



Project: DJ Wattenberg  
Site: S18-T3N-R68W (Billings)  
Well: Billings 2C-18H  
Wellbore: HZ  
Design: Plan #1

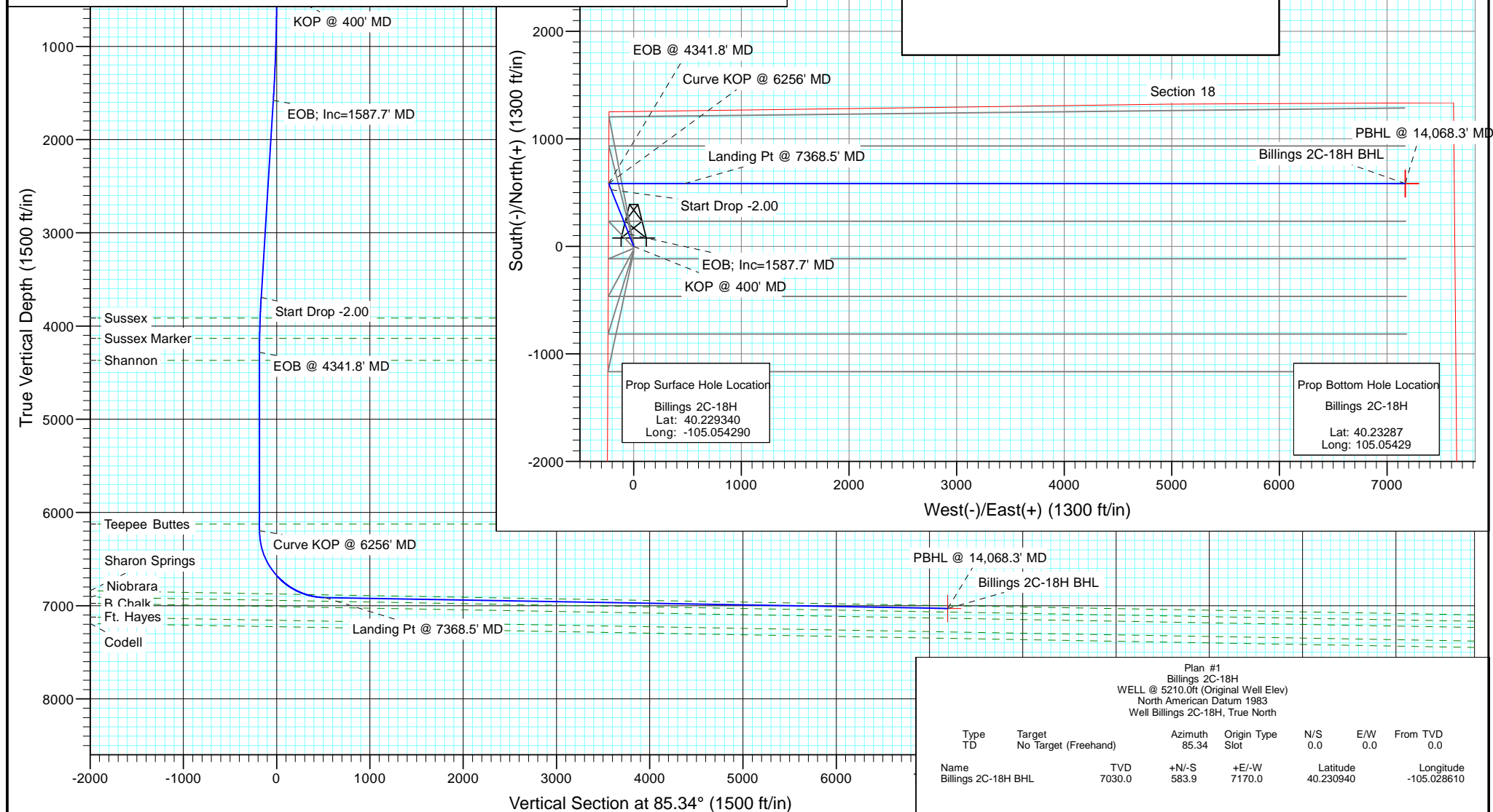


#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0		KOP @ 400' MD
3	1587.7	11.88	338.29	1579.2	114.0	-45.4	1.00	338.29	-36.0		EOB; Inc=1587.7' MD
4	3748.0	11.88	338.29	3693.3	527.0	-209.8	0.00	0.00	-166.4		Start Drop -2.00
5	4341.8	0.00	0.00	4282.8	584.0	-232.5	2.00	180.00	-184.3		EOB @ 4341.8' MD
6	6256.0	0.00	0.00	6197.0	584.0	-232.5	0.00	0.00	-184.3		Curve KOP @ 6256' MD
7	7368.5	89.00	90.00	6913.1	584.0	471.2	8.00	90.00	517.0		Landing Pt @ 7368.5' MD
8	14068.3	89.00	90.00	7030.0	583.9	7170.0	0.00	0.00	7193.7	Billings 2C-18H BHL	PBHL @ 14,068.3' MD

#### FORMATION TOP DETAILS

TVDPth	MDPath	Formation	DipAngle
3915.0	3973.0	Sussex	
4132.0	4190.9	Sussex Marker	
4368.0	4427.0	Shannon	
6124.0	6183.0	Teepee Buttes	
6878.6	7157.5	Sharon Springs	1.00



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site:</b>	S18-T3N-R68W (Billings)	<b>North Reference:</b>	True
<b>Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

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

Site		S18-T3N-R68W (Billings)			
Site Position:		Northing:	1,326,724.18 ft	Latitude:	40.229390
From:	Lat/Long	Easting:	3,124,452.97 ft	Longitude:	-105.054290
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	Billings 2C-18H					
Well Position	+N/-S	0.0 ft	Northing:	1,326,705.96 ft	Latitude:	40.229340
	+E/-W	0.0 ft	Easting:	3,124,453.06 ft	Longitude:	-105.054290
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,197.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	11/16/2012	8.77	66.83	52,884

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	85.34

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,587.7	11.88	338.29	1,579.2	114.0	-45.4	1.00	1.00	0.00	338.29	
3,748.0	11.88	338.29	3,693.3	527.0	-209.8	0.00	0.00	0.00	0.00	
4,341.8	0.00	0.00	4,282.8	584.0	-232.5	2.00	-2.00	0.00	180.00	Interp @ 4282.8 (Billir
6,256.0	0.00	0.00	6,197.0	584.0	-232.5	0.00	0.00	0.00	0.00	
7,368.5	89.00	90.00	6,913.1	584.0	471.2	8.00	8.00	0.00	90.00	
14,068.3	89.00	90.00	7,030.0	583.9	7,170.0	0.00	0.00	0.00	0.00	Billings 2C-18H BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site:</b>	S18-T3N-R68W (Billings)	<b>North Reference:</b>	True
<b>Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
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' MD
500.0	1.00	338.29	500.0	0.8	-0.3	-0.3	1.00	1.00	
600.0	2.00	338.29	600.0	3.2	-1.3	-1.0	1.00	1.00	
700.0	3.00	338.29	699.9	7.3	-2.9	-2.3	1.00	1.00	
800.0	4.00	338.29	799.7	13.0	-5.2	-4.1	1.00	1.00	
900.0	5.00	338.29	899.4	20.3	-8.1	-6.4	1.00	1.00	
1,000.0	6.00	338.29	998.9	29.2	-11.6	-9.2	1.00	1.00	
1,100.0	7.00	338.29	1,098.3	39.7	-15.8	-12.5	1.00	1.00	
1,200.0	8.00	338.29	1,197.4	51.8	-20.6	-16.4	1.00	1.00	
1,300.0	9.00	338.29	1,296.3	65.5	-26.1	-20.7	1.00	1.00	
1,400.0	10.00	338.29	1,394.9	80.9	-32.2	-25.5	1.00	1.00	
1,500.0	11.00	338.29	1,493.3	97.8	-38.9	-30.9	1.00	1.00	
1,587.7	11.88	338.29	1,579.2	114.0	-45.4	-36.0	1.00	1.00	EOB; Inc=1587.7' MD
1,600.0	11.88	338.29	1,591.2	116.3	-46.3	-36.7	0.00	0.00	
1,700.0	11.88	338.29	1,689.1	135.4	-53.9	-42.7	0.00	0.00	
1,800.0	11.88	338.29	1,787.0	154.6	-61.5	-48.8	0.00	0.00	
1,900.0	11.88	338.29	1,884.8	173.7	-69.1	-54.8	0.00	0.00	
2,000.0	11.88	338.29	1,982.7	192.8	-76.8	-60.9	0.00	0.00	
2,100.0	11.88	338.29	2,080.5	211.9	-84.4	-66.9	0.00	0.00	
2,200.0	11.88	338.29	2,178.4	231.0	-92.0	-72.9	0.00	0.00	
2,300.0	11.88	338.29	2,276.3	250.2	-99.6	-79.0	0.00	0.00	
2,400.0	11.88	338.29	2,374.1	269.3	-107.2	-85.0	0.00	0.00	
2,500.0	11.88	338.29	2,472.0	288.4	-114.8	-91.0	0.00	0.00	
2,600.0	11.88	338.29	2,569.8	307.5	-122.4	-97.1	0.00	0.00	
2,700.0	11.88	338.29	2,667.7	326.6	-130.0	-103.1	0.00	0.00	
2,800.0	11.88	338.29	2,765.6	345.8	-137.7	-109.1	0.00	0.00	
2,900.0	11.88	338.29	2,863.4	364.9	-145.3	-115.2	0.00	0.00	
3,000.0	11.88	338.29	2,961.3	384.0	-152.9	-121.2	0.00	0.00	
3,100.0	11.88	338.29	3,059.1	403.1	-160.5	-127.2	0.00	0.00	
3,200.0	11.88	338.29	3,157.0	422.2	-168.1	-133.3	0.00	0.00	
3,300.0	11.88	338.29	3,254.9	441.4	-175.7	-139.3	0.00	0.00	
3,400.0	11.88	338.29	3,352.7	460.5	-183.3	-145.3	0.00	0.00	
3,500.0	11.88	338.29	3,450.6	479.6	-190.9	-151.4	0.00	0.00	
3,600.0	11.88	338.29	3,548.4	498.7	-198.6	-157.4	0.00	0.00	
3,700.0	11.88	338.29	3,646.3	517.8	-206.2	-163.5	0.00	0.00	
3,748.0	11.88	338.29	3,693.3	527.0	-209.8	-166.4	0.00	0.00	Start Drop -2.00
3,800.0	10.84	338.29	3,744.2	536.5	-213.6	-169.4	2.00	-2.00	
3,900.0	8.84	338.29	3,842.8	552.4	-219.9	-174.4	2.00	-2.00	
3,973.0	7.38	338.29	3,915.0	562.0	-223.7	-177.4	2.00	-2.00	Sussex
4,000.0	6.84	338.29	3,941.8	565.1	-225.0	-178.4	2.00	-2.00	
4,100.0	4.84	338.29	4,041.3	574.5	-228.7	-181.3	2.00	-2.00	
4,190.9	3.02	338.29	4,132.0	580.3	-231.0	-183.2	2.00	-2.00	Sussex Marker
4,200.0	2.84	338.29	4,141.1	580.7	-231.2	-183.3	2.00	-2.00	
4,300.0	0.84	338.29	4,241.0	583.7	-232.4	-184.2	2.00	-2.00	
4,341.8	0.00	0.00	4,282.8	584.0	-232.5	-184.3	2.00	-2.00	EOB @ 4341.8' MD
4,400.0	0.00	0.00	4,341.0	584.0	-232.5	-184.3	0.00	0.00	
4,427.0	0.00	0.00	4,368.0	584.0	-232.5	-184.3	0.00	0.00	Shannon
4,500.0	0.00	0.00	4,441.0	584.0	-232.5	-184.3	0.00	0.00	

# Cathedral Energy Services

## Planning Report

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<b>Site:</b>	S18-T3N-R68W (Billings)	<b>North Reference:</b>	True
<b>Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,600.0	0.00	0.00	4,541.0	584.0	-232.5	-184.3	0.00	0.00	
4,700.0	0.00	0.00	4,641.0	584.0	-232.5	-184.3	0.00	0.00	
4,800.0	0.00	0.00	4,741.0	584.0	-232.5	-184.3	0.00	0.00	
4,900.0	0.00	0.00	4,841.0	584.0	-232.5	-184.3	0.00	0.00	
5,000.0	0.00	0.00	4,941.0	584.0	-232.5	-184.3	0.00	0.00	
5,100.0	0.00	0.00	5,041.0	584.0	-232.5	-184.3	0.00	0.00	
5,200.0	0.00	0.00	5,141.0	584.0	-232.5	-184.3	0.00	0.00	
5,300.0	0.00	0.00	5,241.0	584.0	-232.5	-184.3	0.00	0.00	
5,400.0	0.00	0.00	5,341.0	584.0	-232.5	-184.3	0.00	0.00	
5,500.0	0.00	0.00	5,441.0	584.0	-232.5	-184.3	0.00	0.00	
5,600.0	0.00	0.00	5,541.0	584.0	-232.5	-184.3	0.00	0.00	
5,700.0	0.00	0.00	5,641.0	584.0	-232.5	-184.3	0.00	0.00	
5,800.0	0.00	0.00	5,741.0	584.0	-232.5	-184.3	0.00	0.00	
5,900.0	0.00	0.00	5,841.0	584.0	-232.5	-184.3	0.00	0.00	
6,000.0	0.00	0.00	5,941.0	584.0	-232.5	-184.3	0.00	0.00	
6,100.0	0.00	0.00	6,041.0	584.0	-232.5	-184.3	0.00	0.00	
6,183.0	0.00	0.00	6,124.0	584.0	-232.5	-184.3	0.00	0.00	Teepee Buttes
6,200.0	0.00	0.00	6,141.0	584.0	-232.5	-184.3	0.00	0.00	
6,256.0	0.00	0.00	6,197.0	584.0	-232.5	-184.3	0.00	0.00	Curve KOP @ 6256' MD
6,300.0	3.52	90.00	6,241.0	584.0	-231.1	-183.0	8.00	8.00	
6,400.0	11.52	90.00	6,340.1	584.0	-218.1	-169.9	8.00	8.00	
6,500.0	19.52	90.00	6,436.3	584.0	-191.3	-143.3	8.00	8.00	
6,600.0	27.52	90.00	6,527.9	584.0	-151.4	-103.5	8.00	8.00	
6,700.0	35.52	90.00	6,613.1	584.0	-99.2	-51.5	8.00	8.00	
6,800.0	43.52	90.00	6,690.2	584.0	-35.6	11.9	8.00	8.00	
6,900.0	51.52	90.00	6,757.7	584.0	38.1	85.4	8.00	8.00	
7,000.0	59.52	90.00	6,814.2	584.0	120.5	167.5	8.00	8.00	
7,100.0	67.52	90.00	6,858.8	584.0	209.9	256.6	8.00	8.00	
7,143.0	70.96	90.00	6,874.0	584.0	250.1	296.6	8.00	8.00	Sharon Springs
7,200.0	75.52	90.00	6,890.4	584.0	304.7	351.1	8.00	8.00	
7,300.0	83.52	90.00	6,908.6	584.0	402.9	449.0	8.00	8.00	
7,368.5	89.00	90.00	6,913.1	584.0	471.2	517.0	8.00	8.00	Landing Pt @ 7368.5' MD
7,400.0	89.00	90.00	6,913.6	584.0	502.7	548.5	0.00	0.00	
7,500.0	89.00	90.00	6,915.4	584.0	602.7	648.1	0.00	0.00	
7,600.0	89.00	90.00	6,917.1	584.0	702.7	747.8	0.00	0.00	
7,700.0	89.00	90.00	6,918.9	584.0	802.7	847.4	0.00	0.00	
7,800.0	89.00	90.00	6,920.6	584.0	902.7	947.1	0.00	0.00	
7,900.0	89.00	90.00	6,922.3	584.0	1,002.7	1,046.7	0.00	0.00	
8,000.0	89.00	90.00	6,924.1	584.0	1,102.6	1,146.4	0.00	0.00	
8,100.0	89.00	90.00	6,925.8	584.0	1,202.6	1,246.1	0.00	0.00	
8,200.0	89.00	90.00	6,927.6	584.0	1,302.6	1,345.7	0.00	0.00	
8,300.0	89.00	90.00	6,929.3	584.0	1,402.6	1,445.4	0.00	0.00	
8,400.0	89.00	90.00	6,931.1	584.0	1,502.6	1,545.0	0.00	0.00	
8,500.0	89.00	90.00	6,932.8	584.0	1,602.6	1,644.7	0.00	0.00	
8,600.0	89.00	90.00	6,934.6	584.0	1,702.6	1,744.3	0.00	0.00	
8,700.0	89.00	90.00	6,936.3	584.0	1,802.5	1,844.0	0.00	0.00	
8,800.0	89.00	90.00	6,938.1	584.0	1,902.5	1,943.6	0.00	0.00	
8,900.0	89.00	90.00	6,939.8	584.0	2,002.5	2,043.3	0.00	0.00	
9,000.0	89.00	90.00	6,941.5	584.0	2,102.5	2,143.0	0.00	0.00	
9,083.3	89.00	90.00	6,943.0	584.0	2,185.8	2,226.0	0.00	0.00	Niobrara
9,100.0	89.00	90.00	6,943.3	584.0	2,202.5	2,242.6	0.00	0.00	
9,200.0	89.00	90.00	6,945.0	584.0	2,302.5	2,342.3	0.00	0.00	

# Cathedral Energy Services

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<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site:</b>	S18-T3N-R68W (Billings)	<b>North Reference:</b>	True
<b>Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	89.00	90.00	6,946.8	584.0	2,402.4	2,441.9	0.00	0.00	
9,400.0	89.00	90.00	6,948.5	584.0	2,502.4	2,541.6	0.00	0.00	
9,500.0	89.00	90.00	6,950.3	584.0	2,602.4	2,641.2	0.00	0.00	
9,600.0	89.00	90.00	6,952.0	584.0	2,702.4	2,740.9	0.00	0.00	
9,700.0	89.00	90.00	6,953.8	584.0	2,802.4	2,840.5	0.00	0.00	
9,800.0	89.00	90.00	6,955.5	584.0	2,902.4	2,940.2	0.00	0.00	
9,900.0	89.00	90.00	6,957.3	584.0	3,002.4	3,039.8	0.00	0.00	
10,000.0	89.00	90.00	6,959.0	584.0	3,102.3	3,139.5	0.00	0.00	
10,100.0	89.00	90.00	6,960.7	584.0	3,202.3	3,239.2	0.00	0.00	
10,200.0	89.00	90.00	6,962.5	584.0	3,302.3	3,338.8	0.00	0.00	
10,300.0	89.00	90.00	6,964.2	584.0	3,402.3	3,438.5	0.00	0.00	
10,400.0	89.00	90.00	6,966.0	584.0	3,502.3	3,538.1	0.00	0.00	
10,500.0	89.00	90.00	6,967.7	584.0	3,602.3	3,637.8	0.00	0.00	
10,600.0	89.00	90.00	6,969.5	583.9	3,702.2	3,737.4	0.00	0.00	
10,700.0	89.00	90.00	6,971.2	583.9	3,802.2	3,837.1	0.00	0.00	
10,800.0	89.00	90.00	6,973.0	583.9	3,902.2	3,936.7	0.00	0.00	
10,900.0	89.00	90.00	6,974.7	583.9	4,002.2	4,036.4	0.00	0.00	
11,000.0	89.00	90.00	6,976.5	583.9	4,102.2	4,136.0	0.00	0.00	
11,100.0	89.00	90.00	6,978.2	583.9	4,202.2	4,235.7	0.00	0.00	
11,200.0	89.00	90.00	6,979.9	583.9	4,302.2	4,335.4	0.00	0.00	
11,300.0	89.00	90.00	6,981.7	583.9	4,402.1	4,435.0	0.00	0.00	
11,400.0	89.00	90.00	6,983.4	583.9	4,502.1	4,534.7	0.00	0.00	
11,500.0	89.00	90.00	6,985.2	583.9	4,602.1	4,634.3	0.00	0.00	
11,600.0	89.00	90.00	6,986.9	583.9	4,702.1	4,734.0	0.00	0.00	
11,700.0	89.00	90.00	6,988.7	583.9	4,802.1	4,833.6	0.00	0.00	
11,800.0	89.00	90.00	6,990.4	583.9	4,902.1	4,933.3	0.00	0.00	
11,900.0	89.00	90.00	6,992.2	583.9	5,002.0	5,032.9	0.00	0.00	
12,000.0	89.00	90.00	6,993.9	583.9	5,102.0	5,132.6	0.00	0.00	
12,100.0	89.00	90.00	6,995.6	583.9	5,202.0	5,232.2	0.00	0.00	
12,200.0	89.00	90.00	6,997.4	583.9	5,302.0	5,331.9	0.00	0.00	
12,300.0	89.00	90.00	6,999.1	583.9	5,402.0	5,431.6	0.00	0.00	
12,400.0	89.00	90.00	7,000.9	583.9	5,502.0	5,531.2	0.00	0.00	
12,500.0	89.00	90.00	7,002.6	583.9	5,602.0	5,630.9	0.00	0.00	
12,600.0	89.00	90.00	7,004.4	583.9	5,701.9	5,730.5	0.00	0.00	
12,700.0	89.00	90.00	7,006.1	583.9	5,801.9	5,830.2	0.00	0.00	
12,800.0	89.00	90.00	7,007.9	583.9	5,901.9	5,929.8	0.00	0.00	
12,900.0	89.00	90.00	7,009.6	583.9	6,001.9	6,029.5	0.00	0.00	
12,922.3	89.00	90.00	7,010.0	583.9	6,024.2	6,051.7	0.00	0.00	B Chalk
13,000.0	89.00	90.00	7,011.4	583.9	6,101.9	6,129.1	0.00	0.00	
13,100.0	89.00	90.00	7,013.1	583.9	6,201.9	6,228.8	0.00	0.00	
13,200.0	89.00	90.00	7,014.8	583.9	6,301.9	6,328.5	0.00	0.00	
13,300.0	89.00	90.00	7,016.6	583.9	6,401.8	6,428.1	0.00	0.00	
13,400.0	89.00	90.00	7,018.3	583.9	6,501.8	6,527.8	0.00	0.00	
13,500.0	89.00	90.00	7,020.1	583.9	6,601.8	6,627.4	0.00	0.00	
13,600.0	89.00	90.00	7,021.8	583.9	6,701.8	6,727.1	0.00	0.00	
13,700.0	89.00	90.00	7,023.6	583.9	6,801.8	6,826.7	0.00	0.00	
13,800.0	89.00	90.00	7,025.3	583.9	6,901.8	6,926.4	0.00	0.00	
13,900.0	89.00	90.00	7,027.1	583.9	7,001.7	7,026.0	0.00	0.00	
14,000.0	89.00	90.00	7,028.8	583.9	7,101.7	7,125.7	0.00	0.00	
14,068.3	89.00	90.00	7,030.0	583.9	7,170.0	7,193.7	0.00	0.00	PBHL @ 14,068.3' MD

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site:</b>	S18-T3N-R68W (Billings)	<b>North Reference:</b>	True
<b>Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Billings 2C-18H BHL	0.00	0.00	7,030.0	583.9	7,170.0	1,327,325.89	3,131,620.03	40.230940	-105.028610
- plan hits target center									
- Point									
Billings 2C-18H PP	0.00	0.00	7,030.0	510.0	231.7	1,327,217.12	3,124,682.24	40.230740	-105.053460
- plan misses target center by 170.9ft at 7170.4ft MD (6882.5 TVD, 584.0 N, 276.2 E)									
- Point									
Interp @ 4282.8 (Billings	0.00	0.00	4,282.8	584.0	-232.5	1,327,288.78	3,124,217.63	40.230943	-105.055123
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
3,973.0	3,915.0	Sussex				
4,190.9	4,132.0	Sussex Marker				
4,427.0	4,368.0	Shannon				
6,183.0	6,124.0	Teepee Buttes				
7,143.0	6,874.0	Sharon Springs				
9,083.3	6,943.0	Niobrara				
12,922.3	7,010.0	B Chalk				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
400.0	400.0	0.0	0.0	KOP @ 400' MD	
1,587.7	1,579.2	114.0	-45.4	EOB; Inc=1587.7' MD	
3,748.0	3,693.3	527.0	-209.8	Start Drop -2.00	
4,341.8	4,282.8	584.0	-232.5	EOB @ 4341.8' MD	
6,256.0	6,197.0	584.0	-232.5	Curve KOP @ 6256' MD	
7,368.5	6,913.1	584.0	471.2	Landing Pt @ 7368.5' MD	
14,068.3	7,030.0	583.9	7,170.0	PBHL @ 14,068.3' MD	

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

**DJ Wattenberg**

**S18-T3N-R68W (Billings)**

**Billings 2C-18H**

**HZ**

**Plan #1**

## **Anticollision Report**

**29 November, 2012**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	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 1,626.7ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/29/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,068.3	Plan #1 (HZ)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S18-T3N-R68W (Billings)						
Billings 2A-18H - Hz - Plan #1	166.3	167.3	18.2	17.7	33.928	CC
Billings 2A-18H - Hz - Plan #1	200.0	201.0	18.2	17.6	27.836	ES
Billings 2A-18H - Hz - Plan #1	14,068.8	14,263.2	710.4	354.1	1.994	SF
Billings 2B-18H - HZ - Plan #1	300.0	300.0	10.9	9.9	10.905	CC, ES
Billings 2B-18H - HZ - Plan #1	14,068.8	14,328.8	396.1	77.4	1.243	Level 2, SF
Billings 2D-18H - Hz - Plan #1	488.7	488.9	7.9	6.2	4.713	CC
Billings 2D-18H - Hz - Plan #1	500.0	500.2	7.9	6.2	4.608	ES
Billings 2D-18H - Hz - Plan #1	14,068.8	14,239.0	402.8	89.6	1.286	Level 3, SF
Billings 2E-18H - HZ - Plan #1	400.0	400.0	18.2	16.9	13.483	CC, ES
Billings 2E-18H - HZ - Plan #1	14,068.8	14,025.4	699.4	339.4	1.943	SF
Billings 2F-18H - HZ - Plan #1	300.0	300.0	29.1	28.1	29.090	CC, ES
Billings 2F-18H - HZ - Plan #1	14,068.8	14,343.8	1,091.1	744.7	3.150	SF
Billings 2G-18H - Hz - Plan #1	400.0	400.0	40.1	38.7	29.663	CC, ES
Billings 2G-18H - Hz - Plan #1	14,068.8	14,082.0	1,398.9	1,038.7	3.884	SF
Billings 2H-18H - Hz - Plan #1	200.0	200.0	51.0	50.3	78.131	CC, ES
Billings 2H-18H - Hz - Plan #1	600.0	595.7	67.8	65.7	33.178	SF



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2A-18H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	0.00	18.2	0.0	18.2					
100.0	100.0	101.0	101.0	0.2	0.2	0.00	18.2	0.0	18.2	17.9	0.31	59.648		
166.3	166.3	167.3	167.3	0.3	0.3	0.00	18.2	0.0	18.2	17.7	0.54	33.928 CC		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	18.2	0.0	18.2	17.6	0.65	27.836 ES		
300.0	300.0	300.7	300.7	0.5	0.5	-0.51	19.1	-0.2	19.1	18.1	1.00	19.028		
400.0	400.0	400.3	400.3	0.7	0.7	-1.76	21.7	-0.7	21.7	20.3	1.35	16.022		
500.0	500.0	500.0	499.9	0.9	0.9	19.02	25.9	-1.5	25.2	23.5	1.70	14.802		
600.0	600.0	599.3	599.0	1.0	1.1	18.96	31.9	-2.6	28.7	26.7	2.05	14.022		
700.0	699.9	698.7	698.1	1.2	1.3	19.47	39.5	-4.1	32.4	30.0	2.40	13.490		
800.0	799.7	798.1	797.0	1.4	1.5	20.37	48.8	-5.9	36.1	33.3	2.75	13.110		
900.0	899.4	897.3	895.6	1.6	1.8	21.56	59.8	-8.1	39.9	36.7	3.11	12.827		
1,000.0	998.9	996.5	994.0	1.8	2.0	22.94	72.5	-10.5	43.7	40.3	3.47	12.607		
1,100.0	1,098.3	1,095.7	1,092.0	2.1	2.3	24.46	86.8	-13.3	47.7	43.9	3.84	12.424		
1,200.0	1,197.4	1,194.8	1,189.8	2.3	2.6	26.07	102.8	-16.4	51.9	47.6	4.23	12.261		
1,300.0	1,296.3	1,293.8	1,287.1	2.6	3.0	27.76	120.4	-19.8	56.1	51.5	4.64	12.103		
1,400.0	1,394.9	1,392.7	1,384.1	2.9	3.4	29.47	139.6	-23.5	60.6	55.5	5.07	11.940		
1,500.0	1,493.3	1,491.5	1,480.6	3.3	3.8	31.21	160.5	-27.6	65.2	59.6	5.54	11.763		
1,600.0	1,591.2	1,590.3	1,576.7	3.6	4.2	32.94	183.0	-32.0	70.0	63.9	6.05	11.571		
1,700.0	1,689.1	1,689.0	1,672.3	4.0	4.6	34.23	207.1	-36.6	75.8	69.3	6.57	11.536		
1,800.0	1,787.0	1,787.5	1,767.2	4.4	5.1	34.85	232.7	-41.6	83.3	76.2	7.10	11.737		
1,900.0	1,884.8	1,885.7	1,861.5	4.8	5.6	34.91	259.9	-46.9	92.3	84.7	7.61	12.135		
2,000.0	1,982.7	1,984.8	1,956.3	5.1	6.1	34.69	288.4	-52.4	102.4	94.3	8.11	12.634		
2,100.0	2,080.5	2,084.3	2,051.4	5.5	6.6	34.50	317.1	-58.0	112.6	104.0	8.61	13.076		
2,200.0	2,178.4	2,183.8	2,146.5	5.9	7.2	34.35	345.8	-63.5	122.7	113.6	9.11	13.466		
2,300.0	2,276.3	2,283.3	2,241.6	6.3	7.7	34.21	374.5	-69.1	132.9	123.2	9.62	13.812		
2,400.0	2,374.1	2,382.8	2,336.7	6.7	8.2	34.10	403.1	-74.6	143.0	132.9	10.13	14.122		
2,500.0	2,472.0	2,482.3	2,431.8	7.1	8.8	34.00	431.8	-80.2	153.2	142.5	10.64	14.400		
2,600.0	2,569.8	2,581.7	2,526.9	7.5	9.3	33.91	460.5	-85.8	163.3	152.2	11.15	14.652		
2,700.0	2,667.7	2,681.2	2,622.0	7.9	9.8	33.83	489.1	-91.3	173.5	161.8	11.66	14.881		
2,800.0	2,765.6	2,780.7	2,717.1	8.3	10.3	33.76	517.8	-96.9	183.6	171.4	12.17	15.089		
2,900.0	2,863.4	2,880.2	2,812.2	8.7	10.9	33.70	546.5	-102.4	193.8	181.1	12.68	15.279		
3,000.0	2,961.3	2,979.7	2,907.3	9.1	11.4	33.65	575.1	-108.0	203.9	190.7	13.19	15.454		
3,100.0	3,059.1	3,079.2	3,002.4	9.5	11.9	33.60	603.8	-113.6	214.0	200.3	13.71	15.616		
3,200.0	3,157.0	3,178.6	3,097.5	9.9	12.5	33.55	632.5	-119.1	224.2	210.0	14.22	15.765		
3,300.0	3,254.9	3,278.1	3,192.6	10.2	13.0	33.51	661.2	-124.7	234.3	219.6	14.74	15.903		
3,400.0	3,352.7	3,377.6	3,287.7	10.6	13.6	33.47	689.8	-130.2	244.5	229.2	15.25	16.031		
3,500.0	3,450.6	3,477.1	3,382.8	11.0	14.1	33.44	718.5	-135.8	254.6	238.9	15.77	16.151		
3,600.0	3,548.4	3,576.6	3,477.9	11.4	14.6	33.40	747.2	-141.4	264.8	248.5	16.28	16.263		
3,700.0	3,646.3	3,676.1	3,573.0	11.8	15.2	33.37	775.8	-146.9	274.9	258.1	16.80	16.367		
3,800.0	3,744.2	3,775.5	3,668.0	12.2	15.7	33.36	804.5	-152.5	285.5	268.2	17.31	16.496		
3,900.0	3,842.8	3,874.6	3,762.8	12.5	16.2	33.10	833.1	-158.0	296.6	280.9	17.72	16.853		
4,000.0	3,941.8	3,973.2	3,857.1	12.8	16.8	32.56	861.5	-163.5	314.6	296.6	18.02	17.456		
4,100.0	4,041.3	4,071.3	3,950.8	13.0	17.3	31.80	889.7	-169.0	333.6	315.4	18.24	18.294		
4,200.0	4,141.1	4,168.6	4,043.8	13.2	17.8	30.88	917.8	-174.5	355.6	337.3	18.37	19.357		
4,300.0	4,241.0	4,265.0	4,136.0	13.3	18.3	29.85	945.6	-179.8	380.7	362.3	18.45	20.639		
4,400.0	4,341.0	4,360.7	4,227.5	13.4	18.9	6.93	973.2	-185.2	408.4	378.0	30.41	13.430		
4,500.0	4,441.0	4,456.3	4,318.9	13.5	19.4	5.75	1,000.7	-190.5	436.6	405.4	31.20	13.994		
4,600.0	4,541.0	4,551.9	4,410.2	13.6	19.9	4.71	1,028.3	-195.9	464.8	432.9	31.96	14.546		
4,700.0	4,641.0	4,647.5	4,501.6	13.7	20.4	3.79	1,055.8	-201.2	493.2	460.5	32.70	15.084		
4,800.0	4,741.0	4,745.4	4,595.2	13.8	20.9	2.96	1,084.0	-206.7	521.7	488.3	33.44	15.604		
4,900.0	4,841.0	4,863.1	4,708.5	13.9	21.5	2.13	1,115.1	-212.7	548.0	513.8	34.20	16.022		
5,000.0	4,941.0	4,983.4	4,825.6	14.0	22.0	1.49	1,142.2	-218.0	570.4	535.5	34.89	16.351		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2A-18H - Hz - Plan #1												Offset Site Error:	0.0 ft
Survey Program: O-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
5,100.0	5,041.0	5,105.8	4,945.9	14.1	22.4	1.00	1,164.8	-222.4	588.8	553.3	35.48	16.596	
5,200.0	5,141.0	5,230.1	5,068.8	14.3	22.7	0.64	1,182.5	-225.8	603.0	567.1	35.97	16.766	
5,300.0	5,241.0	5,355.7	5,193.7	14.4	23.0	0.40	1,195.1	-228.2	613.0	576.7	36.37	16.856	
5,400.0	5,341.0	5,482.2	5,320.0	14.5	23.2	0.26	1,202.4	-229.6	618.8	582.1	36.68	16.870	
5,500.0	5,441.0	5,604.2	5,442.0	14.6	23.3	0.23	1,204.2	-230.0	620.2	583.3	36.90	16.809	
5,600.0	5,541.0	5,704.2	5,542.0	14.7	23.3	0.23	1,204.2	-230.0	620.2	583.1	37.09	16.720	
5,700.0	5,641.0	5,804.2	5,642.0	14.8	23.4	0.23	1,204.2	-230.0	620.2	582.9	37.29	16.632	
5,800.0	5,741.0	5,904.2	5,742.0	14.9	23.5	0.23	1,204.2	-230.0	620.2	582.7	37.49	16.544	
5,900.0	5,841.0	6,004.2	5,842.0	15.1	23.6	0.23	1,204.2	-230.0	620.2	582.5	37.69	16.455	
6,000.0	5,941.0	6,104.2	5,942.0	15.2	23.6	0.23	1,204.2	-230.0	620.2	582.3	37.90	16.367	
6,100.0	6,041.0	6,204.2	6,042.0	15.3	23.7	0.23	1,204.2	-230.0	620.2	582.1	38.10	16.278	
6,200.0	6,141.0	6,304.2	6,142.0	15.4	23.8	0.23	1,204.2	-230.0	620.2	581.9	38.31	16.190	
6,300.0	6,241.0	6,404.2	6,242.0	15.5	23.9	-89.90	1,204.2	-230.0	620.2	596.8	23.47	26.430	
6,315.7	6,256.7	6,419.9	6,257.7	15.5	23.9	-90.00	1,204.2	-230.0	620.2	596.7	23.48	26.411	
6,400.0	6,340.1	6,503.5	6,341.3	15.6	24.0	-90.98	1,204.2	-228.8	620.3	596.8	23.49	26.405	
6,500.0	6,436.3	6,604.0	6,440.9	15.6	24.0	-92.25	1,204.4	-216.0	620.9	597.5	23.41	26.523	
6,600.0	6,527.9	6,706.6	6,539.7	15.6	24.0	-93.50	1,204.7	-188.6	621.9	598.5	23.35	26.636	
6,700.0	6,613.1	6,811.4	6,635.5	15.6	24.0	-94.68	1,205.2	-146.5	623.3	599.9	23.43	26.606	
6,800.0	6,690.2	6,918.4	6,725.9	15.7	24.0	-95.78	1,205.8	-89.5	625.1	601.3	23.79	26.278	
6,900.0	6,757.7	7,027.5	6,808.3	15.8	24.1	-96.77	1,206.6	-18.1	627.1	602.5	24.56	25.537	
7,000.0	6,814.2	7,138.6	6,880.2	16.2	24.3	-97.61	1,207.5	66.5	629.2	603.3	25.89	24.302	
7,100.0	6,858.8	7,251.6	6,938.9	16.8	24.6	-98.30	1,208.6	162.9	631.4	603.5	27.85	22.667	
7,200.0	6,890.4	7,366.1	6,982.2	17.7	25.1	-98.80	1,209.8	268.7	633.4	602.9	30.47	20.790	
7,300.0	6,908.6	7,481.8	7,008.3	19.0	25.9	-99.11	1,211.1	381.3	635.2	601.5	33.63	18.886	
7,400.0	6,913.6	7,594.8	7,016.3	20.6	26.9	-99.20	1,212.3	493.9	636.6	599.3	37.26	17.085	
7,500.0	6,915.4	7,694.8	7,018.0	22.4	28.0	-99.18	1,213.4	593.9	637.7	596.5	41.16	15.491	
7,600.0	6,917.1	7,794.8	7,019.8	24.3	29.3	-99.17	1,214.6	693.9	638.8	593.5	45.26	14.114	
7,700.0	6,918.9	7,894.8	7,021.5	26.3	30.8	-99.15	1,215.7	793.8	639.9	590.4	49.50	12.927	
7,800.0	6,920.6	7,994.8	7,023.2	28.4	32.4	-99.14	1,216.8	893.8	641.0	587.1	53.85	11.903	
7,900.0	6,922.3	8,094.8	7,025.0	30.5	34.2	-99.12	1,217.9	993.8	642.1	583.8	58.28	11.017	
8,000.0	6,924.1	8,194.8	7,026.7	32.8	36.1	-99.11	1,219.0	1,093.8	643.2	580.4	62.79	10.244	
8,100.0	6,925.8	8,294.8	7,028.5	35.0	38.0	-99.09	1,220.2	1,193.7	644.3	577.0	67.34	9.567	
8,200.0	6,927.6	8,394.8	7,030.2	37.3	40.1	-99.07	1,221.3	1,293.7	645.4	573.5	71.94	8.971	
8,300.0	6,929.3	8,494.7	7,032.0	39.6	42.2	-99.06	1,222.4	1,393.7	646.5	569.9	76.58	8.442	
8,400.0	6,931.1	8,594.7	7,033.7	41.9	44.3	-99.04	1,223.5	1,493.6	647.6	566.4	81.25	7.971	
8,500.0	6,932.8	8,694.7	7,035.5	44.2	46.5	-99.03	1,224.6	1,593.6	648.7	562.8	85.94	7.549	
8,600.0	6,934.6	8,794.7	7,037.2	46.6	48.7	-99.01	1,225.7	1,693.6	649.8	559.2	90.65	7.168	
8,700.0	6,936.3	8,894.7	7,038.9	48.9	51.0	-99.00	1,226.9	1,793.6	650.9	555.6	95.38	6.824	
8,800.0	6,938.1	8,994.7	7,040.7	51.3	53.2	-98.98	1,228.0	1,893.5	652.0	551.9	100.13	6.512	
8,900.0	6,939.8	9,094.7	7,042.4	53.7	55.5	-98.97	1,229.1	1,993.5	653.2	548.3	104.89	6.227	
9,000.0	6,941.5	9,194.7	7,044.2	56.1	57.8	-98.95	1,230.2	2,093.5	654.3	544.6	109.66	5.966	
9,100.0	6,943.3	9,294.7	7,045.9	58.5	60.1	-98.93	1,231.3	2,193.5	655.4	540.9	114.45	5.726	
9,200.0	6,945.0	9,394.7	7,047.7	60.9	62.5	-98.92	1,232.5	2,293.4	656.5	537.2	119.24	5.506	
9,300.0	6,946.8	9,494.7	7,049.4	63.3	64.8	-98.90	1,233.6	2,393.4	657.6	533.5	124.04	5.301	
9,400.0	6,948.5	9,594.7	7,051.2	65.7	67.2	-98.89	1,234.7	2,493.4	658.7	529.8	128.85	5.112	
9,500.0	6,950.3	9,694.7	7,052.9	68.1	69.5	-98.87	1,235.8	2,593.3	659.8	526.1	133.66	4.936	
9,600.0	6,952.0	9,794.7	7,054.7	70.5	71.9	-98.86	1,236.9	2,693.3	660.9	522.4	138.48	4.772	
9,700.0	6,953.8	9,894.7	7,056.4	73.0	74.3	-98.84	1,238.1	2,793.3	662.0	518.7	143.31	4.619	
9,800.0	6,955.5	9,994.7	7,058.1	75.4	76.6	-98.83	1,239.2	2,893.3	663.1	515.0	148.14	4.476	
9,900.0	6,957.3	10,094.6	7,059.9	77.8	79.0	-98.81	1,240.3	2,993.2	664.2	511.2	152.97	4.342	
10,000.0	6,959.0	10,194.6	7,061.6	80.2	81.4	-98.80	1,241.4	3,093.2	665.3	507.5	157.81	4.216	
10,100.0	6,960.7	10,294.6	7,063.4	82.7	83.8	-98.79	1,242.5	3,193.2	666.4	503.8	162.65	4.097	

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2A-18H - 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 (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	
10,200.0	6,962.5	10,394.6	7,065.1	85.1	86.2	-98.77	1,243.6	3,293.1	667.5	500.0	167.50	3.985		
10,300.0	6,964.2	10,494.6	7,066.9	87.6	88.6	-98.76	1,244.8	3,393.1	668.6	496.3	172.35	3.880		
10,400.0	6,966.0	10,594.6	7,068.6	90.0	91.1	-98.74	1,245.9	3,493.1	669.8	492.6	177.20	3.780		
10,500.0	6,967.7	10,694.6	7,070.4	92.4	93.5	-98.73	1,247.0	3,593.1	670.9	488.8	182.06	3.685		
10,600.0	6,969.5	10,794.6	7,072.1	94.9	95.9	-98.71	1,248.1	3,693.0	672.0	485.1	186.91	3.595		
10,700.0	6,971.2	10,894.6	7,073.9	97.3	98.3	-98.70	1,249.2	3,793.0	673.1	481.3	191.77	3.510		
10,800.0	6,973.0	10,994.6	7,075.6	99.8	100.7	-98.68	1,250.4	3,893.0	674.2	477.5	196.64	3.429		
10,900.0	6,974.7	11,094.6	7,077.3	102.2	103.2	-98.67	1,251.5	3,993.0	675.3	473.8	201.50	3.351		
11,000.0	6,976.5	11,194.6	7,079.1	104.7	105.6	-98.66	1,252.6	4,092.9	676.4	470.0	206.37	3.278		
11,100.0	6,978.2	11,294.6	7,080.8	107.1	108.0	-98.64	1,253.7	4,192.9	677.5	466.3	211.23	3.207		
11,200.0	6,979.9	11,394.6	7,082.6	109.6	110.4	-98.63	1,254.8	4,292.9	678.6	462.5	216.10	3.140		
11,300.0	6,981.7	11,494.6	7,084.3	112.0	112.9	-98.61	1,256.0	4,392.8	679.7	458.7	220.97	3.076		
11,400.0	6,983.4	11,594.6	7,086.1	114.5	115.3	-98.60	1,257.1	4,492.8	680.8	455.0	225.85	3.015		
11,500.0	6,985.2	11,694.5	7,087.8	117.0	117.8	-98.58	1,258.2	4,592.8	681.9	451.2	230.72	2.956		
11,600.0	6,986.9	11,794.5	7,089.6	119.4	120.2	-98.57	1,259.3	4,692.8	683.0	447.4	235.60	2.899		
11,700.0	6,988.7	11,894.5	7,091.3	121.9	122.6	-98.56	1,260.4	4,792.7	684.2	443.7	240.47	2.845		
11,800.0	6,990.4	11,994.5	7,093.0	124.3	125.1	-98.54	1,261.6	4,892.7	685.3	439.9	245.35	2.793		
11,900.0	6,992.2	12,094.5	7,094.8	126.8	127.5	-98.53	1,262.7	4,992.7	686.4	436.1	250.23	2.743		
12,000.0	6,993.9	12,194.5	7,096.5	129.2	130.0	-98.51	1,263.8	5,092.7	687.5	432.4	255.11	2.695		
12,100.0	6,995.6	12,294.5	7,098.3	131.7	132.4	-98.50	1,264.9	5,192.6	688.6	428.6	259.99	2.648		
12,200.0	6,997.4	12,394.5	7,100.0	134.2	134.9	-98.49	1,266.0	5,292.6	689.7	424.8	264.88	2.604		
12,300.0	6,999.1	12,494.5	7,101.8	136.6	137.3	-98.47	1,267.1	5,392.6	690.8	421.0	269.76	2.561		
12,400.0	7,000.9	12,594.5	7,103.5	139.1	139.7	-98.46	1,268.3	5,492.5	691.9	417.3	274.65	2.519		
12,500.0	7,002.6	12,694.5	7,105.3	141.5	142.2	-98.45	1,269.4	5,592.5	693.0	413.5	279.53	2.479		
12,600.0	7,004.4	12,794.5	7,107.0	144.0	144.6	-98.43	1,270.5	5,692.5	694.1	409.7	284.42	2.441		
12,700.0	7,006.1	12,894.5	7,108.8	146.5	147.1	-98.42	1,271.6	5,792.5	695.2	405.9	289.31	2.403		
12,800.0	7,007.9	12,994.5	7,110.5	148.9	149.5	-98.41	1,272.7	5,892.4	696.3	402.1	294.19	2.367		
12,900.0	7,009.6	13,094.5	7,112.2	151.4	152.0	-98.39	1,273.9	5,992.4	697.5	398.4	299.08	2.332		
13,000.0	7,011.4	13,194.5	7,114.0	153.9	154.5	-98.38	1,275.0	6,092.4	698.6	394.6	303.97	2.298		
13,100.0	7,013.1	13,294.4	7,115.7	156.3	156.9	-98.37	1,276.1	6,192.3	699.7	390.8	308.86	2.265		
13,200.0	7,014.8	13,394.4	7,117.5	158.8	159.4	-98.35	1,277.2	6,292.3	700.8	387.0	313.76	2.234		
13,300.0	7,016.6	13,494.4	7,119.2	161.2	161.8	-98.34	1,278.3	6,392.3	701.9	383.2	318.65	2.203		
13,400.0	7,018.3	13,594.4	7,121.0	163.7	164.3	-98.33	1,279.5	6,492.3	703.0	379.5	323.54	2.173		
13,500.0	7,020.1	13,694.4	7,122.7	166.2	166.7	-98.31	1,280.6	6,592.2	704.1	375.7	328.43	2.144		
13,600.0	7,021.8	13,794.4	7,124.5	168.6	169.2	-98.30	1,281.7	6,692.2	705.2	371.9	333.33	2.116		
13,700.0	7,023.6	13,894.4	7,126.2	171.1	171.6	-98.29	1,282.8	6,792.2	706.3	368.1	338.22	2.088		
13,800.0	7,025.3	13,994.4	7,128.0	173.6	174.1	-98.27	1,283.9	6,892.2	707.4	364.3	343.12	2.062		
13,900.0	7,027.1	14,094.4	7,129.7	176.0	176.6	-98.26	1,285.0	6,992.1	708.5	360.5	348.02	2.036		
14,000.0	7,028.8	14,194.4	7,131.4	178.5	179.0	-98.25	1,286.2	7,092.1	709.6	356.7	352.91	2.011		
14,068.8	7,030.0	14,263.2	7,132.6	180.2	180.7	-98.24	1,286.9	7,160.9	710.4	354.1	356.28	1.994 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2B-18H - 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	10.9	0.0	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	10.9	0.0	10.9	10.6	0.30	35.973		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	10.9	0.0	10.9	10.3	0.65	16.736		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	10.9	0.0	10.9	9.9	1.00	10.905 CC, ES		
400.0	400.0	399.8	399.8	0.7	0.7	-1.03	11.8	-0.2	11.8	10.4	1.35	8.714		
500.0	500.0	499.6	499.5	0.9	0.9	19.49	14.3	-0.8	13.5	11.8	1.70	7.946		
600.0	600.0	599.3	599.2	1.0	1.0	19.41	18.5	-1.9	15.3	13.2	2.05	7.467		
700.0	699.9	699.0	698.7	1.2	1.2	20.10	24.4	-3.4	17.1	14.7	2.40	7.148		
800.0	799.7	798.7	798.1	1.4	1.4	21.32	32.0	-5.3	19.1	16.3	2.75	6.928		
900.0	899.4	898.3	897.2	1.6	1.7	22.92	41.2	-7.6	21.1	17.9	3.11	6.772		
1,000.0	998.9	997.9	996.2	1.8	1.9	24.78	52.1	-10.3	23.1	19.7	3.48	6.657		
1,100.0	1,098.3	1,097.5	1,094.9	2.1	2.2	26.82	64.7	-13.5	25.3	21.5	3.86	6.567		
1,200.0	1,197.4	1,197.1	1,193.4	2.3	2.5	28.96	78.9	-17.0	27.6	23.4	4.26	6.491		
1,300.0	1,296.3	1,296.6	1,291.5	2.6	2.8	31.17	94.8	-21.0	30.1	25.4	4.68	6.419		
1,400.0	1,394.9	1,396.0	1,389.3	2.9	3.1	33.40	112.3	-25.4	32.6	27.5	5.15	6.345		
1,500.0	1,493.3	1,495.4	1,486.8	3.3	3.5	35.62	131.5	-30.2	35.4	29.7	5.65	6.262		
1,600.0	1,591.2	1,594.8	1,583.8	3.6	3.9	37.79	152.3	-35.4	38.3	32.1	6.20	6.173		
1,700.0	1,689.1	1,694.2	1,680.4	4.0	4.3	39.00	174.7	-41.0	42.2	35.4	6.77	6.238		
1,800.0	1,787.0	1,793.4	1,776.5	4.4	4.8	38.89	198.6	-47.0	47.6	40.3	7.30	6.523		
1,900.0	1,884.8	1,892.4	1,871.9	4.8	5.2	37.86	224.2	-53.4	54.5	46.7	7.78	6.998		
2,000.0	1,982.7	1,991.1	1,966.7	5.1	5.7	36.29	251.3	-60.2	62.9	54.6	8.23	7.637		
2,100.0	2,080.5	2,089.6	2,060.6	5.5	6.3	34.47	279.8	-67.3	72.8	64.2	8.64	8.426		
2,200.0	2,178.4	2,187.7	2,153.7	5.9	6.8	32.60	309.9	-74.8	84.4	75.3	9.02	9.348		
2,300.0	2,276.3	2,285.3	2,245.8	6.3	7.4	30.78	341.3	-82.7	97.5	88.1	9.39	10.391		
2,400.0	2,374.1	2,383.6	2,338.1	6.7	8.0	29.11	374.1	-90.9	112.1	102.3	9.74	11.507		
2,500.0	2,472.0	2,482.5	2,430.9	7.1	8.6	27.80	407.3	-99.2	126.8	116.7	10.10	12.550		
2,600.0	2,569.8	2,581.3	2,523.6	7.5	9.2	26.76	440.5	-107.5	141.6	131.1	10.48	13.512		
2,700.0	2,667.7	2,680.2	2,616.4	7.9	9.8	25.92	473.7	-115.8	156.4	145.5	10.86	14.402		
2,800.0	2,765.6	2,779.1	2,709.2	8.3	10.4	25.23	506.8	-124.1	171.2	160.0	11.24	15.226		
2,900.0	2,863.4	2,878.0	2,801.9	8.7	11.0	24.64	540.0	-132.4	186.1	174.4	11.63	15.992		
3,000.0	2,961.3	2,976.8	2,894.7	9.1	11.7	24.14	573.2	-140.7	200.9	188.9	12.03	16.705		
3,100.0	3,059.1	3,075.7	2,987.5	9.5	12.3	23.71	606.4	-149.0	215.8	203.4	12.43	17.370		
3,200.0	3,157.0	3,174.6	3,080.2	9.9	12.9	23.34	639.6	-157.3	230.7	217.9	12.82	17.993		
3,300.0	3,254.9	3,273.5	3,173.0	10.2	13.5	23.01	672.7	-165.6	245.6	232.4	13.22	18.576		
3,400.0	3,352.7	3,372.3	3,265.8	10.6	14.1	22.72	705.9	-173.9	260.5	246.9	13.62	19.123		
3,500.0	3,450.6	3,471.2	3,358.5	11.0	14.7	22.46	739.1	-182.2	275.5	261.4	14.03	19.638		
3,600.0	3,548.4	3,573.3	3,454.4	11.4	15.4	22.23	773.2	-190.8	290.2	275.8	14.44	20.102		
3,700.0	3,646.3	3,683.6	3,559.0	11.8	16.0	22.16	807.1	-199.3	302.2	287.3	14.88	20.303		
3,800.0	3,744.2	3,794.7	3,665.7	12.2	16.5	22.29	837.3	-206.8	310.9	295.6	15.36	20.241		
3,900.0	3,842.8	3,906.3	3,773.9	12.5	17.0	22.41	863.5	-213.4	318.7	302.9	15.80	20.169		
4,000.0	3,941.8	4,018.2	3,883.4	12.8	17.4	22.45	885.7	-218.9	326.0	309.8	16.20	20.123		
4,100.0	4,041.3	4,130.4	3,994.1	13.0	17.7	22.43	903.8	-223.5	332.7	316.2	16.55	20.098		
4,200.0	4,141.1	4,243.0	4,105.7	13.2	18.0	22.34	917.7	-226.9	338.9	322.0	16.87	20.091		
4,300.0	4,241.0	4,355.9	4,218.2	13.3	18.2	22.19	927.4	-229.4	344.4	327.3	17.14	20.099		
4,400.0	4,341.0	4,469.0	4,331.2	13.4	18.4	0.29	932.7	-230.7	348.9	318.2	30.66	11.379		
4,500.0	4,441.0	4,578.9	4,441.0	13.5	18.5	0.25	933.9	-231.0	349.9	319.1	30.86	11.337		
4,600.0	4,541.0	4,678.9	4,541.0	13.6	18.5	0.25	933.9	-231.0	349.9	318.9	31.05	11.270		
4,700.0	4,641.0	4,778.9	4,641.0	13.7	18.6	0.25	933.9	-231.0	349.9	318.7	31.24	11.202		
4,800.0	4,741.0	4,878.9	4,741.0	13.8	18.7	0.25	933.9	-231.0	349.9	318.5	31.43	11.134		
4,900.0	4,841.0	4,978.9	4,841.0	13.9	18.8	0.25	933.9	-231.0	349.9	318.3	31.62	11.066		
5,000.0	4,941.0	5,078.9	4,941.0	14.0	18.9	0.25	933.9	-231.0	349.9	318.1	31.82	10.998		
5,100.0	5,041.0	5,178.9	5,041.0	14.1	18.9	0.25	933.9	-231.0	349.9	317.9	32.02	10.930		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2B-18H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-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)				
5,200.0	5,141.0	5,278.9	5,141.0	14.3	19.0	0.25	933.9	-231.0	349.9	317.7	32.22	10.862		
5,300.0	5,241.0	5,378.9	5,241.0	14.4	19.1	0.25	933.9	-231.0	349.9	317.5	32.42	10.794		
5,400.0	5,341.0	5,478.9	5,341.0	14.5	19.2	0.25	933.9	-231.0	349.9	317.3	32.63	10.726		
5,500.0	5,441.0	5,578.9	5,441.0	14.6	19.3	0.25	933.9	-231.0	349.9	317.1	32.83	10.658		
5,600.0	5,541.0	5,678.9	5,541.0	14.7	19.4	0.25	933.9	-231.0	349.9	316.9	33.04	10.590		
5,700.0	5,641.0	5,778.9	5,641.0	14.8	19.5	0.25	933.9	-231.0	349.9	316.7	33.26	10.522		
5,800.0	5,741.0	5,878.9	5,741.0	14.9	19.6	0.25	933.9	-231.0	349.9	316.5	33.47	10.454		
5,900.0	5,841.0	5,978.9	5,841.0	15.1	19.6	0.25	933.9	-231.0	349.9	316.2	33.69	10.387		
6,000.0	5,941.0	6,078.9	5,941.0	15.2	19.7	0.25	933.9	-231.0	349.9	316.0	33.91	10.320		
6,100.0	6,041.0	6,178.9	6,041.0	15.3	19.8	0.25	933.9	-231.0	349.9	315.8	34.13	10.253		
6,200.0	6,141.0	6,278.9	6,141.0	15.4	19.9	0.25	933.9	-231.0	349.9	315.6	34.35	10.186		
6,300.0	6,241.0	6,378.8	6,241.0	15.5	20.0	-89.98	933.9	-231.0	349.9	326.5	23.45	14.924		
6,302.5	6,243.5	6,381.4	6,243.5	15.5	20.0	-90.00	933.9	-231.0	349.9	326.5	23.45	14.923		
6,400.0	6,340.1	6,477.9	6,340.1	15.6	20.1	-92.08	933.9	-231.0	350.2	326.8	23.37	14.985		
6,500.0	6,436.3	6,577.2	6,436.3	15.6	20.2	-95.92	933.9	-228.8	351.9	328.8	23.09	15.241		
6,600.0	6,527.9	6,681.2	6,527.9	15.6	20.2	-99.92	933.9	-213.1	355.6	332.6	22.96	15.486		
6,700.0	6,613.1	6,789.5	6,613.1	15.6	20.2	-103.73	933.9	-181.2	360.9	337.8	23.09	15.630		
6,800.0	6,690.2	6,902.5	6,690.2	15.7	20.2	-107.26	933.9	-131.7	367.3	343.8	23.50	15.629		
6,900.0	6,757.7	7,020.4	6,757.7	15.8	20.3	-110.41	933.9	-63.8	374.3	350.1	24.23	15.447		
7,000.0	6,814.2	7,143.1	6,814.2	16.2	20.4	-113.10	933.9	22.6	381.3	356.0	25.27	15.091		
7,100.0	6,858.8	7,270.2	6,858.8	16.8	20.7	-115.26	933.9	126.5	387.5	360.8	26.72	14.501		
7,200.0	6,890.4	7,401.1	6,890.4	17.7	21.4	-116.83	933.9	245.1	392.4	363.8	28.63	13.707		
7,300.0	6,908.6	7,534.7	6,908.6	19.0	22.4	-117.75	933.9	374.4	395.5	364.4	31.04	12.739		
7,400.0	6,913.6	7,660.2	6,913.6	20.6	23.8	-118.00	933.9	499.5	396.3	362.2	34.06	11.636		
7,500.0	6,915.4	7,760.2	6,915.4	22.4	25.2	-118.00	933.9	599.5	396.3	358.7	37.56	10.552		
7,600.0	6,917.1	7,860.2	6,917.1	24.3	26.7	-118.00	933.9	699.5	396.3	355.1	41.22	9.614		
7,700.0	6,918.9	7,960.2	6,918.9	26.3	28.5	-118.00	933.9	799.5	396.3	351.3	45.01	8.805		
7,800.0	6,920.6	8,060.2	6,920.6	28.4	30.4	-118.00	933.9	899.4	396.3	347.4	48.89	8.105		
7,900.0	6,922.3	8,160.2	6,922.3	30.5	32.3	-118.00	933.9	999.4	396.3	343.4	52.85	7.497		
8,000.0	6,924.1	8,260.2	6,924.1	32.8	34.4	-118.00	933.9	1,099.4	396.3	339.4	56.88	6.967		
8,100.0	6,925.8	8,360.2	6,925.8	35.0	36.5	-118.00	933.9	1,199.4	396.3	335.3	60.95	6.502		
8,200.0	6,927.6	8,460.2	6,927.6	37.3	38.6	-118.00	933.9	1,299.4	396.3	331.2	65.06	6.091		
8,300.0	6,929.3	8,560.2	6,929.3	39.6	40.8	-118.00	933.9	1,399.4	396.3	327.1	69.20	5.726		
8,400.0	6,931.1	8,660.2	6,931.1	41.9	43.1	-118.00	933.9	1,499.3	396.3	322.9	73.37	5.401		
8,500.0	6,932.8	8,760.2	6,932.8	44.2	45.3	-118.00	933.8	1,599.3	396.3	318.7	77.56	5.109		
8,600.0	6,934.6	8,860.2	6,934.6	46.6	47.6	-118.00	933.8	1,699.3	396.2	314.5	81.77	4.846		
8,700.0	6,936.3	8,960.2	6,936.3	48.9	49.9	-118.00	933.8	1,799.3	396.2	310.2	86.00	4.608		
8,800.0	6,938.1	9,060.2	6,938.1	51.3	52.2	-118.00	933.8	1,899.3	396.2	306.0	90.24	4.391		
8,900.0	6,939.8	9,160.2	6,939.8	53.7	54.6	-118.00	933.8	1,999.3	396.2	301.8	94.49	4.193		
9,000.0	6,941.5	9,260.2	6,941.5	56.1	56.9	-118.00	933.8	2,099.3	396.2	297.5	98.75	4.012		
9,100.0	6,943.3	9,360.2	6,943.3	58.5	59.3	-118.00	933.8	2,199.2	396.2	293.2	103.03	3.846		
9,200.0	6,945.0	9,460.2	6,945.0	60.9	61.6	-118.00	933.8	2,299.2	396.2	288.9	107.31	3.693		
9,300.0	6,946.8	9,560.2	6,946.8	63.3	64.0	-118.00	933.8	2,399.2	396.2	284.6	111.59	3.551		
9,400.0	6,948.5	9,660.2	6,948.5	65.7	66.4	-118.00	933.8	2,499.2	396.2	280.3	115.89	3.419		
9,500.0	6,950.3	9,760.2	6,950.3	68.1	68.8	-118.00	933.8	2,599.2	396.2	276.0	120.19	3.297		
9,600.0	6,952.0	9,860.2	6,952.0	70.5	71.2	-118.00	933.8	2,699.2	396.2	271.7	124.49	3.183		
9,700.0	6,953.8	9,960.2	6,953.8	73.0	73.6	-118.00	933.8	2,799.2	396.2	267.4	128.80	3.076		
9,800.0	6,955.5	10,060.2	6,955.5	75.4	76.0	-118.00	933.8	2,899.1	396.2	263.1	133.11	2.977		
9,900.0	6,957.3	10,160.2	6,957.3	77.8	78.4	-118.00	933.8	2,999.1	396.2	258.8	137.43	2.883		
10,000.0	6,959.0	10,260.2	6,959.0	80.2	80.8	-118.00	933.8	3,099.1	396.2	254.5	141.75	2.795		
10,100.0	6,960.7	10,360.2	6,960.7	82.7	83.2	-118.00	933.8	3,199.1	396.2	250.1	146.07	2.712		
10,200.0	6,962.5	10,460.2	6,962.5	85.1	85.6	-118.00	933.8	3,299.1	396.2	245.8	150.40	2.634		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2B-18H - 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		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		
10,300.0	6,964.2	10,560.2	7,150.2	87.6	88.1	-118.00	933.8	3,399.1	396.2	241.5	154.73	2.561		
10,400.0	6,966.0	10,660.2	7,152.0	90.0	90.5	-118.00	933.8	3,499.0	396.2	237.1	159.06	2.491		
10,500.0	6,967.7	10,760.2	7,153.7	92.4	92.9	-118.00	933.8	3,599.0	396.2	232.8	163.39	2.425		
10,600.0	6,969.5	10,860.2	7,155.5	94.9	95.4	-118.00	933.8	3,699.0	396.2	228.5	167.73	2.362		
10,700.0	6,971.2	10,960.2	7,157.2	97.3	97.8	-118.00	933.8	3,799.0	396.2	224.1	172.06	2.303		
10,800.0	6,973.0	11,060.2	7,159.0	99.8	100.2	-118.00	933.8	3,899.0	396.2	219.8	176.40	2.246		
10,900.0	6,974.7	11,160.2	7,160.7	102.2	102.7	-118.00	933.7	3,999.0	396.2	215.4	180.74	2.192		
11,000.0	6,976.5	11,260.2	7,162.4	104.7	105.1	-118.00	933.7	4,099.0	396.2	211.1	185.08	2.141		
11,100.0	6,978.2	11,360.2	7,164.2	107.1	107.5	-118.00	933.7	4,198.9	396.2	206.8	189.43	2.092		
11,200.0	6,979.9	11,460.2	7,165.9	109.6	110.0	-118.00	933.7	4,298.9	396.2	202.4	193.77	2.045		
11,300.0	6,981.7	11,560.2	7,167.7	112.0	112.4	-118.00	933.7	4,398.9	396.2	198.1	198.12	2.000		
11,400.0	6,983.4	11,660.2	7,169.4	114.5	114.9	-118.00	933.7	4,498.9	396.2	193.7	202.46	1.957		
11,500.0	6,985.2	11,760.2	7,171.2	117.0	117.3	-118.00	933.7	4,598.9	396.2	189.4	206.81	1.916		
11,600.0	6,986.9	11,860.2	7,172.9	119.4	119.8	-118.00	933.7	4,698.9	396.2	185.0	211.16	1.876		
11,700.0	6,988.7	11,960.2	7,174.7	121.9	122.2	-118.01	933.7	4,798.8	396.2	180.7	215.51	1.838		
11,800.0	6,990.4	12,060.2	7,176.4	124.3	124.7	-118.01	933.7	4,898.8	396.2	176.3	219.86	1.802		
11,900.0	6,992.2	12,160.2	7,178.2	126.8	127.1	-118.01	933.7	4,998.8	396.2	172.0	224.21	1.767		
12,000.0	6,993.9	12,260.2	7,179.9	129.2	129.6	-118.01	933.7	5,098.8	396.2	167.6	228.56	1.733		
12,100.0	6,995.6	12,360.2	7,181.6	131.7	132.0	-118.01	933.7	5,198.8	396.2	163.2	232.92	1.701		
12,200.0	6,997.4	12,460.2	7,183.4	134.2	134.5	-118.01	933.7	5,298.8	396.2	158.9	237.27	1.670		
12,300.0	6,999.1	12,560.2	7,185.1	136.6	136.9	-118.01	933.7	5,398.8	396.2	154.5	241.62	1.640		
12,400.0	7,000.9	12,660.2	7,186.9	139.1	139.4	-118.01	933.7	5,498.7	396.2	150.2	245.98	1.611		
12,500.0	7,002.6	12,760.2	7,188.6	141.5	141.8	-118.01	933.7	5,598.7	396.2	145.8	250.33	1.582		
12,600.0	7,004.4	12,860.2	7,190.4	144.0	144.3	-118.01	933.7	5,698.7	396.1	141.5	254.69	1.555		
12,700.0	7,006.1	12,960.2	7,192.1	146.5	146.7	-118.01	933.7	5,798.7	396.1	137.1	259.05	1.529		
12,800.0	7,007.9	13,060.2	7,193.9	148.9	149.2	-118.01	933.7	5,898.7	396.1	132.7	263.40	1.504		
12,900.0	7,009.6	13,160.2	7,195.6	151.4	151.7	-118.01	933.7	5,998.7	396.1	128.4	267.76	1.479 Level 3		
13,000.0	7,011.4	13,260.2	7,197.4	153.9	154.1	-118.01	933.7	6,098.6	396.1	124.0	272.12	1.456 Level 3		
13,100.0	7,013.1	13,360.2	7,199.1	156.3	156.6	-118.01	933.7	6,198.6	396.1	119.7	276.48	1.433 Level 3		
13,200.0	7,014.8	13,460.2	7,200.8	158.8	159.0	-118.01	933.7	6,298.6	396.1	115.3	280.84	1.411 Level 3		
13,300.0	7,016.6	13,560.2	7,202.6	161.2	161.5	-118.01	933.6	6,398.6	396.1	110.9	285.19	1.389 Level 3		
13,400.0	7,018.3	13,660.2	7,204.3	163.7	164.0	-118.01	933.6	6,498.6	396.1	106.6	289.55	1.368 Level 3		
13,500.0	7,020.1	13,760.2	7,206.1	166.2	166.4	-118.01	933.6	6,598.6	396.1	102.2	293.91	1.348 Level 3		
13,600.0	7,021.8	13,860.2	7,207.8	168.6	168.9	-118.01	933.6	6,698.6	396.1	97.8	298.27	1.328 Level 3		
13,700.0	7,023.6	13,960.2	7,209.6	171.1	171.3	-118.01	933.6	6,798.5	396.1	93.5	302.63	1.309 Level 3		
13,800.0	7,025.3	14,060.2	7,211.3	173.6	173.8	-118.01	933.6	6,898.5	396.1	89.1	306.99	1.290 Level 3		
13,900.0	7,027.1	14,160.2	7,213.1	176.0	176.3	-118.01	933.6	6,998.5	396.1	84.8	311.36	1.272 Level 3		
14,000.0	7,028.8	14,260.2	7,214.8	178.5	178.7	-118.01	933.6	7,098.5	396.1	80.4	315.72	1.255 Level 3		
14,047.5	7,029.6	14,307.8	7,215.6	179.7	179.9	-118.01	933.6	7,146.0	396.1	78.3	317.79	1.246 Level 2		
14,068.8	7,030.0	14,328.8	7,216.0	180.2	180.4	-118.01	933.6	7,167.1	396.1	77.4	318.71	1.243 Level 2, SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2D-18H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-10.9	0.0	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-10.9	0.0	10.9	10.6	0.30	35.986		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-10.9	0.0	10.9	10.3	0.65	16.742		
201.9	201.9	201.9	201.9	0.3	0.3	-180.00	-10.9	0.0	10.9	10.3	0.66	16.570		
300.0	300.0	300.1	300.1	0.5	0.5	-176.64	-10.3	-0.6	10.3	9.3	1.00	10.285		
400.0	400.0	400.2	400.2	0.7	0.7	-163.95	-8.4	-2.4	8.7	7.4	1.36	6.442		
488.7	488.7	488.9	488.7	0.8	0.8	-121.14	-5.7	-5.0	7.9	6.2	1.68	4.713 CC		
500.0	500.0	500.2	500.0	0.9	0.9	-118.14	-5.2	-5.4	7.9	6.2	1.72	4.608 ES		
600.0	600.0	600.1	599.8	1.0	1.1	-94.26	-0.8	-9.7	9.3	7.2	2.09	4.444		
700.0	699.9	699.9	699.3	1.2	1.3	-79.66	4.8	-15.1	12.4	9.9	2.47	5.025		
800.0	799.7	799.7	798.6	1.4	1.5	-72.36	11.7	-21.7	16.6	13.7	2.86	5.795		
900.0	899.4	899.3	897.6	1.6	1.8	-68.99	19.9	-29.5	21.5	18.2	3.27	6.559		
1,000.0	998.9	998.9	996.3	1.8	2.0	-67.65	29.3	-38.4	26.9	23.2	3.71	7.260		
1,100.0	1,098.3	1,098.3	1,094.7	2.1	2.3	-67.41	39.9	-48.6	33.0	28.8	4.18	7.881		
1,200.0	1,197.4	1,197.7	1,192.6	2.3	2.7	-67.75	51.7	-59.9	39.5	34.8	4.70	8.421		
1,300.0	1,296.3	1,296.9	1,290.2	2.6	3.0	-68.43	64.7	-72.3	46.7	41.4	5.25	8.883		
1,400.0	1,394.9	1,396.0	1,387.4	2.9	3.4	-69.29	79.0	-86.0	54.3	48.5	5.86	9.273		
1,500.0	1,493.3	1,495.0	1,484.0	3.3	3.8	-70.23	94.4	-100.7	62.6	56.0	6.52	9.600		
1,600.0	1,591.2	1,593.9	1,580.1	3.6	4.2	-71.20	111.0	-116.6	71.4	64.1	7.23	9.873		
1,700.0	1,689.1	1,693.2	1,676.4	4.0	4.6	-71.77	128.6	-133.4	80.8	72.8	7.95	10.162		
1,800.0	1,787.0	1,792.7	1,772.9	4.4	5.1	-72.18	146.3	-150.3	90.3	81.6	8.68	10.397		
1,900.0	1,884.8	1,892.3	1,869.4	4.8	5.5	-72.52	164.0	-167.2	99.8	90.3	9.42	10.587		
2,000.0	1,982.7	1,993.4	1,967.6	5.1	6.0	-73.11	181.4	-183.9	108.8	98.6	10.18	10.692		
2,100.0	2,080.5	2,095.5	2,067.5	5.5	6.4	-74.94	196.6	-198.5	115.8	104.9	10.97	10.562		
2,200.0	2,178.4	2,197.6	2,168.1	5.9	6.7	-77.97	209.2	-210.5	121.0	109.2	11.80	10.255		
2,300.0	2,276.3	2,299.4	2,269.0	6.3	7.0	-82.16	219.2	-220.1	124.6	112.0	12.64	9.858		
2,400.0	2,374.1	2,400.7	2,369.8	6.7	7.2	-87.52	226.6	-227.1	127.4	113.9	13.46	9.460		
2,500.0	2,472.0	2,501.2	2,470.1	7.1	7.4	-94.04	231.4	-231.7	130.1	115.9	14.20	9.157		
2,600.0	2,569.8	2,600.7	2,569.5	7.5	7.5	-101.59	233.6	-233.8	133.7	118.9	14.78	9.045		
2,700.0	2,667.7	2,698.9	2,667.7	7.9	7.6	-109.67	233.8	-234.0	139.4	124.3	15.15	9.202		
2,800.0	2,765.6	2,796.8	2,765.6	8.3	7.7	-117.08	233.8	-234.0	147.7	132.4	15.34	9.629		
2,900.0	2,863.4	2,894.6	2,863.4	8.7	7.8	-123.63	233.8	-234.0	158.3	142.9	15.42	10.268		
3,000.0	2,961.3	2,992.5	2,961.3	9.1	7.9	-129.32	233.8	-234.0	170.7	155.3	15.43	11.065		
3,100.0	3,059.1	3,090.4	3,059.1	9.5	8.0	-134.21	233.8	-234.0	184.6	169.2	15.42	11.973		
3,200.0	3,157.0	3,188.2	3,157.0	9.9	8.1	-138.41	233.8	-234.0	199.7	184.3	15.41	12.954		
3,300.0	3,254.9	3,286.1	3,254.9	10.2	8.3	-142.01	233.8	-234.0	215.6	200.2	15.43	13.978		
3,400.0	3,352.7	3,383.9	3,352.7	10.6	8.4	-145.11	233.8	-234.0	232.3	216.8	15.46	15.023		
3,500.0	3,450.6	3,481.8	3,450.6	11.0	8.5	-147.80	233.8	-234.0	249.6	234.1	15.53	16.071		
3,600.0	3,548.4	3,579.7	3,548.4	11.4	8.6	-150.14	233.8	-234.0	267.3	251.7	15.62	17.110		
3,700.0	3,646.3	3,677.5	3,646.3	11.8	8.7	-152.19	233.8	-234.0	285.4	269.7	15.74	18.131		
3,800.0	3,744.2	3,775.5	3,744.2	12.2	8.9	-154.03	233.8	-234.0	303.5	287.6	15.89	19.097		
3,900.0	3,842.8	3,874.0	3,842.8	12.5	9.0	-155.51	233.8	-234.0	319.0	302.9	16.07	19.846		
4,000.0	3,941.8	3,973.1	3,941.8	12.8	9.1	-156.58	233.8	-234.0	331.4	315.1	16.28	20.354		
4,100.0	4,041.3	4,072.5	4,041.3	13.0	9.3	-157.33	233.8	-234.0	340.8	324.3	16.52	20.633		
4,200.0	4,141.1	4,172.3	4,141.1	13.2	9.4	-157.81	233.8	-234.0	347.0	330.2	16.77	20.693		
4,300.0	4,241.0	4,272.2	4,241.0	13.3	9.5	-158.03	233.8	-234.0	350.0	332.9	17.03	20.546		
4,400.0	4,341.0	4,372.2	4,341.0	13.4	9.7	-179.75	233.8	-234.0	350.2	328.7	21.49	16.295		
4,500.0	4,441.0	4,472.2	4,441.0	13.5	9.8	-179.75	233.8	-234.0	350.2	328.5	21.75	16.102		
4,600.0	4,541.0	4,572.2	4,541.0	13.6	9.9	-179.75	233.8	-234.0	350.2	328.2	22.01	15.911		
4,700.0	4,641.0	4,672.2	4,641.0	13.7	10.1	-179.75	233.8	-234.0	350.2	328.0	22.27	15.724		
4,800.0	4,741.0	4,772.2	4,741.0	13.8	10.2	-179.75	233.8	-234.0	350.2	327.7	22.54	15.539		
4,900.0	4,841.0	4,872.2	4,841.0	13.9	10.4	-179.75	233.8	-234.0	350.2	327.4	22.81	15.358		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2D-18H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-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		
5,000.0	4,941.0	4,972.2	4,941.0	14.0	10.5	-179.75	233.8	-234.0	350.2	327.2	23.07	15.179		
5,100.0	5,041.0	5,072.2	5,041.0	14.1	10.7	-179.75	233.8	-234.0	350.2	326.9	23.34	15.003		
5,200.0	5,141.0	5,172.2	5,141.0	14.3	10.8	-179.75	233.8	-234.0	350.2	326.6	23.62	14.830		
5,300.0	5,241.0	5,272.2	5,241.0	14.4	10.9	-179.75	233.8	-234.0	350.2	326.3	23.89	14.660		
5,400.0	5,341.0	5,372.2	5,341.0	14.5	11.1	-179.75	233.8	-234.0	350.2	326.1	24.17	14.492		
5,500.0	5,441.0	5,472.2	5,441.0	14.6	11.2	-179.75	233.8	-234.0	350.2	325.8	24.44	14.327		
5,600.0	5,541.0	5,572.2	5,541.0	14.7	11.4	-179.75	233.8	-234.0	350.2	325.5	24.72	14.166		
5,700.0	5,641.0	5,672.2	5,641.0	14.8	11.5	-179.75	233.8	-234.0	350.2	325.2	25.01	14.006		
5,800.0	5,741.0	5,772.2	5,741.0	14.9	11.7	-179.75	233.8	-234.0	350.2	324.9	25.29	13.850		
5,900.0	5,841.0	5,872.2	5,841.0	15.1	11.8	-179.75	233.8	-234.0	350.2	324.7	25.57	13.696		
6,000.0	5,941.0	5,972.2	5,941.0	15.2	12.0	-179.75	233.8	-234.0	350.2	324.4	25.86	13.545		
6,100.0	6,041.0	6,072.2	6,041.0	15.3	12.1	-179.75	233.8	-234.0	350.2	324.1	26.14	13.396		
6,200.0	6,141.0	6,172.2	6,141.0	15.4	12.3	-179.75	233.8	-234.0	350.2	323.8	26.43	13.250		
6,244.3	6,185.3	6,216.5	6,185.3	15.5	12.4	90.34	233.8	-234.0	350.2	327.0	23.20	15.096		
6,300.0	6,241.0	6,272.2	6,241.0	15.5	12.4	90.47	233.8	-234.0	350.2	326.9	23.38	14.978		
6,400.0	6,340.1	6,371.3	6,340.1	15.6	12.6	92.55	233.8	-234.0	350.6	326.8	23.79	14.734		
6,500.0	6,436.3	6,470.0	6,436.3	15.6	12.7	96.50	233.8	-232.8	352.7	328.4	24.24	14.548		
6,600.0	6,527.9	6,574.2	6,527.9	15.6	12.8	100.75	233.8	-219.2	357.0	332.5	24.48	14.583		
6,700.0	6,613.1	6,683.1	6,646.6	15.6	12.8	104.81	233.8	-189.1	363.1	338.7	24.46	14.846		
6,800.0	6,690.2	6,797.2	6,749.9	15.7	12.8	108.55	233.8	-141.0	370.6	346.3	24.26	15.272		
6,900.0	6,757.7	6,916.7	6,848.5	15.8	12.8	111.88	233.8	-73.7	378.7	354.6	24.11	15.707		
7,000.0	6,814.2	7,041.6	6,938.1	16.2	13.0	114.72	233.8	13.1	386.7	362.4	24.32	15.899		
7,100.0	6,858.8	7,171.6	7,013.9	16.8	13.7	116.98	233.8	118.5	393.8	368.5	25.28	15.578		
7,200.0	6,890.4	7,305.8	7,070.8	17.7	15.0	118.59	233.8	239.8	399.2	372.0	27.27	14.639		
7,300.0	6,908.6	7,443.1	7,104.7	19.0	17.0	119.51	233.8	372.6	402.5	372.1	30.39	13.244		
7,400.0	6,913.6	7,570.2	7,113.5	20.6	19.2	119.72	233.8	499.3	403.2	369.1	34.11	11.820		
7,500.0	6,915.4	7,670.2	7,115.3	22.4	21.1	119.72	233.8	599.2	403.2	365.8	37.47	10.762		
7,600.0	6,917.1	7,770.2	7,117.0	24.3	23.2	119.72	233.8	699.2	403.2	362.2	40.99	9.837		
7,700.0	6,918.9	7,870.2	7,118.7	26.3	25.3	119.72	233.8	799.2	403.2	358.6	44.65	9.030		
7,800.0	6,920.6	7,970.2	7,120.5	28.4	27.4	119.72	233.8	899.2	403.2	354.8	48.42	8.328		
7,900.0	6,922.3	8,070.2	7,122.2	30.5	29.7	119.72	233.8	999.2	403.2	350.9	52.27	7.714		
8,000.0	6,924.1	8,170.2	7,124.0	32.8	31.9	119.73	233.8	1,099.2	403.2	347.0	56.18	7.177		
8,100.0	6,925.8	8,270.2	7,125.7	35.0	34.2	119.73	233.9	1,199.2	403.2	343.0	60.15	6.703		
8,200.0	6,927.6	8,370.2	7,127.5	37.3	36.5	119.73	233.9	1,299.1	403.2	339.0	64.16	6.284		
8,300.0	6,929.3	8,470.2	7,129.2	39.6	38.8	119.73	233.9	1,399.1	403.2	335.0	68.21	5.911		
8,400.0	6,931.1	8,570.2	7,131.0	41.9	41.2	119.73	233.9	1,499.1	403.2	330.9	72.28	5.578		
8,500.0	6,932.8	8,670.2	7,132.7	44.2	43.5	119.73	233.9	1,599.1	403.2	326.8	76.38	5.278		
8,600.0	6,934.6	8,770.2	7,134.5	46.6	45.9	119.73	233.9	1,699.1	403.2	322.7	80.50	5.008		
8,700.0	6,936.3	8,870.2	7,136.2	48.9	48.3	119.73	233.9	1,799.1	403.1	318.5	84.64	4.763		
8,800.0	6,938.1	8,970.2	7,137.9	51.3	50.7	119.73	233.9	1,899.1	403.1	314.3	88.79	4.540		
8,900.0	6,939.8	9,070.2	7,139.7	53.7	53.1	119.73	233.9	1,999.0	403.1	310.2	92.96	4.337		
9,000.0	6,941.5	9,170.2	7,141.4	56.1	55.5	119.73	233.9	2,099.0	403.1	306.0	97.14	4.150		
9,100.0	6,943.3	9,270.2	7,143.2	58.5	57.9	119.73	233.9	2,199.0	403.1	301.8	101.33	3.978		
9,200.0	6,945.0	9,370.2	7,144.9	60.9	60.3	119.73	233.9	2,299.0	403.1	297.6	105.53	3.820		
9,300.0	6,946.8	9,470.2	7,146.7	63.3	62.7	119.73	233.9	2,399.0	403.1	293.4	109.73	3.674		
9,400.0	6,948.5	9,570.2	7,148.4	65.7	65.2	119.73	233.9	2,499.0	403.1	289.2	113.95	3.538		
9,500.0	6,950.3	9,670.2	7,150.2	68.1	67.6	119.73	233.9	2,598.9	403.1	284.9	118.17	3.411		
9,600.0	6,952.0	9,770.2	7,151.9	70.5	70.0	119.73	233.9	2,698.9	403.1	280.7	122.39	3.294		
9,700.0	6,953.8	9,870.2	7,153.7	73.0	72.5	119.73	233.9	2,798.9	403.1	276.5	126.62	3.183		
9,800.0	6,955.5	9,970.2	7,155.4	75.4	74.9	119.73	233.9	2,898.9	403.1	272.2	130.85	3.080		
9,900.0	6,957.3	10,070.2	7,157.1	77.8	77.3	119.73	234.0	2,998.9	403.1	268.0	135.09	2.984		
10,000.0	6,959.0	10,170.2	7,158.9	80.2	79.8	119.74	234.0	3,098.9	403.1	263.7	139.34	2.893		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2D-18H - 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)				
10,100.0	6,960.7	10,270.2	7,160.6	82.7	82.2	119.74	234.0	3,198.9	403.1	259.5	143.58	2.807		
10,200.0	6,962.5	10,370.2	7,162.4	85.1	84.7	119.74	234.0	3,298.8	403.1	255.2	147.83	2.727		
10,300.0	6,964.2	10,470.2	7,164.1	87.6	87.1	119.74	234.0	3,398.8	403.1	251.0	152.08	2.650		
10,400.0	6,966.0	10,570.2	7,165.9	90.0	89.6	119.74	234.0	3,498.8	403.0	246.7	156.34	2.578		
10,500.0	6,967.7	10,670.2	7,167.6	92.4	92.0	119.74	234.0	3,598.8	403.0	242.4	160.59	2.510		
10,600.0	6,969.5	10,770.2	7,169.4	94.9	94.5	119.74	234.0	3,698.8	403.0	238.2	164.85	2.445		
10,700.0	6,971.2	10,870.2	7,171.1	97.3	96.9	119.74	234.0	3,798.8	403.0	233.9	169.11	2.383		
10,800.0	6,973.0	10,970.2	7,172.8	99.8	99.4	119.74	234.0	3,898.7	403.0	229.6	173.37	2.325		
10,900.0	6,974.7	11,070.2	7,174.6	102.2	101.8	119.74	234.0	3,998.7	403.0	225.4	177.64	2.269		
11,000.0	6,976.5	11,170.2	7,176.3	104.7	104.3	119.74	234.0	4,098.7	403.0	221.1	181.90	2.216		
11,100.0	6,978.2	11,270.2	7,178.1	107.1	106.7	119.74	234.0	4,198.7	403.0	216.8	186.17	2.165		
11,200.0	6,979.9	11,370.2	7,179.8	109.6	109.2	119.74	234.0	4,298.7	403.0	212.6	190.44	2.116		
11,300.0	6,981.7	11,470.2	7,181.6	112.0	111.7	119.74	234.0	4,398.7	403.0	208.3	194.71	2.070		
11,400.0	6,983.4	11,570.2	7,183.3	114.5	114.1	119.74	234.0	4,498.7	403.0	204.0	198.98	2.025		
11,500.0	6,985.2	11,670.2	7,185.1	117.0	116.6	119.74	234.0	4,598.6	403.0	199.7	203.25	1.983		
11,600.0	6,986.9	11,770.2	7,186.8	119.4	119.0	119.74	234.0	4,698.6	403.0	195.4	207.53	1.942		
11,700.0	6,988.7	11,870.2	7,188.6	121.9	121.5	119.74	234.1	4,798.6	403.0	191.2	211.80	1.903		
11,800.0	6,990.4	11,970.2	7,190.3	124.3	123.9	119.74	234.1	4,898.6	403.0	186.9	216.08	1.865		
11,900.0	6,992.2	12,070.2	7,192.0	126.8	126.4	119.74	234.1	4,998.6	403.0	182.6	220.35	1.829		
12,000.0	6,993.9	12,170.2	7,193.8	129.2	128.9	119.74	234.1	5,098.6	402.9	178.3	224.63	1.794		
12,100.0	6,995.6	12,270.2	7,195.5	131.7	131.3	119.75	234.1	5,198.5	402.9	174.0	228.91	1.760		
12,200.0	6,997.4	12,370.2	7,197.3	134.2	133.8	119.75	234.1	5,298.5	402.9	169.7	233.19	1.728		
12,300.0	6,999.1	12,470.2	7,199.0	136.6	136.3	119.75	234.1	5,398.5	402.9	165.5	237.47	1.697		
12,400.0	7,000.9	12,570.2	7,200.8	139.1	138.7	119.75	234.1	5,498.5	402.9	161.2	241.75	1.667		
12,500.0	7,002.6	12,670.2	7,202.5	141.5	141.2	119.75	234.1	5,598.5	402.9	156.9	246.03	1.638		
12,600.0	7,004.4	12,770.2	7,204.3	144.0	143.7	119.75	234.1	5,698.5	402.9	152.6	250.31	1.610		
12,700.0	7,006.1	12,870.2	7,206.0	146.5	146.1	119.75	234.1	5,798.5	402.9	148.3	254.59	1.583		
12,800.0	7,007.9	12,970.2	7,207.8	148.9	148.6	119.75	234.1	5,898.4	402.9	144.0	258.87	1.556		
12,900.0	7,009.6	13,070.2	7,209.5	151.4	151.0	119.75	234.1	5,998.4	402.9	139.7	263.16	1.531		
13,000.0	7,011.4	13,170.2	7,211.2	153.9	153.5	119.75	234.1	6,098.4	402.9	135.4	267.44	1.506		
13,100.0	7,013.1	13,270.2	7,213.0	156.3	156.0	119.75	234.1	6,198.4	402.9	131.2	271.73	1.483	Level 3	
13,200.0	7,014.8	13,370.2	7,214.7	158.8	158.4	119.75	234.1	6,298.4	402.9	126.9	276.01	1.460	Level 3	
13,300.0	7,016.6	13,470.2	7,216.5	161.2	160.9	119.75	234.1	6,398.4	402.9	122.6	280.29	1.437	Level 3	
13,400.0	7,018.3	13,570.2	7,218.2	163.7	163.4	119.75	234.2	6,498.4	402.9	118.3	284.58	1.416	Level 3	
13,500.0	7,020.1	13,670.2	7,220.0	166.2	165.8	119.75	234.2	6,598.3	402.9	114.0	288.86	1.395	Level 3	
13,600.0	7,021.8	13,770.2	7,221.7	168.6	168.3	119.75	234.2	6,698.3	402.9	109.7	293.15	1.374	Level 3	
13,700.0	7,023.6	13,870.2	7,223.5	171.1	170.8	119.75	234.2	6,798.3	402.8	105.4	297.44	1.354	Level 3	
13,800.0	7,025.3	13,970.2	7,225.2	173.6	173.2	119.75	234.2	6,898.3	402.8	101.1	301.72	1.335	Level 3	
13,900.0	7,027.1	14,070.2	7,227.0	176.0	175.7	119.75	234.2	6,998.3	402.8	96.8	306.01	1.316	Level 3	
14,000.0	7,028.8	14,170.2	7,228.7	178.5	178.2	119.75	234.2	7,098.3	402.8	92.5	310.30	1.298	Level 3	
14,068.8	7,030.0	14,239.0	7,229.9	180.2	179.9	119.76	234.2	7,167.1	402.8	89.6	313.25	1.286	Level 3, SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2E-18H - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-18.2	0.0	18.2					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-18.2	0.0	18.2	17.9	0.30	59.977		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-18.2	0.0	18.2	17.6	0.65	27.904		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-18.2	0.0	18.2	17.2	1.00	18.181		
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-18.2	0.0	18.2	16.9	1.35	13.483	CC, ES	
500.0	500.0	499.9	499.9	0.9	0.9	-156.86	-18.5	-0.8	19.4	17.7	1.70	11.391		
600.0	600.0	599.6	599.6	1.0	1.0	-153.45	-19.5	-3.2	22.9	20.8	2.05	11.149		
700.0	699.9	699.2	699.1	1.2	1.2	-149.62	-21.2	-7.2	28.8	26.4	2.41	11.973		
800.0	799.7	798.5	798.2	1.4	1.4	-146.33	-23.5	-12.8	37.3	34.5	2.77	13.449		
900.0	899.4	897.5	896.9	1.6	1.6	-143.79	-26.5	-19.9	48.3	45.1	3.15	15.323		
1,000.0	998.9	996.0	994.9	1.8	1.8	-141.90	-30.1	-28.6	61.8	58.2	3.54	17.429		
1,100.0	1,098.3	1,094.3	1,092.6	2.1	2.1	-140.57	-34.3	-38.7	77.6	73.7	3.95	19.645		
1,200.0	1,197.4	1,192.7	1,190.4	2.3	2.3	-140.19	-38.6	-49.0	95.0	90.6	4.37	21.735		
1,300.0	1,296.3	1,291.0	1,288.0	2.6	2.5	-140.45	-42.9	-59.4	113.7	108.9	4.80	23.679		
1,400.0	1,394.9	1,388.9	1,385.3	2.9	2.8	-141.08	-47.2	-69.7	133.8	128.5	5.24	25.508		
1,500.0	1,493.3	1,486.6	1,482.3	3.3	3.0	-141.92	-51.4	-80.0	155.2	149.5	5.69	27.250		
1,600.0	1,591.2	1,583.9	1,579.0	3.6	3.3	-142.88	-55.7	-90.2	177.9	171.8	6.15	28.924		
1,700.0	1,689.1	1,681.1	1,675.6	4.0	3.5	-143.83	-59.9	-100.5	201.3	194.7	6.62	30.415		
1,800.0	1,787.0	1,778.3	1,772.1	4.4	3.8	-144.59	-64.2	-110.7	224.7	217.6	7.09	31.707		
1,900.0	1,884.8	1,875.5	1,868.7	4.8	4.0	-145.20	-68.4	-120.9	248.1	240.6	7.56	32.835		
2,000.0	1,982.7	1,972.6	1,965.2	5.1	4.3	-145.70	-72.7	-131.2	271.6	263.5	8.03	33.828		
2,100.0	2,080.5	2,069.8	2,061.8	5.5	4.5	-146.13	-76.9	-141.4	295.0	286.5	8.50	34.708		
2,200.0	2,178.4	2,167.0	2,158.3	5.9	4.8	-146.49	-81.2	-151.6	318.5	309.5	8.97	35.494		
2,300.0	2,276.3	2,264.2	2,254.9	6.3	5.0	-146.81	-85.4	-161.9	342.0	332.6	9.45	36.198		
2,400.0	2,374.1	2,361.4	2,351.4	6.7	5.3	-147.08	-89.7	-172.1	365.5	355.6	9.92	36.833		
2,500.0	2,472.0	2,458.6	2,448.0	7.1	5.6	-147.32	-93.9	-182.3	389.0	378.6	10.40	37.409		
2,600.0	2,569.8	2,555.8	2,544.5	7.5	5.8	-147.53	-98.2	-192.6	412.5	401.6	10.87	37.933		
2,700.0	2,667.7	2,652.9	2,641.1	7.9	6.1	-147.72	-102.4	-202.8	436.0	424.7	11.35	38.412		
2,800.0	2,765.6	2,750.1	2,737.7	8.3	6.3	-147.89	-106.7	-213.0	459.5	447.7	11.83	38.851		
2,900.0	2,863.4	2,852.7	2,839.6	8.7	6.6	-148.12	-110.9	-223.3	482.8	470.5	12.30	39.254		
3,000.0	2,961.3	2,960.0	2,946.6	9.1	6.8	-148.69	-114.0	-230.6	504.3	491.5	12.73	39.613		
3,100.0	3,059.1	3,067.8	3,054.3	9.5	6.9	-149.60	-115.5	-234.3	523.9	510.8	13.11	39.966		
3,200.0	3,157.0	3,170.5	3,157.0	9.9	7.1	-150.70	-115.7	-234.7	542.1	528.6	13.45	40.305		
3,300.0	3,254.9	3,268.3	3,254.9	10.2	7.2	-151.73	-115.7	-234.7	560.2	546.4	13.78	40.659		
3,400.0	3,352.7	3,366.2	3,352.7	10.6	7.4	-152.69	-115.7	-234.7	578.5	564.4	14.10	41.016		
3,500.0	3,450.6	3,464.0	3,450.6	11.0	7.5	-153.59	-115.7	-234.7	596.9	582.5	14.43	41.375		
3,600.0	3,548.4	3,561.9	3,548.4	11.4	7.6	-154.44	-115.7	-234.7	615.5	600.8	14.75	41.732		
3,700.0	3,646.3	3,659.8	3,646.3	11.8	7.8	-155.24	-115.7	-234.7	634.2	619.1	15.07	42.087		
3,800.0	3,744.2	3,757.7	3,744.2	12.2	7.9	-156.06	-115.7	-234.7	652.6	637.2	15.40	42.368		
3,900.0	3,842.8	3,856.2	3,842.8	12.5	8.1	-156.77	-115.7	-234.7	668.3	652.5	15.74	42.459		
4,000.0	3,941.8	3,955.3	3,941.8	12.8	8.2	-157.32	-115.7	-234.7	680.9	664.8	16.07	42.379		
4,100.0	4,041.3	4,054.8	4,041.3	13.0	8.3	-157.72	-115.7	-234.7	690.3	673.9	16.38	42.135		
4,200.0	4,141.1	4,154.6	4,141.1	13.2	8.5	-157.98	-115.7	-234.7	696.5	679.8	16.69	41.734		
4,300.0	4,241.0	4,254.5	4,241.0	13.3	8.6	-158.10	-115.7	-234.7	699.4	682.5	16.98	41.184		
4,400.0	4,341.0	4,354.5	4,341.0	13.4	8.8	-179.82	-115.7	-234.7	699.7	679.2	20.53	34.082		
4,500.0	4,441.0	4,454.5	4,441.0	13.5	8.9	-179.82	-115.7	-234.7	699.7	678.9	20.81	33.630		
4,600.0	4,541.0	4,554.5	4,541.0	13.6	9.1	-179.82	-115.7	-234.7	699.7	678.6	21.08	33.187		
4,700.0	4,641.0	4,654.5	4,641.0	13.7	9.2	-179.82	-115.7	-234.7	699.7	678.4	21.36	32.754		
4,800.0	4,741.0	4,754.5	4,741.0	13.8	9.4	-179.82	-115.7	-234.7	699.7	678.1	21.64	32.329		
4,900.0	4,841.0	4,854.5	4,841.0	13.9	9.6	-179.82	-115.7	-234.7	699.7	677.8	21.93	31.913		
5,000.0	4,941.0	4,954.5	4,941.0	14.0	9.7	-179.82	-115.7	-234.7	699.7	677.5	22.21	31.505		
5,100.0	5,041.0	5,054.5	5,041.0	14.1	9.9	-179.82	-115.7	-234.7	699.7	677.2	22.49	31.106		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2E-18H - 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 (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			
5,200.0	5,141.0	5,154.5	5,141.0	14.3	10.0	-179.82	-115.7	-234.7	699.7	676.9	22.78	30.715				
5,300.0	5,241.0	5,254.5	5,241.0	14.4	10.2	-179.82	-115.7	-234.7	699.7	676.6	23.07	30.331				
5,400.0	5,341.0	5,354.5	5,341.0	14.5	10.3	-179.82	-115.7	-234.7	699.7	676.4	23.36	29.956				
5,500.0	5,441.0	5,454.5	5,441.0	14.6	10.5	-179.82	-115.7	-234.7	699.7	676.1	23.65	29.588				
5,600.0	5,541.0	5,554.5	5,541.0	14.7	10.7	-179.82	-115.7	-234.7	699.7	675.8	23.94	29.227				
5,700.0	5,641.0	5,654.5	5,641.0	14.8	10.8	-179.82	-115.7	-234.7	699.7	675.5	24.23	28.874				
5,800.0	5,741.0	5,754.5	5,741.0	14.9	11.0	-179.82	-115.7	-234.7	699.7	675.2	24.53	28.527				
5,900.0	5,841.0	5,854.5	5,841.0	15.1	11.1	-179.82	-115.7	-234.7	699.7	674.9	24.82	28.188				
6,000.0	5,941.0	5,954.5	5,941.0	15.2	11.3	-179.82	-115.7	-234.7	699.7	674.6	25.12	27.855				
6,100.0	6,041.0	6,054.5	6,041.0	15.3	11.4	-179.82	-115.7	-234.7	699.7	674.3	25.42	27.529				
6,200.0	6,141.0	6,154.5	6,141.0	15.4	11.6	-179.82	-115.7	-234.7	699.7	674.0	25.72	27.209				
6,300.0	6,241.0	6,254.6	6,241.1	15.5	11.8	90.18	-115.7	-233.4	699.7	676.4	23.31	30.022				
6,400.0	6,340.1	6,354.9	6,340.5	15.6	11.8	90.18	-115.7	-220.2	699.7	676.3	23.44	29.850				
6,500.0	6,436.3	6,455.2	6,437.0	15.6	11.8	90.17	-115.7	-193.3	699.7	676.3	23.45	29.832				
6,600.0	6,527.9	6,555.5	6,528.8	15.6	11.8	90.16	-115.7	-153.1	699.7	676.3	23.43	29.865				
6,700.0	6,613.1	6,655.8	6,614.1	15.6	11.8	90.14	-115.7	-100.6	699.7	676.2	23.49	29.789				
6,800.0	6,690.2	6,756.0	6,691.3	15.7	11.9	90.12	-115.7	-36.7	699.7	675.9	23.80	29.399				
6,900.0	6,757.7	6,856.2	6,758.7	15.8	12.3	90.10	-115.7	37.3	699.7	675.2	24.55	28.498				
7,000.0	6,814.2	6,956.4	6,815.1	16.2	13.0	90.08	-115.7	120.0	699.7	673.8	25.91	27.005				
7,100.0	6,858.8	7,056.5	6,859.4	16.8	14.0	90.06	-115.7	209.6	699.7	671.7	27.96	25.024				
7,200.0	6,890.4	7,156.6	6,890.9	17.7	15.4	90.03	-115.7	304.6	699.7	669.0	30.69	22.799				
7,300.0	6,908.6	7,256.6	6,908.7	19.0	17.0	90.01	-115.7	402.9	699.7	665.7	33.99	20.587				
7,400.0	6,913.6	7,356.6	6,913.5	20.6	18.9	89.99	-115.7	502.8	699.7	662.0	37.69	18.564				
7,500.0	6,915.4	7,456.6	6,915.3	22.4	20.8	89.99	-115.7	602.7	699.7	658.0	41.65	16.798				
7,600.0	6,917.1	7,556.6	6,917.0	24.3	22.9	89.99	-115.7	702.7	699.7	653.9	45.80	15.276				
7,700.0	6,918.9	7,656.6	6,918.8	26.3	25.0	89.99	-115.7	802.7	699.7	649.6	50.10	13.966				
7,800.0	6,920.6	7,756.6	6,920.5	28.4	27.2	89.99	-115.7	902.7	699.7	645.2	54.50	12.837				
7,900.0	6,922.3	7,856.6	6,922.2	30.5	29.5	89.99	-115.7	1,002.7	699.7	640.7	59.00	11.859				
8,000.0	6,924.1	7,956.6	6,924.0	32.8	31.8	89.99	-115.7	1,102.7	699.7	636.1	63.56	11.008				
8,100.0	6,925.8	8,056.6	6,925.7	35.0	34.1	89.99	-115.7	1,202.6	699.7	631.5	68.17	10.263				
8,200.0	6,927.6	8,156.6	6,927.5	37.3	36.4	89.99	-115.7	1,302.6	699.7	626.8	72.83	9.607				
8,300.0	6,929.3	8,256.6	6,929.2	39.6	38.7	89.99	-115.7	1,402.6	699.7	622.1	77.52	9.025				
8,400.0	6,931.1	8,356.6	6,931.0	41.9	41.1	89.99	-115.7	1,502.6	699.6	617.4	82.25	8.507				
8,500.0	6,932.8	8,456.6	6,932.7	44.2	43.5	89.99	-115.7	1,602.6	699.6	612.6	87.00	8.042				
8,600.0	6,934.6	8,556.6	6,934.5	46.6	45.9	89.99	-115.7	1,702.6	699.6	607.9	91.77	7.624				
8,700.0	6,936.3	8,656.6	6,936.2	48.9	48.3	89.99	-115.7	1,802.6	699.6	603.1	96.55	7.246				
8,800.0	6,938.1	8,756.6	6,938.0	51.3	50.7	89.99	-115.7	1,902.5	699.6	598.3	101.36	6.903				
8,900.0	6,939.8	8,856.6	6,939.7	53.7	53.1	89.99	-115.7	2,002.5	699.6	593.5	106.17	6.590				
9,000.0	6,941.5	8,956.6	6,941.4	56.1	55.5	89.99	-115.7	2,102.5	699.6	588.6	111.00	6.303				
9,100.0	6,943.3	9,056.6	6,943.2	58.5	57.9	89.99	-115.7	2,202.5	699.6	583.8	115.84	6.040				
9,200.0	6,945.0	9,156.6	6,944.9	60.9	60.3	89.99	-115.6	2,302.5	699.6	578.9	120.69	5.797				
9,300.0	6,946.8	9,256.6	6,946.7	63.3	62.7	89.99	-115.6	2,402.5	699.6	574.1	125.54	5.573				
9,400.0	6,948.5	9,356.6	6,948.4	65.7	65.2	89.99	-115.6	2,502.4	699.6	569.2	130.40	5.365				
9,500.0	6,950.3	9,456.6	6,950.2	68.1	67.6	89.99	-115.6	2,602.4	699.6	564.3	135.27	5.172				
9,600.0	6,952.0	9,556.6	6,951.9	70.5	70.0	89.99	-115.6	2,702.4	699.6	559.5	140.14	4.992				
9,700.0	6,953.8	9,656.6	6,953.7	73.0	72.5	89.99	-115.6	2,802.4	699.6	554.6	145.02	4.824				
9,800.0	6,955.5	9,756.6	6,955.4	75.4	74.9	89.99	-115.6	2,902.4	699.6	549.7	149.91	4.667				
9,900.0	6,957.3	9,856.6	6,957.2	77.8	77.4	89.99	-115.6	3,002.4	699.6	544.8	154.79	4.520				
10,000.0	6,959.0	9,956.6	6,958.9	80.2	79.8	89.99	-115.6	3,102.4	699.6	539.9	159.68	4.381				
10,100.0	6,960.7	10,056.6	6,960.6	82.7	82.3	89.99	-115.6	3,202.3	699.6	535.0	164.58	4.251				
10,200.0	6,962.5	10,156.6	6,962.4	85.1	84.7	89.99	-115.6	3,302.3	699.6	530.1	169.48	4.128				
10,300.0	6,964.2	10,256.6	6,964.1	87.6	87.2	89.99	-115.6	3,402.3	699.6	525.2	174.38	4.012				

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2E-18H - 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	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)			
10,400.0	6,966.0	10,356.6	6,965.9	90.0	89.6	89.99	-115.6	3,502.3	699.6	520.3	179.28	3.902	
10,500.0	6,967.7	10,456.6	6,967.6	92.4	92.1	89.99	-115.6	3,602.3	699.6	515.4	184.18	3.798	
10,600.0	6,969.5	10,556.6	6,969.4	94.9	94.5	89.99	-115.6	3,702.3	699.6	510.5	189.09	3.700	
10,700.0	6,971.2	10,656.6	6,971.1	97.3	97.0	89.99	-115.6	3,802.3	699.6	505.6	194.00	3.606	
10,800.0	6,973.0	10,756.6	6,972.9	99.8	99.4	89.99	-115.6	3,902.2	699.6	500.6	198.91	3.517	
10,900.0	6,974.7	10,856.6	6,974.6	102.2	101.9	89.99	-115.6	4,002.2	699.5	495.7	203.83	3.432	
11,000.0	6,976.5	10,956.6	6,976.4	104.7	104.3	89.99	-115.6	4,102.2	699.5	490.8	208.74	3.351	
11,100.0	6,978.2	11,056.6	6,978.1	107.1	106.8	89.99	-115.6	4,202.2	699.5	485.9	213.66	3.274	
11,200.0	6,979.9	11,156.6	6,979.8	109.6	109.3	89.99	-115.6	4,302.2	699.5	481.0	218.58	3.200	
11,300.0	6,981.7	11,256.6	6,981.6	112.0	111.7	89.99	-115.6	4,402.2	699.5	476.0	223.49	3.130	
11,400.0	6,983.4	11,356.6	6,983.3	114.5	114.2	89.99	-115.6	4,502.1	699.5	471.1	228.42	3.063	
11,500.0	6,985.2	11,456.6	6,985.1	117.0	116.6	89.99	-115.6	4,602.1	699.5	466.2	233.34	2.998	
11,600.0	6,986.9	11,556.6	6,986.8	119.4	119.1	89.99	-115.6	4,702.1	699.5	461.3	238.26	2.936	
11,700.0	6,988.7	11,656.6	6,988.6	121.9	121.6	89.99	-115.6	4,802.1	699.5	456.3	243.18	2.877	
11,800.0	6,990.4	11,756.6	6,990.3	124.3	124.0	89.99	-115.6	4,902.1	699.5	451.4	248.11	2.819	
11,900.0	6,992.2	11,856.6	6,992.1	126.8	126.5	89.99	-115.6	5,002.1	699.5	446.5	253.03	2.765	
12,000.0	6,993.9	11,956.6	6,993.8	129.2	129.0	89.99	-115.6	5,102.1	699.5	441.5	257.96	2.712	
12,100.0	6,995.6	12,056.6	6,995.5	131.7	131.4	89.99	-115.6	5,202.0	699.5	436.6	262.89	2.661	
12,200.0	6,997.4	12,156.6	6,997.3	134.2	133.9	89.99	-115.6	5,302.0	699.5	431.7	267.81	2.612	
12,300.0	6,999.1	12,256.6	6,999.0	136.6	136.3	89.99	-115.6	5,402.0	699.5	426.8	272.74	2.565	
12,400.0	7,000.9	12,356.6	7,000.8	139.1	138.8	89.99	-115.6	5,502.0	699.5	421.8	277.67	2.519	
12,500.0	7,002.6	12,456.6	7,002.5	141.5	141.3	89.99	-115.6	5,602.0	699.5	416.9	282.60	2.475	
12,600.0	7,004.4	12,556.6	7,004.3	144.0	143.7	89.99	-115.6	5,702.0	699.5	412.0	287.53	2.433	
12,700.0	7,006.1	12,656.6	7,006.0	146.5	146.2	89.99	-115.6	5,801.9	699.5	407.0	292.46	2.392	
12,800.0	7,007.9	12,756.6	7,007.8	148.9	148.7	89.99	-115.6	5,901.9	699.5	402.1	297.40	2.352	
12,900.0	7,009.6	12,856.6	7,009.5	151.4	151.1	89.99	-115.6	6,001.9	699.5	397.1	302.33	2.314	
13,000.0	7,011.4	12,956.6	7,011.3	153.9	153.6	89.99	-115.6	6,101.9	699.5	392.2	307.26	2.276	
13,100.0	7,013.1	13,056.6	7,013.0	156.3	156.1	89.99	-115.5	6,201.9	699.5	387.3	312.19	2.240	
13,200.0	7,014.8	13,156.6	7,014.7	158.8	158.5	89.99	-115.5	6,301.9	699.5	382.3	317.13	2.206	
13,300.0	7,016.6	13,256.6	7,016.5	161.2	161.0	89.99	-115.5	6,401.9	699.5	377.4	322.06	2.172	
13,400.0	7,018.3	13,356.6	7,018.2	163.7	163.5	89.99	-115.5	6,501.8	699.5	372.5	327.00	2.139	
13,500.0	7,020.1	13,456.6	7,020.0	166.2	165.9	89.99	-115.5	6,601.8	699.4	367.5	331.93	2.107	
13,600.0	7,021.8	13,556.6	7,021.7	168.6	168.4	89.99	-115.5	6,701.8	699.4	362.6	336.87	2.076	
13,700.0	7,023.6	13,656.6	7,023.5	171.1	170.9	89.99	-115.5	6,801.8	699.4	357.6	341.80	2.046	
13,800.0	7,025.3	13,756.6	7,025.2	173.6	173.3	89.99	-115.5	6,901.8	699.4	352.7	346.74	2.017	
13,900.0	7,027.1	13,856.6	7,027.0	176.0	175.8	89.99	-115.5	7,001.8	699.4	347.8	351.67	1.989	
14,000.0	7,028.8	13,956.6	7,028.7	178.5	178.3	89.99	-115.5	7,101.7	699.4	342.8	356.61	1.961	
14,068.8	7,030.0	14,025.4	7,029.9	180.2	180.0	89.99	-115.5	7,170.5	699.4	339.4	360.01	1.943 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2F-18H - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-29.1	0.0	29.1	28.8	0.30	95.963		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.65	44.646		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-29.1	0.0	29.1	28.1	1.00	29.090	CC, ES	
400.0	400.0	399.5	399.5	0.7	0.7	-179.21	-29.9	-0.4	29.9	28.6	1.35	22.153		
500.0	500.0	499.0	499.0	0.9	0.9	-155.97	-32.2	-1.6	33.0	31.3	1.70	19.442		
600.0	600.0	598.2	598.1	1.0	1.0	-154.72	-36.0	-3.7	39.3	37.3	2.05	19.194		
700.0	699.9	697.1	696.8	1.2	1.2	-153.87	-41.2	-6.6	48.8	46.4	2.40	20.318		
800.0	799.7	795.4	794.8	1.4	1.4	-153.36	-48.0	-10.2	61.3	58.6	2.75	22.272		
900.0	899.4	893.1	892.1	1.6	1.7	-153.07	-56.1	-14.6	77.0	73.9	3.11	24.751		
1,000.0	998.9	990.0	988.4	1.8	1.9	-152.93	-65.6	-19.8	95.7	92.2	3.47	27.572		
1,100.0	1,098.3	1,086.0	1,083.5	2.1	2.2	-152.85	-76.5	-25.7	117.5	113.6	3.84	30.616		
1,200.0	1,197.4	1,181.1	1,177.6	2.3	2.4	-152.82	-88.6	-32.2	142.2	138.0	4.21	33.802		
1,300.0	1,296.3	1,277.4	1,272.8	2.6	2.7	-152.94	-101.4	-39.2	169.1	164.5	4.59	36.865		
1,400.0	1,394.9	1,373.3	1,367.6	2.9	3.0	-153.22	-114.2	-46.2	197.5	192.5	4.97	39.727		
1,500.0	1,493.3	1,468.7	1,461.9	3.3	3.3	-153.60	-126.9	-53.1	227.3	222.0	5.36	42.423		
1,600.0	1,591.2	1,563.6	1,555.8	3.6	3.6	-154.04	-139.6	-59.9	258.7	252.9	5.75	44.978		
1,700.0	1,689.1	1,658.4	1,649.4	4.0	3.9	-154.55	-152.2	-66.8	290.6	284.5	6.16	47.217		
1,800.0	1,787.0	1,753.1	1,743.0	4.4	4.2	-154.96	-164.8	-73.6	322.6	316.0	6.56	49.170		
1,900.0	1,884.8	1,847.8	1,836.7	4.8	4.4	-155.30	-177.4	-80.5	354.6	347.6	6.97	50.887		
2,000.0	1,982.7	1,942.6	1,930.3	5.1	4.7	-155.58	-190.1	-87.3	386.6	379.2	7.38	52.408		
2,100.0	2,080.5	2,037.3	2,023.9	5.5	5.0	-155.81	-202.7	-94.2	418.6	410.8	7.79	53.763		
2,200.0	2,178.4	2,132.0	2,117.6	5.9	5.3	-156.02	-215.3	-101.0	450.6	442.4	8.20	54.978		
2,300.0	2,276.3	2,226.8	2,211.2	6.3	5.6	-156.19	-227.9	-107.9	482.6	474.0	8.61	56.073		
2,400.0	2,374.1	2,321.5	2,304.8	6.7	5.9	-156.35	-240.6	-114.7	514.6	505.6	9.02	57.065		
2,500.0	2,472.0	2,416.2	2,398.5	7.1	6.2	-156.48	-253.2	-121.6	546.6	537.2	9.43	57.968		
2,600.0	2,569.8	2,510.9	2,492.1	7.5	6.5	-156.61	-265.8	-128.4	578.6	568.8	9.84	58.792		
2,700.0	2,667.7	2,605.7	2,585.7	7.9	6.8	-156.71	-278.4	-135.3	610.6	600.4	10.25	59.548		
2,800.0	2,765.6	2,700.4	2,679.4	8.3	7.1	-156.81	-291.1	-142.1	642.6	632.0	10.67	60.244		
2,900.0	2,863.4	2,795.1	2,773.0	8.7	7.4	-156.90	-303.7	-149.0	674.7	663.6	11.08	60.886		
3,000.0	2,961.3	2,889.9	2,866.6	9.1	7.7	-156.98	-316.3	-155.9	706.7	695.2	11.49	61.480		
3,100.0	3,059.1	2,984.6	2,960.3	9.5	8.0	-157.05	-328.9	-162.7	738.7	726.8	11.91	62.032		
3,200.0	3,157.0	3,079.3	3,053.9	9.9	8.3	-157.12	-341.6	-169.6	770.7	758.4	12.32	62.546		
3,300.0	3,254.9	3,174.0	3,147.5	10.2	8.6	-157.18	-354.2	-176.4	802.8	790.0	12.74	63.026		
3,400.0	3,352.7	3,268.8	3,241.2	10.6	8.9	-157.24	-366.8	-183.3	834.8	821.6	13.15	63.474		
3,500.0	3,450.6	3,363.5	3,334.8	11.0	9.2	-157.29	-379.4	-190.1	866.8	853.3	13.57	63.895		
3,600.0	3,548.4	3,458.2	3,428.4	11.4	9.5	-157.34	-392.1	-197.0	898.8	884.9	13.98	64.289		
3,700.0	3,646.3	3,553.0	3,522.1	11.8	9.8	-157.39	-404.7	-203.8	930.9	916.5	14.40	64.661		
3,800.0	3,744.2	3,647.8	3,615.8	12.2	10.1	-157.55	-417.3	-210.7	962.5	947.7	14.84	64.877		
3,900.0	3,842.8	3,743.6	3,710.5	12.5	10.4	-157.74	-430.1	-217.6	991.4	976.1	15.28	64.868		
4,000.0	3,941.8	3,863.9	3,829.5	12.8	10.7	-157.81	-445.3	-225.8	1,016.6	1,000.8	15.75	64.526		
4,100.0	4,041.3	4,007.5	3,972.4	13.0	11.1	-157.88	-457.9	-232.7	1,034.8	1,018.5	16.23	63.772		
4,200.0	4,141.1	4,153.7	4,118.4	13.2	11.3	-157.97	-464.4	-236.2	1,045.4	1,028.7	16.65	62.787		
4,300.0	4,241.0	4,276.3	4,241.0	13.3	11.4	-158.06	-465.1	-236.6	1,048.9	1,031.9	17.00	61.698		
4,400.0	4,341.0	4,376.3	4,341.0	13.4	11.5	-179.77	-465.1	-236.6	1,049.2	1,025.6	23.55	44.547		
4,500.0	4,441.0	4,476.3	4,441.0	13.5	11.7	-179.77	-465.1	-236.6	1,049.2	1,025.4	23.78	44.118		
4,600.0	4,541.0	4,576.3	4,541.0	13.6	11.8	-179.77	-465.1	-236.6	1,049.2	1,025.1	24.01	43.691		
4,700.0	4,641.0	4,676.3	4,641.0	13.7	11.9	-179.77	-465.1	-236.6	1,049.2	1,024.9	24.25	43.267		
4,800.0	4,741.0	4,776.3	4,741.0	13.8	12.0	-179.77	-465.1	-236.6	1,049.2	1,024.7	24.49	42.847		
4,900.0	4,841.0	4,876.3	4,841.0	13.9	12.1	-179.77	-465.1	-236.6	1,049.2	1,024.4	24.73	42.431		
5,000.0	4,941.0	4,976.3	4,941.0	14.0	12.3	-179.77	-465.1	-236.6	1,049.2	1,024.2	24.97	42.018		
5,100.0	5,041.0	5,076.3	5,041.0	14.1	12.4	-179.77	-465.1	-236.6	1,049.2	1,023.9	25.21	41.610		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2F-18H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-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)				
5,200.0	5,141.0	5,176.3	5,141.0	14.3	12.5	-179.77	-465.1	-236.6	1,049.2	1,023.7	25.46	41.205		
5,300.0	5,241.0	5,276.3	5,241.0	14.4	12.6	-179.77	-465.1	-236.6	1,049.2	1,023.4	25.71	40.804		
5,400.0	5,341.0	5,376.3	5,341.0	14.5	12.8	-179.77	-465.1	-236.6	1,049.2	1,023.2	25.96	40.407		
5,500.0	5,441.0	5,476.3	5,441.0	14.6	12.9	-179.77	-465.1	-236.6	1,049.2	1,022.9	26.22	40.015		
5,600.0	5,541.0	5,576.3	5,541.0	14.7	13.0	-179.77	-465.1	-236.6	1,049.2	1,022.7	26.48	39.627		
5,700.0	5,641.0	5,676.3	5,641.0	14.8	13.2	-179.77	-465.1	-236.6	1,049.2	1,022.4	26.73	39.244		
5,800.0	5,741.0	5,776.3	5,741.0	14.9	13.3	-179.77	-465.1	-236.6	1,049.2	1,022.2	26.99	38.865		
5,900.0	5,841.0	5,876.3	5,841.0	15.1	13.4	-179.77	-465.1	-236.6	1,049.2	1,021.9	27.26	38.490		
6,000.0	5,941.0	5,976.3	5,941.0	15.2	13.6	-179.77	-465.1	-236.6	1,049.2	1,021.6	27.52	38.120		
6,100.0	6,041.0	6,076.3	6,041.0	15.3	13.7	-179.77	-465.1	-236.6	1,049.2	1,021.4	27.79	37.755		
6,200.0	6,141.0	6,176.3	6,141.0	15.4	13.8	-179.77	-465.1	-236.6	1,049.2	1,021.1	28.06	37.394		
6,240.2	6,181.2	6,216.5	6,181.2	15.5	13.9	90.25	-465.1	-236.6	1,049.2	1,026.0	23.17	45.288		
6,300.0	6,241.0	6,276.3	6,241.0	15.5	14.0	90.30	-465.1	-236.6	1,049.2	1,025.8	23.35	44.927		
6,400.0	6,340.1	6,375.4	6,340.1	15.6	14.1	90.99	-465.1	-236.6	1,049.3	1,025.7	23.59	44.480		
6,500.0	6,436.3	6,471.6	6,436.3	15.6	14.2	92.33	-465.1	-236.6	1,050.1	1,026.4	23.76	44.197		
6,600.0	6,527.9	6,567.4	6,532.1	15.6	14.4	94.18	-465.1	-235.7	1,052.5	1,028.7	23.87	44.093		
6,700.0	6,613.1	6,674.1	6,637.9	15.6	14.4	96.25	-465.1	-222.6	1,056.7	1,032.7	23.92	44.177		
6,800.0	6,690.2	6,789.3	6,748.5	15.7	14.4	98.28	-465.1	-190.9	1,062.2	1,038.2	23.99	44.282		
6,900.0	6,757.7	6,914.3	6,861.1	15.8	14.4	100.26	-465.1	-137.0	1,068.7	1,044.4	24.24	44.096		
7,000.0	6,814.2	7,050.5	6,971.1	16.2	14.5	102.12	-465.1	-57.0	1,075.5	1,050.6	24.90	43.192		
7,100.0	6,858.8	7,198.5	7,071.1	16.8	14.8	103.75	-465.1	51.7	1,082.0	1,055.7	26.32	41.105		
7,200.0	6,890.4	7,357.6	7,151.3	17.7	15.6	105.02	-465.1	188.8	1,087.3	1,058.4	28.84	37.697		
7,300.0	6,908.6	7,525.2	7,200.9	19.0	17.6	105.78	-465.2	348.5	1,090.4	1,057.9	32.59	33.459		
7,400.0	6,913.6	7,675.0	7,213.4	20.6	20.0	105.95	-465.2	497.5	1,091.1	1,054.2	36.90	29.568		
7,500.0	6,915.4	7,775.0	7,215.1	22.4	21.9	105.95	-465.2	597.5	1,091.1	1,050.5	40.67	26.829		
7,600.0	6,917.1	7,875.0	7,216.9	24.3	23.9	105.95	-465.2	697.5	1,091.1	1,046.5	44.62	24.453		
7,700.0	6,918.9	7,975.0	7,218.6	26.3	25.9	105.95	-465.2	797.4	1,091.1	1,042.4	48.72	22.397		
7,800.0	6,920.6	8,075.0	7,220.4	28.4	28.1	105.95	-465.2	897.4	1,091.1	1,038.2	52.93	20.616		
7,900.0	6,922.3	8,175.0	7,222.1	30.5	30.2	105.95	-465.2	997.4	1,091.1	1,033.9	57.22	19.069		
8,000.0	6,924.1	8,275.0	7,223.9	32.8	32.5	105.95	-465.2	1,097.4	1,091.1	1,029.6	61.58	17.718		
8,100.0	6,925.8	8,375.0	7,225.6	35.0	34.7	105.95	-465.2	1,197.4	1,091.1	1,025.1	66.00	16.532		
8,200.0	6,927.6	8,475.0	7,227.3	37.3	37.0	105.95	-465.2	1,297.4	1,091.1	1,020.7	70.46	15.485		
8,300.0	6,929.3	8,575.0	7,229.1	39.6	39.3	105.95	-465.2	1,397.4	1,091.1	1,016.2	74.96	14.556		
8,400.0	6,931.1	8,675.0	7,230.8	41.9	41.7	105.95	-465.2	1,497.3	1,091.1	1,011.6	79.49	13.727		
8,500.0	6,932.8	8,775.0	7,232.6	44.2	44.0	105.95	-465.2	1,597.3	1,091.1	1,007.1	84.04	12.983		
8,600.0	6,934.6	8,875.0	7,234.3	46.6	46.4	105.95	-465.2	1,697.3	1,091.1	1,002.5	88.62	12.313		
8,700.0	6,936.3	8,975.0	7,236.1	48.9	48.7	105.95	-465.2	1,797.3	1,091.1	997.9	93.21	11.706		
8,800.0	6,938.1	9,075.0	7,237.8	51.3	51.1	105.95	-465.2	1,897.3	1,091.1	993.3	97.82	11.154		
8,900.0	6,939.8	9,175.0	7,239.6	53.7	53.5	105.95	-465.2	1,997.3	1,091.1	988.7	102.45	10.651		
9,000.0	6,941.5	9,275.0	7,241.3	56.1	55.9	105.95	-465.2	2,097.2	1,091.1	984.1	107.08	10.190		
9,100.0	6,943.3	9,375.0	7,243.0	58.5	58.3	105.95	-465.2	2,197.2	1,091.1	979.4	111.73	9.766		
9,200.0	6,945.0	9,475.0	7,244.8	60.9	60.7	105.95	-465.2	2,297.2	1,091.1	974.8	116.38	9.375		
9,300.0	6,946.8	9,575.0	7,246.5	63.3	63.1	105.95	-465.2	2,397.2	1,091.1	970.1	121.04	9.014		
9,400.0	6,948.5	9,675.0	7,248.3	65.7	65.5	105.95	-465.2	2,497.2	1,091.1	965.4	125.71	8.679		
9,500.0	6,950.3	9,775.0	7,250.0	68.1	68.0	105.95	-465.2	2,597.2	1,091.1	960.7	130.39	8.368		
9,600.0	6,952.0	9,875.0	7,251.8	70.5	70.4	105.95	-465.2	2,697.2	1,091.1	956.1	135.07	8.078		
9,700.0	6,953.8	9,975.0	7,253.5	73.0	72.8	105.95	-465.2	2,797.1	1,091.1	951.4	139.76	7.807		
9,800.0	6,955.5	10,075.0	7,255.3	75.4	75.2	105.95	-465.2	2,897.1	1,091.1	946.7	144.45	7.554		
9,900.0	6,957.3	10,175.0	7,257.0	77.8	77.7	105.95	-465.2	2,997.1	1,091.1	942.0	149.15	7.316		
10,000.0	6,959.0	10,275.0	7,258.8	80.2	80.1	105.95	-465.2	3,097.1	1,091.1	937.3	153.85	7.092		
10,100.0	6,960.7	10,375.0	7,260.5	82.7	82.6	105.95	-465.2	3,197.1	1,091.1	932.6	158.55	6.882		
10,200.0	6,962.5	10,475.0	7,262.2	85.1	85.0	105.95	-465.2	3,297.1	1,091.1	927.9	163.26	6.683		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2F-18H - 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 (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	
10,300.0	6,964.2	10,575.0	7,264.0	87.6	87.4	105.95	-465.2	3,397.0	1,091.1	923.2	167.97	6.496		
10,400.0	6,966.0	10,675.0	7,265.7	90.0	89.9	105.95	-465.2	3,497.0	1,091.1	918.5	172.68	6.319		
10,500.0	6,967.7	10,775.0	7,267.5	92.4	92.3	105.95	-465.2	3,597.0	1,091.1	913.7	177.40	6.151		
10,600.0	6,969.5	10,875.0	7,269.2	94.9	94.8	105.95	-465.2	3,697.0	1,091.1	909.0	182.11	5.992		
10,700.0	6,971.2	10,975.0	7,271.0	97.3	97.2	105.95	-465.2	3,797.0	1,091.1	904.3	186.83	5.840		
10,800.0	6,973.0	11,075.0	7,272.7	99.8	99.7	105.95	-465.2	3,897.0	1,091.1	899.6	191.55	5.696		
10,900.0	6,974.7	11,175.0	7,274.5	102.2	102.1	105.95	-465.2	3,997.0	1,091.1	894.9	196.28	5.559		
11,000.0	6,976.5	11,275.0	7,276.2	104.7	104.6	105.95	-465.2	4,096.9	1,091.1	890.1	201.00	5.429		
11,100.0	6,978.2	11,375.0	7,278.0	107.1	107.0	105.95	-465.2	4,196.9	1,091.1	885.4	205.73	5.304		
11,200.0	6,979.9	11,475.0	7,279.7	109.6	109.5	105.95	-465.2	4,296.9	1,091.1	880.7	210.45	5.185		
11,300.0	6,981.7	11,575.0	7,281.4	112.0	111.9	105.95	-465.2	4,396.9	1,091.1	876.0	215.18	5.071		
11,400.0	6,983.4	11,675.0	7,283.2	114.5	114.4	105.95	-465.2	4,496.9	1,091.1	871.2	219.91	4.962		
11,500.0	6,985.2	11,775.0	7,284.9	117.0	116.9	105.95	-465.2	4,596.9	1,091.1	866.5	224.64	4.857		
11,600.0	6,986.9	11,875.0	7,286.7	119.4	119.3	105.95	-465.2	4,696.8	1,091.1	861.8	229.38	4.757		
11,700.0	6,988.7	11,975.0	7,288.4	121.9	121.8	105.95	-465.2	4,796.8	1,091.1	857.0	234.11	4.661		
11,800.0	6,990.4	12,075.0	7,290.2	124.3	124.2	105.95	-465.2	4,896.8	1,091.1	852.3	238.85	4.568		
11,900.0	6,992.2	12,175.0	7,291.9	126.8	126.7	105.95	-465.2	4,996.8	1,091.1	847.6	243.58	4.480		
12,000.0	6,993.9	12,275.0	7,293.7	129.2	129.1	105.95	-465.2	5,096.8	1,091.1	842.8	248.32	4.394		
12,100.0	6,995.6	12,375.0	7,295.4	131.7	131.6	105.95	-465.2	5,196.8	1,091.1	838.1	253.05	4.312		
12,200.0	6,997.4	12,475.0	7,297.2	134.2	134.1	105.95	-465.2	5,296.8	1,091.1	833.3	257.79	4.233		
12,300.0	6,999.1	12,575.0	7,298.9	136.6	136.5	105.95	-465.2	5,396.7	1,091.1	828.6	262.53	4.156		
12,400.0	7,000.9	12,675.0	7,300.6	139.1	139.0	105.95	-465.2	5,496.7	1,091.1	823.9	267.27	4.083		
12,500.0	7,002.6	12,775.0	7,302.4	141.5	141.4	105.95	-465.2	5,596.7	1,091.1	819.1	272.01	4.011		
12,600.0	7,004.4	12,875.0	7,304.1	144.0	143.9	105.95	-465.2	5,696.7	1,091.1	814.4	276.75	3.943		
12,700.0	7,006.1	12,975.0	7,305.9	146.5	146.4	105.95	-465.2	5,796.7	1,091.1	809.6	281.49	3.876		
12,800.0	7,007.9	13,075.0	7,307.6	148.9	148.8	105.95	-465.2	5,896.7	1,091.1	804.9	286.23	3.812		
12,900.0	7,009.6	13,175.0	7,309.4	151.4	151.3	105.95	-465.2	5,996.7	1,091.1	800.2	290.98	3.750		
13,000.0	7,011.4	13,275.0	7,311.1	153.9	153.8	105.95	-465.2	6,096.6	1,091.1	795.4	295.72	3.690		
13,100.0	7,013.1	13,375.0	7,312.9	156.3	156.2	105.95	-465.2	6,196.6	1,091.1	790.7	300.46	3.632		
13,200.0	7,014.8	13,475.0	7,314.6	158.8	158.7	105.95	-465.2	6,296.6	1,091.1	785.9	305.21	3.575		
13,300.0	7,016.6	13,575.0	7,316.3	161.2	161.2	105.95	-465.2	6,396.6	1,091.1	781.2	309.95	3.520		
13,400.0	7,018.3	13,675.0	7,318.1	163.7	163.6	105.95	-465.2	6,496.6	1,091.1	776.4	314.70	3.467		
13,500.0	7,020.1	13,775.0	7,319.8	166.2	166.1	105.95	-465.2	6,596.6	1,091.1	771.7	319.44	3.416		
13,600.0	7,021.8	13,875.0	7,321.6	168.6	168.6	105.95	-465.2	6,696.5	1,091.1	766.9	324.19	3.366		
13,700.0	7,023.6	13,975.0	7,323.3	171.1	171.0	105.95	-465.2	6,796.5	1,091.1	762.2	328.93	3.317		
13,800.0	7,025.3	14,075.0	7,325.1	173.6	173.5	105.95	-465.2	6,896.5	1,091.1	757.5	333.68	3.270		
13,900.0	7,027.1	14,175.0	7,326.8	176.0	176.0	105.95	-465.2	6,996.5	1,091.1	752.7	338.43	3.224		
14,000.0	7,028.8	14,275.0	7,328.6	178.5	178.4	105.95	-465.2	7,096.5	1,091.1	748.0	343.17	3.180		
14,068.8	7,030.0	14,343.8	7,329.8	180.2	180.1	105.95	-465.2	7,165.3	1,091.1	744.7	346.44	3.150 SF		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2G-18H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-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	0.30	131.949		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-40.1	0.0	40.1	39.4	0.65	61.388		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-40.1	0.0	40.1	39.1	1.00	39.999		
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-40.1	0.0	40.1	38.7	1.35	29.663 CC, ES		
500.0	500.0	499.3	499.3	0.9	0.8	-158.38	-40.9	-0.3	41.7	40.0	1.70	24.554		
600.0	600.0	598.5	598.4	1.0	1.0	-158.60	-43.4	-1.0	46.6	44.6	2.05	22.783		
700.0	699.9	697.3	697.2	1.2	1.2	-158.88	-47.4	-2.3	54.8	52.4	2.39	22.889		
800.0	799.7	795.6	795.3	1.4	1.4	-159.15	-53.1	-4.0	66.2	63.5	2.74	24.150		
900.0	899.4	893.4	892.8	1.6	1.6	-159.38	-60.4	-6.2	80.9	77.8	3.09	26.166		
1,000.0	998.9	990.3	989.3	1.8	1.8	-159.55	-69.1	-8.9	98.8	95.3	3.44	28.695		
1,100.0	1,098.3	1,086.3	1,084.7	2.1	2.0	-159.67	-79.3	-12.1	119.8	116.0	3.79	31.581		
1,200.0	1,197.4	1,181.3	1,178.9	2.3	2.3	-159.76	-90.9	-15.6	144.0	139.9	4.15	34.721		
1,300.0	1,296.3	1,275.1	1,271.7	2.6	2.6	-159.81	-103.8	-19.6	171.3	166.8	4.50	38.039		
1,400.0	1,394.9	1,367.5	1,362.9	2.9	2.8	-159.84	-118.0	-23.9	201.6	196.7	4.86	41.482		
1,500.0	1,493.3	1,460.8	1,454.8	3.3	3.1	-159.87	-133.4	-28.7	234.6	229.4	5.22	44.928		
1,600.0	1,591.2	1,554.6	1,547.2	3.6	3.4	-160.00	-148.9	-33.5	269.2	263.6	5.59	48.175		
1,700.0	1,689.1	1,648.2	1,639.4	4.0	3.7	-160.23	-164.5	-38.2	304.4	298.4	5.97	51.028		
1,800.0	1,787.0	1,741.8	1,731.5	4.4	4.1	-160.42	-180.0	-43.0	339.6	333.3	6.35	53.527		
1,900.0	1,884.8	1,835.4	1,823.7	4.8	4.4	-160.57	-195.5	-47.8	374.9	368.1	6.73	55.733		
2,000.0	1,982.7	1,929.0	1,915.9	5.1	4.7	-160.69	-211.1	-52.5	410.1	403.0	7.11	57.692		
2,100.0	2,080.5	2,022.6	2,008.0	5.5	5.0	-160.80	-226.6	-57.3	445.3	437.8	7.49	59.443		
2,200.0	2,178.4	2,116.1	2,100.2	5.9	5.3	-160.89	-242.1	-62.1	480.5	472.7	7.88	61.016		
2,300.0	2,276.3	2,209.7	2,192.4	6.3	5.6	-160.96	-257.7	-66.9	515.8	507.5	8.26	62.438		
2,400.0	2,374.1	2,303.3	2,284.5	6.7	6.0	-161.03	-273.2	-71.6	551.0	542.3	8.65	63.728		
2,500.0	2,472.0	2,396.9	2,376.7	7.1	6.3	-161.09	-288.8	-76.4	586.2	577.2	9.03	64.905		
2,600.0	2,569.8	2,490.5	2,468.9	7.5	6.6	-161.14	-304.3	-81.2	621.5	612.0	9.42	65.981		
2,700.0	2,667.7	2,584.1	2,561.0	7.9	6.9	-161.19	-319.8	-86.0	656.7	646.9	9.81	66.969		
2,800.0	2,765.6	2,677.7	2,653.2	8.3	7.2	-161.23	-335.4	-90.7	691.9	681.7	10.19	67.880		
2,900.0	2,863.4	2,771.3	2,745.4	8.7	7.6	-161.27	-350.9	-95.5	727.1	716.6	10.58	68.721		
3,000.0	2,961.3	2,864.8	2,837.5	9.1	7.9	-161.30	-366.4	-100.3	762.4	751.4	10.97	69.502		
3,100.0	3,059.1	2,958.4	2,929.7	9.5	8.2	-161.34	-382.0	-105.1	797.6	786.3	11.36	70.227		
3,200.0	3,157.0	3,052.0	3,021.9	9.9	8.5	-161.36	-397.5	-109.8	832.8	821.1	11.75	70.902		
3,300.0	3,254.9	3,145.6	3,114.0	10.2	8.9	-161.39	-413.0	-114.6	868.1	855.9	12.14	71.533		
3,400.0	3,352.7	3,239.2	3,206.2	10.6	9.2	-161.42	-428.6	-119.4	903.3	890.8	12.52	72.124		
3,500.0	3,450.6	3,332.8	3,298.3	11.0	9.5	-161.44	-444.1	-124.2	938.5	925.6	12.91	72.678		
3,600.0	3,548.4	3,426.4	3,390.5	11.4	9.8	-161.46	-459.6	-128.9	973.8	960.5	13.30	73.199		
3,700.0	3,646.3	3,520.0	3,482.7	11.8	10.2	-161.48	-475.2	-133.7	1,009.0	995.3	13.69	73.689		
3,800.0	3,744.2	3,613.7	3,575.0	12.2	10.5	-161.61	-490.7	-138.5	1,043.8	1,029.7	14.11	73.984		
3,900.0	3,842.8	3,708.4	3,668.3	12.5	10.8	-161.77	-506.4	-143.3	1,075.9	1,061.3	14.54	74.006		
4,000.0	3,941.8	3,804.1	3,762.5	12.8	11.1	-161.86	-522.3	-148.2	1,104.8	1,089.8	14.95	73.880		
4,100.0	4,041.3	3,900.7	3,857.7	13.0	11.5	-161.87	-538.4	-153.1	1,130.5	1,115.1	15.35	73.622		
4,200.0	4,141.1	3,998.1	3,953.5	13.2	11.8	-161.81	-554.5	-158.1	1,153.0	1,137.2	15.74	73.247		
4,300.0	4,241.0	4,096.1	4,050.0	13.3	12.2	-161.68	-570.8	-163.1	1,172.2	1,156.1	16.11	72.766		
4,400.0	4,341.0	4,194.5	4,147.0	13.4	12.5	176.85	-587.1	-168.1	1,188.8	1,163.9	24.94	47.667		
4,500.0	4,441.0	4,293.0	4,244.0	13.5	12.8	177.14	-603.5	-173.1	1,205.2	1,179.8	25.37	47.501		
4,600.0	4,541.0	4,391.5	4,340.9	13.6	13.2	177.42	-619.8	-178.2	1,221.5	1,195.7	25.81	47.337		
4,700.0	4,641.0	4,489.9	4,437.9	13.7	13.5	177.69	-636.2	-183.2	1,237.9	1,211.7	26.24	47.175		
4,800.0	4,741.0	4,588.4	4,534.9	13.8	13.9	177.95	-652.5	-188.2	1,254.4	1,227.7	26.68	47.016		
4,900.0	4,841.0	4,686.9	4,631.9	13.9	14.2	178.20	-668.9	-193.2	1,270.8	1,243.7	27.12	46.860		
5,000.0	4,941.0	4,785.4	4,728.9	14.0	14.6	178.45	-685.2	-198.2	1,287.3	1,259.7	27.56	46.706		
5,100.0	5,041.0	4,883.9	4,825.9	14.1	14.9	178.70	-701.6	-203.3	1,303.8	1,275.8	28.01	46.554		

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



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2G-18H - 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	5,141.0	4,982.3	4,922.8	14.3	15.2	178.93	-717.9	-208.3	1,320.3	1,291.8	28.45	46.405		
5,300.0	5,241.0	5,080.8	5,019.8	14.4	15.6	179.17	-734.2	-213.3	1,336.8	1,307.9	28.90	46.258		
5,400.0	5,341.0	5,179.3	5,116.8	14.5	15.9	179.39	-750.6	-218.3	1,353.4	1,324.0	29.35	46.113		
5,500.0	5,441.0	5,277.8	5,213.8	14.6	16.3	179.61	-766.9	-223.4	1,369.9	1,340.1	29.80	45.971		
5,600.0	5,541.0	5,429.7	5,363.8	14.7	16.7	179.91	-790.0	-230.4	1,385.3	1,355.0	30.37	45.610		
5,700.0	5,641.0	5,615.4	5,548.5	14.8	17.2	-179.86	-808.0	-236.0	1,395.1	1,364.2	30.90	45.149		
5,800.0	5,741.0	5,802.8	5,735.7	14.9	17.4	-179.77	-814.6	-238.0	1,398.6	1,367.3	31.27	44.729		
5,900.0	5,841.0	5,908.1	5,841.0	15.1	17.5	-179.77	-814.6	-238.0	1,398.6	1,367.1	31.50	44.398		
6,000.0	5,941.0	6,008.1	5,941.0	15.2	17.6	-179.77	-814.6	-238.0	1,398.6	1,366.9	31.73	44.075		
6,100.0	6,041.0	6,108.1	6,041.0	15.3	17.7	-179.77	-814.6	-238.0	1,398.6	1,366.6	31.96	43.755		
6,200.0	6,141.0	6,208.1	6,141.0	15.4	17.8	-179.77	-814.6	-238.0	1,398.6	1,366.4	32.20	43.436		
6,300.0	6,241.0	6,308.4	6,241.3	15.5	17.9	90.22	-814.6	-236.6	1,398.6	1,375.2	23.36	59.865		
6,391.6	6,331.8	6,400.8	6,332.8	15.6	18.0	90.22	-814.6	-224.9	1,398.6	1,375.1	23.49	59.540		
6,400.0	6,340.1	6,409.2	6,341.1	15.6	18.0	90.22	-814.6	-223.3	1,398.6	1,375.1	23.50	59.521		
6,500.0	6,436.3	6,509.9	6,438.0	15.6	18.0	90.21	-814.6	-196.1	1,398.6	1,375.1	23.52	59.475		
6,600.0	6,527.9	6,610.6	6,530.1	15.6	17.9	90.19	-814.6	-155.6	1,398.6	1,375.1	23.50	59.522		
6,700.0	6,613.1	6,711.2	6,615.6	15.6	18.0	90.18	-814.6	-102.7	1,398.6	1,375.0	23.57	59.344		
6,800.0	6,690.2	6,811.8	6,692.8	15.7	18.0	90.15	-814.6	-38.4	1,398.6	1,374.7	23.90	58.530		
6,900.0	6,757.7	6,912.3	6,760.1	15.8	18.2	90.13	-814.6	36.1	1,398.6	1,373.9	24.67	56.700		
7,000.0	6,814.2	7,012.6	6,816.4	16.2	18.4	90.10	-814.6	119.1	1,398.6	1,372.5	26.04	53.699		
7,100.0	6,858.8	7,112.9	6,860.4	16.8	18.9	90.07	-814.6	209.1	1,398.6	1,370.5	28.12	49.745		
7,200.0	6,890.4	7,213.1	6,891.5	17.7	19.7	90.04	-814.6	304.3	1,398.6	1,367.7	30.86	45.321		
7,300.0	6,908.6	7,313.2	6,908.9	19.0	20.7	90.01	-814.6	402.8	1,398.6	1,364.4	34.17	40.934		
7,400.0	6,913.6	7,413.2	6,913.4	20.6	22.1	89.99	-814.6	502.7	1,398.6	1,360.7	37.87	36.927		
7,500.0	6,915.4	7,513.2	6,915.2	22.4	23.7	89.99	-814.6	602.7	1,398.6	1,356.8	41.84	33.430		
7,600.0	6,917.1	7,613.2	6,916.9	24.3	25.4	89.99	-814.6	702.6	1,398.6	1,352.6	45.99	30.410		
7,700.0	6,918.9	7,713.2	6,918.7	26.3	27.3	89.99	-814.6	802.6	1,398.6	1,348.3	50.29	27.811		
7,800.0	6,920.6	7,813.2	6,920.4	28.4	29.3	89.99	-814.6	902.6	1,398.6	1,343.9	54.70	25.570		
7,900.0	6,922.3	7,913.2	6,922.1	30.5	31.4	89.99	-814.6	1,002.6	1,398.6	1,339.4	59.19	23.629		
8,000.0	6,924.1	8,013.2	6,923.9	32.8	33.5	89.99	-814.6	1,102.6	1,398.6	1,334.9	63.75	21.939		
8,100.0	6,925.8	8,113.2	6,925.6	35.0	35.7	89.99	-814.7	1,202.6	1,398.6	1,330.3	68.37	20.458		
8,200.0	6,927.6	8,213.2	6,927.4	37.3	38.0	89.99	-814.7	1,302.5	1,398.6	1,325.6	73.02	19.153		
8,300.0	6,929.3	8,313.2	6,929.1	39.6	40.2	89.99	-814.7	1,402.5	1,398.6	1,320.9	77.72	17.996		
8,400.0	6,931.1	8,413.2	6,930.9	41.9	42.5	89.99	-814.7	1,502.5	1,398.6	1,316.2	82.44	16.965		
8,500.0	6,932.8	8,513.2	6,932.6	44.2	44.8	89.99	-814.7	1,602.5	1,398.6	1,311.5	87.19	16.041		
8,600.0	6,934.6	8,613.2	6,934.4	46.6	47.1	89.99	-814.7	1,702.5	1,398.7	1,306.7	91.96	15.209		
8,700.0	6,936.3	8,713.2	6,936.1	48.9	49.5	89.99	-814.7	1,802.5	1,398.7	1,301.9	96.75	14.457		
8,800.0	6,938.1	8,813.2	6,937.9	51.3	51.8	89.99	-814.7	1,902.5	1,398.7	1,297.1	101.55	13.773		
8,900.0	6,939.8	8,913.2	6,939.6	53.7	54.2	89.99	-814.7	2,002.4	1,398.7	1,292.3	106.37	13.149		
9,000.0	6,941.5	9,013.2	6,941.3	56.1	56.6	89.99	-814.7	2,102.4	1,398.7	1,287.5	111.20	12.578		
9,100.0	6,943.3	9,113.2	6,943.1	58.5	58.9	89.99	-814.7	2,202.4	1,398.7	1,282.6	116.03	12.054		
9,200.0	6,945.0	9,213.2	6,944.8	60.9	61.3	89.99	-814.7	2,302.4	1,398.7	1,277.8	120.88	11.571		
9,300.0	6,946.8	9,313.2	6,946.6	63.3	63.7	89.99	-814.7	2,402.4	1,398.7	1,272.9	125.74	11.124		
9,400.0	6,948.5	9,413.2	6,948.3	65.7	66.1	89.99	-814.7	2,502.4	1,398.7	1,268.1	130.60	10.710		
9,500.0	6,950.3	9,513.2	6,950.1	68.1	68.5	89.99	-814.7	2,602.3	1,398.7	1,263.2	135.46	10.325		
9,600.0	6,952.0	9,613.2	6,951.8	70.5	70.9	89.99	-814.7	2,702.3	1,398.7	1,258.3	140.34	9.967		
9,700.0	6,953.8	9,713.2	6,953.6	73.0	73.4	89.99	-814.7	2,802.3	1,398.7	1,253.5	145.22	9.632		
9,800.0	6,955.5	9,813.2	6,955.3	75.4	75.8	89.99	-814.7	2,902.3	1,398.7	1,248.6	150.10	9.318		
9,900.0	6,957.3	9,913.2	6,957.1	77.8	78.2	89.99	-814.7	3,002.3	1,398.7	1,243.7	154.99	9.025		
10,000.0	6,959.0	10,013.2	6,958.8	80.2	80.6	89.99	-814.7	3,102.3	1,398.7	1,238.8	159.88	8.749		
10,100.0	6,960.7	10,113.2	6,960.5	82.7	83.1	89.99	-814.8	3,202.3	1,398.7	1,233.9	164.77	8.489		
10,200.0	6,962.5	10,213.2	6,962.3	85.1	85.5	89.99	-814.8	3,302.2	1,398.7	1,229.0	169.67	8.244		

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2G-18H - 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)						
10,300.0	6,964.2	10,313.2	6,964.0	87.6	87.9	89.99	-814.8	3,402.2	1,398.7	1,224.1	174.57	8.012		
10,400.0	6,966.0	10,413.2	6,965.8	90.0	90.4	89.99	-814.8	3,502.2	1,398.7	1,219.2	179.47	7.793		
10,500.0	6,967.7	10,513.2	6,967.5	92.4	92.8	89.99	-814.8	3,602.2	1,398.7	1,214.3	184.38	7.586		
10,600.0	6,969.5	10,613.2	6,969.3	94.9	95.2	89.99	-814.8	3,702.2	1,398.7	1,209.4	189.28	7.390		
10,700.0	6,971.2	10,713.2	6,971.0	97.3	97.7	89.99	-814.8	3,802.2	1,398.7	1,204.5	194.19	7.203		
10,800.0	6,973.0	10,813.2	6,972.8	99.8	100.1	89.99	-814.8	3,902.1	1,398.7	1,199.6	199.11	7.025		
10,900.0	6,974.7	10,913.2	6,974.5	102.2	102.6	89.99	-814.8	4,002.1	1,398.7	1,194.7	204.02	6.856		
11,000.0	6,976.5	11,013.2	6,976.2	104.7	105.0	89.99	-814.8	4,102.1	1,398.7	1,189.8	208.93	6.695		
11,100.0	6,978.2	11,113.2	6,978.0	107.1	107.5	89.99	-814.8	4,202.1	1,398.7	1,184.9	213.85	6.541		
11,200.0	6,979.9	11,213.2	6,979.7	109.6	109.9	89.99	-814.8	4,302.1	1,398.7	1,180.0	218.77	6.394		
11,300.0	6,981.7	11,313.2	6,981.5	112.0	112.4	89.99	-814.8	4,402.1	1,398.8	1,175.1	223.69	6.253		
11,400.0	6,983.4	11,413.2	6,983.2	114.5	114.8	89.99	-814.8	4,502.1	1,398.8	1,170.1	228.61	6.119		
11,500.0	6,985.2	11,513.2	6,985.0	117.0	117.3	89.99	-814.8	4,602.0	1,398.8	1,165.2	233.53	5.990		
11,600.0	6,986.9	11,613.2	6,986.7	119.4	119.7	89.99	-814.8	4,702.0	1,398.8	1,160.3	238.45	5.866		
11,700.0	6,988.7	11,713.2	6,988.5	121.9	122.2	89.99	-814.8	4,802.0	1,398.8	1,155.4	243.37	5.747		
11,800.0	6,990.4	11,813.2	6,990.2	124.3	124.6	89.99	-814.8	4,902.0	1,398.8	1,150.5	248.30	5.633		
11,900.0	6,992.2	11,913.2	6,992.0	126.8	127.1	89.99	-814.8	5,002.0	1,398.8	1,145.5	253.22	5.524		
12,000.0	6,993.9	12,013.2	6,993.7	129.2	129.5	89.99	-814.8	5,102.0	1,398.8	1,140.6	258.15	5.418		
12,100.0	6,995.6	12,113.2	6,995.4	131.7	132.0	89.99	-814.9	5,202.0	1,398.8	1,135.7	263.08	5.317		
12,200.0	6,997.4	12,213.2	6,997.2	134.2	134.4	89.99	-814.9	5,301.9	1,398.8	1,130.8	268.01	5.219		
12,300.0	6,999.1	12,313.2	6,998.9	136.6	136.9	89.99	-814.9	5,401.9	1,398.8	1,125.9	272.93	5.125		
12,400.0	7,000.9	12,413.2	7,000.7	139.1	139.4	89.99	-814.9	5,501.9	1,398.8	1,120.9	277.86	5.034		
12,500.0	7,002.6	12,513.2	7,002.4	141.5	141.8	89.99	-814.9	5,601.9	1,398.8	1,116.0	282.79	4.946		
12,600.0	7,004.4	12,613.2	7,004.2	144.0	144.3	89.99	-814.9	5,701.9	1,398.8	1,111.1	287.72	4.862		
12,700.0	7,006.1	12,713.2	7,005.9	146.5	146.7	89.99	-814.9	5,801.9	1,398.8	1,106.1	292.65	4.780		
12,800.0	7,007.9	12,813.2	7,007.7	148.9	149.2	89.99	-814.9	5,901.8	1,398.8	1,101.2	297.59	4.701		
12,900.0	7,009.6	12,913.2	7,009.4	151.4	151.7	89.99	-814.9	6,001.8	1,398.8	1,096.3	302.52	4.624		
13,000.0	7,011.4	13,013.2	7,011.2	153.9	154.1	89.99	-814.9	6,101.8	1,398.8	1,091.4	307.45	4.550		
13,100.0	7,013.1	13,113.2	7,012.9	156.3	156.6	89.99	-814.9	6,201.8	1,398.8	1,086.4	312.38	4.478		
13,200.0	7,014.8	13,213.2	7,014.6	158.8	159.0	89.99	-814.9	6,301.8	1,398.8	1,081.5	317.32	4.408		
13,300.0	7,016.6	13,313.2	7,016.4	161.2	161.5	89.99	-814.9	6,401.8	1,398.8	1,076.6	322.25	4.341		
13,400.0	7,018.3	13,413.2	7,018.1	163.7	164.0	89.99	-814.9	6,501.8	1,398.8	1,071.6	327.19	4.275		
13,500.0	7,020.1	13,513.2	7,019.9	166.2	166.4	89.99	-814.9	6,601.7	1,398.8	1,066.7	332.12	4.212		
13,600.0	7,021.8	13,613.2	7,021.6	168.6	168.9	89.99	-814.9	6,701.7	1,398.8	1,061.8	337.06	4.150		
13,700.0	7,023.6	13,713.2	7,023.4	171.1	171.4	89.99	-814.9	6,801.7	1,398.8	1,056.8	341.99	4.090		
13,800.0	7,025.3	13,813.2	7,025.1	173.6	173.8	89.99	-814.9	6,901.7	1,398.8	1,051.9	346.93	4.032		
13,900.0	7,027.1	13,913.2	7,026.9	176.0	176.3	89.99	-814.9	7,001.7	1,398.8	1,047.0	351.86	3.976		
14,000.0	7,028.8	14,013.2	7,028.6	178.5	178.7	89.99	-814.9	7,101.7	1,398.9	1,042.0	356.80	3.921		
14,068.8	7,030.0	14,082.0	7,029.8	180.2	180.4	89.99	-814.9	7,170.5	1,398.9	1,038.7	360.20	3.884 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 2H-18H - Hz - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-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	167.936				
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-51.0	0.0	51.0	50.3	0.65	78.131	CC, ES			
300.0	300.0	299.1	299.1	0.5	0.5	-179.80	-51.8	-0.2	51.8	50.8	1.00	51.829				
400.0	400.0	398.2	398.2	0.7	0.7	-179.24	-54.4	-0.7	54.4	53.0	1.35	40.348				
500.0	500.0	497.1	497.0	0.9	0.9	-157.01	-58.5	-1.6	59.4	57.7	1.70	35.054				
600.0	600.0	595.7	595.4	1.0	1.1	-156.88	-64.4	-2.9	67.8	65.7	2.04	33.178	SF			
700.0	699.9	693.8	693.2	1.2	1.3	-157.02	-71.8	-4.5	79.4	77.0	2.39	33.219				
800.0	799.7	791.2	790.2	1.4	1.5	-157.32	-80.8	-6.4	94.2	91.5	2.74	34.436				
900.0	899.4	887.8	886.2	1.6	1.7	-157.67	-91.3	-8.7	112.3	109.3	3.08	36.423				
1,000.0	998.9	983.5	981.1	1.8	2.0	-158.03	-103.3	-11.3	133.6	130.2	3.43	38.934				
1,100.0	1,098.3	1,078.1	1,074.7	2.1	2.3	-158.36	-116.7	-14.1	158.1	154.3	3.78	41.813				
1,200.0	1,197.4	1,171.5	1,166.9	2.3	2.6	-158.65	-131.3	-17.3	185.7	181.6	4.13	44.954				
1,300.0	1,296.3	1,263.6	1,257.5	2.6	2.9	-158.91	-147.2	-20.7	216.3	211.9	4.48	48.284				
1,400.0	1,394.9	1,354.1	1,346.3	2.9	3.2	-159.12	-164.2	-24.4	250.0	245.2	4.83	51.748				
1,500.0	1,493.3	1,443.1	1,433.4	3.3	3.6	-159.29	-182.3	-28.3	286.6	281.5	5.18	55.307				
1,600.0	1,591.2	1,530.4	1,518.5	3.6	3.9	-159.45	-201.3	-32.4	326.2	320.6	5.54	58.916				
1,700.0	1,689.1	1,616.4	1,602.0	4.0	4.3	-159.65	-221.3	-36.7	367.6	361.7	5.90	62.305				
1,800.0	1,787.0	1,701.2	1,684.1	4.4	4.7	-159.77	-242.2	-41.2	410.3	404.1	6.26	65.502				
1,900.0	1,884.8	1,791.0	1,770.8	4.8	5.1	-159.84	-265.0	-46.1	453.8	447.2	6.64	68.345				
2,000.0	1,982.7	1,881.0	1,857.8	5.1	5.5	-159.90	-287.8	-51.0	497.3	490.2	7.02	70.863				
2,100.0	2,080.5	1,971.1	1,944.7	5.5	5.9	-159.96	-310.7	-56.0	540.7	533.3	7.40	73.112				
2,200.0	2,178.4	2,061.2	2,031.7	5.9	6.4	-160.00	-333.6	-60.9	584.2	576.4	7.78	75.132				
2,300.0	2,276.3	2,151.2	2,118.7	6.3	6.8	-160.04	-356.4	-65.8	627.6	619.5	8.16	76.955				
2,400.0	2,374.1	2,241.3	2,205.6	6.7	7.2	-160.07	-379.3	-70.7	671.1	662.6	8.54	78.608				
2,500.0	2,472.0	2,331.4	2,292.6	7.1	7.7	-160.10	-402.2	-75.7	714.6	705.6	8.92	80.114				
2,600.0	2,569.8	2,421.4	2,379.6	7.5	8.1	-160.12	-425.0	-80.6	758.0	748.7	9.30	81.490				
2,700.0	2,667.7	2,511.5	2,466.5	7.9	8.5	-160.15	-447.9	-85.5	801.5	791.8	9.69	82.753				
2,800.0	2,765.6	2,601.5	2,553.5	8.3	9.0	-160.17	-470.8	-90.5	844.9	834.9	10.07	83.916				
2,900.0	2,863.4	2,691.6	2,640.5	8.7	9.4	-160.19	-493.7	-95.4	888.4	878.0	10.45	84.990				
3,000.0	2,961.3	2,781.7	2,727.4	9.1	9.8	-160.20	-516.5	-100.3	931.9	921.0	10.84	85.985				
3,100.0	3,059.1	2,871.7	2,814.4	9.5	10.3	-160.22	-539.4	-105.2	975.3	964.1	11.22	86.909				
3,200.0	3,157.0	2,961.8	2,901.4	9.9	10.7	-160.23	-562.3	-110.2	1,018.8	1,007.2	11.61	87.769				
3,300.0	3,254.9	3,051.8	2,988.4	10.2	11.1	-160.24	-585.1	-115.1	1,062.3	1,050.3	11.99	88.572				
3,400.0	3,352.7	3,141.9	3,075.3	10.6	11.6	-160.26	-608.0	-120.0	1,105.7	1,093.3	12.38	89.324				
3,500.0	3,450.6	3,232.0	3,162.3	11.0	12.0	-160.27	-630.9	-125.0	1,149.2	1,136.4	12.76	90.028				
3,600.0	3,548.4	3,322.0	3,249.3	11.4	12.4	-160.28	-653.7	-129.9	1,192.6	1,179.5	13.15	90.689				
3,700.0	3,646.3	3,412.1	3,336.2	11.8	12.9	-160.29	-676.6	-134.8	1,236.1	1,222.6	13.54	91.312				
3,800.0	3,744.2	3,502.3	3,423.4	12.2	13.3	-160.45	-699.5	-139.8	1,279.2	1,265.2	13.96	91.648				
3,900.0	3,842.8	3,593.8	3,511.7	12.5	13.7	-160.70	-722.8	-144.8	1,319.6	1,305.2	14.40	91.659				
4,000.0	3,941.8	3,686.5	3,601.2	12.8	14.2	-160.86	-746.3	-149.8	1,357.0	1,342.1	14.82	91.553				
4,100.0	4,041.3	3,780.4	3,691.9	13.0	14.6	-160.96	-770.1	-155.0	1,391.3	1,376.0	15.23	91.344				
4,200.0	4,141.1	3,875.3	3,783.5	13.2	15.1	-160.99	-794.2	-160.2	1,422.5	1,406.9	15.62	91.047				
4,300.0	4,241.0	3,971.1	3,876.1	13.3	15.6	-160.95	-818.6	-165.4	1,450.6	1,434.6	16.00	90.675				
4,400.0	4,341.0	4,067.6	3,969.3	13.4	16.0	177.52	-843.1	-170.7	1,476.0	1,447.5	28.52	51.748				
4,500.0	4,441.0	4,164.2	4,062.5	13.5	16.5	177.77	-867.6	-176.0	1,501.2	1,472.1	29.08	51.617				
4,600.0	4,541.0	4,260.7	4,155.8	13.6	17.0	178.01	-892.1	-181.3	1,526.4	1,496.8	29.65	51.488				
4,700.0	4,641.0	4,357.3	4,249.0	13.7	17.4	178.25	-916.6	-186.5	1,551.7	1,521.5	30.21	51.361				
4,800.0	4,741.0	4,453.9	4,342.3	13.8	17.9	178.47	-941.2	-191.8	1,577.0	1,546.2	30.78	51.236				
4,900.0	4,841.0	4,550.4	4,435.5	13.9	18.4	178.69	-965.7	-197.1	1,602.3	1,570.9	31.35	51.113				

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

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Billings 2C-18H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T3N-R68W (Billings)	<b>MD Reference:</b>	WELL @ 5210.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Billings 2C-18H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5210.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Billings 2C-18H  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.29°

