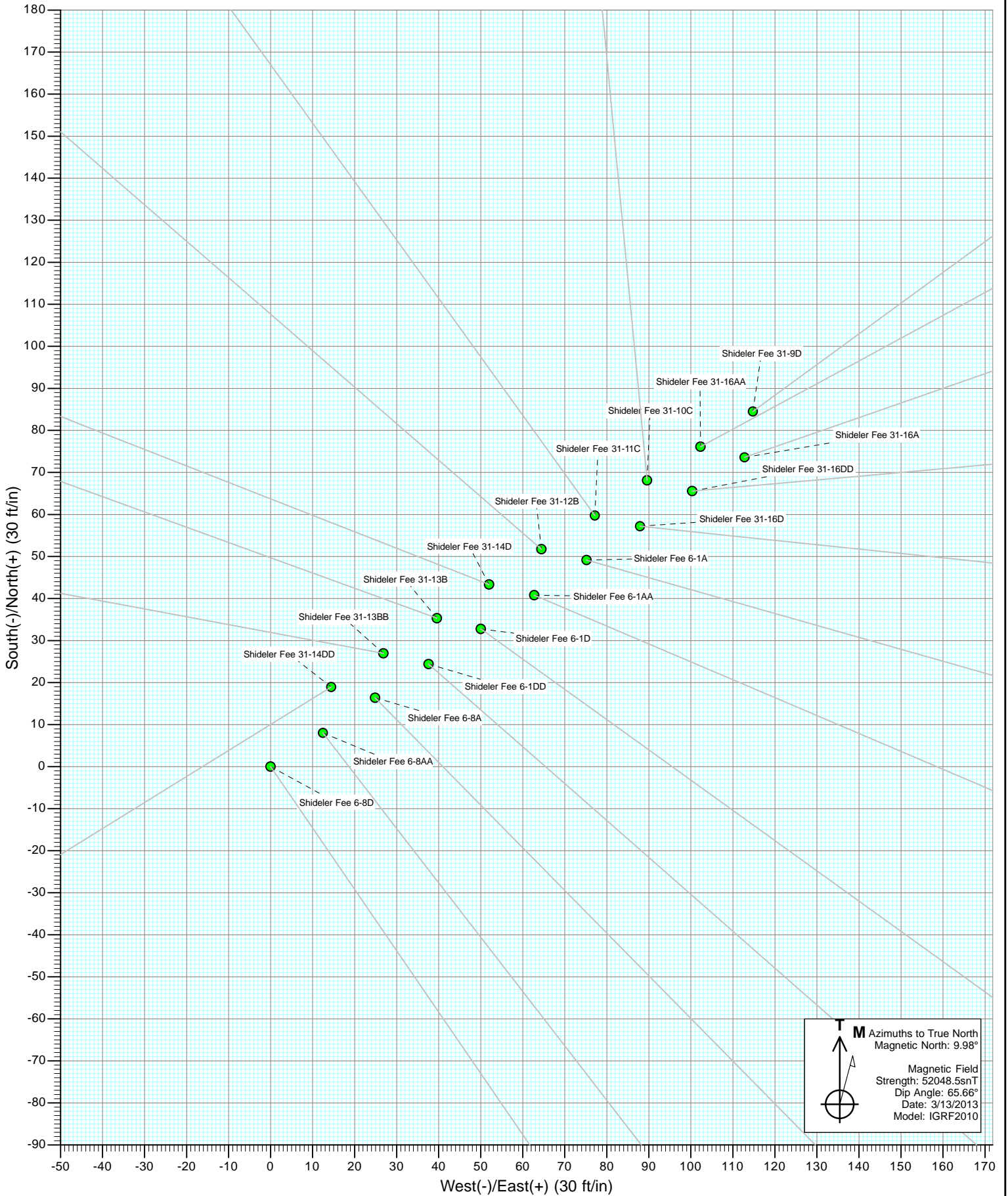
DESIGN TARGET DETAILS

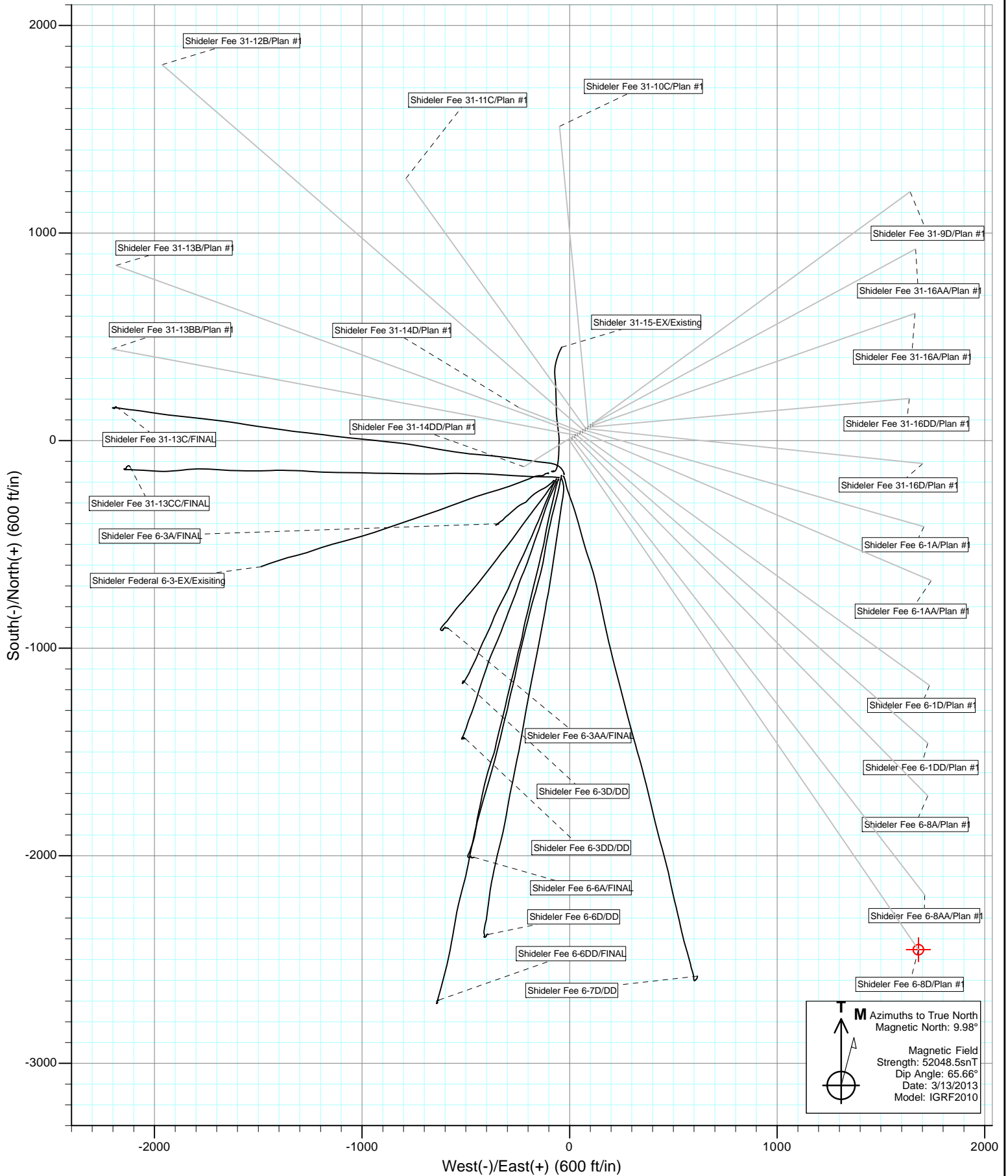
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shideler Fee 31-13B TGT	808.3	-2225.1	1577880.09	2374478.88	39.399107	-107.713773
Shideler Fee 31-13B PBHL (1227' FSL & 57' FWL)	808.3	-2225.1	1577880.09	2374478.88	39.399107	-107.713773

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4852.0	5207.9	Ohio Creek
5043.0	5415.3	Mesaverde Marker
5691.0	6118.8	Williams Fork
6762.0	7216.4	Top Gas
7781.0	8235.4	Coal Ridge
8447.0	8901.4	Rollins

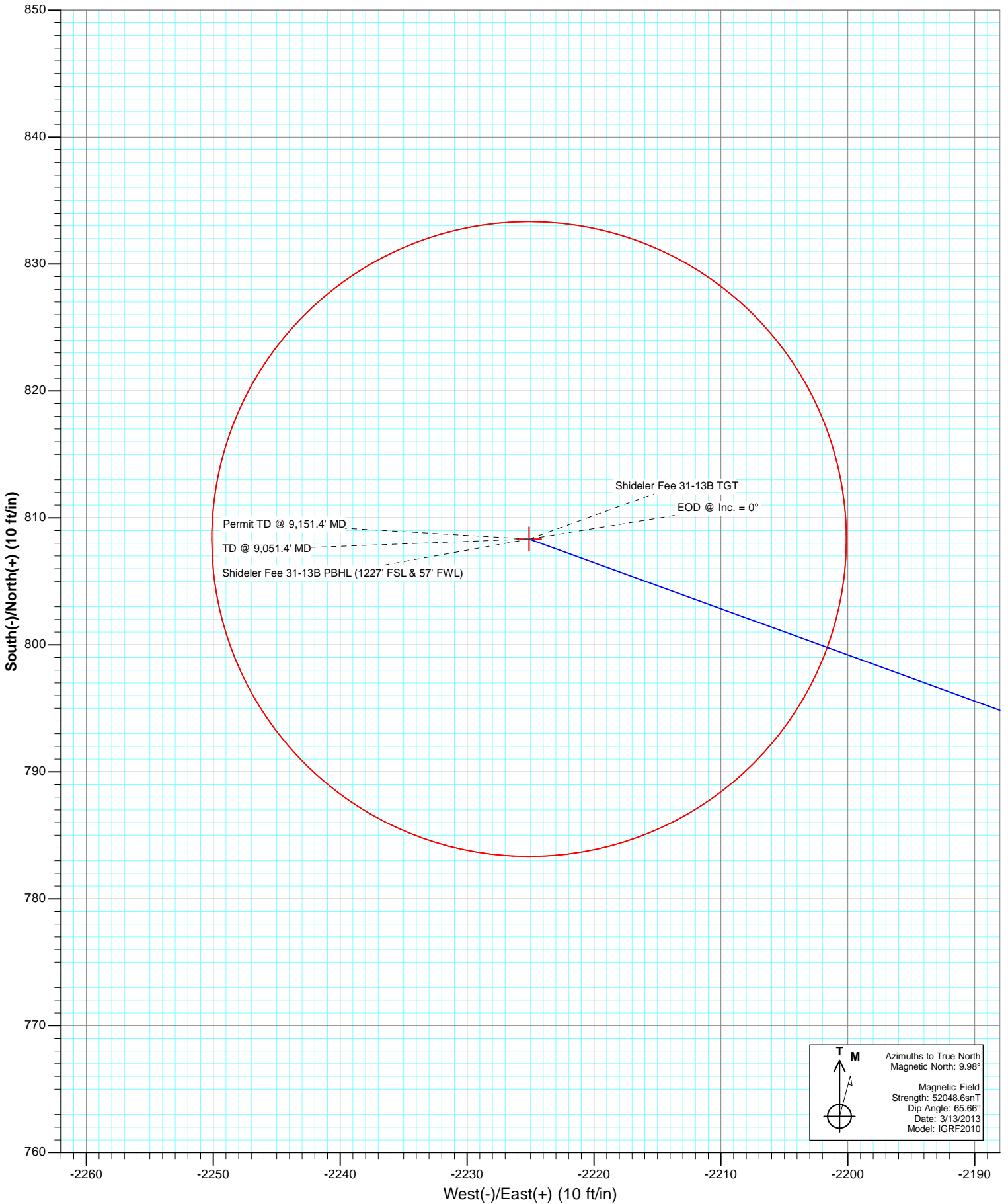






**M** Azimuths to True North  
Magnetic North: 9.98°

Magnetic Field  
Strength: 52048.5snT  
Dip Angle: 65.66°  
Date: 3/13/2013  
Model: IGRF2010



# Cathedral Energy Services

## Planning Report

<b>Database:</b> USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b> Well Shideler Fee 31-13B
<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 31-13B	<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 31-13B						
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,577,017.97 ft	<b>Latitude:</b>	39.396888
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,376,683.70 ft	<b>Longitude:</b>	-107.705899
<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	289.96	

<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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
964.7	22.94	289.96	944.4	51.6	-142.0	3.00	3.00	0.00	289.96	
6,069.4	22.94	289.96	5,645.3	731.0	-2,012.1	0.00	0.00	0.00	0.00	
7,216.4	0.00	0.00	6,762.0	808.3	-2,225.1	2.00	-2.00	0.00	180.00	Shideler Fee 31-13B
9,051.4	0.00	0.00	8,597.0	808.3	-2,225.1	0.00	0.00	0.00	0.00	Shideler Fee 31-13B I
9,151.4	0.00	0.00	8,697.0	808.3	-2,225.1	0.00	0.00	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 31-13B
<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 31-13B	<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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	3.00	289.96	300.0	0.9	-2.5	2.6	3.00	3.00	
400.0	6.00	289.96	399.6	3.6	-9.8	10.5	3.00	3.00	
500.0	9.00	289.96	498.8	8.0	-22.1	23.5	3.00	3.00	
600.0	12.00	289.96	597.1	14.3	-39.2	41.7	3.00	3.00	
700.0	15.00	289.96	694.3	22.2	-61.2	65.1	3.00	3.00	
800.0	18.00	289.96	790.2	31.9	-87.9	93.5	3.00	3.00	
900.0	21.00	289.96	884.4	43.3	-119.2	126.9	3.00	3.00	
964.7	22.94	289.96	944.4	51.6	-142.0	151.1	3.00	3.00	EOB @ Inc. = 22.94°
1,000.0	22.94	289.96	976.9	56.3	-154.9	164.8	0.00	0.00	
1,064.7	22.94	289.96	1,036.5	64.9	-178.6	190.0	0.00	0.00	Surface Casing
1,100.0	22.94	289.96	1,069.0	69.6	-191.5	203.8	0.00	0.00	
1,200.0	22.94	289.96	1,161.1	82.9	-228.2	242.8	0.00	0.00	
1,300.0	22.94	289.96	1,253.2	96.2	-264.8	281.8	0.00	0.00	
1,400.0	22.94	289.96	1,345.3	109.5	-301.5	320.7	0.00	0.00	
1,500.0	22.94	289.96	1,437.4	122.8	-338.1	359.7	0.00	0.00	
1,600.0	22.94	289.96	1,529.5	136.1	-374.7	398.7	0.00	0.00	
1,700.0	22.94	289.96	1,621.6	149.4	-411.4	437.7	0.00	0.00	
1,800.0	22.94	289.96	1,713.7	162.7	-448.0	476.6	0.00	0.00	
1,900.0	22.94	289.96	1,805.8	176.1	-484.6	515.6	0.00	0.00	
2,000.0	22.94	289.96	1,897.8	189.4	-521.3	554.6	0.00	0.00	
2,100.0	22.94	289.96	1,989.9	202.7	-557.9	593.6	0.00	0.00	
2,200.0	22.94	289.96	2,082.0	216.0	-594.5	632.6	0.00	0.00	
2,300.0	22.94	289.96	2,174.1	229.3	-631.2	671.5	0.00	0.00	
2,400.0	22.94	289.96	2,266.2	242.6	-667.8	710.5	0.00	0.00	
2,500.0	22.94	289.96	2,358.3	255.9	-704.5	749.5	0.00	0.00	
2,600.0	22.94	289.96	2,450.4	269.2	-741.1	788.5	0.00	0.00	
2,700.0	22.94	289.96	2,542.5	282.5	-777.7	827.5	0.00	0.00	
2,800.0	22.94	289.96	2,634.6	295.8	-814.4	866.4	0.00	0.00	
2,900.0	22.94	289.96	2,726.7	309.1	-851.0	905.4	0.00	0.00	
3,000.0	22.94	289.96	2,818.7	322.5	-887.6	944.4	0.00	0.00	
3,100.0	22.94	289.96	2,910.8	335.8	-924.3	983.4	0.00	0.00	
3,200.0	22.94	289.96	3,002.9	349.1	-960.9	1,022.4	0.00	0.00	
3,300.0	22.94	289.96	3,095.0	362.4	-997.5	1,061.3	0.00	0.00	
3,400.0	22.94	289.96	3,187.1	375.7	-1,034.2	1,100.3	0.00	0.00	
3,500.0	22.94	289.96	3,279.2	389.0	-1,070.8	1,139.3	0.00	0.00	
3,600.0	22.94	289.96	3,371.3	402.3	-1,107.5	1,178.3	0.00	0.00	
3,700.0	22.94	289.96	3,463.4	415.6	-1,144.1	1,217.2	0.00	0.00	
3,800.0	22.94	289.96	3,555.5	428.9	-1,180.7	1,256.2	0.00	0.00	
3,900.0	22.94	289.96	3,647.6	442.2	-1,217.4	1,295.2	0.00	0.00	
4,000.0	22.94	289.96	3,739.7	455.5	-1,254.0	1,334.2	0.00	0.00	
4,100.0	22.94	289.96	3,831.7	468.9	-1,290.6	1,373.2	0.00	0.00	
4,200.0	22.94	289.96	3,923.8	482.2	-1,327.3	1,412.1	0.00	0.00	
4,300.0	22.94	289.96	4,015.9	495.5	-1,363.9	1,451.1	0.00	0.00	
4,400.0	22.94	289.96	4,108.0	508.8	-1,400.5	1,490.1	0.00	0.00	
4,500.0	22.94	289.96	4,200.1	522.1	-1,437.2	1,529.1	0.00	0.00	
4,600.0	22.94	289.96	4,292.2	535.4	-1,473.8	1,568.1	0.00	0.00	
4,700.0	22.94	289.96	4,384.3	548.7	-1,510.5	1,607.0	0.00	0.00	
4,800.0	22.94	289.96	4,476.4	562.0	-1,547.1	1,646.0	0.00	0.00	
4,900.0	22.94	289.96	4,568.5	575.3	-1,583.7	1,685.0	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 31-13B
<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 31-13B	<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
5,000.0	22.94	289.96	4,660.6	588.6	-1,620.4	1,724.0	0.00	0.00	
5,100.0	22.94	289.96	4,752.6	602.0	-1,657.0	1,762.9	0.00	0.00	
5,200.0	22.94	289.96	4,844.7	615.3	-1,693.6	1,801.9	0.00	0.00	
5,207.9	22.94	289.96	4,852.0	616.3	-1,696.5	1,805.0	0.00	0.00	Ohio Creek
5,300.0	22.94	289.96	4,936.8	628.6	-1,730.3	1,840.9	0.00	0.00	
5,400.0	22.94	289.96	5,028.9	641.9	-1,766.9	1,879.9	0.00	0.00	
5,415.3	22.94	289.96	5,043.0	643.9	-1,772.5	1,885.8	0.00	0.00	Mesaverde Marker
5,500.0	22.94	289.96	5,121.0	655.2	-1,803.5	1,918.9	0.00	0.00	
5,600.0	22.94	289.96	5,213.1	668.5	-1,840.2	1,957.8	0.00	0.00	
5,700.0	22.94	289.96	5,305.2	681.8	-1,876.8	1,996.8	0.00	0.00	
5,800.0	22.94	289.96	5,397.3	695.1	-1,913.5	2,035.8	0.00	0.00	
5,900.0	22.94	289.96	5,489.4	708.4	-1,950.1	2,074.8	0.00	0.00	
6,000.0	22.94	289.96	5,581.5	721.7	-1,986.7	2,113.8	0.00	0.00	
6,069.4	22.94	289.96	5,645.3	731.0	-2,012.1	2,140.8	0.00	0.00	Start 2° Drop
6,100.0	22.33	289.96	5,673.6	735.0	-2,023.2	2,152.6	2.00	-2.00	
6,118.8	21.95	289.96	5,691.0	737.4	-2,029.9	2,159.7	2.00	-2.00	Williams Fork
6,200.0	20.33	289.96	5,766.8	747.4	-2,057.4	2,189.0	2.00	-2.00	
6,300.0	18.33	289.96	5,861.1	758.7	-2,088.5	2,222.1	2.00	-2.00	
6,400.0	16.33	289.96	5,956.6	768.9	-2,116.5	2,251.8	2.00	-2.00	
6,500.0	14.33	289.96	6,053.0	777.9	-2,141.3	2,278.3	2.00	-2.00	
6,600.0	12.33	289.96	6,150.3	785.8	-2,163.0	2,301.3	2.00	-2.00	
6,700.0	10.33	289.96	6,248.4	792.5	-2,181.5	2,321.0	2.00	-2.00	
6,800.0	8.33	289.96	6,347.0	798.0	-2,196.7	2,337.2	2.00	-2.00	
6,900.0	6.33	289.96	6,446.2	802.4	-2,208.7	2,349.9	2.00	-2.00	
7,000.0	4.33	289.96	6,545.8	805.5	-2,217.4	2,359.2	2.00	-2.00	
7,100.0	2.33	289.96	6,645.6	807.5	-2,222.9	2,365.0	2.00	-2.00	
7,200.0	0.33	289.96	6,745.6	808.3	-2,225.1	2,367.3	2.00	-2.00	
7,216.4	0.00	0.00	6,762.0	808.3	-2,225.1	2,367.4	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
7,300.0	0.00	0.00	6,845.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,400.0	0.00	0.00	6,945.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,500.0	0.00	0.00	7,045.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,600.0	0.00	0.00	7,145.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,700.0	0.00	0.00	7,245.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,800.0	0.00	0.00	7,345.6	808.3	-2,225.1	2,367.4	0.00	0.00	
7,900.0	0.00	0.00	7,445.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,000.0	0.00	0.00	7,545.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,100.0	0.00	0.00	7,645.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,200.0	0.00	0.00	7,745.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,235.4	0.00	0.00	7,781.0	808.3	-2,225.1	2,367.4	0.00	0.00	Coal Ridge
8,300.0	0.00	0.00	7,845.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,400.0	0.00	0.00	7,945.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,500.0	0.00	0.00	8,045.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,600.0	0.00	0.00	8,145.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,700.0	0.00	0.00	8,245.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,800.0	0.00	0.00	8,345.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,900.0	0.00	0.00	8,445.6	808.3	-2,225.1	2,367.4	0.00	0.00	
8,901.4	0.00	0.00	8,447.0	808.3	-2,225.1	2,367.4	0.00	0.00	Rollins
9,000.0	0.00	0.00	8,545.6	808.3	-2,225.1	2,367.4	0.00	0.00	
9,051.4	0.00	0.00	8,597.0	808.3	-2,225.1	2,367.4	0.00	0.00	TD @ 9,051.4' MD
9,100.0	0.00	0.00	8,645.6	808.3	-2,225.1	2,367.4	0.00	0.00	
9,151.4	0.00	0.00	8,697.0	808.3	-2,225.1	2,367.4	0.00	0.00	Permit TD @ 9,151.4' MD

# Cathedral Energy Services

## Planning Report

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<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 31-13B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

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 31-13B PB - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,597.0	808.3	-2,225.1	1,577,880.09	2,374,478.88	39.399107	-107.713773
Shideler Fee 31-13B TG - plan hits target center - Point	0.00	0.00	6,762.0	808.3	-2,225.1	1,577,880.09	2,374,478.88	39.399107	-107.713773

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,064.7	1,036.5	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
5,207.9	4,852.0	Ohio Creek			
5,415.3	5,043.0	Mesaverde Marker			
6,118.8	5,691.0	Williams Fork			
7,216.4	6,762.0	Top Gas			
8,235.4	7,781.0	Coal Ridge			
8,901.4	8,447.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
200.0	200.0	0.0	0.0	KOP @ 200'	
964.7	944.4	51.6	-142.0	EOB @ Inc. = 22.94°	
6,069.4	5,645.3	731.0	-2,012.1	Start 2° Drop	
7,216.4	6,762.0	808.3	-2,225.1	EOD @ Inc. = 0°	
9,051.4	8,597.0	808.3	-2,225.1	TD @ 9,051.4' MD	
9,151.4	8,697.0	808.3	-2,225.1	Permit TD @ 9,151.4' MD	

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

**Mamm Creek**

**O31E Pad (2nd Occupation)**

**Shideler Fee 31-13B**

**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 31-13B
<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 31-13B	<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	9,151.4	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 31-13B
<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 31-13B	<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	706.0	683.3	212.6	210.2	86.860	CC, ES
Shideler 31-15-EX - Existing - Existing	1,100.0	1,043.9	262.1	257.3	55.045	SF
Shideler Federal 6-3-EX - Existing - Existing	693.6	664.2	230.5	228.1	97.224	CC
Shideler Federal 6-3-EX - Existing - Existing	700.0	670.4	230.5	228.1	95.819	ES
Shideler Federal 6-3-EX - Existing - Existing	1,200.0	1,137.0	287.6	282.0	51.813	SF
Shideler Fee 31-13C - OH - FINAL	774.2	786.7	185.1	181.4	49.874	CC
Shideler Fee 31-13C - OH - FINAL	800.0	810.5	185.3	181.4	47.260	ES
Shideler Fee 31-13C - OH - FINAL	4,500.0	4,495.6	498.3	440.8	8.670	SF
Shideler Fee 31-13CC - OH - FINAL	0.0	3.0	231.7			
Shideler Fee 31-13CC - OH - FINAL	100.0	102.4	231.8	231.6	829.741	ES
Shideler Fee 31-13CC - OH - FINAL	2,800.0	2,757.9	492.9	461.1	15.497	SF
Shideler Fee 6-3A - DD - FINAL	0.0	3.0	255.8			
Shideler Fee 6-3A - DD - FINAL	100.0	102.2	256.0	255.7	916.814	ES
Shideler Fee 6-3A - DD - FINAL	1,500.0	1,444.3	426.6	418.1	50.280	SF
Shideler Fee 6-3AA - DD - FINAL	0.0	0.0	266.5			
Shideler Fee 6-3AA - DD - FINAL	1,400.0	1,307.6	489.7	480.8	54.749	SF
Shideler Fee 6-3D - DD - DD	0.0	3.0	243.9			
Shideler Fee 6-3D - DD - DD	200.0	201.9	244.3	243.7	390.980	ES
Shideler Fee 6-3D - DD - DD	1,400.0	1,286.8	498.1	489.7	58.861	SF
Shideler Fee 6-3DD - DD - DD	0.0	3.0	254.4			
Shideler Fee 6-3DD - DD - DD	100.0	102.2	254.5	254.3	911.433	ES
Shideler Fee 6-3DD - DD - DD	1,200.0	1,084.9	464.7	457.8	67.185	SF
Shideler Fee 6-6A - DD - FINAL	355.8	358.1	241.4	240.2	200.584	CC
Shideler Fee 6-6A - DD - FINAL	400.0	401.3	241.5	240.2	175.361	ES
Shideler Fee 6-6A - DD - FINAL	1,300.0	1,138.8	471.2	463.9	64.401	SF
Shideler Fee 6-6D - DD - DD	131.6	134.7	229.3	228.9	590.804	CC, ES
Shideler Fee 6-6D - DD - DD	1,100.0	939.5	460.4	454.8	81.192	SF
Shideler Fee 6-6DD - DD - FINAL	153.1	156.1	218.9	218.5	473.092	CC
Shideler Fee 6-6DD - DD - FINAL	200.0	200.9	219.1	218.5	351.709	ES
Shideler Fee 6-6DD - DD - FINAL	1,200.0	1,015.7	498.2	491.5	74.295	SF
Shideler Fee 6-7D - DD - DD	139.2	139.2	218.1	217.7	526.184	CC, ES
Shideler Fee 6-7D - DD - DD	1,000.0	845.0	424.7	419.9	87.476	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 31-13B
<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 31-13B	<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 Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
O31E Pad (2nd Occupation)						
Shideler Fee 31-10C - OH - Plan #1	200.0	200.0	59.8	59.2	96.247	CC, ES
Shideler Fee 31-10C - OH - Plan #1	1,000.0	969.1	219.0	213.3	38.366	SF
Shideler Fee 31-11C - OH - Plan #1	200.0	200.0	44.8	44.2	72.123	CC, ES
Shideler Fee 31-11C - OH - Plan #1	900.0	896.1	116.4	111.3	22.948	SF
Shideler Fee 31-12B - OH - Plan #1	200.0	200.0	29.8	29.2	47.935	CC, ES
Shideler Fee 31-12B - OH - Plan #1	1,900.0	1,886.7	226.7	205.9	10.940	SF
Shideler Fee 31-13BB - OH - Plan #1	386.2	385.9	12.4	11.1	9.403	CC
Shideler Fee 31-13BB - OH - Plan #1	400.0	399.6	12.5	11.1	9.055	ES
Shideler Fee 31-13BB - OH - Plan #1	9,151.4	9,122.4	402.6	313.3	4.509	SF
Shideler Fee 31-14D - OH - Plan #1	200.0	200.0	14.8	14.2	23.808	CC, ES
Shideler Fee 31-14D - OH - Plan #1	300.0	300.0	16.5	15.5	16.944	SF
Shideler Fee 31-14DD - OH - Plan #1	373.5	372.3	27.4	26.1	21.745	CC, ES
Shideler Fee 31-14DD - OH - Plan #1	600.0	596.6	36.9	34.5	15.871	SF
Shideler Fee 31-16A - OH - Plan #1	200.0	200.0	82.6	82.0	132.910	CC, ES
Shideler Fee 31-16A - OH - Plan #1	600.0	585.4	124.5	122.4	59.277	SF
Shideler Fee 31-16AA - OH - Plan #1	200.0	200.0	74.8	74.2	120.439	CC, ES
Shideler Fee 31-16AA - OH - Plan #1	500.0	489.2	100.7	99.0	58.425	SF
Shideler Fee 31-16D - OH - Plan #1	200.0	200.0	53.0	52.4	85.358	CC, ES
Shideler Fee 31-16D - OH - Plan #1	500.0	492.3	79.1	77.4	46.693	SF
Shideler Fee 31-16DD - OH - Plan #1	200.0	200.0	67.9	67.2	109.223	CC, ES
Shideler Fee 31-16DD - OH - Plan #1	500.0	489.7	95.5	93.8	56.142	SF
Shideler Fee 31-9D - OH - Plan #1	200.0	200.0	89.8	89.2	144.571	CC, ES
Shideler Fee 31-9D - OH - Plan #1	600.0	570.2	156.6	154.4	72.886	SF
Shideler Fee 6-1A - OH - Plan #1	200.0	200.0	38.2	37.6	61.482	CC, ES
Shideler Fee 6-1A - OH - Plan #1	400.0	398.6	47.1	45.8	35.425	SF
Shideler Fee 6-1AA - OH - Plan #1	200.0	200.0	23.8	23.2	38.318	CC, ES
Shideler Fee 6-1AA - OH - Plan #1	400.0	398.5	34.4	33.0	25.984	SF
Shideler Fee 6-1D - OH - Plan #1	200.0	200.0	10.8	10.1	17.322	CC, ES
Shideler Fee 6-1D - OH - Plan #1	300.0	300.0	13.4	12.4	13.786	SF
Shideler Fee 6-1DD - OH - Plan #1	200.0	200.0	11.1	10.5	17.879	CC
Shideler Fee 6-1DD - OH - Plan #1	216.8	216.8	11.1	10.4	16.324	ES
Shideler Fee 6-1DD - OH - Plan #1	300.0	299.8	11.9	11.0	12.225	SF
Shideler Fee 6-8A - OH - Plan #1	307.1	306.9	23.5	22.5	23.286	CC, ES
Shideler Fee 6-8A - OH - Plan #1	400.0	398.4	26.7	25.3	19.378	SF
Shideler Fee 6-8AA - OH - Plan #1	330.2	329.5	37.6	36.5	34.095	CC, ES
Shideler Fee 6-8AA - OH - Plan #1	500.0	493.5	51.0	49.2	27.997	SF
Shideler Fee 6-8D - OH - Plan #1	340.1	339.0	52.1	51.0	45.161	CC, ES
Shideler Fee 6-8D - OH - Plan #1	500.0	492.5	62.4	60.6	33.234	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 31-13B
<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 31-13B	<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	-145.77	-183.9	-125.1	223.5						
100.0	100.0	78.2	78.2	0.1	0.1	-145.83	-184.0	-124.9	222.4	222.1	0.20	1,087.625			
200.0	200.0	178.6	178.6	0.3	0.2	-146.01	-184.2	-124.2	222.2	221.7	0.47	476.258			
300.0	300.0	278.4	278.4	0.5	0.2	-76.91	-184.6	-123.2	221.3	220.6	0.74	300.117			
400.0	399.6	378.3	378.3	0.7	0.3	-79.42	-185.3	-121.6	219.5	218.4	1.05	209.857			
500.0	498.8	478.6	478.5	1.0	0.4	-83.43	-185.8	-119.5	217.0	215.6	1.42	152.903			
600.0	597.1	579.7	579.7	1.4	0.5	-88.71	-185.0	-117.9	214.3	212.4	1.87	114.322			
700.0	694.3	677.5	677.4	1.8	0.6	-94.90	-182.8	-117.1	212.6	210.2	2.41	88.192			
706.0	700.1	683.3	683.2	1.9	0.6	-95.30	-182.7	-117.1	212.6	210.2	2.45	86.860 CC, ES			
800.0	790.2	770.8	770.7	2.4	0.7	-101.73	-181.0	-117.3	214.9	211.9	3.01	71.349			
900.0	884.4	862.6	862.5	3.0	0.8	-109.09	-180.4	-117.8	223.7	220.1	3.65	61.290			
1,000.0	976.9	953.2	953.1	3.7	0.8	-116.79	-180.8	-117.6	240.0	235.7	4.26	56.388			
1,100.0	1,069.0	1,043.9	1,043.8	4.5	0.9	-124.00	-181.7	-117.1	262.1	257.3	4.76	55.045 SF			
1,200.0	1,161.1	1,136.3	1,136.2	5.2	1.0	-130.27	-182.6	-116.4	288.1	282.9	5.18	55.641			
1,300.0	1,253.2	1,229.8	1,229.7	5.9	1.1	-135.58	-183.1	-116.0	316.5	310.9	5.53	57.241			
1,400.0	1,345.3	1,320.6	1,320.4	6.7	1.2	-139.94	-183.5	-115.5	347.1	341.2	5.84	59.472			
1,500.0	1,437.4	1,412.3	1,412.2	7.4	1.2	-143.69	-183.9	-114.7	379.5	373.4	6.10	62.162			
1,600.0	1,529.5	1,504.3	1,504.2	8.1	1.3	-146.94	-184.0	-113.6	413.1	406.8	6.34	65.128			
1,700.0	1,621.6	1,597.3	1,597.2	8.9	1.4	-149.83	-183.6	-112.2	447.7	441.1	6.56	68.273			
1,800.0	1,713.7	1,690.3	1,690.1	9.6	1.5	-152.42	-182.4	-110.3	482.9	476.1	6.75	71.542			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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								
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	-143.58	-193.0	-142.4	240.8						
100.0	100.0	79.1	79.1	0.1	0.1	-143.61	-192.9	-142.2	239.6	239.4	0.21	1,167.187			
200.0	200.0	179.5	179.5	0.3	0.2	-143.67	-192.6	-141.6	239.0	238.6	0.47	511.339			
300.0	300.0	277.7	277.7	0.5	0.2	-74.26	-192.3	-141.4	238.0	237.2	0.74	323.564			
400.0	399.6	376.8	376.8	0.7	0.3	-76.01	-192.3	-142.0	236.3	235.2	1.04	227.104			
500.0	498.8	475.7	475.7	1.0	0.4	-78.98	-192.2	-142.8	233.8	232.4	1.41	165.942			
600.0	597.1	573.7	573.7	1.4	0.5	-83.17	-192.2	-143.9	231.5	229.6	1.86	124.361			
693.6	688.1	664.2	664.2	1.8	0.6	-88.15	-192.4	-145.1	230.5	228.1	2.37	97.224 CC			
700.0	694.3	670.4	670.4	1.8	0.6	-88.52	-192.4	-145.2	230.5	228.1	2.41	95.819 ES			
800.0	790.2	765.8	765.8	2.4	0.7	-94.77	-192.8	-147.0	232.4	229.3	3.03	76.571			
900.0	884.4	860.2	860.1	3.0	0.8	-101.67	-193.3	-149.5	238.6	234.8	3.73	64.035			
1,000.0	976.9	953.2	953.1	3.7	0.8	-108.90	-194.0	-152.3	250.2	245.8	4.41	56.701			
1,100.0	1,069.0	1,045.5	1,045.3	4.5	0.9	-115.74	-194.8	-155.3	266.9	261.8	5.02	53.140			
1,200.0	1,161.1	1,137.0	1,136.8	5.2	1.0	-121.79	-195.9	-157.9	287.6	282.0	5.55	51.813 SF			
1,300.0	1,253.2	1,228.2	1,228.0	5.9	1.1	-127.08	-197.6	-160.2	311.9	305.8	6.01	51.921			
1,400.0	1,345.3	1,320.4	1,320.1	6.7	1.2	-131.75	-199.3	-162.0	338.9	332.5	6.40	52.952			
1,500.0	1,437.4	1,414.0	1,413.6	7.4	1.3	-135.83	-200.9	-163.8	367.7	361.0	6.74	54.530			
1,600.0	1,529.5	1,508.3	1,507.9	8.1	1.3	-139.35	-202.3	-165.8	397.7	390.7	7.05	56.392			
1,700.0	1,621.6	1,604.8	1,604.3	8.9	1.4	-142.38	-203.5	-168.7	428.4	421.1	7.34	58.352			
1,800.0	1,713.7	1,712.5	1,711.9	9.6	1.5	-145.09	-204.0	-174.4	458.0	450.4	7.62	60.130			
1,900.0	1,805.8	1,817.8	1,816.8	10.4	1.6	-146.99	-204.2	-184.4	485.6	477.6	7.94	61.145			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-161.49	-196.7	-65.8	207.4						
100.0	100.0	102.3	102.3	0.1	0.1	-161.50	-196.9	-65.9	207.6	207.3	0.28	742.847			
200.0	200.0	203.2	203.2	0.3	0.3	-161.50	-197.1	-65.9	207.8	207.2	0.63	331.383			
300.0	300.0	305.8	305.8	0.5	0.5	-92.15	-196.4	-66.0	207.3	206.3	0.99	209.577			
400.0	399.6	413.7	413.6	0.7	0.7	-94.00	-192.2	-67.0	204.3	202.9	1.40	145.912			
500.0	498.8	519.1	518.5	1.0	0.9	-96.44	-183.5	-70.6	198.3	196.4	1.88	105.533			
600.0	597.1	619.5	618.2	1.4	1.2	-99.52	-172.9	-76.9	191.8	189.3	2.45	78.414			
700.0	694.3	717.0	714.5	1.8	1.4	-102.95	-161.8	-86.9	186.6	183.5	3.12	59.759			
774.2	765.6	786.7	783.0	2.2	1.7	-105.24	-154.5	-97.8	185.1	181.4	3.71	49.874 CC			
800.0	790.2	810.5	806.3	2.4	1.8	-105.99	-152.4	-102.2	185.3	181.4	3.92	47.260 ES			
900.0	884.4	903.6	896.9	3.0	2.1	-108.82	-146.0	-122.4	189.6	184.8	4.85	39.135			
1,000.0	976.9	998.9	989.1	3.7	2.5	-111.75	-142.2	-146.5	198.8	193.0	5.87	33.879			
1,100.0	1,069.0	1,099.3	1,085.0	4.5	3.1	-113.86	-139.0	-175.8	209.6	202.6	6.98	30.006			
1,200.0	1,161.1	1,203.1	1,182.7	5.2	3.7	-114.62	-134.6	-210.5	219.0	210.7	8.25	26.528			
1,300.0	1,253.2	1,304.8	1,276.7	5.9	4.4	-114.17	-129.1	-248.9	226.8	217.2	9.65	23.513			
1,400.0	1,345.3	1,403.6	1,367.4	6.7	5.1	-113.35	-123.8	-287.7	234.5	223.4	11.08	21.167			
1,500.0	1,437.4	1,502.7	1,458.3	7.4	5.9	-112.51	-118.8	-327.0	242.5	230.0	12.54	19.345			
1,600.0	1,529.5	1,602.1	1,549.2	8.1	6.6	-111.60	-113.9	-366.8	250.7	236.7	14.03	17.866			
1,700.0	1,621.6	1,700.0	1,638.6	8.9	7.4	-110.64	-109.5	-406.5	259.4	243.9	15.54	16.692			
1,800.0	1,713.7	1,799.0	1,728.7	9.6	8.1	-109.60	-105.6	-447.3	268.6	251.5	17.10	15.713			
1,900.0	1,805.8	1,897.4	1,818.0	10.4	8.9	-108.44	-101.9	-488.6	278.2	259.5	18.67	14.898			
2,000.0	1,897.8	1,999.7	1,911.2	11.1	9.7	-107.53	-97.9	-530.6	287.6	267.4	20.23	14.214			
2,100.0	1,989.9	2,103.9	2,006.4	11.8	10.5	-106.84	-92.0	-572.4	295.3	273.5	21.80	13.547			
2,200.0	2,082.0	2,203.0	2,096.8	12.6	11.3	-106.14	-86.0	-612.6	302.7	279.4	23.35	12.968			
2,300.0	2,174.1	2,303.7	2,188.7	13.3	12.1	-105.49	-79.9	-653.3	310.2	285.4	24.87	12.475			
2,400.0	2,266.2	2,404.7	2,282.1	14.1	12.8	-105.43	-73.4	-691.2	317.2	290.8	26.32	12.052			
2,500.0	2,358.3	2,505.1	2,375.0	14.8	13.5	-105.45	-66.8	-728.4	323.9	296.1	27.74	11.674			
2,600.0	2,450.4	2,602.1	2,464.9	15.6	14.2	-105.46	-60.6	-764.5	330.8	301.7	29.17	11.342			
2,700.0	2,542.5	2,701.9	2,557.1	16.3	15.0	-105.34	-54.7	-802.4	338.4	307.7	30.62	11.050			
2,800.0	2,634.6	2,799.0	2,646.6	17.1	15.7	-105.16	-49.6	-839.6	346.5	314.4	32.09	10.796			
2,900.0	2,726.7	2,895.6	2,735.3	17.8	16.4	-104.83	-45.2	-877.6	355.4	321.8	33.58	10.585			
3,000.0	2,818.7	2,994.7	2,826.1	18.5	17.2	-104.44	-40.9	-917.0	364.6	329.5	35.09	10.388			
3,100.0	2,910.8	3,094.1	2,917.5	19.3	17.9	-104.20	-36.7	-955.8	373.8	337.2	36.58	10.219			
3,200.0	3,002.9	3,193.3	3,009.0	20.0	18.7	-104.04	-32.6	-994.0	383.1	345.0	38.05	10.069			
3,300.0	3,095.0	3,292.0	3,100.1	20.8	19.4	-103.92	-28.6	-1,031.9	392.5	353.0	39.51	9.935			
3,400.0	3,187.1	3,390.3	3,190.8	21.5	20.1	-103.85	-25.0	-1,069.4	402.3	361.3	40.96	9.822			
3,500.0	3,279.2	3,492.0	3,285.0	22.3	20.9	-103.82	-21.4	-1,107.9	412.1	369.7	42.43	9.713			
3,600.0	3,371.3	3,593.7	3,378.8	23.0	21.6	-103.76	-16.9	-1,146.6	421.0	377.1	43.90	9.591			
3,700.0	3,463.4	3,694.2	3,471.9	23.8	22.3	-103.78	-12.3	-1,184.2	429.8	384.5	45.34	9.480			
3,800.0	3,555.5	3,793.7	3,563.9	24.5	23.1	-103.74	-7.5	-1,221.8	438.4	391.6	46.82	9.365			
3,900.0	3,647.6	3,892.9	3,655.0	25.2	23.8	-103.48	-2.8	-1,261.0	447.2	398.8	48.33	9.253			
4,000.0	3,739.7	3,991.2	3,745.0	26.0	24.6	-103.20	1.8	-1,300.1	456.0	406.2	49.85	9.149			
4,100.0	3,831.7	4,088.5	3,833.9	26.7	25.4	-102.84	6.0	-1,339.5	465.4	414.1	51.38	9.059			
4,200.0	3,923.8	4,195.2	3,931.5	27.5	26.2	-102.50	11.3	-1,382.3	474.1	421.1	52.97	8.949			
4,300.0	4,015.9	4,294.4	4,021.9	28.2	27.0	-102.10	16.9	-1,422.8	482.2	427.7	54.52	8.844			
4,400.0	4,108.0	4,394.5	4,113.9	29.0	27.7	-101.94	22.3	-1,461.7	490.4	434.3	56.00	8.755			
4,500.0	4,200.1	4,495.6	4,207.3	29.7	28.4	-101.93	27.8	-1,500.0	498.3	440.8	57.47	8.670 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 31-13B
<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 31-13B	<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			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	-156.88	-213.1	-91.0	231.7						
100.0	100.0	102.4	102.4	0.1	0.1	-156.85	-213.2	-91.1	231.8	231.6	0.28	829.741 ES			
200.0	200.0	201.8	201.8	0.3	0.3	-156.85	-213.6	-91.3	232.3	231.7	0.62	371.922			
300.0	300.0	300.2	300.2	0.5	0.5	-86.83	-213.5	-93.9	233.1	232.1	0.98	237.174			
400.0	399.6	398.3	398.0	0.7	0.7	-87.11	-212.4	-100.4	234.2	232.8	1.40	167.793			
500.0	498.8	491.9	491.1	1.0	0.9	-87.58	-211.4	-110.8	236.9	235.0	1.90	124.632			
600.0	597.1	588.7	586.7	1.4	1.2	-88.42	-210.9	-125.2	241.4	238.9	2.55	94.818			
700.0	694.3	685.5	681.8	1.8	1.6	-89.56	-210.2	-143.3	247.0	243.7	3.34	73.949			
800.0	790.2	781.2	775.1	2.4	2.0	-90.91	-209.6	-164.9	254.2	249.9	4.29	59.233			
900.0	884.4	877.4	867.8	3.0	2.5	-92.40	-209.1	-190.4	262.9	257.5	5.41	48.596			
1,000.0	976.9	974.3	960.1	3.7	3.0	-94.07	-208.5	-219.9	273.3	266.6	6.69	40.872			
1,100.0	1,069.0	1,074.2	1,053.3	4.5	3.7	-94.87	-206.6	-255.8	284.2	276.1	8.07	35.205			
1,200.0	1,161.1	1,172.5	1,144.5	5.2	4.4	-95.30	-204.4	-292.4	295.1	285.6	9.46	31.196			
1,300.0	1,253.2	1,271.7	1,236.6	5.9	5.1	-95.80	-202.7	-329.0	306.4	295.5	10.86	28.208			
1,400.0	1,345.3	1,373.4	1,331.2	6.7	5.8	-96.24	-200.4	-366.7	317.2	304.9	12.29	25.814			
1,500.0	1,437.4	1,471.9	1,423.0	7.4	6.4	-96.82	-197.9	-402.1	327.6	313.9	13.68	23.936			
1,600.0	1,529.5	1,570.7	1,514.9	8.1	7.1	-97.29	-196.1	-438.2	338.6	323.6	15.09	22.443			
1,700.0	1,621.6	1,665.9	1,603.6	8.9	7.8	-97.76	-194.4	-472.7	349.9	333.4	16.47	21.237			
1,800.0	1,713.7	1,762.9	1,693.7	9.6	8.5	-98.09	-194.0	-508.8	362.7	344.8	17.88	20.279			
1,900.0	1,805.8	1,865.0	1,788.4	10.4	9.2	-98.42	-193.3	-546.7	375.1	355.8	19.32	19.420			
2,000.0	1,897.8	1,958.9	1,875.8	11.1	9.8	-98.78	-192.8	-581.1	387.7	367.0	20.70	18.731			
2,100.0	1,989.9	2,055.5	1,965.6	11.8	10.5	-99.14	-193.5	-616.6	401.5	379.4	22.08	18.182			
2,200.0	2,082.0	2,155.7	2,059.0	12.6	11.2	-99.56	-194.5	-653.0	415.4	391.9	23.49	17.688			
2,300.0	2,174.1	2,256.9	2,153.5	13.3	11.9	-99.99	-195.0	-689.5	428.9	404.0	24.89	17.229			
2,400.0	2,266.2	2,356.2	2,246.2	14.1	12.6	-100.42	-195.3	-724.9	442.2	415.9	26.28	16.826			
2,500.0	2,358.3	2,457.7	2,341.0	14.8	13.3	-100.85	-195.3	-761.0	455.2	427.5	27.68	16.444			
2,600.0	2,450.4	2,558.0	2,435.0	15.6	13.9	-101.33	-194.9	-796.1	467.8	438.7	29.06	16.097			
2,700.0	2,542.5	2,656.8	2,527.5	16.3	14.6	-101.73	-194.5	-831.0	480.3	449.9	30.43	15.782			
2,800.0	2,634.6	2,757.9	2,622.3	17.1	15.3	-102.20	-194.1	-866.0	492.9	461.1	31.81	15.497 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-153.21	-228.4	-115.3	255.8						
100.0	100.0	102.2	102.2	0.1	0.1	-153.20	-228.5	-115.4	256.0	255.7	0.28	916.814	ES		
200.0	200.0	200.0	199.9	0.3	0.3	-153.10	-229.0	-116.2	256.8	256.1	0.62	413.066			
300.0	300.0	295.0	295.0	0.5	0.5	-83.36	-229.9	-117.6	258.0	257.0	0.97	265.744			
400.0	399.6	388.6	388.5	0.7	0.7	-84.54	-232.6	-120.6	261.2	259.8	1.36	192.473			
500.0	498.8	486.4	486.1	1.0	0.9	-86.70	-236.8	-124.9	266.0	264.1	1.82	146.408			
600.0	597.1	587.2	586.7	1.4	1.0	-89.94	-240.9	-129.2	270.8	268.5	2.37	114.507			
700.0	694.3	684.5	683.8	1.8	1.2	-93.96	-244.6	-133.3	276.8	273.8	3.00	92.310			
800.0	790.2	781.5	780.7	2.4	1.4	-98.59	-248.2	-137.9	284.8	281.1	3.72	76.596			
900.0	884.4	876.4	875.4	3.0	1.6	-103.64	-251.6	-142.6	296.1	291.6	4.50	65.737			
1,000.0	976.9	970.7	969.5	3.7	1.8	-109.13	-255.1	-147.1	311.6	306.3	5.30	58.745			
1,100.0	1,069.0	1,065.0	1,063.7	4.5	2.0	-114.49	-258.1	-151.8	330.2	324.1	6.05	54.538			
1,200.0	1,161.1	1,158.2	1,156.7	5.2	2.2	-119.23	-261.1	-156.6	351.4	344.7	6.75	52.064			
1,300.0	1,253.2	1,251.3	1,249.7	5.9	2.4	-123.50	-264.0	-161.0	374.9	367.5	7.38	50.780			
1,400.0	1,345.3	1,344.9	1,343.2	6.7	2.6	-127.47	-266.6	-164.3	400.3	392.4	7.95	50.356			
1,500.0	1,437.4	1,444.3	1,442.5	7.4	2.8	-131.13	-268.6	-168.5	426.6	418.1	8.48	50.280	SF		
1,600.0	1,529.5	1,536.9	1,534.9	8.1	2.9	-134.11	-270.1	-172.9	453.6	444.6	8.99	50.473			
1,700.0	1,621.6	1,628.1	1,625.9	8.9	3.1	-136.56	-272.6	-178.4	482.0	472.5	9.49	50.797			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-154.09	-239.7	-116.4	266.5					
100.0	100.0	97.2	97.2	0.1	0.1	-154.08	-240.1	-116.7	267.0	266.7	0.27	978.245		
200.0	200.0	188.4	188.3	0.3	0.3	-154.00	-241.9	-118.0	269.4	268.8	0.61	444.179		
300.0	300.0	276.2	276.0	0.5	0.5	-84.02	-246.5	-121.5	275.6	274.6	0.94	293.554		
400.0	399.6	365.2	364.4	0.7	0.7	-84.71	-254.3	-127.6	285.7	284.4	1.32	216.614		
500.0	498.8	456.3	454.6	1.0	1.0	-86.15	-264.5	-135.0	298.3	296.5	1.77	168.556		
600.0	597.1	547.6	544.6	1.4	1.3	-88.17	-276.7	-143.8	313.6	311.3	2.31	135.923		
700.0	694.3	645.6	641.2	1.8	1.6	-91.02	-290.9	-153.4	330.7	327.7	2.96	111.778		
800.0	790.2	746.9	741.2	2.4	1.9	-94.46	-304.0	-163.1	347.7	344.0	3.72	93.412		
900.0	884.4	842.9	836.1	3.0	2.2	-98.17	-315.6	-171.7	365.9	361.4	4.57	80.030		
1,000.0	976.9	937.5	929.6	3.7	2.5	-102.31	-326.9	-179.8	386.9	381.4	5.48	70.586		
1,100.0	1,069.0	1,030.4	1,021.5	4.5	2.8	-106.46	-337.6	-187.9	410.0	403.6	6.38	64.281		
1,200.0	1,161.1	1,124.0	1,114.2	5.2	3.1	-110.21	-348.5	-196.0	435.1	427.9	7.26	59.937		
1,300.0	1,253.2	1,217.0	1,206.1	5.9	3.4	-113.48	-359.1	-204.6	461.6	453.5	8.12	56.854		
1,400.0	1,345.3	1,307.6	1,295.7	6.7	3.7	-116.36	-369.6	-212.8	489.7	480.8	8.95	54.749 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-155.05	-221.1	-102.9	243.9					
100.0	100.0	102.3	102.3	0.1	0.1	-155.04	-221.2	-103.0	244.0	243.7	0.28	873.643		
200.0	200.0	201.9	201.9	0.3	0.3	-155.05	-221.5	-103.1	244.3	243.7	0.62	390.980 ES		
300.0	300.0	296.6	296.6	0.5	0.5	-85.52	-222.5	-103.7	245.4	244.4	0.97	252.163		
400.0	399.6	387.0	386.9	0.7	0.6	-86.81	-225.7	-106.1	249.2	247.8	1.35	184.284		
500.0	498.8	475.0	474.5	1.0	0.8	-88.86	-232.1	-110.2	257.2	255.4	1.79	143.538		
600.0	597.1	563.5	562.4	1.4	1.1	-91.63	-242.0	-115.5	270.0	267.7	2.31	116.642		
700.0	694.3	651.5	649.3	1.8	1.3	-94.90	-254.4	-121.5	287.1	284.2	2.93	98.148		
800.0	790.2	742.8	739.2	2.4	1.6	-98.77	-269.3	-127.4	308.6	304.9	3.63	85.012		
900.0	884.4	833.9	828.7	3.0	1.9	-102.77	-284.8	-133.5	333.7	329.2	4.42	75.494		
1,000.0	976.9	925.6	918.8	3.7	2.3	-107.01	-300.6	-140.3	362.4	357.1	5.26	68.894		
1,100.0	1,069.0	1,015.9	1,007.5	4.5	2.6	-111.16	-316.2	-147.2	393.6	387.5	6.09	64.661		
1,200.0	1,161.1	1,105.0	1,095.0	5.2	2.9	-114.75	-331.7	-153.7	426.9	420.0	6.89	61.925		
1,300.0	1,253.2	1,194.7	1,183.0	5.9	3.2	-117.86	-347.7	-160.2	461.9	454.2	7.69	60.089		
1,400.0	1,345.3	1,286.8	1,273.3	6.7	3.6	-120.63	-364.1	-166.7	498.1	489.7	8.46	58.861 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-155.80	-232.0	-104.3	254.4						
100.0	100.0	102.2	102.2	0.1	0.1	-155.84	-232.3	-104.2	254.5	254.3	0.28	911.433	ES		
200.0	200.0	200.0	199.9	0.3	0.3	-155.98	-233.2	-103.9	255.3	254.7	0.62	410.318			
300.0	300.0	290.5	290.5	0.5	0.5	-86.49	-235.8	-104.6	258.1	257.1	0.96	268.004			
400.0	399.6	379.8	379.5	0.7	0.7	-87.87	-241.5	-106.7	264.5	263.2	1.34	197.464			
500.0	498.8	467.2	466.4	1.0	0.9	-89.97	-250.3	-110.1	275.1	273.4	1.78	154.852			
600.0	597.1	556.1	554.4	1.4	1.1	-92.67	-262.2	-114.8	290.2	287.9	2.30	126.371			
700.0	694.3	639.5	636.4	1.8	1.4	-95.43	-275.9	-120.6	310.0	307.1	2.90	107.029			
800.0	790.2	726.8	721.7	2.4	1.8	-98.43	-293.0	-128.3	335.2	331.6	3.60	93.170			
900.0	884.4	819.2	811.8	3.0	2.1	-101.79	-312.0	-136.6	363.7	359.3	4.40	82.694			
1,000.0	976.9	909.5	899.9	3.7	2.5	-105.54	-330.3	-143.8	395.0	389.7	5.25	75.263			
1,100.0	1,069.0	998.4	986.7	4.5	2.9	-109.46	-348.6	-150.4	428.8	422.7	6.09	70.414			
1,200.0	1,161.1	1,084.9	1,071.0	5.2	3.3	-112.77	-366.7	-156.5	464.7	457.8	6.92	67.185	SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-157.58	-224.0	-92.4	242.3					
100.0	100.0	103.1	103.1	0.1	0.1	-157.54	-223.9	-92.6	242.3	242.0	0.28	863.984		
200.0	200.0	203.4	203.4	0.3	0.3	-157.43	-223.6	-93.0	242.2	241.5	0.63	386.032		
300.0	300.0	304.1	304.1	0.5	0.5	-87.93	-223.1	-93.2	241.7	240.7	0.99	244.950		
355.8	355.6	358.1	358.1	0.6	0.6	-88.71	-222.8	-93.5	241.4	240.2	1.20	200.584 CC		
400.0	399.6	401.3	401.3	0.7	0.7	-89.58	-222.9	-93.8	241.5	240.2	1.38	175.361 ES		
500.0	498.8	494.4	494.4	1.0	0.8	-92.28	-224.2	-94.8	243.5	241.7	1.82	133.439		
600.0	597.1	583.7	583.6	1.4	1.0	-95.83	-228.1	-96.1	249.5	247.2	2.34	106.487		
700.0	694.3	670.9	670.5	1.8	1.2	-99.86	-235.2	-98.3	261.4	258.5	2.94	88.987		
800.0	790.2	753.0	751.9	2.4	1.4	-103.84	-244.9	-101.2	280.2	276.6	3.60	77.796		
900.0	884.4	835.0	832.8	3.0	1.6	-107.76	-257.8	-104.8	306.4	302.1	4.33	70.714		
1,000.0	976.9	913.1	909.3	3.7	1.9	-111.59	-273.4	-108.5	340.3	335.2	5.09	66.820		
1,100.0	1,069.0	988.8	982.7	4.5	2.2	-115.25	-291.0	-112.4	379.8	374.0	5.83	65.134		
1,200.0	1,161.1	1,063.2	1,054.3	5.2	2.6	-118.11	-311.0	-116.8	423.8	417.3	6.57	64.522		
1,300.0	1,253.2	1,138.8	1,126.2	5.9	2.9	-120.35	-333.7	-122.1	471.2	463.9	7.32	64.401 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 31-13B
<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 31-13B	<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	-159.59	-214.9	-80.0	229.3						
100.0	100.0	103.2	103.2	0.1	0.1	-159.57	-214.9	-80.0	229.3	229.0	0.28	817.330			
131.6	131.6	134.7	134.7	0.2	0.2	-159.56	-214.8	-80.0	229.3	228.9	0.39	590.804 CC, ES			
200.0	200.0	198.9	198.9	0.3	0.3	-159.71	-215.5	-79.7	229.8	229.1	0.62	370.651			
300.0	300.0	290.1	290.0	0.5	0.5	-90.87	-219.2	-77.9	233.0	232.0	0.97	240.955			
400.0	399.6	382.3	381.8	0.7	0.7	-93.69	-227.0	-74.8	240.4	239.0	1.36	176.251			
500.0	498.8	470.0	468.8	1.0	0.9	-97.35	-237.5	-71.4	252.6	250.8	1.82	138.856			
600.0	597.1	557.2	554.9	1.4	1.2	-101.36	-251.1	-68.7	270.8	268.5	2.33	116.181			
700.0	694.3	639.2	635.4	1.8	1.5	-104.97	-266.6	-67.8	295.4	292.5	2.89	102.154			
800.0	790.2	718.4	712.5	2.4	1.8	-108.07	-284.7	-68.8	327.3	323.8	3.51	93.183			
900.0	884.4	794.3	785.6	3.0	2.2	-110.52	-305.0	-71.5	366.0	361.8	4.21	87.033			
1,000.0	976.9	867.1	854.8	3.7	2.6	-112.91	-327.1	-75.2	411.1	406.2	4.94	83.187			
1,100.0	1,069.0	939.5	923.0	4.5	3.1	-115.64	-351.3	-79.2	460.4	454.8	5.67	81.192 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-159.14	-204.7	-78.0	219.1						
100.0	100.0	103.4	103.4	0.1	0.1	-159.18	-204.7	-77.8	219.0	218.7	0.28	779.782			
153.1	153.1	156.1	156.1	0.2	0.2	-159.20	-204.7	-77.8	218.9	218.5	0.46	473.092 CC			
200.0	200.0	200.9	200.9	0.3	0.3	-159.19	-204.8	-77.8	219.1	218.5	0.62	351.709 ES			
300.0	300.0	292.0	292.0	0.5	0.5	-89.65	-207.3	-78.9	222.1	221.1	0.97	230.128			
400.0	399.6	380.8	380.5	0.7	0.7	-91.36	-213.7	-80.5	229.6	228.2	1.34	171.194			
500.0	498.8	467.6	466.7	1.0	0.9	-93.88	-223.9	-83.0	242.3	240.5	1.78	136.412			
600.0	597.1	552.8	550.6	1.4	1.1	-96.93	-237.8	-86.2	261.2	258.9	2.29	114.287			
700.0	694.3	634.8	630.8	1.8	1.5	-100.22	-254.8	-89.2	286.3	283.5	2.87	99.783			
800.0	790.2	714.4	707.7	2.4	1.8	-103.23	-274.6	-93.4	318.3	314.7	3.53	90.106			
900.0	884.4	792.8	782.8	3.0	2.2	-105.97	-296.9	-98.2	356.5	352.3	4.28	83.318			
1,000.0	976.9	870.0	855.9	3.7	2.7	-108.69	-320.7	-104.3	400.1	395.0	5.08	78.713			
1,100.0	1,069.0	944.3	925.7	4.5	3.2	-111.58	-345.6	-110.7	447.5	441.6	5.89	75.984			
1,200.0	1,161.1	1,015.7	992.0	5.2	3.6	-113.80	-371.3	-117.4	498.2	491.5	6.71	74.295 SF			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	0.0	0.0	0.0	0.0	-161.84	-207.6	-68.1	218.5						
100.0	100.0	101.0	101.0	0.1	0.1	-161.84	-207.4	-68.0	218.3	218.0		0.28	772.714		
139.2	139.2	139.2	139.2	0.2	0.2	-161.85	-207.3	-68.0	218.1	217.7		0.41	526.184 CC, ES		
200.0	200.0	194.5	194.4	0.3	0.3	-162.03	-208.1	-67.5	218.9	218.2		0.62	354.471		
300.0	300.0	287.6	287.5	0.5	0.5	-93.33	-212.7	-65.6	223.1	222.1		0.97	230.062		
400.0	399.6	377.2	376.6	0.7	0.7	-96.05	-220.9	-62.8	231.8	230.4		1.36	170.480		
500.0	498.8	463.5	462.2	1.0	0.9	-99.53	-232.2	-60.0	246.0	244.1		1.80	136.285		
600.0	597.1	549.2	546.4	1.4	1.2	-103.67	-247.1	-56.2	266.8	264.5		2.32	115.154		
700.0	694.3	631.7	627.0	1.8	1.5	-107.60	-264.5	-53.0	294.6	291.7		2.89	101.781		
800.0	790.2	708.0	700.7	2.4	1.9	-111.57	-283.0	-46.7	329.9	326.4		3.52	93.775		
900.0	884.4	778.7	768.2	3.0	2.3	-114.94	-302.6	-39.5	373.5	369.3		4.18	89.250		
1,000.0	976.9	845.0	830.9	3.7	2.7	-118.19	-323.1	-32.1	424.7	419.9		4.86	87.476 SF		
1,100.0	1,069.0	908.9	890.5	4.5	3.1	-121.71	-344.7	-24.4	481.1	475.6		5.46	88.069		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	56.76	32.8	50.0	59.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.76	32.8	50.0	59.8	59.5	0.27	219.641			
200.0	200.0	200.0	200.0	0.3	0.3	56.76	32.8	50.0	59.8	59.2	0.62	96.247	CC, ES		
300.0	300.0	298.9	298.9	0.5	0.5	127.49	34.2	49.9	62.1	61.1	0.98	63.599			
400.0	399.6	397.1	396.8	0.7	0.7	127.71	40.5	49.3	69.8	68.4	1.37	50.800			
500.0	498.8	494.4	493.5	1.0	0.9	127.42	51.7	48.2	82.9	81.1	1.85	44.758			
600.0	597.1	590.6	588.4	1.4	1.3	126.81	67.5	46.7	101.5	99.0	2.44	41.578			
700.0	694.3	685.2	680.8	1.8	1.6	126.03	87.7	44.8	125.3	122.1	3.15	39.761			
800.0	790.2	780.6	773.2	2.4	2.1	125.73	111.1	42.5	153.5	149.6	3.95	38.867			
900.0	884.4	875.4	865.1	3.0	2.5	126.57	134.5	40.3	184.8	180.0	4.81	38.390			
1,000.0	976.9	969.1	955.8	3.7	2.9	128.24	157.6	38.1	219.0	213.3	5.71	38.366	SF		
1,100.0	1,069.0	1,062.5	1,046.3	4.5	3.3	130.07	180.6	35.9	254.1	247.5	6.61	38.461			
1,200.0	1,161.1	1,155.8	1,136.8	5.2	3.8	131.46	203.6	33.7	289.4	281.9	7.50	38.564			
1,300.0	1,253.2	1,249.2	1,227.2	5.9	4.2	132.54	226.6	31.5	324.8	316.4	8.40	38.666			
1,400.0	1,345.3	1,342.6	1,317.7	6.7	4.6	133.42	249.6	29.3	360.3	351.0	9.30	38.763			
1,500.0	1,437.4	1,435.9	1,408.1	7.4	5.1	134.13	272.6	27.1	395.9	385.7	10.19	38.852			
1,600.0	1,529.5	1,529.3	1,498.6	8.1	5.5	134.73	295.7	24.9	431.4	420.4	11.08	38.934			
1,700.0	1,621.6	1,622.7	1,589.1	8.9	5.9	135.24	318.7	22.8	467.1	455.1	11.97	39.009			

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 31-13B
<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 31-13B	<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 Tooface (")	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	57.01	24.4	37.6	44.8						
100.0	100.0	100.0	100.0	0.1	0.1	57.01	24.4	37.6	44.8	44.5	0.27	164.589			
200.0	200.0	200.0	200.0	0.3	0.3	57.01	24.4	37.6	44.8	44.2	0.62	72.123 CC, ES			
300.0	300.0	300.1	300.0	0.5	0.5	128.78	24.9	37.2	46.4	45.4	0.98	47.524			
400.0	399.6	400.2	400.0	0.7	0.7	129.69	29.2	34.1	50.9	49.5	1.37	37.141			
500.0	498.8	500.2	499.5	1.0	0.9	129.16	37.7	28.0	58.3	56.4	1.85	31.437			
600.0	597.1	599.9	597.9	1.4	1.2	127.71	50.4	18.9	68.4	66.0	2.47	27.758			
700.0	694.3	699.2	695.1	1.8	1.6	125.80	67.1	6.9	81.5	78.3	3.24	25.174			
800.0	790.2	798.0	790.8	2.4	2.1	124.40	87.0	-7.4	97.5	93.3	4.13	23.601			
900.0	884.4	896.1	885.8	3.0	2.5	125.21	107.0	-21.8	116.4	111.3	5.07	22.948 SF			
1,000.0	976.9	993.6	980.1	3.7	3.0	127.47	126.8	-36.1	138.2	132.2	6.01	22.988			
1,100.0	1,069.0	1,090.8	1,074.2	4.5	3.4	129.67	146.6	-50.3	161.0	154.0	6.94	23.198			
1,200.0	1,161.1	1,188.0	1,168.3	5.2	3.9	131.33	166.4	-64.6	183.9	176.0	7.86	23.396			
1,300.0	1,253.2	1,285.2	1,262.4	5.9	4.3	132.62	186.2	-78.8	206.9	198.1	8.77	23.577			
1,400.0	1,345.3	1,382.4	1,356.5	6.7	4.8	133.65	206.0	-93.0	229.9	220.3	9.69	23.739			
1,500.0	1,437.4	1,479.7	1,450.6	7.4	5.2	134.49	225.8	-107.3	253.1	242.5	10.60	23.884			
1,600.0	1,529.5	1,576.9	1,544.8	8.1	5.7	135.20	245.6	-121.5	276.3	264.8	11.51	24.014			
1,700.0	1,621.6	1,674.1	1,638.9	8.9	6.1	135.79	265.4	-135.8	299.5	287.1	12.41	24.130			
1,800.0	1,713.7	1,771.3	1,733.0	9.6	6.6	136.30	285.2	-150.0	322.8	309.4	13.32	24.234			
1,900.0	1,805.8	1,868.6	1,827.1	10.4	7.1	136.74	305.1	-164.3	346.0	331.8	14.22	24.328			
2,000.0	1,897.8	1,965.8	1,921.2	11.1	7.5	137.12	324.9	-178.5	369.3	354.2	15.13	24.413			
2,100.0	1,989.9	2,063.0	2,015.3	11.8	8.0	137.46	344.7	-192.8	392.6	376.6	16.03	24.491			
2,200.0	2,082.0	2,160.2	2,109.4	12.6	8.5	137.76	364.5	-207.0	415.9	399.0	16.93	24.561			
2,300.0	2,174.1	2,257.5	2,203.5	13.3	8.9	138.03	384.3	-221.3	439.2	421.4	17.84	24.626			
2,400.0	2,266.2	2,354.7	2,297.7	14.1	9.4	138.27	404.1	-235.5	462.6	443.8	18.74	24.685			
2,500.0	2,358.3	2,451.9	2,391.8	14.8	9.8	138.49	423.9	-249.7	485.9	466.3	19.64	24.739			

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 31-13B
<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 31-13B	<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	56.61	16.4	24.9	29.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.61	16.4	24.9	29.8	29.5	0.27	109.391			
200.0	200.0	200.0	200.0	0.3	0.3	56.61	16.4	24.9	29.8	29.2	0.62	47.935 CC, ES			
300.0	300.0	300.4	300.4	0.5	0.5	125.82	18.1	22.9	30.6	29.7	0.98	31.118			
400.0	399.6	400.8	400.4	0.7	0.7	123.59	23.3	16.9	33.2	31.8	1.41	23.552			
500.0	498.8	501.0	499.8	1.0	1.0	120.55	31.9	7.0	37.6	35.7	1.96	19.257			
600.0	597.1	601.1	598.2	1.4	1.4	117.32	43.9	-6.8	43.9	41.3	2.66	16.536			
700.0	694.3	701.0	695.2	1.8	1.8	114.30	59.2	-24.5	52.1	48.6	3.54	14.731			
800.0	790.2	800.6	790.7	2.4	2.4	111.66	77.8	-45.9	62.2	57.6	4.61	13.502			
900.0	884.4	899.9	884.3	3.0	3.0	109.43	99.5	-70.9	74.1	68.3	5.86	12.645			
1,000.0	976.9	998.8	975.7	3.7	3.7	107.50	124.3	-99.5	87.8	80.5	7.28	12.056			
1,100.0	1,069.0	1,097.4	1,064.8	4.5	4.5	104.03	152.0	-131.4	102.1	93.3	8.81	11.595			
1,200.0	1,161.1	1,196.1	1,153.1	5.2	5.3	100.56	180.8	-164.5	117.0	106.7	10.34	11.321			
1,300.0	1,253.2	1,294.7	1,241.5	5.9	6.1	97.88	209.5	-197.7	132.2	120.4	11.85	11.161			
1,400.0	1,345.3	1,393.4	1,329.9	6.7	6.9	95.76	238.3	-230.8	147.7	134.3	13.35	11.065			
1,500.0	1,437.4	1,492.1	1,418.3	7.4	7.8	94.04	267.0	-264.0	163.3	148.5	14.83	11.007			
1,600.0	1,529.5	1,590.7	1,506.6	8.1	8.6	92.62	295.8	-297.1	179.0	162.7	16.31	10.973			
1,700.0	1,621.6	1,689.4	1,595.0	8.9	9.4	91.43	324.6	-330.2	194.8	177.0	17.79	10.953			
1,800.0	1,713.7	1,788.1	1,683.4	9.6	10.2	90.42	353.3	-363.4	210.7	191.5	19.25	10.944			
1,900.0	1,805.8	1,886.7	1,771.7	10.4	11.1	89.55	382.1	-396.5	226.7	205.9	20.72	10.940 SF			
2,000.0	1,897.8	1,985.4	1,860.1	11.1	11.9	88.79	410.9	-429.7	242.6	220.5	22.18	10.941			
2,100.0	1,989.9	2,084.1	1,948.5	11.8	12.7	88.13	439.6	-462.8	258.7	235.0	23.63	10.944			
2,200.0	2,082.0	2,182.7	2,036.9	12.6	13.5	87.54	468.4	-495.9	274.7	249.6	25.09	10.950			
2,300.0	2,174.1	2,281.4	2,125.2	13.3	14.3	87.02	497.1	-529.1	290.8	264.2	26.54	10.956			
2,400.0	2,266.2	2,380.1	2,213.6	14.1	15.2	86.56	525.9	-562.2	306.9	278.9	27.99	10.963			
2,500.0	2,358.3	2,478.7	2,302.0	14.8	16.0	86.14	554.7	-595.4	323.0	293.5	29.44	10.971			
2,600.0	2,450.4	2,577.4	2,390.4	15.6	16.8	85.76	583.4	-628.5	339.1	308.2	30.89	10.979			
2,700.0	2,542.5	2,676.1	2,478.7	16.3	17.6	85.42	612.2	-661.6	355.3	322.9	32.33	10.987			
2,800.0	2,634.6	2,774.7	2,567.1	17.1	18.5	85.10	640.9	-694.8	371.4	337.6	33.78	10.995			
2,900.0	2,726.7	2,873.4	2,655.5	17.8	19.3	84.81	669.7	-727.9	387.6	352.3	35.22	11.003			
3,000.0	2,818.7	2,972.1	2,743.8	18.5	20.1	84.55	698.5	-761.1	403.7	367.1	36.67	11.011			
3,100.0	2,910.8	3,070.7	2,832.2	19.3	20.9	84.30	727.2	-794.2	419.9	381.8	38.11	11.018			
3,200.0	3,002.9	3,169.4	2,920.6	20.0	21.8	84.07	756.0	-827.3	436.1	396.6	39.55	11.025			
3,300.0	3,095.0	3,268.1	3,009.0	20.8	22.6	83.86	784.7	-860.5	452.3	411.3	41.00	11.032			
3,400.0	3,187.1	3,366.7	3,097.3	21.5	23.4	83.67	813.5	-893.6	468.5	426.1	42.44	11.039			
3,500.0	3,279.2	3,465.4	3,185.7	22.3	24.2	83.48	842.3	-926.8	484.7	440.8	43.88	11.046			

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 31-13B
<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 31-13B	<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	-123.37	-8.4	-12.7	15.2						
100.0	100.0	100.0	100.0	0.1	0.1	-123.37	-8.4	-12.7	15.2	15.0	0.27	55.930			
200.0	200.0	200.0	200.0	0.3	0.3	-123.37	-8.4	-12.7	15.2	14.6	0.62	24.509			
300.0	300.0	300.0	300.0	0.5	0.5	-62.11	-8.4	-12.7	13.8	12.8	0.98	14.154			
386.2	386.0	385.9	385.9	0.7	0.6	-85.47	-8.2	-13.7	12.4	11.1	1.32	9.403 CC			
400.0	399.6	399.6	399.6	0.7	0.7	-89.66	-8.1	-14.1	12.5	11.1	1.38	9.055 ES			
500.0	498.8	499.4	499.2	1.0	0.9	-115.85	-6.9	-20.5	15.0	13.2	1.83	8.236			
600.0	597.1	599.5	598.6	1.4	1.1	-130.59	-4.8	-32.1	20.4	18.1	2.30	8.850			
700.0	694.3	700.0	697.6	1.8	1.4	-137.59	-1.7	-48.8	27.1	24.3	2.84	9.558			
800.0	790.2	800.8	795.8	2.4	1.9	-140.66	2.4	-70.7	34.6	31.2	3.46	9.999			
900.0	884.4	901.8	893.1	3.0	2.4	-141.70	7.4	-97.7	42.7	38.5	4.22	10.133			
1,000.0	976.9	1,003.1	989.0	3.7	3.0	-141.46	13.4	-129.8	51.1	46.0	5.13	9.963			
1,100.0	1,069.0	1,104.2	1,082.9	4.5	3.7	-138.30	20.2	-166.6	57.0	50.7	6.34	8.999			
1,200.0	1,161.1	1,204.0	1,175.1	5.2	4.4	-134.88	27.2	-204.0	62.4	54.7	7.67	8.128			
1,300.0	1,253.2	1,303.8	1,267.4	5.9	5.1	-132.00	34.1	-241.4	67.9	58.8	9.06	7.494			
1,400.0	1,345.3	1,403.6	1,359.7	6.7	5.8	-129.57	41.0	-278.8	73.5	63.1	10.48	7.021			
1,500.0	1,437.4	1,503.4	1,451.9	7.4	6.5	-127.48	48.0	-316.1	79.3	67.4	11.91	6.659			
1,600.0	1,529.5	1,603.2	1,544.2	8.1	7.2	-125.68	54.9	-353.5	85.2	71.8	13.36	6.376			
1,700.0	1,621.6	1,703.0	1,636.4	8.9	8.0	-124.11	61.9	-390.9	91.1	76.3	14.82	6.149			
1,800.0	1,713.7	1,802.8	1,728.7	9.6	8.7	-122.74	68.8	-428.3	97.1	80.9	16.28	5.965			
1,900.0	1,805.8	1,902.5	1,821.0	10.4	9.4	-121.53	75.8	-465.7	103.2	85.4	17.75	5.814			
2,000.0	1,897.8	2,002.3	1,913.2	11.1	10.1	-120.45	82.7	-503.1	109.3	90.1	19.22	5.687			
2,100.0	1,989.9	2,102.1	2,005.5	11.8	10.9	-119.48	89.7	-540.5	115.4	94.7	20.69	5.579			
2,200.0	2,082.0	2,201.9	2,097.8	12.6	11.6	-118.61	96.6	-577.9	121.6	99.4	22.16	5.487			
2,300.0	2,174.1	2,301.7	2,190.0	13.3	12.3	-117.83	103.6	-615.3	127.7	104.1	23.63	5.407			
2,400.0	2,266.2	2,401.5	2,282.3	14.1	13.0	-117.12	110.5	-652.7	133.9	108.9	25.09	5.338			
2,500.0	2,358.3	2,501.3	2,374.6	14.8	13.8	-116.47	117.4	-690.0	140.2	113.6	26.56	5.277			
2,600.0	2,450.4	2,601.1	2,466.8	15.6	14.5	-115.88	124.4	-727.4	146.4	118.4	28.03	5.223			
2,700.0	2,542.5	2,700.9	2,559.1	16.3	15.2	-115.33	131.3	-764.8	152.7	123.2	29.50	5.175			
2,800.0	2,634.6	2,800.7	2,651.4	17.1	16.0	-114.83	138.3	-802.2	158.9	128.0	30.97	5.132			
2,900.0	2,726.7	2,900.5	2,743.6	17.8	16.7	-114.37	145.2	-839.6	165.2	132.8	32.44	5.093			
3,000.0	2,818.7	3,000.3	2,835.9	18.5	17.4	-113.94	152.2	-877.0	171.5	137.6	33.90	5.058			
3,100.0	2,910.8	3,100.1	2,928.1	19.3	18.1	-113.54	159.1	-914.4	177.8	142.4	35.37	5.026			
3,200.0	3,002.9	3,199.9	3,020.4	20.0	18.9	-113.17	166.1	-951.8	184.1	147.2	36.83	4.998			
3,300.0	3,095.0	3,299.7	3,112.7	20.8	19.6	-112.82	173.0	-989.2	190.4	152.1	38.30	4.971			
3,400.0	3,187.1	3,399.5	3,204.9	21.5	20.3	-112.49	180.0	-1,026.6	196.7	156.9	39.76	4.947			
3,500.0	3,279.2	3,499.3	3,297.2	22.3	21.1	-112.19	186.9	-1,063.9	203.0	161.8	41.23	4.924			
3,600.0	3,371.3	3,599.1	3,389.5	23.0	21.8	-111.90	193.8	-1,101.3	209.4	166.7	42.69	4.904			
3,700.0	3,463.4	3,698.8	3,481.7	23.8	22.5	-111.63	200.8	-1,138.7	215.7	171.5	44.15	4.885			
3,800.0	3,555.5	3,798.6	3,574.0	24.5	23.2	-111.38	207.7	-1,176.1	222.0	176.4	45.62	4.867			
3,900.0	3,647.6	3,898.4	3,666.3	25.2	24.0	-111.14	214.7	-1,213.5	228.4	181.3	47.08	4.850			
4,000.0	3,739.7	3,998.2	3,758.5	26.0	24.7	-110.91	221.6	-1,250.9	234.7	186.2	48.54	4.835			
4,100.0	3,831.7	4,098.0	3,850.8	26.7	25.4	-110.70	228.6	-1,288.3	241.1	191.0	50.00	4.821			
4,200.0	3,923.8	4,197.8	3,943.1	27.5	26.2	-110.49	235.5	-1,325.7	247.4	195.9	51.47	4.807			
4,300.0	4,015.9	4,297.6	4,035.3	28.2	26.9	-110.30	242.5	-1,363.1	253.8	200.8	52.93	4.794			
4,400.0	4,108.0	4,397.4	4,127.6	29.0	27.6	-110.11	249.4	-1,400.4	260.1	205.7	54.39	4.783			
4,500.0	4,200.1	4,497.2	4,219.8	29.7	28.3	-109.94	256.4	-1,437.8	266.5	210.6	55.85	4.771			
4,600.0	4,292.2	4,597.0	4,312.1	30.5	29.1	-109.77	263.3	-1,475.2	272.8	215.5	57.31	4.761			
4,700.0	4,384.3	4,696.8	4,404.4	31.2	29.8	-109.61	270.2	-1,512.6	279.2	220.4	58.77	4.751			
4,800.0	4,476.4	4,796.6	4,496.6	31.9	30.5	-109.46	277.2	-1,550.0	285.6	225.3	60.23	4.741			
4,900.0	4,568.5	4,896.4	4,588.9	32.7	31.3	-109.31	284.1	-1,587.4	291.9	230.2	61.69	4.732			
5,000.0	4,660.6	4,996.2	4,681.2	33.4	32.0	-109.17	291.1	-1,624.8	298.3	235.2	63.15	4.724			

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 31-13B
<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 31-13B	<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													Warning		
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	4,752.6	5,096.0	4,773.4	34.2	32.7	-109.04	298.0	-1,662.2	304.7	240.1	64.61	4.716			
5,200.0	4,844.7	5,195.8	4,865.7	34.9	33.5	-108.91	305.0	-1,699.6	311.1	245.0	66.07	4.708			
5,300.0	4,936.8	5,295.6	4,958.0	35.7	34.2	-108.79	311.9	-1,737.0	317.4	249.9	67.53	4.701			
5,400.0	5,028.9	5,395.3	5,050.2	36.4	34.9	-108.67	318.9	-1,774.3	323.8	254.8	68.99	4.694			
5,500.0	5,121.0	5,495.1	5,142.5	37.2	35.6	-108.55	325.8	-1,811.7	330.2	259.7	70.45	4.687			
5,600.0	5,213.1	5,594.9	5,234.7	37.9	36.4	-108.44	332.8	-1,849.1	336.6	264.7	71.91	4.681			
5,700.0	5,305.2	5,694.7	5,327.0	38.7	37.1	-108.34	339.7	-1,886.5	342.9	269.6	73.36	4.674			
5,800.0	5,397.3	5,794.5	5,419.3	39.4	37.8	-108.24	346.6	-1,923.9	349.3	274.5	74.82	4.669			
5,900.0	5,489.4	5,894.3	5,511.5	40.1	38.6	-108.14	353.6	-1,961.3	355.7	279.4	76.28	4.663			
6,000.0	5,581.5	5,994.1	5,603.8	40.9	39.3	-108.04	360.5	-1,998.7	362.1	284.3	77.74	4.658			
6,100.0	5,673.6	6,093.7	5,695.9	41.6	40.0	-107.97	367.5	-2,036.0	368.4	289.2	79.19	4.652			
6,200.0	5,766.8	6,191.5	5,787.1	42.3	40.7	-107.90	373.9	-2,070.8	374.3	293.8	80.51	4.649			
6,300.0	5,861.1	6,289.4	5,879.4	42.9	41.2	-107.83	379.8	-2,102.5	379.6	297.9	81.70	4.646			
6,400.0	5,956.6	6,387.3	5,972.9	43.4	41.8	-107.76	385.1	-2,131.1	384.4	301.6	82.77	4.644			
6,500.0	6,053.0	6,485.2	6,067.3	43.9	42.2	-107.70	389.9	-2,156.6	388.6	304.9	83.72	4.642			
6,600.0	6,150.3	6,583.1	6,162.6	44.3	42.6	-107.63	394.0	-2,178.9	392.3	307.7	84.55	4.640			
6,700.0	6,248.4	6,681.1	6,258.7	44.6	43.0	-107.56	397.6	-2,198.0	395.4	310.2	85.26	4.638			
6,800.0	6,347.0	6,779.2	6,355.4	44.9	43.3	-107.49	400.5	-2,213.8	398.0	312.1	85.85	4.636			
6,900.0	6,446.2	6,877.2	6,452.6	45.2	43.5	-107.42	402.8	-2,226.4	400.0	313.7	86.33	4.633			
7,000.0	6,545.8	6,975.3	6,550.2	45.3	43.7	-107.35	404.6	-2,235.7	401.4	314.7	86.69	4.630			
7,100.0	6,645.6	7,073.4	6,648.1	45.4	43.8	-107.28	405.7	-2,241.7	402.3	315.3	86.94	4.627			
7,200.0	6,745.6	7,171.5	6,746.2	45.5	43.8	-107.20	406.2	-2,244.5	402.6	315.5	87.09	4.623			
7,300.0	6,845.6	7,270.9	6,845.6	45.5	43.9	-177.22	406.2	-2,244.6	402.6	315.4	87.19	4.617			
7,400.0	6,945.6	7,370.9	6,945.6	45.6	43.9	-177.22	406.2	-2,244.6	402.6	315.3	87.30	4.612			
7,500.0	7,045.6	7,470.9	7,045.6	45.6	44.0	-177.22	406.2	-2,244.6	402.6	315.2	87.40	4.606			
7,600.0	7,145.6	7,570.9	7,145.6	45.7	44.0	-177.22	406.2	-2,244.6	402.6	315.1	87.51	4.601			
7,700.0	7,245.6	7,670.9	7,245.6	45.7	44.1	-177.22	406.2	-2,244.6	402.6	315.0	87.61	4.595			
7,800.0	7,345.6	7,770.9	7,345.6	45.8	44.2	-177.22	406.2	-2,244.6	402.6	314.9	87.72	4.590			
7,900.0	7,445.6	7,870.9	7,445.6	45.8	44.2	-177.22	406.2	-2,244.6	402.6	314.8	87.83	4.584			
8,000.0	7,545.6	7,970.9	7,545.6	45.9	44.3	-177.22	406.2	-2,244.6	402.6	314.6	87.94	4.578			
8,100.0	7,645.6	8,070.9	7,645.6	46.0	44.3	-177.22	406.2	-2,244.6	402.6	314.5	88.05	4.572			
8,200.0	7,745.6	8,170.9	7,745.6	46.0	44.4	-177.22	406.2	-2,244.6	402.6	314.4	88.16	4.567			
8,300.0	7,845.6	8,270.9	7,845.6	46.1	44.4	-177.22	406.2	-2,244.6	402.6	314.3	88.27	4.561			
8,400.0	7,945.6	8,370.9	7,945.6	46.1	44.5	-177.22	406.2	-2,244.6	402.6	314.2	88.39	4.555			
8,500.0	8,045.6	8,470.9	8,045.6	46.2	44.5	-177.22	406.2	-2,244.6	402.6	314.1	88.50	4.549			
8,600.0	8,145.6	8,570.9	8,145.6	46.2	44.6	-177.22	406.2	-2,244.6	402.6	314.0	88.62	4.543			
8,700.0	8,245.6	8,670.9	8,245.6	46.3	44.7	-177.22	406.2	-2,244.6	402.6	313.8	88.74	4.537			
8,800.0	8,345.6	8,770.9	8,345.6	46.3	44.7	-177.22	406.2	-2,244.6	402.6	313.7	88.86	4.531			
8,900.0	8,445.6	8,870.9	8,445.6	46.4	44.8	-177.22	406.2	-2,244.6	402.6	313.6	88.98	4.524			
9,000.0	8,545.6	8,970.9	8,545.6	46.5	44.8	-177.22	406.2	-2,244.6	402.6	313.5	89.10	4.518			
9,100.0	8,645.6	9,070.9	8,645.6	46.5	44.9	-177.22	406.2	-2,244.6	402.6	313.4	89.22	4.512			
9,151.4	8,697.0	9,122.4	8,697.0	46.6	44.9	-177.22	406.2	-2,244.6	402.6	313.3	89.29	4.509 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 31-13B
<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 31-13B	<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	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 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	134.45	8.0	12.4	16.5	15.5	0.97	16.944 SF			
400.0	399.6	399.6	399.6	0.7	0.7	148.62	8.0	12.4	22.7	21.4	1.33	17.054			
500.0	498.8	498.8	498.8	1.0	0.8	159.83	8.0	12.4	34.5	32.9	1.68	20.570			
600.0	597.1	599.6	599.6	1.4	1.0	166.02	9.0	10.0	49.6	47.6	2.02	24.521			
700.0	694.3	698.0	697.8	1.8	1.2	169.53	10.9	5.1	67.3	65.0	2.36	28.562			
800.0	790.2	795.3	795.0	2.4	1.4	172.03	12.8	0.2	90.3	87.6	2.68	33.665			
900.0	884.4	891.2	890.7	3.0	1.6	173.77	14.7	-4.6	118.3	115.4	3.00	39.504			
1,000.0	976.9	985.6	985.0	3.7	1.7	175.02	16.5	-9.3	151.2	147.9	3.31	45.639			
1,100.0	1,069.0	1,079.7	1,078.9	4.5	1.9	175.89	18.4	-14.0	185.1	181.4	3.65	50.734			
1,200.0	1,161.1	1,173.7	1,172.8	5.2	2.1	176.49	20.2	-18.7	219.0	215.0	3.98	54.976			
1,300.0	1,253.2	1,267.8	1,266.8	5.9	2.3	176.93	22.1	-23.4	252.9	248.6	4.32	58.561			
1,400.0	1,345.3	1,361.8	1,360.7	6.7	2.5	177.27	23.9	-28.1	286.9	282.2	4.65	61.631			
1,500.0	1,437.4	1,455.9	1,454.6	7.4	2.7	177.53	25.7	-32.8	320.8	315.8	4.99	64.289			
1,600.0	1,529.5	1,549.9	1,548.5	8.1	2.8	177.75	27.6	-37.5	354.8	349.4	5.33	66.613			
1,700.0	1,621.6	1,644.0	1,642.4	8.9	3.0	177.92	29.4	-42.2	388.7	383.1	5.66	68.662			
1,800.0	1,713.7	1,738.0	1,736.3	9.6	3.2	178.07	31.3	-46.9	422.7	416.7	6.00	70.483			
1,900.0	1,805.8	1,832.1	1,830.3	10.4	3.4	178.20	33.1	-51.6	456.6	450.3	6.33	72.110			
2,000.0	1,897.8	1,926.1	1,924.2	11.1	3.6	178.31	35.0	-56.3	490.6	483.9	6.67	73.574			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-16.4	-25.2	30.0						
100.0	100.0	100.0	100.0	0.1	0.1	-123.09	-16.4	-25.2	30.0	29.7	0.27	110.259			
200.0	200.0	200.0	200.0	0.3	0.3	-123.09	-16.4	-25.2	30.0	29.4	0.62	48.316			
300.0	300.0	300.0	300.0	0.5	0.5	-57.30	-16.4	-25.2	28.5	27.5	0.98	29.221			
373.5	373.3	372.3	372.3	0.7	0.6	-66.19	-17.1	-26.3	27.4	26.1	1.26	21.745 CC, ES			
400.0	399.6	398.5	398.5	0.7	0.7	-70.49	-17.7	-27.3	27.5	26.2	1.37	20.155			
500.0	498.8	497.9	497.8	1.0	0.8	-91.97	-20.0	-31.0	29.5	27.6	1.84	16.048			
600.0	597.1	596.6	596.4	1.4	1.0	-116.20	-22.3	-34.8	36.9	34.5	2.32	15.871 SF			
700.0	694.3	694.4	694.1	1.8	1.2	-134.77	-24.6	-38.5	52.1	49.3	2.73	19.058			
800.0	790.2	791.0	790.5	2.4	1.4	-146.58	-26.9	-42.1	74.5	71.4	3.08	24.162			
900.0	884.4	886.0	885.5	3.0	1.6	-153.96	-29.1	-45.7	103.2	99.8	3.41	30.236			
1,000.0	976.9	979.5	978.9	3.7	1.8	-158.89	-31.3	-49.3	137.2	133.5	3.73	36.755			
1,100.0	1,069.0	1,072.6	1,071.9	4.5	1.9	-162.14	-33.5	-52.8	172.9	168.8	4.07	42.501			
1,200.0	1,161.1	1,165.7	1,164.9	5.2	2.1	-164.29	-35.7	-56.3	208.8	204.4	4.41	47.375			
1,300.0	1,253.2	1,258.7	1,257.8	5.9	2.3	-165.81	-37.8	-59.8	245.0	240.2	4.75	51.543			
1,400.0	1,345.3	1,351.8	1,350.8	6.7	2.5	-166.93	-40.0	-63.3	281.2	276.1	5.10	55.140			
1,500.0	1,437.4	1,444.9	1,443.8	7.4	2.6	-167.80	-42.2	-66.9	317.5	312.1	5.45	58.272			
1,600.0	1,529.5	1,537.9	1,536.8	8.1	2.8	-168.50	-44.4	-70.4	353.9	348.1	5.80	61.022			
1,700.0	1,621.6	1,631.0	1,629.8	8.9	3.0	-169.06	-46.6	-73.9	390.3	384.2	6.15	63.455			
1,800.0	1,713.7	1,724.1	1,722.7	9.6	3.2	-169.53	-48.7	-77.4	426.8	420.3	6.50	65.622			
1,900.0	1,805.8	1,817.2	1,815.7	10.4	3.3	-169.92	-50.9	-81.0	463.2	456.4	6.86	67.564			
2,000.0	1,897.8	1,910.2	1,908.7	11.1	3.5	-170.26	-53.1	-84.5	499.7	492.5	7.21	69.314			

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 31-13B
<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 31-13B	<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	62.41	38.2	73.2	82.6						
100.0	100.0	100.0	100.0	0.1	0.1	62.41	38.2	73.2	82.6	82.3	0.27	303.308			
200.0	200.0	200.0	200.0	0.3	0.3	62.41	38.2	73.2	82.6	82.0	0.62	132.910	CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	133.72	38.2	73.2	84.4	83.4	0.97	86.585			
400.0	399.6	399.6	399.6	0.7	0.7	137.21	38.2	73.2	90.0	88.6	1.34	67.011			
500.0	498.8	493.8	493.7	1.0	0.8	141.79	39.0	75.4	102.4	100.7	1.72	59.589			
600.0	597.1	585.4	585.1	1.4	1.0	146.24	41.2	81.7	124.5	122.4	2.10	59.277	SF		
700.0	694.3	673.4	672.4	1.8	1.2	149.76	44.7	91.6	156.0	153.5	2.48	62.832			
800.0	790.2	756.8	754.7	2.4	1.5	152.22	49.2	104.6	196.4	193.6	2.87	68.431			
900.0	884.4	835.0	831.3	3.0	1.8	153.80	54.4	119.8	245.1	241.8	3.27	74.979			
1,000.0	976.9	907.6	901.6	3.7	2.1	155.02	60.3	136.5	301.0	297.4	3.68	81.888			
1,100.0	1,069.0	977.7	968.9	4.5	2.5	156.18	66.7	155.1	360.8	356.7	4.09	88.198			
1,200.0	1,161.1	1,054.9	1,042.6	5.2	2.9	157.03	74.3	176.8	422.1	417.5	4.52	93.327			
1,300.0	1,253.2	1,133.8	1,117.9	5.9	3.3	157.68	82.0	199.0	483.4	478.4	4.96	97.450			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	56.97	40.8	62.7	74.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.97	40.8	62.7	74.8	74.6	0.27	274.848			
200.0	200.0	200.0	200.0	0.3	0.3	56.97	40.8	62.7	74.8	74.2	0.62	120.439	CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	128.53	40.8	62.7	76.4	75.5	0.98	78.376			
400.0	399.6	395.5	395.4	0.7	0.7	132.47	41.9	64.8	84.0	82.7	1.34	62.710			
500.0	498.8	489.2	488.9	1.0	0.9	137.28	45.3	71.0	100.7	99.0	1.72	58.425	SF		
600.0	597.1	580.0	579.0	1.4	1.1	141.51	50.5	80.7	126.6	124.5	2.12	59.666			
700.0	694.3	666.8	664.6	1.8	1.4	144.63	57.5	93.6	161.5	159.0	2.54	63.649			
800.0	790.2	749.0	744.9	2.4	1.7	146.72	65.8	108.9	204.8	201.8	2.97	68.855			
900.0	884.4	825.9	819.2	3.0	2.1	148.00	75.0	126.0	255.7	252.3	3.44	74.430			
1,000.0	976.9	900.0	890.2	3.7	2.5	149.09	85.3	144.9	313.5	309.6	3.92	79.970			
1,100.0	1,069.0	973.0	959.4	4.5	2.9	150.31	96.3	165.3	374.3	369.8	4.42	84.757			
1,200.0	1,161.1	1,052.1	1,034.4	5.2	3.3	151.26	108.3	187.4	435.2	430.3	4.93	88.346			
1,300.0	1,253.2	1,131.1	1,109.3	5.9	3.8	151.98	120.3	209.5	496.3	490.9	5.44	91.183			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	65.67	21.9	48.3	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	65.67	21.9	48.3	53.0	52.8	0.27	194.791			
200.0	200.0	200.0	200.0	0.3	0.3	65.67	21.9	48.3	53.0	52.4	0.62	85.358	CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	137.57	21.9	48.3	54.9	54.0	0.97	56.418			
400.0	399.6	397.5	397.5	0.7	0.7	142.81	21.7	49.7	62.3	60.9	1.33	46.694			
500.0	498.8	492.3	492.1	1.0	0.8	149.80	21.1	55.6	79.1	77.4	1.69	46.693	SF		
600.0	597.1	583.7	582.9	1.4	1.1	155.74	20.0	65.7	106.1	104.0	2.04	51.967			
700.0	694.3	670.6	668.7	1.8	1.3	159.94	18.6	79.3	142.9	140.5	2.37	60.247			
800.0	790.2	751.9	748.4	2.4	1.6	162.70	16.9	95.6	188.7	186.1	2.69	70.254			
900.0	884.4	827.1	821.3	3.0	2.0	164.48	15.1	113.6	242.9	239.9	2.99	81.237			
1,000.0	976.9	897.9	889.4	3.7	2.3	165.84	13.0	133.1	304.1	300.8	3.29	92.465			
1,100.0	1,069.0	975.2	963.4	4.5	2.7	167.19	10.7	155.3	367.3	363.7	3.60	101.919			
1,200.0	1,161.1	1,052.5	1,037.4	5.2	3.1	168.14	8.4	177.4	430.5	426.6	3.92	109.869			
1,300.0	1,253.2	1,129.8	1,111.4	5.9	3.5	168.85	6.1	199.6	493.8	489.6	4.23	116.635			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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)	Offset Wellbore Centre +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	63.55	30.2	60.8	67.9					
100.0	100.0	100.0	100.0	0.1	0.1	63.55	30.2	60.8	67.9	67.6	0.27	249.251		
200.0	200.0	200.0	200.0	0.3	0.3	63.55	30.2	60.8	67.9	67.2	0.62	109.223	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	135.10	30.2	60.8	69.7	68.7	0.97	71.539		
400.0	399.6	395.9	395.9	0.7	0.7	139.48	30.4	63.2	77.9	76.5	1.33	58.364		
500.0	498.8	489.7	489.4	1.0	0.9	145.17	31.1	70.1	95.5	93.8	1.70	56.142	SF	
600.0	597.1	580.1	579.1	1.4	1.1	150.20	32.1	81.2	123.0	121.0	2.06	59.602		
700.0	694.3	666.1	663.8	1.8	1.4	153.93	33.3	95.6	160.1	157.7	2.42	66.185		
800.0	790.2	746.6	742.6	2.4	1.7	156.47	34.8	112.5	206.0	203.2	2.77	74.435		
900.0	884.4	821.2	814.8	3.0	2.0	158.12	36.5	131.2	260.0	256.9	3.12	83.462		
1,000.0	976.9	900.2	890.7	3.7	2.4	159.68	38.4	152.6	319.8	316.4	3.47	92.148		
1,100.0	1,069.0	979.2	966.7	4.5	2.8	161.19	40.3	174.0	380.7	376.9	3.83	99.397		
1,200.0	1,161.1	1,058.1	1,042.8	5.2	3.2	162.29	42.2	195.4	441.7	437.5	4.19	105.411		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	56.81	49.2	75.2	89.8						
100.0	100.0	100.0	100.0	0.1	0.1	56.81	49.2	75.2	89.8	89.6	0.27	329.918			
200.0	200.0	200.0	200.0	0.3	0.3	56.81	49.2	75.2	89.8	89.2	0.62	144.571	CC, ES		
300.0	300.0	295.3	295.3	0.5	0.5	127.89	50.6	77.1	93.9	92.9	0.97	97.072			
400.0	399.6	389.5	389.2	0.7	0.7	130.51	54.7	82.8	106.3	105.0	1.33	79.768			
500.0	498.8	481.4	480.4	1.0	0.9	133.65	61.4	91.9	127.2	125.5	1.72	73.736			
600.0	597.1	570.2	567.9	1.4	1.3	136.47	70.3	104.1	156.6	154.4	2.15	72.886	SF		
700.0	694.3	654.9	650.6	1.8	1.6	138.67	81.0	118.7	194.2	191.6	2.61	74.521			
800.0	790.2	734.9	728.0	2.4	2.0	140.19	93.1	135.3	239.6	236.5	3.10	77.270			
900.0	884.4	809.8	799.5	3.0	2.4	141.12	106.1	153.1	292.1	288.5	3.63	80.418			
1,000.0	976.9	884.6	870.1	3.7	2.9	142.16	120.6	172.9	350.7	346.5	4.20	83.498			
1,100.0	1,069.0	964.2	945.2	4.5	3.3	143.72	136.2	194.3	410.7	405.9	4.79	85.818			
1,200.0	1,161.1	1,043.8	1,020.3	5.2	3.8	144.88	151.8	215.7	470.8	465.4	5.38	87.576			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	68.76	13.8	35.6	38.2						
100.0	100.0	100.0	100.0	0.1	0.1	68.76	13.8	35.6	38.2	37.9	0.27	140.305			
200.0	200.0	200.0	200.0	0.3	0.3	68.76	13.8	35.6	38.2	37.6	0.62	61.482 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	141.22	13.8	35.6	40.2	39.2	0.97	41.314			
400.0	399.6	398.6	398.6	0.7	0.7	147.45	13.7	36.2	47.1	45.8	1.33	35.425 SF			
500.0	498.8	494.4	494.3	1.0	0.8	155.58	12.3	40.9	63.3	61.6	1.68	37.609			
600.0	597.1	586.9	586.3	1.4	1.1	162.07	9.8	49.7	89.7	87.7	2.02	44.485			
700.0	694.3	674.8	673.2	1.8	1.3	166.34	6.3	62.1	126.1	123.7	2.33	54.065			
800.0	790.2	757.1	754.0	2.4	1.6	169.05	2.0	77.2	171.6	169.0	2.63	65.279			
900.0	884.4	833.3	828.1	3.0	1.9	170.77	-2.8	94.1	225.4	222.5	2.91	77.547			
1,000.0	976.9	902.9	895.2	3.7	2.3	171.99	-7.9	112.1	286.5	283.3	3.18	90.177			
1,100.0	1,069.0	973.6	962.6	4.5	2.6	173.04	-13.6	132.4	350.9	347.5	3.46	101.328			
1,200.0	1,161.1	1,049.5	1,035.0	5.2	3.0	173.82	-19.9	154.5	415.9	412.1	3.76	110.700			
1,300.0	1,253.2	1,125.5	1,107.4	5.9	3.5	174.40	-26.2	176.7	480.8	476.8	4.05	118.735			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	76.73	5.5	23.2	23.8						
100.0	100.0	100.0	100.0	0.1	0.1	76.73	5.5	23.2	23.8	23.5	0.27	87.444			
200.0	200.0	200.0	200.0	0.3	0.3	76.73	5.5	23.2	23.8	23.2	0.62	38.318	CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	149.89	5.5	23.2	26.0	25.1	0.97	26.790			
400.0	399.6	398.5	398.4	0.7	0.7	157.61	4.9	24.5	34.4	33.0	1.32	25.984	SF		
500.0	498.8	494.5	494.3	1.0	0.8	165.71	2.5	30.1	52.7	51.0	1.66	31.692			
600.0	597.1	587.0	586.2	1.4	1.1	170.92	-1.6	39.7	81.2	79.2	1.99	40.881			
700.0	694.3	674.8	672.8	1.8	1.4	173.98	-7.1	52.6	119.4	117.1	2.29	52.031			
800.0	790.2	756.8	753.1	2.4	1.7	175.82	-13.6	67.9	166.4	163.9	2.58	64.409			
900.0	884.4	832.5	826.5	3.0	2.0	176.98	-20.8	84.8	221.6	218.7	2.85	77.655			
1,000.0	976.9	900.0	891.4	3.7	2.4	177.77	-28.2	102.2	283.9	280.7	3.11	91.177			
1,100.0	1,069.0	967.6	955.5	4.5	2.7	178.40	-36.5	121.7	349.6	346.2	3.39	103.004			
1,200.0	1,161.1	1,042.0	1,025.9	5.2	3.2	178.90	-46.0	144.0	416.4	412.7	3.69	112.987			
1,300.0	1,253.2	1,116.4	1,096.2	5.9	3.6	179.26	-55.5	166.2	483.2	479.2	3.97	121.557			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	103.70	-2.5	10.5	10.8						
100.0	100.0	100.0	100.0	0.1	0.1	103.70	-2.5	10.5	10.8	10.5	0.27	39.529			
200.0	200.0	200.0	200.0	0.3	0.3	103.70	-2.5	10.5	10.8	10.1	0.62	17.322 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	174.96	-2.5	10.5	13.4	12.4	0.97	13.786 SF			
400.0	399.6	398.5	398.5	0.7	0.7	178.82	-4.0	12.5	23.6	22.3	1.31	17.996			
500.0	498.8	494.8	494.4	1.0	0.9	-177.95	-8.3	18.5	44.0	42.4	1.65	26.653			
600.0	597.1	587.3	586.2	1.4	1.1	-176.13	-15.2	28.0	74.1	72.2	1.98	37.463			
700.0	694.3	675.0	672.6	1.8	1.4	-175.05	-24.0	40.2	113.5	111.2	2.30	49.461			
800.0	790.2	756.9	752.5	2.4	1.7	-174.33	-34.3	54.6	161.5	159.0	2.60	62.185			
900.0	884.4	832.4	825.5	3.0	2.1	-173.79	-45.6	70.3	217.5	214.6	2.88	75.392			
1,000.0	976.9	900.0	890.2	3.7	2.5	-173.43	-57.2	86.3	280.3	277.2	3.17	88.562			
1,100.0	1,069.0	965.8	952.4	4.5	2.9	-173.24	-69.7	103.7	346.6	343.2	3.47	99.827			
1,200.0	1,161.1	1,027.4	1,009.9	5.2	3.3	-173.05	-82.5	121.5	415.3	411.6	3.77	110.175			
1,300.0	1,253.2	1,099.1	1,076.6	5.9	3.8	-172.86	-98.0	143.0	485.0	480.9	4.09	118.678			

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-13B
<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 31-13B	<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	-169.74	-10.9	-2.0	11.1						
100.0	100.0	100.0	100.0	0.1	0.1	-169.74	-10.9	-2.0	11.1	10.8	0.27	40.801			
200.0	200.0	200.0	200.0	0.3	0.3	-169.74	-10.9	-2.0	11.1	10.5	0.62	17.879 CC			
216.8	216.8	216.8	216.8	0.3	0.3	-100.08	-10.9	-2.0	11.1	10.4	0.68	16.324 ES			
300.0	300.0	299.8	299.8	0.5	0.5	-112.81	-11.0	-1.9	11.9	11.0	0.98	12.225 SF			
400.0	399.6	398.5	398.4	0.7	0.7	-141.93	-13.6	1.0	20.3	19.0	1.34	15.205			
500.0	498.8	494.6	494.1	1.0	0.9	-156.64	-19.2	7.5	40.5	38.8	1.68	24.154			
600.0	597.1	586.9	585.5	1.4	1.1	-162.35	-27.7	17.1	71.2	69.2	2.01	35.404			
700.0	694.3	674.3	671.4	1.8	1.5	-164.84	-38.4	29.3	111.2	108.9	2.34	47.592			
800.0	790.2	755.9	750.8	2.4	1.8	-166.02	-50.7	43.3	159.9	157.2	2.66	60.187			
900.0	884.4	831.0	823.2	3.0	2.2	-166.57	-63.9	58.4	216.4	213.4	2.97	72.917			
1,000.0	976.9	900.0	888.9	3.7	2.6	-166.95	-77.8	74.2	279.7	276.4	3.28	85.317			
1,100.0	1,069.0	963.8	948.9	4.5	3.0	-167.37	-92.0	90.4	346.4	342.8	3.61	96.055			
1,200.0	1,161.1	1,024.2	1,005.1	5.2	3.4	-167.58	-106.6	107.1	415.5	411.6	3.93	105.765			
1,300.0	1,253.2	1,088.6	1,064.4	5.9	3.9	-167.69	-123.3	126.1	486.5	482.2	4.26	114.161			

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 31-13B
<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 31-13B	<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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-142.19	-18.9	-14.7	24.0						
100.0	100.0	100.0	100.0	0.1	0.1	-142.19	-18.9	-14.7	24.0	23.7	0.27	88.045			
200.0	200.0	200.0	200.0	0.3	0.3	-142.19	-18.9	-14.7	24.0	23.4	0.62	38.582			
300.0	300.0	299.8	299.8	0.5	0.5	-79.83	-19.4	-14.2	23.5	22.5	0.98	23.976			
307.1	307.1	306.9	306.9	0.5	0.5	-81.21	-19.5	-14.1	23.5	22.5	1.01	23.286 CC, ES			
400.0	399.6	398.4	398.2	0.7	0.7	-107.80	-23.0	-10.7	26.7	25.3	1.38	19.378 SF			
500.0	498.8	494.3	493.6	1.0	0.9	-134.55	-30.1	-3.7	42.6	40.8	1.75	24.330			
600.0	597.1	586.3	584.6	1.4	1.2	-148.12	-40.0	6.0	71.7	69.6	2.09	34.334			
700.0	694.3	673.3	669.8	1.8	1.5	-154.55	-52.2	18.1	111.5	109.0	2.42	45.993			
800.0	790.2	754.4	748.6	2.4	1.9	-157.83	-66.1	31.8	160.2	157.4	2.76	58.079			
900.0	884.4	829.2	820.3	3.0	2.3	-159.59	-81.0	46.4	216.8	213.7	3.09	70.094			
1,000.0	976.9	900.0	887.5	3.7	2.7	-160.83	-97.0	62.2	280.4	276.9	3.43	81.644			
1,100.0	1,069.0	961.1	944.8	4.5	3.1	-161.85	-112.2	77.1	347.4	343.6	3.78	91.872			
1,200.0	1,161.1	1,021.3	1,000.5	5.2	3.5	-162.49	-128.4	93.1	416.7	412.6	4.13	100.977			
1,300.0	1,253.2	1,077.9	1,052.2	5.9	4.0	-162.90	-144.8	109.2	488.3	483.8	4.47	109.154			

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 31-13B
<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 31-13B	<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	-135.20	-27.3	-27.1	38.5						
100.0	100.0	100.0	100.0	0.1	0.1	-135.20	-27.3	-27.1	38.5	38.2	0.27	141.402			
200.0	200.0	200.0	200.0	0.3	0.3	-135.20	-27.3	-27.1	38.5	37.9	0.62	61.963			
300.0	300.0	299.6	299.6	0.5	0.5	-70.97	-28.5	-26.2	37.8	36.8	0.98	38.562			
330.2	330.1	329.5	329.4	0.6	0.5	-75.63	-29.6	-25.4	37.6	36.5	1.10	34.095 CC, ES			
400.0	399.6	397.9	397.7	0.7	0.7	-91.01	-33.5	-22.3	39.2	37.8	1.39	28.119			
500.0	498.8	493.5	492.6	1.0	0.9	-116.05	-42.2	-15.6	51.0	49.2	1.82	27.997 SF			
600.0	597.1	585.1	582.9	1.4	1.2	-133.33	-54.1	-6.4	77.1	74.9	2.20	35.065			
700.0	694.3	671.7	667.6	1.8	1.6	-142.84	-68.5	4.7	115.2	112.6	2.56	45.053			
800.0	790.2	752.5	745.8	2.4	2.0	-148.03	-84.6	17.1	163.0	160.1	2.92	55.784			
900.0	884.4	827.1	817.1	3.0	2.4	-150.94	-101.8	30.4	219.0	215.7	3.30	66.359			
1,000.0	976.9	900.0	886.0	3.7	2.8	-153.10	-120.7	45.1	282.1	278.4	3.69	76.484			
1,100.0	1,069.0	959.0	941.0	4.5	3.2	-154.68	-137.5	58.1	348.7	344.6	4.07	85.594			
1,200.0	1,161.1	1,019.1	996.5	5.2	3.7	-155.78	-156.1	72.4	417.8	413.4	4.46	93.631			
1,300.0	1,253.2	1,075.9	1,048.1	5.9	4.1	-156.50	-174.8	86.9	489.1	484.3	4.85	100.759			

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 31-13B
<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 31-13B	<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)	Offset Wellbore Centre +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	-131.76	-35.3	-39.6	53.0						
100.0	100.0	100.0	100.0	0.1	0.1	-131.76	-35.3	-39.6	53.0	52.8	0.27	194.815			
200.0	200.0	200.0	200.0	0.3	0.3	-131.76	-35.3	-39.6	53.0	52.4	0.62	85.369			
300.0	300.0	299.4	299.4	0.5	0.5	-67.06	-37.5	-38.1	52.4	51.4	0.98	53.185			
340.1	340.0	339.0	338.8	0.6	0.6	-72.22	-39.5	-36.7	52.1	51.0	1.15	45.161	CC, ES		
400.0	399.6	397.3	397.0	0.7	0.7	-82.83	-43.7	-33.8	53.1	51.7	1.41	37.646			
500.0	498.8	492.5	491.3	1.0	1.0	-104.27	-53.8	-26.9	62.4	60.6	1.88	33.234	SF		
600.0	597.1	583.6	581.0	1.4	1.3	-122.16	-67.0	-17.9	85.5	83.2	2.30	37.195			
700.0	694.3	669.6	664.9	1.8	1.7	-133.51	-82.7	-7.1	121.7	119.0	2.68	45.325			
800.0	790.2	749.9	742.4	2.4	2.1	-140.20	-100.2	4.9	168.3	165.3	3.07	54.801			
900.0	884.4	824.0	813.0	3.0	2.5	-144.14	-118.7	17.5	223.7	220.3	3.48	64.290			
1,000.0	976.9	891.7	876.7	3.7	2.9	-146.90	-137.5	30.5	286.3	282.4	3.90	73.498			
1,100.0	1,069.0	955.1	935.6	4.5	3.4	-149.26	-156.9	43.7	352.8	348.5	4.30	82.002			
1,200.0	1,161.1	1,015.0	990.4	5.2	3.8	-150.81	-176.6	57.2	421.8	417.1	4.71	89.527			
1,300.0	1,253.2	1,071.5	1,041.5	5.9	4.3	-151.86	-196.5	70.9	493.1	488.0	5.13	96.184			

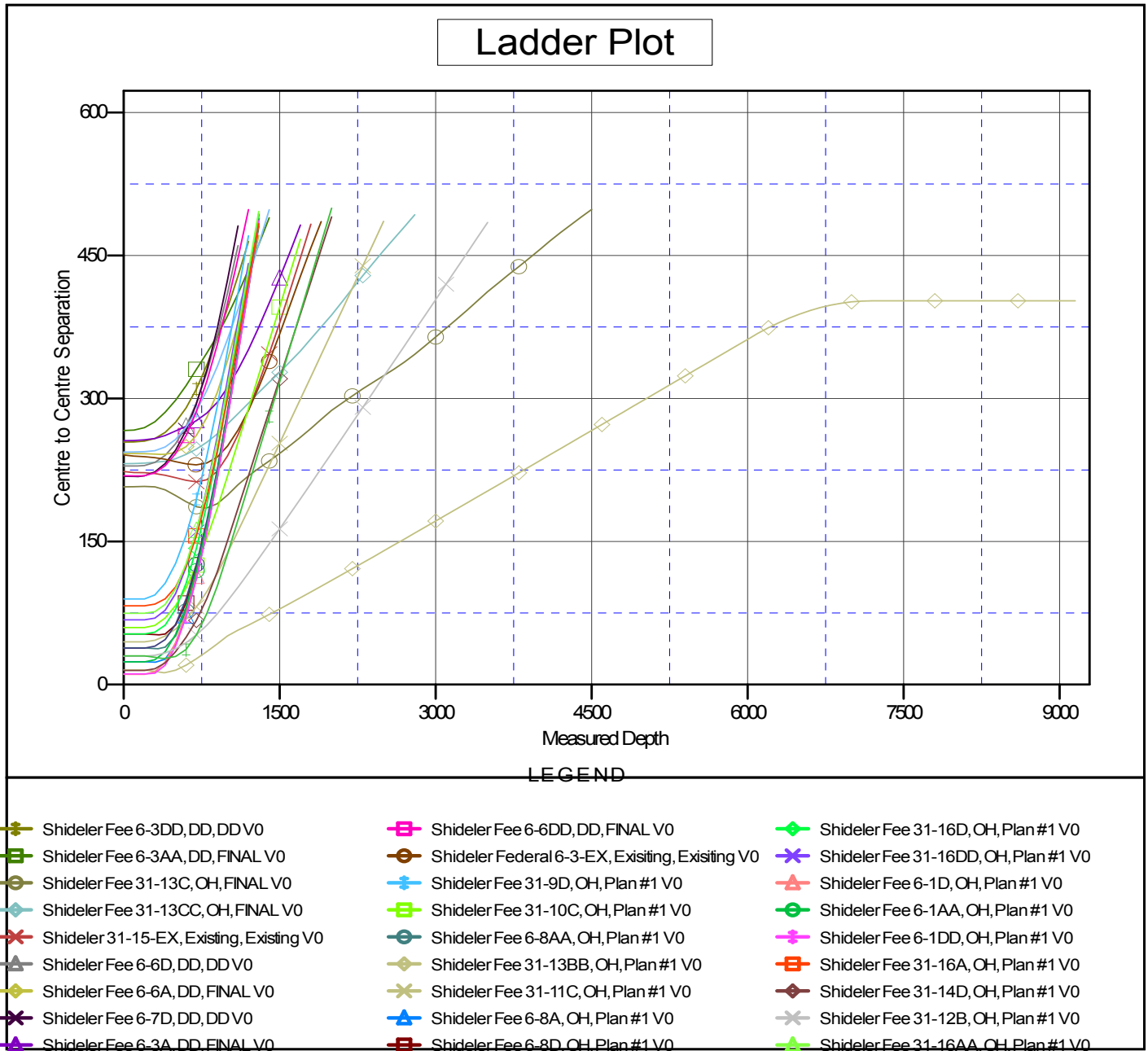
# Cathedral Energy Services

## Anticollision Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Shideler Fee 31-13B	
<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 31-13B	<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)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: Shideler Fee 31-13B  
 Coordinate System is US State Plane 1983, Colorado Central Zone  
 Grid Convergence at Surface is: -1.39°



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