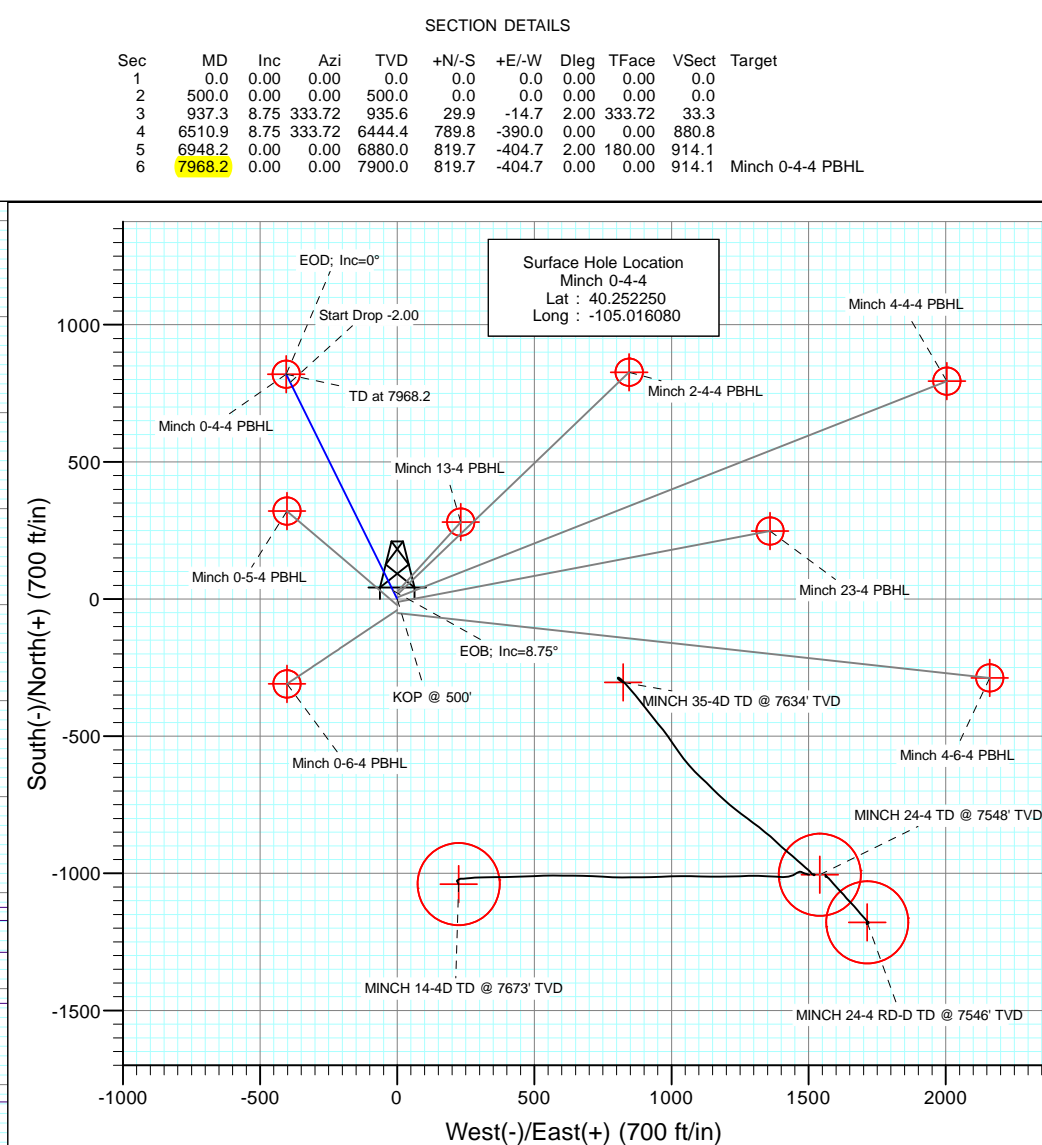
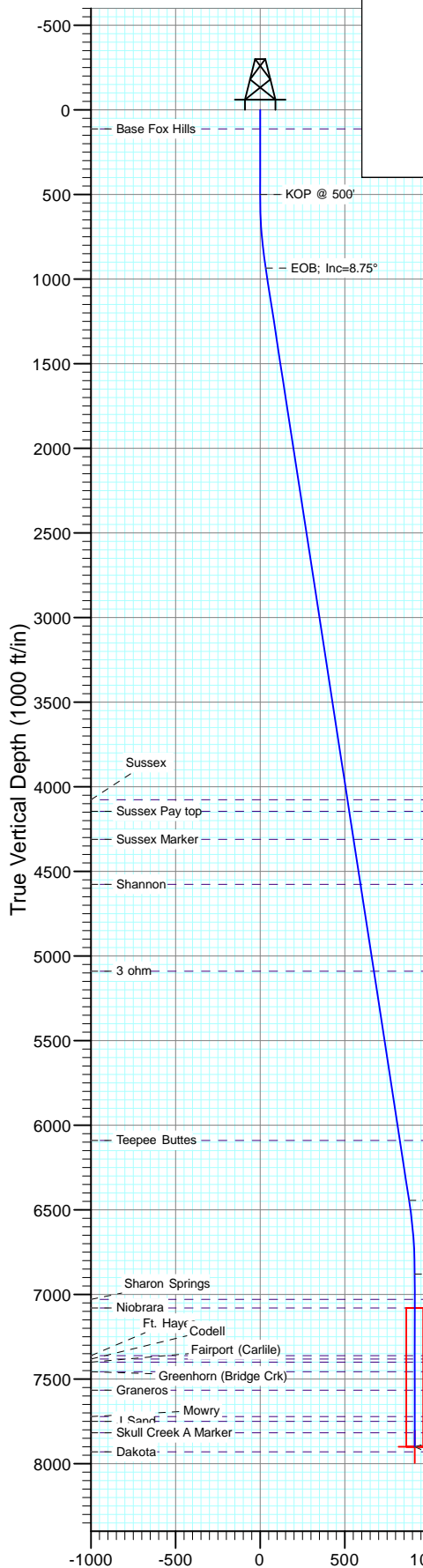
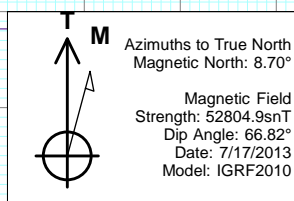




Project: DJ Wattenberg
Site: S4-T3N-R68W (Minch)
Well: Minch 0-4-4
Wellbore: DD
Design: Plan #1



DESIGN TARGET DETAILS					
Name	+N/-S	+E/-W	North	East	Latitude
Minch 0-4-4 PBHL	819.7	-404.7	1335924.99	3134666.89	40.254500
					Longitude
					-105.017530



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
113.0	113.0	Base Fox Hills
4077.0	4115.7	Sussex
4145.0	4184.5	Sussex Pay top
4311.0	4352.4	Sussex Marker
4577.0	4621.5	Shannon
5090.0	5140.6	3 ohm
6090.0	6152.3	Teepee Buttes
7029.0	7097.2	Sharon Springs
7080.0	7148.2	Niobrara
7362.0	7430.2	Ft. Hayes
7382.0	7450.2	Codell
7400.0	7468.2	Fairport (Carlile)
7457.0	7525.2	Greenhorn (Bridge Crk)
7566.0	7634.2	Graneros
7722.0	7790.2	Mowry
7750.0	7818.2	J Sand
7818.0	7886.2	Skull Creek A Marker

Plan #1
Minch 0-4-4
13xxx; LR
WELL @ 5090.0ft (Original Well Elev)
Ground Elevation @ 5077.0
North American Datum 1983
Well Minch 0-4-4, True North

Vertical Section at 333.72° (1000 ft/in)

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 0-4-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	DJ Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

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

Well	Minch 0-4-4					
Well Position	+N/-S	0.0 ft	Northing:	1,335,107.55 ft	Latitude:	40.252250
	+E/-W	0.0 ft	Easting:	3,135,076.06 ft	Longitude:	-105.016080
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,077.0 ft

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

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	333.72

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
937.3	8.75	333.72	935.6	29.9	-14.7	2.00	2.00	0.00	333.72	
6,510.9	8.75	333.72	6,444.4	789.8	-390.0	0.00	0.00	0.00	0.00	
6,948.2	0.00	0.00	6,880.0	819.7	-404.7	2.00	-2.00	0.00	180.00	
7,968.2	0.00	0.00	7,900.0	819.7	-404.7	0.00	0.00	0.00	0.00	Minch 0-4-4 PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 0-4-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
113.0	0.00	0.00	113.0	0.0	0.0	0.0	0.00	0.00	Base Fox Hills
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
600.0	2.00	333.72	600.0	1.6	-0.8	1.7	2.00	2.00	
700.0	4.00	333.72	699.8	6.3	-3.1	7.0	2.00	2.00	
800.0	6.00	333.72	799.5	14.1	-6.9	15.7	2.00	2.00	
900.0	8.00	333.72	898.7	25.0	-12.3	27.9	2.00	2.00	
937.3	8.75	333.72	935.6	29.9	-14.7	33.3	2.00	2.00	EOB; Inc=8.75°
1,000.0	8.75	333.72	997.6	38.4	-19.0	42.8	0.00	0.00	
1,100.0	8.75	333.72	1,096.4	52.1	-25.7	58.1	0.00	0.00	
1,200.0	8.75	333.72	1,195.2	65.7	-32.4	73.3	0.00	0.00	
1,300.0	8.75	333.72	1,294.1	79.3	-39.2	88.5	0.00	0.00	
1,400.0	8.75	333.72	1,392.9	93.0	-45.9	103.7	0.00	0.00	
1,500.0	8.75	333.72	1,491.8	106.6	-52.6	118.9	0.00	0.00	
1,600.0	8.75	333.72	1,590.6	120.2	-59.4	134.1	0.00	0.00	
1,700.0	8.75	333.72	1,689.4	133.9	-66.1	149.3	0.00	0.00	
1,800.0	8.75	333.72	1,788.3	147.5	-72.8	164.5	0.00	0.00	
1,900.0	8.75	333.72	1,887.1	161.1	-79.6	179.7	0.00	0.00	
2,000.0	8.75	333.72	1,985.9	174.8	-86.3	194.9	0.00	0.00	
2,100.0	8.75	333.72	2,084.8	188.4	-93.0	210.1	0.00	0.00	
2,200.0	8.75	333.72	2,183.6	202.0	-99.8	225.3	0.00	0.00	
2,300.0	8.75	333.72	2,282.5	215.7	-106.5	240.5	0.00	0.00	
2,400.0	8.75	333.72	2,381.3	229.3	-113.2	255.7	0.00	0.00	
2,500.0	8.75	333.72	2,480.1	242.9	-119.9	270.9	0.00	0.00	
2,600.0	8.75	333.72	2,579.0	256.6	-126.7	286.1	0.00	0.00	
2,700.0	8.75	333.72	2,677.8	270.2	-133.4	301.3	0.00	0.00	
2,800.0	8.75	333.72	2,776.6	283.8	-140.1	316.5	0.00	0.00	
2,900.0	8.75	333.72	2,875.5	297.5	-146.9	331.8	0.00	0.00	
3,000.0	8.75	333.72	2,974.3	311.1	-153.6	347.0	0.00	0.00	
3,100.0	8.75	333.72	3,073.2	324.7	-160.3	362.2	0.00	0.00	
3,200.0	8.75	333.72	3,172.0	338.4	-167.1	377.4	0.00	0.00	
3,300.0	8.75	333.72	3,270.8	352.0	-173.8	392.6	0.00	0.00	
3,400.0	8.75	333.72	3,369.7	365.6	-180.5	407.8	0.00	0.00	
3,500.0	8.75	333.72	3,468.5	379.3	-187.3	423.0	0.00	0.00	
3,600.0	8.75	333.72	3,567.3	392.9	-194.0	438.2	0.00	0.00	
3,700.0	8.75	333.72	3,666.2	406.5	-200.7	453.4	0.00	0.00	
3,800.0	8.75	333.72	3,765.0	420.2	-207.5	468.6	0.00	0.00	
3,900.0	8.75	333.72	3,863.9	433.8	-214.2	483.8	0.00	0.00	
4,000.0	8.75	333.72	3,962.7	447.4	-220.9	499.0	0.00	0.00	
4,100.0	8.75	333.72	4,061.5	461.1	-227.7	514.2	0.00	0.00	
4,115.7	8.75	333.72	4,077.0	463.2	-228.7	516.6	0.00	0.00	Sussex
4,184.5	8.75	333.72	4,145.0	472.6	-233.3	527.1	0.00	0.00	Sussex Pay top
4,200.0	8.75	333.72	4,160.4	474.7	-234.4	529.4	0.00	0.00	
4,300.0	8.75	333.72	4,259.2	488.4	-241.1	544.6	0.00	0.00	
4,352.4	8.75	333.72	4,311.0	495.5	-244.7	552.6	0.00	0.00	Sussex Marker
4,400.0	8.75	333.72	4,358.0	502.0	-247.9	559.8	0.00	0.00	
4,500.0	8.75	333.72	4,456.9	515.6	-254.6	575.0	0.00	0.00	
4,600.0	8.75	333.72	4,555.7	529.3	-261.3	590.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 0-4-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,621.5	8.75	333.72	4,577.0	532.2	-262.8	593.5	0.00	0.00	Shannon
4,700.0	8.75	333.72	4,654.5	542.9	-268.1	605.5	0.00	0.00	
4,800.0	8.75	333.72	4,753.4	556.5	-274.8	620.7	0.00	0.00	
4,900.0	8.75	333.72	4,852.2	570.2	-281.5	635.9	0.00	0.00	
5,000.0	8.75	333.72	4,951.1	583.8	-288.2	651.1	0.00	0.00	
5,100.0	8.75	333.72	5,049.9	597.4	-295.0	666.3	0.00	0.00	
5,140.6	8.75	333.72	5,090.0	603.0	-297.7	672.5	0.00	0.00	3 ohm
5,200.0	8.75	333.72	5,148.7	611.1	-301.7	681.5	0.00	0.00	
5,300.0	8.75	333.72	5,247.6	624.7	-308.4	696.7	0.00	0.00	
5,400.0	8.75	333.72	5,346.4	638.3	-315.2	711.9	0.00	0.00	
5,500.0	8.75	333.72	5,445.2	652.0	-321.9	727.1	0.00	0.00	
5,600.0	8.75	333.72	5,544.1	665.6	-328.6	742.3	0.00	0.00	
5,700.0	8.75	333.72	5,642.9	679.2	-335.4	757.5	0.00	0.00	
5,800.0	8.75	333.72	5,741.8	692.9	-342.1	772.7	0.00	0.00	
5,900.0	8.75	333.72	5,840.6	706.5	-348.8	787.9	0.00	0.00	
6,000.0	8.75	333.72	5,939.4	720.1	-355.6	803.1	0.00	0.00	
6,100.0	8.75	333.72	6,038.3	733.8	-362.3	818.3	0.00	0.00	
6,152.3	8.75	333.72	6,090.0	740.9	-365.8	826.3	0.00	0.00	Teepee Buttes
6,200.0	8.75	333.72	6,137.1	747.4	-369.0	833.5	0.00	0.00	
6,300.0	8.75	333.72	6,235.9	761.0	-375.8	848.8	0.00	0.00	
6,400.0	8.75	333.72	6,334.8	774.7	-382.5	864.0	0.00	0.00	
6,500.0	8.75	333.72	6,433.6	788.3	-389.2	879.2	0.00	0.00	
6,510.9	8.75	333.72	6,444.4	789.8	-390.0	880.8	0.00	0.00	Start Drop -2.00
6,600.0	6.96	333.72	6,532.7	800.7	-395.4	893.0	2.00	-2.00	
6,700.0	4.96	333.72	6,632.1	810.0	-400.0	903.4	2.00	-2.00	
6,800.0	2.96	333.72	6,731.9	816.2	-403.0	910.3	2.00	-2.00	
6,900.0	0.96	333.72	6,831.8	819.3	-404.5	913.7	2.00	-2.00	
6,948.2	0.00	0.00	6,880.0	819.7	-404.7	914.1	2.00	-2.00	EOD; Inc=0°
7,000.0	0.00	0.00	6,931.8	819.7	-404.7	914.1	0.00	0.00	
7,097.2	0.00	0.00	7,029.0	819.7	-404.7	914.1	0.00	0.00	Sharon Springs
7,100.0	0.00	0.00	7,031.8	819.7	-404.7	914.1	0.00	0.00	
7,148.2	0.00	0.00	7,080.0	819.7	-404.7	914.1	0.00	0.00	Niobrara
7,200.0	0.00	0.00	7,131.8	819.7	-404.7	914.1	0.00	0.00	
7,300.0	0.00	0.00	7,231.8	819.7	-404.7	914.1	0.00	0.00	
7,400.0	0.00	0.00	7,331.8	819.7	-404.7	914.1	0.00	0.00	
7,430.2	0.00	0.00	7,362.0	819.7	-404.7	914.1	0.00	0.00	Ft. Hayes
7,450.2	0.00	0.00	7,382.0	819.7	-404.7	914.1	0.00	0.00	Codell
7,468.2	0.00	0.00	7,400.0	819.7	-404.7	914.1	0.00	0.00	Fairport (Carlile)
7,500.0	0.00	0.00	7,431.8	819.7	-404.7	914.1	0.00	0.00	
7,525.2	0.00	0.00	7,457.0	819.7	-404.7	914.1	0.00	0.00	Greenhorn (Bridge Crk)
7,600.0	0.00	0.00	7,531.8	819.7	-404.7	914.1	0.00	0.00	
7,634.2	0.00	0.00	7,566.0	819.7	-404.7	914.1	0.00	0.00	Graneros
7,700.0	0.00	0.00	7,631.8	819.7	-404.7	914.1	0.00	0.00	
7,790.2	0.00	0.00	7,722.0	819.7	-404.7	914.1	0.00	0.00	Mowry
7,800.0	0.00	0.00	7,731.8	819.7	-404.7	914.1	0.00	0.00	
7,818.2	0.00	0.00	7,750.0	819.7	-404.7	914.1	0.00	0.00	J Sand
7,886.2	0.00	0.00	7,818.0	819.7	-404.7	914.1	0.00	0.00	Skull Creek A Marker
7,900.0	0.00	0.00	7,831.8	819.7	-404.7	914.1	0.00	0.00	
7,968.2	0.00	0.00	7,900.0	819.7	-404.7	914.1	0.00	0.00	TD at 7968.2 - Minch 0-4-4 PBHL

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Minch 0-4-4
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site:	S4-T3N-R68W (Minch)	North Reference:	True
Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Minch 0-4-4 PBHL	0.00	0.00	7,900.0	819.7	-404.7	1,335,924.99	3,134,666.89	40.254500	-105.017530
- plan hits target center									
- Circle (radius 50.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
113.0	113.0	Base Fox Hills				
4,115.7	4,077.0	Sussex				
4,184.5	4,145.0	Sussex Pay top				
4,352.4	4,311.0	Sussex Marker				
4,621.5	4,577.0	Shannon				
5,140.6	5,090.0	3 ohm				
6,152.3	6,090.0	Teepee Buttes				
7,097.2	7,029.0	Sharon Springs				
7,148.2	7,080.0	Niobrara				
7,430.2	7,362.0	Ft. Hayes				
7,450.2	7,382.0	Codell				
7,468.2	7,400.0	Fairport (Carlile)				
7,525.2	7,457.0	Greenhorn (Bridge Crk)				
7,634.2	7,566.0	Graneros				
7,790.2	7,722.0	Mowry				
7,818.2	7,750.0	J Sand				
7,886.2	7,818.0	Skull Creek A Marker				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
500.0	500.0	0.0	0.0	KOP @ 500'
937.3	935.6	29.9	-14.7	EOB; Inc=8.75°
6,510.9	6,444.4	789.8	-390.0	Start Drop -2.00
6,948.2	6,880.0	819.7	-404.7	EOD; Inc=0°
7,968.2	7,900.0	819.7	-404.7	TD at 7968.2

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S4-T3N-R68W (Minch)

Minch 0-4-4

DD

Plan #1

Anticollision Report

17 July, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	7/17/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,968.2	Plan #1 (DD)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S4-T3N-R68W (Minch)						
HOAGLAND 33-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 34-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 43-4D (EXISTING) - Existing - Existing						Out of range
HOAGLAND 44-4 (EXISTING) - Existing - Existing						Out of range
HOAGLAND 45-4D (EXISTING) - Existing - Existing						Out of range
Minch 0-5-4 - DD - Plan #1	500.0	500.0	21.9	20.2	12.858	CC, ES
Minch 0-5-4 - DD - Plan #1	800.0	801.1	26.6	23.8	9.529	SF
Minch 0-6-4 - DD - Plan #1	500.0	500.0	40.1	38.4	23.570	CC, ES
Minch 0-6-4 - DD - Plan #1	600.0	599.2	42.6	40.6	20.796	SF
Minch 13-4 - DD - Plan #1	587.2	586.5	29.2	27.2	14.594	CC
Minch 13-4 - DD - Plan #1	800.0	798.1	29.9	27.1	10.750	ES
Minch 13-4 - DD - Plan #1	900.0	897.5	31.8	28.6	9.927	SF
MINCH 14-4D (EXISTING) - Existing - Existing						Out of range
Minch 23-4 - DD - Plan #1	500.0	500.0	10.9	9.2	6.429	CC, ES
Minch 23-4 - DD - Plan #1	600.0	600.0	12.4	10.4	6.057	SF
Minch 2-4-4 - DD - Plan #1	547.6	547.3	18.4	16.6	9.872	CC
Minch 2-4-4 - DD - Plan #1	600.0	599.5	18.5	16.4	9.024	ES
Minch 2-4-4 - DD - Plan #1	700.0	698.6	20.0	17.6	8.304	SF
MINCH 24-4 (EXISTING) - EXISTING - EXISTING						Out of range
MINCH 24-4 RD-D (EXISTING) - Existing - Existing						Out of range
MINCH 35-4D (EXISTING) - Existing - Existing						Out of range
Minch 4-4-4 - DD - Plan #1	200.0	200.0	7.8	7.1	11.953	CC, ES
Minch 4-4-4 - DD - Plan #1	300.0	299.8	9.1	8.1	9.054	SF
Minch 4-6-4 - DD - Plan #1	500.0	500.0	51.0	49.3	29.999	CC, ES
Minch 4-6-4 - DD - Plan #1	700.0	698.9	58.9	56.5	24.458	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 0-5-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-21.9	0.0	21.9	20.9	1.00	21.818		
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-21.9	0.0	21.9	20.5	1.35	16.180		
500.0	500.0	500.0	500.0	0.8	0.8	180.00	-21.9	0.0	21.9	20.2	1.70	12.858 CC, ES		
600.0	600.0	600.5	600.5	1.0	1.0	-152.27	-20.7	-1.3	22.3	20.2	2.05	10.870		
700.0	699.8	701.0	700.8	1.2	1.2	-148.23	-17.3	-5.4	23.7	21.3	2.41	9.820		
800.0	799.5	801.1	800.6	1.4	1.4	-143.95	-12.1	-11.5	26.6	23.8	2.79	9.529 SF		
900.0	898.7	900.9	900.1	1.7	1.6	-144.12	-6.8	-17.7	32.3	29.1	3.18	10.144		
1,000.0	997.6	1,000.6	999.4	1.9	1.8	-146.59	-1.5	-23.9	40.3	36.7	3.58	11.260		
1,100.0	1,096.4	1,100.2	1,098.7	2.2	2.0	-148.41	3.8	-30.1	48.5	44.5	3.97	12.210		
1,200.0	1,195.2	1,199.9	1,198.0	2.5	2.3	-149.70	9.1	-36.3	56.8	52.4	4.37	12.990		
1,300.0	1,294.1	1,299.5	1,297.3	2.8	2.5	-150.67	14.4	-42.5	65.1	60.3	4.77	13.641		
1,400.0	1,392.9	1,399.1	1,396.7	3.1	2.7	-151.41	19.7	-48.8	73.4	68.2	5.17	14.192		
1,500.0	1,491.8	1,498.8	1,496.0	3.4	2.9	-152.00	25.0	-55.0	81.7	76.2	5.57	14.665		
1,600.0	1,590.6	1,598.4	1,595.3	3.7	3.1	-152.49	30.3	-61.2	90.1	84.1	5.98	15.074		
1,700.0	1,689.4	1,698.1	1,694.6	4.0	3.4	-152.89	35.6	-67.4	98.4	92.0	6.38	15.431		
1,800.0	1,788.3	1,797.7	1,793.9	4.3	3.6	-153.23	40.9	-73.6	106.8	100.0	6.78	15.746		
1,900.0	1,887.1	1,897.4	1,893.2	4.6	3.8	-153.52	46.2	-79.9	115.1	107.9	7.18	16.026		
2,000.0	1,985.9	1,997.0	1,992.5	5.0	4.0	-153.77	51.5	-86.1	123.5	115.9	7.59	16.275		
2,100.0	2,084.8	2,096.7	2,091.8	5.3	4.2	-153.99	56.8	-92.3	131.8	123.8	7.99	16.500		
2,200.0	2,183.6	2,196.3	2,191.2	5.6	4.5	-154.18	62.1	-98.5	140.2	131.8	8.39	16.703		
2,300.0	2,282.5	2,296.0	2,290.5	5.9	4.7	-154.35	67.4	-104.7	148.5	139.7	8.80	16.887		
2,400.0	2,381.3	2,395.6	2,389.8	6.2	4.9	-154.50	72.7	-110.9	156.9	147.7	9.20	17.055		
2,500.0	2,480.1	2,495.3	2,489.1	6.5	5.1	-154.64	78.0	-117.2	165.2	155.6	9.60	17.209		
2,600.0	2,579.0	2,594.9	2,588.4	6.8	5.4	-154.76	83.3	-123.4	173.6	163.6	10.01	17.350		
2,700.0	2,677.8	2,694.6	2,687.7	7.1	5.6	-154.88	88.6	-129.6	182.0	171.6	10.41	17.480		
2,800.0	2,776.6	2,794.2	2,787.0	7.5	5.8	-154.98	93.8	-135.8	190.3	179.5	10.81	17.601		
2,900.0	2,875.5	2,893.9	2,886.4	7.8	6.0	-155.07	99.1	-142.0	198.7	187.5	11.22	17.713		
3,000.0	2,974.3	2,993.5	2,985.7	8.1	6.3	-155.16	104.4	-148.2	207.0	195.4	11.62	17.817		
3,100.0	3,073.2	3,093.2	3,085.0	8.4	6.5	-155.24	109.7	-154.5	215.4	203.4	12.02	17.914		
3,200.0	3,172.0	3,192.8	3,184.3	8.7	6.7	-155.31	115.0	-160.7	223.8	211.3	12.43	18.005		
3,300.0	3,270.8	3,292.5	3,283.6	9.0	6.9	-155.38	120.3	-166.9	232.1	219.3	12.83	18.089		
3,400.0	3,369.7	3,392.1	3,382.9	9.4	7.1	-155.44	125.6	-173.1	240.5	227.3	13.24	18.169		
3,500.0	3,468.5	3,491.8	3,482.2	9.7	7.4	-155.50	130.9	-179.3	248.9	235.2	13.64	18.244		
3,600.0	3,567.3	3,591.4	3,581.6	10.0	7.6	-155.56	136.2	-185.5	257.2	243.2	14.04	18.315		
3,700.0	3,666.2	3,691.1	3,680.9	10.3	7.8	-155.61	141.5	-191.8	265.6	251.1	14.45	18.381		
3,800.0	3,765.0	3,790.7	3,780.2	10.6	8.0	-155.66	146.8	-198.0	273.9	259.1	14.85	18.445		
3,900.0	3,863.9	3,890.4	3,879.5	10.9	8.3	-155.71	152.1	-204.2	282.3	267.1	15.26	18.504		
4,000.0	3,962.7	3,990.0	3,978.8	11.3	8.5	-155.75	157.4	-210.4	290.7	275.0	15.66	18.561		
4,100.0	4,061.5	4,089.7	4,078.1	11.6	8.7	-155.79	162.7	-216.6	299.0	283.0	16.06	18.615		
4,200.0	4,160.4	4,189.3	4,177.4	11.9	8.9	-155.83	168.0	-222.8	307.4	290.9	16.47	18.666		
4,300.0	4,259.2	4,289.0	4,276.8	12.2	9.2	-155.87	173.3	-229.1	315.8	298.9	16.87	18.714		
4,400.0	4,358.0	4,388.6	4,376.1	12.5	9.4	-155.90	178.6	-235.3	324.1	306.9	17.28	18.761		
4,500.0	4,456.9	4,488.3	4,475.4	12.8	9.6	-155.93	183.9	-241.5	332.5	314.8	17.68	18.805		
4,600.0	4,555.7	4,587.9	4,574.7	13.2	9.8	-155.97	189.2	-247.7	340.9	322.8	18.09	18.847		
4,700.0	4,654.5	4,687.6	4,674.0	13.5	10.1	-155.99	194.5	-253.9	349.2	330.7	18.49	18.887		
4,800.0	4,753.4	4,787.2	4,773.3	13.8	10.3	-156.02	199.8	-260.1	357.6	338.7	18.89	18.926		
4,900.0	4,852.2	4,886.9	4,872.6	14.1	10.5	-156.05	205.1	-266.4	366.0	346.7	19.30	18.963		
5,000.0	4,951.1	4,986.5	4,972.0	14.4	10.7	-156.08	210.4	-272.6	374.3	354.6	19.70	18.999		
5,100.0	5,049.9	5,086.2	5,071.3	14.8	11.0	-156.10	215.7	-278.8	382.7	362.6	20.11	19.033		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 0-5-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		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	Separation Factor		
5,200.0	5,148.7	5,185.8	5,170.6	15.1	11.2	-156.13	221.0	-285.0	391.1	370.5	20.51	19.065		
5,300.0	5,247.6	5,285.5	5,269.9	15.4	11.4	-156.15	226.3	-291.2	399.4	378.5	20.92	19.097		
5,400.0	5,346.4	5,385.1	5,369.2	15.7	11.6	-156.17	231.6	-297.4	407.8	386.5	21.32	19.127		
5,500.0	5,445.2	5,484.8	5,468.5	16.0	11.9	-156.19	236.9	-303.7	416.2	394.4	21.72	19.156		
5,600.0	5,544.1	5,584.4	5,567.8	16.3	12.1	-156.21	242.2	-309.9	424.5	402.4	22.13	19.184		
5,700.0	5,642.9	5,684.1	5,667.2	16.7	12.3	-156.23	247.5	-316.1	432.9	410.4	22.53	19.211		
5,800.0	5,741.8	5,783.7	5,766.5	17.0	12.5	-156.25	252.8	-322.3	441.3	418.3	22.94	19.237		
5,900.0	5,840.6	5,883.4	5,865.8	17.3	12.8	-156.27	258.1	-328.5	449.6	426.3	23.34	19.262		
6,000.0	5,939.4	5,983.0	5,965.1	17.6	13.0	-156.28	263.3	-334.7	458.0	434.2	23.75	19.287		
6,100.0	6,038.3	6,082.7	6,064.4	17.9	13.2	-156.30	268.6	-341.0	466.3	442.2	24.15	19.310		
6,200.0	6,137.1	6,182.3	6,163.7	18.2	13.4	-156.32	273.9	-347.2	474.7	450.2	24.55	19.333		
6,300.0	6,235.9	6,282.0	6,263.0	18.6	13.7	-156.33	279.2	-353.4	483.1	458.1	24.96	19.355		
6,400.0	6,334.8	6,381.6	6,362.4	18.9	13.9	-156.35	284.5	-359.6	491.4	466.1	25.36	19.376		
6,500.0	6,433.6	6,481.3	6,461.7	19.2	14.1	-156.36	289.8	-365.8	499.8	474.0	25.77	19.397		
7,200.0	7,131.8	7,155.7	7,134.3	20.3	15.5	179.67	320.5	-401.9	499.1	470.5	28.62	17.438		
7,244.0	7,175.8	7,197.2	7,175.8	20.4	15.6	179.68	320.6	-401.9	499.1	470.3	28.76	17.356		
7,300.0	7,231.8	7,253.2	7,231.8	20.4	15.7	179.68	320.6	-401.9	499.1	470.2	28.93	17.253		
7,400.0	7,331.8	7,353.2	7,331.8	20.5	15.8	179.68	320.6	-401.9	499.1	469.8	29.23	17.072		
7,500.0	7,431.8	7,453.2	7,431.8	20.7	15.9	179.68	320.6	-401.9	499.1	469.5	29.54	16.894		
7,600.0	7,531.8	7,553.2	7,531.8	20.8	16.1	179.68	320.6	-401.9	499.1	469.2	29.85	16.720		
7,700.0	7,631.8	7,653.2	7,631.8	20.9	16.2	179.68	320.6	-401.9	499.1	468.9	30.16	16.549		
7,800.0	7,731.8	7,753.2	7,731.8	21.0	16.4	179.68	320.6	-401.9	499.1	468.6	30.47	16.380		
7,900.0	7,831.8	7,853.2	7,831.8	21.1	16.5	179.68	320.6	-401.9	499.1	468.3	30.78	16.215		
7,968.2	7,900.0	7,921.4	7,900.0	21.2	16.6	179.68	320.6	-401.9	499.1	468.1	30.99	16.104		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 0-6-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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	-40.1	0.0	40.1					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-40.1	0.0	40.1	39.8	131.936			
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-40.1	0.0	40.1	39.4	61.382			
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-40.1	0.0	40.1	39.1	39.995			
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-40.1	0.0	40.1	38.7	29.660			
500.0	500.0	500.0	500.0	0.8	0.8	180.00	-40.1	0.0	40.1	38.4	23.570 CC, ES			
600.0	600.0	599.2	599.1	1.0	1.0	-152.81	-41.0	-1.4	42.6	40.6	20.796 SF			
700.0	699.8	697.9	697.8	1.2	1.2	-150.63	-43.9	-5.7	50.2	47.8	20.902			
800.0	799.5	796.8	796.4	1.4	1.4	-148.76	-48.1	-12.0	62.5	59.7	22.562			
900.0	898.7	895.7	894.9	1.7	1.6	-148.75	-52.5	-18.5	77.8	74.6	24.726			
1,000.0	997.6	994.1	993.0	1.9	1.8	-149.65	-56.8	-24.9	95.5	91.9	27.019			
1,100.0	1,096.4	1,092.4	1,091.1	2.2	2.0	-150.39	-61.1	-31.3	113.4	109.5	28.860			
1,200.0	1,195.2	1,190.8	1,189.1	2.5	2.2	-150.92	-65.4	-37.7	131.3	127.0	30.344			
1,300.0	1,294.1	1,289.2	1,287.2	2.8	2.4	-151.33	-69.7	-44.2	149.2	144.5	31.562			
1,400.0	1,392.9	1,387.6	1,385.3	3.1	2.7	-151.65	-74.0	-50.6	167.2	162.1	32.579			
1,500.0	1,491.8	1,485.9	1,483.4	3.4	2.9	-151.90	-78.3	-57.0	185.1	179.6	33.439			
1,600.0	1,590.6	1,584.3	1,581.4	3.7	3.1	-152.11	-82.6	-63.4	203.1	197.1	34.176			
1,700.0	1,689.4	1,682.7	1,679.5	4.0	3.3	-152.29	-86.9	-69.8	221.0	214.7	34.814			
1,800.0	1,788.3	1,781.1	1,777.6	4.3	3.5	-152.44	-91.2	-76.3	239.0	232.2	35.372			
1,900.0	1,887.1	1,879.4	1,875.6	4.6	3.7	-152.57	-95.5	-82.7	256.9	249.8	35.863			
2,000.0	1,985.9	1,977.8	1,973.7	5.0	3.9	-152.68	-99.8	-89.1	274.9	267.3	36.298			
2,100.0	2,084.8	2,076.2	2,071.8	5.3	4.2	-152.78	-104.1	-95.5	292.8	284.9	36.688			
2,200.0	2,183.6	2,174.6	2,169.8	5.6	4.4	-152.87	-108.4	-102.0	310.8	302.4	37.037			
2,300.0	2,282.5	2,272.9	2,267.9	5.9	4.6	-152.95	-112.7	-108.4	328.7	319.9	37.353			
2,400.0	2,381.3	2,371.3	2,366.0	6.2	4.8	-153.02	-117.1	-114.8	346.7	337.5	37.640			
2,500.0	2,480.1	2,469.7	2,464.1	6.5	5.0	-153.08	-121.4	-121.2	364.7	355.0	37.901			
2,600.0	2,579.0	2,568.1	2,562.1	6.8	5.2	-153.14	-125.7	-127.6	382.6	372.6	38.140			
2,700.0	2,677.8	2,666.4	2,660.2	7.1	5.5	-153.19	-130.0	-134.1	400.6	390.1	38.360			
2,800.0	2,776.6	2,764.8	2,758.3	7.5	5.7	-153.23	-134.3	-140.5	418.5	407.7	38.563			
2,900.0	2,875.5	2,863.2	2,856.3	7.8	5.9	-153.28	-138.6	-146.9	436.5	425.2	38.750			
3,000.0	2,974.3	2,961.5	2,954.4	8.1	6.1	-153.32	-142.9	-153.3	454.4	442.8	38.923			
3,100.0	3,073.2	3,059.9	3,052.5	8.4	6.3	-153.35	-147.2	-159.7	472.4	460.3	39.085			
3,200.0	3,172.0	3,158.3	3,150.5	8.7	6.5	-153.39	-151.5	-166.2	490.4	477.9	39.235			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 13-4 - DD - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
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	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	5.47	29.1	2.8	29.3						
100.0	100.0	100.0	100.0	0.2	0.2	5.47	29.1	2.8	29.3	29.0	0.30	96.416			
200.0	200.0	200.0	200.0	0.3	0.3	5.47	29.1	2.8	29.3	28.6	0.65	44.857			
300.0	300.0	300.0	300.0	0.5	0.5	5.47	29.1	2.8	29.3	28.3	1.00	29.227			
400.0	400.0	400.0	400.0	0.7	0.7	5.47	29.1	2.8	29.3	27.9	1.35	21.675			
500.0	500.0	500.0	500.0	0.8	0.8	5.47	29.1	2.8	29.3	27.6	1.70	17.224			
587.2	587.2	586.5	586.5	1.0	1.0	34.64	30.1	3.7	29.2	27.2	2.00	14.594 CC			
600.0	600.0	599.2	599.1	1.0	1.0	35.55	30.4	3.9	29.2	27.2	2.05	14.279			
700.0	699.8	698.5	698.3	1.2	1.2	46.57	34.0	7.2	29.6	27.2	2.40	12.332			
800.0	799.5	798.1	797.8	1.4	1.4	62.77	38.0	10.9	29.9	27.1	2.78	10.750 ES			
900.0	898.7	897.5	897.0	1.7	1.6	83.55	42.0	14.5	31.8	28.6	3.21	9.927 SF			
1,000.0	997.6	996.5	995.9	1.9	1.8	104.16	46.0	18.2	37.9	34.3	3.65	10.383			
1,100.0	1,096.4	1,095.5	1,094.7	2.2	2.0	118.18	50.0	21.8	47.6	43.5	4.07	11.678			
1,200.0	1,195.2	1,194.5	1,193.6	2.5	2.2	127.17	54.0	25.4	59.1	54.6	4.48	13.193			
1,300.0	1,294.1	1,293.5	1,292.4	2.8	2.3	133.15	58.0	29.1	71.5	66.6	4.87	14.678			
1,400.0	1,392.9	1,392.5	1,391.3	3.1	2.5	137.33	62.0	32.7	84.5	79.2	5.26	16.051			
1,500.0	1,491.8	1,491.4	1,490.1	3.4	2.7	140.38	66.0	36.3	97.8	92.1	5.66	17.293			
1,600.0	1,590.6	1,590.4	1,589.0	3.7	2.9	142.71	70.0	40.0	111.3	105.3	6.05	18.409			
1,700.0	1,689.4	1,689.4	1,687.8	4.0	3.1	144.52	74.0	43.6	125.0	118.6	6.44	19.411			
1,800.0	1,788.3	1,788.4	1,786.7	4.3	3.3	145.98	78.0	47.2	138.8	131.9	6.83	20.312			
1,900.0	1,887.1	1,887.4	1,885.5	4.6	3.5	147.18	82.0	50.9	152.6	145.4	7.22	21.124			
2,000.0	1,985.9	1,986.4	1,984.4	5.0	3.7	148.17	86.0	54.5	166.5	158.9	7.62	21.860			
2,100.0	2,084.8	2,085.4	2,083.2	5.3	3.9	149.01	90.0	58.2	180.4	172.4	8.01	22.528			
2,200.0	2,183.6	2,184.4	2,182.0	5.6	4.1	149.74	93.9	61.8	194.4	186.0	8.40	23.136			
2,300.0	2,282.5	2,283.4	2,280.9	5.9	4.3	150.36	97.9	65.4	208.4	199.6	8.79	23.693			
2,400.0	2,381.3	2,382.4	2,379.7	6.2	4.5	150.91	101.9	69.1	222.4	213.2	9.19	24.205			
2,500.0	2,480.1	2,481.4	2,478.6	6.5	4.7	151.39	105.9	72.7	236.4	226.8	9.58	24.676			
2,600.0	2,579.0	2,580.4	2,577.4	6.8	4.9	151.82	109.9	76.3	250.4	240.5	9.97	25.110			
2,700.0	2,677.8	2,679.4	2,676.3	7.1	5.1	152.20	113.9	80.0	264.5	254.1	10.37	25.513			
2,800.0	2,776.6	2,778.4	2,775.1	7.5	5.3	152.54	117.9	83.6	278.6	267.8	10.76	25.887			
2,900.0	2,875.5	2,877.3	2,874.0	7.8	5.5	152.85	121.9	87.2	292.6	281.5	11.15	26.235			
3,000.0	2,974.3	2,976.3	2,972.8	8.1	5.7	153.13	125.9	90.9	306.7	295.2	11.55	26.561			
3,100.0	3,073.2	3,075.3	3,071.7	8.4	5.9	153.39	129.9	94.5	320.8	308.9	11.94	26.864			
3,200.0	3,172.0	3,174.3	3,170.5	8.7	6.1	153.63	133.9	98.2	334.9	322.6	12.34	27.149			
3,300.0	3,270.8	3,273.3	3,269.3	9.0	6.3	153.84	137.9	101.8	349.0	336.3	12.73	27.417			
3,400.0	3,369.7	3,372.3	3,368.2	9.4	6.5	154.04	141.9	105.4	363.1	350.0	13.12	27.669			
3,500.0	3,468.5	3,471.3	3,467.0	9.7	6.7	154.23	145.9	109.1	377.2	363.7	13.52	27.906			
3,600.0	3,567.3	3,570.3	3,565.9	10.0	6.8	154.40	149.9	112.7	391.3	377.4	13.91	28.130			
3,700.0	3,666.2	3,669.3	3,664.7	10.3	7.0	154.56	153.9	116.3	405.4	391.1	14.31	28.342			
3,800.0	3,765.0	3,768.3	3,763.6	10.6	7.2	154.71	157.8	120.0	419.6	404.9	14.70	28.542			
3,900.0	3,863.9	3,867.3	3,862.4	10.9	7.4	154.85	161.8	123.6	433.7	418.6	15.09	28.733			
4,000.0	3,962.7	3,966.3	3,961.3	11.3	7.6	154.98	165.8	127.2	447.8	432.3	15.49	28.913			
4,100.0	4,061.5	4,065.3	4,060.1	11.6	7.8	155.10	169.8	130.9	461.9	446.1	15.88	29.085			
4,200.0	4,160.4	4,164.3	4,158.9	11.9	8.0	155.22	173.8	134.5	476.1	459.8	16.28	29.249			
4,300.0	4,259.2	4,263.2	4,257.8	12.2	8.2	155.32	177.8	138.2	490.2	473.5	16.67	29.404			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design		S4-T3N-R68W (Minch) - Minch 23-4 - DD - Plan #1											Offset Site Error:		0.0 ft
Survey Program:		0-Geolink MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-10.9	0.0	10.9						
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-10.9	0.0	10.9	10.6	0.30	35.986			
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-10.9	0.0	10.9	10.3	0.65	16.742			
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-10.9	0.0	10.9	9.9	1.00	10.909			
400.0	400.0	400.0	400.0	0.7	0.7	-180.00	-10.9	0.0	10.9	9.6	1.35	8.090			
500.0	500.0	500.0	500.0	0.8	0.8	-180.00	-10.9	0.0	10.9	9.2	1.70	6.429	CC, ES		
600.0	600.0	600.0	600.0	1.0	1.0	-165.26	-10.6	1.7	12.4	10.4	2.05	6.057	SF		
700.0	699.8	699.5	699.4	1.2	1.2	174.29	-9.6	6.8	18.7	16.3	2.41	7.786			
800.0	799.5	798.1	797.6	1.4	1.4	160.97	-8.0	15.2	31.4	28.6	2.77	11.311			
900.0	898.7	895.4	894.2	1.7	1.7	153.99	-5.8	26.8	50.0	46.8	3.16	15.830			
1,000.0	997.6	991.1	988.7	1.9	1.9	150.03	-3.1	41.2	73.7	70.1	3.57	20.612			
1,100.0	1,096.4	1,085.3	1,081.3	2.2	2.2	146.85	0.2	58.5	100.1	96.0	4.02	24.922			
1,200.0	1,195.2	1,178.1	1,171.8	2.5	2.6	144.09	4.0	78.5	129.1	124.6	4.47	28.854			
1,300.0	1,294.1	1,273.1	1,264.1	2.8	3.0	141.92	8.2	100.4	159.5	154.6	4.95	32.258			
1,400.0	1,392.9	1,368.2	1,356.5	3.1	3.4	140.44	12.4	122.4	190.1	184.7	5.42	35.060			
1,500.0	1,491.8	1,463.3	1,449.0	3.4	3.8	139.38	16.6	144.4	220.8	214.9	5.91	37.395			
1,600.0	1,590.6	1,558.4	1,541.4	3.7	4.2	138.57	20.7	166.4	251.6	245.2	6.39	39.366			
1,700.0	1,689.4	1,653.5	1,633.8	4.0	4.6	137.94	24.9	188.4	282.4	275.5	6.88	41.047			
1,800.0	1,788.3	1,748.6	1,726.2	4.3	5.0	137.43	29.1	210.4	313.2	305.8	7.37	42.496			
1,900.0	1,887.1	1,843.7	1,818.7	4.6	5.5	137.01	33.3	232.4	344.0	336.1	7.86	43.758			
2,000.0	1,985.9	1,938.8	1,911.1	5.0	5.9	136.67	37.5	254.4	374.8	366.5	8.35	44.864			
2,100.0	2,084.8	2,033.9	2,003.5	5.3	6.3	136.37	41.7	276.4	405.7	396.8	8.85	45.842			
2,200.0	2,183.6	2,129.0	2,096.0	5.6	6.7	136.12	45.9	298.4	436.5	427.2	9.35	46.712			
2,300.0	2,282.5	2,224.1	2,188.4	5.9	7.2	135.90	50.0	320.4	467.4	457.6	9.84	47.491			
2,400.0	2,381.3	2,319.2	2,280.8	6.2	7.6	135.71	54.2	342.3	498.3	487.9	10.34	48.193			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 2-4-4 - DD - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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	8.71	18.2	2.8	18.4					
100.0	100.0	100.0	100.0	0.2	0.2	8.71	18.2	2.8	18.4	18.1	0.30	60.677		
200.0	200.0	200.0	200.0	0.3	0.3	8.71	18.2	2.8	18.4	17.8	0.65	28.230		
300.0	300.0	300.0	300.0	0.5	0.5	8.71	18.2	2.8	18.4	17.4	1.00	18.394		
400.0	400.0	400.0	400.0	0.7	0.7	8.71	18.2	2.8	18.4	17.1	1.35	13.641		
500.0	500.0	500.0	500.0	0.8	0.8	8.71	18.2	2.8	18.4	16.7	1.70	10.840		
547.6	547.6	547.3	547.3	0.9	0.9	36.43	18.5	3.1	18.4	16.6	1.87	9.872 CC		
600.0	600.0	599.5	599.4	1.0	1.0	41.34	19.4	4.0	18.5	16.4	2.05	9.024 ES		
700.0	699.8	698.6	698.5	1.2	1.2	59.08	23.0	7.8	20.0	17.6	2.41	8.304 SF		
800.0	799.5	797.3	796.8	1.4	1.4	80.34	28.9	13.9	25.7	22.9	2.79	9.221		
900.0	898.7	895.3	894.1	1.7	1.7	96.07	37.1	22.4	37.1	33.9	3.22	11.524		
1,000.0	997.6	992.4	990.0	1.9	1.9	105.09	47.4	33.2	53.5	49.8	3.69	14.504		
1,100.0	1,096.4	1,089.0	1,084.9	2.2	2.2	108.50	59.9	46.3	73.3	69.1	4.19	17.502		
1,200.0	1,195.2	1,186.8	1,180.8	2.5	2.6	110.10	73.3	60.2	94.0	89.3	4.71	19.967		
1,300.0	1,294.1	1,284.6	1,276.7	2.8	2.9	111.12	86.6	74.0	114.8	109.5	5.24	21.896		
1,400.0	1,392.9	1,382.4	1,372.6	3.1	3.3	111.84	99.9	87.9	135.5	129.8	5.78	23.435		
1,500.0	1,491.8	1,480.2	1,468.5	3.4	3.6	112.36	113.2	101.8	156.3	150.0	6.33	24.684		
1,600.0	1,590.6	1,578.1	1,564.4	3.7	4.0	112.76	126.5	115.7	177.1	170.2	6.89	25.714		
1,700.0	1,689.4	1,675.9	1,660.3	4.0	4.4	113.07	139.9	129.6	197.9	190.5	7.45	26.577		
1,800.0	1,788.3	1,773.7	1,756.2	4.3	4.7	113.33	153.2	143.5	218.7	210.7	8.01	27.308		
1,900.0	1,887.1	1,871.5	1,852.1	4.6	5.1	113.54	166.5	157.3	239.5	231.0	8.57	27.935		
2,000.0	1,985.9	1,969.3	1,948.0	5.0	5.5	113.72	179.8	171.2	260.4	251.2	9.14	28.478		
2,100.0	2,084.8	2,067.1	2,043.9	5.3	5.8	113.87	193.1	185.1	281.2	271.5	9.71	28.953		
2,200.0	2,183.6	2,164.9	2,139.7	5.6	6.2	114.00	206.5	199.0	302.0	291.7	10.28	29.370		
2,300.0	2,282.5	2,262.7	2,235.6	5.9	6.6	114.11	219.8	212.9	322.8	312.0	10.85	29.741		
2,400.0	2,381.3	2,360.5	2,331.5	6.2	7.0	114.21	233.1	226.8	343.6	332.2	11.43	30.071		
2,500.0	2,480.1	2,458.3	2,427.4	6.5	7.3	114.30	246.4	240.7	364.4	352.4	12.00	30.368		
2,600.0	2,579.0	2,556.1	2,523.3	6.8	7.7	114.38	259.8	254.5	385.3	372.7	12.58	30.636		
2,700.0	2,677.8	2,653.9	2,619.2	7.1	8.1	114.45	273.1	268.4	406.1	392.9	13.15	30.879		
2,800.0	2,776.6	2,751.7	2,715.1	7.5	8.5	114.51	286.4	282.3	426.9	413.2	13.73	31.100		
2,900.0	2,875.5	2,849.5	2,811.0	7.8	8.8	114.57	299.7	296.2	447.7	433.4	14.30	31.303		
3,000.0	2,974.3	2,947.4	2,906.9	8.1	9.2	114.62	313.0	310.1	468.6	453.7	14.88	31.489		
3,100.0	3,073.2	3,045.2	3,002.8	8.4	9.6	114.67	326.4	324.0	489.4	473.9	15.46	31.660		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												S4-T3N-R68W (Minch) - Minch 4-4-4 - DD - Plan #1		Offset Site Error:		0.0 ft
Survey Program:												0-Geolink MWD		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty	Separation					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis	Factor				
0.0	0.0	0.0	0.0	0.0	0.0	20.96	7.3	2.8	7.8							
100.0	100.0	100.0	100.0	0.2	0.2	20.96	7.3	2.8	7.8	7.5	0.30	25.691				
200.0	200.0	200.0	200.0	0.3	0.3	20.96	7.3	2.8	7.8	7.1	0.65	11.953 CC, ES				
300.0	300.0	299.8	299.8	0.5	0.5	29.09	7.9	4.4	9.1	8.1	1.00	9.054 SF				
400.0	400.0	399.3	399.2	0.7	0.7	43.25	9.8	9.2	13.5	12.2	1.35	10.011				
500.0	500.0	498.4	497.8	0.8	0.9	53.05	13.0	17.2	21.7	20.0	1.70	12.754				
600.0	600.0	596.7	595.4	1.0	1.2	87.55	17.3	28.3	33.4	31.3	2.05	16.304				
700.0	699.8	693.9	691.4	1.2	1.5	95.52	22.8	42.3	49.1	46.7	2.40	20.435				
800.0	799.5	789.6	785.5	1.4	1.8	101.91	29.4	59.1	69.2	66.4	2.78	24.882				
900.0	898.7	883.6	877.1	1.7	2.2	106.77	37.0	78.3	94.0	90.8	3.20	29.326				
1,000.0	997.6	975.6	966.2	1.9	2.7	110.48	45.5	99.9	123.2	119.5	3.67	33.579				
1,100.0	1,096.4	1,065.9	1,052.8	2.2	3.2	112.61	54.8	123.6	155.6	151.5	4.15	37.480				
1,200.0	1,195.2	1,154.4	1,136.8	2.5	3.7	113.68	64.9	149.4	191.0	186.3	4.65	41.079				
1,300.0	1,294.1	1,241.3	1,218.5	2.8	4.2	114.16	75.8	177.0	229.0	223.8	5.15	44.460				
1,400.0	1,392.9	1,332.8	1,304.0	3.1	4.8	114.40	87.7	207.3	268.4	262.7	5.67	47.309				
1,500.0	1,491.8	1,424.7	1,390.0	3.4	5.4	114.59	99.6	237.7	307.7	301.5	6.20	49.623				
1,600.0	1,590.6	1,516.6	1,475.9	3.7	6.1	114.73	111.6	268.1	347.1	340.3	6.73	51.536				
1,700.0	1,689.4	1,608.6	1,561.8	4.0	6.7	114.84	123.6	298.5	386.4	379.2	7.27	53.141				
1,800.0	1,788.3	1,700.5	1,647.7	4.3	7.3	114.94	135.5	328.9	425.8	418.0	7.81	54.505				
1,900.0	1,887.1	1,792.4	1,733.6	4.6	7.9	115.01	147.5	359.3	465.1	456.8	8.35	55.675				

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Minch 0-4-4
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5090.0ft (Original Well Elev)
Reference Site:	S4-T3N-R68W (Minch)	MD Reference:	WELL @ 5090.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S4-T3N-R68W (Minch) - Minch 4-6-4 - DD - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis				Distance				Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis		Separation Factor
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-51.0	0.0	51.0				
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-51.0	0.0	51.0	50.7	0.30	167.923	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-51.0	0.0	51.0	50.3	0.65	78.125	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-51.0	0.0	51.0	50.0	1.00	50.903	
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-51.0	0.0	51.0	49.6	1.35	37.750	
500.0	500.0	500.0	500.0	0.8	0.8	180.00	-51.0	0.0	51.0	49.3	1.70	29.999 CC, ES	
600.0	600.0	599.7	599.7	1.0	1.0	-156.42	-51.2	1.7	52.8	50.8	2.05	25.762	
700.0	699.8	698.9	698.7	1.2	1.2	-163.39	-51.7	6.9	58.9	56.5	2.41	24.458 SF	
800.0	799.5	796.9	796.4	1.4	1.4	-172.07	-52.7	15.3	70.4	67.6	2.77	25.397	
900.0	898.7	893.4	892.1	1.7	1.6	179.90	-53.9	26.8	88.4	85.2	3.15	28.087	
1,000.0	997.6	987.9	985.5	1.9	1.9	173.45	-55.5	41.2	112.2	108.7	3.53	31.744	
1,100.0	1,096.4	1,080.8	1,076.8	2.2	2.2	168.38	-57.4	58.3	139.4	135.4	3.94	35.360	
1,200.0	1,195.2	1,171.9	1,165.8	2.5	2.6	164.29	-59.5	78.0	169.5	165.2	4.36	38.875	
1,300.0	1,294.1	1,261.2	1,252.3	2.8	3.0	160.91	-61.9	99.9	202.6	197.8	4.79	42.291	
1,400.0	1,392.9	1,348.5	1,336.2	3.1	3.4	158.09	-64.6	124.0	238.5	233.3	5.23	45.618	
1,500.0	1,491.8	1,433.7	1,417.3	3.4	3.9	155.69	-67.4	149.9	277.2	271.6	5.67	48.871	
1,600.0	1,590.6	1,516.8	1,495.6	3.7	4.4	153.63	-70.4	177.5	318.6	312.4	6.12	52.061	
1,700.0	1,689.4	1,600.0	1,573.2	4.0	4.9	151.80	-73.7	207.4	362.5	355.9	6.57	55.143	
1,800.0	1,788.3	1,683.7	1,650.6	4.3	5.5	150.21	-77.2	239.0	408.2	401.2	7.03	58.083	
1,900.0	1,887.1	1,772.0	1,732.2	4.6	6.1	148.85	-80.8	272.4	454.3	446.8	7.50	60.614	

Cathedral Energy Services

Anticollision Report

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Site Error:	0.0ft	North Reference:	True
Reference Well:	Minch 0-4-4	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5090.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Minch 0-4-4

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.31°

