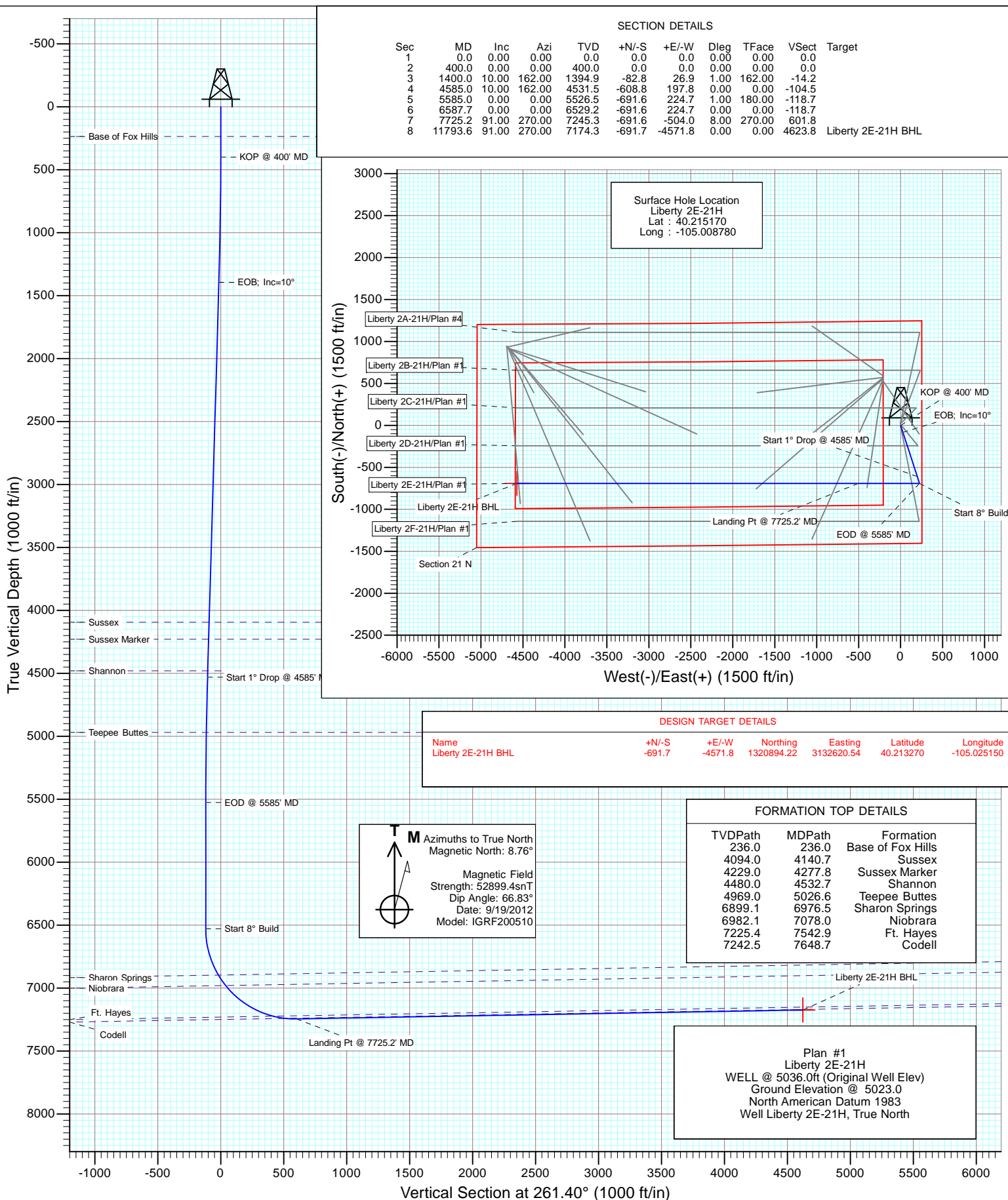




Project: DJ Wattenberg  
Site: NENE S20-T3N-R68W (Liberty 2A-21H)  
Well: Liberty 2E-21H  
Wellbore: HZ  
Design: Plan #1



## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Liberty 2E-21H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2E-21H	<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		NENE S20-T3N-R68W (Liberty 2A-21H)			
Site Position:		Northing:	1,322,254.59 ft	Latitude:	40.216940
From:	Lat/Long	Easting:	3,136,925.14 ft	Longitude:	-105.009710
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.32 °

Well	Liberty 2E-21H					
Well Position	+N/-S	0.0 ft	Northing:	1,321,611.24 ft	Latitude:	40.215170
	+E/-W	0.0 ft	Easting:	3,137,188.42 ft	Longitude:	-105.008780
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,023.0 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	9/19/2012	8.76	66.83	52,899

<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	261.40

<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	
1,400.0	10.00	162.00	1,394.9	-82.8	26.9	1.00	1.00	0.00	162.00	
4,585.0	10.00	162.00	4,531.5	-608.8	197.8	0.00	0.00	0.00	0.00	
5,585.0	0.00	0.00	5,526.5	-691.6	224.7	1.00	-1.00	0.00	180.00	
6,587.7	0.00	0.00	6,529.2	-691.6	224.7	0.00	0.00	0.00	0.00	
7,725.2	91.00	270.00	7,245.3	-691.6	-504.0	8.00	8.00	0.00	270.00	
11,793.6	91.00	270.00	7,174.3	-691.7	-4,571.8	0.00	0.00	0.00	0.00	Liberty 2E-21H BHL

# Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Liberty 2E-21H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2E-21H	<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	
236.0	0.00	0.00	236.0	0.0	0.0	0.0	0.00	0.00	Base of Fox Hills
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	162.00	500.0	-0.8	0.3	-0.1	1.00	1.00	
600.0	2.00	162.00	600.0	-3.3	1.1	-0.6	1.00	1.00	
700.0	3.00	162.00	699.9	-7.5	2.4	-1.3	1.00	1.00	
800.0	4.00	162.00	799.7	-13.3	4.3	-2.3	1.00	1.00	
900.0	5.00	162.00	899.4	-20.7	6.7	-3.6	1.00	1.00	
1,000.0	6.00	162.00	998.9	-29.9	9.7	-5.1	1.00	1.00	
1,100.0	7.00	162.00	1,098.3	-40.6	13.2	-7.0	1.00	1.00	
1,200.0	8.00	162.00	1,197.4	-53.0	17.2	-9.1	1.00	1.00	
1,300.0	9.00	162.00	1,296.3	-67.1	21.8	-11.5	1.00	1.00	
1,400.0	10.00	162.00	1,394.9	-82.8	26.9	-14.2	1.00	1.00	EOB; Inc=10°
1,500.0	10.00	162.00	1,493.4	-99.3	32.3	-17.0	0.00	0.00	
1,600.0	10.00	162.00	1,591.9	-115.8	37.6	-19.9	0.00	0.00	
1,700.0	10.00	162.00	1,690.4	-132.3	43.0	-22.7	0.00	0.00	
1,800.0	10.00	162.00	1,788.9	-148.8	48.4	-25.5	0.00	0.00	
1,900.0	10.00	162.00	1,887.3	-165.4	53.7	-28.4	0.00	0.00	
2,000.0	10.00	162.00	1,985.8	-181.9	59.1	-31.2	0.00	0.00	
2,100.0	10.00	162.00	2,084.3	-198.4	64.5	-34.1	0.00	0.00	
2,200.0	10.00	162.00	2,182.8	-214.9	69.8	-36.9	0.00	0.00	
2,300.0	10.00	162.00	2,281.3	-231.4	75.2	-39.7	0.00	0.00	
2,400.0	10.00	162.00	2,379.7	-247.9	80.6	-42.6	0.00	0.00	
2,500.0	10.00	162.00	2,478.2	-264.4	85.9	-45.4	0.00	0.00	
2,600.0	10.00	162.00	2,576.7	-281.0	91.3	-48.2	0.00	0.00	
2,700.0	10.00	162.00	2,675.2	-297.5	96.7	-51.1	0.00	0.00	
2,800.0	10.00	162.00	2,773.7	-314.0	102.0	-53.9	0.00	0.00	
2,900.0	10.00	162.00	2,872.1	-330.5	107.4	-56.7	0.00	0.00	
3,000.0	10.00	162.00	2,970.6	-347.0	112.8	-59.6	0.00	0.00	
3,100.0	10.00	162.00	3,069.1	-363.5	118.1	-62.4	0.00	0.00	
3,200.0	10.00	162.00	3,167.6	-380.1	123.5	-65.2	0.00	0.00	
3,300.0	10.00	162.00	3,266.1	-396.6	128.9	-68.1	0.00	0.00	
3,400.0	10.00	162.00	3,364.5	-413.1	134.2	-70.9	0.00	0.00	
3,500.0	10.00	162.00	3,463.0	-429.6	139.6	-73.7	0.00	0.00	
3,600.0	10.00	162.00	3,561.5	-446.1	145.0	-76.6	0.00	0.00	
3,700.0	10.00	162.00	3,660.0	-462.6	150.3	-79.4	0.00	0.00	
3,800.0	10.00	162.00	3,758.5	-479.1	155.7	-82.2	0.00	0.00	
3,900.0	10.00	162.00	3,857.0	-495.7	161.0	-85.1	0.00	0.00	
4,000.0	10.00	162.00	3,955.4	-512.2	166.4	-87.9	0.00	0.00	
4,100.0	10.00	162.00	4,053.9	-528.7	171.8	-90.8	0.00	0.00	
4,140.7	10.00	162.00	4,094.0	-535.4	174.0	-91.9	0.00	0.00	Sussex
4,200.0	10.00	162.00	4,152.4	-545.2	177.1	-93.6	0.00	0.00	
4,277.8	10.00	162.00	4,229.0	-558.0	181.3	-95.8	0.00	0.00	Sussex Marker
4,300.0	10.00	162.00	4,250.9	-561.7	182.5	-96.4	0.00	0.00	
4,400.0	10.00	162.00	4,349.4	-578.2	187.9	-99.3	0.00	0.00	
4,500.0	10.00	162.00	4,447.8	-594.7	193.2	-102.1	0.00	0.00	
4,532.7	10.00	162.00	4,480.0	-600.1	195.0	-103.0	0.00	0.00	Shannon
4,585.0	10.00	162.00	4,531.5	-608.8	197.8	-104.5	0.00	0.00	Start 1° Drop @ 4585' MD
4,600.0	9.85	162.00	4,546.3	-611.2	198.6	-104.9	1.00	-1.00	

# Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Liberty 2E-21H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2E-21H	<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
4,700.0	8.85	162.00	4,645.0	-626.7	203.6	-107.6	1.00	-1.00	
4,800.0	7.85	162.00	4,743.9	-640.5	208.1	-109.9	1.00	-1.00	
4,900.0	6.85	162.00	4,843.1	-652.7	212.1	-112.0	1.00	-1.00	
5,000.0	5.85	162.00	4,942.5	-663.2	215.5	-113.8	1.00	-1.00	
5,026.6	5.58	162.00	4,969.0	-665.7	216.3	-114.3	1.00	-1.00	Teepee Buttes
5,100.0	4.85	162.00	5,042.1	-672.1	218.4	-115.4	1.00	-1.00	
5,200.0	3.85	162.00	5,141.8	-679.3	220.7	-116.6	1.00	-1.00	
5,300.0	2.85	162.00	5,241.6	-684.8	222.5	-117.6	1.00	-1.00	
5,400.0	1.85	162.00	5,341.5	-688.7	223.8	-118.2	1.00	-1.00	
5,500.0	0.85	162.00	5,441.5	-691.0	224.5	-118.6	1.00	-1.00	
5,585.0	0.00	0.00	5,526.5	-691.6	224.7	-118.7	1.00	-1.00	EOD @ 5585' MD
5,600.0	0.00	0.00	5,541.5	-691.6	224.7	-118.7	0.00	0.00	
5,700.0	0.00	0.00	5,641.5	-691.6	224.7	-118.7	0.00	0.00	
5,800.0	0.00	0.00	5,741.5	-691.6	224.7	-118.7	0.00	0.00	
5,900.0	0.00	0.00	5,841.5	-691.6	224.7	-118.7	0.00	0.00	
6,000.0	0.00	0.00	5,941.5	-691.6	224.7	-118.7	0.00	0.00	
6,100.0	0.00	0.00	6,041.5	-691.6	224.7	-118.7	0.00	0.00	
6,200.0	0.00	0.00	6,141.5	-691.6	224.7	-118.7	0.00	0.00	
6,300.0	0.00	0.00	6,241.5	-691.6	224.7	-118.7	0.00	0.00	
6,400.0	0.00	0.00	6,341.5	-691.6	224.7	-118.7	0.00	0.00	
6,500.0	0.00	0.00	6,441.5	-691.6	224.7	-118.7	0.00	0.00	
6,587.7	0.00	0.00	6,529.2	-691.6	224.7	-118.7	0.00	0.00	Start 8° Build
6,600.0	0.98	270.00	6,541.5	-691.6	224.6	-118.6	8.00	8.00	
6,700.0	8.98	270.00	6,641.0	-691.6	215.9	-110.0	8.00	8.00	
6,800.0	16.98	270.00	6,738.4	-691.6	193.5	-87.8	8.00	8.00	
6,900.0	24.98	270.00	6,831.7	-691.6	157.7	-52.5	8.00	8.00	
6,976.5	31.10	270.00	6,899.1	-691.6	121.8	-16.9	8.00	8.00	Sharon Springs
7,000.0	32.98	270.00	6,919.1	-691.6	109.3	-4.6	8.00	8.00	
7,078.0	39.23	270.00	6,982.1	-691.6	63.3	40.9	8.00	8.00	Niobrara
7,100.0	40.98	270.00	6,998.9	-691.6	49.2	54.8	8.00	8.00	
7,200.0	48.98	270.00	7,069.6	-691.6	-21.5	124.7	8.00	8.00	
7,300.0	56.98	270.00	7,129.7	-691.6	-101.2	203.6	8.00	8.00	
7,400.0	64.98	270.00	7,178.2	-691.6	-188.6	289.9	8.00	8.00	
7,500.0	72.98	270.00	7,214.0	-691.6	-281.9	382.2	8.00	8.00	
7,542.9	76.41	270.00	7,225.4	-691.6	-323.2	423.1	8.00	8.00	Ft. Hayes
7,600.0	80.98	270.00	7,236.5	-691.6	-379.2	478.4	8.00	8.00	
7,648.7	84.87	270.00	7,242.5	-691.6	-427.5	526.2	8.00	8.00	Codell
7,700.0	88.98	270.00	7,245.3	-691.6	-478.8	576.8	8.00	8.00	
7,725.2	91.00	270.00	7,245.3	-691.6	-504.0	601.8	8.00	8.00	Landing Pt @ 7725.2' MD
7,800.0	91.00	270.00	7,244.0	-691.6	-578.7	675.7	0.00	0.00	
7,900.0	91.00	270.00	7,242.2	-691.6	-678.7	774.6	0.00	0.00	
8,000.0	91.00	270.00	7,240.5	-691.6	-778.7	873.4	0.00	0.00	
8,100.0	91.00	270.00	7,238.8	-691.6	-878.7	972.3	0.00	0.00	
8,200.0	91.00	270.00	7,237.0	-691.6	-978.7	1,071.1	0.00	0.00	
8,300.0	91.00	270.00	7,235.3	-691.6	-1,078.7	1,170.0	0.00	0.00	
8,400.0	91.00	270.00	7,233.5	-691.6	-1,178.7	1,268.9	0.00	0.00	
8,500.0	91.00	270.00	7,231.8	-691.6	-1,278.6	1,367.7	0.00	0.00	
8,600.0	91.00	270.00	7,230.0	-691.6	-1,378.6	1,466.6	0.00	0.00	
8,700.0	91.00	270.00	7,228.3	-691.6	-1,478.6	1,565.4	0.00	0.00	
8,800.0	91.00	270.00	7,226.5	-691.6	-1,578.6	1,664.3	0.00	0.00	
8,900.0	91.00	270.00	7,224.8	-691.6	-1,678.6	1,763.2	0.00	0.00	
9,000.0	91.00	270.00	7,223.0	-691.6	-1,778.6	1,862.0	0.00	0.00	

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Liberty 2E-21H
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<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2E-21H	<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
9,100.0	91.00	270.00	7,221.3	-691.6	-1,878.6	1,960.9	0.00	0.00	
9,200.0	91.00	270.00	7,219.6	-691.6	-1,978.5	2,059.7	0.00	0.00	
9,300.0	91.00	270.00	7,217.8	-691.6	-2,078.5	2,158.6	0.00	0.00	
9,400.0	91.00	270.00	7,216.1	-691.6	-2,178.5	2,257.5	0.00	0.00	
9,500.0	91.00	270.00	7,214.3	-691.6	-2,278.5	2,356.3	0.00	0.00	
9,600.0	91.00	270.00	7,212.6	-691.6	-2,378.5	2,455.2	0.00	0.00	
9,700.0	91.00	270.00	7,210.8	-691.6	-2,478.5	2,554.0	0.00	0.00	
9,800.0	91.00	270.00	7,209.1	-691.7	-2,578.4	2,652.9	0.00	0.00	
9,900.0	91.00	270.00	7,207.3	-691.7	-2,678.4	2,751.8	0.00	0.00	
10,000.0	91.00	270.00	7,205.6	-691.7	-2,778.4	2,850.6	0.00	0.00	
10,100.0	91.00	270.00	7,203.8	-691.7	-2,878.4	2,949.5	0.00	0.00	
10,200.0	91.00	270.00	7,202.1	-691.7	-2,978.4	3,048.3	0.00	0.00	
10,300.0	91.00	270.00	7,200.4	-691.7	-3,078.4	3,147.2	0.00	0.00	
10,400.0	91.00	270.00	7,198.6	-691.7	-3,178.4	3,246.1	0.00	0.00	
10,500.0	91.00	270.00	7,196.9	-691.7	-3,278.3	3,344.9	0.00	0.00	
10,600.0	91.00	270.00	7,195.1	-691.7	-3,378.3	3,443.8	0.00	0.00	
10,700.0	91.00	270.00	7,193.4	-691.7	-3,478.3	3,542.6	0.00	0.00	
10,800.0	91.00	270.00	7,191.6	-691.7	-3,578.3	3,641.5	0.00	0.00	
10,900.0	91.00	270.00	7,189.9	-691.7	-3,678.3	3,740.4	0.00	0.00	
11,000.0	91.00	270.00	7,188.1	-691.7	-3,778.3	3,839.2	0.00	0.00	
11,100.0	91.00	270.00	7,186.4	-691.7	-3,878.2	3,938.1	0.00	0.00	
11,200.0	91.00	270.00	7,184.7	-691.7	-3,978.2	4,036.9	0.00	0.00	
11,300.0	91.00	270.00	7,182.9	-691.7	-4,078.2	4,135.8	0.00	0.00	
11,400.0	91.00	270.00	7,181.2	-691.7	-4,178.2	4,234.7	0.00	0.00	
11,500.0	91.00	270.00	7,179.4	-691.7	-4,278.2	4,333.5	0.00	0.00	
11,600.0	91.00	270.00	7,177.7	-691.7	-4,378.2	4,432.4	0.00	0.00	
11,700.0	91.00	270.00	7,175.9	-691.7	-4,478.2	4,531.2	0.00	0.00	
11,793.6	91.00	270.00	7,174.3	-691.7	-4,571.8	4,623.8	0.00	0.00	TD at 11793.6 - Liberty 2E-21H BHL

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Liberty 2E-21H BHL - plan hits target center - Point	0.00	0.00	7,174.3	-691.7	-4,571.8	1,320,894.22	3,132,620.54	40.213270	-105.025150

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Liberty 2E-21H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2E-21H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
236.0	236.0	Base of Fox Hills				
4,140.7	4,094.0	Sussex				
4,277.8	4,229.0	Sussex Marker				
4,532.7	4,480.0	Shannon				
5,026.6	4,969.0	Teepee Buttes				
6,976.5	6,897.0	Sharon Springs		-1.00	270.00	
7,078.0	6,981.0	Niobrara		-1.00	270.00	
7,542.9	7,231.0	Ft. Hayes		-1.00	270.00	
7,648.7	7,250.0	Codell		-1.00	270.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
400.0	400.0	0.0	0.0	KOP @ 400' MD	
1,400.0	1,394.9	-82.8	26.9	EOB; Inc=10°	
4,585.0	4,531.5	-608.8	197.8	Start 1° Drop @ 4585' MD	
5,585.0	5,526.5	-691.6	224.7	EOD @ 5585' MD	
6,587.7	6,529.2	-691.6	224.7	Start 8° Build	
7,725.2	7,245.3	-691.6	-504.0	Landing Pt @ 7725.2' MD	
11,793.6	7,174.3	-691.7	-4,571.8	TD at 11793.6	

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

**DJ Wattenberg**

**NENE S20-T3N-R68W (Liberty 2A-21H)**

**Liberty 2E-21H**

**HZ**

**Plan #1**

## **Anticollision Report**

**19 September, 2012**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	9/19/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,793.3	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						
NENE S20-T3N-R68W (Liberty 2A-21H)						
Haley 1-20 (Proposed) - DD - Plan #1						Out of range
Haley 31-20 (Proposed) - DD - Plan #1						Out of range
Haley 32-20 (Proposed) - DD - Plan #1						Out of range
Haley 41-20 (Proposed) - DD - Plan #1						Out of range
Haley 42-20 (Proposed) - DD - Plan #1						Out of range
Haley 6-0-20 (Proposed) - DD - Plan #1						Out of range
Haley 6-4-20 (Proposed) - DD - Plan #1						Out of range
Haley 8-2-20 (Proposed) - DD - Plan #1						Out of range
Liberty 11-21 (Proposed) - DD - Plan #1						Out of range
Liberty 12-21 (Proposed) - DD - Plan #1						Out of range
Liberty 2-0-21 (Proposed) - DD - Plan #1						Out of range
Liberty 21-21 (Proposed) - DD - Plan #1						Out of range
Liberty 2-21 (Proposed) - DD - Plan #1						Out of range
Liberty 22-21 (Proposed) - DD - Plan #1	2,161.8	2,276.9	426.7	413.1	31.290	CC
Liberty 22-21 (Proposed) - DD - Plan #1	2,300.0	2,412.9	427.4	412.4	28.487	ES
Liberty 22-21 (Proposed) - DD - Plan #1	3,600.0	3,692.1	497.6	469.6	17.804	SF
Liberty 2-4-21 (Proposed) - DD - Plan #1						Out of range
Liberty 2A-21H - HZ - Plan #4	200.0	200.0	40.1	39.4	61.388	CC, ES
Liberty 2A-21H - HZ - Plan #4	600.0	596.4	57.0	54.9	27.873	SF
Liberty 2B-21H - HZ - Plan #1	300.0	300.0	29.1	28.1	29.090	CC, ES
Liberty 2B-21H - HZ - Plan #1	600.0	598.1	39.8	37.8	19.450	SF
Liberty 2C-21H - HZ - Plan #1	400.0	400.0	21.9	20.5	16.180	CC, ES
Liberty 2C-21H - HZ - Plan #1	600.0	599.3	27.7	25.6	13.502	SF
Liberty 2D-21H - HZ - Plan #1	400.0	400.0	10.9	9.6	8.087	CC
Liberty 2D-21H - HZ - Plan #1	500.0	500.1	11.1	9.4	6.515	ES
Liberty 2D-21H - HZ - Plan #1	11,793.6	11,622.6	460.2	234.6	2.039	SF
Liberty 2F-21H - HZ - Plan #1	233.4	233.4	10.9	10.2	14.208	CC
Liberty 2F-21H - HZ - Plan #1	300.0	299.9	11.1	10.1	11.124	ES
Liberty 2F-21H - HZ - Plan #1	11,793.6	11,755.8	464.4	238.4	2.055	SF
Liberty 4-2-21 (Proposed) - DD - Plan #1	1,366.8	1,458.8	489.9	484.9	96.733	CC
Liberty 4-2-21 (Proposed) - DD - Plan #1	1,400.0	1,492.0	490.0	484.8	94.410	ES
Liberty 4-2-21 (Proposed) - DD - Plan #1	2,500.0	2,590.7	499.5	489.9	51.660	SF

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>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 22-21 (Proposed) - DD - 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)					
1,000.0	998.9	1,135.5	1,119.0	1.8	3.5	167.18	-269.9	25.3	487.7	483.3	4.41	110.522	
1,100.0	1,098.3	1,233.0	1,211.6	2.1	4.1	165.15	-300.1	20.9	474.2	469.2	5.01	94.565	
1,200.0	1,197.4	1,330.8	1,304.5	2.3	4.6	163.06	-330.3	16.4	463.1	457.4	5.65	81.920	
1,300.0	1,296.3	1,428.9	1,397.7	2.6	5.1	160.94	-360.7	11.9	454.2	447.9	6.33	71.799	
1,400.0	1,394.9	1,527.2	1,491.1	2.9	5.7	158.81	-391.1	7.4	447.7	440.7	7.04	63.631	
1,500.0	1,493.4	1,625.6	1,584.5	3.3	6.3	156.65	-421.5	2.9	442.7	434.9	7.79	56.821	
1,600.0	1,591.9	1,724.0	1,678.0	3.6	6.8	154.43	-452.0	-1.6	438.3	429.7	8.58	51.071	
1,700.0	1,690.4	1,822.4	1,771.5	3.9	7.4	152.18	-482.4	-6.1	434.5	425.1	9.41	46.188	
1,800.0	1,788.9	1,920.8	1,864.9	4.2	7.9	149.90	-512.8	-10.6	431.5	421.3	10.27	42.021	
1,900.0	1,887.3	2,019.2	1,958.4	4.6	8.5	147.58	-543.3	-15.2	429.2	418.1	11.16	38.451	
2,000.0	1,985.8	2,117.6	2,051.9	4.9	9.1	145.25	-573.7	-19.7	427.7	415.6	12.09	35.383	
2,100.0	2,084.3	2,216.1	2,145.3	5.3	9.6	142.91	-604.2	-24.2	426.8	413.8	13.04	32.740	
2,161.8	2,145.2	2,276.9	2,203.2	5.5	10.0	141.45	-623.0	-27.0	426.7	413.1	13.64	31.290 CC	
2,200.0	2,182.8	2,314.5	2,238.8	5.6	10.2	140.56	-634.6	-28.7	426.8	412.8	14.01	30.459	
2,300.0	2,281.3	2,412.9	2,332.3	5.9	10.7	138.21	-665.1	-33.2	427.4	412.4	15.00	28.487 ES	
2,400.0	2,379.7	2,511.3	2,425.8	6.3	11.3	135.87	-695.5	-37.7	428.8	412.8	16.01	26.780	
2,500.0	2,478.2	2,609.7	2,519.2	6.6	11.9	133.55	-725.9	-42.2	430.9	413.9	17.03	25.303	
2,600.0	2,576.7	2,708.1	2,612.7	7.0	12.4	131.26	-756.4	-46.7	433.8	415.7	18.06	24.024	
2,700.0	2,675.2	2,806.5	2,706.2	7.3	13.0	129.00	-786.8	-51.2	437.3	418.2	19.08	22.916	
2,800.0	2,773.7	2,904.9	2,799.6	7.7	13.6	126.78	-817.3	-55.7	441.6	421.4	20.11	21.957	
2,900.0	2,872.1	3,003.3	2,893.1	8.0	14.1	124.60	-847.7	-60.2	446.5	425.3	21.13	21.128	
3,000.0	2,970.6	3,101.7	2,986.6	8.4	14.7	122.47	-878.2	-64.7	452.0	429.9	22.15	20.411	
3,100.0	3,069.1	3,200.1	3,080.0	8.7	15.2	120.40	-908.6	-69.2	458.2	435.0	23.15	19.793	
3,200.0	3,167.6	3,298.5	3,173.5	9.0	15.8	118.38	-939.0	-73.7	465.0	440.8	24.14	19.262	
3,300.0	3,266.1	3,396.9	3,267.0	9.4	16.4	116.42	-969.5	-78.2	472.3	447.2	25.12	18.806	
3,400.0	3,364.5	3,495.3	3,360.4	9.7	16.9	114.52	-999.9	-82.8	480.2	454.1	26.08	18.416	
3,500.0	3,463.0	3,593.7	3,453.9	10.1	17.5	112.68	-1,030.4	-87.3	488.6	461.6	27.02	18.084	
3,600.0	3,561.5	3,692.1	3,547.4	10.4	18.1	110.91	-1,060.8	-91.8	497.6	469.6	27.95	17.804 SF	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2A-21H - HZ - Plan #4													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	-604.7	259.7	40.1					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	-604.7	259.7	40.1	39.8	0.30	131.949		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	-604.7	259.7	40.1	39.4	0.65	61.388 CC, ES		
300.0	300.0	299.3	299.3	0.5	0.5	0.25	-603.9	259.9	40.9	39.9	1.00	40.894		
400.0	400.0	398.6	398.5	0.7	0.7	0.94	-601.4	260.4	43.5	42.1	1.35	32.235		
500.0	500.0	497.6	497.5	0.9	0.9	-160.40	-597.2	261.3	48.5	46.8	1.70	28.618		
600.0	600.0	596.4	596.1	1.0	1.1	-160.16	-591.3	262.6	57.0	54.9	2.04	27.873 SF		
700.0	699.9	694.6	694.0	1.2	1.3	-160.21	-583.8	264.2	68.7	66.3	2.39	28.738		
800.0	799.7	792.2	791.2	1.4	1.5	-160.41	-574.8	266.1	83.7	81.0	2.74	30.591		
900.0	899.4	889.0	887.3	1.6	1.7	-160.68	-564.2	268.3	102.0	98.9	3.08	33.091		
1,000.0	998.9	984.8	982.4	1.8	2.0	-160.96	-552.2	270.9	123.5	120.1	3.43	36.033		
1,100.0	1,098.3	1,079.5	1,076.0	2.1	2.3	-161.21	-538.8	273.7	148.3	144.5	3.77	39.287		
1,200.0	1,197.4	1,172.9	1,168.3	2.3	2.6	-161.44	-524.1	276.9	176.1	172.0	4.12	42.764		
1,300.0	1,296.3	1,265.0	1,258.9	2.6	2.9	-161.63	-508.2	280.2	207.1	202.6	4.46	46.402		
1,400.0	1,394.9	1,355.6	1,347.8	2.9	3.2	-161.79	-491.1	283.9	241.1	236.3	4.81	50.158		
1,500.0	1,493.4	1,444.8	1,435.1	3.3	3.6	-161.98	-473.0	287.7	277.4	272.2	5.16	53.753		
1,600.0	1,591.9	1,533.0	1,521.0	3.6	3.9	-162.07	-453.7	291.8	315.0	309.5	5.51	57.142		
1,700.0	1,690.4	1,620.1	1,605.6	3.9	4.3	-162.09	-433.4	296.1	354.0	348.2	5.87	60.359		
1,800.0	1,788.9	1,706.6	1,689.3	4.2	4.7	-162.06	-412.1	300.7	394.4	388.2	6.22	63.425		
1,900.0	1,887.3	1,797.8	1,777.4	4.6	5.1	-162.01	-389.0	305.6	435.3	428.8	6.58	66.153		
2,000.0	1,985.8	1,889.0	1,865.5	4.9	5.6	-161.97	-365.9	310.5	476.3	469.3	6.94	68.587		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2B-21H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	-615.6	259.7	29.1					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	-615.6	259.7	29.1	28.8	0.30	95.963		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	-615.6	259.7	29.1	28.5	0.65	44.646		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	-615.6	259.7	29.1	28.1	1.00	29.090 CC, ES		
400.0	400.0	399.5	399.5	0.7	0.7	0.58	-614.8	260.0	30.0	28.6	1.35	22.191		
500.0	500.0	498.9	498.9	0.9	0.9	-160.38	-612.4	260.9	33.2	31.5	1.70	19.571		
600.0	600.0	598.1	598.0	1.0	1.0	-159.61	-608.4	262.4	39.8	37.8	2.05	19.450 SF		
700.0	699.9	696.9	696.6	1.2	1.2	-159.17	-602.8	264.5	49.7	47.3	2.40	20.727		
800.0	799.7	795.1	794.5	1.4	1.4	-158.96	-595.6	267.2	62.7	60.0	2.74	22.859		
900.0	899.4	892.6	891.6	1.6	1.7	-158.88	-586.9	270.4	79.1	76.0	3.10	25.543		
1,000.0	998.9	989.3	987.6	1.8	1.9	-158.87	-576.8	274.2	98.6	95.1	3.45	28.597		
1,100.0	1,098.3	1,084.9	1,082.5	2.1	2.2	-158.90	-565.3	278.4	121.2	117.4	3.80	31.905		
1,200.0	1,197.4	1,179.4	1,176.0	2.3	2.4	-158.93	-552.5	283.2	147.0	142.9	4.15	35.386		
1,300.0	1,296.3	1,272.7	1,268.0	2.6	2.7	-158.96	-538.4	288.4	175.9	171.3	4.51	38.985		
1,400.0	1,394.9	1,366.8	1,360.7	2.9	3.0	-159.01	-523.2	294.1	207.4	202.5	4.87	42.561		
1,500.0	1,493.4	1,461.4	1,453.9	3.3	3.3	-159.22	-507.8	299.8	239.7	234.5	5.24	45.705		
1,600.0	1,591.9	1,556.0	1,547.1	3.6	3.6	-159.37	-492.4	305.6	272.1	266.4	5.62	48.416		
1,700.0	1,690.4	1,650.6	1,640.2	3.9	4.0	-159.50	-477.0	311.3	304.4	298.4	6.00	50.776		
1,800.0	1,788.9	1,745.3	1,733.4	4.2	4.3	-159.59	-461.6	317.0	336.8	330.4	6.37	52.848		
1,900.0	1,887.3	1,839.9	1,826.6	4.6	4.6	-159.68	-446.2	322.7	369.1	362.4	6.75	54.680		
2,000.0	1,985.8	1,934.5	1,919.8	4.9	4.9	-159.74	-430.8	328.5	401.5	394.3	7.13	56.312		
2,100.0	2,084.3	2,029.1	2,013.0	5.3	5.2	-159.80	-415.4	334.2	433.8	426.3	7.51	57.773		
2,200.0	2,182.8	2,123.7	2,106.2	5.6	5.6	-159.85	-400.0	339.9	466.2	458.3	7.89	59.089		
2,300.0	2,281.3	2,218.4	2,199.3	5.9	5.9	-159.90	-384.6	345.7	498.5	490.2	8.27	60.281		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2C-21H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	-622.9	259.7	21.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	-622.9	259.7	21.9	21.6	0.30	71.972		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	-622.9	259.7	21.9	21.2	0.65	33.484		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	-622.9	259.7	21.9	20.9	1.00	21.817		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	-622.9	259.7	21.9	20.5	1.35	16.180 CC, ES		
500.0	500.0	499.7	499.7	0.9	0.9	-161.15	-622.3	260.3	23.3	21.6	1.70	13.712		
600.0	600.0	599.3	599.2	1.0	1.0	-159.13	-620.5	262.2	27.7	25.6	2.05	13.502 SF		
700.0	699.9	698.6	698.5	1.2	1.2	-156.88	-617.4	265.2	35.0	32.6	2.40	14.569		
800.0	799.7	797.5	797.2	1.4	1.4	-154.95	-613.2	269.5	45.3	42.5	2.76	16.417		
900.0	899.4	895.9	895.3	1.6	1.6	-153.45	-607.8	274.9	58.5	55.4	3.12	18.758		
1,000.0	998.9	994.7	993.7	1.8	1.8	-152.68	-601.7	281.0	74.1	70.6	3.49	21.242		
1,100.0	1,098.3	1,093.2	1,091.8	2.1	2.0	-152.66	-595.6	287.0	91.1	87.3	3.86	23.625		
1,200.0	1,197.4	1,191.4	1,189.7	2.3	2.2	-153.04	-589.6	293.1	109.7	105.5	4.23	25.926		
1,300.0	1,296.3	1,289.4	1,287.3	2.6	2.5	-153.63	-583.5	299.1	129.9	125.3	4.61	28.164		
1,400.0	1,394.9	1,387.0	1,384.5	2.9	2.7	-154.32	-577.5	305.2	151.6	146.6	4.99	30.355		
1,500.0	1,493.4	1,484.4	1,481.5	3.3	2.9	-155.04	-571.5	311.2	174.1	168.7	5.38	32.336		
1,600.0	1,591.9	1,581.8	1,578.6	3.6	3.1	-155.60	-565.5	317.2	196.6	190.8	5.77	34.045		
1,700.0	1,690.4	1,679.2	1,675.6	3.9	3.3	-156.04	-559.5	323.2	219.1	212.9	6.17	35.535		
1,800.0	1,788.9	1,776.7	1,772.7	4.2	3.6	-156.40	-553.5	329.2	241.6	235.1	6.56	36.843		
1,900.0	1,887.3	1,874.1	1,869.7	4.6	3.8	-156.69	-547.5	335.2	264.1	257.2	6.95	38.002		
2,000.0	1,985.8	1,971.5	1,966.8	4.9	4.0	-156.94	-541.5	341.2	286.7	279.3	7.34	39.034		
2,100.0	2,084.3	2,068.9	2,063.8	5.3	4.2	-157.16	-535.5	347.2	309.2	301.5	7.74	39.959		
2,200.0	2,182.8	2,166.3	2,160.9	5.6	4.5	-157.34	-529.5	353.2	331.8	323.7	8.13	40.793		
2,300.0	2,281.3	2,263.8	2,257.9	5.9	4.7	-157.50	-523.5	359.2	354.3	345.8	8.53	41.549		
2,400.0	2,379.7	2,361.2	2,355.0	6.3	4.9	-157.65	-517.5	365.2	376.9	368.0	8.92	42.236		
2,500.0	2,478.2	2,458.6	2,452.0	6.6	5.1	-157.77	-511.5	371.2	399.5	390.1	9.32	42.864		
2,600.0	2,576.7	2,556.0	2,549.1	7.0	5.3	-157.88	-505.5	377.2	422.0	412.3	9.71	43.441		
2,700.0	2,675.2	2,653.4	2,646.1	7.3	5.6	-157.99	-499.5	383.2	444.6	434.5	10.11	43.971		
2,800.0	2,773.7	2,750.9	2,743.2	7.7	5.8	-158.08	-493.5	389.2	467.1	456.6	10.51	44.461		
2,900.0	2,872.1	2,848.3	2,840.2	8.0	6.0	-158.16	-487.4	395.2	489.7	478.8	10.90	44.915		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2D-21H - 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	-633.9	259.7	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	-633.9	259.7	10.9	10.6	0.30	35.972		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	-633.9	259.7	10.9	10.3	0.65	16.736		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	-633.9	259.7	10.9	9.9	1.00	10.905		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	-633.9	259.7	10.9	9.6	1.35	8.087 CC		
500.0	500.0	500.1	500.1	0.9	0.9	-160.55	-634.5	260.3	11.1	9.4	1.70	6.515 ES		
600.0	600.0	600.3	600.2	1.0	1.0	-156.44	-636.6	261.9	11.6	9.5	2.05	5.645		
700.0	699.9	700.4	700.3	1.2	1.2	-150.37	-640.0	264.7	12.5	10.1	2.41	5.204		
800.0	799.7	800.5	800.2	1.4	1.4	-143.38	-644.7	268.5	14.1	11.3	2.78	5.057		
900.0	899.4	900.6	900.0	1.6	1.6	-136.46	-650.9	273.5	16.3	13.1	3.18	5.118		
1,000.0	998.9	1,000.6	999.5	1.8	1.8	-132.72	-657.6	279.0	19.5	15.9	3.60	5.428		
1,100.0	1,098.3	1,100.5	1,099.1	2.1	2.0	-133.24	-664.4	284.4	24.0	20.0	4.02	5.972		
1,200.0	1,197.4	1,200.3	1,198.5	2.3	2.3	-136.01	-671.1	289.9	29.7	25.2	4.43	6.698		
1,300.0	1,296.3	1,300.0	1,297.9	2.6	2.5	-139.70	-677.9	295.4	36.7	31.9	4.84	7.595		
1,400.0	1,394.9	1,399.6	1,397.1	2.9	2.7	-143.53	-684.7	300.8	45.3	40.0	5.23	8.659		
1,500.0	1,493.4	1,499.1	1,496.2	3.3	2.9	-146.68	-691.4	306.3	54.7	49.1	5.62	9.735		
1,600.0	1,591.9	1,598.6	1,595.3	3.6	3.2	-148.90	-698.1	311.8	64.2	58.2	6.01	10.689		
1,700.0	1,690.4	1,698.2	1,694.5	3.9	3.4	-150.55	-704.9	317.2	73.8	67.4	6.40	11.534		
1,800.0	1,788.9	1,797.7	1,793.6	4.2	3.6	-151.82	-711.6	322.7	83.4	76.7	6.79	12.288		
1,900.0	1,887.3	1,897.2	1,892.8	4.6	3.8	-152.82	-718.4	328.1	93.1	85.9	7.18	12.962		
2,000.0	1,985.8	1,996.7	1,991.9	4.9	4.1	-153.64	-725.1	333.6	102.8	95.2	7.58	13.568		
2,100.0	2,084.3	2,096.2	2,091.0	5.3	4.3	-154.31	-731.8	339.1	112.5	104.6	7.97	14.115		
2,200.0	2,182.8	2,195.8	2,190.2	5.6	4.5	-154.88	-738.6	344.5	122.3	113.9	8.37	14.611		
2,300.0	2,281.3	2,295.3	2,289.3	5.9	4.7	-155.36	-745.3	350.0	132.0	123.2	8.76	15.064		
2,400.0	2,379.7	2,394.8	2,388.5	6.3	5.0	-155.78	-752.1	355.4	141.8	132.6	9.16	15.477		
2,500.0	2,478.2	2,494.3	2,487.6	6.6	5.2	-156.14	-758.8	360.9	151.5	141.9	9.55	15.857		
2,600.0	2,576.7	2,593.8	2,586.7	7.0	5.4	-156.46	-765.5	366.3	161.3	151.3	9.95	16.207		
2,700.0	2,675.2	2,693.3	2,685.9	7.3	5.7	-156.74	-772.3	371.8	171.0	160.7	10.35	16.530		
2,800.0	2,773.7	2,792.9	2,785.0	7.7	5.9	-157.00	-779.0	377.3	180.8	170.0	10.74	16.829		
2,900.0	2,872.1	2,892.4	2,884.2	8.0	6.1	-157.22	-785.8	382.7	190.6	179.4	11.14	17.107		
3,000.0	2,970.6	2,991.9	2,983.3	8.4	6.3	-157.43	-792.5	388.2	200.3	188.8	11.54	17.366		
3,100.0	3,069.1	3,091.4	3,082.5	8.7	6.6	-157.61	-799.2	393.6	210.1	198.2	11.93	17.608		
3,200.0	3,167.6	3,190.9	3,181.6	9.0	6.8	-157.78	-806.0	399.1	219.9	207.6	12.33	17.834		
3,300.0	3,266.1	3,290.5	3,280.7	9.4	7.0	-157.94	-812.7	404.6	229.7	216.9	12.73	18.046		
3,400.0	3,364.5	3,390.0	3,379.9	9.7	7.3	-158.08	-819.5	410.0	239.4	226.3	13.12	18.245		
3,500.0	3,463.0	3,489.5	3,479.0	10.1	7.5	-158.21	-826.2	415.5	249.2	235.7	13.52	18.433		
3,600.0	3,561.5	3,589.0	3,578.2	10.4	7.7	-158.33	-832.9	420.9	259.0	245.1	13.92	18.610		
3,700.0	3,660.0	3,688.5	3,677.3	10.8	8.0	-158.44	-839.7	426.4	268.8	254.5	14.31	18.777		
3,800.0	3,758.5	3,788.1	3,776.4	11.1	8.2	-158.55	-846.4	431.8	278.6	263.9	14.71	18.935		
3,900.0	3,857.0	3,887.6	3,875.6	11.5	8.4	-158.64	-853.2	437.3	288.4	273.2	15.11	19.085		
4,000.0	3,955.4	3,987.1	3,974.7	11.8	8.6	-158.74	-859.9	442.8	298.1	282.6	15.51	19.227		
4,100.0	4,053.9	4,086.6	4,073.9	12.2	8.9	-158.82	-866.6	448.2	307.9	292.0	15.90	19.362		
4,200.0	4,152.4	4,184.8	4,171.7	12.5	9.1	-158.91	-873.2	453.5	317.8	301.5	16.30	19.501		
4,300.0	4,250.9	4,280.2	4,266.8	12.9	9.3	-159.14	-878.6	457.9	328.6	312.0	16.66	19.729		
4,400.0	4,349.4	4,375.3	4,361.7	13.2	9.5	-159.53	-882.8	461.3	340.7	323.7	16.99	20.053		
4,500.0	4,447.8	4,470.0	4,456.4	13.6	9.6	-160.06	-885.8	463.7	354.0	336.7	17.30	20.467		
4,600.0	4,546.3	4,564.3	4,550.6	13.9	9.8	-160.72	-887.5	465.1	368.6	351.0	17.58	20.965		
4,700.0	4,645.0	4,658.6	4,645.0	14.2	9.9	-161.47	-888.0	465.5	383.5	365.6	17.86	21.474		
4,800.0	4,743.9	4,757.6	4,743.9	14.5	10.1	-162.18	-888.0	465.5	397.3	379.1	18.14	21.906		
4,900.0	4,843.1	4,856.7	4,843.1	14.8	10.2	-162.76	-888.0	465.5	409.5	391.1	18.42	22.227		
5,000.0	4,942.5	4,956.1	4,942.5	15.0	10.4	-163.24	-888.0	465.5	420.1	401.4	18.72	22.444		
5,100.0	5,042.1	5,055.7	5,042.1	15.3	10.5	-163.62	-888.0	465.5	429.0	410.0	19.02	22.561		

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>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2D-21H - 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)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning			
5,200.0	5,141.8	5,155.4	5,141.8	15.5	10.6	-163.92	-888.0	465.5	436.3	417.0	19.32	22.585				
5,300.0	5,241.6	5,255.2	5,241.6	15.6	10.8	-164.15	-888.0	465.5	441.9	422.3	19.62	22.520				
5,400.0	5,341.5	5,355.1	5,341.5	15.8	10.9	-164.30	-888.0	465.5	445.9	425.9	19.93	22.370				
5,500.0	5,441.5	5,455.1	5,441.5	15.9	11.1	-164.39	-888.0	465.5	448.1	427.9	20.24	22.141				
5,600.0	5,541.5	5,555.1	5,541.5	16.0	11.2	-2.41	-888.0	465.5	448.7	422.4	26.36	17.025				
5,700.0	5,641.5	5,655.1	5,641.5	16.1	11.4	-2.41	-888.0	465.5	448.7	422.1	26.62	16.855				
5,800.0	5,741.5	5,755.1	5,741.5	16.2	11.5	-2.41	-888.0	465.5	448.7	421.8	26.89	16.686				
5,900.0	5,841.5	5,855.1	5,841.5	16.3	11.7	-2.41	-888.0	465.5	448.7	421.6	27.16	16.520				
6,000.0	5,941.5	5,955.1	5,941.5	16.5	11.8	-2.41	-888.0	465.5	448.7	421.3	27.44	16.356				
6,100.0	6,041.5	6,055.1	6,041.5	16.6	12.0	-2.41	-888.0	465.5	448.7	421.0	27.71	16.194				
6,200.0	6,141.5	6,155.1	6,141.5	16.7	12.2	-2.41	-888.0	465.5	448.7	420.8	27.98	16.035				
6,300.0	6,241.5	6,255.1	6,241.5	16.8	12.3	-2.41	-888.0	465.5	448.7	420.5	28.26	15.878				
6,400.0	6,341.5	6,355.1	6,341.5	16.9	12.5	-2.41	-888.0	465.5	448.7	420.2	28.54	15.723				
6,459.5	6,401.0	6,414.7	6,401.0	17.0	12.6	-2.41	-888.0	465.5	448.7	420.0	28.71	15.632				
6,500.0	6,441.5	6,454.7	6,441.0	17.0	12.6	-2.44	-888.0	465.3	448.7	419.9	28.82	15.571				
6,600.0	6,541.5	6,551.1	6,537.0	17.1	12.7	86.44	-888.0	456.5	449.2	425.5	23.72	18.941				
6,700.0	6,641.0	6,645.6	6,629.0	17.2	12.7	84.71	-888.0	435.5	450.3	426.5	23.76	18.954				
6,800.0	6,738.4	6,738.5	6,716.0	17.2	12.8	83.09	-888.0	403.2	451.7	427.9	23.79	18.988				
6,900.0	6,831.7	6,830.0	6,797.0	17.2	12.8	81.61	-888.0	360.6	453.2	429.4	23.88	18.977				
7,000.0	6,919.1	6,920.4	6,871.0	17.2	12.9	80.29	-888.0	308.8	454.9	430.8	24.14	18.846				
7,100.0	6,998.9	7,009.8	6,937.1	17.3	13.0	79.15	-888.0	248.8	456.5	431.9	24.63	18.533				
7,200.0	7,069.6	7,100.0	6,995.8	17.4	13.3	78.20	-888.0	180.3	458.0	432.5	25.49	17.971				
7,300.0	7,129.7	7,186.3	7,043.4	17.7	13.9	77.47	-888.1	108.4	459.3	432.5	26.75	17.167				
7,400.0	7,178.2	7,273.7	7,082.6	18.2	14.8	76.95	-888.1	30.3	460.2	431.7	28.50	16.149				
7,500.0	7,214.0	7,360.9	7,111.8	18.9	15.9	76.65	-888.1	-51.8	460.8	430.1	30.71	15.004				
7,600.0	7,236.5	7,450.0	7,131.2	19.9	17.3	76.57	-888.1	-138.7	460.9	427.5	33.39	13.804				
7,700.0	7,245.3	7,534.9	7,139.5	21.3	18.8	76.71	-888.1	-223.1	460.6	424.3	36.37	12.666				
7,800.0	7,244.0	7,629.0	7,138.9	22.9	20.6	76.81	-888.1	-317.2	460.4	420.5	39.96	11.524				
7,900.0	7,242.2	7,729.0	7,137.2	24.6	22.6	76.81	-888.1	-417.2	460.4	416.5	43.91	10.487				
8,000.0	7,240.5	7,829.0	7,135.4	26.6	24.7	76.81	-888.1	-517.2	460.4	412.4	48.01	9.589				
8,100.0	7,238.8	7,929.0	7,133.7	28.6	26.8	76.81	-888.1	-617.2	460.4	408.2	52.25	8.813				
8,200.0	7,237.0	8,029.0	7,131.9	30.6	29.0	76.81	-888.1	-717.2	460.4	403.9	56.57	8.139				
8,300.0	7,235.3	8,129.0	7,130.2	32.8	31.3	76.81	-888.1	-817.2	460.4	399.4	60.97	7.552				
8,400.0	7,233.5	8,229.0	7,128.5	35.0	33.6	76.81	-888.1	-917.1	460.4	395.0	65.43	7.037				
8,500.0	7,231.8	8,329.0	7,126.7	37.2	35.9	76.81	-888.1	-1,017.1	460.4	390.5	69.93	6.583				
8,600.0	7,230.0	8,429.0	7,125.0	39.5	38.2	76.81	-888.2	-1,117.1	460.4	385.9	74.48	6.182				
8,700.0	7,228.3	8,529.0	7,123.2	41.8	40.5	76.81	-888.2	-1,217.1	460.4	381.3	79.06	5.824				
8,800.0	7,226.5	8,629.0	7,121.5	44.1	42.9	76.81	-888.2	-1,317.1	460.4	376.7	83.66	5.503				
8,900.0	7,224.8	8,729.0	7,119.7	46.4	45.3	76.81	-888.2	-1,417.1	460.4	372.1	88.29	5.215				
9,000.0	7,223.0	8,829.0	7,118.0	48.7	47.6	76.81	-888.2	-1,517.0	460.4	367.4	92.93	4.954				
9,100.0	7,221.3	8,929.0	7,116.2	51.1	50.0	76.81	-888.2	-1,617.0	460.4	362.8	97.60	4.717				
9,200.0	7,219.6	9,029.0	7,114.5	53.4	52.4	76.81	-888.2	-1,717.0	460.4	358.1	102.28	4.501				
9,300.0	7,217.8	9,129.0	7,112.7	55.8	54.8	76.81	-888.2	-1,817.0	460.4	353.4	106.97	4.304				
9,400.0	7,216.1	9,229.0	7,111.0	58.2	57.2	76.81	-888.2	-1,917.0	460.4	348.7	111.67	4.123				
9,500.0	7,214.3	9,329.0	7,109.3	60.6	59.7	76.81	-888.2	-2,017.0	460.4	344.0	116.38	3.956				
9,600.0	7,212.6	9,429.0	7,107.5	63.0	62.1	76.81	-888.2	-2,117.0	460.3	339.3	121.10	3.801				
9,700.0	7,210.8	9,529.0	7,105.8	65.4	64.5	76.81	-888.3	-2,216.9	460.3	334.5	125.82	3.659				
9,800.0	7,209.1	9,629.0	7,104.0	67.8	66.9	76.81	-888.3	-2,316.9	460.3	329.8	130.56	3.526				
9,900.0	7,207.3	9,729.0	7,102.3	70.2	69.4	76.81	-888.3	-2,416.9	460.3	325.0	135.29	3.402				
10,000.0	7,205.6	9,829.0	7,100.5	72.6	71.8	76.81	-888.3	-2,516.9	460.3	320.3	140.04	3.287				
10,100.0	7,203.8	9,929.0	7,098.8	75.0	74.2	76.80	-888.3	-2,616.9	460.3	315.5	144.79	3.179				
10,200.0	7,202.1	10,029.0	7,097.0	77.5	76.7	76.80	-888.3	-2,716.9	460.3	310.8	149.54	3.078				

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>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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													NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2D-21H - Hz - Plan #1		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor					
10,300.0	7,200.4	10,129.0	7,095.3	79.9	79.1	76.80	-888.3	-2,816.9	460.3	306.0	154.30	2.983					
10,400.0	7,198.6	10,229.0	7,093.6	82.3	81.6	76.80	-888.3	-2,916.8	460.3	301.2	159.06	2.894					
10,500.0	7,196.9	10,329.0	7,091.8	84.7	84.0	76.80	-888.3	-3,016.8	460.3	296.5	163.83	2.810					
10,600.0	7,195.1	10,429.0	7,090.1	87.2	86.5	76.80	-888.3	-3,116.8	460.3	291.7	168.59	2.730					
10,700.0	7,193.4	10,529.0	7,088.3	89.6	88.9	76.80	-888.3	-3,216.8	460.3	286.9	173.36	2.655					
10,800.0	7,191.6	10,629.0	7,086.6	92.1	91.3	76.80	-888.3	-3,316.8	460.3	282.1	178.14	2.584					
10,900.0	7,189.9	10,729.0	7,084.8	94.5	93.8	76.80	-888.4	-3,416.8	460.3	277.4	182.91	2.516					
11,000.0	7,188.1	10,829.0	7,083.1	96.9	96.3	76.80	-888.4	-3,516.7	460.3	272.6	187.69	2.452					
11,100.0	7,186.4	10,929.0	7,081.3	99.4	98.7	76.80	-888.4	-3,616.7	460.3	267.8	192.47	2.391					
11,200.0	7,184.7	11,029.0	7,079.6	101.8	101.2	76.80	-888.4	-3,716.7	460.3	263.0	197.25	2.333					
11,300.0	7,182.9	11,129.0	7,077.8	104.3	103.6	76.80	-888.4	-3,816.7	460.3	258.2	202.03	2.278					
11,400.0	7,181.2	11,229.0	7,076.1	106.7	106.1	76.80	-888.4	-3,916.7	460.2	253.4	206.82	2.225					
11,500.0	7,179.4	11,329.0	7,074.4	109.2	108.5	76.80	-888.4	-4,016.7	460.2	248.6	211.60	2.175					
11,600.0	7,177.7	11,429.0	7,072.6	111.6	111.0	76.80	-888.4	-4,116.7	460.2	243.8	216.39	2.127					
11,700.0	7,175.9	11,529.0	7,070.9	114.1	113.4	76.80	-888.4	-4,216.6	460.2	239.1	221.18	2.081					
11,793.6	7,174.3	11,622.6	7,069.2	116.4	115.7	76.80	-888.4	-4,310.3	460.2	234.6	225.67	2.039 SF					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2F-21H - 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	-655.7	259.7	10.9					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-655.7	259.7	10.9	10.6	0.30	35.986		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-655.7	259.7	10.9	10.3	0.65	16.742		
233.4	233.4	233.4	233.4	0.4	0.4	180.00	-655.7	259.7	10.9	10.2	0.77	14.208 CC		
300.0	300.0	299.9	299.9	0.5	0.5	179.79	-655.9	259.8	11.1	10.1	1.00	11.124 ES		
400.0	400.0	399.7	399.7	0.7	0.7	178.34	-657.6	260.1	12.9	11.5	1.35	9.519		
500.0	500.0	499.4	499.3	0.9	0.9	15.15	-661.0	260.8	15.5	13.8	1.70	9.099		
600.0	600.0	599.1	598.9	1.0	1.0	14.96	-666.2	261.7	18.1	16.1	2.05	8.840		
700.0	699.9	698.7	698.3	1.2	1.3	15.40	-673.0	263.1	20.8	18.4	2.40	8.669		
800.0	799.7	798.3	797.5	1.4	1.5	16.24	-681.5	264.7	23.5	20.8	2.75	8.553		
900.0	899.4	897.8	896.5	1.6	1.7	17.36	-691.6	266.7	26.3	23.2	3.10	8.470		
1,000.0	998.9	997.3	995.2	1.8	2.0	18.67	-703.5	269.0	29.1	25.6	3.46	8.408		
1,100.0	1,098.3	1,096.8	1,093.7	2.1	2.2	20.11	-717.0	271.6	32.0	28.1	3.83	8.357		
1,200.0	1,197.4	1,196.1	1,191.8	2.3	2.6	21.64	-732.2	274.6	34.9	30.7	4.20	8.310		
1,300.0	1,296.3	1,295.5	1,289.7	2.6	2.9	23.23	-749.1	277.9	38.0	33.4	4.60	8.260		
1,400.0	1,394.9	1,394.8	1,387.2	2.9	3.2	24.86	-767.6	281.5	41.1	36.1	5.01	8.200		
1,500.0	1,493.4	1,494.0	1,484.2	3.3	3.6	26.03	-787.8	285.4	45.1	39.7	5.44	8.288		
1,600.0	1,591.9	1,593.0	1,580.8	3.6	4.0	26.34	-809.5	289.6	50.8	44.9	5.87	8.650		
1,700.0	1,690.4	1,691.9	1,676.7	3.9	4.5	26.01	-832.9	294.2	58.0	51.8	6.28	9.239		
1,800.0	1,788.9	1,790.9	1,772.5	4.2	4.9	25.32	-857.8	299.0	66.8	60.1	6.68	9.999		
1,900.0	1,887.3	1,890.5	1,868.6	4.6	5.4	24.72	-883.1	303.9	75.9	68.8	7.08	10.714		
2,000.0	1,985.8	1,990.1	1,964.8	4.9	5.8	24.25	-908.4	308.8	84.9	77.5	7.48	11.352		
2,100.0	2,084.3	2,089.7	2,061.0	5.3	6.3	23.87	-933.7	313.7	94.0	86.1	7.88	11.924		
2,200.0	2,182.8	2,189.3	2,157.2	5.6	6.8	23.56	-959.0	318.7	103.1	94.8	8.29	12.441		
2,300.0	2,281.3	2,288.9	2,253.4	5.9	7.2	23.29	-984.3	323.6	112.2	103.5	8.69	12.908		
2,400.0	2,379.7	2,388.4	2,349.6	6.3	7.7	23.07	-1,009.6	328.5	121.2	112.1	9.09	13.334		
2,500.0	2,478.2	2,488.0	2,445.8	6.6	8.2	22.88	-1,034.9	333.4	130.3	120.8	9.50	13.723		
2,600.0	2,576.7	2,587.6	2,542.0	7.0	8.7	22.71	-1,060.2	338.3	139.4	129.5	9.90	14.080		
2,700.0	2,675.2	2,687.2	2,638.2	7.3	9.1	22.56	-1,085.5	343.3	148.5	138.2	10.31	14.409		
2,800.0	2,773.7	2,786.8	2,734.4	7.7	9.6	22.43	-1,110.8	348.2	157.6	146.9	10.71	14.712		
2,900.0	2,872.1	2,886.4	2,830.6	8.0	10.1	22.31	-1,136.1	353.1	166.7	155.5	11.11	14.993		
3,000.0	2,970.6	2,986.0	2,926.8	8.4	10.6	22.21	-1,161.4	358.0	175.7	164.2	11.52	15.255		
3,100.0	3,069.1	3,085.5	3,023.0	8.7	11.1	22.12	-1,186.7	362.9	184.8	172.9	11.93	15.498		
3,200.0	3,167.6	3,185.1	3,119.1	9.0	11.5	22.03	-1,212.0	367.8	193.9	181.6	12.33	15.725		
3,300.0	3,266.1	3,284.7	3,215.3	9.4	12.0	21.95	-1,237.3	372.8	203.0	190.3	12.74	15.937		
3,400.0	3,364.5	3,384.3	3,311.5	9.7	12.5	21.88	-1,262.6	377.7	212.1	198.9	13.14	16.136		
3,500.0	3,463.0	3,483.9	3,407.7	10.1	13.0	21.82	-1,287.9	382.6	221.2	207.6	13.55	16.323		
3,600.0	3,561.5	3,583.5	3,503.9	10.4	13.5	21.76	-1,313.2	387.5	230.3	216.3	13.96	16.500		
3,700.0	3,660.0	3,683.1	3,600.1	10.8	13.9	21.70	-1,338.5	392.4	239.3	225.0	14.36	16.666		
3,800.0	3,758.5	3,782.6	3,696.3	11.1	14.4	21.65	-1,363.8	397.4	248.4	233.7	14.77	16.822		
3,900.0	3,857.0	3,882.2	3,792.5	11.5	14.9	21.60	-1,389.1	402.3	257.5	242.3	15.17	16.971		
4,000.0	3,955.4	3,981.8	3,888.7	11.8	15.4	21.56	-1,414.4	407.2	266.6	251.0	15.58	17.111		
4,100.0	4,053.9	4,081.4	3,984.9	12.2	15.9	21.52	-1,439.7	412.1	275.7	259.7	15.99	17.244		
4,200.0	4,152.4	4,181.0	4,081.1	12.5	16.3	21.48	-1,465.0	417.0	284.8	268.4	16.39	17.371		
4,300.0	4,250.9	4,280.6	4,177.3	12.9	16.8	21.44	-1,490.3	421.9	293.9	277.1	16.80	17.492		
4,400.0	4,349.4	4,380.2	4,273.5	13.2	17.3	21.41	-1,515.6	426.9	303.0	285.8	17.21	17.606		
4,500.0	4,447.8	4,479.7	4,369.7	13.6	17.8	21.38	-1,540.9	431.8	312.0	294.4	17.61	17.716		
4,600.0	4,546.3	4,579.3	4,465.8	13.9	18.3	21.35	-1,566.2	436.7	321.2	303.1	18.02	17.821		
4,700.0	4,645.0	4,678.8	4,561.9	14.2	18.7	21.29	-1,591.5	441.6	331.3	312.9	18.41	17.995		
4,800.0	4,743.9	4,782.9	4,662.6	14.5	19.2	21.14	-1,617.3	446.6	342.5	323.7	18.78	18.239		
4,900.0	4,843.1	4,888.5	4,765.3	14.8	19.7	20.97	-1,641.8	451.4	353.6	334.5	19.13	18.482		
5,000.0	4,942.5	4,994.3	4,868.5	15.0	20.1	20.79	-1,664.4	455.8	364.6	345.1	19.47	18.724		

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>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2F-21H - 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	5,042.1	5,100.4	4,972.5	15.3	20.5	20.58	-1,685.2	459.8	375.3	355.6	19.79	18.965				
5,200.0	5,141.8	5,206.7	5,077.0	15.5	20.9	20.36	-1,704.2	463.5	386.0	365.9	20.10	19.205				
5,300.0	5,241.6	5,313.2	5,182.1	15.6	21.2	20.12	-1,721.3	466.8	396.4	376.0	20.39	19.443				
5,400.0	5,341.5	5,419.9	5,287.7	15.8	21.5	19.87	-1,736.5	469.8	406.7	386.1	20.67	19.679				
5,500.0	5,441.5	5,526.9	5,393.8	15.9	21.8	19.61	-1,749.7	472.4	416.9	395.9	20.93	19.913				
5,600.0	5,541.5	5,634.1	5,500.3	16.0	22.1	-178.67	-1,761.1	474.6	426.8	389.7	37.10	11.506				
5,700.0	5,641.5	5,741.6	5,607.4	16.1	22.3	-178.94	-1,770.5	476.4	435.6	398.1	37.46	11.628				
5,800.0	5,741.5	5,849.4	5,715.0	16.2	22.5	-179.15	-1,778.0	477.9	442.5	404.7	37.78	11.711				
5,900.0	5,841.5	5,957.5	5,822.9	16.3	22.6	-179.30	-1,783.5	478.9	447.5	409.4	38.07	11.755				
6,000.0	5,941.5	6,065.8	5,931.1	16.5	22.7	-179.39	-1,787.0	479.6	450.7	412.4	38.32	11.762				
6,100.0	6,041.5	6,174.1	6,039.5	16.6	22.8	-179.43	-1,788.4	479.9	452.1	413.6	38.54	11.731				
6,200.0	6,141.5	6,276.1	6,141.5	16.7	22.9	-179.43	-1,788.5	479.9	452.2	413.4	38.74	11.671				
6,300.0	6,241.5	6,376.1	6,241.5	16.8	23.0	-179.43	-1,788.5	479.9	452.2	413.2	38.94	11.610				
6,400.0	6,341.5	6,476.1	6,341.5	16.9	23.1	-179.43	-1,788.5	479.9	452.2	413.0	39.15	11.550				
6,458.7	6,400.2	6,534.8	6,400.2	17.0	23.1	-179.43	-1,788.5	479.9	452.2	412.9	39.27	11.514				
6,500.0	6,441.5	6,576.0	6,441.3	17.0	23.2	-179.39	-1,788.5	479.6	452.2	412.8	39.35	11.490				
6,600.0	6,541.5	6,674.3	6,539.1	17.1	23.2	-88.21	-1,788.5	470.2	452.4	427.8	24.55	18.426				
6,700.0	6,641.0	6,770.4	6,632.5	17.2	23.2	-86.39	-1,788.5	448.1	453.0	428.0	25.00	18.121				
6,800.0	6,738.4	6,864.7	6,720.6	17.2	23.3	-84.67	-1,788.5	414.5	454.1	428.9	25.26	17.975				
6,900.0	6,831.7	6,957.5	6,802.2	17.2	23.3	-83.06	-1,788.5	370.4	455.5	430.2	25.36	17.965				
7,000.0	6,919.1	7,050.0	6,877.1	17.2	23.3	-81.57	-1,788.5	316.4	457.1	431.7	25.36	18.026				
7,100.0	6,998.9	7,139.3	6,942.3	17.3	23.4	-80.28	-1,788.5	255.5	458.8	433.3	25.45	18.027				
7,200.0	7,069.6	7,228.6	6,999.4	17.4	23.5	-79.15	-1,788.5	186.9	460.4	434.6	25.75	17.876				
7,300.0	7,129.7	7,317.1	7,047.2	17.7	23.7	-78.22	-1,788.5	112.4	461.9	435.3	26.58	17.377				
7,400.0	7,178.2	7,404.9	7,085.2	18.2	24.1	-77.49	-1,788.5	33.3	463.1	435.0	28.09	16.487				
7,500.0	7,214.0	7,492.3	7,113.0	18.9	24.6	-76.97	-1,788.5	-49.5	464.0	433.7	30.38	15.274				
7,600.0	7,236.5	7,579.4	7,130.6	19.9	25.2	-76.68	-1,788.5	-134.7	464.6	431.2	33.41	13.907				
7,700.0	7,245.3	7,666.3	7,137.7	21.3	26.0	-76.61	-1,788.5	-221.3	464.7	427.7	37.01	12.557				
7,800.0	7,244.0	7,762.2	7,136.5	22.9	27.0	-76.63	-1,788.5	-317.2	464.7	423.9	40.77	11.396				
7,900.0	7,242.2	7,862.2	7,134.8	24.6	28.3	-76.63	-1,788.5	-417.2	464.7	420.0	44.69	10.398				
8,000.0	7,240.5	7,962.2	7,133.0	26.6	29.8	-76.63	-1,788.4	-517.1	464.7	415.9	48.76	9.529				
8,100.0	7,238.8	8,062.2	7,131.3	28.6	31.5	-76.62	-1,788.4	-617.1	464.7	411.7	52.96	8.774				
8,200.0	7,237.0	8,162.2	7,129.5	30.6	33.2	-76.62	-1,788.4	-717.1	464.6	407.4	57.26	8.115				
8,300.0	7,235.3	8,262.2	7,127.8	32.8	35.1	-76.62	-1,788.4	-817.1	464.6	403.0	61.63	7.539				
8,400.0	7,233.5	8,362.2	7,126.0	35.0	37.1	-76.62	-1,788.4	-917.1	464.6	398.6	66.06	7.033				
8,500.0	7,231.8	8,462.2	7,124.3	37.2	39.2	-76.62	-1,788.4	-1,017.1	464.6	394.1	70.55	6.586				
8,600.0	7,230.0	8,562.2	7,122.6	39.5	41.3	-76.62	-1,788.4	-1,117.1	464.6	389.5	75.07	6.189				
8,700.0	7,228.3	8,662.2	7,120.8	41.8	43.4	-76.62	-1,788.4	-1,217.0	464.6	385.0	79.63	5.834				
8,800.0	7,226.5	8,762.2	7,119.1	44.1	45.6	-76.62	-1,788.4	-1,317.0	464.6	380.4	84.22	5.517				
8,900.0	7,224.8	8,862.2	7,117.3	46.4	47.8	-76.62	-1,788.4	-1,417.0	464.6	375.8	88.83	5.230				
9,000.0	7,223.0	8,962.2	7,115.6	48.7	50.1	-76.62	-1,788.4	-1,517.0	464.6	371.1	93.46	4.971				
9,100.0	7,221.3	9,062.2	7,113.8	51.1	52.4	-76.62	-1,788.4	-1,617.0	464.6	366.5	98.11	4.735				
9,200.0	7,219.6	9,162.2	7,112.1	53.4	54.7	-76.62	-1,788.4	-1,717.0	464.6	361.8	102.78	4.520				
9,300.0	7,217.8	9,262.2	7,110.3	55.8	57.0	-76.62	-1,788.4	-1,816.9	464.6	357.1	107.46	4.323				
9,400.0	7,216.1	9,362.2	7,108.6	58.2	59.3	-76.62	-1,788.4	-1,916.9	464.6	352.4	112.15	4.142				
9,500.0	7,214.3	9,462.2	7,106.8	60.6	61.6	-76.62	-1,788.4	-2,016.9	464.5	347.7	116.84	3.976				
9,600.0	7,212.6	9,562.2	7,105.1	63.0	64.0	-76.62	-1,788.4	-2,116.9	464.5	343.0	121.55	3.822				
9,700.0	7,210.8	9,662.2	7,103.4	65.4	66.3	-76.62	-1,788.4	-2,216.9	464.5	338.3	126.27	3.679				
9,800.0	7,209.1	9,762.2	7,101.6	67.8	68.7	-76.62	-1,788.4	-2,316.9	464.5	333.5	130.99	3.546				
9,900.0	7,207.3	9,862.2	7,099.9	70.2	71.1	-76.62	-1,788.4	-2,416.9	464.5	328.8	135.72	3.423				
10,000.0	7,205.6	9,962.2	7,098.1	72.6	73.5	-76.62	-1,788.3	-2,516.8	464.5	324.0	140.46	3.307				
10,100.0	7,203.8	10,062.2	7,096.4	75.0	75.8	-76.62	-1,788.3	-2,616.8	464.5	319.3	145.20	3.199				

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>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 2F-21H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,200.0	7,202.1	10,162.2	7,094.6	77.5	78.2	-76.62	-1,788.3	-2,716.8	464.5	314.5	149.95	3.098		
10,300.0	7,200.4	10,262.2	7,092.9	79.9	80.6	-76.62	-1,788.3	-2,816.8	464.5	309.8	154.70	3.003		
10,400.0	7,198.6	10,362.2	7,091.1	82.3	83.0	-76.62	-1,788.3	-2,916.8	464.5	305.0	159.45	2.913		
10,500.0	7,196.9	10,462.2	7,089.4	84.7	85.5	-76.62	-1,788.3	-3,016.8	464.5	300.3	164.21	2.829		
10,600.0	7,195.1	10,562.2	7,087.7	87.2	87.9	-76.62	-1,788.3	-3,116.7	464.5	295.5	168.97	2.749		
10,700.0	7,193.4	10,662.2	7,085.9	89.6	90.3	-76.62	-1,788.3	-3,216.7	464.5	290.7	173.73	2.673		
10,800.0	7,191.6	10,762.2	7,084.2	92.1	92.7	-76.62	-1,788.3	-3,316.7	464.4	286.0	178.50	2.602		
10,900.0	7,189.9	10,862.2	7,082.4	94.5	95.1	-76.62	-1,788.3	-3,416.7	464.4	281.2	183.26	2.534		
11,000.0	7,188.1	10,962.2	7,080.7	96.9	97.5	-76.62	-1,788.3	-3,516.7	464.4	276.4	188.04	2.470		
11,100.0	7,186.4	11,062.2	7,078.9	99.4	100.0	-76.62	-1,788.3	-3,616.7	464.4	271.6	192.81	2.409		
11,200.0	7,184.7	11,162.2	7,077.2	101.8	102.4	-76.62	-1,788.3	-3,716.7	464.4	266.8	197.58	2.350		
11,300.0	7,182.9	11,262.2	7,075.4	104.3	104.8	-76.62	-1,788.3	-3,816.6	464.4	262.0	202.36	2.295		
11,400.0	7,181.2	11,362.2	7,073.7	106.7	107.3	-76.62	-1,788.3	-3,916.6	464.4	257.3	207.14	2.242		
11,500.0	7,179.4	11,462.2	7,071.9	109.2	109.7	-76.62	-1,788.3	-4,016.6	464.4	252.5	211.92	2.191		
11,600.0	7,177.7	11,562.2	7,070.2	111.6	112.1	-76.62	-1,788.3	-4,116.6	464.4	247.7	216.70	2.143		
11,700.0	7,175.9	11,662.2	7,068.5	114.1	114.6	-76.62	-1,788.3	-4,216.6	464.4	242.9	221.48	2.097		
11,793.6	7,174.3	11,755.8	7,066.8	116.4	116.8	-76.62	-1,788.3	-4,310.2	464.4	238.4	225.96	2.055 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 NENE S20-T3N-R68W (Liberty 2A-21H) - Liberty 4-2-21 (Proposed) - DD - 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		
1,100.0	1,098.3	1,192.5	1,182.3	2.1	3.2	179.90	-220.5	120.9	496.3	492.3	4.06	122.162		
1,200.0	1,197.4	1,292.3	1,280.5	2.3	3.5	-179.53	-235.0	130.8	492.4	488.0	4.44	110.999		
1,300.0	1,296.3	1,392.1	1,378.8	2.6	3.9	-178.95	-249.5	140.7	490.3	485.5	4.81	101.892		
1,366.8	1,362.2	1,458.8	1,444.4	2.8	4.1	-178.56	-259.2	147.4	489.9	484.9	5.06	96.733 CC		
1,400.0	1,394.9	1,492.0	1,477.1	2.9	4.2	-178.37	-264.0	150.7	490.0	484.8	5.19	94.410 ES		
1,500.0	1,493.4	1,591.9	1,575.4	3.3	4.6	-177.80	-278.5	160.6	490.6	485.1	5.58	87.971		
1,600.0	1,591.9	1,691.8	1,673.7	3.6	4.9	-177.22	-293.1	170.5	491.3	485.4	5.97	82.328		
1,700.0	1,690.4	1,791.6	1,772.1	3.9	5.3	-176.65	-307.6	180.4	492.0	485.7	6.36	77.340		
1,800.0	1,788.9	1,891.5	1,870.4	4.2	5.6	-176.08	-322.1	190.3	492.8	486.0	6.76	72.900		
1,900.0	1,887.3	1,991.4	1,968.7	4.6	6.0	-175.51	-336.6	200.2	493.6	486.5	7.16	68.921		
2,000.0	1,985.8	2,091.3	2,067.0	4.9	6.4	-174.94	-351.1	210.1	494.5	486.9	7.57	65.334		
2,100.0	2,084.3	2,191.1	2,165.3	5.3	6.7	-174.38	-365.7	220.1	495.4	487.4	7.98	62.085		
2,200.0	2,182.8	2,291.0	2,263.6	5.6	7.1	-173.81	-380.2	230.0	496.4	488.0	8.39	59.128		
2,300.0	2,281.3	2,390.9	2,362.0	5.9	7.4	-173.25	-394.7	239.9	497.4	488.6	8.81	56.425		
2,400.0	2,379.7	2,490.8	2,460.3	6.3	7.8	-172.70	-409.2	249.8	498.4	489.2	9.24	53.944		
2,500.0	2,478.2	2,590.7	2,558.6	6.6	8.1	-172.14	-423.7	259.7	499.5	489.9	9.67	51.660 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Site NENE S20-T3N-R68W (Liberty 2A-21H)
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Reference Site:</b>	NENE S20-T3N-R68W (Liberty 2A-21H)	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Liberty 2E-21H	<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 @ 5036.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: NENE S20-T3N-R68W (Liberty 2A-21H)  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.32°

