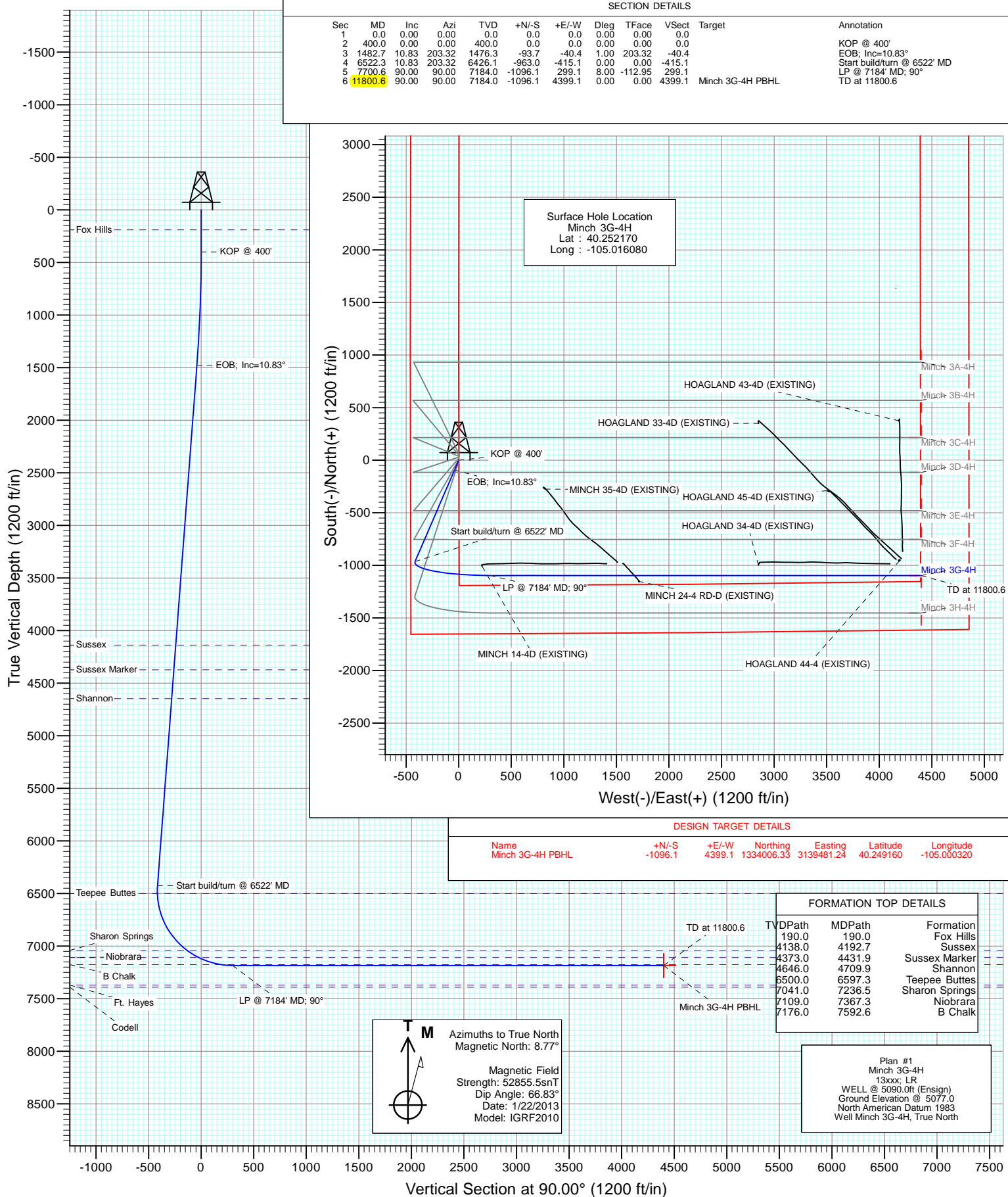




Project: DJ Wattenberg
Site: S4-T3N-R68W (Minch)
Well: Minch 3G-4H
Wellbore: Hz
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 3G-4H					
Well Position	+N/-S	0.0 ft	Northing:	1,335,078.41 ft	Latitude:	40.252170
	+E/-W	0.0 ft	Easting:	3,135,076.22 ft	Longitude:	-105.016080
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	52,855

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,482.7	10.83	203.32	1,476.3	-93.7	-40.4	1.00	1.00	0.00	203.32	
6,522.3	10.83	203.32	6,426.1	-963.0	-415.1	0.00	0.00	0.00	0.00	
7,700.6	90.00	90.00	7,184.0	-1,096.1	299.1	8.00	6.72	-9.62	-112.95	
11,800.6	90.00	90.00	7,184.0	-1,096.1	4,399.1	0.00	0.00	0.00	0.00	Minch 3G-4H PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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	
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	KOP @ 400'
500.0	1.00	203.32	500.0	-0.8	-0.3	-0.3	1.00	1.00	
600.0	2.00	203.32	600.0	-3.2	-1.4	-1.4	1.00	1.00	
700.0	3.00	203.32	699.9	-7.2	-3.1	-3.1	1.00	1.00	
800.0	4.00	203.32	799.7	-12.8	-5.5	-5.5	1.00	1.00	
900.0	5.00	203.32	899.4	-20.0	-8.6	-8.6	1.00	1.00	
1,000.0	6.00	203.32	998.9	-28.8	-12.4	-12.4	1.00	1.00	
1,100.0	7.00	203.32	1,098.3	-39.2	-16.9	-16.9	1.00	1.00	
1,200.0	8.00	203.32	1,197.4	-51.2	-22.1	-22.1	1.00	1.00	
1,300.0	9.00	203.32	1,296.3	-64.8	-27.9	-27.9	1.00	1.00	
1,400.0	10.00	203.32	1,394.9	-79.9	-34.5	-34.5	1.00	1.00	
1,482.7	10.83	203.32	1,476.3	-93.7	-40.4	-40.4	1.00	1.00	EOB; Inc=10.83°
1,500.0	10.83	203.32	1,493.3	-96.6	-41.7	-41.7	0.00	0.00	
1,600.0	10.83	203.32	1,591.5	-113.9	-49.1	-49.1	0.00	0.00	
1,700.0	10.83	203.32	1,689.7	-131.1	-56.5	-56.5	0.00	0.00	
1,800.0	10.83	203.32	1,787.9	-148.4	-64.0	-64.0	0.00	0.00	
1,900.0	10.83	203.32	1,886.1	-165.6	-71.4	-71.4	0.00	0.00	
2,000.0	10.83	203.32	1,984.4	-182.9	-78.8	-78.8	0.00	0.00	
2,100.0	10.83	203.32	2,082.6	-200.1	-86.3	-86.3	0.00	0.00	
2,200.0	10.83	203.32	2,180.8	-217.4	-93.7	-93.7	0.00	0.00	
2,300.0	10.83	203.32	2,279.0	-234.6	-101.1	-101.1	0.00	0.00	
2,400.0	10.83	203.32	2,377.2	-251.9	-108.6	-108.6	0.00	0.00	
2,500.0	10.83	203.32	2,475.5	-269.1	-116.0	-116.0	0.00	0.00	
2,600.0	10.83	203.32	2,573.7	-286.4	-123.5	-123.5	0.00	0.00	
2,700.0	10.83	203.32	2,671.9	-303.6	-130.9	-130.9	0.00	0.00	
2,800.0	10.83	203.32	2,770.1	-320.9	-138.3	-138.3	0.00	0.00	
2,900.0	10.83	203.32	2,868.3	-338.1	-145.8	-145.8	0.00	0.00	
3,000.0	10.83	203.32	2,966.6	-355.4	-153.2	-153.2	0.00	0.00	
3,100.0	10.83	203.32	3,064.8	-372.6	-160.6	-160.6	0.00	0.00	
3,200.0	10.83	203.32	3,163.0	-389.9	-168.1	-168.1	0.00	0.00	
3,300.0	10.83	203.32	3,261.2	-407.1	-175.5	-175.5	0.00	0.00	
3,400.0	10.83	203.32	3,359.4	-424.4	-182.9	-182.9	0.00	0.00	
3,500.0	10.83	203.32	3,457.7	-441.6	-190.4	-190.4	0.00	0.00	
3,600.0	10.83	203.32	3,555.9	-458.9	-197.8	-197.8	0.00	0.00	
3,700.0	10.83	203.32	3,654.1	-476.1	-205.3	-205.3	0.00	0.00	
3,800.0	10.83	203.32	3,752.3	-493.4	-212.7	-212.7	0.00	0.00	
3,900.0	10.83	203.32	3,850.5	-510.7	-220.1	-220.1	0.00	0.00	
4,000.0	10.83	203.32	3,948.8	-527.9	-227.6	-227.6	0.00	0.00	
4,100.0	10.83	203.32	4,047.0	-545.2	-235.0	-235.0	0.00	0.00	
4,192.7	10.83	203.32	4,138.0	-561.1	-241.9	-241.9	0.00	0.00	Sussex
4,200.0	10.83	203.32	4,145.2	-562.4	-242.4	-242.4	0.00	0.00	
4,300.0	10.83	203.32	4,243.4	-579.7	-249.9	-249.9	0.00	0.00	
4,400.0	10.83	203.32	4,341.6	-596.9	-257.3	-257.3	0.00	0.00	
4,431.9	10.83	203.32	4,373.0	-602.4	-259.7	-259.7	0.00	0.00	Sussex Marker
4,500.0	10.83	203.32	4,439.9	-614.2	-264.7	-264.7	0.00	0.00	
4,600.0	10.83	203.32	4,538.1	-631.4	-272.2	-272.2	0.00	0.00	
4,700.0	10.83	203.32	4,636.3	-648.7	-279.6	-279.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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
4,709.9	10.83	203.32	4,646.0	-650.4	-280.3	-280.3	0.00	0.00	Shannon
4,800.0	10.83	203.32	4,734.5	-665.9	-287.0	-287.0	0.00	0.00	
4,900.0	10.83	203.32	4,832.7	-683.2	-294.5	-294.5	0.00	0.00	
5,000.0	10.83	203.32	4,931.0	-700.4	-301.9	-301.9	0.00	0.00	
5,100.0	10.83	203.32	5,029.2	-717.7	-309.4	-309.4	0.00	0.00	
5,200.0	10.83	203.32	5,127.4	-734.9	-316.8	-316.8	0.00	0.00	
5,300.0	10.83	203.32	5,225.6	-752.2	-324.2	-324.2	0.00	0.00	
5,400.0	10.83	203.32	5,323.8	-769.4	-331.7	-331.7	0.00	0.00	
5,500.0	10.83	203.32	5,422.1	-786.7	-339.1	-339.1	0.00	0.00	
5,600.0	10.83	203.32	5,520.3	-803.9	-346.5	-346.5	0.00	0.00	
5,700.0	10.83	203.32	5,618.5	-821.2	-354.0	-354.0	0.00	0.00	Start build/turn @ 6522' MD Teepee Buttes
5,800.0	10.83	203.32	5,716.7	-838.4	-361.4	-361.4	0.00	0.00	
5,900.0	10.83	203.32	5,814.9	-855.7	-368.8	-368.8	0.00	0.00	
6,000.0	10.83	203.32	5,913.2	-872.9	-376.3	-376.3	0.00	0.00	
6,100.0	10.83	203.32	6,011.4	-890.2	-383.7	-383.7	0.00	0.00	
6,200.0	10.83	203.32	6,109.6	-907.4	-391.2	-391.2	0.00	0.00	
6,300.0	10.83	203.32	6,207.8	-924.7	-398.6	-398.6	0.00	0.00	
6,400.0	10.83	203.32	6,306.0	-941.9	-406.0	-406.0	0.00	0.00	
6,500.0	10.83	203.32	6,404.3	-959.2	-413.5	-413.5	0.00	0.00	
6,522.3	10.83	203.32	6,426.1	-963.0	-415.1	-415.1	0.00	0.00	
6,597.3	10.11	170.05	6,500.0	-976.0	-416.8	-416.8	8.00	-0.96	Sharon Springs
6,600.0	10.15	168.85	6,502.6	-976.4	-416.7	-416.7	8.00	1.44	
6,700.0	14.05	134.59	6,600.5	-993.6	-406.3	-406.3	8.00	3.90	
6,800.0	20.45	118.10	6,696.0	-1,010.4	-382.2	-382.2	8.00	6.41	
6,900.0	27.67	109.57	6,787.3	-1,026.4	-344.9	-344.9	8.00	7.22	
7,000.0	35.21	104.41	6,872.6	-1,041.4	-295.0	-295.0	8.00	7.54	
7,100.0	42.90	100.89	6,950.2	-1,055.0	-233.5	-233.5	8.00	7.69	
7,200.0	50.67	98.27	7,018.6	-1,067.0	-161.7	-161.7	8.00	7.77	
7,236.5	53.52	97.46	7,041.0	-1,071.0	-133.2	-133.2	8.00	7.81	
7,300.0	58.49	96.18	7,076.5	-1,077.2	-80.9	-80.9	8.00	7.82	Niobrara
7,367.3	63.77	94.96	7,109.0	-1,082.9	-22.3	-22.3	8.00	7.84	
7,400.0	66.34	94.41	7,122.8	-1,085.3	7.3	7.3	8.00	7.85	
7,500.0	74.20	92.85	7,156.5	-1,091.3	101.1	101.1	8.00	7.86	
7,592.6	81.49	91.51	7,176.0	-1,094.7	191.5	191.5	8.00	7.87	
7,600.0	82.07	91.40	7,177.1	-1,094.9	198.8	198.8	8.00	7.88	
7,700.0	89.95	90.01	7,184.0	-1,096.1	298.5	298.5	8.00	7.88	
7,700.6	90.00	90.00	7,184.0	-1,096.1	299.1	299.1	8.00	7.88	
7,800.0	90.00	90.00	7,184.0	-1,096.1	398.5	398.5	0.00	0.00	
7,900.0	90.00	90.00	7,184.0	-1,096.1	498.5	498.5	0.00	0.00	B Chalk
8,000.0	90.00	90.00	7,184.0	-1,096.1	598.5	598.5	0.00	0.00	
8,100.0	90.00	90.00	7,184.0	-1,096.1	698.5	698.5	0.00	0.00	
8,200.0	90.00	90.00	7,184.0	-1,096.1	798.5	798.5	0.00	0.00	
8,300.0	90.00	90.00	7,184.0	-1,096.1	898.5	898.5	0.00	0.00	
8,400.0	90.00	90.00	7,184.0	-1,096.1	998.5	998.5	0.00	0.00	
8,500.0	90.00	90.00	7,184.0	-1,096.1	1,098.5	1,098.5	0.00	0.00	
8,600.0	90.00	90.00	7,184.0	-1,096.1	1,198.5	1,198.5	0.00	0.00	
8,700.0	90.00	90.00	7,184.0	-1,096.1	1,298.5	1,298.5	0.00	0.00	
8,800.0	90.00	90.00	7,184.0	-1,096.1	1,398.5	1,398.5	0.00	0.00	LP @ 7184' MD; 90°
8,900.0	90.00	90.00	7,184.0	-1,096.1	1,498.5	1,498.5	0.00	0.00	
9,000.0	90.00	90.00	7,184.0	-1,096.1	1,598.5	1,598.5	0.00	0.00	
9,100.0	90.00	90.00	7,184.0	-1,096.1	1,698.5	1,698.5	0.00	0.00	
9,200.0	90.00	90.00	7,184.0	-1,096.1	1,798.5	1,798.5	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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
9,300.0	90.00	90.00	7,184.0	-1,096.1	1,898.5	1,898.5	0.00	0.00	
9,400.0	90.00	90.00	7,184.0	-1,096.1	1,998.5	1,998.5	0.00	0.00	
9,500.0	90.00	90.00	7,184.0	-1,096.1	2,098.5	2,098.5	0.00	0.00	
9,600.0	90.00	90.00	7,184.0	-1,096.1	2,198.5	2,198.5	0.00	0.00	
9,700.0	90.00	90.00	7,184.0	-1,096.1	2,298.5	2,298.5	0.00	0.00	
9,800.0	90.00	90.00	7,184.0	-1,096.1	2,398.5	2,398.5	0.00	0.00	
9,900.0	90.00	90.00	7,184.0	-1,096.1	2,498.5	2,498.5	0.00	0.00	
10,000.0	90.00	90.00	7,184.0	-1,096.1	2,598.5	2,598.5	0.00	0.00	
10,100.0	90.00	90.00	7,184.0	-1,096.1	2,698.5	2,698.5	0.00	0.00	
10,200.0	90.00	90.00	7,184.0	-1,096.1	2,798.5	2,798.5	0.00	0.00	
10,300.0	90.00	90.00	7,184.0	-1,096.1	2,898.5	2,898.5	0.00	0.00	
10,400.0	90.00	90.00	7,184.0	-1,096.1	2,998.5	2,998.5	0.00	0.00	
10,500.0	90.00	90.00	7,184.0	-1,096.1	3,098.5	3,098.5	0.00	0.00	
10,600.0	90.00	90.00	7,184.0	-1,096.1	3,198.5	3,198.5	0.00	0.00	
10,700.0	90.00	90.00	7,184.0	-1,096.1	3,298.5	3,298.5	0.00	0.00	
10,800.0	90.00	90.00	7,184.0	-1,096.1	3,398.5	3,398.5	0.00	0.00	
10,900.0	90.00	90.00	7,184.0	-1,096.1	3,498.5	3,498.5	0.00	0.00	
11,000.0	90.00	90.00	7,184.0	-1,096.1	3,598.5	3,598.5	0.00	0.00	
11,100.0	90.00	90.00	7,184.0	-1,096.1	3,698.5	3,698.5	0.00	0.00	
11,200.0	90.00	90.00	7,184.0	-1,096.1	3,798.5	3,798.5	0.00	0.00	
11,300.0	90.00	90.00	7,184.0	-1,096.1	3,898.5	3,898.5	0.00	0.00	
11,400.0	90.00	90.00	7,184.0	-1,096.1	3,998.5	3,998.5	0.00	0.00	
11,500.0	90.00	90.00	7,184.0	-1,096.1	4,098.5	4,098.5	0.00	0.00	
11,600.0	90.00	90.00	7,184.0	-1,096.1	4,198.5	4,198.5	0.00	0.00	
11,700.0	90.00	90.00	7,184.0	-1,096.1	4,298.5	4,298.5	0.00	0.00	
11,800.0	90.00	90.00	7,184.0	-1,096.1	4,398.5	4,398.5	0.00	0.00	
11,800.6	90.00	90.00	7,184.0	-1,096.1	4,399.1	4,399.1	0.00	0.00	TD at 11800.6 - Minch 3G-4H PBHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Minch 3G-4H PBHL	0.00	0.00	7,184.0	-1,096.1	4,399.1	1,334,006.33	3,139,481.24	40.249160	-105.000320
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

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 3G-4H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Minch 3G-4H
TVD Reference: WELL @ 5090.0ft (Ensign)
MD Reference: WELL @ 5090.0ft (Ensign)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
190.0	190.0	Fox Hills			
4,192.7	4,138.0	Sussex			
4,431.9	4,373.0	Sussex Marker			
4,709.9	4,646.0	Shannon			
6,597.3	6,500.0	Teepee Buttes			
7,236.5	7,041.0	Sharon Springs			
7,367.3	7,109.0	Niobrara			
7,592.6	7,176.0	B Chalk			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
400.0	400.0	0.0	0.0	KOP @ 400'
1,482.7	1,476.3	-93.7	-40.4	EOB; Inc=10.83°
6,522.3	6,426.1	-963.0	-415.1	Start build/turn @ 6522' MD
7,700.6	7,184.0	-1,096.1	299.1	LP @ 7184' MD; 90°
11,800.6	7,184.0	-1,096.1	4,399.1	TD at 11800.6

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S4-T3N-R68W (Minch)

Minch 3G-4H

Hz

Plan #1

Anticollision Report

23 January, 2013

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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	11,800.6	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	10,258.2	7,297.3	116.9	16.2	1.161	Level 2, CC, ES, SF
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	7,620.3	7,323.8	91.7	51.9	2.302	CC, ES, SF
MINCH 24-4 RD-D (EXISTING) - Existing - Existing						Out of range
MINCH 35-4D (EXISTING) - Existing - Existing						Out of range
Minch 3A-4H - Hz - Plan #1	200.0	200.0	58.4	57.7	89.395	CC, ES
Minch 3A-4H - Hz - Plan #1	700.0	693.8	84.9	82.5	35.359	SF
Minch 3B-4H - Hz - Plan #1	400.0	400.0	47.4	46.1	35.117	CC, ES
Minch 3B-4H - Hz - Plan #1	700.0	697.6	60.5	58.1	25.226	SF
Minch 3C-4H - Hz - Plan #1	400.0	400.0	36.5	35.2	27.046	CC, ES
Minch 3C-4H - Hz - Plan #1	700.0	699.7	44.3	41.9	18.464	SF
Minch 3D-4H - Hz - Plan #1	443.4	443.6	28.1	26.6	18.537	CC, ES
Minch 3D-4H - Hz - Plan #1	700.0	699.9	34.3	31.8	13.787	SF
Minch 3E-4H - Hz - Plan #1	400.0	400.0	18.2	16.9	13.483	CC, ES
Minch 3E-4H - Hz - Plan #1	600.0	600.0	21.5	19.4	10.477	SF
Minch 3F-4H - Hz - Plan #1	400.0	400.0	7.3	5.9	5.393	CC, ES
Minch 3F-4H - Hz - Plan #1	11,800.6	11,978.6	399.1	202.4	2.029	SF
Minch 3H-4H - Hz - Plan #1	200.0	200.0	10.9	10.3	16.742	CC, ES
Minch 3H-4H - Hz - Plan #1	11,800.6	12,063.9	411.7	213.3	2.075	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 3G-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 3G-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) - HOAGLAND 34-4D (EXISTING) - Existing - Existing													Offset Site Error:	0.0 ft
Survey Program: 1451-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		
9,800.0	7,184.0	7,302.3	7,126.4	66.7	24.5	-93.13	-979.3	2,856.7	472.9	383.5	89.43	5.288		
9,900.0	7,184.0	7,301.2	7,125.3	69.1	24.5	-92.59	-979.2	2,856.7	376.8	284.9	91.89	4.101		
10,000.0	7,184.0	7,300.1	7,124.2	71.5	24.5	-92.05	-979.2	2,856.7	283.5	189.1	94.35	3.004		
10,100.0	7,184.0	7,299.0	7,123.1	73.8	24.5	-91.52	-979.2	2,856.7	196.7	99.9	96.80	2.032		
10,200.0	7,184.0	7,297.9	7,122.0	76.2	24.5	-90.99	-979.2	2,856.7	130.6	31.4	99.25	1.316	Level 3	
10,258.2	7,184.0	7,297.3	7,121.4	77.6	24.5	-90.68	-979.2	2,856.7	116.9	16.2	100.68	1.161	Level 2, CC, ES, SF	
10,300.0	7,184.0	7,296.8	7,120.9	78.6	24.5	-90.46	-979.2	2,856.8	124.1	22.4	101.70	1.221	Level 2	
10,400.0	7,184.0	7,295.8	7,119.9	81.0	24.5	-89.94	-979.2	2,856.8	183.7	79.6	104.14	1.764		
10,500.0	7,184.0	7,294.7	7,118.8	83.4	24.5	-89.43	-979.2	2,856.8	268.5	162.0	106.58	2.520		
10,600.0	7,184.0	7,293.7	7,117.8	85.8	24.5	-88.91	-979.2	2,856.8	361.2	252.2	109.00	3.313		
10,700.0	7,184.0	7,292.6	7,116.7	88.2	24.5	-88.41	-979.1	2,856.8	456.9	345.5	111.43	4.101		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 14-4D (EXISTING) - Existing - Existing											Offset Site Error:		0.0 ft	
Survey Program: 1638-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		
7,100.0	6,950.2	7,089.9	6,923.3	22.7	23.4	-23.56	-1,000.2	218.4	455.2	429.5	25.71	17.706		
7,200.0	7,018.6	7,158.3	6,991.7	22.8	23.4	-27.05	-1,001.1	219.0	386.4	360.9	25.46	15.175		
7,300.0	7,076.5	7,217.3	7,050.7	22.9	23.5	-34.93	-1,002.0	219.6	309.8	283.0	26.81	11.554		
7,400.0	7,122.8	7,264.7	7,098.1	23.1	23.5	-49.89	-1,002.7	220.0	228.3	197.3	31.01	7.362		
7,500.0	7,156.5	7,299.6	7,132.9	23.5	23.5	-71.81	-1,003.2	220.3	148.2	111.5	36.75	4.033		
7,600.0	7,177.1	7,321.1	7,154.5	24.0	23.5	-89.19	-1,003.6	220.5	93.8	54.3	39.53	2.374		
7,620.3	7,179.6	7,323.8	7,157.2	24.1	23.5	-91.00	-1,003.7	220.6	91.7	51.9	39.83	2.302 CC, ES, SF		
7,700.0	7,184.0	7,328.9	7,162.3	24.7	23.5	-91.46	-1,003.7	220.6	120.8	79.9	40.98	2.949		
7,800.0	7,184.0	7,329.8	7,163.1	25.6	23.5	-91.94	-1,003.8	220.6	200.5	157.7	42.73	4.691		
7,900.0	7,184.0	7,330.6	7,164.0	26.8	23.5	-92.47	-1,003.8	220.6	292.8	248.2	44.62	6.563		
8,000.0	7,184.0	7,331.5	7,164.8	28.2	23.5	-92.99	-1,003.8	220.6	389.0	342.4	46.61	8.346		
8,100.0	7,184.0	7,332.3	7,165.7	29.8	23.5	-93.51	-1,003.8	220.6	486.7	438.1	48.68	9.998		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 3A-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								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning		
(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	2.74	58.3	2.8	58.4						
100.0	100.0	100.0	100.0	0.2	0.2	2.74	58.3	2.8	58.4	58.0	0.30	192.147			
200.0	200.0	200.0	200.0	0.3	0.3	2.74	58.3	2.8	58.4	57.7	0.65	89.395	CC, ES		
300.0	300.0	299.1	299.1	0.5	0.5	2.34	59.1	2.4	59.1	58.1	1.00	59.094			
400.0	400.0	398.2	398.1	0.7	0.7	1.19	61.4	1.3	61.4	60.1	1.35	45.558			
500.0	500.0	497.1	496.9	0.9	0.9	156.42	65.2	-0.6	66.1	64.4	1.70	38.897			
600.0	600.0	595.6	595.3	1.0	1.1	155.16	70.5	-3.3	73.9	71.9	2.05	36.070			
700.0	699.9	693.8	693.2	1.2	1.3	154.16	77.3	-6.6	84.9	82.5	2.40	35.359	SF		
800.0	799.7	791.3	790.3	1.4	1.5	153.44	85.6	-10.7	99.0	96.3	2.76	35.933			
900.0	899.4	888.2	886.5	1.6	1.7	152.93	95.3	-15.5	116.2	113.1	3.11	37.330			
1,000.0	998.9	984.1	981.7	1.8	2.0	152.59	106.3	-20.9	136.5	133.0	3.48	39.272			
1,100.0	1,098.3	1,079.1	1,075.7	2.1	2.3	152.37	118.6	-27.0	159.8	155.9	3.84	41.581			
1,200.0	1,197.4	1,173.0	1,168.3	2.3	2.6	152.22	132.2	-33.7	186.0	181.8	4.21	44.138			
1,300.0	1,296.3	1,265.6	1,259.5	2.6	2.9	152.13	146.9	-41.0	215.2	210.6	4.59	46.858			
1,400.0	1,394.9	1,357.0	1,349.1	2.9	3.2	152.06	162.6	-48.8	247.3	242.3	4.98	49.683			
1,500.0	1,493.3	1,446.8	1,437.0	3.3	3.6	152.03	179.4	-57.1	282.2	276.8	5.37	52.552			
1,600.0	1,591.5	1,535.6	1,523.5	3.6	3.9	152.07	197.2	-65.9	318.9	313.1	5.77	55.229			
1,700.0	1,689.7	1,623.3	1,608.7	4.0	4.3	152.01	216.0	-75.1	356.9	350.7	6.18	57.734			
1,800.0	1,787.9	1,710.6	1,693.2	4.3	4.7	151.88	235.8	-84.9	396.2	389.6	6.59	60.086			
1,900.0	1,886.1	1,802.3	1,781.7	4.7	5.2	151.74	257.0	-95.4	436.1	429.0	7.02	62.126			
2,000.0	1,984.4	1,894.0	1,870.3	5.0	5.6	151.62	278.3	-106.0	475.9	468.4	7.45	63.913			

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 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	3.37	47.4	2.8	47.4					
100.0	100.0	100.0	100.0	0.2	0.2	3.37	47.4	2.8	47.4	47.1	0.30	156.211		
200.0	200.0	200.0	200.0	0.3	0.3	3.37	47.4	2.8	47.4	46.8	0.65	72.676		
300.0	300.0	300.0	300.0	0.5	0.5	3.37	47.4	2.8	47.4	46.4	1.00	47.353		
400.0	400.0	400.0	400.0	0.7	0.7	3.37	47.4	2.8	47.4	46.1	1.35	35.117 CC, ES		
500.0	500.0	499.4	499.4	0.9	0.8	159.70	48.0	2.2	48.9	47.2	1.70	28.776		
600.0	600.0	598.6	598.6	1.0	1.0	158.76	50.0	0.6	53.3	51.2	2.05	25.999		
700.0	699.9	697.6	697.5	1.2	1.2	157.49	53.3	-2.2	60.5	58.1	2.40	25.226 SF		
800.0	799.7	796.2	795.9	1.4	1.4	156.15	57.8	-6.0	70.8	68.0	2.76	25.681		
900.0	899.4	894.3	893.7	1.6	1.6	154.90	63.7	-10.9	83.9	80.8	3.12	26.927		
1,000.0	998.9	991.8	990.7	1.8	1.8	153.80	70.7	-16.8	100.0	96.5	3.48	28.698		
1,100.0	1,098.3	1,088.4	1,086.8	2.1	2.1	152.88	79.0	-23.8	119.0	115.1	3.86	30.816		
1,200.0	1,197.4	1,184.3	1,181.8	2.3	2.3	152.11	88.4	-31.7	140.8	136.6	4.25	33.161		
1,300.0	1,296.3	1,279.1	1,275.7	2.6	2.6	151.46	98.9	-40.5	165.5	160.8	4.64	35.646		
1,400.0	1,394.9	1,372.9	1,368.2	2.9	2.9	150.91	110.5	-50.2	192.9	187.9	5.05	38.209		
1,500.0	1,493.3	1,465.4	1,459.3	3.3	3.2	150.47	123.0	-60.7	223.1	217.6	5.47	40.794		
1,600.0	1,591.5	1,557.0	1,549.2	3.6	3.5	150.10	136.5	-72.0	255.0	249.1	5.90	43.191		
1,700.0	1,689.7	1,649.8	1,639.9	4.0	3.8	149.65	151.2	-84.3	288.0	281.7	6.35	45.356		
1,800.0	1,787.9	1,744.1	1,732.2	4.3	4.2	149.27	166.2	-96.9	321.2	314.4	6.80	47.203		
1,900.0	1,886.1	1,838.4	1,824.4	4.7	4.6	148.97	181.2	-109.6	354.4	347.1	7.26	48.795		
2,000.0	1,984.4	1,932.7	1,916.7	5.0	4.9	148.71	196.3	-122.2	387.6	379.9	7.72	50.180		
2,100.0	2,082.6	2,027.0	2,009.0	5.4	5.3	148.50	211.3	-134.8	420.8	412.6	8.19	51.393		
2,200.0	2,180.8	2,121.4	2,101.2	5.8	5.6	148.32	226.3	-147.4	454.0	445.3	8.65	52.465		
2,300.0	2,279.0	2,215.7	2,193.5	6.1	6.0	148.16	241.3	-160.0	487.2	478.0	9.12	53.416		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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	4.38	36.4	2.8	36.5					
100.0	100.0	100.0	100.0	0.2	0.2	4.38	36.4	2.8	36.5	0.30	120.306			
200.0	200.0	200.0	200.0	0.3	0.3	4.38	36.4	2.8	36.5	0.65	55.971			
300.0	300.0	300.0	300.0	0.5	0.5	4.38	36.4	2.8	36.5	1.00	36.469			
400.0	400.0	400.0	400.0	0.7	0.7	4.38	36.4	2.8	36.5	1.35	27.046 CC, ES			
500.0	500.0	500.0	500.0	0.9	0.8	161.49	36.4	2.8	37.4	1.70	21.980			
600.0	600.0	600.0	600.0	1.0	1.0	162.68	36.4	2.8	39.9	2.05	19.453			
700.0	699.9	699.7	699.7	1.2	1.2	163.27	36.8	2.0	44.3	2.40	18.464 SF			
800.0	799.7	799.2	799.2	1.4	1.4	162.40	37.7	-0.4	50.8	2.75	18.491			
900.0	899.4	898.5	898.4	1.6	1.6	160.66	39.4	-4.4	59.6	3.11	19.181			
1,000.0	998.9	997.5	997.2	1.8	1.7	158.52	41.7	-10.0	70.5	3.47	20.323			
1,100.0	1,098.3	1,096.1	1,095.5	2.1	1.9	156.32	44.6	-17.1	83.8	3.85	21.771			
1,200.0	1,197.4	1,194.2	1,193.1	2.3	2.2	154.23	48.1	-25.7	99.5	4.25	23.420			
1,300.0	1,296.3	1,291.7	1,290.0	2.6	2.4	152.32	52.3	-35.8	117.5	4.66	25.186			
1,400.0	1,394.9	1,388.6	1,386.1	2.9	2.6	150.62	57.0	-47.3	137.8	5.10	27.008			
1,500.0	1,493.3	1,484.7	1,481.2	3.3	2.9	149.13	62.3	-60.3	160.5	5.57	28.831			
1,600.0	1,591.5	1,580.2	1,575.5	3.6	3.2	147.74	68.2	-74.6	184.5	6.06	30.461			
1,700.0	1,689.7	1,676.7	1,670.5	4.0	3.5	146.39	74.5	-90.1	209.3	6.57	31.869			
1,800.0	1,787.9	1,773.5	1,765.8	4.3	3.8	145.32	80.9	-105.6	234.1	7.08	33.050			
1,900.0	1,886.1	1,870.3	1,861.1	4.7	4.1	144.45	87.3	-121.2	259.0	7.61	34.051			
2,000.0	1,984.4	1,967.1	1,956.4	5.0	4.4	143.74	93.6	-136.7	283.9	8.13	34.909			
2,100.0	2,082.6	2,063.8	2,051.7	5.4	4.7	143.14	100.0	-152.3	308.9	8.66	35.650			
2,200.0	2,180.8	2,160.6	2,147.0	5.8	5.1	142.63	106.4	-167.8	333.9	9.20	36.295			
2,300.0	2,279.0	2,257.4	2,242.4	6.1	5.4	142.19	112.8	-183.4	358.9	9.74	36.863			
2,400.0	2,377.2	2,354.2	2,337.7	6.5	5.7	141.81	119.2	-198.9	383.9	10.28	37.364			
2,500.0	2,475.5	2,451.0	2,433.0	6.8	6.0	141.47	125.5	-214.5	409.0	10.82	37.810			
2,600.0	2,573.7	2,547.8	2,528.3	7.2	6.4	141.17	131.9	-230.0	434.0	11.36	38.209			
2,700.0	2,671.9	2,644.6	2,623.6	7.6	6.7	140.91	138.3	-245.6	459.1	11.90	38.568			
2,800.0	2,770.1	2,741.3	2,718.9	7.9	7.0	140.67	144.7	-261.1	484.2	12.45	38.892			

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 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	95.964		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.65	44.646		
300.0	300.0	300.2	300.1	0.5	0.5	-1.65	28.9	-0.8	28.9	27.9	1.00	28.791		
400.0	400.0	400.2	400.2	0.7	0.7	-6.75	28.0	-3.3	28.2	26.9	1.36	20.799		
443.4	443.4	443.6	443.6	0.8	0.8	146.74	27.5	-4.9	28.1	26.6	1.51	18.537 CC, ES		
500.0	500.0	500.2	500.1	0.9	0.9	142.15	26.6	-7.5	28.4	26.6	1.72	16.487		
600.0	600.0	600.1	599.8	1.0	1.1	133.63	24.7	-13.2	30.3	28.2	2.10	14.478		
700.0	699.9	699.9	699.2	1.2	1.3	125.79	22.2	-20.7	34.3	31.8	2.49	13.787 SF		
800.0	799.7	799.4	798.3	1.4	1.5	119.44	19.2	-29.7	40.1	37.3	2.90	13.855		
900.0	899.4	898.8	897.1	1.6	1.8	114.72	15.6	-40.4	47.8	44.5	3.33	14.338		
1,000.0	998.9	997.9	995.4	1.8	2.0	111.36	11.5	-52.6	57.1	53.3	3.80	15.030		
1,100.0	1,098.3	1,096.8	1,093.2	2.1	2.3	109.02	6.9	-66.4	67.9	63.6	4.29	15.808		
1,200.0	1,197.4	1,195.4	1,190.4	2.3	2.7	107.43	1.8	-81.8	80.1	75.3	4.83	16.601		
1,300.0	1,296.3	1,294.5	1,288.0	2.6	3.0	106.75	-3.7	-98.1	93.4	88.0	5.39	17.326		
1,400.0	1,394.9	1,393.5	1,385.5	2.9	3.3	107.10	-9.1	-114.4	107.2	101.2	5.99	17.899		
1,500.0	1,493.3	1,492.5	1,483.0	3.3	3.6	108.15	-14.6	-130.7	121.5	114.9	6.62	18.365		
1,600.0	1,591.5	1,591.4	1,580.4	3.6	4.0	109.30	-20.0	-147.0	136.1	128.8	7.26	18.752		
1,700.0	1,689.7	1,690.3	1,677.8	4.0	4.3	110.23	-25.5	-163.3	150.7	142.8	7.90	19.069		
1,800.0	1,787.9	1,789.2	1,775.2	4.3	4.7	111.00	-30.9	-179.6	165.3	156.7	8.55	19.332		
1,900.0	1,886.1	1,888.1	1,872.6	4.7	5.0	111.64	-36.4	-195.9	179.9	170.7	9.20	19.554		
2,000.0	1,984.4	1,987.0	1,970.0	5.0	5.4	112.19	-41.8	-212.1	194.6	184.8	9.86	19.744		
2,100.0	2,082.6	2,085.9	2,067.4	5.4	5.7	112.66	-47.3	-228.4	209.3	198.8	10.51	19.908		
2,200.0	2,180.8	2,184.8	2,164.8	5.8	6.0	113.06	-52.7	-244.7	224.0	212.8	11.17	20.051		
2,300.0	2,279.0	2,283.7	2,262.2	6.1	6.4	113.42	-58.2	-261.0	238.7	226.9	11.83	20.177		
2,400.0	2,377.2	2,382.6	2,359.6	6.5	6.7	113.74	-63.6	-277.3	253.4	240.9	12.49	20.288		
2,500.0	2,475.5	2,481.5	2,457.0	6.8	7.1	114.02	-69.1	-293.6	268.1	255.0	13.15	20.387		
2,600.0	2,573.7	2,580.4	2,554.4	7.2	7.4	114.27	-74.5	-309.9	282.9	269.0	13.81	20.476		
2,700.0	2,671.9	2,679.3	2,651.8	7.6	7.8	114.49	-80.0	-326.2	297.6	283.1	14.48	20.556		
2,800.0	2,770.1	2,778.2	2,749.2	7.9	8.1	114.70	-85.4	-342.4	312.3	297.2	15.14	20.628		
2,900.0	2,868.3	2,878.2	2,847.6	8.3	8.5	114.92	-90.9	-358.7	327.0	311.2	15.80	20.695		
3,000.0	2,966.6	2,979.4	2,947.6	8.7	8.8	115.37	-95.9	-373.7	341.1	324.6	16.44	20.750		
3,100.0	3,064.8	3,080.7	3,047.9	9.0	9.1	116.05	-100.4	-387.1	354.5	337.5	17.05	20.795		
3,200.0	3,163.0	3,182.0	3,148.4	9.4	9.3	116.94	-104.3	-398.8	367.4	349.8	17.64	20.836		
3,300.0	3,261.2	3,283.2	3,249.1	9.8	9.6	118.03	-107.6	-408.8	379.8	361.6	18.19	20.882		
3,400.0	3,359.4	3,384.3	3,349.9	10.1	9.8	119.30	-110.4	-417.1	391.8	373.1	18.71	20.940		
3,500.0	3,457.7	3,485.3	3,450.6	10.5	10.0	120.72	-112.6	-423.7	403.4	384.2	19.19	21.018		
3,600.0	3,555.9	3,586.0	3,551.2	10.9	10.2	122.30	-114.3	-428.6	414.8	395.2	19.64	21.124		
3,700.0	3,654.1	3,686.5	3,651.6	11.3	10.3	124.02	-115.3	-431.8	426.1	406.0	20.03	21.267		
3,800.0	3,752.3	3,786.5	3,751.6	11.6	10.4	125.87	-115.9	-433.4	437.3	416.9	20.38	21.453		
3,900.0	3,850.5	3,885.4	3,850.5	12.0	10.5	127.79	-115.9	-433.5	448.7	428.0	20.70	21.678		
4,000.0	3,948.8	3,983.7	3,948.8	12.4	10.6	129.61	-115.9	-433.5	460.6	439.6	21.00	21.935		
4,100.0	4,047.0	4,081.9	4,047.0	12.7	10.7	131.35	-115.9	-433.5	472.9	451.6	21.28	22.219		
4,200.0	4,145.2	4,180.1	4,145.2	13.1	10.9	133.00	-115.9	-433.5	485.7	464.1	21.56	22.527		
4,300.0	4,243.4	4,278.3	4,243.4	13.5	11.0	134.56	-115.9	-433.5	498.8	477.0	21.83	22.853		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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				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	18.2	0.0	18.2					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	18.2	0.0	18.2	17.9	0.30	59.977		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	18.2	0.0	18.2	17.6	0.65	27.904		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	18.2	0.0	18.2	17.2	1.00	18.181		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	18.2	0.0	18.2	16.9	1.35	13.483 CC, ES		
500.0	500.0	500.0	500.0	0.9	0.8	157.72	18.2	0.0	19.0	17.3	1.70	11.188		
600.0	600.0	600.0	600.0	1.0	1.0	160.36	18.2	0.0	21.5	19.4	2.05	10.477 SF		
700.0	699.9	699.9	699.9	1.2	1.2	163.63	18.2	0.0	25.6	23.2	2.40	10.685		
800.0	799.7	799.7	799.7	1.4	1.4	166.74	18.2	0.0	31.5	28.8	2.75	11.482		
900.0	899.4	900.0	900.0	1.6	1.5	168.76	17.6	-0.6	38.4	35.3	3.09	12.426		
1,000.0	998.9	1,000.4	1,000.3	1.8	1.7	169.53	15.6	-2.3	45.5	42.1	3.44	13.234		
1,100.0	1,098.3	1,100.9	1,100.7	2.1	1.9	169.54	12.2	-5.1	52.8	49.0	3.79	13.933		
1,200.0	1,197.4	1,201.4	1,201.1	2.3	2.1	169.06	7.6	-9.2	60.3	56.1	4.14	14.543		
1,300.0	1,296.3	1,302.1	1,301.5	2.6	2.3	168.26	1.5	-14.3	67.9	63.4	4.50	15.079		
1,400.0	1,394.9	1,402.9	1,401.8	2.9	2.5	167.23	-5.8	-20.7	75.7	70.8	4.87	15.549		
1,500.0	1,493.3	1,503.8	1,502.0	3.3	2.7	166.06	-14.5	-28.2	83.7	78.4	5.25	15.949		
1,600.0	1,591.5	1,604.8	1,602.1	3.6	3.0	164.60	-24.6	-36.8	90.8	85.2	5.65	16.073		
1,700.0	1,689.7	1,704.5	1,700.9	4.0	3.2	163.11	-35.1	-45.8	97.3	91.2	6.06	16.046		
1,800.0	1,787.9	1,804.3	1,799.7	4.3	3.5	161.80	-45.6	-54.9	103.9	97.4	6.49	16.005		
1,900.0	1,886.1	1,904.0	1,898.5	4.7	3.8	160.66	-56.1	-64.0	110.5	103.5	6.92	15.953		
2,000.0	1,984.4	2,003.8	1,997.3	5.0	4.1	159.64	-66.7	-73.0	117.1	109.7	7.37	15.893		
2,100.0	2,082.6	2,103.6	2,096.1	5.4	4.3	158.73	-77.2	-82.1	123.8	115.9	7.82	15.828		
2,200.0	2,180.8	2,203.3	2,194.9	5.8	4.6	157.91	-87.7	-91.1	130.5	122.2	8.28	15.761		
2,300.0	2,279.0	2,303.1	2,293.6	6.1	4.9	157.18	-98.2	-100.2	137.2	128.4	8.74	15.692		
2,400.0	2,377.2	2,402.8	2,392.4	6.5	5.2	156.51	-108.8	-109.2	143.9	134.7	9.21	15.623		
2,500.0	2,475.5	2,502.6	2,491.2	6.8	5.5	155.90	-119.3	-118.3	150.7	141.0	9.69	15.555		
2,600.0	2,573.7	2,602.4	2,590.0	7.2	5.7	155.35	-129.8	-127.3	157.5	147.3	10.17	15.488		
2,700.0	2,671.9	2,702.1	2,688.8	7.6	6.0	154.84	-140.3	-136.4	164.3	153.6	10.65	15.424		
2,800.0	2,770.1	2,801.9	2,787.6	7.9	6.3	154.37	-150.9	-145.4	171.1	159.9	11.14	15.361		
2,900.0	2,868.3	2,901.6	2,886.4	8.3	6.6	153.93	-161.4	-154.5	177.9	166.3	11.63	15.300		
3,000.0	2,966.6	3,001.4	2,985.2	8.7	6.9	153.53	-171.9	-163.5	184.7	172.6	12.12	15.242		
3,100.0	3,064.8	3,101.2	3,083.9	9.0	7.2	153.16	-182.4	-172.6	191.5	178.9	12.61	15.186		
3,200.0	3,163.0	3,200.9	3,182.7	9.4	7.5	152.81	-193.0	-181.7	198.4	185.3	13.11	15.132		
3,300.0	3,261.2	3,300.7	3,281.5	9.8	7.8	152.49	-203.5	-190.7	205.2	191.6	13.61	15.080		
3,400.0	3,359.4	3,400.4	3,380.3	10.1	8.1	152.19	-214.0	-199.8	212.1	198.0	14.11	15.031		
3,500.0	3,457.7	3,500.2	3,479.1	10.5	8.4	151.90	-224.6	-208.8	218.9	204.3	14.61	14.984		
3,600.0	3,555.9	3,599.9	3,577.9	10.9	8.7	151.64	-235.1	-217.9	225.8	210.7	15.11	14.939		
3,700.0	3,654.1	3,699.7	3,676.7	11.3	8.9	151.39	-245.6	-226.9	232.7	217.0	15.62	14.895		
3,800.0	3,752.3	3,799.5	3,775.5	11.6	9.2	151.15	-256.1	-236.0	239.5	223.4	16.13	14.854		
3,900.0	3,850.5	3,899.2	3,874.3	12.0	9.5	150.93	-266.7	-245.0	246.4	229.8	16.63	14.814		
4,000.0	3,948.8	3,999.0	3,973.0	12.4	9.8	150.72	-277.2	-254.1	253.3	236.1	17.14	14.776		
4,100.0	4,047.0	4,098.7	4,071.8	12.7	10.1	150.52	-287.7	-263.1	260.2	242.5	17.65	14.740		
4,200.0	4,145.2	4,198.5	4,170.6	13.1	10.4	150.33	-298.2	-272.2	267.1	248.9	18.16	14.705		
4,300.0	4,243.4	4,298.3	4,269.4	13.5	10.7	150.15	-308.8	-281.2	273.9	255.3	18.67	14.671		
4,400.0	4,341.6	4,398.0	4,368.2	13.8	11.0	149.97	-319.3	-290.3	280.8	261.6	19.18	14.639		
4,500.0	4,439.9	4,497.8	4,467.0	14.2	11.3	149.81	-329.8	-299.3	287.7	268.0	19.70	14.608		
4,600.0	4,538.1	4,597.5	4,565.8	14.6	11.6	149.66	-340.3	-308.4	294.6	274.4	20.21	14.578		
4,700.0	4,636.3	4,697.3	4,664.6	15.0	11.9	149.51	-350.9	-317.5	301.5	280.8	20.72	14.550		
4,800.0	4,734.5	4,797.1	4,763.3	15.3	12.2	149.37	-361.4	-326.5	308.4	287.2	21.24	14.522		
4,900.0	4,832.7	4,896.8	4,862.1	15.7	12.5	149.23	-371.9	-335.6	315.3	293.6	21.75	14.496		
5,000.0	4,931.0	4,996.6	4,960.9	16.1	12.8	149.10	-382.4	-344.6	322.2	299.9	22.27	14.470		
5,100.0	5,029.2	5,096.3	5,059.7	16.4	13.1	148.98	-393.0	-353.7	329.1	306.3	22.78	14.446		

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 3G-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 3G-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			
5,200.0	5,127.4	5,196.1	5,158.5	16.8	13.4	148.86	-403.5	-362.7	336.0	312.7	23.30	14.422			
5,300.0	5,225.6	5,295.8	5,257.3	17.2	13.7	148.74	-414.0	-371.8	342.9	319.1	23.82	14.399			
5,400.0	5,323.8	5,395.6	5,356.1	17.6	14.0	148.63	-424.5	-380.8	349.8	325.5	24.33	14.377			
5,500.0	5,422.1	5,495.4	5,454.9	17.9	14.3	148.53	-435.1	-389.9	356.7	331.9	24.85	14.356			
5,600.0	5,520.3	5,592.3	5,550.9	18.3	14.6	148.47	-445.0	-398.4	363.9	338.6	25.34	14.361			
5,700.0	5,618.5	5,687.9	5,645.8	18.7	14.8	148.60	-453.6	-405.9	372.2	346.4	25.77	14.440			
5,800.0	5,716.7	5,783.3	5,740.7	19.0	15.0	148.91	-461.1	-412.2	381.5	355.4	26.15	14.590			
5,900.0	5,814.9	5,878.4	5,835.4	19.4	15.2	149.37	-467.3	-417.6	392.0	365.5	26.47	14.808			
6,000.0	5,913.2	5,973.2	5,930.0	19.8	15.4	149.97	-472.3	-421.9	403.6	376.8	26.74	15.092			
6,100.0	6,011.4	6,067.6	6,024.3	20.2	15.6	150.69	-476.1	-425.2	416.3	389.4	26.96	15.441			
6,200.0	6,109.6	6,161.6	6,118.2	20.5	15.7	151.52	-478.7	-427.4	430.3	403.2	27.14	15.854			
6,300.0	6,207.8	6,255.1	6,211.7	20.9	15.9	152.43	-480.1	-428.7	445.5	418.3	27.29	16.329			
6,400.0	6,306.0	6,349.4	6,306.0	21.3	16.0	153.43	-480.5	-428.9	462.0	434.6	27.40	16.862			
6,500.0	6,404.3	6,447.6	6,404.3	21.6	16.1	154.43	-480.5	-428.9	478.9	451.4	27.51	17.407			
6,600.0	6,502.6	6,546.6	6,503.2	22.0	16.2	-170.01	-480.5	-428.1	496.1	468.7	27.39	18.114			

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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				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	0.00	7.3	0.0	7.3					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	7.3	0.0	7.3	7.0	0.30	23.991		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	7.3	0.0	7.3	6.6	0.65	11.162		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	7.3	0.0	7.3	6.3	1.00	7.273		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	7.3	0.0	7.3	5.9	1.35	5.393 CC, ES		
500.0	500.0	500.0	500.0	0.9	0.8	159.12	7.3	0.0	8.1	6.4	1.70	4.762		
600.0	600.0	600.0	600.0	1.0	1.0	164.17	7.3	0.0	10.6	8.5	2.05	5.165		
700.0	699.9	700.1	700.1	1.2	1.2	167.72	6.5	-0.4	14.0	11.6	2.40	5.838		
800.0	799.7	800.3	800.3	1.4	1.4	169.30	4.2	-1.7	17.5	14.7	2.75	6.365		
900.0	899.4	900.6	900.4	1.6	1.6	169.87	0.4	-3.8	21.0	17.9	3.09	6.788		
1,000.0	998.9	1,000.9	1,000.6	1.8	1.8	169.87	-5.0	-6.8	24.6	21.1	3.44	7.133		
1,100.0	1,098.3	1,101.3	1,100.6	2.1	2.0	169.50	-11.8	-10.7	28.2	24.4	3.80	7.420		
1,200.0	1,197.4	1,201.7	1,200.6	2.3	2.2	168.90	-20.3	-15.4	31.8	27.7	4.15	7.662		
1,300.0	1,296.3	1,302.2	1,300.4	2.6	2.4	168.14	-30.2	-21.0	35.5	31.0	4.51	7.867		
1,400.0	1,394.9	1,402.7	1,400.1	2.9	2.7	167.27	-41.7	-27.4	39.2	34.3	4.88	8.039		
1,500.0	1,493.3	1,503.4	1,499.6	3.3	2.9	166.30	-54.7	-34.7	42.9	37.7	5.25	8.175		
1,600.0	1,591.5	1,604.0	1,598.9	3.6	3.2	164.92	-69.3	-42.8	45.6	40.0	5.65	8.073		
1,700.0	1,689.7	1,704.0	1,697.3	4.0	3.6	163.33	-84.5	-51.3	47.6	41.5	6.07	7.844		
1,800.0	1,787.9	1,804.0	1,795.8	4.3	3.9	161.87	-99.6	-59.7	49.6	43.1	6.50	7.633		
1,900.0	1,886.1	1,903.9	1,894.2	4.7	4.2	160.52	-114.8	-68.2	51.6	44.7	6.94	7.439		
2,000.0	1,984.4	2,003.9	1,992.7	5.0	4.5	159.28	-129.9	-76.7	53.7	46.3	7.39	7.259		
2,100.0	2,082.6	2,103.9	2,091.2	5.4	4.9	158.12	-145.1	-85.2	55.7	47.9	7.86	7.092		
2,200.0	2,180.8	2,203.8	2,189.6	5.8	5.2	157.05	-160.2	-93.6	57.8	49.5	8.34	6.937		
2,300.0	2,279.0	2,303.8	2,288.1	6.1	5.5	156.06	-175.4	-102.1	60.0	51.1	8.83	6.793		
2,400.0	2,377.2	2,403.8	2,386.5	6.5	5.9	155.13	-190.5	-110.6	62.1	52.8	9.32	6.660		
2,500.0	2,475.5	2,503.8	2,485.0	6.8	6.2	154.27	-205.7	-119.0	64.2	54.4	9.83	6.536		
2,600.0	2,573.7	2,603.7	2,583.4	7.2	6.5	153.46	-220.8	-127.5	66.4	56.1	10.34	6.421		
2,700.0	2,671.9	2,703.7	2,681.9	7.6	6.9	152.70	-236.0	-136.0	68.6	57.7	10.86	6.313		
2,800.0	2,770.1	2,803.7	2,780.3	7.9	7.2	151.99	-251.2	-144.4	70.8	59.4	11.39	6.213		
2,900.0	2,868.3	2,903.7	2,878.8	8.3	7.6	151.32	-266.3	-152.9	72.9	61.0	11.92	6.120		
3,000.0	2,966.6	3,003.6	2,977.2	8.7	7.9	150.69	-281.5	-161.4	75.1	62.7	12.46	6.032		
3,100.0	3,064.8	3,103.6	3,075.7	9.0	8.3	150.10	-296.6	-169.8	77.4	64.4	13.00	5.951		
3,200.0	3,163.0	3,203.6	3,174.1	9.4	8.6	149.51	-311.8	-178.3	79.6	66.0	13.55	5.874		
3,300.0	3,261.2	3,303.5	3,272.6	9.8	8.9	149.04	-326.9	-186.8	81.8	67.7	14.10	5.803		
3,400.0	3,359.4	3,403.5	3,371.0	10.1	9.3	148.51	-342.1	-195.3	84.0	69.4	14.65	5.736		
3,500.0	3,457.7	3,503.5	3,469.5	10.5	9.6	148.03	-357.2	-203.7	86.3	71.1	15.21	5.672		
3,600.0	3,555.9	3,603.5	3,568.0	10.9	10.0	147.58	-372.4	-212.2	88.5	72.8	15.77	5.613		
3,700.0	3,654.1	3,703.4	3,666.4	11.3	10.3	147.15	-387.5	-220.7	90.8	74.4	16.34	5.557		
3,800.0	3,752.3	3,803.4	3,764.9	11.6	10.7	146.74	-402.7	-229.1	93.0	76.1	16.90	5.504		
3,900.0	3,850.5	3,903.4	3,863.3	12.0	11.0	146.36	-417.8	-237.6	95.3	77.8	17.47	5.454		
4,000.0	3,948.8	4,003.4	3,961.8	12.4	11.4	145.98	-433.0	-246.1	97.6	79.5	18.04	5.407		
4,100.0	4,047.0	4,103.3	4,060.2	12.7	11.7	145.63	-448.2	-254.5	99.8	81.2	18.62	5.362		
4,200.0	4,145.2	4,203.3	4,158.7	13.1	12.1	145.29	-463.3	-263.0	102.1	82.9	19.19	5.320		
4,300.0	4,243.4	4,303.3	4,257.1	13.5	12.4	144.97	-478.5	-271.5	104.4	84.6	19.77	5.279		
4,400.0	4,341.6	4,403.2	4,355.6	13.8	12.8	144.66	-493.6	-279.9	106.7	86.3	20.35	5.241		
4,500.0	4,439.9	4,503.2	4,454.0	14.2	13.1	144.36	-508.8	-288.4	108.9	88.0	20.93	5.205		
4,600.0	4,538.1	4,603.2	4,552.5	14.6	13.5	144.08	-523.9	-296.9	111.2	89.7	21.51	5.170		
4,700.0	4,636.3	4,703.2	4,650.9	15.0	13.8	143.80	-539.1	-305.4	113.5	91.4	22.09	5.138		
4,800.0	4,734.5	4,803.1	4,749.4	15.3	14.1	143.54	-554.2	-313.8	115.8	93.1	22.68	5.106		
4,900.0	4,832.7	4,903.1	4,847.9	15.7	14.5	143.29	-569.4	-322.3	118.1	94.8	23.26	5.076		
5,000.0	4,931.0	5,003.1	4,946.3	16.1	14.8	143.05	-584.5	-330.8	120.4	96.5	23.85	5.047		
5,100.0	5,029.2	5,103.0	5,044.8	16.4	15.2	142.81	-599.7	-339.2	122.7	98.2	24.44	5.020		

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 3G-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 3G-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		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			
5,200.0	5,127.4	5,203.0	5,143.2	16.8	15.5	142.59	-614.8	-347.7	125.0	99.9	25.03	4.994		
5,300.0	5,225.6	5,303.0	5,241.7	17.2	15.9	142.37	-630.0	-356.2	127.3	101.7	25.61	4.969		
5,400.0	5,323.8	5,403.0	5,340.1	17.6	16.2	142.16	-645.2	-364.6	129.6	103.4	26.20	4.945		
5,500.0	5,422.1	5,502.9	5,438.6	17.9	16.6	141.96	-660.3	-373.1	131.9	105.1	26.80	4.922		
5,600.0	5,520.3	5,602.9	5,537.0	18.3	16.9	141.77	-675.5	-381.6	134.2	106.8	27.39	4.900		
5,700.0	5,618.5	5,702.9	5,635.5	18.7	17.3	141.58	-690.6	-390.0	136.5	108.5	27.98	4.878		
5,800.0	5,716.7	5,802.9	5,733.9	19.0	17.6	141.40	-705.8	-398.5	138.8	110.2	28.57	4.858		
5,900.0	5,814.9	5,901.7	5,831.3	19.4	18.0	141.27	-720.6	-406.8	141.2	112.1	29.14	4.846		
6,000.0	5,913.2	5,998.2	5,926.7	19.8	18.3	141.85	-732.9	-413.7	145.5	116.1	29.47	4.939		
6,100.0	6,011.4	6,094.2	6,022.2	20.2	18.5	143.23	-742.4	-419.0	152.3	122.8	29.52	5.160		
6,200.0	6,109.6	6,189.7	6,117.3	20.5	18.7	145.24	-749.0	-422.7	161.7	132.4	29.34	5.512		
6,300.0	6,207.8	6,284.4	6,211.9	20.9	18.8	147.68	-752.8	-424.8	173.9	144.9	28.99	5.998		
6,400.0	6,306.0	6,378.5	6,306.0	21.3	18.9	150.34	-753.9	-425.4	189.0	160.4	28.54	6.622		
6,500.0	6,404.3	6,476.7	6,404.3	21.6	19.0	152.93	-753.9	-425.4	205.6	177.4	28.12	7.310		
6,600.0	6,502.6	6,575.1	6,502.6	22.0	19.1	-170.97	-753.9	-425.4	222.7	194.9	27.76	8.020		
6,700.0	6,600.5	6,673.0	6,600.5	22.2	19.2	-138.29	-753.9	-425.4	240.4	212.3	28.15	8.541		
6,800.0	6,696.0	6,770.0	6,697.5	22.4	19.3	-125.88	-753.9	-425.0	260.0	231.0	29.02	8.959		
6,900.0	6,787.3	6,872.9	6,799.8	22.5	19.3	-121.72	-753.9	-414.1	281.4	251.9	29.53	9.531		
7,000.0	6,872.6	6,980.7	6,904.0	22.6	19.2	-120.32	-753.9	-387.1	303.5	274.1	29.37	10.333		
7,100.0	6,950.2	7,093.8	7,007.7	22.7	19.1	-120.04	-753.9	-342.3	325.3	296.6	28.67	11.347		
7,200.0	7,018.6	7,212.6	7,107.7	22.8	18.9	-120.20	-753.9	-278.3	345.8	318.1	27.64	12.509		
7,300.0	7,076.5	7,337.3	7,199.7	22.9	18.7	-120.50	-753.9	-194.4	364.1	337.4	26.67	13.649		
7,400.0	7,122.8	7,467.6	7,278.7	23.1	18.7	-120.79	-753.9	-91.0	379.2	353.0	26.25	14.445		
7,500.0	7,156.5	7,602.6	7,339.6	23.5	18.9	-120.99	-753.9	29.3	390.5	363.6	26.91	14.509		
7,600.0	7,177.1	7,741.1	7,377.4	24.0	19.5	-121.04	-753.9	162.3	397.2	368.2	28.97	13.710		
7,700.0	7,184.0	7,878.0	7,389.0	24.7	20.7	-120.92	-753.9	298.5	398.9	366.6	32.29	12.355		
7,731.2	7,184.0	7,909.2	7,389.0	25.0	21.1	-120.92	-753.9	329.7	398.9	365.7	33.18	12.023		
7,800.0	7,184.0	7,978.0	7,389.0	25.6	22.1	-120.92	-753.9	398.5	398.9	363.7	35.19	11.335		
7,900.0	7,184.0	8,078.0	7,389.0	26.8	23.6	-120.92	-753.9	498.5	398.9	360.6	38.34	10.405		
8,000.0	7,184.0	8,178.0	7,389.0	28.2	25.4	-120.92	-753.9	598.5	398.9	357.2	41.68	9.571		
8,100.0	7,184.0	8,278.0	7,389.0	29.8	27.3	-120.92	-753.9	698.5	398.9	353.7	45.18	8.830		
8,200.0	7,184.0	8,378.0	7,389.0	31.5	29.3	-120.92	-753.9	798.5	398.9	350.1	48.79	8.176		
8,300.0	7,184.0	8,478.0	7,389.0	33.4	31.4	-120.92	-753.9	898.5	398.9	346.4	52.50	7.598		
8,400.0	7,184.0	8,578.0	7,389.0	35.3	33.5	-120.92	-753.9	998.5	398.9	342.6	56.29	7.087		
8,500.0	7,184.0	8,678.0	7,389.0	37.3	35.7	-120.92	-753.9	1,098.5	398.9	338.8	60.14	6.633		
8,600.0	7,184.0	8,778.0	7,389.0	39.4	37.9	-120.92	-753.9	1,198.5	398.9	334.9	64.04	6.230		
8,700.0	7,184.0	8,878.0	7,389.0	41.6	40.1	-120.92	-753.8	1,298.5	399.0	331.0	67.98	5.868		
8,800.0	7,184.0	8,978.0	7,389.0	43.7	42.4	-120.92	-753.8	1,398.5	399.0	327.0	71.96	5.544		
8,900.0	7,184.0	9,078.0	7,389.0	45.9	44.7	-120.92	-753.8	1,498.5	399.0	323.0	75.97	5.252		
9,000.0	7,184.0	9,178.0	7,389.0	48.2	47.0	-120.92	-753.8	1,598.5	399.0	319.0	80.00	4.987		
9,100.0	7,184.0	9,278.0	7,389.0	50.4	49.3	-120.92	-753.8	1,698.5	399.0	314.9	84.05	4.747		
9,200.0	7,184.0	9,378.0	7,389.0	52.7	51.7	-120.92	-753.8	1,798.5	399.0	310.8	88.13	4.527		
9,300.0	7,184.0	9,478.0	7,389.0	55.0	54.0	-120.92	-753.8	1,898.5	399.0	306.8	92.22	4.327		
9,400.0	7,184.0	9,578.0	7,389.0	57.3	56.4	-120.92	-753.8	1,998.5	399.0	302.7	96.32	4.142		
9,500.0	7,184.0	9,678.0	7,389.0	59.7	58.7	-120.92	-753.8	2,098.5	399.0	298.6	100.43	3.973		
9,600.0	7,184.0	9,778.0	7,389.0	62.0	61.1	-120.92	-753.8	2,198.5	399.0	294.4	104.56	3.816		
9,700.0	7,184.0	9,878.0	7,389.0	64.4	63.5	-120.92	-753.8	2,298.5	399.0	290.3	108.70	3.671		
9,800.0	7,184.0	9,978.0	7,389.0	66.7	65.9	-120.92	-753.8	2,398.5	399.0	286.2	112.84	3.536		
9,900.0	7,184.0	10,078.0	7,389.0	69.1	68.3	-120.92	-753.8	2,498.5	399.0	282.0	116.99	3.411		
10,000.0	7,184.0	10,178.0	7,389.0	71.5	70.7	-120.91	-753.8	2,598.5	399.0	277.9	121.15	3.294		
10,100.0	7,184.0	10,278.0	7,389.0	73.8	73.1	-120.91	-753.8	2,698.5	399.0	273.7	125.32	3.184		
10,200.0	7,184.0	10,378.0	7,389.0	76.2	75.5	-120.91	-753.8	2,798.5	399.0	269.5	129.49	3.082		

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 3G-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 3G-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	Separation Factor		
10,300.0	7,184.0	10,478.0	7,389.0	78.6	78.0	-120.91	-753.8	2,898.5	399.0	265.4	133.66	2.985		
10,400.0	7,184.0	10,578.0	7,389.0	81.0	80.4	-120.91	-753.7	2,998.5	399.0	261.2	137.84	2.895		
10,500.0	7,184.0	10,678.0	7,389.0	83.4	82.8	-120.91	-753.7	3,098.5	399.0	257.0	142.03	2.810		
10,600.0	7,184.0	10,778.0	7,389.0	85.8	85.2	-120.91	-753.7	3,198.5	399.0	252.8	146.22	2.729		
10,700.0	7,184.0	10,878.0	7,389.0	88.2	87.7	-120.91	-753.7	3,298.5	399.0	248.6	150.41	2.653		
10,800.0	7,184.0	10,978.0	7,389.0	90.6	90.1	-120.91	-753.7	3,398.5	399.1	244.5	154.60	2.581		
10,900.0	7,184.0	11,078.0	7,389.0	93.1	92.5	-120.91	-753.7	3,498.5	399.1	240.3	158.80	2.513		
11,000.0	7,184.0	11,178.0	7,389.0	95.5	95.0	-120.91	-753.7	3,598.5	399.1	236.1	163.00	2.448		
11,100.0	7,184.0	11,278.0	7,389.0	97.9	97.4	-120.91	-753.7	3,698.5	399.1	231.9	167.21	2.387		
11,200.0	7,184.0	11,378.0	7,389.0	100.3	99.8	-120.91	-753.7	3,798.5	399.1	227.7	171.41	2.328		
11,300.0	7,184.0	11,478.0	7,389.0	102.8	102.3	-120.91	-753.7	3,898.5	399.1	223.5	175.62	2.272		
11,400.0	7,184.0	11,578.0	7,389.0	105.2	104.7	-120.91	-753.7	3,998.5	399.1	219.3	179.83	2.219		
11,500.0	7,184.0	11,678.0	7,389.0	107.6	107.2	-120.91	-753.7	4,098.5	399.1	215.0	184.04	2.168		
11,600.0	7,184.0	11,778.0	7,389.0	110.1	109.6	-120.91	-753.7	4,198.5	399.1	210.8	188.26	2.120		
11,700.0	7,184.0	11,878.0	7,389.0	112.5	112.1	-120.91	-753.7	4,298.5	399.1	206.6	192.47	2.074		
11,800.0	7,184.0	11,978.0	7,389.0	114.9	114.5	-120.91	-753.7	4,398.5	399.1	202.4	196.69	2.029		
11,800.6	7,184.0	11,978.6	7,389.0	114.9	114.5	-120.91	-753.7	4,399.0	399.1	202.4	196.71	2.029 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 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	-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	299.8	299.8	0.5	0.5	-178.69	-11.8	-0.3	11.8	10.8	1.00	11.738		
400.0	400.0	399.6	399.5	0.7	0.7	-175.68	-14.2	-1.1	14.3	12.9	1.35	10.561		
500.0	500.0	499.2	499.1	0.9	0.9	-16.58	-18.4	-2.4	17.7	16.0	1.70	10.416		
600.0	600.0	598.8	598.5	1.0	1.1	-15.37	-24.1	-4.3	21.2	19.1	2.05	10.335		
700.0	699.9	698.4	697.7	1.2	1.3	-14.87	-31.5	-6.7	24.7	22.3	2.40	10.289		
800.0	799.7	797.9	796.8	1.4	1.5	-14.82	-40.6	-9.6	28.2	25.5	2.75	10.261		
900.0	899.4	897.3	895.6	1.6	1.8	-15.06	-51.2	-13.1	31.8	28.7	3.10	10.241		
1,000.0	998.9	996.6	994.1	1.8	2.0	-15.50	-63.5	-17.1	35.3	31.9	3.46	10.225		
1,100.0	1,098.3	1,096.0	1,092.3	2.1	2.3	-16.10	-77.4	-21.6	38.9	35.1	3.81	10.208		
1,200.0	1,197.4	1,195.2	1,190.2	2.3	2.6	-16.80	-92.9	-26.7	42.6	38.4	4.18	10.188		
1,300.0	1,296.3	1,294.4	1,287.7	2.6	3.0	-17.58	-110.0	-32.2	46.2	41.7	4.55	10.159		
1,400.0	1,394.9	1,393.5	1,384.9	2.9	3.4	-18.42	-128.7	-38.3	50.0	45.0	4.94	10.121		
1,500.0	1,493.3	1,492.5	1,481.6	3.3	3.8	-19.31	-149.0	-44.9	53.7	48.4	5.33	10.073		
1,600.0	1,591.5	1,592.3	1,578.8	3.6	4.2	-20.01	-170.4	-51.9	58.0	52.3	5.74	10.099		
1,700.0	1,689.7	1,692.2	1,676.1	4.0	4.6	-20.62	-191.9	-58.9	62.3	56.1	6.16	10.115		
1,800.0	1,787.9	1,792.1	1,773.4	4.3	5.0	-21.14	-213.4	-65.8	66.6	60.0	6.58	10.122		
1,900.0	1,886.1	1,892.0	1,870.8	4.7	5.4	-21.61	-234.9	-72.8	70.9	63.9	7.01	10.121		
2,000.0	1,984.4	1,991.9	1,968.1	5.0	5.8	-22.02	-256.4	-79.8	75.3	67.8	7.44	10.115		
2,100.0	2,082.6	2,091.8	2,065.4	5.4	6.3	-22.38	-277.8	-86.8	79.6	71.7	7.88	10.105		
2,200.0	2,180.8	2,191.7	2,162.7	5.8	6.7	-22.71	-299.3	-93.8	83.9	75.6	8.31	10.093		
2,300.0	2,279.0	2,291.7	2,260.0	6.1	7.1	-23.00	-320.8	-100.8	88.2	79.5	8.75	10.079		
2,400.0	2,377.2	2,391.6	2,357.3	6.5	7.5	-23.27	-342.3	-107.8	92.6	83.4	9.20	10.064		
2,500.0	2,475.5	2,491.5	2,454.7	6.8	8.0	-23.52	-363.8	-114.8	96.9	87.3	9.64	10.048		
2,600.0	2,573.7	2,591.4	2,552.0	7.2	8.4	-23.74	-385.3	-121.7	101.2	91.1	10.09	10.031		
2,700.0	2,671.9	2,691.3	2,649.3	7.6	8.8	-23.94	-406.8	-128.7	105.6	95.0	10.54	10.015		
2,800.0	2,770.1	2,791.2	2,746.6	7.9	9.2	-24.13	-428.2	-135.7	109.9	98.9	10.99	9.998		
2,900.0	2,868.3	2,891.1	2,843.9	8.3	9.7	-24.31	-449.7	-142.7	114.3	102.8	11.45	9.982		
3,000.0	2,966.6	2,991.0	2,941.2	8.7	10.1	-24.47	-471.2	-149.7	118.6	106.7	11.90	9.966		
3,100.0	3,064.8	3,090.9	3,038.6	9.0	10.5	-24.62	-492.7	-156.7	122.9	110.6	12.35	9.950		
3,200.0	3,163.0	3,190.8	3,135.9	9.4	11.0	-24.76	-514.2	-163.7	127.3	114.5	12.81	9.935		
3,300.0	3,261.2	3,290.7	3,233.2	9.8	11.4	-24.89	-535.7	-170.6	131.6	118.3	13.27	9.920		
3,400.0	3,359.4	3,390.6	3,330.5	10.1	11.8	-25.01	-557.1	-177.6	136.0	122.2	13.73	9.905		
3,500.0	3,457.7	3,490.5	3,427.8	10.5	12.2	-25.12	-578.6	-184.6	140.3	126.1	14.18	9.891		
3,600.0	3,555.9	3,590.4	3,525.1	10.9	12.7	-25.23	-600.1	-191.6	144.6	130.0	14.64	9.877		
3,700.0	3,654.1	3,690.3	3,622.5	11.3	13.1	-25.33	-621.6	-198.6	149.0	133.9	15.10	9.864		
3,800.0	3,752.3	3,790.2	3,719.8	11.6	13.5	-25.43	-643.1	-205.6	153.3	137.8	15.57	9.851		
3,900.0	3,850.5	3,890.1	3,817.1	12.0	14.0	-25.52	-664.6	-212.6	157.7	141.7	16.03	9.839		
4,000.0	3,948.8	3,990.0	3,914.4	12.4	14.4	-25.61	-686.0	-219.6	162.0	145.5	16.49	9.827		
4,100.0	4,047.0	4,089.9	4,011.7	12.7	14.8	-25.69	-707.5	-226.5	166.4	149.4	16.95	9.815		
4,200.0	4,145.2	4,189.9	4,109.1	13.1	15.3	-25.76	-729.0	-233.5	170.7	153.3	17.41	9.804		
4,300.0	4,243.4	4,289.8	4,206.4	13.5	15.7	-25.84	-750.5	-240.5	175.1	157.2	17.88	9.793		
4,400.0	4,341.6	4,389.7	4,303.7	13.8	16.1	-25.91	-772.0	-247.5	179.4	161.1	18.34	9.782		
4,500.0	4,439.9	4,489.6	4,401.0	14.2	16.6	-25.97	-793.5	-254.5	183.8	165.0	18.80	9.772		
4,600.0	4,538.1	4,589.5	4,498.3	14.6	17.0	-26.04	-814.9	-261.5	188.1	168.8	19.27	9.762		
4,700.0	4,636.3	4,689.4	4,595.6	15.0	17.4	-26.10	-836.4	-268.5	192.5	172.7	19.73	9.753		
4,800.0	4,734.5	4,789.3	4,693.0	15.3	17.8	-26.15	-857.9	-275.4	196.8	176.6	20.20	9.743		
4,900.0	4,832.7	4,889.2	4,790.3	15.7	18.3	-26.21	-879.4	-282.4	201.2	180.5	20.66	9.735		
5,000.0	4,931.0	4,989.1	4,887.6	16.1	18.7	-26.26	-900.9	-289.4	205.5	184.4	21.13	9.726		
5,100.0	5,029.2	5,089.0	4,984.9	16.4	19.1	-26.31	-922.4	-296.4	209.8	188.3	21.59	9.718		

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 3G-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 3G-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			
5,200.0	5,127.4	5,188.9	5,082.2	16.8	19.6	-26.36	-943.9	-303.4	214.2	192.1	22.06	9.709		
5,300.0	5,225.6	5,288.8	5,179.5	17.2	20.0	-26.41	-965.3	-310.4	218.5	196.0	22.53	9.702		
5,400.0	5,323.8	5,388.7	5,276.9	17.6	20.4	-26.45	-986.8	-317.4	222.9	199.9	22.99	9.694		
5,500.0	5,422.1	5,488.6	5,374.2	17.9	20.9	-26.50	-1,008.3	-324.4	227.2	203.8	23.46	9.686		
5,600.0	5,520.3	5,588.5	5,471.5	18.3	21.3	-26.54	-1,029.8	-331.3	231.6	207.7	23.93	9.679		
5,700.0	5,618.5	5,688.4	5,568.8	18.7	21.7	-26.58	-1,051.3	-338.3	235.9	211.5	24.39	9.672		
5,800.0	5,716.7	5,788.3	5,666.1	19.0	22.2	-26.62	-1,072.8	-345.3	240.3	215.4	24.86	9.666		
5,900.0	5,814.9	5,888.2	5,763.4	19.4	22.6	-26.65	-1,094.2	-352.3	244.6	219.3	25.33	9.659		
6,000.0	5,913.2	5,988.1	5,860.8	19.8	23.0	-26.69	-1,115.7	-359.3	249.0	223.2	25.79	9.653		
6,100.0	6,011.4	6,088.1	5,958.1	20.2	23.4	-26.72	-1,137.2	-366.3	253.3	227.1	26.26	9.646		
6,200.0	6,109.6	6,188.0	6,055.4	20.5	23.9	-26.76	-1,158.7	-373.3	257.7	231.0	26.73	9.640		
6,300.0	6,207.8	6,287.9	6,152.7	20.9	24.3	-26.79	-1,180.2	-380.2	262.0	234.8	27.20	9.635		
6,400.0	6,306.0	6,387.8	6,250.0	21.3	24.7	-26.82	-1,201.7	-387.2	266.4	238.7	27.67	9.629		
6,500.0	6,404.3	6,487.7	6,347.4	21.6	25.2	-26.85	-1,223.1	-394.2	270.7	242.6	28.13	9.623		
6,600.0	6,502.6	6,587.4	6,444.5	22.0	25.6	7.67	-1,244.6	-401.2	274.8	246.5	28.29	9.716		
6,700.0	6,600.5	6,685.8	6,540.3	22.2	26.0	44.46	-1,265.7	-408.1	278.7	251.4	27.32	10.200		
6,800.0	6,696.0	6,780.7	6,632.8	22.4	26.4	65.67	-1,286.2	-414.7	284.8	259.0	25.81	11.033		
6,900.0	6,787.3	6,879.7	6,729.4	22.5	26.8	79.98	-1,307.5	-415.9	295.6	271.0	24.61	12.011		
7,000.0	6,872.6	6,985.4	6,831.6	22.6	27.2	90.46	-1,330.0	-402.1	310.6	286.4	24.24	12.813		
7,100.0	6,950.2	7,098.4	6,937.5	22.7	27.5	98.67	-1,353.4	-370.6	328.6	304.1	24.47	13.426		
7,200.0	7,018.6	7,220.0	7,044.4	22.8	27.7	105.25	-1,377.0	-318.1	348.1	323.1	25.00	13.925		
7,300.0	7,076.5	7,351.1	7,148.1	22.9	27.9	110.50	-1,399.9	-241.6	367.6	342.0	25.61	14.353		
7,400.0	7,122.8	7,492.1	7,242.6	23.1	28.2	114.57	-1,420.8	-139.3	385.2	358.9	26.32	14.633		
7,500.0	7,156.5	7,642.5	7,319.7	23.5	28.5	117.49	-1,437.8	-11.6	399.3	372.1	27.23	14.662		
7,600.0	7,177.1	7,800.6	7,370.9	24.0	29.0	119.26	-1,449.1	137.1	408.5	379.8	28.69	14.235		
7,700.0	7,184.0	7,962.9	7,389.0	24.7	29.8	119.87	-1,453.1	298.1	411.7	381.0	30.70	13.408		
7,800.0	7,184.0	8,063.3	7,389.0	25.6	30.5	119.87	-1,453.1	398.5	411.7	377.9	33.79	12.183		
7,900.0	7,184.0	8,163.3	7,389.0	26.8	31.4	119.87	-1,453.1	498.5	411.7	374.6	37.11	11.094		
8,000.0	7,184.0	8,263.3	7,389.0	28.2	32.5	119.87	-1,453.1	598.5	411.7	371.1	40.61	10.138		
8,100.0	7,184.0	8,363.3	7,389.0	29.8	33.7	119.87	-1,453.1	698.5	411.7	367.4	44.25	9.304		
8,200.0	7,184.0	8,463.3	7,389.0	31.5	35.1	119.87	-1,453.1	798.5	411.7	363.7	48.00	8.577		
8,300.0	7,184.0	8,563.3	7,389.0	33.4	36.7	119.87	-1,453.1	898.5	411.7	359.8	51.83	7.942		
8,400.0	7,184.0	8,663.3	7,389.0	35.3	38.3	119.87	-1,453.1	998.5	411.7	355.9	55.74	7.386		
8,500.0	7,184.0	8,763.3	7,389.0	37.3	40.1	119.87	-1,453.1	1,098.5	411.7	352.0	59.69	6.897		
8,600.0	7,184.0	8,863.3	7,389.0	39.4	42.0	119.87	-1,453.1	1,198.5	411.7	348.0	63.69	6.463		
8,700.0	7,184.0	8,963.3	7,389.0	41.6	44.0	119.87	-1,453.1	1,298.5	411.7	343.9	67.73	6.078		
8,800.0	7,184.0	9,063.3	7,389.0	43.7	46.0	119.87	-1,453.1	1,398.5	411.7	339.9	71.80	5.734		
8,900.0	7,184.0	9,163.3	7,389.0	45.9	48.1	119.87	-1,453.1	1,498.5	411.7	335.8	75.89	5.425		
9,000.0	7,184.0	9,263.3	7,389.0	48.2	50.2	119.87	-1,453.1	1,598.5	411.7	331.7	80.00	5.146		
9,100.0	7,184.0	9,363.3	7,389.0	50.4	52.3	119.87	-1,453.1	1,698.5	411.7	327.5	84.13	4.893		
9,200.0	7,184.0	9,463.3	7,389.0	52.7	54.5	119.87	-1,453.1	1,798.5	411.7	323.4	88.28	4.663		
9,300.0	7,184.0	9,563.3	7,389.0	55.0	56.7	119.87	-1,453.1	1,898.5	411.7	319.2	92.44	4.453		
9,400.0	7,184.0	9,663.3	7,389.0	57.3	59.0	119.87	-1,453.1	1,998.5	411.7	315.1	96.62	4.261		
9,500.0	7,184.0	9,763.3	7,389.0	59.7	61.2	119.87	-1,453.1	2,098.5	411.7	310.9	100.80	4.084		
9,600.0	7,184.0	9,863.3	7,389.0	62.0	63.5	119.87	-1,453.1	2,198.5	411.7	306.7	104.99	3.921		
9,700.0	7,184.0	9,963.3	7,389.0	64.4	65.8	119.87	-1,453.1	2,298.5	411.7	302.5	109.19	3.770		
9,800.0	7,184.0	10,063.3	7,389.0	66.7	68.1	119.87	-1,453.1	2,398.5	411.7	298.3	113.40	3.630		
9,900.0	7,184.0	10,163.3	7,389.0	69.1	70.4	119.87	-1,453.1	2,498.5	411.7	294.1	117.61	3.500		
10,000.0	7,184.0	10,263.3	7,389.0	71.5	72.8	119.87	-1,453.1	2,598.5	411.7	289.8	121.83	3.379		
10,100.0	7,184.0	10,363.3	7,389.0	73.8	75.1	119.87	-1,453.1	2,698.5	411.7	285.6	126.06	3.266		
10,200.0	7,184.0	10,463.3	7,389.0	76.2	77.4	119.87	-1,453.1	2,798.5	411.7	281.4	130.29	3.160		
10,300.0	7,184.0	10,563.3	7,389.0	78.6	79.8	119.87	-1,453.1	2,898.5	411.7	277.2	134.52	3.060		

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 3G-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 3G-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						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		
10,400.0	7,184.0	10,663.3	7,389.0	81.0	82.2	119.87	-1,453.1	2,998.5	411.7	272.9	138.76	2.967		
10,500.0	7,184.0	10,763.3	7,389.0	83.4	84.5	119.87	-1,453.1	3,098.5	411.7	268.7	143.00	2.879		
10,600.0	7,184.0	10,863.3	7,389.0	85.8	86.9	119.87	-1,453.1	3,198.5	411.7	264.4	147.24	2.796		
10,700.0	7,184.0	10,963.3	7,389.0	88.2	89.3	119.87	-1,453.1	3,298.5	411.7	260.2	151.49	2.717		
10,800.0	7,184.0	11,063.3	7,389.0	90.6	91.7	119.87	-1,453.1	3,398.5	411.7	255.9	155.74	2.643		
10,900.0	7,184.0	11,163.3	7,389.0	93.1	94.1	119.87	-1,453.1	3,498.5	411.7	251.7	159.99	2.573		
11,000.0	7,184.0	11,263.3	7,389.0	95.5	96.5	119.87	-1,453.1	3,598.5	411.7	247.4	164.25	2.506		
11,100.0	7,184.0	11,363.3	7,389.0	97.9	98.9	119.87	-1,453.1	3,698.5	411.7	243.2	168.51	2.443		
11,200.0	7,184.0	11,463.3	7,389.0	100.3	101.3	119.87	-1,453.1	3,798.5	411.7	238.9	172.76	2.383		
11,300.0	7,184.0	11,563.3	7,389.0	102.8	103.7	119.87	-1,453.1	3,898.5	411.7	234.6	177.02	2.326		
11,400.0	7,184.0	11,663.3	7,389.0	105.2	106.1	119.87	-1,453.1	3,998.5	411.7	230.4	181.29	2.271		
11,500.0	7,184.0	11,763.3	7,389.0	107.6	108.5	119.87	-1,453.1	4,098.5	411.7	226.1	185.55	2.219		
11,600.0	7,184.0	11,863.3	7,389.0	110.1	110.9	119.87	-1,453.1	4,198.5	411.7	221.9	189.82	2.169		
11,700.0	7,184.0	11,963.3	7,389.0	112.5	113.3	119.87	-1,453.1	4,298.5	411.7	217.6	194.08	2.121		
11,800.0	7,184.0	12,063.3	7,389.0	114.9	115.7	119.87	-1,453.1	4,398.5	411.7	213.3	198.35	2.075		
11,800.6	7,184.0	12,063.9	7,389.0	114.9	115.8	119.87	-1,453.1	4,399.1	411.7	213.3	198.38	2.075 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 3G-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 3G-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 3G-4H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.31°

