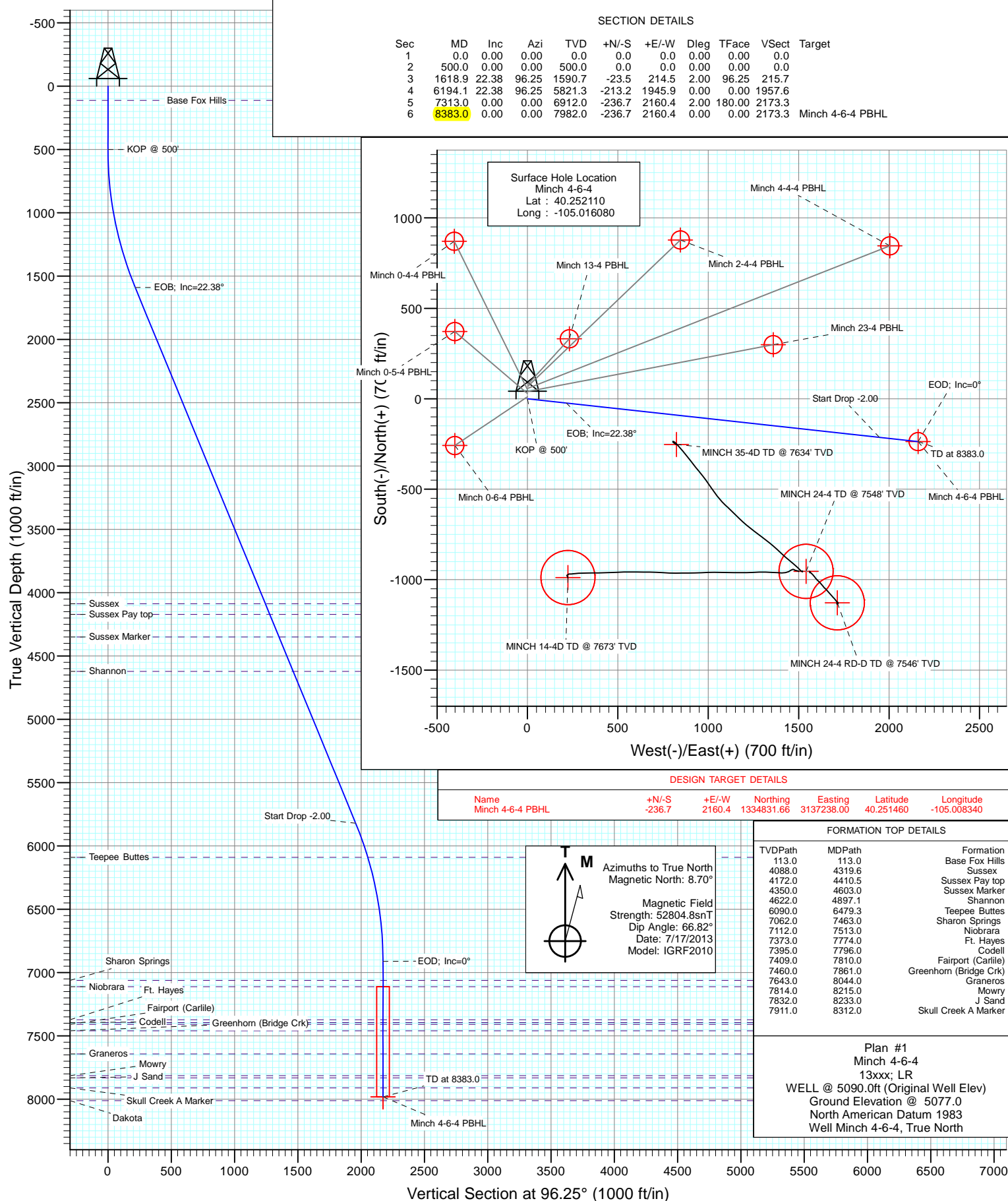




Project: DJ Wattenberg
Site: S4-T3N-R68W (Minch)
Well: Minch 4-6-4
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 4-6-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	DJ Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 4-6-4					
Well Position	+N/-S	0.0 ft	Northing:	1,335,056.55 ft	Latitude:	40.252110
	+E/-W	0.0 ft	Easting:	3,135,076.34 ft	Longitude:	-105.016080
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,077.0 ft

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

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	96.25

Plan Sections										
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	
1,618.9	22.38	96.25	1,590.7	-23.5	214.5	2.00	2.00	0.00	96.25	
6,194.1	22.38	96.25	5,821.3	-213.2	1,945.9	0.00	0.00	0.00	0.00	
7,313.0	0.00	0.00	6,912.0	-236.7	2,160.4	2.00	-2.00	0.00	180.00	
8,383.0	0.00	0.00	7,982.0	-236.7	2,160.4	0.00	0.00	0.00	0.00	Minch 4-6-4 PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 4-6-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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	96.25	600.0	-0.2	1.7	1.7	2.00	2.00	
700.0	4.00	96.25	699.8	-0.8	6.9	7.0	2.00	2.00	
800.0	6.00	96.25	799.5	-1.7	15.6	15.7	2.00	2.00	
900.0	8.00	96.25	898.7	-3.0	27.7	27.9	2.00	2.00	
1,000.0	10.00	96.25	997.5	-4.7	43.3	43.5	2.00	2.00	
1,100.0	12.00	96.25	1,095.6	-6.8	62.2	62.6	2.00	2.00	
1,200.0	14.00	96.25	1,193.1	-9.3	84.6	85.1	2.00	2.00	
1,300.0	16.00	96.25	1,289.6	-12.1	110.3	111.0	2.00	2.00	
1,400.0	18.00	96.25	1,385.3	-15.3	139.4	140.2	2.00	2.00	
1,500.0	20.00	96.25	1,479.8	-18.8	171.7	172.8	2.00	2.00	
1,600.0	22.00	96.25	1,573.2	-22.7	207.4	208.6	2.00	2.00	
1,618.9	22.38	96.25	1,590.7	-23.5	214.5	215.7	2.00	2.00	EOB; Inc=22.38°
1,700.0	22.38	96.25	1,665.7	-26.9	245.1	246.6	0.00	0.00	
1,800.0	22.38	96.25	1,758.1	-31.0	283.0	284.7	0.00	0.00	
1,900.0	22.38	96.25	1,850.6	-35.1	320.8	322.8	0.00	0.00	
2,000.0	22.38	96.25	1,943.1	-39.3	358.7	360.8	0.00	0.00	
2,100.0	22.38	96.25	2,035.5	-43.4	396.5	398.9	0.00	0.00	
2,200.0	22.38	96.25	2,128.0	-47.6	434.4	437.0	0.00	0.00	
2,300.0	22.38	96.25	2,220.5	-51.7	472.2	475.0	0.00	0.00	
2,400.0	22.38	96.25	2,312.9	-55.9	510.1	513.1	0.00	0.00	
2,500.0	22.38	96.25	2,405.4	-60.0	547.9	551.2	0.00	0.00	
2,600.0	22.38	96.25	2,497.9	-64.2	585.8	589.3	0.00	0.00	
2,700.0	22.38	96.25	2,590.4	-68.3	623.6	627.3	0.00	0.00	
2,800.0	22.38	96.25	2,682.8	-72.5	661.4	665.4	0.00	0.00	
2,900.0	22.38	96.25	2,775.3	-76.6	699.3	703.5	0.00	0.00	
3,000.0	22.38	96.25	2,867.8	-80.8	737.1	741.5	0.00	0.00	
3,100.0	22.38	96.25	2,960.2	-84.9	775.0	779.6	0.00	0.00	
3,200.0	22.38	96.25	3,052.7	-89.0	812.8	817.7	0.00	0.00	
3,300.0	22.38	96.25	3,145.2	-93.2	850.7	855.8	0.00	0.00	
3,400.0	22.38	96.25	3,237.6	-97.3	888.5	893.8	0.00	0.00	
3,500.0	22.38	96.25	3,330.1	-101.5	926.4	931.9	0.00	0.00	
3,600.0	22.38	96.25	3,422.6	-105.6	964.2	970.0	0.00	0.00	
3,700.0	22.38	96.25	3,515.0	-109.8	1,002.0	1,008.0	0.00	0.00	
3,800.0	22.38	96.25	3,607.5	-113.9	1,039.9	1,046.1	0.00	0.00	
3,900.0	22.38	96.25	3,700.0	-118.1	1,077.7	1,084.2	0.00	0.00	
4,000.0	22.38	96.25	3,792.5	-122.2	1,115.6	1,122.3	0.00	0.00	
4,100.0	22.38	96.25	3,884.9	-126.4	1,153.4	1,160.3	0.00	0.00	
4,200.0	22.38	96.25	3,977.4	-130.5	1,191.3	1,198.4	0.00	0.00	
4,300.0	22.38	96.25	4,069.9	-134.7	1,229.1	1,236.5	0.00	0.00	
4,319.6	22.38	96.25	4,088.0	-135.5	1,236.5	1,243.9	0.00	0.00	Sussex
4,400.0	22.38	96.25	4,162.3	-138.8	1,267.0	1,274.5	0.00	0.00	
4,410.5	22.38	96.25	4,172.0	-139.2	1,270.9	1,278.5	0.00	0.00	Sussex Pay top
4,500.0	22.38	96.25	4,254.8	-142.9	1,304.8	1,312.6	0.00	0.00	
4,600.0	22.38	96.25	4,347.3	-147.1	1,342.7	1,350.7	0.00	0.00	
4,603.0	22.38	96.25	4,350.0	-147.2	1,343.8	1,351.8	0.00	0.00	Sussex Marker

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: DJ Wattenberg
Site: S4-T3N-R68W (Minch)
Well: Minch 4-6-4
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Minch 4-6-4
 WELL @ 5090.0ft (Original Well Elev)
 WELL @ 5090.0ft (Original Well Elev)
 True
 Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,700.0	22.38	96.25	4,439.7	-151.2	1,380.5	1,388.8	0.00	0.00	
4,800.0	22.38	96.25	4,532.2	-155.4	1,418.3	1,426.8	0.00	0.00	
4,897.1	22.38	96.25	4,622.0	-159.4	1,455.1	1,463.8	0.00	0.00	Shannon
4,900.0	22.38	96.25	4,624.7	-159.5	1,456.2	1,464.9	0.00	0.00	
5,000.0	22.38	96.25	4,717.1	-163.7	1,494.0	1,503.0	0.00	0.00	
5,100.0	22.38	96.25	4,809.6	-167.8	1,531.9	1,541.0	0.00	0.00	
5,200.0	22.38	96.25	4,902.1	-172.0	1,569.7	1,579.1	0.00	0.00	
5,300.0	22.38	96.25	4,994.6	-176.1	1,607.6	1,617.2	0.00	0.00	
5,400.0	22.38	96.25	5,087.0	-180.3	1,645.4	1,655.3	0.00	0.00	
5,500.0	22.38	96.25	5,179.5	-184.4	1,683.3	1,693.3	0.00	0.00	
5,600.0	22.38	96.25	5,272.0	-188.6	1,721.1	1,731.4	0.00	0.00	
5,700.0	22.38	96.25	5,364.4	-192.7	1,758.9	1,769.5	0.00	0.00	
5,800.0	22.38	96.25	5,456.9	-196.8	1,796.8	1,807.5	0.00	0.00	
5,900.0	22.38	96.25	5,549.4	-201.0	1,834.6	1,845.6	0.00	0.00	
6,000.0	22.38	96.25	5,641.8	-205.1	1,872.5	1,883.7	0.00	0.00	
6,100.0	22.38	96.25	5,734.3	-209.3	1,910.3	1,921.8	0.00	0.00	
6,194.1	22.38	96.25	5,821.3	-213.2	1,945.9	1,957.6	0.00	0.00	Start Drop -2.00
6,200.0	22.26	96.25	5,826.8	-213.4	1,948.2	1,959.8	2.00	-2.00	
6,300.0	20.26	96.25	5,920.0	-217.4	1,984.2	1,996.1	2.00	-2.00	
6,400.0	18.26	96.25	6,014.4	-221.0	2,017.0	2,029.1	2.00	-2.00	
6,479.3	16.67	96.25	6,090.0	-223.6	2,040.7	2,052.9	2.00	-2.00	Teepee Buttes
6,500.0	16.26	96.25	6,109.9	-224.2	2,046.5	2,058.7	2.00	-2.00	
6,600.0	14.26	96.25	6,206.3	-227.1	2,072.7	2,085.1	2.00	-2.00	
6,700.0	12.26	96.25	6,303.7	-229.6	2,095.5	2,108.0	2.00	-2.00	
6,800.0	10.26	96.25	6,401.7	-231.7	2,114.9	2,127.5	2.00	-2.00	
6,900.0	8.26	96.25	6,500.4	-233.4	2,130.9	2,143.6	2.00	-2.00	
7,000.0	6.26	96.25	6,599.6	-234.8	2,143.4	2,156.2	2.00	-2.00	
7,100.0	4.26	96.25	6,699.2	-235.8	2,152.5	2,165.4	2.00	-2.00	
7,200.0	2.26	96.25	6,799.0	-236.4	2,158.2	2,171.1	2.00	-2.00	
7,300.0	0.26	96.25	6,899.0	-236.7	2,160.4	2,173.3	2.00	-2.00	
7,313.0	0.00	0.00	6,912.0	-236.7	2,160.4	2,173.3	2.00	-2.00	EOD; Inc=0°
7,400.0	0.00	0.00	6,999.0	-236.7	2,160.4	2,173.3	0.00	0.00	
7,463.0	0.00	0.00	7,062.0	-236.7	2,160.4	2,173.3	0.00	0.00	Sharon Springs
7,500.0	0.00	0.00	7,099.0	-236.7	2,160.4	2,173.3	0.00	0.00	
7,513.0	0.00	0.00	7,112.0	-236.7	2,160.4	2,173.3	0.00	0.00	Niobrara
7,600.0	0.00	0.00	7,199.0	-236.7	2,160.4	2,173.3	0.00	0.00	
7,700.0	0.00	0.00	7,299.0	-236.7	2,160.4	2,173.3	0.00	0.00	
7,774.0	0.00	0.00	7,373.0	-236.7	2,160.4	2,173.3	0.00	0.00	Ft. Hayes
7,796.0	0.00	0.00	7,395.0	-236.7	2,160.4	2,173.3	0.00	0.00	Codell
7,800.0	0.00	0.00	7,399.0	-236.7	2,160.4	2,173.3	0.00	0.00	
7,810.0	0.00	0.00	7,409.0	-236.7	2,160.4	2,173.3	0.00	0.00	Fairport (Carlile)
7,861.0	0.00	0.00	7,460.0	-236.7	2,160.4	2,173.3	0.00	0.00	Greenhorn (Bridge Crk)
7,900.0	0.00	0.00	7,499.0	-236.7	2,160.4	2,173.3	0.00	0.00	
8,000.0	0.00	0.00	7,599.0	-236.7	2,160.4	2,173.3	0.00	0.00	
8,044.0	0.00	0.00	7,643.0	-236.7	2,160.4	2,173.3	0.00	0.00	Graneros
8,100.0	0.00	0.00	7,699.0	-236.7	2,160.4	2,173.3	0.00	0.00	
8,200.0	0.00	0.00	7,799.0	-236.7	2,160.4	2,173.3	0.00	0.00	
8,215.0	0.00	0.00	7,814.0	-236.7	2,160.4	2,173.3	0.00	0.00	Mowry
8,233.0	0.00	0.00	7,832.0	-236.7	2,160.4	2,173.3	0.00	0.00	J Sand
8,300.0	0.00	0.00	7,899.0	-236.7	2,160.4	2,173.3	0.00	0.00	
8,312.0	0.00	0.00	7,911.0	-236.7	2,160.4	2,173.3	0.00	0.00	Skull Creek A Marker
8,383.0	0.00	0.00	7,982.0	-236.7	2,160.4	2,173.3	0.00	0.00	TD at 8383.0 - Minch 4-6-4 PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 4-6-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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 4-6-4 PBHL	0.00	0.00	7,982.0	-236.7	2,160.4	1,334,831.66	3,137,238.00	40.251460	-105.008340
- 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				
4,319.6	4,088.0	Sussex				
4,410.5	4,172.0	Sussex Pay top				
4,603.0	4,350.0	Sussex Marker				
4,897.1	4,622.0	Shannon				
6,479.3	6,090.0	Teepee Buttes				
7,463.0	7,062.0	Sharon Springs				
7,513.0	7,112.0	Niobrara				
7,774.0	7,373.0	Ft. Hayes				
7,796.0	7,395.0	Codell				
7,810.0	7,409.0	Fairport (Carlile)				
7,861.0	7,460.0	Greenhorn (Bridge Crk)				
8,044.0	7,643.0	Graneros				
8,215.0	7,814.0	Mowry				
8,233.0	7,832.0	J Sand				
8,312.0	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)		
500.0	500.0	0.0	0.0	KOP @ 500'	
1,618.9	1,590.7	-23.5	214.5	EOB; Inc=22.38°	
6,194.1	5,821.3	-213.2	1,945.9	Start Drop -2.00	
7,313.0	6,912.0	-236.7	2,160.4	EOD; Inc=0°	
8,383.0	7,982.0	-236.7	2,160.4	TD at 8383.0	

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S4-T3N-R68W (Minch)

Minch 4-6-4

DD

Plan #1

Anticollision Report

17 July, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	8,383.0	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	500.0	500.0	51.0	49.3	29.999	CC, ES
Minch 0-4-4 - DD - Plan #1	700.0	696.1	58.7	56.3	24.426	SF
Minch 0-5-4 - DD - Plan #1	500.0	500.0	29.1	27.4	17.141	CC, ES
Minch 0-5-4 - DD - Plan #1	600.0	599.2	30.6	28.6	14.927	SF
Minch 0-6-4 - DD - Plan #1	589.1	589.3	10.6	8.6	5.269	CC
Minch 0-6-4 - DD - Plan #1	600.0	600.1	10.6	8.6	5.182	ES, SF
Minch 13-4 - DD - Plan #1	500.0	500.0	80.2	78.5	47.173	CC, ES
Minch 13-4 - DD - Plan #1	1,200.0	1,191.5	128.6	124.0	27.692	SF
MINCH 14-4D (EXISTING) - Existing - Existing						Out of range
Minch 23-4 - DD - Plan #1	500.0	500.0	40.1	38.4	23.570	CC, ES
Minch 23-4 - DD - Plan #1	1,500.0	1,495.8	90.0	82.0	11.171	SF
Minch 2-4-4 - DD - Plan #1	500.0	500.0	69.3	67.6	40.746	CC, ES
Minch 2-4-4 - DD - Plan #1	1,500.0	1,476.4	196.2	188.8	26.403	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	4,379.3	4,227.8	478.7	442.4	13.193	CC
MINCH 35-4D (EXISTING) - Existing - Existing	4,400.0	4,246.0	478.9	442.4	13.148	ES
MINCH 35-4D (EXISTING) - Existing - Existing	4,500.0	4,333.8	483.0	446.1	13.103	SF
Minch 4-4-4 - DD - Plan #1	200.0	200.0	58.3	57.7	89.388	CC, ES
Minch 4-4-4 - DD - Plan #1	3,300.0	3,236.3	483.7	450.3	14.489	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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					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	0.00	51.0	0.0	51.0					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	51.0	0.0	51.0	50.7	0.30	167.923		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	51.0	0.0	51.0	50.3	0.65	78.125		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	51.0	0.0	51.0	50.0	1.00	50.903		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	51.0	0.0	51.0	49.6	1.35	37.750		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	51.0	0.0	51.0	49.3	1.70	29.999 CC, ES		
600.0	600.0	598.3	598.3	1.0	1.0	-98.88	52.5	-0.7	52.8	50.7	2.05	25.771		
700.0	699.8	696.1	696.0	1.2	1.2	-105.69	57.0	-3.0	58.7	56.3	2.41	24.426 SF		
800.0	799.5	792.9	792.4	1.4	1.4	-114.15	64.4	-6.6	70.1	67.3	2.77	25.275		
900.0	898.7	888.0	886.9	1.7	1.6	-121.96	74.5	-11.6	87.8	84.6	3.15	27.829		
1,000.0	997.5	982.9	980.6	2.0	1.9	-128.25	87.1	-17.8	111.6	108.0	3.55	31.447		
1,100.0	1,095.6	1,078.3	1,075.0	2.3	2.2	-133.27	100.1	-24.2	139.0	135.1	3.96	35.129		
1,200.0	1,193.1	1,172.8	1,168.3	2.7	2.4	-137.29	113.0	-30.6	169.8	165.4	4.38	38.738		
1,300.0	1,289.6	1,266.1	1,260.6	3.2	2.7	-140.57	125.7	-36.9	203.7	198.9	4.82	42.272		
1,400.0	1,385.3	1,358.3	1,351.7	3.7	3.0	-143.29	138.3	-43.1	240.8	235.6	5.27	45.736		
1,500.0	1,479.8	1,449.0	1,441.4	4.3	3.3	-145.56	150.6	-49.2	281.1	275.4	5.72	49.142		
1,600.0	1,573.2	1,538.4	1,529.7	4.9	3.5	-147.48	162.8	-55.2	324.4	318.3	6.18	52.496		
1,700.0	1,665.7	1,626.7	1,617.0	5.6	3.8	-149.46	174.9	-61.2	370.0	363.3	6.65	55.652		
1,800.0	1,758.1	1,715.0	1,704.2	6.3	4.1	-151.09	186.9	-67.1	415.9	408.8	7.12	58.431		
1,900.0	1,850.6	1,803.2	1,791.5	7.0	4.3	-152.40	198.9	-73.0	462.0	454.4	7.59	60.904		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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				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	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	29.1	0.0	29.1	28.8	0.30	95.950		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.65	44.640		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	29.1	0.0	29.1	28.1	1.00	29.086		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	29.1	0.0	29.1	27.8	1.35	21.570		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	29.1	0.0	29.1	27.4	1.70	17.141 CC, ES		
600.0	600.0	599.2	599.2	1.0	1.0	-101.90	30.3	-1.3	30.6	28.6	2.05	14.927 SF		
700.0	699.8	697.8	697.7	1.2	1.2	-115.45	33.6	-5.2	36.5	34.1	2.41	15.144		
800.0	799.5	796.1	795.6	1.4	1.4	-129.27	38.6	-11.1	48.6	45.8	2.77	17.540		
900.0	898.7	894.2	893.4	1.7	1.6	-139.36	43.8	-17.3	65.2	62.1	3.13	20.856		
1,000.0	997.5	991.6	990.4	2.0	1.8	-146.48	49.0	-23.3	85.9	82.4	3.48	24.679		
1,100.0	1,095.6	1,088.1	1,086.6	2.3	2.0	-151.61	54.2	-29.4	110.4	106.6	3.83	28.814		
1,200.0	1,193.1	1,183.7	1,181.9	2.7	2.2	-155.40	59.2	-35.3	138.6	134.4	4.18	33.153		
1,300.0	1,289.6	1,278.2	1,276.1	3.2	2.4	-158.28	64.3	-41.2	170.2	165.7	4.52	37.638		
1,400.0	1,385.3	1,371.5	1,369.1	3.7	2.6	-160.52	69.2	-47.0	205.3	200.4	4.86	42.234		
1,500.0	1,479.8	1,463.5	1,460.8	4.3	2.8	-162.29	74.1	-52.8	243.7	238.5	5.19	46.922		
1,600.0	1,573.2	1,554.1	1,551.1	4.9	3.0	-163.73	78.9	-58.4	285.4	279.9	5.52	51.689		
1,700.0	1,665.7	1,643.7	1,640.4	5.6	3.2	-165.06	83.7	-64.0	329.3	323.4	5.87	56.119		
1,800.0	1,758.1	1,733.3	1,729.7	6.3	3.4	-166.13	88.5	-69.6	373.4	367.2	6.22	60.034		
1,900.0	1,850.6	1,822.9	1,819.0	7.0	3.6	-166.97	93.2	-75.2	417.5	411.0	6.57	63.547		
2,000.0	1,943.1	1,912.5	1,908.2	7.8	3.8	-167.65	98.0	-80.8	461.7	454.8	6.92	66.717		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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						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	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	0.00	10.9	0.0	10.9	9.9	1.00	10.909		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	10.9	0.0	10.9	9.6	1.35	8.090		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	10.9	0.0	10.9	9.2	1.70	6.429		
589.1	589.1	589.3	589.2	1.0	1.0	-110.07	10.2	-1.2	10.6	8.6	2.01	5.269 CC		
600.0	600.0	600.1	600.1	1.0	1.0	-113.70	10.0	-1.5	10.6	8.6	2.05	5.182 ES, SF		
700.0	699.8	699.6	699.4	1.2	1.2	-154.55	7.1	-5.8	14.9	12.5	2.41	6.198		
800.0	799.5	798.3	797.8	1.4	1.4	-176.98	2.8	-12.1	28.1	25.4	2.75	10.223		
900.0	898.7	896.5	895.7	1.7	1.6	175.57	-1.5	-18.5	46.4	43.3	3.09	14.984		
1,000.0	997.5	994.0	993.0	2.0	1.8	172.69	-5.8	-24.9	68.3	64.9	3.44	19.884		
1,100.0	1,095.6	1,090.7	1,089.4	2.3	2.0	171.50	-10.0	-31.2	93.7	89.9	3.78	24.818		
1,200.0	1,193.1	1,186.5	1,184.8	2.7	2.2	171.03	-14.2	-37.5	122.4	118.3	4.11	29.771		
1,300.0	1,289.6	1,281.2	1,279.3	3.2	2.4	170.91	-18.3	-43.6	154.4	150.0	4.45	34.743		
1,400.0	1,385.3	1,374.8	1,372.6	3.7	2.6	170.95	-22.4	-49.8	189.7	184.9	4.77	39.741		
1,500.0	1,479.8	1,467.1	1,464.6	4.3	2.8	171.09	-26.5	-55.8	228.2	223.1	5.10	44.773		
1,600.0	1,573.2	1,558.0	1,555.2	4.9	3.0	171.25	-30.5	-61.7	269.8	264.4	5.41	49.846		
1,700.0	1,665.7	1,647.9	1,644.9	5.6	3.2	171.52	-34.4	-67.6	313.5	307.8	5.76	54.456		
1,800.0	1,758.1	1,737.8	1,734.5	6.3	3.4	171.75	-38.3	-73.4	357.3	351.2	6.11	58.480		
1,900.0	1,850.6	1,827.7	1,824.1	7.0	3.6	171.93	-42.3	-79.3	401.1	394.6	6.46	62.063		
2,000.0	1,943.1	1,917.6	1,913.7	7.8	3.8	172.07	-46.2	-85.2	444.9	438.1	6.82	65.273		
2,100.0	2,035.5	2,007.5	2,003.3	8.5	4.0	172.18	-50.1	-91.1	488.7	481.5	7.17	68.166		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	1.99	80.1	2.8	80.2					
100.0	100.0	100.0	100.0	0.2	0.2	1.99	80.1	2.8	80.2	79.9	0.30	264.060		
200.0	200.0	200.0	200.0	0.3	0.3	1.99	80.1	2.8	80.2	79.5	0.65	122.851		
300.0	300.0	300.0	300.0	0.5	0.5	1.99	80.1	2.8	80.2	79.2	1.00	80.046		
400.0	400.0	400.0	400.0	0.7	0.7	1.99	80.1	2.8	80.2	78.8	1.35	59.362		
500.0	500.0	500.0	500.0	0.8	0.8	1.99	80.1	2.8	80.2	78.5	1.70	47.173 CC, ES		
600.0	600.0	597.9	597.9	1.0	1.0	-94.67	81.4	3.9	81.6	79.6	2.05	39.859		
700.0	699.8	696.5	696.4	1.2	1.2	-95.94	84.9	7.1	85.7	83.3	2.41	35.579		
800.0	799.5	796.3	796.0	1.4	1.4	-99.00	88.9	10.8	90.8	88.0	2.80	32.464		
900.0	898.7	895.7	895.3	1.7	1.6	-103.71	93.0	14.5	97.0	93.7	3.22	30.117		
1,000.0	997.5	994.9	994.3	2.0	1.8	-109.58	97.0	18.1	104.8	101.1	3.67	28.520		
1,100.0	1,095.6	1,093.5	1,092.8	2.3	2.0	-116.08	100.9	21.7	115.1	111.0	4.16	27.709		
1,200.0	1,193.1	1,191.5	1,190.6	2.7	2.1	-122.68	104.9	25.3	128.6	124.0	4.65	27.692 SF		
1,300.0	1,289.6	1,288.8	1,287.8	3.2	2.3	-128.94	108.8	28.9	145.8	140.6	5.13	28.425		
1,400.0	1,385.3	1,385.2	1,384.0	3.7	2.5	-134.60	112.7	32.4	166.8	161.2	5.59	29.818		
1,500.0	1,479.8	1,480.6	1,479.3	4.3	2.7	-139.56	116.6	35.9	191.7	185.7	6.04	31.766		
1,600.0	1,573.2	1,575.0	1,573.6	4.9	2.9	-143.81	120.4	39.4	220.6	214.2	6.46	34.169		
1,700.0	1,665.7	1,668.6	1,667.0	5.6	3.1	-147.58	124.1	42.8	252.4	245.6	6.86	36.822		
1,800.0	1,758.1	1,762.1	1,760.4	6.3	3.3	-150.59	127.9	46.3	285.1	277.9	7.24	39.358		
1,900.0	1,850.6	1,855.7	1,853.8	7.0	3.5	-152.98	131.7	49.7	318.4	310.7	7.63	41.748		
2,000.0	1,943.1	1,949.3	1,947.2	7.8	3.6	-154.92	135.5	53.2	352.0	344.0	8.00	43.986		
2,100.0	2,035.5	2,042.8	2,040.7	8.5	3.8	-156.52	139.2	56.6	385.9	377.6	8.38	46.073		
2,200.0	2,128.0	2,136.4	2,134.1	9.2	4.0	-157.87	143.0	60.0	420.1	411.4	8.75	48.018		
2,300.0	2,220.5	2,229.9	2,227.5	9.9	4.2	-159.01	146.8	63.5	454.5	445.3	9.12	49.830		
2,400.0	2,312.9	2,323.5	2,320.9	10.6	4.4	-160.00	150.6	66.9	489.0	479.5	9.49	51.520		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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	0.00	40.1	0.0	40.1					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	40.1	0.0	40.1	39.8	0.30	131.936		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	40.1	0.0	40.1	39.4	0.65	61.382		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	40.1	0.0	40.1	39.1	1.00	39.995		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	40.1	0.0	40.1	38.7	1.35	29.660		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	40.1	0.0	40.1	38.4	1.70	23.570 CC, ES		
600.0	600.0	599.7	599.7	1.0	1.0	-96.28	40.4	1.7	40.6	38.5	2.05	19.776		
700.0	699.8	699.5	699.3	1.2	1.2	-96.35	41.4	6.8	42.1	39.7	2.42	17.379		
800.0	799.5	799.1	798.6	1.4	1.4	-96.45	43.0	15.3	44.7	41.9	2.84	15.746		
900.0	898.7	898.8	897.5	1.7	1.7	-96.57	45.2	27.2	48.3	45.0	3.32	14.547		
1,000.0	997.5	998.4	995.9	2.0	1.9	-96.70	48.2	42.5	52.9	49.0	3.89	13.608		
1,100.0	1,095.6	1,097.9	1,093.5	2.3	2.3	-96.81	51.7	61.1	58.6	54.0	4.56	12.838		
1,200.0	1,193.1	1,197.4	1,190.5	2.7	2.7	-96.95	55.8	82.9	65.2	59.8	5.34	12.205		
1,300.0	1,289.6	1,297.1	1,287.4	3.2	3.1	-98.83	60.2	106.0	72.5	66.3	6.20	11.687		
1,400.0	1,385.3	1,396.6	1,384.1	3.7	3.5	-102.77	64.6	129.0	80.6	73.4	7.12	11.313		
1,500.0	1,479.8	1,495.8	1,480.6	4.3	3.9	-108.05	69.0	151.9	90.0	82.0	8.06	11.171 SF		
1,600.0	1,573.2	1,594.6	1,576.6	4.9	4.4	-114.04	73.3	174.8	101.5	92.5	8.96	11.331		
1,700.0	1,665.7	1,693.0	1,672.3	5.6	4.8	-119.91	77.7	197.5	115.0	105.3	9.76	11.788		
1,800.0	1,758.1	1,791.5	1,767.9	6.3	5.2	-124.58	82.0	220.3	129.6	119.1	10.51	12.336		
1,900.0	1,850.6	1,889.9	1,863.6	7.0	5.7	-128.30	86.3	243.1	144.8	133.6	11.22	12.913		
2,000.0	1,943.1	1,988.4	1,959.3	7.8	6.1	-131.30	90.7	265.8	160.5	148.6	11.90	13.489		
2,100.0	2,035.5	2,086.8	2,054.9	8.5	6.5	-133.76	95.0	288.6	176.6	164.0	12.57	14.048		
2,200.0	2,128.0	2,185.2	2,150.6	9.2	7.0	-135.82	99.3	311.4	192.9	179.7	13.23	14.582		
2,300.0	2,220.5	2,283.7	2,246.3	9.9	7.4	-137.55	103.7	334.1	209.5	195.6	13.89	15.087		
2,400.0	2,312.9	2,382.1	2,342.0	10.6	7.9	-139.03	108.0	356.9	226.2	211.6	14.53	15.562		
2,500.0	2,405.4	2,480.6	2,437.6	11.3	8.3	-140.30	112.3	379.7	243.0	227.8	15.18	16.009		
2,600.0	2,497.9	2,579.0	2,533.3	12.1	8.8	-141.41	116.7	402.4	259.9	244.1	15.82	16.428		
2,700.0	2,590.4	2,677.4	2,629.0	12.8	9.2	-142.38	121.0	425.2	276.9	260.5	16.46	16.821		
2,800.0	2,682.8	2,775.9	2,724.7	13.5	9.6	-143.24	125.3	447.9	294.0	276.9	17.10	17.190		
2,900.0	2,775.3	2,874.3	2,820.3	14.2	10.1	-144.01	129.7	470.7	311.2	293.4	17.74	17.536		
3,000.0	2,867.8	2,972.8	2,916.0	15.0	10.5	-144.70	134.0	493.5	328.3	310.0	18.38	17.861		
3,100.0	2,960.2	3,071.2	3,011.7	15.7	11.0	-145.31	138.3	516.2	345.6	326.6	19.02	18.167		
3,200.0	3,052.7	3,169.6	3,107.4	16.4	11.4	-145.87	142.6	539.0	362.8	343.2	19.66	18.455		
3,300.0	3,145.2	3,268.1	3,203.0	17.1	11.9	-146.38	147.0	561.8	380.1	359.8	20.30	18.727		
3,400.0	3,237.6	3,366.5	3,298.7	17.9	12.3	-146.85	151.3	584.5	397.5	376.5	20.94	18.983		
3,500.0	3,330.1	3,465.0	3,394.4	18.6	12.8	-147.27	155.6	607.3	414.8	393.2	21.57	19.226		
3,600.0	3,422.6	3,563.4	3,490.1	19.3	13.2	-147.66	160.0	630.1	432.2	409.9	22.21	19.455		
3,700.0	3,515.0	3,661.8	3,585.7	20.1	13.7	-148.03	164.3	652.8	449.5	426.7	22.85	19.673		
3,800.0	3,607.5	3,760.3	3,681.4	20.8	14.1	-148.36	168.6	675.6	466.9	443.4	23.49	19.879		
3,900.0	3,700.0	3,858.7	3,777.1	21.5	14.6	-148.67	173.0	698.3	484.3	460.2	24.13	20.075		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	2.31	69.2	2.8	69.3					
100.0	100.0	100.0	100.0	0.2	0.2	2.31	69.2	2.8	69.3	69.0	0.30	228.085		
200.0	200.0	200.0	200.0	0.3	0.3	2.31	69.2	2.8	69.3	68.6	0.65	106.115		
300.0	300.0	300.0	300.0	0.5	0.5	2.31	69.2	2.8	69.3	68.3	1.00	69.141		
400.0	400.0	400.0	400.0	0.7	0.7	2.31	69.2	2.8	69.3	67.9	1.35	51.275		
500.0	500.0	500.0	500.0	0.8	0.8	2.31	69.2	2.8	69.3	67.6	1.70	40.746	CC, ES	
600.0	600.0	598.3	598.2	1.0	1.0	-94.36	70.4	4.0	70.6	68.6	2.05	34.474		
700.0	699.8	696.4	696.3	1.2	1.2	-95.50	73.9	7.6	74.7	72.3	2.41	30.974		
800.0	799.5	794.3	793.8	1.4	1.4	-97.14	79.7	13.7	81.6	78.8	2.81	29.048		
900.0	898.7	891.8	890.6	1.7	1.6	-99.00	87.7	22.1	91.3	88.0	3.26	28.023		
1,000.0	997.5	988.9	986.5	2.0	1.9	-100.84	98.0	32.8	103.9	100.1	3.78	27.497		
1,100.0	1,095.6	1,085.8	1,081.7	2.3	2.2	-102.55	110.5	45.8	119.3	114.9	4.38	27.258		
1,200.0	1,193.1	1,184.1	1,178.2	2.7	2.6	-104.86	123.9	59.8	136.3	131.2	5.05	26.970		
1,300.0	1,289.6	1,282.1	1,274.2	3.2	2.9	-107.80	137.2	73.7	154.5	148.7	5.80	26.661		
1,400.0	1,385.3	1,379.6	1,369.7	3.7	3.3	-111.10	150.5	87.5	174.4	167.8	6.59	26.447		
1,500.0	1,479.8	1,476.4	1,464.7	4.3	3.6	-114.54	163.7	101.3	196.2	188.8	7.43	26.403	SF	
1,600.0	1,573.2	1,572.4	1,558.8	4.9	4.0	-117.98	176.8	114.9	220.3	212.0	8.29	26.567		
1,700.0	1,665.7	1,667.9	1,652.5	5.6	4.3	-121.48	189.8	128.4	246.4	237.3	9.14	26.953		
1,800.0	1,758.1	1,763.4	1,746.1	6.3	4.7	-124.39	202.8	142.0	273.3	263.3	9.97	27.398		
1,900.0	1,850.6	1,858.8	1,839.7	7.0	5.1	-126.78	215.8	155.6	300.7	289.9	10.79	27.862		
2,000.0	1,943.1	1,954.3	1,933.3	7.8	5.4	-128.78	228.8	169.1	328.5	316.9	11.60	28.324		
2,100.0	2,035.5	2,049.8	2,026.9	8.5	5.8	-130.47	241.8	182.7	356.6	344.2	12.39	28.773		
2,200.0	2,128.0	2,145.3	2,120.5	9.2	6.1	-131.91	254.8	196.2	385.0	371.8	13.18	29.202		
2,300.0	2,220.5	2,240.7	2,214.1	9.9	6.5	-133.15	267.8	209.8	413.5	399.6	13.97	29.608		
2,400.0	2,312.9	2,336.2	2,307.7	10.6	6.9	-134.24	280.8	223.3	442.3	427.5	14.75	29.991		
2,500.0	2,405.4	2,431.7	2,401.3	11.3	7.2	-135.19	293.8	236.9	471.1	455.6	15.52	30.352		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design		S4-T3N-R68W (Minch) - MINCH 35-4D (EXISTING) - Existing - Existing											Offset Site Error:		0.0 ft	
Survey Program:		98-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 +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)						
4,200.0	3,977.4	4,074.6	4,019.5	23.7	12.0	95.41	-608.2	1,116.6	488.1	453.5	34.60	14.106				
4,300.0	4,069.9	4,157.8	4,100.4	24.4	12.3	100.92	-594.9	1,102.4	480.5	444.9	35.65	13.481				
4,379.3	4,143.2	4,227.8	4,168.4	25.0	12.7	105.65	-583.2	1,090.2	478.7	442.4	36.29	13.193	CC			
4,400.0	4,162.3	4,246.0	4,186.0	25.2	12.7	106.89	-580.0	1,087.0	478.9	442.4	36.42	13.148	ES			
4,500.0	4,254.8	4,333.8	4,270.9	25.9	13.2	112.87	-564.0	1,071.6	483.0	446.1	36.86	13.103	SF			
4,600.0	4,347.3	4,421.0	4,355.1	26.6	13.6	118.71	-547.1	1,056.6	492.8	455.8	36.95	13.338				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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			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	2.74	58.3	2.8	58.3					
100.0	100.0	100.0	100.0	0.2	0.2	2.74	58.3	2.8	58.3	58.0	0.30	192.134		
200.0	200.0	200.0	200.0	0.3	0.3	2.74	58.3	2.8	58.3	57.7	0.65	89.388 CC, ES		
300.0	300.0	299.1	299.1	0.5	0.5	4.26	58.9	4.4	59.1	58.1	1.00	59.036		
400.0	400.0	398.0	397.9	0.7	0.7	8.57	60.8	9.2	61.5	60.2	1.35	45.514		
500.0	500.0	496.5	495.9	0.8	0.9	14.94	63.9	17.1	66.3	64.5	1.71	38.678		
600.0	600.0	594.4	593.1	1.0	1.2	-75.06	68.2	28.0	73.6	71.5	2.13	34.510		
700.0	699.8	691.9	689.5	1.2	1.5	-70.61	73.7	42.0	82.9	80.4	2.54	32.609		
800.0	799.5	788.9	784.8	1.4	1.8	-67.65	80.4	58.9	94.0	91.0	2.99	31.435		
900.0	898.7	885.5	879.0	1.7	2.3	-65.84	88.2	78.8	106.3	102.9	3.48	30.541		
1,000.0	997.5	981.6	971.9	2.0	2.7	-64.87	97.1	101.4	120.0	115.9	4.04	29.706		
1,100.0	1,095.6	1,077.1	1,063.5	2.3	3.2	-64.51	107.0	126.8	134.8	130.1	4.67	28.833		
1,200.0	1,193.1	1,172.1	1,153.5	2.7	3.8	-64.56	118.1	154.8	150.7	145.3	5.40	27.897		
1,300.0	1,289.6	1,267.6	1,243.1	3.2	4.4	-64.95	130.2	185.7	167.6	161.4	6.23	26.920		
1,400.0	1,385.3	1,366.2	1,335.3	3.7	5.1	-66.06	143.0	218.3	183.8	176.6	7.19	25.574		
1,500.0	1,479.8	1,464.8	1,427.5	4.3	5.7	-67.90	155.9	250.9	198.8	190.5	8.29	23.971		
1,600.0	1,573.2	1,563.4	1,519.6	4.9	6.4	-70.33	168.7	283.5	212.9	203.3	9.56	22.277		
1,700.0	1,665.7	1,661.8	1,611.5	5.6	7.0	-73.20	181.5	316.1	226.7	215.7	10.92	20.758		
1,800.0	1,758.1	1,760.2	1,703.5	6.3	7.7	-75.80	194.3	348.7	240.9	228.6	12.31	19.572		
1,900.0	1,850.6	1,858.6	1,795.5	7.0	8.3	-78.11	207.1	381.2	255.7	242.0	13.72	18.638		
2,000.0	1,943.1	1,957.0	1,887.5	7.8	9.0	-80.16	219.9	413.8	270.8	255.6	15.13	17.892		
2,100.0	2,035.5	2,055.4	1,979.5	8.5	9.7	-82.00	232.7	446.4	286.2	269.6	16.55	17.290		
2,200.0	2,128.0	2,153.8	2,071.4	9.2	10.3	-83.65	245.5	478.9	301.8	283.8	17.97	16.796		
2,300.0	2,220.5	2,252.3	2,163.4	9.9	11.0	-85.14	258.3	511.5	317.7	298.3	19.39	16.387		
2,400.0	2,312.9	2,350.7	2,255.4	10.6	11.6	-86.48	271.1	544.0	333.8	313.0	20.80	16.045		
2,500.0	2,405.4	2,449.1	2,347.4	11.3	12.3	-87.70	283.9	576.6	350.0	327.8	22.21	15.756		
2,600.0	2,497.9	2,547.5	2,439.4	12.1	13.0	-88.82	296.7	609.2	366.4	342.7	23.62	15.510		
2,700.0	2,590.4	2,645.9	2,531.3	12.8	13.6	-89.84	309.5	641.7	382.9	357.8	25.03	15.299		
2,800.0	2,682.8	2,744.3	2,623.3	13.5	14.3	-90.77	322.3	674.3	399.5	373.0	26.43	15.116		
2,900.0	2,775.3	2,842.7	2,715.3	14.2	15.0	-91.63	335.1	706.8	416.2	388.3	27.83	14.956		
3,000.0	2,867.8	2,941.1	2,807.3	15.0	15.6	-92.42	347.9	739.4	433.0	403.7	29.22	14.817		
3,100.0	2,960.2	3,039.5	2,899.3	15.7	16.3	-93.16	360.8	772.0	449.8	419.2	30.61	14.694		
3,200.0	3,052.7	3,137.9	2,991.2	16.4	17.0	-93.84	373.6	804.5	466.7	434.7	32.00	14.586		
3,300.0	3,145.2	3,236.3	3,083.2	17.1	17.6	-94.47	386.4	837.1	483.7	450.3	33.39	14.489 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 4-6-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 4-6-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	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 4-6-4
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.31°

