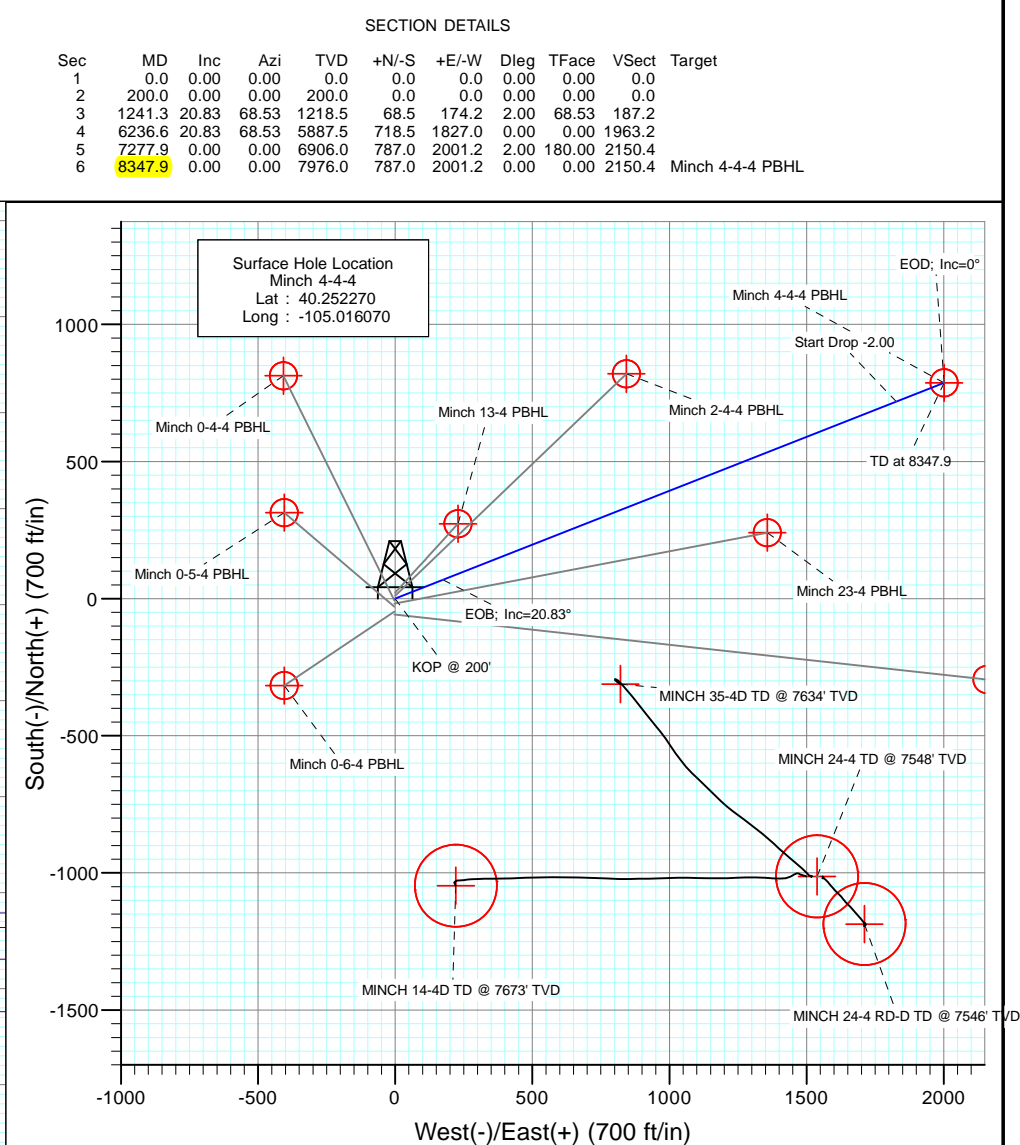
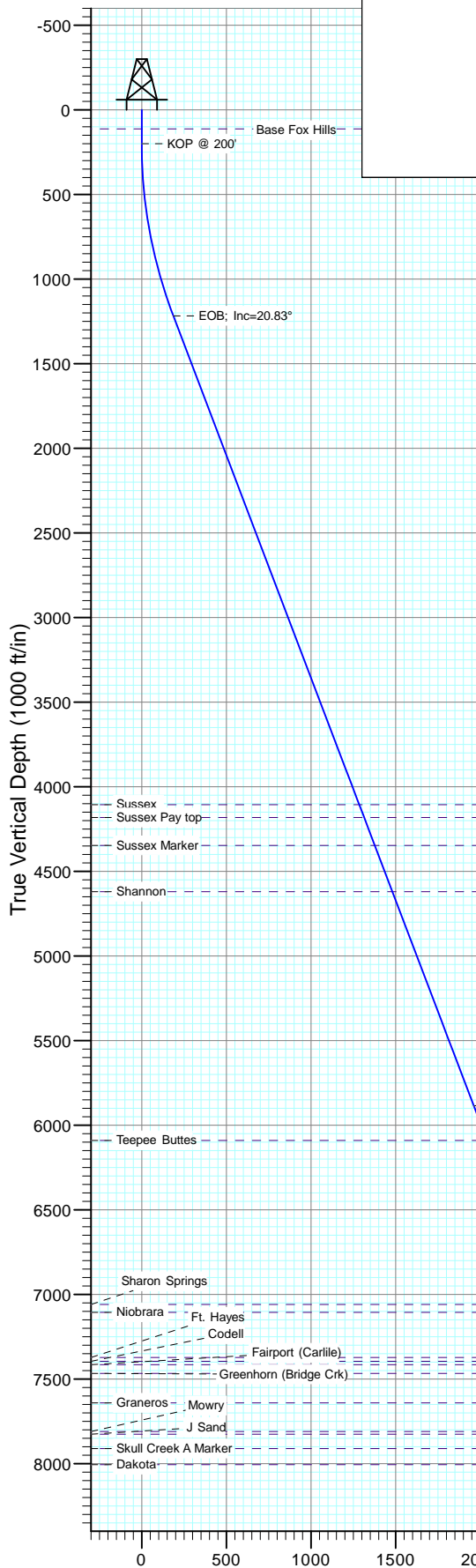




Project: DJ Wattenberg  
Site: S4-T3N-R68W (Minch)  
Well: Minch 4-4-4  
Wellbore: DD  
Design: Plan #1



DESIGN TARGET DETAILS				
Name	+N/-S	+E/-W	North	East
Minch 4-4-4 PBHL	787.0	2001.2	1335912.71	3137075.70
Latitude 40.254430				
Longitude -105.008900				
FORMATION TOP DETAILS				
TVDPath	MDPath	Formation		
113.0	113.0	Base Fox Hills		
4106.0	4330.6	Sussex		
4182.0	4411.9	Sussex Pay top		
4347.0	4588.5	Sussex Marker		
4620.0	4880.6	Shannon		
6090.0	6450.5	Teepee Buttes		
7059.0	7430.9	Sharon Springs		
7106.0	7477.9	Niobrara		
7373.0	7744.9	Ft. Hayes		
7395.0	7766.9	Codell		
7415.0	7786.9	Fairport (Carlile)		
7467.0	7838.9	Greenhorn (Bridge Crk)		
7641.0	8012.9	Graneros		
7810.0	8181.9	Mowry		
7826.0	8197.9	J Sand		
7911.0	8282.9	Skull Creek A Marker		

Plan #1  
Minch 4-4-4  
13xxx; LR  
WELL @ 5090.0ft (Original Well Elev)  
Ground Elevation @ 5077.0  
North American Datum 1983  
Well Minch 4-4-4, True North

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site:</b>	S4-T3N-R68W (Minch)	<b>North Reference:</b>	True
<b>Well:</b>	Minch 4-4-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

<b>Project</b>	DJ Wattenberg		
<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 Northern Zone		

Site	S4-T3N-R68W (Minch)				
Site Position:		Northing:	1,334,165.55 ft	Latitude:	40.249600
From:	Lat/Long	Easting:	3,139,290.53 ft	Longitude:	-105.001000
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.32 °

Well	Minch 4-4-4					
Well Position	+N/-S	0.0 ft	Northing:	1,335,114.85 ft	Latitude:	40.252270
	+E/-W	0.0 ft	Easting:	3,135,078.81 ft	Longitude:	-105.016070
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,077.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/17/2013	8.70	66.82	52,805

<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	68.53

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
1,241.3	20.83	68.53	1,218.5	68.5	174.2	2.00	2.00	0.00	68.53	
6,236.6	20.83	68.53	5,887.5	718.5	1,827.0	0.00	0.00	0.00	0.00	
7,277.9	0.00	0.00	6,906.0	787.0	2,001.2	2.00	-2.00	0.00	180.00	
8,347.9	0.00	0.00	7,976.0	787.0	2,001.2	0.00	0.00	0.00	0.00	Minch 4-4-4 PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site:</b>	S4-T3N-R68W (Minch)	<b>North Reference:</b>	True
<b>Well:</b>	Minch 4-4-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<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	
113.0	0.00	0.00	113.0	0.0	0.0	0.0	0.00	0.00	Base Fox Hills
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	2.00	68.53	300.0	0.6	1.6	1.7	2.00	2.00	
400.0	4.00	68.53	399.8	2.6	6.5	7.0	2.00	2.00	
500.0	6.00	68.53	499.5	5.7	14.6	15.7	2.00	2.00	
600.0	8.00	68.53	598.7	10.2	25.9	27.9	2.00	2.00	
700.0	10.00	68.53	697.5	15.9	40.5	43.5	2.00	2.00	
800.0	12.00	68.53	795.6	22.9	58.3	62.6	2.00	2.00	
900.0	14.00	68.53	893.1	31.1	79.2	85.1	2.00	2.00	
1,000.0	16.00	68.53	989.6	40.6	103.3	111.0	2.00	2.00	
1,100.0	18.00	68.53	1,085.3	51.3	130.5	140.2	2.00	2.00	
1,200.0	20.00	68.53	1,179.8	63.2	160.8	172.8	2.00	2.00	
1,241.3	20.83	68.53	1,218.5	68.5	174.2	187.2	2.00	2.00	EOB; Inc=20.83°
1,300.0	20.83	68.53	1,273.4	76.1	193.6	208.0	0.00	0.00	
1,400.0	20.83	68.53	1,366.9	89.1	226.7	243.6	0.00	0.00	
1,500.0	20.83	68.53	1,460.3	102.2	259.8	279.2	0.00	0.00	
1,600.0	20.83	68.53	1,553.8	115.2	292.9	314.7	0.00	0.00	
1,700.0	20.83	68.53	1,647.3	128.2	326.0	350.3	0.00	0.00	
1,800.0	20.83	68.53	1,740.7	141.2	359.0	385.8	0.00	0.00	
1,900.0	20.83	68.53	1,834.2	154.2	392.1	421.4	0.00	0.00	
2,000.0	20.83	68.53	1,927.6	167.2	425.2	456.9	0.00	0.00	
2,100.0	20.83	68.53	2,021.1	180.2	458.3	492.5	0.00	0.00	
2,200.0	20.83	68.53	2,114.6	193.2	491.4	528.0	0.00	0.00	
2,300.0	20.83	68.53	2,208.0	206.2	524.5	563.6	0.00	0.00	
2,400.0	20.83	68.53	2,301.5	219.3	557.6	599.1	0.00	0.00	
2,500.0	20.83	68.53	2,395.0	232.3	590.7	634.7	0.00	0.00	
2,600.0	20.83	68.53	2,488.4	245.3	623.7	670.2	0.00	0.00	
2,700.0	20.83	68.53	2,581.9	258.3	656.8	705.8	0.00	0.00	
2,800.0	20.83	68.53	2,675.4	271.3	689.9	741.4	0.00	0.00	
2,900.0	20.83	68.53	2,768.8	284.3	723.0	776.9	0.00	0.00	
3,000.0	20.83	68.53	2,862.3	297.3	756.1	812.5	0.00	0.00	
3,100.0	20.83	68.53	2,955.8	310.3	789.2	848.0	0.00	0.00	
3,200.0	20.83	68.53	3,049.2	323.4	822.3	883.6	0.00	0.00	
3,300.0	20.83	68.53	3,142.7	336.4	855.4	919.1	0.00	0.00	
3,400.0	20.83	68.53	3,236.2	349.4	888.4	954.7	0.00	0.00	
3,500.0	20.83	68.53	3,329.6	362.4	921.5	990.2	0.00	0.00	
3,600.0	20.83	68.53	3,423.1	375.4	954.6	1,025.8	0.00	0.00	
3,700.0	20.83	68.53	3,516.6	388.4	987.7	1,061.3	0.00	0.00	
3,800.0	20.83	68.53	3,610.0	401.4	1,020.8	1,096.9	0.00	0.00	
3,900.0	20.83	68.53	3,703.5	414.4	1,053.9	1,132.4	0.00	0.00	
4,000.0	20.83	68.53	3,797.0	427.4	1,087.0	1,168.0	0.00	0.00	
4,100.0	20.83	68.53	3,890.4	440.5	1,120.1	1,203.6	0.00	0.00	
4,200.0	20.83	68.53	3,983.9	453.5	1,153.1	1,239.1	0.00	0.00	
4,300.0	20.83	68.53	4,077.4	466.5	1,186.2	1,274.7	0.00	0.00	
4,330.6	20.83	68.53	4,106.0	470.5	1,196.4	1,285.5	0.00	0.00	Sussex
4,400.0	20.83	68.53	4,170.8	479.5	1,219.3	1,310.2	0.00	0.00	
4,411.9	20.83	68.53	4,182.0	481.0	1,223.3	1,314.5	0.00	0.00	Sussex Pay top
4,500.0	20.83	68.53	4,264.3	492.5	1,252.4	1,345.8	0.00	0.00	
4,588.5	20.83	68.53	4,347.0	504.0	1,281.7	1,377.2	0.00	0.00	Sussex Marker
4,600.0	20.83	68.53	4,357.8	505.5	1,285.5	1,381.3	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 Minch 4-4-4
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site:</b>	S4-T3N-R68W (Minch)	<b>North Reference:</b>	True
<b>Well:</b>	Minch 4-4-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,700.0	20.83	68.53	4,451.2	518.5	1,318.6	1,416.9	0.00	0.00	
4,800.0	20.83	68.53	4,544.7	531.5	1,351.7	1,452.4	0.00	0.00	
4,880.6	20.83	68.53	4,620.0	542.0	1,378.3	1,481.1	0.00	0.00	Shannon
4,900.0	20.83	68.53	4,638.2	544.5	1,384.8	1,488.0	0.00	0.00	
5,000.0	20.83	68.53	4,731.6	557.6	1,417.8	1,523.5	0.00	0.00	
5,100.0	20.83	68.53	4,825.1	570.6	1,450.9	1,559.1	0.00	0.00	
5,200.0	20.83	68.53	4,918.6	583.6	1,484.0	1,594.6	0.00	0.00	
5,300.0	20.83	68.53	5,012.0	596.6	1,517.1	1,630.2	0.00	0.00	
5,400.0	20.83	68.53	5,105.5	609.6	1,550.2	1,665.8	0.00	0.00	
5,500.0	20.83	68.53	5,199.0	622.6	1,583.3	1,701.3	0.00	0.00	
5,600.0	20.83	68.53	5,292.4	635.6	1,616.4	1,736.9	0.00	0.00	
5,700.0	20.83	68.53	5,385.9	648.6	1,649.5	1,772.4	0.00	0.00	
5,800.0	20.83	68.53	5,479.4	661.6	1,682.5	1,808.0	0.00	0.00	
5,900.0	20.83	68.53	5,572.8	674.7	1,715.6	1,843.5	0.00	0.00	
6,000.0	20.83	68.53	5,666.3	687.7	1,748.7	1,879.1	0.00	0.00	
6,100.0	20.83	68.53	5,759.8	700.7	1,781.8	1,914.6	0.00	0.00	
6,200.0	20.83	68.53	5,853.2	713.7	1,814.9	1,950.2	0.00	0.00	
6,236.6	20.83	68.53	5,887.5	718.5	1,827.0	1,963.2	0.00	0.00	Start Drop -2.00
6,300.0	19.56	68.53	5,946.9	726.5	1,847.4	1,985.1	2.00	-2.00	
6,400.0	17.56	68.53	6,041.7	738.1	1,877.0	2,016.9	2.00	-2.00	
6,450.5	16.55	68.53	6,090.0	743.5	1,890.8	2,031.7	2.00	-2.00	Teepee Buttes
6,500.0	15.56	68.53	6,137.6	748.5	1,903.5	2,045.4	2.00	-2.00	
6,600.0	13.56	68.53	6,234.4	757.7	1,926.9	2,070.5	2.00	-2.00	
6,700.0	11.56	68.53	6,332.0	765.7	1,947.1	2,092.3	2.00	-2.00	
6,800.0	9.56	68.53	6,430.3	772.4	1,964.2	2,110.6	2.00	-2.00	
6,900.0	7.56	68.53	6,529.2	777.8	1,978.0	2,125.5	2.00	-2.00	
7,000.0	5.56	68.53	6,628.5	782.0	1,988.7	2,136.9	2.00	-2.00	
7,100.0	3.56	68.53	6,728.2	784.9	1,996.1	2,144.9	2.00	-2.00	
7,200.0	1.56	68.53	6,828.1	786.6	2,000.2	2,149.3	2.00	-2.00	
7,277.9	0.00	0.00	6,906.0	787.0	2,001.2	2,150.4	2.00	-2.00	EOD; Inc=0°
7,300.0	0.00	0.00	6,928.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,400.0	0.00	0.00	7,028.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,430.9	0.00	0.00	7,059.0	787.0	2,001.2	2,150.4	0.00	0.00	Sharon Springs
7,477.9	0.00	0.00	7,106.0	787.0	2,001.2	2,150.4	0.00	0.00	Niobrara
7,500.0	0.00	0.00	7,128.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,600.0	0.00	0.00	7,228.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,700.0	0.00	0.00	7,328.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,744.9	0.00	0.00	7,373.0	787.0	2,001.2	2,150.4	0.00	0.00	Ft. Hayes
7,766.9	0.00	0.00	7,395.0	787.0	2,001.2	2,150.4	0.00	0.00	Codell
7,786.9	0.00	0.00	7,415.0	787.0	2,001.2	2,150.4	0.00	0.00	Fairport (Carlile)
7,800.0	0.00	0.00	7,428.1	787.0	2,001.2	2,150.4	0.00	0.00	
7,838.9	0.00	0.00	7,467.0	787.0	2,001.2	2,150.4	0.00	0.00	Greenhorn (Bridge Crk)
7,900.0	0.00	0.00	7,528.1	787.0	2,001.2	2,150.4	0.00	0.00	
8,000.0	0.00	0.00	7,628.1	787.0	2,001.2	2,150.4	0.00	0.00	
8,012.9	0.00	0.00	7,641.0	787.0	2,001.2	2,150.4	0.00	0.00	Graneros
8,100.0	0.00	0.00	7,728.1	787.0	2,001.2	2,150.4	0.00	0.00	
8,181.9	0.00	0.00	7,810.0	787.0	2,001.2	2,150.4	0.00	0.00	Mowry
8,197.9	0.00	0.00	7,826.0	787.0	2,001.2	2,150.4	0.00	0.00	J Sand
8,200.0	0.00	0.00	7,828.1	787.0	2,001.2	2,150.4	0.00	0.00	
8,282.9	0.00	0.00	7,911.0	787.0	2,001.2	2,150.4	0.00	0.00	Skull Creek A Marker
8,300.0	0.00	0.00	7,928.1	787.0	2,001.2	2,150.4	0.00	0.00	
8,347.9	0.00	0.00	7,976.0	787.0	2,001.2	2,150.4	0.00	0.00	TD at 8347.9 - Minch 4-4-4 PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site:</b>	S4-T3N-R68W (Minch)	<b>North Reference:</b>	True
<b>Well:</b>	Minch 4-4-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<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									
Minch 4-4-4 PBHL	0.00	0.00	7,976.0	787.0	2,001.2	1,335,912.71	3,137,075.70	40.254430	-105.008900
- plan hits target center									
- Circle (radius 50.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
113.0	113.0	Base Fox Hills				
4,330.6	4,106.0	Sussex				
4,411.9	4,182.0	Sussex Pay top				
4,588.5	4,347.0	Sussex Marker				
4,880.6	4,620.0	Shannon				
6,450.5	6,090.0	Teepee Buttes				
7,430.9	7,059.0	Sharon Springs				
7,477.9	7,106.0	Niobrara				
7,744.9	7,373.0	Ft. Hayes				
7,766.9	7,395.0	Codell				
7,786.9	7,415.0	Fairport (Carlile)				
7,838.9	7,467.0	Greenhorn (Bridge Crk)				
8,012.9	7,641.0	Graneros				
8,181.9	7,810.0	Mowry				
8,197.9	7,826.0	J Sand				
8,282.9	7,911.0	Skull Creek A Marker				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
200.0	200.0	0.0	0.0	KOP @ 200'	
1,241.3	1,218.5	68.5	174.2	EOB; Inc=20.83°	
6,236.6	5,887.5	718.5	1,827.0	Start Drop -2.00	
7,277.9	6,906.0	787.0	2,001.2	EOD; Inc=0°	
8,347.9	7,976.0	787.0	2,001.2	TD at 8347.9	

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

**DJ Wattenberg**

**S4-T3N-R68W (Minch)**

**Minch 4-4-4**

**DD**

**Plan #1**

## **Anticollision Report**

**17 July, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

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

Survey Tool Program		Date	7/17/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,347.9	Plan #1 (DD)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S4-T3N-R68W (Minch)						
HOAGLAND 33-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 34-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 43-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 44-4 (EXISTING) - Existing - Existing						Out of range
HOAGLAND 45-4D (EXISTING) - Existing - Existing						Out of range
Minch 0-4-4 - DD - Plan #1	200.0	200.0	7.8	7.1	11.953	CC, ES
Minch 0-4-4 - DD - Plan #1	300.0	300.0	9.1	8.1	9.044	SF
Minch 0-5-4 - DD - Plan #1	200.0	200.0	29.3	28.6	44.851	CC, ES
Minch 0-5-4 - DD - Plan #1	500.0	499.5	39.0	37.3	22.516	SF
Minch 0-6-4 - DD - Plan #1	200.0	200.0	47.4	46.8	72.670	CC, ES
Minch 0-6-4 - DD - Plan #1	600.0	596.8	65.8	63.7	31.085	SF
Minch 13-4 - DD - Plan #1	414.2	414.0	20.3	18.9	14.214	CC, ES
Minch 13-4 - DD - Plan #1	500.0	499.5	21.8	20.0	12.324	SF
MINCH 14-4D (EXISTING) - Existing - Existing						Out of range
Minch 23-4 - DD - Plan #1	200.0	200.0	18.4	17.8	28.230	CC, ES
Minch 23-4 - DD - Plan #1	400.0	399.8	22.7	21.4	16.706	SF
Minch 2-4-4 - DD - Plan #1	351.4	351.3	10.2	9.0	8.510	CC, ES
Minch 2-4-4 - DD - Plan #1	400.0	399.8	10.6	9.2	7.719	SF
MINCH 24-4 (EXISTING) - EXISTING - EXISTING						Out of range
MINCH 24-4 RD-D (EXISTING) - Existing - Existing						Out of range
MINCH 35-4D (EXISTING) - Existing - Existing						Out of range
Minch 4-6-4 - DD - Plan #1	200.0	200.0	58.3	57.7	89.388	CC, ES
Minch 4-6-4 - DD - Plan #1	3,300.0	3,280.3	487.5	453.8	14.476	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 0-4-4 - DD - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-159.04	-7.3	-2.8	7.8					
100.0	100.0	100.0	100.0	0.2	0.2	-159.04	-7.3	-2.8	7.8	7.5	0.30	25.691		
200.0	200.0	200.0	200.0	0.3	0.3	-159.04	-7.3	-2.8	7.8	7.1	0.65	11.953	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	140.58	-7.3	-2.8	9.1	8.1	1.00	9.044	SF	
400.0	399.8	399.8	399.8	0.7	0.7	154.75	-7.3	-2.8	13.5	12.2	1.35	9.994		
500.0	499.5	499.5	499.5	0.9	0.8	164.55	-7.3	-2.8	21.7	20.0	1.70	12.783		
600.0	598.7	598.8	598.7	1.2	1.0	172.98	-5.8	-3.5	33.5	31.5	2.04	16.422		
700.0	697.5	697.3	697.1	1.5	1.2	-178.81	-1.2	-5.8	49.4	47.0	2.39	20.659		
800.0	795.6	794.6	794.1	1.9	1.4	-172.12	6.3	-9.5	69.8	67.0	2.76	25.242		
900.0	893.1	890.4	889.2	2.3	1.6	-166.89	16.5	-14.5	95.0	91.8	3.18	29.835		
1,000.0	989.6	985.0	982.8	2.8	1.9	-162.96	29.1	-20.8	124.8	121.1	3.64	34.259		
1,100.0	1,085.3	1,079.2	1,075.8	3.4	2.2	-160.71	41.9	-27.1	158.1	154.0	4.12	38.349		
1,200.0	1,179.8	1,172.2	1,167.8	4.0	2.4	-159.50	54.6	-33.4	194.7	190.1	4.62	42.161		
1,300.0	1,273.4	1,264.2	1,258.7	4.6	2.7	-159.01	67.2	-39.5	233.8	228.7	5.13	45.578		
1,400.0	1,366.9	1,356.2	1,349.6	5.3	3.0	-158.78	79.7	-45.7	273.1	267.5	5.66	48.288		
1,500.0	1,460.3	1,448.1	1,440.5	5.9	3.2	-158.60	92.2	-51.9	312.5	306.3	6.19	50.489		
1,600.0	1,553.8	1,540.0	1,531.3	6.6	3.5	-158.46	104.8	-58.1	351.9	345.1	6.73	52.306		
1,700.0	1,647.3	1,631.9	1,622.2	7.3	3.8	-158.35	117.3	-64.3	391.2	384.0	7.27	53.829		
1,800.0	1,740.7	1,723.9	1,713.0	7.9	4.1	-158.26	129.8	-70.5	430.6	422.8	7.81	55.121		
1,900.0	1,834.2	1,815.8	1,803.9	8.6	4.4	-158.18	142.4	-76.7	469.9	461.6	8.36	56.230		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 0-5-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-174.53	-29.1	-2.8	29.3					
100.0	100.0	100.0	100.0	0.2	0.2	-174.53	-29.1	-2.8	29.3	29.0	0.30	96.403		
200.0	200.0	200.0	200.0	0.3	0.3	-174.53	-29.1	-2.8	29.3	28.6	0.65	44.851	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	119.88	-29.1	-2.8	30.1	29.1	1.00	29.973		
400.0	399.8	399.8	399.8	0.7	0.7	127.73	-29.1	-2.8	33.0	31.7	1.37	24.192		
500.0	499.5	499.5	499.5	0.9	0.8	137.81	-29.1	-2.8	39.0	37.3	1.73	22.516	SF	
600.0	598.7	598.8	598.8	1.2	1.0	149.37	-28.0	-4.1	48.6	46.5	2.09	23.288		
700.0	697.5	696.9	696.7	1.5	1.2	161.14	-24.8	-7.9	63.3	60.8	2.43	26.071		
800.0	795.6	793.9	793.4	1.9	1.4	170.57	-19.8	-13.8	83.8	81.0	2.76	30.381		
900.0	893.1	890.1	889.3	2.3	1.6	176.51	-14.7	-19.8	109.1	106.0	3.09	35.284		
1,000.0	989.6	985.3	984.2	2.8	1.8	-179.78	-9.6	-25.7	138.5	135.1	3.43	40.364		
1,100.0	1,085.3	1,079.5	1,078.1	3.4	2.0	-177.40	-4.6	-31.6	171.6	167.8	3.77	45.480		
1,200.0	1,179.8	1,172.5	1,170.8	4.0	2.2	-175.82	0.4	-37.4	208.1	204.0	4.11	50.589		
1,300.0	1,273.4	1,264.4	1,262.3	4.6	2.4	-174.78	5.2	-43.2	247.4	242.9	4.47	55.330		
1,400.0	1,366.9	1,356.2	1,353.8	5.3	2.6	-174.05	10.1	-48.9	287.0	282.1	4.84	59.244		
1,500.0	1,460.3	1,447.9	1,445.3	5.9	2.8	-173.50	15.0	-54.6	326.6	321.4	5.22	62.569		
1,600.0	1,553.8	1,539.7	1,536.8	6.6	3.0	-173.07	19.9	-60.3	366.2	360.6	5.60	65.423		
1,700.0	1,647.3	1,631.5	1,628.2	7.3	3.2	-172.72	24.8	-66.1	405.9	399.9	5.98	67.896		
1,800.0	1,740.7	1,723.3	1,719.7	7.9	3.4	-172.43	29.6	-71.8	445.5	439.2	6.36	70.059		
1,900.0	1,834.2	1,815.1	1,811.2	8.6	3.6	-172.19	34.5	-77.5	485.2	478.5	6.74	71.964		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> S4-T3N-R68W (Minch) - Minch 0-6-4 - DD - Plan #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-Geolink MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-176.63	-47.4	-2.8	47.4				
100.0	100.0	100.0	100.0	0.2	0.2	-176.63	-47.4	-2.8	47.4	47.1	0.30	156.198	
200.0	200.0	200.0	200.0	0.3	0.3	-176.63	-47.4	-2.8	47.4	46.8	0.65	72.670 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	116.71	-47.4	-2.8	48.2	47.2	1.00	47.971	
400.0	399.8	399.8	399.8	0.7	0.7	121.94	-47.4	-2.8	50.8	49.4	1.37	37.115	
500.0	499.5	499.5	499.5	0.9	0.8	129.45	-47.4	-2.8	55.9	54.1	1.74	32.057	
600.0	598.7	596.8	596.8	1.2	1.0	138.27	-48.3	-4.1	65.8	63.7	2.12	31.085 SF	
700.0	697.5	692.4	692.2	1.5	1.2	146.76	-50.9	-8.2	82.9	80.4	2.48	33.474	
800.0	795.6	787.9	787.5	1.9	1.4	153.48	-55.0	-14.2	106.7	103.9	2.82	37.853	
900.0	893.1	883.3	882.6	2.3	1.6	158.28	-59.2	-20.5	134.9	131.8	3.16	42.756	
1,000.0	989.6	977.6	976.6	2.8	1.8	161.75	-63.3	-26.6	166.9	163.4	3.48	47.912	
1,100.0	1,085.3	1,070.7	1,069.4	3.4	2.0	164.32	-67.4	-32.7	202.4	198.6	3.80	53.221	
1,200.0	1,179.8	1,162.4	1,160.8	4.0	2.2	166.28	-71.4	-38.7	241.4	237.3	4.12	58.636	
1,300.0	1,273.4	1,253.0	1,251.1	4.6	2.4	167.90	-75.4	-44.6	283.2	278.7	4.44	63.845	
1,400.0	1,366.9	1,343.4	1,341.3	5.3	2.6	169.18	-79.3	-50.5	325.4	320.6	4.76	68.331	
1,500.0	1,460.3	1,433.9	1,431.5	5.9	2.8	170.17	-83.3	-56.4	367.7	362.6	5.09	72.262	
1,600.0	1,553.8	1,524.3	1,521.6	6.6	2.9	170.95	-87.3	-62.3	410.1	404.7	5.41	75.732	
1,700.0	1,647.3	1,614.8	1,611.8	7.3	3.1	171.59	-91.2	-68.2	452.5	446.8	5.74	78.814	
1,800.0	1,740.7	1,705.2	1,702.0	7.9	3.3	172.12	-95.2	-74.1	495.0	488.9	6.07	81.570	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 13-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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	0.00	21.9	0.0	21.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	21.9	0.0	21.9	21.6	0.30	71.986		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	21.9	0.0	21.9	21.2	0.65	33.491		
300.0	300.0	300.0	300.0	0.5	0.5	-72.92	21.9	0.0	21.3	20.3	1.01	21.176		
400.0	399.8	399.8	399.8	0.7	0.7	-87.13	21.9	0.0	20.4	19.0	1.37	14.816		
414.2	414.0	414.0	414.0	0.7	0.7	-90.00	21.9	0.0	20.3	18.9	1.43	14.214 CC, ES		
500.0	499.5	499.5	499.5	0.9	0.8	-110.61	21.9	0.0	21.8	20.0	1.76	12.324 SF		
600.0	598.7	599.0	598.9	1.2	1.0	-130.78	23.1	1.2	28.0	25.8	2.14	13.038		
700.0	697.5	698.5	698.4	1.5	1.2	-141.61	26.7	4.4	37.7	35.1	2.52	14.935		
800.0	795.6	797.4	797.2	1.9	1.4	-149.34	30.7	8.1	50.8	47.9	2.89	17.596		
900.0	893.1	895.8	895.4	2.3	1.6	-155.09	34.7	11.7	67.7	64.4	3.24	20.867		
1,000.0	989.6	993.5	993.0	2.8	1.8	-159.31	38.6	15.3	88.1	84.5	3.59	24.564		
1,100.0	1,085.3	1,090.5	1,089.7	3.4	2.0	-162.43	42.5	18.8	112.1	108.2	3.92	28.569		
1,200.0	1,179.8	1,186.5	1,185.6	4.0	2.1	-164.80	46.4	22.3	139.6	135.3	4.25	32.806		
1,300.0	1,273.4	1,281.6	1,280.6	4.6	2.3	-166.66	50.2	25.8	169.9	165.3	4.59	37.016		
1,400.0	1,366.9	1,376.7	1,375.5	5.3	2.5	-168.03	54.1	29.3	200.6	195.7	4.94	40.653		
1,500.0	1,460.3	1,471.7	1,470.5	5.9	2.7	-169.03	57.9	32.8	231.5	226.2	5.28	43.816		
1,600.0	1,553.8	1,566.8	1,565.4	6.6	2.9	-169.80	61.7	36.3	262.3	256.7	5.63	46.590		
1,700.0	1,647.3	1,661.9	1,660.3	7.3	3.1	-170.41	65.6	39.8	293.2	287.2	5.98	49.041		
1,800.0	1,740.7	1,756.9	1,755.2	7.9	3.3	-170.90	69.4	43.3	324.1	317.8	6.33	51.223		
1,900.0	1,834.2	1,852.0	1,850.2	8.6	3.4	-171.30	73.3	46.8	355.1	348.4	6.68	53.176		
2,000.0	1,927.6	1,947.1	1,945.1	9.3	3.6	-171.64	77.1	50.3	386.0	379.0	7.03	54.935		
2,100.0	2,021.1	2,042.2	2,040.0	10.0	3.8	-171.93	80.9	53.8	417.0	409.6	7.38	56.528		
2,200.0	2,114.6	2,137.2	2,134.9	10.6	4.0	-172.18	84.8	57.3	447.9	440.2	7.73	57.976		
2,300.0	2,208.0	2,232.3	2,229.9	11.3	4.2	-172.40	88.6	60.8	478.9	470.8	8.08	59.299		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 23-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-171.29	-18.2	-2.8	18.4					
100.0	100.0	100.0	100.0	0.2	0.2	-171.29	-18.2	-2.8	18.4					
200.0	200.0	200.0	200.0	0.3	0.3	-171.29	-18.2	-2.8	18.4					
300.0	300.0	300.0	300.0	0.5	0.5	124.63	-18.2	-2.8	19.4					
400.0	399.8	399.8	399.8	0.7	0.7	135.49	-18.2	-2.8	22.7					
500.0	499.5	499.5	499.5	0.9	0.8	147.31	-18.2	-2.8	29.6					
600.0	598.7	599.8	599.8	1.2	1.0	155.24	-17.9	-1.1	39.0					
700.0	697.5	700.6	700.4	1.5	1.2	159.34	-16.9	4.1	49.1					
800.0	795.6	801.7	801.1	1.9	1.4	161.43	-15.2	12.8	59.6					
900.0	893.1	903.1	901.8	2.3	1.7	162.37	-12.9	25.0	70.4					
1,000.0	989.6	1,004.9	1,002.3	2.8	2.0	162.61	-9.9	40.8	81.3					
1,100.0	1,085.3	1,107.0	1,102.4	3.4	2.3	162.38	-6.2	60.1	92.5					
1,200.0	1,179.8	1,208.5	1,201.3	4.0	2.7	161.88	-1.9	82.7	103.9					
1,300.0	1,273.4	1,307.6	1,297.7	4.6	3.1	161.75	2.4	105.6	117.3					
1,400.0	1,366.9	1,406.7	1,393.9	5.3	3.5	161.70	6.8	128.5	131.0					
1,500.0	1,460.3	1,505.7	1,490.2	5.9	4.0	161.67	11.1	151.4	144.6					
1,600.0	1,553.8	1,604.8	1,586.5	6.6	4.4	161.64	15.5	174.4	158.3					
1,700.0	1,647.3	1,703.9	1,682.8	7.3	4.8	161.62	19.9	197.3	171.9					
1,800.0	1,740.7	1,802.9	1,779.1	7.9	5.3	161.60	24.2	220.2	185.6					
1,900.0	1,834.2	1,902.0	1,875.3	8.6	5.7	161.58	28.6	243.1	199.2					
2,000.0	1,927.6	2,001.1	1,971.6	9.3	6.2	161.57	32.9	266.0	212.9					
2,100.0	2,021.1	2,100.1	2,067.9	10.0	6.6	161.55	37.3	288.9	226.5					
2,200.0	2,114.6	2,199.2	2,164.2	10.6	7.0	161.54	41.7	311.8	240.2					
2,300.0	2,208.0	2,298.2	2,260.5	11.3	7.5	161.53	46.0	334.7	253.8					
2,400.0	2,301.5	2,397.3	2,356.7	12.0	7.9	161.52	50.4	357.6	267.5					
2,500.0	2,395.0	2,496.4	2,453.0	12.6	8.4	161.51	54.7	380.5	281.2					
2,600.0	2,488.4	2,595.4	2,549.3	13.3	8.8	161.51	59.1	403.4	294.8					
2,700.0	2,581.9	2,694.5	2,645.6	14.0	9.3	161.50	63.5	426.3	308.5					
2,800.0	2,675.4	2,793.6	2,741.9	14.7	9.7	161.49	67.8	449.2	322.1					
2,900.0	2,768.8	2,892.6	2,838.1	15.3	10.2	161.49	72.2	472.2	335.8					
3,000.0	2,862.3	2,991.7	2,934.4	16.0	10.6	161.48	76.5	495.1	349.4					
3,100.0	2,955.8	3,090.8	3,030.7	16.7	11.1	161.48	80.9	518.0	363.1					
3,200.0	3,049.2	3,189.8	3,127.0	17.4	11.5	161.47	85.3	540.9	376.7					
3,300.0	3,142.7	3,288.9	3,223.3	18.0	12.0	161.47	89.6	563.8	390.4					
3,400.0	3,236.2	3,387.9	3,319.5	18.7	12.4	161.46	94.0	586.7	404.0					
3,500.0	3,329.6	3,487.0	3,415.8	19.4	12.9	161.46	98.3	609.6	417.7					
3,600.0	3,423.1	3,586.1	3,512.1	20.1	13.3	161.45	102.7	632.5	431.3					
3,700.0	3,516.6	3,685.1	3,608.4	20.7	13.8	161.45	107.1	655.4	445.0					
3,800.0	3,610.0	3,784.2	3,704.7	21.4	14.2	161.45	111.4	678.3	458.6					
3,900.0	3,703.5	3,883.3	3,800.9	22.1	14.7	161.45	115.8	701.2	472.3					
4,000.0	3,797.0	3,982.3	3,897.2	22.8	15.1	161.44	120.1	724.1	485.9					
4,100.0	3,890.4	4,081.4	3,993.5	23.4	15.6	161.44	124.5	747.0	499.6					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 2-4-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	0.00	10.9	0.0	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	10.9	0.0	10.9	10.6	0.30	35.986		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	10.9	0.0	10.9	10.3	0.65	16.742		
300.0	300.0	300.0	300.0	0.5	0.5	-77.51	10.9	0.0	10.4	9.4	1.01	10.363		
351.4	351.3	351.3	351.3	0.6	0.6	-90.00	10.9	0.0	10.2	9.0	1.20	8.510 CC, ES		
400.0	399.8	399.8	399.8	0.7	0.7	-106.29	10.9	0.0	10.6	9.2	1.37	7.719 SF		
500.0	499.5	499.5	499.5	0.9	0.8	-138.83	10.9	0.0	15.5	13.8	1.73	8.959		
600.0	598.7	599.3	599.3	1.2	1.0	-153.96	12.1	1.2	24.8	22.7	2.08	11.940		
700.0	697.5	699.4	699.3	1.5	1.2	-158.74	15.7	5.0	35.5	33.1	2.44	14.595		
800.0	795.6	799.8	799.3	1.9	1.4	-159.82	21.8	11.3	47.1	44.3	2.82	16.720		
900.0	893.1	900.4	899.1	2.3	1.7	-159.32	30.3	20.2	59.4	56.1	3.24	18.343		
1,000.0	989.6	1,001.3	998.7	2.8	2.0	-158.03	41.2	31.6	72.3	68.6	3.71	19.491		
1,100.0	1,085.3	1,101.6	1,097.2	3.4	2.3	-156.45	54.4	45.3	86.1	81.9	4.25	20.280		
1,200.0	1,179.8	1,200.2	1,193.9	4.0	2.6	-155.78	67.8	59.3	102.6	97.8	4.80	21.378		
1,300.0	1,273.4	1,298.3	1,290.1	4.6	3.0	-155.90	81.2	73.2	121.7	116.3	5.35	22.732		
1,400.0	1,366.9	1,396.4	1,386.3	5.3	3.3	-156.09	94.5	87.1	141.0	135.1	5.92	23.834		
1,500.0	1,460.3	1,494.6	1,482.5	5.9	3.7	-156.23	107.9	101.0	160.4	153.9	6.49	24.722		
1,600.0	1,553.8	1,592.7	1,578.7	6.6	4.1	-156.34	121.2	115.0	179.7	172.7	7.06	25.451		
1,700.0	1,647.3	1,690.8	1,674.9	7.3	4.4	-156.43	134.6	128.9	199.1	191.5	7.64	26.059		
1,800.0	1,740.7	1,788.9	1,771.1	7.9	4.8	-156.51	148.0	142.8	218.4	210.2	8.22	26.573		
1,900.0	1,834.2	1,887.0	1,867.3	8.6	5.2	-156.57	161.3	156.8	237.8	229.0	8.80	27.012		
2,000.0	1,927.6	1,985.1	1,963.5	9.3	5.5	-156.62	174.7	170.7	257.2	247.8	9.39	27.392		
2,100.0	2,021.1	2,083.2	2,059.7	10.0	5.9	-156.67	188.1	184.6	276.5	266.5	9.97	27.723		
2,200.0	2,114.6	2,181.3	2,155.8	10.6	6.3	-156.71	201.4	198.5	295.9	285.3	10.56	28.015		
2,300.0	2,208.0	2,279.4	2,252.0	11.3	6.7	-156.74	214.8	212.5	315.2	304.1	11.15	28.273		
2,400.0	2,301.5	2,377.5	2,348.2	12.0	7.0	-156.77	228.1	226.4	334.6	322.8	11.74	28.503		
2,500.0	2,395.0	2,475.6	2,444.4	12.6	7.4	-156.80	241.5	240.3	353.9	341.6	12.33	28.710		
2,600.0	2,488.4	2,573.8	2,540.6	13.3	7.8	-156.82	254.9	254.2	373.3	360.4	12.92	28.896		
2,700.0	2,581.9	2,671.9	2,636.8	14.0	8.2	-156.84	268.2	268.2	392.6	379.1	13.51	29.065		
2,800.0	2,675.4	2,770.0	2,733.0	14.7	8.5	-156.86	281.6	282.1	412.0	397.9	14.10	29.218		
2,900.0	2,768.8	2,868.1	2,829.2	15.3	8.9	-156.88	295.0	296.0	431.4	416.7	14.69	29.359		
3,000.0	2,862.3	2,966.2	2,925.4	16.0	9.3	-156.90	308.3	310.0	450.7	435.4	15.28	29.488		
3,100.0	2,955.8	3,064.3	3,021.6	16.7	9.7	-156.91	321.7	323.9	470.1	454.2	15.88	29.606		
3,200.0	3,049.2	3,162.4	3,117.8	17.4	10.0	-156.93	335.0	337.8	489.4	473.0	16.47	29.716		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 4-6-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-177.26	-58.3	-2.8	58.3					
100.0	100.0	100.0	100.0	0.2	0.2	-177.26	-58.3	-2.8	58.3	58.0	0.30	192.134		
200.0	200.0	200.0	200.0	0.3	0.3	-177.26	-58.3	-2.8	58.3	57.7	0.65	89.388 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	115.74	-58.3	-2.8	59.1	58.1	1.00	58.808		
400.0	399.8	399.8	399.8	0.7	0.7	120.08	-58.3	-2.8	61.5	60.2	1.37	44.970		
500.0	499.5	499.5	499.5	0.9	0.8	126.52	-58.3	-2.8	66.3	64.6	1.75	37.980		
600.0	598.7	599.4	599.4	1.2	1.0	132.72	-58.5	-1.1	73.8	71.7	2.14	34.496		
700.0	697.5	699.6	699.4	1.5	1.2	137.08	-59.0	4.1	83.4	80.8	2.55	32.634		
800.0	795.6	800.0	799.4	1.9	1.4	139.89	-60.0	12.8	94.6	91.6	3.00	31.495		
900.0	893.1	900.5	899.2	2.3	1.7	141.51	-61.3	25.0	107.4	103.9	3.51	30.620		
1,000.0	989.6	1,001.2	998.6	2.8	2.0	142.23	-63.0	40.7	121.4	117.4	4.08	29.786		
1,100.0	1,085.3	1,102.0	1,097.5	3.4	2.3	142.32	-65.1	59.8	136.8	132.0	4.73	28.897		
1,200.0	1,179.8	1,202.8	1,195.7	4.0	2.7	141.94	-67.6	82.5	153.3	147.8	5.49	27.930		
1,300.0	1,273.4	1,303.7	1,293.2	4.6	3.2	141.24	-70.5	108.5	170.7	164.3	6.35	26.857		
1,400.0	1,366.9	1,404.8	1,389.8	5.3	3.7	139.80	-73.7	138.1	186.8	179.5	7.36	25.399		
1,500.0	1,460.3	1,506.0	1,485.5	5.9	4.3	137.64	-77.3	171.0	201.8	193.3	8.51	23.717		
1,600.0	1,553.8	1,607.1	1,579.7	6.6	5.0	134.90	-81.3	207.2	215.9	206.1	9.82	21.987		
1,700.0	1,647.3	1,705.8	1,671.0	7.3	5.7	132.04	-85.4	244.5	229.8	218.6	11.20	20.523		
1,800.0	1,740.7	1,804.2	1,762.0	7.9	6.4	129.51	-89.5	281.8	244.2	231.6	12.59	19.387		
1,900.0	1,834.2	1,902.6	1,853.0	8.6	7.1	127.26	-93.5	319.0	259.0	245.0	14.01	18.492		
2,000.0	1,927.6	2,001.0	1,944.0	9.3	7.8	125.25	-97.6	356.3	274.2	258.7	15.42	17.776		
2,100.0	2,021.1	2,099.4	2,035.0	10.0	8.5	123.46	-101.7	393.5	289.6	272.8	16.84	17.195		
2,200.0	2,114.6	2,197.8	2,126.0	10.6	9.2	121.85	-105.8	430.8	305.3	287.1	18.26	16.719		
2,300.0	2,208.0	2,296.2	2,217.0	11.3	9.9	120.40	-109.9	468.0	321.2	301.6	19.68	16.324		
2,400.0	2,301.5	2,394.6	2,308.0	12.0	10.6	119.08	-113.9	505.2	337.3	316.3	21.09	15.992		
2,500.0	2,395.0	2,493.1	2,399.0	12.6	11.3	117.88	-118.0	542.5	353.6	331.1	22.51	15.712		
2,600.0	2,488.4	2,591.5	2,490.0	13.3	12.0	116.79	-122.1	579.7	370.0	346.1	23.91	15.472		
2,700.0	2,581.9	2,689.9	2,581.0	14.0	12.7	115.79	-126.2	617.0	386.5	361.2	25.32	15.267		
2,800.0	2,675.4	2,788.3	2,672.0	14.7	13.4	114.87	-130.3	654.2	403.2	376.4	26.72	15.088		
2,900.0	2,768.8	2,886.7	2,763.0	15.3	14.1	114.03	-134.3	691.5	419.9	391.8	28.12	14.933		
3,000.0	2,862.3	2,985.1	2,854.0	16.0	14.9	113.25	-138.4	728.7	436.7	407.2	29.51	14.797		
3,100.0	2,955.8	3,083.5	2,945.0	16.7	15.6	112.53	-142.5	765.9	453.6	422.7	30.90	14.677		
3,200.0	3,049.2	3,181.9	3,036.0	17.4	16.3	111.86	-146.6	803.2	470.5	438.2	32.29	14.571		
3,300.0	3,142.7	3,280.3	3,127.0	18.0	17.0	111.23	-150.7	840.4	487.5	453.8	33.68	14.476 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 4-4-4
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Reference Site:</b>	S4-T3N-R68W (Minch)	<b>MD Reference:</b>	WELL @ 5090.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Minch 4-4-4	<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>	DD	<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 WELL @ 5090.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Minch 4-4-4

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.31°

