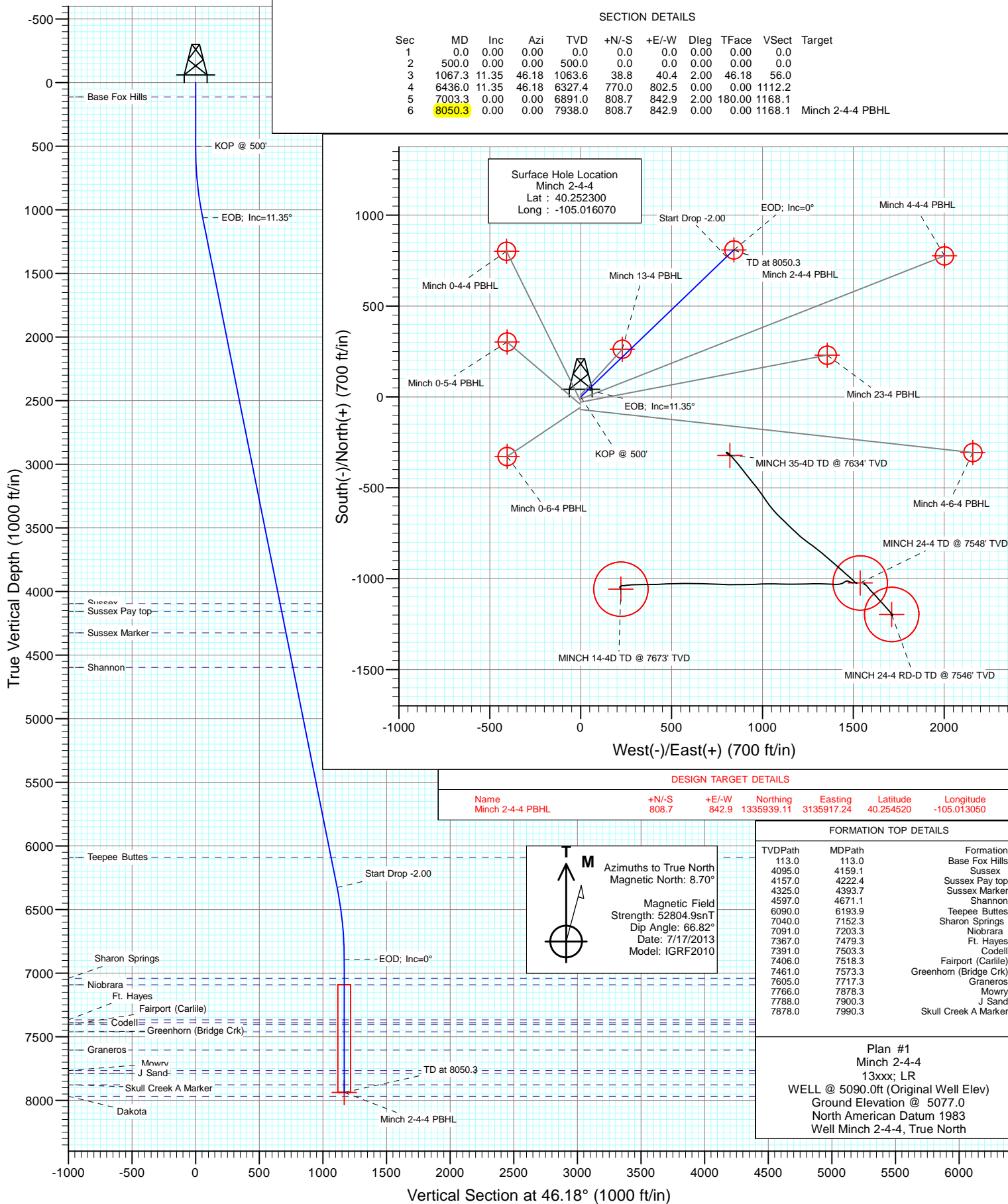




Project: DJ Wattenberg  
Site: S4-T3N-R68W (Minch)  
Well: Minch 2-4-4  
Wellbore: DD  
Design: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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 2-4-4					
Well Position	+N/-S	0.0 ft	Northing:	1,335,125.78 ft	Latitude:	40.252300
	+E/-W	0.0 ft	Easting:	3,135,078.75 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	46.18

<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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,067.3	11.35	46.18	1,063.6	38.8	40.4	2.00	2.00	0.00	46.18	
6,436.0	11.35	46.18	6,327.4	770.0	802.5	0.00	0.00	0.00	0.00	
7,003.3	0.00	0.00	6,891.0	808.7	842.9	2.00	-2.00	0.00	180.00	
8,050.3	0.00	0.00	7,938.0	808.7	842.9	0.00	0.00	0.00	0.00	Minch 2-4-4 PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
600.0	2.00	46.18	600.0	1.2	1.3	1.7	2.00	2.00	
700.0	4.00	46.18	699.8	4.8	5.0	7.0	2.00	2.00	
800.0	6.00	46.18	799.5	10.9	11.3	15.7	2.00	2.00	
900.0	8.00	46.18	898.7	19.3	20.1	27.9	2.00	2.00	
1,000.0	10.00	46.18	997.5	30.1	31.4	43.5	2.00	2.00	
1,067.3	11.35	46.18	1,063.6	38.8	40.4	56.0	2.00	2.00	EOB; Inc=11.35°
1,100.0	11.35	46.18	1,095.7	43.2	45.0	62.4	0.00	0.00	
1,200.0	11.35	46.18	1,193.7	56.8	59.2	82.1	0.00	0.00	
1,300.0	11.35	46.18	1,291.8	70.5	73.4	101.8	0.00	0.00	
1,400.0	11.35	46.18	1,389.8	84.1	87.6	121.4	0.00	0.00	
1,500.0	11.35	46.18	1,487.8	97.7	101.8	141.1	0.00	0.00	
1,600.0	11.35	46.18	1,585.9	111.3	116.0	160.8	0.00	0.00	
1,700.0	11.35	46.18	1,683.9	124.9	130.2	180.5	0.00	0.00	
1,800.0	11.35	46.18	1,782.0	138.6	144.4	200.1	0.00	0.00	
1,900.0	11.35	46.18	1,880.0	152.2	158.6	219.8	0.00	0.00	
2,000.0	11.35	46.18	1,978.1	165.8	172.8	239.5	0.00	0.00	
2,100.0	11.35	46.18	2,076.1	179.4	187.0	259.1	0.00	0.00	
2,200.0	11.35	46.18	2,174.2	193.0	201.2	278.8	0.00	0.00	
2,300.0	11.35	46.18	2,272.2	206.7	215.4	298.5	0.00	0.00	
2,400.0	11.35	46.18	2,370.3	220.3	229.6	318.2	0.00	0.00	
2,500.0	11.35	46.18	2,468.3	233.9	243.8	337.8	0.00	0.00	
2,600.0	11.35	46.18	2,566.3	247.5	258.0	357.5	0.00	0.00	
2,700.0	11.35	46.18	2,664.4	261.1	272.2	377.2	0.00	0.00	
2,800.0	11.35	46.18	2,762.4	274.8	286.4	396.9	0.00	0.00	
2,900.0	11.35	46.18	2,860.5	288.4	300.6	416.5	0.00	0.00	
3,000.0	11.35	46.18	2,958.5	302.0	314.8	436.2	0.00	0.00	
3,100.0	11.35	46.18	3,056.6	315.6	328.9	455.9	0.00	0.00	
3,200.0	11.35	46.18	3,154.6	329.2	343.1	475.5	0.00	0.00	
3,300.0	11.35	46.18	3,252.7	342.9	357.3	495.2	0.00	0.00	
3,400.0	11.35	46.18	3,350.7	356.5	371.5	514.9	0.00	0.00	
3,500.0	11.35	46.18	3,448.8	370.1	385.7	534.6	0.00	0.00	
3,600.0	11.35	46.18	3,546.8	383.7	399.9	554.2	0.00	0.00	
3,700.0	11.35	46.18	3,644.9	397.3	414.1	573.9	0.00	0.00	
3,800.0	11.35	46.18	3,742.9	411.0	428.3	593.6	0.00	0.00	
3,900.0	11.35	46.18	3,840.9	424.6	442.5	613.3	0.00	0.00	
4,000.0	11.35	46.18	3,939.0	438.2	456.7	632.9	0.00	0.00	
4,100.0	11.35	46.18	4,037.0	451.8	470.9	652.6	0.00	0.00	
4,159.1	11.35	46.18	4,095.0	459.9	479.3	664.2	0.00	0.00	Sussex
4,200.0	11.35	46.18	4,135.1	465.4	485.1	672.3	0.00	0.00	
4,222.4	11.35	46.18	4,157.0	468.5	488.3	676.7	0.00	0.00	Sussex Pay top
4,300.0	11.35	46.18	4,233.1	479.1	499.3	691.9	0.00	0.00	
4,393.7	11.35	46.18	4,325.0	491.8	512.6	710.4	0.00	0.00	Sussex Marker
4,400.0	11.35	46.18	4,331.2	492.7	513.5	711.6	0.00	0.00	
4,500.0	11.35	46.18	4,429.2	506.3	527.7	731.3	0.00	0.00	
4,600.0	11.35	46.18	4,527.3	519.9	541.9	751.0	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 Minch 2-4-4
<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 2-4-4	<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
4,671.1	11.35	46.18	4,597.0	529.6	552.0	765.0	0.00	0.00	Shannon
4,700.0	11.35	46.18	4,625.3	533.5	556.1	770.6	0.00	0.00	
4,800.0	11.35	46.18	4,723.4	547.2	570.3	790.3	0.00	0.00	
4,900.0	11.35	46.18	4,821.4	560.8	584.5	810.0	0.00	0.00	
5,000.0	11.35	46.18	4,919.4	574.4	598.7	829.7	0.00	0.00	
5,100.0	11.35	46.18	5,017.5	588.0	612.9	849.3	0.00	0.00	
5,200.0	11.35	46.18	5,115.5	601.6	627.1	869.0	0.00	0.00	
5,300.0	11.35	46.18	5,213.6	615.3	641.2	888.7	0.00	0.00	
5,400.0	11.35	46.18	5,311.6	628.9	655.4	908.3	0.00	0.00	
5,500.0	11.35	46.18	5,409.7	642.5	669.6	928.0	0.00	0.00	
5,600.0	11.35	46.18	5,507.7	656.1	683.8	947.7	0.00	0.00	
5,700.0	11.35	46.18	5,605.8	669.7	698.0	967.4	0.00	0.00	
5,800.0	11.35	46.18	5,703.8	683.4	712.2	987.0	0.00	0.00	
5,900.0	11.35	46.18	5,801.9	697.0	726.4	1,006.7	0.00	0.00	
6,000.0	11.35	46.18	5,899.9	710.6	740.6	1,026.4	0.00	0.00	
6,100.0	11.35	46.18	5,998.0	724.2	754.8	1,046.1	0.00	0.00	
6,193.9	11.35	46.18	6,090.0	737.0	768.1	1,064.5	0.00	0.00	Teepee Buttes
6,200.0	11.35	46.18	6,096.0	737.8	769.0	1,065.7	0.00	0.00	
6,300.0	11.35	46.18	6,194.0	751.5	783.2	1,085.4	0.00	0.00	
6,400.0	11.35	46.18	6,292.1	765.1	797.4	1,105.1	0.00	0.00	
6,436.0	11.35	46.18	6,327.4	770.0	802.5	1,112.2	0.00	0.00	Start Drop -2.00
6,500.0	10.07	46.18	6,390.3	778.2	811.1	1,124.0	2.00	-2.00	
6,600.0	8.07	46.18	6,489.0	789.1	822.5	1,139.8	2.00	-2.00	
6,700.0	6.07	46.18	6,588.3	797.6	831.3	1,152.1	2.00	-2.00	
6,800.0	4.07	46.18	6,687.9	803.8	837.7	1,160.9	2.00	-2.00	
6,900.0	2.07	46.18	6,787.7	807.5	841.6	1,166.3	2.00	-2.00	
7,000.0	0.07	46.18	6,887.7	808.7	842.9	1,168.1	2.00	-2.00	
7,003.3	0.00	0.00	6,891.0	808.7	842.9	1,168.1	2.00	-2.00	EOD; Inc=0°
7,100.0	0.00	0.00	6,987.7	808.7	842.9	1,168.1	0.00	0.00	
7,152.3	0.00	0.00	7,040.0	808.7	842.9	1,168.1	0.00	0.00	Sharon Springs
7,200.0	0.00	0.00	7,087.7	808.7	842.9	1,168.1	0.00	0.00	
7,203.3	0.00	0.00	7,091.0	808.7	842.9	1,168.1	0.00	0.00	Niobrara
7,300.0	0.00	0.00	7,187.7	808.7	842.9	1,168.1	0.00	0.00	
7,400.0	0.00	0.00	7,287.7	808.7	842.9	1,168.1	0.00	0.00	
7,479.3	0.00	0.00	7,367.0	808.7	842.9	1,168.1	0.00	0.00	Ft. Hayes
7,500.0	0.00	0.00	7,387.7	808.7	842.9	1,168.1	0.00	0.00	
7,503.3	0.00	0.00	7,391.0	808.7	842.9	1,168.1	0.00	0.00	Codell
7,518.3	0.00	0.00	7,406.0	808.7	842.9	1,168.1	0.00	0.00	Fairport (Carlile)
7,573.3	0.00	0.00	7,461.0	808.7	842.9	1,168.1	0.00	0.00	Greenhorn (Bridge Crk)
7,600.0	0.00	0.00	7,487.7	808.7	842.9	1,168.1	0.00	0.00	
7,700.0	0.00	0.00	7,587.7	808.7	842.9	1,168.1	0.00	0.00	
7,717.3	0.00	0.00	7,605.0	808.7	842.9	1,168.1	0.00	0.00	Graneros
7,800.0	0.00	0.00	7,687.7	808.7	842.9	1,168.1	0.00	0.00	
7,878.3	0.00	0.00	7,766.0	808.7	842.9	1,168.1	0.00	0.00	Mowry
7,900.0	0.00	0.00	7,787.7	808.7	842.9	1,168.1	0.00	0.00	
7,900.3	0.00	0.00	7,788.0	808.7	842.9	1,168.1	0.00	0.00	J Sand
7,990.3	0.00	0.00	7,878.0	808.7	842.9	1,168.1	0.00	0.00	Skull Creek A Marker
8,000.0	0.00	0.00	7,887.7	808.7	842.9	1,168.1	0.00	0.00	
8,050.3	0.00	0.00	7,938.0	808.7	842.9	1,168.1	0.00	0.00	TD at 8050.3 - Minch 2-4-4 PBHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Minch 2-4-4 PBHL	0.00	0.00	7,938.0	808.7	842.9	1,335,939.11	3,135,917.24	40.254520	-105.013050
- 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				
4,159.1	4,095.0	Sussex				
4,222.4	4,157.0	Sussex Pay top				
4,393.7	4,325.0	Sussex Marker				
4,671.1	4,597.0	Shannon				
6,193.9	6,090.0	Teepee Buttes				
7,152.3	7,040.0	Sharon Springs				
7,203.3	7,091.0	Niobrara				
7,479.3	7,367.0	Ft. Hayes				
7,503.3	7,391.0	Codell				
7,518.3	7,406.0	Fairport (Carlile)				
7,573.3	7,461.0	Greenhorn (Bridge Crk)				
7,717.3	7,605.0	Graneros				
7,878.3	7,766.0	Mowry				
7,900.3	7,788.0	J Sand				
7,990.3	7,878.0	Skull Creek A Marker				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500'
1,067.3	1,063.6	38.8	40.4	EOB; Inc=11.35°
6,436.0	6,327.4	770.0	802.5	Start Drop -2.00
7,003.3	6,891.0	808.7	842.9	EOD; Inc=0°
8,050.3	7,938.0	808.7	842.9	TD at 8050.3

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

**DJ Wattenberg**

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

**Minch 2-4-4**

**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 2-4-4
<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 2-4-4	<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>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>	7/17/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	8,050.3	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	547.3	547.6	18.4	16.6	9.872	CC
Minch 0-4-4 - DD - Plan #1	600.0	600.5	18.5	16.4	9.017	ES
Minch 0-4-4 - DD - Plan #1	700.0	700.7	20.0	17.6	8.313	SF
Minch 0-5-4 - DD - Plan #1	500.0	500.0	40.2	38.5	23.629	CC
Minch 0-5-4 - DD - Plan #1	600.0	600.8	40.5	38.4	19.737	ES
Minch 0-5-4 - DD - Plan #1	800.0	800.5	48.5	45.7	17.435	SF
Minch 0-6-4 - DD - Plan #1	500.0	500.0	58.3	56.6	34.324	CC, ES
Minch 0-6-4 - DD - Plan #1	700.0	696.7	68.3	65.9	28.441	SF
Minch 13-4 - DD - Plan #1	857.5	856.9	8.9	5.9	2.914	CC, ES, SF
MINCH 14-4D (EXISTING) - Existing - Existing						Out of range
Minch 23-4 - DD - Plan #1	500.0	500.0	29.3	27.6	17.222	CC, ES
Minch 23-4 - DD - Plan #1	800.0	800.6	37.1	34.3	13.159	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 4-4-4 - DD - Plan #1	351.4	351.5	10.2	9.0	8.561	CC, ES
Minch 4-4-4 - DD - Plan #1	400.0	400.0	10.6	9.2	7.815	SF
Minch 4-6-4 - DD - Plan #1	500.0	500.0	69.3	67.6	40.746	CC, ES
Minch 4-6-4 - DD - Plan #1	1,500.0	1,478.4	196.4	189.0	26.471	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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		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	18.1	60.677			
200.0	200.0	200.0	200.0	0.3	0.3	-171.29	-18.2	-2.8	18.4	17.8	0.65	28.230		
300.0	300.0	300.0	300.0	0.5	0.5	-171.29	-18.2	-2.8	18.4	17.4	1.00	18.394		
400.0	400.0	400.0	400.0	0.7	0.7	-171.29	-18.2	-2.8	18.4	17.1	1.35	13.641		
500.0	500.0	500.0	500.0	0.8	0.8	-171.29	-18.2	-2.8	18.4	16.7	1.70	10.840		
547.3	547.3	547.6	547.6	0.9	0.9	143.98	-17.9	-3.0	18.4	16.6	1.87	9.872 CC		
600.0	600.0	600.5	600.5	1.0	1.0	148.98	-16.6	-3.6	18.5	16.4	2.05	9.017 ES		
700.0	699.8	700.7	700.6	1.2	1.2	166.97	-11.9	-5.9	20.0	17.6	2.41	8.313 SF		
800.0	799.5	800.4	799.9	1.4	1.4	-171.53	-4.1	-9.8	25.9	23.1	2.79	9.277		
900.0	898.7	899.4	898.1	1.7	1.7	-155.60	6.7	-15.1	37.4	34.2	3.21	11.639		
1,000.0	997.5	997.7	995.3	2.0	1.9	-146.50	19.9	-21.6	54.0	50.4	3.68	14.674		
1,100.0	1,095.7	1,095.6	1,092.0	2.3	2.2	-143.07	33.2	-28.2	74.0	69.8	4.18	17.704		
1,200.0	1,193.7	1,193.4	1,188.7	2.6	2.5	-141.49	46.6	-34.8	94.7	90.0	4.70	20.145		
1,300.0	1,291.8	1,291.2	1,285.4	3.0	2.8	-140.48	59.9	-41.4	115.5	110.2	5.24	22.053		
1,400.0	1,389.8	1,389.0	1,382.1	3.3	3.1	-139.78	73.2	-47.9	136.2	130.4	5.78	23.573		
1,500.0	1,487.8	1,486.8	1,478.7	3.7	3.4	-139.26	86.6	-54.5	157.0	150.7	6.33	24.807		
1,600.0	1,585.9	1,584.6	1,575.4	4.1	3.7	-138.87	99.9	-61.1	177.8	170.9	6.89	25.825		
1,700.0	1,683.9	1,682.4	1,672.1	4.5	4.0	-138.55	113.2	-67.7	198.6	191.2	7.44	26.678		
1,800.0	1,782.0	1,780.2	1,768.7	4.8	4.3	-138.30	126.6	-74.3	219.4	211.4	8.01	27.400		
1,900.0	1,880.0	1,878.0	1,865.4	5.2	4.6	-138.09	139.9	-80.9	240.2	231.7	8.57	28.019		
2,000.0	1,978.1	1,975.8	1,962.1	5.6	4.9	-137.91	153.3	-87.5	261.0	251.9	9.14	28.556		
2,100.0	2,076.1	2,073.7	2,058.7	6.0	5.2	-137.76	166.6	-94.0	281.9	272.1	9.71	29.024		
2,200.0	2,174.2	2,171.5	2,155.4	6.4	5.5	-137.63	179.9	-100.6	302.7	292.4	10.28	29.437		
2,300.0	2,272.2	2,269.3	2,252.1	6.7	5.8	-137.52	193.3	-107.2	323.5	312.6	10.85	29.803		
2,400.0	2,370.3	2,367.1	2,348.8	7.1	6.1	-137.42	206.6	-113.8	344.3	332.9	11.43	30.130		
2,500.0	2,468.3	2,464.9	2,445.4	7.5	6.4	-137.33	219.9	-120.4	365.1	353.1	12.00	30.423		
2,600.0	2,566.3	2,562.7	2,542.1	7.9	6.7	-137.26	233.3	-127.0	386.0	373.4	12.58	30.688		
2,700.0	2,664.4	2,660.5	2,638.8	8.3	7.0	-137.19	246.6	-133.5	406.8	393.6	13.15	30.928		
2,800.0	2,762.4	2,758.3	2,735.4	8.7	7.3	-137.12	259.9	-140.1	427.6	413.9	13.73	31.147		
2,900.0	2,860.5	2,856.1	2,832.1	9.0	7.6	-137.06	273.3	-146.7	448.4	434.1	14.31	31.347		
3,000.0	2,958.5	2,953.9	2,928.8	9.4	8.0	-137.01	286.6	-153.3	469.2	454.4	14.88	31.530		
3,100.0	3,056.6	3,051.7	3,025.4	9.8	8.3	-136.96	299.9	-159.9	490.1	474.6	15.46	31.699		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-176.02	-40.1	-2.8	40.2					
100.0	100.0	100.0	100.0	0.2	0.2	-176.02	-40.1	-2.8	40.2	39.9	0.30	132.270		
200.0	200.0	200.0	200.0	0.3	0.3	-176.02	-40.1	-2.8	40.2	39.5	0.65	61.537		
300.0	300.0	300.0	300.0	0.5	0.5	-176.02	-40.1	-2.8	40.2	39.2	1.00	40.096		
400.0	400.0	400.0	400.0	0.7	0.7	-176.02	-40.1	-2.8	40.2	38.8	1.35	29.735		
500.0	500.0	500.0	500.0	0.8	0.8	-176.02	-40.1	-2.8	40.2	38.5	1.70	23.629 CC		
600.0	600.0	600.8	600.8	1.0	1.0	141.48	-38.9	-4.1	40.5	38.4	2.05	19.737 ES		
700.0	699.8	701.1	701.0	1.2	1.2	151.93	-35.5	-8.2	42.4	40.0	2.41	17.593		
800.0	799.5	800.5	800.1	1.4	1.4	165.55	-30.3	-14.2	48.5	45.7	2.78	17.435 SF		
900.0	898.7	899.4	898.5	1.7	1.6	176.15	-25.1	-20.4	60.1	56.9	3.15	19.088		
1,000.0	997.5	997.7	996.5	2.0	1.8	-176.93	-19.9	-26.5	76.5	73.0	3.51	21.773		
1,100.0	1,095.7	1,095.4	1,093.9	2.3	2.0	-172.72	-14.7	-32.6	96.9	93.0	3.89	24.916		
1,200.0	1,193.7	1,192.9	1,191.1	2.6	2.2	-170.06	-9.5	-38.7	118.3	114.0	4.28	27.659		
1,300.0	1,291.8	1,290.5	1,288.3	3.0	2.5	-168.21	-4.3	-44.8	139.9	135.2	4.67	29.944		
1,400.0	1,389.8	1,388.0	1,385.6	3.3	2.7	-166.86	0.9	-50.9	161.6	156.5	5.07	31.865		
1,500.0	1,487.8	1,485.6	1,482.8	3.7	2.9	-165.83	6.1	-56.9	183.4	177.9	5.47	33.495		
1,600.0	1,585.9	1,583.1	1,580.0	4.1	3.1	-165.02	11.3	-63.0	205.2	199.3	5.88	34.892		
1,700.0	1,683.9	1,680.7	1,677.2	4.5	3.3	-164.36	16.4	-69.1	227.0	220.8	6.29	36.100		
1,800.0	1,782.0	1,778.2	1,774.5	4.8	3.5	-163.82	21.6	-75.2	248.9	242.2	6.70	37.153		
1,900.0	1,880.0	1,875.8	1,871.7	5.2	3.7	-163.37	26.8	-81.3	270.8	263.7	7.11	38.078		
2,000.0	1,978.1	1,973.4	1,968.9	5.6	4.0	-162.98	32.0	-87.4	292.7	285.2	7.53	38.897		
2,100.0	2,076.1	2,070.9	2,066.1	6.0	4.2	-162.65	37.2	-93.5	314.6	306.7	7.94	39.626		
2,200.0	2,174.2	2,168.5	2,163.4	6.4	4.4	-162.36	42.4	-99.6	336.5	328.2	8.36	40.278		
2,300.0	2,272.2	2,266.0	2,260.6	6.7	4.6	-162.11	47.6	-105.6	358.5	349.7	8.77	40.866		
2,400.0	2,370.3	2,363.6	2,357.8	7.1	4.8	-161.88	52.7	-111.7	380.4	371.2	9.19	41.398		
2,500.0	2,468.3	2,461.1	2,455.1	7.5	5.1	-161.68	57.9	-117.8	402.4	392.7	9.61	41.882		
2,600.0	2,566.3	2,558.7	2,552.3	7.9	5.3	-161.50	63.1	-123.9	424.3	414.3	10.03	42.323		
2,700.0	2,664.4	2,656.2	2,649.5	8.3	5.5	-161.34	68.3	-130.0	446.2	435.8	10.44	42.727		
2,800.0	2,762.4	2,753.8	2,746.7	8.7	5.7	-161.20	73.5	-136.1	468.2	457.3	10.86	43.099		
2,900.0	2,860.5	2,851.3	2,844.0	9.0	5.9	-161.06	78.7	-142.2	490.1	478.9	11.28	43.442		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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 0-6-4 - 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					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-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		
300.0	300.0	300.0	300.0	0.5	0.5	-177.26	-58.3	-2.8	58.3	57.3	1.00	58.243		
400.0	400.0	400.0	400.0	0.7	0.7	-177.26	-58.3	-2.8	58.3	57.0	1.35	43.193		
500.0	500.0	500.0	500.0	0.8	0.8	-177.26	-58.3	-2.8	58.3	56.6	1.70	34.324 CC, ES		
600.0	600.0	598.7	598.7	1.0	1.0	138.93	-59.2	-4.2	60.7	58.6	2.05	29.636		
700.0	699.8	696.7	696.5	1.2	1.2	144.99	-62.0	-8.4	68.3	65.9	2.40	28.441 SF		
800.0	799.5	794.8	794.4	1.4	1.4	152.15	-66.3	-14.7	81.5	78.8	2.75	29.605		
900.0	898.7	892.8	892.1	1.7	1.6	158.05	-70.5	-21.1	99.1	96.0	3.10	31.935		
1,000.0	997.5	990.1	989.0	2.0	1.8	162.63	-74.8	-27.4	120.6	117.2	3.44	35.050		
1,100.0	1,095.7	1,086.5	1,085.1	2.3	2.0	166.15	-79.0	-33.7	145.8	142.0	3.77	38.623		
1,200.0	1,193.7	1,182.7	1,181.1	2.6	2.2	168.76	-83.2	-40.0	172.1	168.0	4.11	41.834		
1,300.0	1,291.8	1,278.9	1,277.0	3.0	2.4	170.67	-87.4	-46.3	198.7	194.3	4.45	44.619		
1,400.0	1,389.8	1,375.1	1,372.9	3.3	2.6	172.13	-91.7	-52.6	225.4	220.6	4.79	47.048		
1,500.0	1,487.8	1,471.4	1,468.8	3.7	2.8	173.28	-95.9	-58.8	252.3	247.1	5.13	49.179		
1,600.0	1,585.9	1,567.6	1,564.7	4.1	3.0	174.21	-100.1	-65.1	279.2	273.7	5.47	51.061		
1,700.0	1,683.9	1,663.8	1,660.7	4.5	3.3	174.97	-104.3	-71.4	306.2	300.4	5.81	52.733		
1,800.0	1,782.0	1,760.0	1,756.6	4.8	3.5	175.62	-108.5	-77.7	333.2	327.0	6.14	54.226		
1,900.0	1,880.0	1,856.2	1,852.5	5.2	3.7	176.16	-112.7	-84.0	360.2	353.8	6.48	55.568		
2,000.0	1,978.1	1,952.5	1,948.4	5.6	3.9	176.63	-116.9	-90.2	387.3	380.5	6.82	56.779		
2,100.0	2,076.1	2,048.7	2,044.4	6.0	4.1	177.04	-121.1	-96.5	414.4	407.2	7.16	57.877		
2,200.0	2,174.2	2,144.9	2,140.3	6.4	4.3	177.40	-125.4	-102.8	441.5	434.0	7.50	58.877		
2,300.0	2,272.2	2,241.1	2,236.2	6.7	4.5	177.72	-129.6	-109.1	468.6	460.8	7.84	59.792		
2,400.0	2,370.3	2,337.3	2,332.1	7.1	4.7	178.00	-133.8	-115.4	495.8	487.6	8.18	60.632		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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	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	36.000		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	10.9	0.0	10.9	10.3	0.65	16.749		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	10.9	0.0	10.9	9.9	1.00	10.913		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	10.9	0.0	10.9	9.6	1.35	8.093		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	10.9	0.0	10.9	9.2	1.70	6.431		
600.0	600.0	599.7	599.7	1.0	1.0	-46.64	12.2	1.2	11.0	9.0	2.05	5.372		
700.0	699.8	699.6	699.4	1.2	1.2	-49.14	15.8	4.5	11.0	8.6	2.41	4.575		
800.0	799.5	799.5	799.2	1.4	1.4	-65.71	19.9	8.1	9.5	6.7	2.80	3.407		
857.5	856.6	856.9	856.5	1.6	1.5	-87.00	22.2	10.2	8.9	5.9	3.06	2.914 CC, ES, SF		
900.0	898.7	899.3	898.8	1.7	1.6	-107.28	23.9	11.8	9.5	6.3	3.24	2.937		
1,000.0	997.5	998.7	998.1	2.0	1.8	-143.98	27.9	15.4	16.1	12.6	3.53	4.564		
1,100.0	1,095.7	1,097.8	1,097.1	2.3	2.0	-159.58	31.9	19.1	28.3	24.5	3.83	7.408		
1,200.0	1,193.7	1,196.8	1,195.9	2.6	2.2	-165.90	35.9	22.7	42.2	38.0	4.16	10.144		
1,300.0	1,291.8	1,295.7	1,294.7	3.0	2.4	-169.09	39.9	26.4	56.2	51.7	4.49	12.507		
1,400.0	1,389.8	1,394.7	1,393.5	3.3	2.5	-171.00	43.9	30.0	70.4	65.5	4.84	14.548		
1,500.0	1,487.8	1,493.7	1,492.4	3.7	2.7	-172.27	47.9	33.6	84.6	79.4	5.18	16.323		
1,600.0	1,585.9	1,592.7	1,591.2	4.1	2.9	-173.18	51.9	37.3	98.8	93.3	5.53	17.879		
1,700.0	1,683.9	1,691.6	1,690.0	4.5	3.1	-173.85	55.9	40.9	113.1	107.2	5.87	19.253		
1,800.0	1,782.0	1,790.6	1,788.8	4.8	3.3	-174.38	59.8	44.5	127.3	121.1	6.22	20.475		
1,900.0	1,880.0	1,889.6	1,887.7	5.2	3.5	-174.80	63.8	48.2	141.6	135.1	6.57	21.568		
2,000.0	1,978.1	1,988.5	1,986.5	5.6	3.7	-175.14	67.8	51.8	155.9	149.0	6.91	22.552		
2,100.0	2,076.1	2,087.5	2,085.3	6.0	3.9	-175.42	71.8	55.4	170.2	162.9	7.26	23.443		
2,200.0	2,174.2	2,186.5	2,184.1	6.4	4.1	-175.66	75.8	59.1	184.5	176.9	7.61	24.252		
2,300.0	2,272.2	2,285.5	2,283.0	6.7	4.3	-175.87	79.8	62.7	198.8	190.8	7.95	24.991		
2,400.0	2,370.3	2,384.4	2,381.8	7.1	4.5	-176.05	83.8	66.3	213.1	204.8	8.30	25.668		
2,500.0	2,468.3	2,483.4	2,480.6	7.5	4.7	-176.20	87.8	70.0	227.4	218.7	8.65	26.291		
2,600.0	2,566.3	2,582.4	2,579.4	7.9	4.9	-176.34	91.8	73.6	241.7	232.7	9.00	26.865		
2,700.0	2,664.4	2,681.3	2,678.2	8.3	5.1	-176.46	95.8	77.3	256.0	246.6	9.34	27.397		
2,800.0	2,762.4	2,780.3	2,777.1	8.7	5.3	-176.57	99.8	80.9	270.3	260.6	9.69	27.891		
2,900.0	2,860.5	2,879.3	2,875.9	9.0	5.5	-176.67	103.8	84.5	284.6	274.5	10.04	28.351		
3,000.0	2,958.5	2,978.3	2,974.7	9.4	5.7	-176.76	107.8	88.2	298.9	288.5	10.39	28.781		
3,100.0	3,056.6	3,077.2	3,073.5	9.8	5.9	-176.84	111.8	91.8	313.2	302.5	10.73	29.182		
3,200.0	3,154.6	3,176.2	3,172.4	10.2	6.1	-176.91	115.7	95.4	327.5	316.4	11.08	29.558		
3,300.0	3,252.7	3,275.2	3,271.2	10.6	6.3	-176.98	119.7	99.1	341.8	330.4	11.43	29.912		
3,400.0	3,350.7	3,374.1	3,370.0	11.0	6.5	-177.04	123.7	102.7	356.1	344.3	11.77	30.244		
3,500.0	3,448.8	3,473.1	3,468.8	11.4	6.7	-177.10	127.7	106.3	370.4	358.3	12.12	30.558		
3,600.0	3,546.8	3,572.1	3,567.7	11.7	6.9	-177.15	131.7	110.0	384.7	372.3	12.47	30.854		
3,700.0	3,644.9	3,671.0	3,666.5	12.1	7.0	-177.20	135.7	113.6	399.0	386.2	12.82	31.134		
3,800.0	3,742.9	3,770.0	3,765.3	12.5	7.2	-177.25	139.7	117.2	413.3	400.2	13.16	31.399		
3,900.0	3,840.9	3,869.0	3,864.1	12.9	7.4	-177.29	143.7	120.9	427.6	414.1	13.51	31.651		
4,000.0	3,939.0	3,968.0	3,962.9	13.3	7.6	-177.33	147.7	124.5	442.0	428.1	13.86	31.890		
4,100.0	4,037.0	4,066.9	4,061.8	13.7	7.8	-177.37	151.7	128.2	456.3	442.1	14.21	32.117		
4,200.0	4,135.1	4,165.9	4,160.6	14.1	8.0	-177.40	155.7	131.8	470.6	456.0	14.55	32.334		
4,300.0	4,233.1	4,264.9	4,259.4	14.4	8.2	-177.44	159.7	135.4	484.9	470.0	14.90	32.540		
4,400.0	4,331.2	4,363.8	4,358.2	14.8	8.4	-177.47	163.7	139.1	499.2	483.9	15.25	32.737		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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			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	-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		
300.0	300.0	300.0	300.0	0.5	0.5	-174.53	-29.1	-2.8	29.3	28.3	1.00	29.223		
400.0	400.0	400.0	400.0	0.7	0.7	-174.53	-29.1	-2.8	29.3	27.9	1.35	21.672		
500.0	500.0	500.0	500.0	0.8	0.8	-174.53	-29.1	-2.8	29.3	27.6	1.70	17.222 CC, ES		
600.0	600.0	600.3	600.3	1.0	1.0	138.24	-28.8	-1.1	30.1	28.1	2.05	14.679		
700.0	699.8	700.5	700.3	1.2	1.2	135.43	-27.8	4.1	32.7	30.3	2.42	13.518		
800.0	799.5	800.6	800.0	1.4	1.4	131.62	-26.2	12.7	37.1	34.3	2.82	13.159 SF		
900.0	898.7	900.5	899.2	1.7	1.7	127.61	-23.9	24.7	43.5	40.2	3.28	13.248		
1,000.0	997.5	1,000.2	997.7	2.0	2.0	123.90	-21.0	40.0	51.8	48.0	3.83	13.553		
1,100.0	1,095.7	1,099.6	1,095.2	2.3	2.3	120.63	-17.5	58.6	62.2	57.7	4.46	13.926		
1,200.0	1,193.7	1,198.7	1,191.8	2.6	2.7	116.27	-13.3	80.4	73.3	68.1	5.19	14.136		
1,300.0	1,291.8	1,297.9	1,288.2	3.0	3.1	112.30	-8.9	103.4	84.9	79.0	5.93	14.313		
1,400.0	1,389.8	1,397.1	1,384.6	3.3	3.5	109.30	-4.6	126.3	96.9	90.2	6.69	14.471		
1,500.0	1,487.8	1,496.2	1,481.0	3.7	3.9	106.96	-0.2	149.2	109.0	101.5	7.46	14.614		
1,600.0	1,585.9	1,595.4	1,577.4	4.1	4.4	105.09	4.2	172.2	121.3	113.1	8.23	14.741		
1,700.0	1,683.9	1,694.6	1,673.8	4.5	4.8	103.56	8.5	195.1	133.7	124.7	9.00	14.855		
1,800.0	1,782.0	1,793.8	1,770.2	4.8	5.2	102.30	12.9	218.0	146.1	136.4	9.77	14.957		
1,900.0	1,880.0	1,892.9	1,866.5	5.2	5.7	101.23	17.3	241.0	158.7	148.1	10.54	15.048		
2,000.0	1,978.1	1,992.1	1,962.9	5.6	6.1	100.32	21.6	263.9	171.2	159.9	11.32	15.130		
2,100.0	2,076.1	2,091.3	2,059.3	6.0	6.6	99.53	26.0	286.8	183.8	171.7	12.09	15.204		
2,200.0	2,174.2	2,190.5	2,155.7	6.4	7.0	98.85	30.3	309.8	196.5	183.6	12.87	15.271		
2,300.0	2,272.2	2,289.6	2,252.1	6.7	7.4	98.25	34.7	332.7	209.1	195.5	13.64	15.332		
2,400.0	2,370.3	2,388.8	2,348.5	7.1	7.9	97.71	39.1	355.6	221.8	207.4	14.41	15.388		
2,500.0	2,468.3	2,488.0	2,444.9	7.5	8.3	97.24	43.4	378.6	234.5	219.3	15.19	15.439		
2,600.0	2,566.3	2,587.1	2,541.2	7.9	8.8	96.81	47.8	401.5	247.2	231.3	15.96	15.486		
2,700.0	2,664.4	2,686.3	2,637.6	8.3	9.2	96.43	52.2	424.4	259.9	243.2	16.74	15.529		
2,800.0	2,762.4	2,785.5	2,734.0	8.7	9.7	96.08	56.5	447.4	272.7	255.2	17.51	15.569		
2,900.0	2,860.5	2,884.7	2,830.4	9.0	10.1	95.76	60.9	470.3	285.4	267.1	18.29	15.607		
3,000.0	2,958.5	2,983.8	2,926.8	9.4	10.6	95.47	65.3	493.2	298.2	279.1	19.06	15.641		
3,100.0	3,056.6	3,083.0	3,023.2	9.8	11.0	95.20	69.6	516.2	310.9	291.1	19.84	15.673		
3,200.0	3,154.6	3,182.2	3,119.6	10.2	11.5	94.95	74.0	539.1	323.7	303.1	20.61	15.703		
3,300.0	3,252.7	3,281.4	3,215.9	10.6	11.9	94.73	78.4	562.0	336.5	315.1	21.39	15.731		
3,400.0	3,350.7	3,380.5	3,312.3	11.0	12.4	94.52	82.7	585.0	349.2	327.1	22.16	15.757		
3,500.0	3,448.8	3,479.7	3,408.7	11.4	12.8	94.32	87.1	607.9	362.0	339.1	22.94	15.782		
3,600.0	3,546.8	3,578.9	3,505.1	11.7	13.3	94.14	91.4	630.8	374.8	351.1	23.71	15.805		
3,700.0	3,644.9	3,678.0	3,601.5	12.1	13.7	93.97	95.8	653.8	387.6	363.1	24.49	15.827		
3,800.0	3,742.9	3,777.2	3,697.9	12.5	14.2	93.81	100.2	676.7	400.4	375.1	25.27	15.847		
3,900.0	3,840.9	3,876.4	3,794.3	12.9	14.6	93.66	104.5	699.6	413.2	387.1	26.04	15.867		
4,000.0	3,939.0	3,975.6	3,890.6	13.3	15.1	93.52	108.9	722.6	426.0	399.2	26.82	15.885		
4,100.0	4,037.0	4,074.7	3,987.0	13.7	15.5	93.39	113.3	745.5	438.8	411.2	27.59	15.903		
4,200.0	4,135.1	4,173.9	4,083.4	14.1	16.0	93.26	117.6	768.4	451.6	423.2	28.37	15.920		
4,300.0	4,233.1	4,273.1	4,179.8	14.4	16.4	93.14	122.0	791.4	464.4	435.2	29.14	15.935		
4,400.0	4,331.2	4,372.3	4,276.2	14.8	16.9	93.03	126.4	814.3	477.2	447.3	29.92	15.950		
4,500.0	4,429.2	4,471.4	4,372.6	15.2	17.3	92.92	130.7	837.2	490.0	459.3	30.69	15.965		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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 4-4-4 - 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	-180.00	-10.9	0.0	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-10.9	0.0	10.9	10.6	0.30	35.986		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-10.9	0.0	10.9	10.3	0.65	16.742		
300.0	300.0	300.1	300.1	0.5	0.5	171.01	-10.3	1.6	10.4	9.4	1.00	10.370		
351.4	351.4	351.5	351.4	0.6	0.6	158.50	-9.5	3.7	10.2	9.0	1.19	8.561 CC, ES		
400.0	400.0	400.0	399.8	0.7	0.7	142.21	-8.4	6.5	10.6	9.2	1.36	7.815 SF		
500.0	500.0	499.3	498.8	0.8	0.9	109.72	-5.2	14.5	15.5	13.8	1.70	9.117		
600.0	600.0	598.2	596.9	1.0	1.2	48.38	-0.8	25.7	24.7	22.6	2.08	11.882		
700.0	699.8	696.6	694.1	1.2	1.5	43.51	4.8	40.0	35.4	32.9	2.44	14.484		
800.0	799.5	794.7	790.4	1.4	1.9	42.29	11.6	57.2	46.8	44.0	2.83	16.556		
900.0	898.7	892.2	885.5	1.7	2.3	42.62	19.5	77.5	58.8	55.6	3.24	18.134		
1,000.0	997.5	989.4	979.4	2.0	2.8	43.70	28.6	100.6	71.5	67.8	3.71	19.254		
1,100.0	1,095.7	1,086.0	1,072.0	2.3	3.3	45.13	38.8	126.5	84.9	80.7	4.25	20.008		
1,200.0	1,193.7	1,181.9	1,162.8	2.6	3.9	45.80	50.0	155.1	100.9	96.1	4.80	21.014		
1,300.0	1,291.8	1,278.1	1,252.9	3.0	4.5	45.69	62.4	186.4	119.7	114.3	5.36	22.351		
1,400.0	1,389.8	1,376.2	1,344.6	3.3	5.1	45.49	75.1	218.8	139.1	133.1	5.92	23.498		
1,500.0	1,487.8	1,474.3	1,436.3	3.7	5.8	45.35	87.9	251.3	158.4	151.9	6.49	24.424		
1,600.0	1,585.9	1,572.4	1,528.0	4.1	6.4	45.23	100.7	283.7	177.8	170.7	7.06	25.184		
1,700.0	1,683.9	1,670.5	1,619.7	4.5	7.1	45.14	113.4	316.2	197.1	189.5	7.63	25.818		
1,800.0	1,782.0	1,768.6	1,711.4	4.8	7.7	45.07	126.2	348.7	216.5	208.3	8.21	26.354		
1,900.0	1,880.0	1,866.7	1,803.1	5.2	8.4	45.00	138.9	381.1	235.8	227.0	8.80	26.812		
2,000.0	1,978.1	1,964.8	1,894.8	5.6	9.1	44.95	151.7	413.6	255.2	245.8	9.38	27.208		
2,100.0	2,076.1	2,063.0	1,986.5	6.0	9.7	44.90	164.5	446.1	274.5	264.6	9.96	27.554		
2,200.0	2,174.2	2,161.1	2,078.2	6.4	10.4	44.86	177.2	478.5	293.9	283.3	10.55	27.858		
2,300.0	2,272.2	2,259.2	2,169.9	6.7	11.0	44.83	190.0	511.0	313.2	302.1	11.14	28.127		
2,400.0	2,370.3	2,357.3	2,261.6	7.1	11.7	44.80	202.8	543.4	332.6	320.9	11.72	28.367		
2,500.0	2,468.3	2,455.4	2,353.3	7.5	12.3	44.77	215.5	575.9	352.0	339.6	12.31	28.582		
2,600.0	2,566.3	2,553.5	2,445.0	7.9	13.0	44.75	228.3	608.4	371.3	358.4	12.90	28.776		
2,700.0	2,664.4	2,651.6	2,536.7	8.3	13.7	44.72	241.1	640.8	390.7	377.2	13.49	28.952		
2,800.0	2,762.4	2,749.7	2,628.4	8.7	14.3	44.70	253.8	673.3	410.0	395.9	14.08	29.112		
2,900.0	2,860.5	2,847.8	2,720.1	9.0	15.0	44.69	266.6	705.7	429.4	414.7	14.68	29.259		
3,000.0	2,958.5	2,945.9	2,811.8	9.4	15.7	44.67	279.4	738.2	448.7	433.5	15.27	29.393		
3,100.0	3,056.6	3,044.0	2,903.5	9.8	16.3	44.65	292.1	770.7	468.1	452.2	15.86	29.516		
3,200.0	3,154.6	3,142.2	2,995.2	10.2	17.0	44.64	304.9	803.1	487.4	471.0	16.45	29.631		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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							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	-177.69	-69.2	-2.8	69.3					
100.0	100.0	100.0	100.0	0.2	0.2	-177.69	-69.2	-2.8	69.3	69.0	0.30	228.085		
200.0	200.0	200.0	200.0	0.3	0.3	-177.69	-69.2	-2.8	69.3	68.6	0.65	106.115		
300.0	300.0	300.0	300.0	0.5	0.5	-177.69	-69.2	-2.8	69.3	68.3	1.00	69.141		
400.0	400.0	400.0	400.0	0.7	0.7	-177.69	-69.2	-2.8	69.3	67.9	1.35	51.275		
500.0	500.0	500.0	500.0	0.8	0.8	-177.69	-69.2	-2.8	69.3	67.6	1.70	40.746	CC, ES	
600.0	600.0	599.8	599.8	1.0	1.0	135.68	-69.4	-1.1	70.6	68.6	2.05	34.446		
700.0	699.8	699.5	699.3	1.2	1.2	134.43	-70.0	4.1	74.8	72.4	2.42	30.960		
800.0	799.5	798.9	798.4	1.4	1.4	132.64	-70.9	12.7	81.8	79.0	2.81	29.065		
900.0	898.7	898.0	896.7	1.7	1.7	130.57	-72.2	24.6	91.7	88.4	3.26	28.076		
1,000.0	997.5	996.5	994.0	2.0	1.9	128.47	-73.9	39.9	104.4	100.6	3.79	27.582		
1,100.0	1,095.7	1,094.4	1,090.2	2.3	2.3	126.50	-75.9	58.3	120.0	115.6	4.39	27.349		
1,200.0	1,193.7	1,191.7	1,185.0	2.6	2.7	124.02	-78.3	79.8	136.9	131.9	5.06	27.050		
1,300.0	1,291.8	1,288.3	1,278.4	3.0	3.1	120.93	-80.9	104.4	155.1	149.3	5.80	26.733		
1,400.0	1,389.8	1,384.0	1,370.0	3.3	3.6	117.49	-83.9	131.7	174.8	168.2	6.59	26.516		
1,500.0	1,487.8	1,478.4	1,459.5	3.7	4.2	113.93	-87.2	161.7	196.4	189.0	7.42	26.471	SF	
1,600.0	1,585.9	1,571.6	1,546.8	4.1	4.8	110.37	-90.8	194.1	220.2	211.9	8.27	26.631		
1,700.0	1,683.9	1,665.3	1,633.6	4.5	5.4	106.93	-94.6	229.2	246.1	237.0	9.11	27.015		
1,800.0	1,782.0	1,760.8	1,721.8	4.8	6.1	104.01	-98.6	265.4	272.9	263.0	9.94	27.451		
1,900.0	1,880.0	1,856.2	1,810.1	5.2	6.7	101.61	-102.5	301.5	300.3	289.5	10.76	27.910		
2,000.0	1,978.1	1,951.7	1,898.4	5.6	7.4	99.61	-106.5	337.6	328.1	316.5	11.57	28.369		
2,100.0	2,076.1	2,047.2	1,986.7	6.0	8.1	97.91	-110.5	373.7	356.2	343.9	12.36	28.815		
2,200.0	2,174.2	2,142.6	2,075.0	6.4	8.8	96.47	-114.4	409.9	384.6	371.5	13.15	29.243		
2,300.0	2,272.2	2,238.1	2,163.3	6.7	9.5	95.22	-118.4	446.0	413.2	399.2	13.94	29.649		
2,400.0	2,370.3	2,333.6	2,251.5	7.1	10.1	94.14	-122.3	482.1	441.9	427.2	14.71	30.032		
2,500.0	2,468.3	2,429.1	2,339.8	7.5	10.8	93.18	-126.3	518.3	470.7	455.2	15.49	30.393		
2,600.0	2,566.3	2,524.5	2,428.1	7.9	11.5	92.34	-130.3	554.4	499.7	483.4	16.26	30.732		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Minch 2-4-4
<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 2-4-4	<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 2-4-4  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.31°

