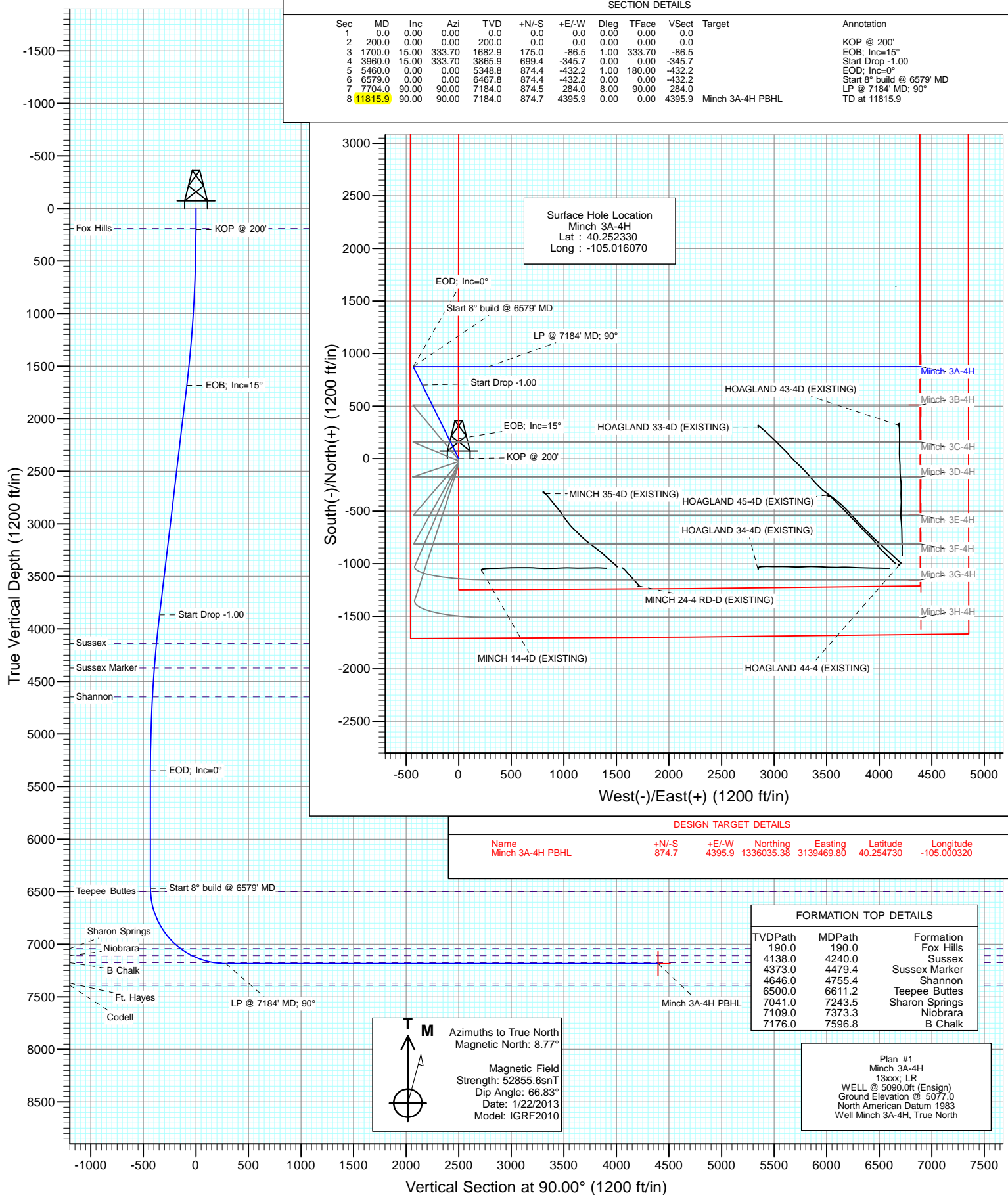




Project: DJ Wattenberg
Site: S4-T3N-R68W (Minch)
Well: Minch 3A-4H
Wellbore: Hz
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Ensign)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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 3A-4H					
Well Position	+N/-S	0.0 ft	Northing:	1,335,136.71 ft	Latitude:	40.252330
	+E/-W	0.0 ft	Easting:	3,135,078.69 ft	Longitude:	-105.016070
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,077.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/22/2013	8.77	66.83	52,856

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	90.00

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,700.0	15.00	333.70	1,682.9	175.0	-86.5	1.00	1.00	0.00	333.70	
3,960.0	15.00	333.70	3,865.9	699.4	-345.7	0.00	0.00	0.00	0.00	
5,460.0	0.00	0.00	5,348.8	874.4	-432.2	1.00	-1.00	0.00	180.00	
6,579.0	0.00	0.00	6,467.8	874.4	-432.2	0.00	0.00	0.00	0.00	
7,704.0	90.00	90.00	7,184.0	874.5	284.0	8.00	8.00	0.00	90.00	
11,815.9	90.00	90.00	7,184.0	874.7	4,395.9	0.00	0.00	0.00	0.00	Minch 3A-4H PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Ensign)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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	
190.0	0.00	0.00	190.0	0.0	0.0	0.0	0.00	0.00	Fox Hills
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	1.00	333.70	300.0	0.8	-0.4	-0.4	1.00	1.00	
400.0	2.00	333.70	400.0	3.1	-1.5	-1.5	1.00	1.00	
500.0	3.00	333.70	499.9	7.0	-3.5	-3.5	1.00	1.00	
600.0	4.00	333.70	599.7	12.5	-6.2	-6.2	1.00	1.00	
700.0	5.00	333.70	699.4	19.5	-9.7	-9.7	1.00	1.00	
800.0	6.00	333.70	798.9	28.1	-13.9	-13.9	1.00	1.00	
900.0	7.00	333.70	898.3	38.3	-18.9	-18.9	1.00	1.00	
1,000.0	8.00	333.70	997.4	50.0	-24.7	-24.7	1.00	1.00	
1,100.0	9.00	333.70	1,096.3	63.2	-31.3	-31.3	1.00	1.00	
1,200.0	10.00	333.70	1,194.9	78.0	-38.6	-38.6	1.00	1.00	
1,300.0	11.00	333.70	1,293.3	94.4	-46.6	-46.6	1.00	1.00	
1,400.0	12.00	333.70	1,391.2	112.2	-55.5	-55.5	1.00	1.00	
1,500.0	13.00	333.70	1,488.9	131.6	-65.1	-65.1	1.00	1.00	
1,600.0	14.00	333.70	1,586.1	152.6	-75.4	-75.4	1.00	1.00	
1,700.0	15.00	333.70	1,682.9	175.0	-86.5	-86.5	1.00	1.00	EOB; Inc=15°
1,800.0	15.00	333.70	1,779.5	198.2	-98.0	-98.0	0.00	0.00	
1,900.0	15.00	333.70	1,876.1	221.4	-109.4	-109.4	0.00	0.00	
2,000.0	15.00	333.70	1,972.7	244.6	-120.9	-120.9	0.00	0.00	
2,100.0	15.00	333.70	2,069.3	267.8	-132.4	-132.4	0.00	0.00	
2,200.0	15.00	333.70	2,165.9	291.0	-143.8	-143.8	0.00	0.00	
2,300.0	15.00	333.70	2,262.5	314.2	-155.3	-155.3	0.00	0.00	
2,400.0	15.00	333.70	2,359.1	337.4	-166.8	-166.8	0.00	0.00	
2,500.0	15.00	333.70	2,455.7	360.6	-178.2	-178.2	0.00	0.00	
2,600.0	15.00	333.70	2,552.3	383.8	-189.7	-189.7	0.00	0.00	
2,700.0	15.00	333.70	2,648.8	407.0	-201.2	-201.2	0.00	0.00	
2,800.0	15.00	333.70	2,745.4	430.3	-212.6	-212.6	0.00	0.00	
2,900.0	15.00	333.70	2,842.0	453.5	-224.1	-224.1	0.00	0.00	
3,000.0	15.00	333.70	2,938.6	476.7	-235.6	-235.6	0.00	0.00	
3,100.0	15.00	333.70	3,035.2	499.9	-247.0	-247.0	0.00	0.00	
3,200.0	15.00	333.70	3,131.8	523.1	-258.5	-258.5	0.00	0.00	
3,300.0	15.00	333.70	3,228.4	546.3	-270.0	-270.0	0.00	0.00	
3,400.0	15.00	333.70	3,325.0	569.5	-281.4	-281.4	0.00	0.00	
3,500.0	15.00	333.70	3,421.6	592.7	-292.9	-292.9	0.00	0.00	
3,600.0	15.00	333.70	3,518.2	615.9	-304.4	-304.4	0.00	0.00	
3,700.0	15.00	333.70	3,614.8	639.1	-315.9	-315.9	0.00	0.00	
3,800.0	15.00	333.70	3,711.4	662.3	-327.3	-327.3	0.00	0.00	
3,900.0	15.00	333.70	3,808.0	685.5	-338.8	-338.8	0.00	0.00	
3,960.0	15.00	333.70	3,865.9	699.4	-345.7	-345.7	0.00	0.00	Start Drop -1.00
4,000.0	14.60	333.70	3,904.6	708.6	-350.2	-350.2	1.00	-1.00	
4,100.0	13.60	333.70	4,001.6	730.4	-361.0	-361.0	1.00	-1.00	
4,200.0	12.60	333.70	4,099.0	750.7	-371.0	-371.0	1.00	-1.00	
4,240.0	12.20	333.70	4,138.0	758.4	-374.8	-374.8	1.00	-1.00	Sussex
4,300.0	11.60	333.70	4,196.7	769.5	-380.3	-380.3	1.00	-1.00	
4,400.0	10.60	333.70	4,294.9	786.8	-388.8	-388.8	1.00	-1.00	
4,479.4	9.81	333.70	4,373.0	799.4	-395.1	-395.1	1.00	-1.00	Sussex Marker
4,500.0	9.60	333.70	4,393.3	802.5	-396.6	-396.6	1.00	-1.00	
4,600.0	8.60	333.70	4,492.1	816.7	-403.6	-403.6	1.00	-1.00	
4,700.0	7.60	333.70	4,591.1	829.3	-409.9	-409.9	1.00	-1.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Ensign)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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
4,755.4	7.05	333.70	4,646.0	835.6	-413.0	-413.0	1.00	-1.00	Shannon
4,800.0	6.60	333.70	4,690.3	840.4	-415.3	-415.3	1.00	-1.00	
4,900.0	5.60	333.70	4,789.7	849.9	-420.1	-420.1	1.00	-1.00	
5,000.0	4.60	333.70	4,889.3	857.9	-424.0	-424.0	1.00	-1.00	
5,100.0	3.60	333.70	4,989.1	864.3	-427.2	-427.2	1.00	-1.00	
5,200.0	2.60	333.70	5,088.9	869.1	-429.6	-429.6	1.00	-1.00	
5,300.0	1.60	333.70	5,188.9	872.4	-431.2	-431.2	1.00	-1.00	
5,400.0	0.60	333.70	5,288.8	874.1	-432.0	-432.0	1.00	-1.00	
5,460.0	0.00	0.00	5,348.8	874.4	-432.2	-432.2	1.00	-1.00	EOD; Inc=0°
5,500.0	0.00	0.00	5,388.8	874.4	-432.2	-432.2	0.00	0.00	
5,600.0	0.00	0.00	5,488.8	874.4	-432.2	-432.2	0.00	0.00	
5,700.0	0.00	0.00	5,588.8	874.4	-432.2	-432.2	0.00	0.00	
5,800.0	0.00	0.00	5,688.8	874.4	-432.2	-432.2	0.00	0.00	
5,900.0	0.00	0.00	5,788.8	874.4	-432.2	-432.2	0.00	0.00	
6,000.0	0.00	0.00	5,888.8	874.4	-432.2	-432.2	0.00	0.00	
6,100.0	0.00	0.00	5,988.8	874.4	-432.2	-432.2	0.00	0.00	
6,200.0	0.00	0.00	6,088.8	874.4	-432.2	-432.2	0.00	0.00	
6,300.0	0.00	0.00	6,188.8	874.4	-432.2	-432.2	0.00	0.00	
6,400.0	0.00	0.00	6,288.8	874.4	-432.2	-432.2	0.00	0.00	
6,500.0	0.00	0.00	6,388.8	874.4	-432.2	-432.2	0.00	0.00	
6,579.0	0.00	0.00	6,467.8	874.4	-432.2	-432.2	0.00	0.00	Start 8° build @ 6579' MD
6,600.0	1.68	90.00	6,488.8	874.4	-431.9	-431.9	8.00	8.00	
6,611.2	2.58	90.00	6,500.0	874.4	-431.4	-431.4	8.00	8.00	Teepee Buttes
6,700.0	9.68	90.00	6,588.3	874.4	-422.0	-422.0	8.00	8.00	
6,800.0	17.68	90.00	6,685.3	874.4	-398.3	-398.3	8.00	8.00	
6,900.0	25.68	90.00	6,778.2	874.4	-361.4	-361.4	8.00	8.00	
7,000.0	33.68	90.00	6,865.0	874.4	-311.9	-311.9	8.00	8.00	
7,100.0	41.68	90.00	6,944.1	874.4	-250.9	-250.9	8.00	8.00	
7,200.0	49.68	90.00	7,013.9	874.4	-179.4	-179.4	8.00	8.00	
7,243.5	53.16	90.00	7,041.0	874.4	-145.4	-145.4	8.00	8.00	Sharon Springs
7,300.0	57.68	90.00	7,073.1	874.4	-98.9	-98.9	8.00	8.00	
7,373.3	63.54	90.00	7,109.0	874.4	-35.0	-35.0	8.00	8.00	Niobrara
7,400.0	65.68	90.00	7,120.5	874.4	-10.9	-10.9	8.00	8.00	
7,500.0	73.68	90.00	7,155.2	874.5	82.8	82.8	8.00	8.00	
7,596.8	81.43	90.00	7,176.0	874.5	177.3	177.3	8.00	8.00	B Chalk
7,600.0	81.68	90.00	7,176.5	874.5	180.4	180.4	8.00	8.00	
7,700.0	89.68	90.00	7,184.0	874.5	280.1	280.1	8.00	8.00	
7,704.0	90.00	90.00	7,184.0	874.5	284.0	284.0	8.00	8.00	LP @ 7184' MD; 90°
7,800.0	90.00	90.00	7,184.0	874.5	380.1	380.1	0.00	0.00	
7,900.0	90.00	90.00	7,184.0	874.5	480.1	480.1	0.00	0.00	
8,000.0	90.00	90.00	7,184.0	874.5	580.1	580.1	0.00	0.00	
8,100.0	90.00	90.00	7,184.0	874.5	680.1	680.1	0.00	0.00	
8,200.0	90.00	90.00	7,184.0	874.5	780.1	780.1	0.00	0.00	
8,300.0	90.00	90.00	7,184.0	874.5	880.1	880.1	0.00	0.00	
8,400.0	90.00	90.00	7,184.0	874.5	980.1	980.1	0.00	0.00	
8,500.0	90.00	90.00	7,184.0	874.5	1,080.1	1,080.1	0.00	0.00	
8,600.0	90.00	90.00	7,184.0	874.5	1,180.1	1,180.1	0.00	0.00	
8,700.0	90.00	90.00	7,184.0	874.5	1,280.1	1,280.1	0.00	0.00	
8,800.0	90.00	90.00	7,184.0	874.5	1,380.1	1,380.1	0.00	0.00	
8,900.0	90.00	90.00	7,184.0	874.5	1,480.1	1,480.1	0.00	0.00	
9,000.0	90.00	90.00	7,184.0	874.5	1,580.1	1,580.1	0.00	0.00	
9,100.0	90.00	90.00	7,184.0	874.5	1,680.1	1,680.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Ensign)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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
9,200.0	90.00	90.00	7,184.0	874.5	1,780.1	1,780.1	0.00	0.00	
9,300.0	90.00	90.00	7,184.0	874.6	1,880.1	1,880.1	0.00	0.00	
9,400.0	90.00	90.00	7,184.0	874.6	1,980.1	1,980.1	0.00	0.00	
9,500.0	90.00	90.00	7,184.0	874.6	2,080.1	2,080.1	0.00	0.00	
9,600.0	90.00	90.00	7,184.0	874.6	2,180.1	2,180.1	0.00	0.00	
9,700.0	90.00	90.00	7,184.0	874.6	2,280.1	2,280.1	0.00	0.00	
9,800.0	90.00	90.00	7,184.0	874.6	2,380.1	2,380.1	0.00	0.00	
9,900.0	90.00	90.00	7,184.0	874.6	2,480.1	2,480.1	0.00	0.00	
10,000.0	90.00	90.00	7,184.0	874.6	2,580.1	2,580.1	0.00	0.00	
10,100.0	90.00	90.00	7,184.0	874.6	2,680.1	2,680.1	0.00	0.00	
10,200.0	90.00	90.00	7,184.0	874.6	2,780.1	2,780.1	0.00	0.00	
10,300.0	90.00	90.00	7,184.0	874.6	2,880.1	2,880.1	0.00	0.00	
10,400.0	90.00	90.00	7,184.0	874.6	2,980.1	2,980.1	0.00	0.00	
10,500.0	90.00	90.00	7,184.0	874.6	3,080.1	3,080.1	0.00	0.00	
10,600.0	90.00	90.00	7,184.0	874.6	3,180.1	3,180.1	0.00	0.00	
10,700.0	90.00	90.00	7,184.0	874.6	3,280.1	3,280.1	0.00	0.00	
10,800.0	90.00	90.00	7,184.0	874.6	3,380.1	3,380.1	0.00	0.00	
10,900.0	90.00	90.00	7,184.0	874.6	3,480.1	3,480.1	0.00	0.00	
11,000.0	90.00	90.00	7,184.0	874.6	3,580.1	3,580.1	0.00	0.00	
11,100.0	90.00	90.00	7,184.0	874.7	3,680.1	3,680.1	0.00	0.00	
11,200.0	90.00	90.00	7,184.0	874.7	3,780.1	3,780.1	0.00	0.00	
11,300.0	90.00	90.00	7,184.0	874.7	3,880.1	3,880.1	0.00	0.00	
11,400.0	90.00	90.00	7,184.0	874.7	3,980.1	3,980.1	0.00	0.00	
11,500.0	90.00	90.00	7,184.0	874.7	4,080.1	4,080.1	0.00	0.00	
11,600.0	90.00	90.00	7,184.0	874.7	4,180.1	4,180.1	0.00	0.00	
11,700.0	90.00	90.00	7,184.0	874.7	4,280.1	4,280.1	0.00	0.00	
11,800.0	90.00	90.00	7,184.0	874.7	4,380.1	4,380.1	0.00	0.00	
11,815.9	90.00	90.00	7,184.0	874.7	4,395.9	4,395.9	0.00	0.00	TD at 11815.9 - Minch 3A-4H PBHL

Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Minch 3A-4H PBHL	0.00	0.00	7,184.0	874.7	4,395.9	1,336,035.38	3,139,469.80	40.254730	-105.000320
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Ensign)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
190.0	190.0	Fox Hills				
4,240.0	4,138.0	Sussex				
4,479.4	4,373.0	Sussex Marker				
4,755.4	4,646.0	Shannon				
6,611.2	6,500.0	Teepee Buttes				
7,243.5	7,041.0	Sharon Springs				
7,373.3	7,109.0	Niobrara				
7,596.8	7,176.0	B Chalk				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP @ 200'	
1,700.0	1,682.9	175.0	-86.5	EOB; Inc=15°	
3,960.0	3,865.9	699.4	-345.7	Start Drop -1.00	
5,460.0	5,348.8	874.4	-432.2	EOD; Inc=0°	
6,579.0	6,467.8	874.4	-432.2	Start 8° build @ 6579' MD	
7,704.0	7,184.0	874.5	284.0	LP @ 7184' MD; 90°	
11,815.9	7,184.0	874.7	4,395.9	TD at 11815.9	

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S4-T3N-R68W (Minch)

Minch 3A-4H

Hz

Plan #1

Anticollision Report

23 January, 2013

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	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	1/23/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,815.3	Plan #1 (Hz)	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 14-4D (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 3B-4H - Hz - Plan #1	200.0	200.0	10.9	10.3	16.742	CC, ES
Minch 3B-4H - Hz - Plan #1	11,815.9	11,977.9	418.0	218.5	2.095	SF
Minch 3C-4H - Hz - Plan #1	200.0	200.0	21.9	21.2	33.485	CC, ES
Minch 3C-4H - Hz - Plan #1	600.0	599.7	34.9	32.9	17.037	SF
Minch 3D-4H - Hz - Plan #1	200.0	200.0	29.3	28.6	44.851	CC, ES
Minch 3D-4H - Hz - Plan #1	600.0	598.3	47.1	45.0	22.487	SF
Minch 3E-4H - Hz - Plan #1	200.0	200.0	40.2	39.5	61.537	CC, ES
Minch 3E-4H - Hz - Plan #1	700.0	699.4	60.0	57.6	24.972	SF
Minch 3F-4H - Hz - Plan #1	200.0	200.0	51.1	50.4	78.248	CC, ES
Minch 3F-4H - Hz - Plan #1	700.0	698.4	71.6	69.2	29.789	SF
Minch 3G-4H - Hz - Plan #1	200.0	200.0	58.4	57.7	89.395	CC, ES
Minch 3G-4H - Hz - Plan #1	700.0	695.6	85.0	82.6	35.377	SF
Minch 3H-4H - Hz - Plan #1	200.0	200.0	69.3	68.6	106.121	CC, ES
Minch 3H-4H - Hz - Plan #1	700.0	691.1	109.1	106.7	45.425	SF

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3B-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-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	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 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-155.59	-10.9	0.0	11.7	10.7	1.00	11.695		
400.0	400.0	400.0	400.0	0.7	0.7	-159.97	-10.9	0.0	14.1	12.8	1.35	10.467		
500.0	499.9	500.1	500.1	0.9	0.9	-163.26	-10.3	-0.6	17.5	15.8	1.70	10.314		
600.0	599.7	600.4	600.3	1.1	1.0	-164.42	-8.2	-2.3	21.1	19.1	2.05	10.301		
700.0	699.4	700.6	700.5	1.3	1.2	-164.35	-4.9	-5.1	24.9	22.5	2.41	10.346		
800.0	798.9	801.0	800.6	1.5	1.4	-163.52	-0.2	-9.0	28.8	26.0	2.76	10.417		
900.0	898.3	901.4	900.7	1.8	1.6	-162.21	5.9	-14.1	32.9	29.7	3.13	10.497		
1,000.0	997.4	1,001.8	1,000.7	2.0	1.8	-160.61	13.3	-20.3	37.1	33.6	3.51	10.574		
1,100.0	1,096.3	1,102.2	1,100.5	2.3	2.1	-158.82	22.0	-27.6	41.6	37.7	3.91	10.638		
1,200.0	1,194.9	1,202.7	1,200.1	2.7	2.4	-156.91	32.1	-36.1	46.3	42.0	4.34	10.680		
1,300.0	1,293.3	1,303.3	1,299.5	3.0	2.6	-154.96	43.5	-45.7	51.3	46.5	4.79	10.693		
1,400.0	1,391.2	1,403.9	1,398.7	3.4	3.0	-152.99	56.3	-56.4	56.5	51.2	5.29	10.674		
1,500.0	1,488.9	1,504.5	1,497.6	3.8	3.3	-151.03	70.4	-68.2	62.0	56.1	5.84	10.622		
1,600.0	1,586.1	1,605.1	1,596.2	4.2	3.7	-149.10	85.8	-81.2	67.8	61.4	6.43	10.539		
1,700.0	1,682.9	1,704.8	1,693.8	4.7	4.0	-147.77	101.7	-94.5	74.6	67.5	7.04	10.585		
1,800.0	1,779.5	1,804.5	1,791.3	5.2	4.4	-147.02	117.6	-107.8	82.1	74.5	7.66	10.718		
1,900.0	1,876.1	1,904.2	1,888.8	5.6	4.8	-146.40	133.4	-121.1	89.7	81.4	8.29	10.820		
2,000.0	1,972.7	2,003.9	1,986.4	6.1	5.2	-145.88	149.3	-134.5	97.2	88.3	8.92	10.898		
2,100.0	2,069.3	2,103.7	2,083.9	6.6	5.6	-145.43	165.2	-147.8	104.8	95.2	9.56	10.959		
2,200.0	2,165.9	2,203.4	2,181.4	7.0	6.0	-145.04	181.1	-161.1	112.4	102.2	10.21	11.007		
2,300.0	2,262.5	2,303.1	2,279.0	7.5	6.4	-144.70	197.0	-174.4	120.0	109.1	10.86	11.045		
2,400.0	2,359.1	2,402.8	2,376.5	8.0	6.8	-144.41	212.8	-187.8	127.5	116.0	11.52	11.076		
2,500.0	2,455.7	2,502.5	2,474.0	8.5	7.2	-144.14	228.7	-201.1	135.1	123.0	12.17	11.101		
2,600.0	2,552.3	2,602.2	2,571.6	9.0	7.5	-143.90	244.6	-214.4	142.7	129.9	12.83	11.121		
2,700.0	2,648.8	2,701.9	2,669.1	9.4	7.9	-143.69	260.5	-227.7	150.3	136.8	13.50	11.138		
2,800.0	2,745.4	2,801.6	2,766.6	9.9	8.3	-143.50	276.4	-241.1	157.9	143.8	14.16	11.151		
2,900.0	2,842.0	2,901.3	2,864.1	10.4	8.7	-143.32	292.2	-254.4	165.5	150.7	14.83	11.162		
3,000.0	2,938.6	3,001.0	2,961.7	10.9	9.1	-143.16	308.1	-267.7	173.1	157.6	15.50	11.172		
3,100.0	3,035.2	3,100.8	3,059.2	11.4	9.5	-143.02	324.0	-281.0	180.7	164.5	16.16	11.180		
3,200.0	3,131.8	3,200.5	3,156.7	11.8	9.9	-142.88	339.9	-294.4	188.3	171.5	16.83	11.186		
3,300.0	3,228.4	3,300.2	3,254.3	12.3	10.3	-142.76	355.8	-307.7	195.9	178.4	17.51	11.191		
3,400.0	3,325.0	3,399.9	3,351.8	12.8	10.7	-142.64	371.7	-321.0	203.5	185.3	18.18	11.196		
3,500.0	3,421.6	3,499.6	3,449.3	13.3	11.1	-142.54	387.5	-334.3	211.1	192.3	18.85	11.199		
3,600.0	3,518.2	3,599.3	3,546.9	13.8	11.5	-142.44	403.4	-347.7	218.7	199.2	19.52	11.202		
3,700.0	3,614.8	3,698.3	3,643.7	14.3	11.9	-142.36	419.1	-360.9	226.4	206.2	20.19	11.211		
3,800.0	3,711.4	3,795.5	3,739.0	14.8	12.3	-142.53	433.6	-373.0	234.8	214.0	20.78	11.301		
3,900.0	3,808.0	3,892.4	3,834.4	15.2	12.6	-142.98	446.9	-384.1	244.3	223.1	21.27	11.485		
4,000.0	3,904.6	3,989.1	3,929.9	15.7	12.9	-143.68	458.8	-394.2	254.8	233.2	21.69	11.751		
4,100.0	4,001.6	4,085.7	4,025.4	16.2	13.2	-144.46	469.5	-403.1	265.3	243.3	22.04	12.037		
4,200.0	4,099.0	4,182.1	4,121.0	16.6	13.5	-145.24	479.0	-411.1	275.6	253.2	22.36	12.323		
4,300.0	4,196.7	4,278.3	4,216.7	17.0	13.7	-146.01	487.2	-418.0	285.5	262.9	22.64	12.612		
4,400.0	4,294.9	4,374.5	4,312.4	17.3	13.9	-146.77	494.2	-423.8	295.2	272.3	22.88	12.902		
4,500.0	4,393.3	4,470.5	4,408.1	17.7	14.1	-147.54	499.9	-428.7	304.6	281.5	23.08	13.196		
4,600.0	4,492.1	4,566.4	4,503.8	18.0	14.3	-148.31	504.4	-432.4	313.8	290.5	23.26	13.493		
4,700.0	4,591.1	4,662.1	4,599.4	18.3	14.4	-149.08	507.7	-435.2	322.7	299.3	23.40	13.793		
4,800.0	4,690.3	4,757.7	4,695.0	18.5	14.5	-149.85	509.7	-436.9	331.4	307.9	23.51	14.097		
4,900.0	4,789.7	4,853.2	4,790.5	18.8	14.7	-150.63	510.6	-437.6	339.8	316.2	23.59	14.403		
5,000.0	4,889.3	4,952.1	4,889.3	19.0	14.8	-151.38	510.6	-437.6	347.6	323.9	23.68	14.680		
5,100.0	4,989.1	5,051.8	4,989.1	19.2	14.9	-151.96	510.6	-437.6	353.9	330.1	23.80	14.869		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3B-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	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		
5,200.0	5,088.9	5,151.7	5,088.9	19.3	15.0	-152.39	510.6	-437.6	358.6	334.7	23.95	14.972		
5,300.0	5,188.9	5,251.6	5,188.9	19.4	15.1	-152.67	510.6	-437.6	361.9	337.8	24.14	14.991		
5,400.0	5,288.8	5,351.6	5,288.8	19.5	15.2	-152.82	510.6	-437.6	363.6	339.2	24.36	14.928		
5,500.0	5,388.8	5,451.6	5,388.8	19.6	15.3	-179.14	510.6	-437.6	363.9	332.8	31.09	11.704		
5,600.0	5,488.8	5,551.6	5,488.8	19.7	15.4	-179.14	510.6	-437.6	363.9	332.6	31.31	11.622		
5,700.0	5,588.8	5,651.6	5,588.8	19.8	15.5	-179.14	510.6	-437.6	363.9	332.3	31.53	11.540		
5,800.0	5,688.8	5,751.6	5,688.8	19.9	15.6	-179.14	510.6	-437.6	363.9	332.1	31.76	11.458		
5,900.0	5,788.8	5,851.6	5,788.8	20.0	15.7	-179.14	510.6	-437.6	363.9	331.9	31.98	11.377		
6,000.0	5,888.8	5,951.6	5,888.8	20.1	15.8	-179.14	510.6	-437.6	363.9	331.7	32.21	11.296		
6,100.0	5,988.8	6,051.6	5,988.8	20.1	15.9	-179.14	510.6	-437.6	363.9	331.4	32.45	11.215		
6,200.0	6,088.8	6,151.6	6,088.8	20.2	16.1	-179.14	510.6	-437.6	363.9	331.2	32.68	11.135		
6,300.0	6,188.8	6,251.6	6,188.8	20.3	16.2	-179.14	510.6	-437.6	363.9	331.0	32.91	11.056		
6,400.0	6,288.8	6,351.6	6,288.8	20.4	16.3	-179.14	510.6	-437.6	363.9	330.7	33.15	10.976		
6,500.0	6,388.8	6,451.6	6,388.8	20.5	16.4	-179.14	510.6	-437.6	363.9	330.5	33.39	10.898		
6,558.1	6,446.9	6,509.7	6,446.9	20.6	16.5	90.94	510.6	-437.6	363.9	336.3	27.59	13.191		
6,600.0	6,488.8	6,551.6	6,488.8	20.6	16.5	90.91	510.6	-437.6	363.9	336.2	27.70	13.138		
6,700.0	6,588.3	6,651.0	6,588.3	20.6	16.7	92.43	510.6	-437.6	364.2	336.0	28.22	12.907		
6,800.0	6,685.3	6,748.8	6,686.1	20.6	16.8	95.89	510.6	-437.5	365.9	336.9	29.00	12.619		
6,900.0	6,778.2	6,852.4	6,789.2	20.4	16.8	100.11	510.6	-428.1	370.1	340.5	29.54	12.526		
7,000.0	6,865.0	6,960.9	6,894.5	20.3	16.7	104.14	510.6	-402.4	376.1	346.6	29.53	12.734		
7,100.0	6,944.1	7,074.7	6,999.4	20.1	16.5	107.89	510.6	-358.8	383.5	354.6	28.98	13.235		
7,200.0	7,013.9	7,194.0	7,100.6	20.0	16.3	111.25	510.6	-295.8	391.8	363.7	28.03	13.976		
7,300.0	7,073.1	7,319.0	7,193.9	20.0	16.0	114.13	510.6	-212.8	400.0	372.9	27.01	14.807		
7,400.0	7,120.5	7,449.4	7,274.2	20.1	15.9	116.45	510.6	-110.3	407.3	380.9	26.42	15.420		
7,500.0	7,155.2	7,584.4	7,336.4	20.3	16.1	118.14	510.6	9.2	413.1	386.3	26.85	15.389		
7,600.0	7,176.5	7,722.7	7,375.8	20.8	17.0	119.13	510.6	141.6	416.7	388.0	28.68	14.531		
7,700.0	7,184.0	7,862.0	7,389.0	21.6	18.7	119.39	510.6	280.1	417.7	385.8	31.92	13.086		
7,738.2	7,184.2	7,900.2	7,389.0	22.0	19.2	119.37	510.6	318.2	417.6	384.6	33.02	12.647		
7,800.0	7,184.0	7,962.0	7,389.0	22.8	20.2	119.39	510.6	380.1	417.7	382.8	34.86	11.983		
7,900.0	7,184.0	8,062.0	7,389.0	24.2	22.0	119.39	510.6	480.1	417.7	379.7	38.03	10.984		
8,000.0	7,184.0	8,162.0	7,389.0	25.8	23.9	119.39	510.5	580.1	417.7	376.3	41.40	10.089		
8,100.0	7,184.0	8,262.0	7,389.0	27.6	25.9	119.39	510.5	680.1	417.7	372.8	44.94	9.295		
8,200.0	7,184.0	8,362.0	7,389.0	29.5	28.0	119.39	510.5	780.1	417.7	369.1	48.61	8.594		
8,300.0	7,184.0	8,462.0	7,389.0	31.5	30.1	119.39	510.5	880.1	417.7	365.4	52.37	7.976		
8,400.0	7,184.0	8,562.0	7,389.0	33.5	32.3	119.39	510.5	980.1	417.7	361.5	56.21	7.431		
8,500.0	7,184.0	8,662.0	7,389.0	35.7	34.5	119.39	510.5	1,080.1	417.7	357.6	60.12	6.948		
8,600.0	7,184.0	8,762.0	7,389.0	37.8	36.8	119.39	510.5	1,180.1	417.7	353.7	64.08	6.519		
8,700.0	7,184.0	8,862.0	7,389.0	40.0	39.0	119.39	510.5	1,280.1	417.8	349.7	68.09	6.136		
8,800.0	7,184.0	8,962.0	7,389.0	42.3	41.3	119.39	510.5	1,380.1	417.8	345.6	72.13	5.792		
8,900.0	7,184.0	9,062.0	7,389.0	44.6	43.7	119.39	510.5	1,480.1	417.8	341.6	76.20	5.483		
9,000.0	7,184.0	9,162.0	7,389.0	46.8	46.0	119.39	510.5	1,580.1	417.8	337.5	80.29	5.203		
9,100.0	7,184.0	9,262.0	7,389.0	49.2	48.3	119.39	510.5	1,680.1	417.8	333.4	84.41	4.949		
9,200.0	7,184.0	9,362.0	7,389.0	51.5	50.7	119.38	510.5	1,780.1	417.8	329.2	88.55	4.718		
9,300.0	7,184.0	9,462.0	7,389.0	53.8	53.1	119.38	510.5	1,880.1	417.8	325.1	92.70	4.507		
9,400.0	7,184.0	9,562.0	7,389.0	56.2	55.4	119.38	510.5	1,980.1	417.8	320.9	96.87	4.313		
9,500.0	7,184.0	9,662.0	7,389.0	58.5	57.8	119.38	510.5	2,080.1	417.8	316.8	101.05	4.135		
9,600.0	7,184.0	9,762.0	7,389.0	60.9	60.2	119.38	510.5	2,180.1	417.8	312.6	105.24	3.970		
9,700.0	7,184.0	9,862.0	7,389.0	63.3	62.6	119.38	510.5	2,280.1	417.8	308.4	109.45	3.818		
9,800.0	7,184.0	9,962.0	7,389.0	65.7	65.0	119.38	510.5	2,380.1	417.8	304.2	113.66	3.676		
9,900.0	7,184.0	10,062.0	7,389.0	68.0	67.4	119.38	510.5	2,480.1	417.9	300.0	117.87	3.545		
10,000.0	7,184.0	10,162.0	7,389.0	70.4	69.9	119.38	510.5	2,580.1	417.9	295.8	122.10	3.422		
10,100.0	7,184.0	10,262.0	7,389.0	72.8	72.3	119.38	510.5	2,680.1	417.9	291.5	126.33	3.308		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3B-4H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
10,200.0	7,184.0	10,362.0	7,389.0	75.2	74.7	119.38	510.5	2,780.1	417.9	287.3	130.57	3.200		
10,300.0	7,184.0	10,462.0	7,389.0	77.7	77.1	119.38	510.5	2,880.1	417.9	283.1	134.81	3.100		
10,400.0	7,184.0	10,562.0	7,389.0	80.1	79.6	119.38	510.5	2,980.1	417.9	278.8	139.06	3.005		
10,500.0	7,184.0	10,662.0	7,389.0	82.5	82.0	119.38	510.5	3,080.1	417.9	274.6	143.31	2.916		
10,600.0	7,184.0	10,762.0	7,389.0	84.9	84.4	119.38	510.5	3,180.1	417.9	270.3	147.56	2.832		
10,700.0	7,184.0	10,862.0	7,389.0	87.3	86.9	119.38	510.4	3,280.1	417.9	266.1	151.82	2.753		
10,800.0	7,184.0	10,962.0	7,389.0	89.8	89.3	119.37	510.4	3,380.1	417.9	261.8	156.08	2.678		
10,900.0	7,184.0	11,062.0	7,389.0	92.2	91.7	119.37	510.4	3,480.1	417.9	257.6	160.35	2.606		
11,000.0	7,184.0	11,162.0	7,389.0	94.6	94.2	119.37	510.4	3,580.1	417.9	253.3	164.62	2.539		
11,100.0	7,184.0	11,262.0	7,389.0	97.1	96.6	119.37	510.4	3,680.1	417.9	249.1	168.89	2.475		
11,200.0	7,184.0	11,362.0	7,389.0	99.5	99.1	119.37	510.4	3,780.1	418.0	244.8	173.16	2.414		
11,300.0	7,184.0	11,462.0	7,389.0	101.9	101.5	119.37	510.4	3,880.1	418.0	240.5	177.43	2.356		
11,400.0	7,184.0	11,562.0	7,389.0	104.4	104.0	119.37	510.4	3,980.1	418.0	236.3	181.71	2.300		
11,500.0	7,184.0	11,662.0	7,389.0	106.8	106.4	119.37	510.4	4,080.1	418.0	232.0	185.99	2.247		
11,600.0	7,184.0	11,762.0	7,389.0	109.3	108.9	119.37	510.4	4,180.1	418.0	227.7	190.27	2.197		
11,700.0	7,184.0	11,862.0	7,389.0	111.7	111.3	119.37	510.4	4,280.1	418.0	223.4	194.55	2.148		
11,800.0	7,184.0	11,962.0	7,389.0	114.1	113.8	119.37	510.4	4,380.1	418.0	219.2	198.84	2.102		
11,815.9	7,184.0	11,977.9	7,389.0	114.5	114.2	119.37	510.4	4,395.9	418.0	218.5	199.52	2.095 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3C-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-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	-21.9	0.0	21.9					
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-21.9	0.0	21.9	21.6	0.30	71.973		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-21.9	0.0	21.9	21.2	0.65	33.485 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-154.68	-21.9	0.0	22.6	21.6	1.00	22.600		
400.0	400.0	400.0	400.0	0.7	0.7	-157.23	-21.9	0.0	25.0	23.7	1.35	18.525		
500.0	499.9	499.9	499.9	0.9	0.8	-160.54	-21.9	0.0	29.1	27.4	1.70	17.112		
600.0	599.7	599.7	599.7	1.1	1.0	-163.86	-21.9	0.0	34.9	32.9	2.05	17.037 SF		
700.0	699.4	699.8	699.8	1.3	1.2	-165.83	-21.5	-0.8	42.0	39.6	2.40	17.514		
800.0	798.9	799.9	799.9	1.5	1.4	-166.03	-20.5	-3.2	49.8	47.1	2.75	18.114		
900.0	898.3	900.1	900.0	1.8	1.6	-165.17	-18.9	-7.3	58.4	55.3	3.11	18.766		
1,000.0	997.4	1,000.3	999.9	2.0	1.7	-163.67	-16.6	-12.9	67.6	64.1	3.48	19.434		
1,100.0	1,096.3	1,100.4	1,099.8	2.3	2.0	-161.80	-13.6	-20.2	77.7	73.8	3.87	20.090		
1,200.0	1,194.9	1,200.5	1,199.4	2.7	2.2	-159.74	-9.9	-29.1	88.6	84.3	4.28	20.710		
1,300.0	1,293.3	1,300.5	1,298.7	3.0	2.4	-157.60	-5.6	-39.6	100.4	95.7	4.72	21.274		
1,400.0	1,391.2	1,400.4	1,397.8	3.4	2.7	-155.46	-0.7	-51.6	113.2	108.0	5.20	21.766		
1,500.0	1,488.9	1,500.2	1,496.5	3.8	2.9	-153.36	4.9	-65.3	127.0	121.2	5.72	22.177		
1,600.0	1,586.1	1,599.8	1,594.7	4.2	3.2	-151.32	11.2	-80.5	141.8	135.5	6.30	22.507		
1,700.0	1,682.9	1,698.4	1,691.8	4.7	3.5	-149.69	17.7	-96.3	157.9	151.0	6.90	22.894		
1,800.0	1,779.5	1,796.9	1,788.8	5.2	3.9	-148.58	24.1	-112.2	174.9	167.4	7.52	23.274		
1,900.0	1,876.1	1,895.4	1,885.8	5.6	4.2	-147.66	30.6	-128.0	191.9	183.8	8.14	23.569		
2,000.0	1,972.7	1,993.9	1,982.8	6.1	4.5	-146.89	37.1	-143.8	209.0	200.2	8.78	23.801		
2,100.0	2,069.3	2,092.4	2,079.8	6.6	4.8	-146.24	43.6	-159.6	226.1	216.7	9.43	23.986		
2,200.0	2,165.9	2,190.9	2,176.8	7.0	5.2	-145.68	50.1	-175.5	243.2	233.2	10.08	24.135		
2,300.0	2,262.5	2,289.4	2,273.8	7.5	5.5	-145.20	56.6	-191.3	260.4	249.7	10.73	24.257		
2,400.0	2,359.1	2,387.9	2,370.8	8.0	5.8	-144.77	63.1	-207.1	277.6	266.2	11.39	24.358		
2,500.0	2,455.7	2,486.4	2,467.8	8.5	6.2	-144.40	69.6	-222.9	294.7	282.7	12.06	24.442		
2,600.0	2,552.3	2,584.9	2,564.8	9.0	6.5	-144.06	76.1	-238.8	311.9	299.2	12.72	24.513		
2,700.0	2,648.8	2,683.4	2,661.8	9.4	6.8	-143.76	82.6	-254.6	329.1	315.7	13.39	24.572		
2,800.0	2,745.4	2,781.9	2,758.8	9.9	7.2	-143.49	89.0	-270.4	346.3	332.3	14.06	24.624		
2,900.0	2,842.0	2,880.4	2,855.8	10.4	7.5	-143.25	95.5	-286.2	363.5	348.8	14.74	24.668		
3,000.0	2,938.6	2,978.9	2,952.8	10.9	7.9	-143.02	102.0	-302.1	380.7	365.3	15.41	24.706		
3,100.0	3,035.2	3,077.4	3,049.8	11.4	8.2	-142.82	108.5	-317.9	398.0	381.9	16.09	24.739		
3,200.0	3,131.8	3,175.9	3,146.8	11.8	8.5	-142.63	115.0	-333.7	415.2	398.4	16.76	24.768		
3,300.0	3,228.4	3,274.4	3,243.8	12.3	8.9	-142.46	121.5	-349.5	432.4	415.0	17.44	24.793		
3,400.0	3,325.0	3,371.9	3,339.9	12.8	9.2	-142.35	127.8	-364.9	449.7	431.6	18.10	24.850		
3,500.0	3,421.6	3,468.7	3,435.6	13.3	9.5	-142.43	133.5	-378.8	467.4	448.7	18.70	24.988		
3,600.0	3,518.2	3,565.4	3,531.4	13.8	9.8	-142.70	138.5	-391.1	485.3	466.1	19.26	25.203		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3D-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	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	-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	299.8	299.8	0.5	0.5	-147.59	-29.4	-3.6	30.4	29.4	1.00	30.301		
400.0	400.0	399.5	399.4	0.7	0.7	-145.92	-30.2	-6.1	33.7	32.3	1.36	24.832		
500.0	499.9	499.0	498.9	0.9	0.9	-143.77	-31.6	-10.2	39.2	37.5	1.72	22.830		
600.0	599.7	598.3	598.0	1.1	1.1	-141.61	-33.5	-15.9	47.1	45.0	2.09	22.487 SF		
700.0	699.4	697.3	696.7	1.3	1.3	-139.69	-36.0	-23.2	57.2	54.7	2.49	23.027		
800.0	798.9	795.9	794.9	1.5	1.5	-138.10	-39.0	-32.2	69.7	66.8	2.90	24.051		
900.0	898.3	894.1	892.4	1.8	1.8	-136.80	-42.5	-42.6	84.4	81.0	3.33	25.337		
1,000.0	997.4	991.7	989.2	2.0	2.0	-135.76	-46.5	-54.6	101.3	97.5	3.79	26.749		
1,100.0	1,096.3	1,088.7	1,085.2	2.3	2.3	-134.91	-51.0	-68.0	120.5	116.2	4.27	28.203		
1,200.0	1,194.9	1,185.1	1,180.2	2.7	2.6	-134.20	-55.9	-82.9	141.9	137.1	4.79	29.648		
1,300.0	1,293.3	1,282.1	1,275.8	3.0	2.9	-133.78	-61.3	-98.9	165.1	159.8	5.32	31.028		
1,400.0	1,391.2	1,379.1	1,371.3	3.4	3.3	-133.79	-66.6	-114.8	189.5	183.6	5.87	32.261		
1,500.0	1,488.9	1,475.8	1,466.5	3.8	3.6	-134.10	-72.0	-130.7	215.1	208.7	6.44	33.382		
1,600.0	1,586.1	1,572.1	1,561.3	4.2	3.9	-134.59	-77.3	-146.6	241.9	234.9	7.03	34.421		
1,700.0	1,682.9	1,668.0	1,655.8	4.7	4.3	-135.21	-82.5	-162.4	269.9	262.3	7.62	35.402		
1,800.0	1,779.5	1,763.7	1,750.1	5.2	4.6	-136.01	-87.8	-178.2	298.5	290.3	8.23	36.272		
1,900.0	1,876.1	1,859.5	1,844.4	5.6	4.9	-136.66	-93.1	-193.9	327.2	318.4	8.84	37.020		
2,000.0	1,972.7	1,955.2	1,938.7	6.1	5.2	-137.21	-98.4	-209.7	355.9	346.5	9.45	37.669		
2,100.0	2,069.3	2,050.9	2,032.9	6.6	5.6	-137.68	-103.6	-225.5	384.7	374.6	10.06	38.236		
2,200.0	2,165.9	2,146.7	2,127.2	7.0	5.9	-138.08	-108.9	-241.2	413.5	402.8	10.67	38.737		
2,300.0	2,262.5	2,242.4	2,221.5	7.5	6.2	-138.43	-114.2	-257.0	442.2	431.0	11.29	39.181		
2,400.0	2,359.1	2,338.1	2,315.8	8.0	6.6	-138.74	-119.5	-272.8	471.0	459.1	11.90	39.579		
2,500.0	2,455.7	2,433.9	2,410.1	8.5	6.9	-139.01	-124.7	-288.5	499.8	487.3	12.52	39.936		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3E-4H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-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	-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 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-150.33	-40.1	-2.8	40.9	39.9	1.00	40.844		
400.0	400.0	400.0	400.0	0.7	0.7	-152.04	-40.1	-2.8	43.2	41.9	1.35	31.970		
500.0	499.9	499.9	499.9	0.9	0.8	-154.51	-40.1	-2.8	47.1	45.4	1.70	27.676		
600.0	599.7	599.7	599.7	1.1	1.0	-157.34	-40.1	-2.8	52.7	50.6	2.05	25.665		
700.0	699.4	699.4	699.4	1.3	1.2	-160.20	-40.1	-2.8	60.0	57.6	2.40	24.972 SF		
800.0	798.9	798.9	798.9	1.5	1.4	-162.87	-40.1	-2.8	69.1	66.4	2.75	25.113		
900.0	898.3	897.4	897.4	1.8	1.5	-164.74	-40.7	-3.3	80.5	77.4	3.10	25.985		
1,000.0	997.4	995.5	995.4	2.0	1.7	-165.56	-42.6	-5.0	94.7	91.2	3.45	27.474		
1,100.0	1,096.3	1,093.0	1,092.9	2.3	1.9	-165.67	-45.7	-7.7	111.6	107.8	3.80	29.375		
1,200.0	1,194.9	1,189.8	1,189.5	2.7	2.1	-165.34	-50.1	-11.4	131.1	127.0	4.15	31.555		
1,300.0	1,293.3	1,285.9	1,285.3	3.0	2.3	-164.74	-55.7	-16.2	153.3	148.8	4.52	33.919		
1,400.0	1,391.2	1,381.0	1,380.0	3.4	2.5	-164.02	-62.4	-22.0	178.2	173.3	4.90	36.398		
1,500.0	1,488.9	1,475.1	1,473.6	3.8	2.7	-163.23	-70.2	-28.7	205.7	200.4	5.28	38.938		
1,600.0	1,586.1	1,568.2	1,565.9	4.2	2.9	-162.43	-79.1	-36.3	235.8	230.1	5.68	41.499		
1,700.0	1,682.9	1,661.8	1,658.6	4.7	3.1	-161.68	-88.9	-44.8	268.3	262.2	6.09	44.022		
1,800.0	1,779.5	1,756.1	1,752.0	5.2	3.4	-161.21	-98.8	-53.3	301.6	295.1	6.52	46.231		
1,900.0	1,876.1	1,850.3	1,845.3	5.6	3.6	-160.84	-108.8	-61.9	335.0	328.1	6.96	48.134		
2,000.0	1,972.7	1,944.6	1,938.6	6.1	3.9	-160.53	-118.7	-70.4	368.4	361.0	7.40	49.787		
2,100.0	2,069.3	2,038.8	2,031.9	6.6	4.1	-160.28	-128.6	-79.0	401.8	394.0	7.84	51.233		
2,200.0	2,165.9	2,133.1	2,125.3	7.0	4.4	-160.06	-138.6	-87.5	435.2	426.9	8.29	52.507		
2,300.0	2,262.5	2,227.3	2,218.6	7.5	4.7	-159.88	-148.5	-96.1	468.6	459.9	8.74	53.637		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3F-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-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			
0.0	0.0	0.0	0.0	0.0	0.0	-176.87	-51.0	-2.8	51.1					
100.0	100.0	100.0	100.0	0.2	0.2	-176.87	-51.0	-2.8	51.1	50.8	0.30	168.188		
200.0	200.0	200.0	200.0	0.3	0.3	-176.87	-51.0	-2.8	51.1	50.4	0.65	78.248 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-151.04	-51.0	-2.8	51.8	50.8	1.00	51.737		
400.0	400.0	400.0	400.0	0.7	0.7	-152.37	-51.0	-2.8	54.1	52.8	1.35	40.053		
500.0	499.9	499.9	499.9	0.9	0.8	-154.35	-51.0	-2.8	58.0	56.3	1.70	34.094		
600.0	599.7	599.7	599.7	1.1	1.0	-156.71	-51.0	-2.8	63.6	61.5	2.05	30.973		
700.0	699.4	698.4	698.4	1.3	1.2	-158.78	-51.7	-3.2	71.6	69.2	2.40	29.789 SF		
800.0	798.9	796.6	796.6	1.5	1.4	-160.12	-53.9	-4.4	82.7	79.9	2.75	30.024		
900.0	898.3	894.4	894.3	1.8	1.5	-160.87	-57.6	-6.5	96.8	93.7	3.11	31.164		
1,000.0	997.4	991.5	991.2	2.0	1.7	-161.17	-62.7	-9.3	113.9	110.4	3.46	32.904		
1,100.0	1,096.3	1,087.8	1,087.2	2.3	1.9	-161.18	-69.1	-12.9	133.9	130.1	3.82	35.049		
1,200.0	1,194.9	1,183.2	1,182.2	2.7	2.1	-161.00	-76.9	-17.3	156.9	152.7	4.19	37.467		
1,300.0	1,293.3	1,277.5	1,276.0	3.0	2.3	-160.71	-85.9	-22.3	182.8	178.2	4.56	40.067		
1,400.0	1,391.2	1,370.8	1,368.4	3.4	2.6	-160.36	-96.2	-28.0	211.5	206.5	4.94	42.783		
1,500.0	1,488.9	1,462.7	1,459.5	3.8	2.8	-159.99	-107.6	-34.4	243.0	237.6	5.33	45.564		
1,600.0	1,586.1	1,553.3	1,548.9	4.2	3.1	-159.60	-120.1	-41.4	277.3	271.5	5.73	48.374		
1,700.0	1,682.9	1,644.4	1,638.6	4.7	3.4	-159.22	-133.7	-49.0	314.1	308.0	6.14	51.151		
1,800.0	1,779.5	1,737.0	1,729.8	5.2	3.7	-159.06	-147.7	-56.9	351.9	345.4	6.57	53.570		
1,900.0	1,876.1	1,829.5	1,821.0	5.6	4.0	-158.94	-161.8	-64.7	389.7	382.7	7.00	55.661		
2,000.0	1,972.7	1,922.1	1,912.1	6.1	4.3	-158.83	-175.8	-72.5	427.5	420.1	7.44	57.485		
2,100.0	2,069.3	2,014.7	2,003.3	6.6	4.6	-158.74	-189.8	-80.4	465.3	457.4	7.88	59.087		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3G-4H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-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	-177.26	-58.3	-2.8	58.4					
100.0	100.0	100.0	100.0	0.2	0.2	-177.26	-58.3	-2.8	58.4	58.0	0.30	192.147		
200.0	200.0	200.0	200.0	0.3	0.3	-177.26	-58.3	-2.8	58.4	57.7	0.65	89.395 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-151.37	-58.3	-2.8	59.1	58.1	1.00	59.002		
400.0	400.0	400.0	400.0	0.7	0.7	-152.52	-58.3	-2.8	61.4	60.1	1.35	45.442		
500.0	499.9	498.8	498.8	0.9	0.8	-153.95	-59.1	-3.1	66.1	64.4	1.70	38.874		
600.0	599.7	597.4	597.4	1.1	1.0	-155.18	-61.4	-4.1	74.0	71.9	2.05	36.073		
700.0	699.4	695.6	695.4	1.3	1.2	-156.13	-65.3	-5.8	85.0	82.6	2.40	35.377 SF		
800.0	798.9	793.1	792.8	1.5	1.4	-156.79	-70.7	-8.1	99.2	96.4	2.76	35.960		
900.0	898.3	890.0	889.4	1.8	1.6	-157.21	-77.5	-11.1	116.4	113.3	3.12	37.363		
1,000.0	997.4	986.0	985.0	2.0	1.8	-157.46	-85.8	-14.6	136.7	133.2	3.48	39.310		
1,100.0	1,096.3	1,081.1	1,079.5	2.3	2.0	-157.58	-95.4	-18.8	160.0	156.2	3.84	41.622		
1,200.0	1,194.9	1,175.1	1,172.7	2.7	2.3	-157.60	-106.4	-23.5	186.3	182.1	4.22	44.180		
1,300.0	1,293.3	1,267.8	1,264.5	3.0	2.5	-157.57	-118.5	-28.8	215.6	211.0	4.60	46.901		
1,400.0	1,391.2	1,359.2	1,354.8	3.4	2.8	-157.48	-131.9	-34.5	247.7	242.7	4.98	49.724		
1,500.0	1,488.9	1,449.2	1,443.4	3.8	3.1	-157.37	-146.3	-40.7	282.7	277.3	5.37	52.610		
1,600.0	1,586.1	1,540.5	1,533.0	4.2	3.4	-157.26	-161.9	-47.5	320.2	314.4	5.77	55.447		
1,700.0	1,682.9	1,632.5	1,623.4	4.7	3.7	-157.25	-177.8	-54.3	359.2	353.1	6.18	58.104		
1,800.0	1,779.5	1,724.2	1,713.5	5.2	4.1	-157.42	-193.6	-61.1	399.1	392.5	6.61	60.417		
1,900.0	1,876.1	1,815.9	1,803.6	5.6	4.4	-157.55	-209.4	-67.9	438.9	431.9	7.03	62.428		
2,000.0	1,972.7	1,907.7	1,893.7	6.1	4.7	-157.67	-225.3	-74.8	478.7	471.3	7.46	64.190		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 3H-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	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	-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	228.099		
200.0	200.0	200.0	200.0	0.3	0.3	-177.69	-69.2	-2.8	69.3	68.6	0.65	106.121	CC, ES	
300.0	300.0	298.8	298.8	0.5	0.5	-151.53	-70.0	-3.1	70.9	69.9	1.00	70.869		
400.0	400.0	397.5	397.5	0.7	0.7	-151.91	-72.5	-3.8	75.7	74.3	1.35	56.128		
500.0	499.9	495.9	495.7	0.9	0.9	-152.45	-76.5	-5.2	83.6	81.9	1.70	49.277		
600.0	599.7	593.8	593.5	1.1	1.1	-153.05	-82.1	-7.0	94.8	92.7	2.05	46.275		
700.0	699.4	691.1	690.5	1.3	1.3	-153.62	-89.2	-9.3	109.1	106.7	2.40	45.425	SF	
800.0	798.9	787.7	786.6	1.5	1.5	-154.14	-97.8	-12.1	126.6	123.8	2.76	45.885		
900.0	898.3	883.3	881.7	1.8	1.7	-154.58	-107.9	-15.4	147.2	144.1	3.12	47.188		
1,000.0	997.4	978.0	975.6	2.0	2.0	-154.95	-119.4	-19.1	170.8	167.4	3.48	49.052		
1,100.0	1,096.3	1,071.6	1,068.2	2.3	2.3	-155.24	-132.1	-23.3	197.5	193.7	3.85	51.298		
1,200.0	1,194.9	1,163.8	1,159.3	2.7	2.5	-155.46	-146.1	-27.8	227.2	223.0	4.22	53.804		
1,300.0	1,293.3	1,254.7	1,248.8	3.0	2.9	-155.63	-161.3	-32.7	259.9	255.3	4.60	56.488		
1,400.0	1,391.2	1,344.2	1,336.6	3.4	3.2	-155.76	-177.5	-38.0	295.4	290.4	4.98	59.288		
1,500.0	1,488.9	1,432.0	1,422.5	3.8	3.5	-155.84	-194.7	-43.6	333.7	328.3	5.37	62.161		
1,600.0	1,586.1	1,518.9	1,507.3	4.2	3.9	-155.89	-212.9	-49.5	374.8	369.0	5.76	65.063		
1,700.0	1,682.9	1,609.1	1,595.2	4.7	4.2	-155.97	-232.3	-55.8	417.8	411.7	6.16	67.774		
1,800.0	1,779.5	1,699.1	1,682.8	5.2	4.6	-156.24	-251.7	-62.1	461.6	455.0	6.58	70.103		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3A-4H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Ensign)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 3A-4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5090.0ft (Ensign)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Minch 3A-4H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.31°

