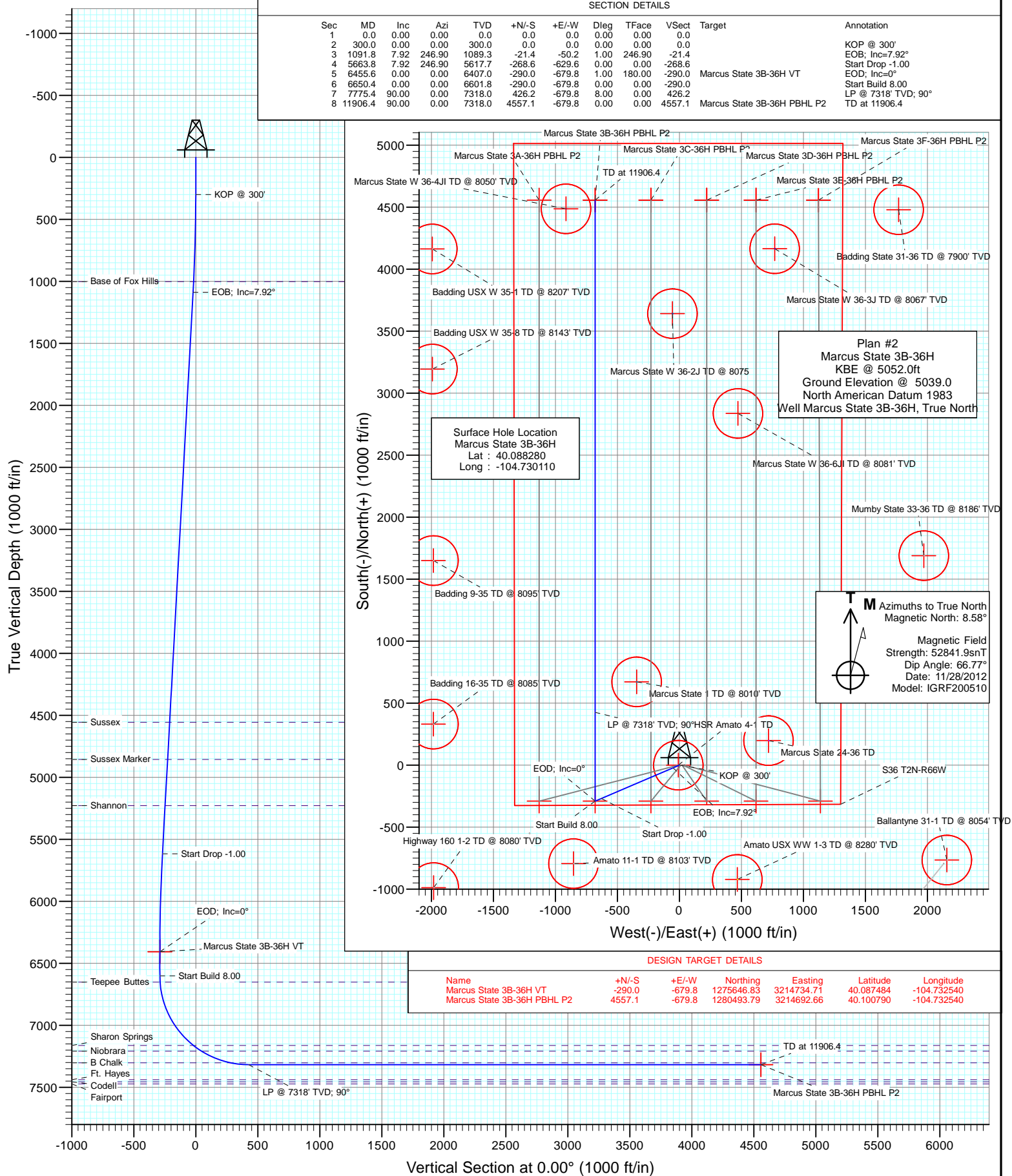




Project: DJ Wattenberg  
Site: S36 T2N-R66W (Marcus State)  
Well: Marcus State 3B-36H  
Wellbore: HZ  
Design: Plan #2



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site:</b>	S36 T2N-R66W (Marcus State)	<b>North Reference:</b>	True
<b>Well:</b>	Marcus State 3B-36H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

<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		S36 T2N-R66W (Marcus State)			
Site Position:		Northing:	1,275,942.66 ft	Latitude:	40.088280
From:	Lat/Long	Easting:	3,215,403.58 ft	Longitude:	-104.730140
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.50 °

Well	Marcus State 3B-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,275,942.71 ft	Latitude:	40.088280
	+E/-W	0.0 ft	Easting:	3,215,411.97 ft	Longitude:	-104.730110
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,039.0 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	11/28/2012	8.58	66.77	52,842

<b>Design</b>	Plan #2			
<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	0.00

<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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,091.8	7.92	246.90	1,089.3	-21.4	-50.2	1.00	1.00	0.00	246.90	
5,663.8	7.92	246.90	5,617.7	-268.6	-629.6	0.00	0.00	0.00	0.00	
6,455.6	0.00	0.00	6,407.0	-290.0	-679.8	1.00	-1.00	0.00	180.00	Marcus State 3B-36H
6,650.4	0.00	0.00	6,601.8	-290.0	-679.8	0.00	0.00	0.00	0.00	
7,775.4	90.00	0.00	7,318.0	426.2	-679.8	8.00	8.00	0.00	0.00	
11,906.4	90.00	0.00	7,318.0	4,557.1	-679.8	0.00	0.00	0.00	0.00	Marcus State 3B-36H

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site:</b>	S36 T2N-R66W (Marcus State)	<b>North Reference:</b>	True
<b>Well:</b>	Marcus State 3B-36H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

### 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	KOP @ 300'
400.0	1.00	246.90	400.0	-0.3	-0.8	-0.3	1.00	1.00	
500.0	2.00	246.90	500.0	-1.4	-3.2	-1.4	1.00	1.00	
600.0	3.00	246.90	599.9	-3.1	-7.2	-3.1	1.00	1.00	
700.0	4.00	246.90	699.7	-5.5	-12.8	-5.5	1.00	1.00	
800.0	5.00	246.90	799.4	-8.6	-20.1	-8.6	1.00	1.00	
900.0	6.00	246.90	898.9	-12.3	-28.9	-12.3	1.00	1.00	
1,000.0	7.00	246.90	998.3	-16.8	-39.3	-16.8	1.00	1.00	
1,003.8	7.04	246.90	1,002.0	-16.9	-39.7	-16.9	1.00	1.00	Base of Fox Hills
1,091.8	7.92	246.90	1,089.3	-21.4	-50.2	-21.4	1.00	1.00	EOB; Inc=7.92°
1,100.0	7.92	246.90	1,097.4	-21.9	-51.3	-21.9	0.00	0.00	
1,200.0	7.92	246.90	1,196.5	-27.3	-64.0	-27.3	0.00	0.00	
1,300.0	7.92	246.90	1,295.5	-32.7	-76.6	-32.7	0.00	0.00	
1,400.0	7.92	246.90	1,394.5	-38.1	-89.3	-38.1	0.00	0.00	
1,500.0	7.92	246.90	1,493.6	-43.5	-102.0	-43.5	0.00	0.00	
1,600.0	7.92	246.90	1,592.6	-48.9	-114.6	-48.9	0.00	0.00	
1,700.0	7.92	246.90	1,691.7	-54.3	-127.3	-54.3	0.00	0.00	
1,800.0	7.92	246.90	1,790.7	-59.7	-140.0	-59.7	0.00	0.00	
1,900.0	7.92	246.90	1,889.8	-65.1	-152.6	-65.1	0.00	0.00	
2,000.0	7.92	246.90	1,988.8	-70.5	-165.3	-70.5	0.00	0.00	
2,100.0	7.92	246.90	2,087.9	-75.9	-178.0	-75.9	0.00	0.00	
2,200.0	7.92	246.90	2,186.9	-81.3	-190.7	-81.3	0.00	0.00	
2,300.0	7.92	246.90	2,286.0	-86.7	-203.3	-86.7	0.00	0.00	
2,400.0	7.92	246.90	2,385.0	-92.1	-216.0	-92.1	0.00	0.00	
2,500.0	7.92	246.90	2,484.1	-97.6	-228.7	-97.6	0.00	0.00	
2,600.0	7.92	246.90	2,583.1	-103.0	-241.3	-103.0	0.00	0.00	
2,700.0	7.92	246.90	2,682.1	-108.4	-254.0	-108.4	0.00	0.00	
2,800.0	7.92	246.90	2,781.2	-113.8	-266.7	-113.8	0.00	0.00	
2,900.0	7.92	246.90	2,880.2	-119.2	-279.4	-119.2	0.00	0.00	
3,000.0	7.92	246.90	2,979.3	-124.6	-292.0	-124.6	0.00	0.00	
3,100.0	7.92	246.90	3,078.3	-130.0	-304.7	-130.0	0.00	0.00	
3,200.0	7.92	246.90	3,177.4	-135.4	-317.4	-135.4	0.00	0.00	
3,300.0	7.92	246.90	3,276.4	-140.8	-330.0	-140.8	0.00	0.00	
3,400.0	7.92	246.90	3,375.5	-146.2	-342.7	-146.2	0.00	0.00	
3,500.0	7.92	246.90	3,474.5	-151.6	-355.4	-151.6	0.00	0.00	
3,600.0	7.92	246.90	3,573.6	-157.0	-368.1	-157.0	0.00	0.00	
3,700.0	7.92	246.90	3,672.6	-162.4	-380.7	-162.4	0.00	0.00	
3,800.0	7.92	246.90	3,771.7	-167.8	-393.4	-167.8	0.00	0.00	
3,900.0	7.92	246.90	3,870.7	-173.2	-406.1	-173.2	0.00	0.00	
4,000.0	7.92	246.90	3,969.8	-178.6	-418.7	-178.6	0.00	0.00	
4,100.0	7.92	246.90	4,068.8	-184.0	-431.4	-184.0	0.00	0.00	
4,200.0	7.92	246.90	4,167.8	-189.4	-444.1	-189.4	0.00	0.00	
4,300.0	7.92	246.90	4,266.9	-194.8	-456.7	-194.8	0.00	0.00	
4,400.0	7.92	246.90	4,365.9	-200.2	-469.4	-200.2	0.00	0.00	
4,500.0	7.92	246.90	4,465.0	-205.7	-482.1	-205.7	0.00	0.00	
4,591.9	7.92	246.90	4,556.0	-210.6	-493.7	-210.6	0.00	0.00	Sussex
4,600.0	7.92	246.90	4,564.0	-211.1	-494.8	-211.1	0.00	0.00	
4,700.0	7.92	246.90	4,663.1	-216.5	-507.4	-216.5	0.00	0.00	
4,800.0	7.92	246.90	4,762.1	-221.9	-520.1	-221.9	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site:</b>	S36 T2N-R66W (Marcus State)	<b>North Reference:</b>	True
<b>Well:</b>	Marcus State 3B-36H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

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
4,894.8	7.92	246.90	4,856.0	-227.0	-532.1	-227.0	0.00	0.00	Sussex Marker
4,900.0	7.92	246.90	4,861.2	-227.3	-532.8	-227.3	0.00	0.00	
5,000.0	7.92	246.90	4,960.2	-232.7	-545.4	-232.7	0.00	0.00	
5,100.0	7.92	246.90	5,059.3	-238.1	-558.1	-238.1	0.00	0.00	
5,200.0	7.92	246.90	5,158.3	-243.5	-570.8	-243.5	0.00	0.00	
5,271.4	7.92	246.90	5,229.0	-247.3	-579.8	-247.3	0.00	0.00	Shannon
5,300.0	7.92	246.90	5,257.4	-248.9	-583.5	-248.9	0.00	0.00	
5,400.0	7.92	246.90	5,356.4	-254.3	-596.1	-254.3	0.00	0.00	
5,500.0	7.92	246.90	5,455.5	-259.7	-608.8	-259.7	0.00	0.00	
5,600.0	7.92	246.90	5,554.5	-265.1	-621.5	-265.1	0.00	0.00	
5,663.8	7.92	246.90	5,617.7	-268.6	-629.6	-268.6	0.00	0.00	Start Drop -1.00
5,700.0	7.56	246.90	5,653.6	-270.5	-634.0	-270.5	1.00	-1.00	
5,800.0	6.56	246.90	5,752.8	-275.3	-645.3	-275.3	1.00	-1.00	
5,900.0	5.56	246.90	5,852.2	-279.4	-655.0	-279.4	1.00	-1.00	
6,000.0	4.56	246.90	5,951.9	-282.9	-663.1	-282.9	1.00	-1.00	
6,100.0	3.56	246.90	6,051.6	-285.7	-669.7	-285.7	1.00	-1.00	
6,200.0	2.56	246.90	6,151.5	-287.8	-674.6	-287.8	1.00	-1.00	
6,300.0	1.56	246.90	6,251.4	-289.2	-677.9	-289.2	1.00	-1.00	
6,400.0	0.56	246.90	6,351.4	-289.9	-679.6	-289.9	1.00	-1.00	
6,455.6	0.00	0.00	6,407.0	-290.0	-679.8	-290.0	1.00	-1.00	EOD; Inc=0° - Marcus State 3B-36H VT
6,500.0	0.00	0.00	6,451.4	-290.0	-679.8	-290.0	0.00	0.00	
6,600.0	0.00	0.00	6,551.4	-290.0	-679.8	-290.0	0.00	0.00	
6,650.4	0.00	0.00	6,601.8	-290.0	-679.8	-290.0	0.00	0.00	Start Build 8.00
6,700.0	3.97	0.00	6,651.3	-288.3	-679.8	-288.3	8.00	8.00	
6,700.7	4.02	0.00	6,652.0	-288.2	-679.8	-288.2	8.00	8.00	Teepee Buttes
6,800.0	11.97	0.00	6,750.3	-274.4	-679.8	-274.4	8.00	8.00	
6,900.0	19.97	0.00	6,846.4	-246.9	-679.8	-246.9	8.00	8.00	
7,000.0	27.97	0.00	6,937.7	-206.4	-679.8	-206.4	8.00	8.00	
7,100.0	35.97	0.00	7,022.4	-153.5	-679.8	-153.5	8.00	8.00	
7,200.0	43.97	0.00	7,099.0	-89.3	-679.8	-89.3	8.00	8.00	
7,295.3	51.59	0.00	7,163.0	-18.8	-679.8	-18.8	8.00	8.00	Sharon Springs
7,300.0	51.97	0.00	7,165.9	-15.1	-679.8	-15.1	8.00	8.00	
7,375.1	57.97	0.00	7,209.0	46.4	-679.8	46.4	8.00	8.00	Niobrara
7,400.0	59.97	0.00	7,221.8	67.7	-679.8	67.7	8.00	8.00	
7,500.0	67.97	0.00	7,265.7	157.5	-679.8	157.5	8.00	8.00	
7,600.0	75.97	0.00	7,296.6	252.5	-679.8	252.5	8.00	8.00	
7,628.6	78.25	0.00	7,303.0	280.4	-679.8	280.4	8.00	8.00	B Chalk
7,700.0	83.97	0.00	7,314.0	350.9	-679.8	350.9	8.00	8.00	
7,775.4	90.00	0.00	7,318.0	426.2	-679.8	426.2	8.00	8.00	LP @ 7318' TVD; 90°
7,800.0	90.00	0.00	7,318.0	450.8	-679.8	450.8	0.00	0.00	
7,900.0	90.00	0.00	7,318.0	550.8	-679.8	550.8	0.00	0.00	
8,000.0	90.00	0.00	7,318.0	650.8	-679.8	650.8	0.00	0.00	
8,100.0	90.00	0.00	7,318.0	750.8	-679.8	750.8	0.00	0.00	
8,200.0	90.00	0.00	7,318.0	850.8	-679.8	850.8	0.00	0.00	
8,300.0	90.00	0.00	7,318.0	950.8	-679.8	950.8	0.00	0.00	
8,400.0	90.00	0.00	7,318.0	1,050.8	-679.8	1,050.8	0.00	0.00	
8,500.0	90.00	0.00	7,318.0	1,150.8	-679.8	1,150.8	0.00	0.00	
8,600.0	90.00	0.00	7,318.0	1,250.8	-679.8	1,250.8	0.00	0.00	
8,700.0	90.00	0.00	7,318.0	1,350.8	-679.8	1,350.8	0.00	0.00	
8,800.0	90.00	0.00	7,318.0	1,450.8	-679.8	1,450.8	0.00	0.00	
8,900.0	90.00	0.00	7,318.0	1,550.8	-679.8	1,550.8	0.00	0.00	
9,000.0	90.00	0.00	7,318.0	1,650.8	-679.8	1,650.8	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site:</b>	S36 T2N-R66W (Marcus State)	<b>North Reference:</b>	True
<b>Well:</b>	Marcus State 3B-36H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

### 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	90.00	0.00	7,318.0	1,750.8	-679.8	1,750.8	0.00	0.00	
9,200.0	90.00	0.00	7,318.0	1,850.8	-679.8	1,850.8	0.00	0.00	
9,300.0	90.00	0.00	7,318.0	1,950.8	-679.8	1,950.8	0.00	0.00	
9,400.0	90.00	0.00	7,318.0	2,050.8	-679.8	2,050.8	0.00	0.00	
9,500.0	90.00	0.00	7,318.0	2,150.8	-679.8	2,150.8	0.00	0.00	
9,600.0	90.00	0.00	7,318.0	2,250.8	-679.8	2,250.8	0.00	0.00	
9,700.0	90.00	0.00	7,318.0	2,350.8	-679.8	2,350.8	0.00	0.00	
9,800.0	90.00	0.00	7,318.0	2,450.8	-679.8	2,450.8	0.00	0.00	
9,900.0	90.00	0.00	7,318.0	2,550.8	-679.8	2,550.8	0.00	0.00	
10,000.0	90.00	0.00	7,318.0	2,650.8	-679.8	2,650.8	0.00	0.00	
10,100.0	90.00	0.00	7,318.0	2,750.8	-679.8	2,750.8	0.00	0.00	
10,200.0	90.00	0.00	7,318.0	2,850.8	-679.8	2,850.8	0.00	0.00	
10,300.0	90.00	0.00	7,318.0	2,950.8	-679.8	2,950.8	0.00	0.00	
10,400.0	90.00	0.00	7,318.0	3,050.8	-679.8	3,050.8	0.00	0.00	
10,500.0	90.00	0.00	7,318.0	3,150.8	-679.8	3,150.8	0.00	0.00	
10,600.0	90.00	0.00	7,318.0	3,250.8	-679.8	3,250.8	0.00	0.00	
10,700.0	90.00	0.00	7,318.0	3,350.8	-679.8	3,350.8	0.00	0.00	
10,800.0	90.00	0.00	7,318.0	3,450.8	-679.8	3,450.8	0.00	0.00	
10,900.0	90.00	0.00	7,318.0	3,550.8	-679.8	3,550.8	0.00	0.00	
11,000.0	90.00	0.00	7,318.0	3,650.8	-679.8	3,650.8	0.00	0.00	
11,100.0	90.00	0.00	7,318.0	3,750.8	-679.8	3,750.8	0.00	0.00	
11,200.0	90.00	0.00	7,318.0	3,850.8	-679.8	3,850.8	0.00	0.00	
11,300.0	90.00	0.00	7,318.0	3,950.8	-679.8	3,950.8	0.00	0.00	
11,400.0	90.00	0.00	7,318.0	4,050.8	-679.8	4,050.8	0.00	0.00	
11,500.0	90.00	0.00	7,318.0	4,150.8	-679.8	4,150.8	0.00	0.00	
11,600.0	90.00	0.00	7,318.0	4,250.8	-679.8	4,250.8	0.00	0.00	
11,700.0	90.00	0.00	7,318.0	4,350.8	-679.8	4,350.8	0.00	0.00	
11,800.0	90.00	0.00	7,318.0	4,450.8	-679.8	4,450.8	0.00	0.00	
11,900.0	90.00	0.00	7,318.0	4,550.8	-679.8	4,550.8	0.00	0.00	
11,906.4	90.00	0.00	7,318.0	4,557.1	-679.8	4,557.1	0.00	0.00	TD at 11906.4 - Marcus State 3B-36H PBHL P2

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Marcus State 3B-36H P1	0.00	0.00	7,318.0	4,557.1	-679.8	1,280,493.79	3,214,692.66	40.100790	-104.732540
- plan hits target center									
- Point									
Marcus State 3B-36H P1	0.00	0.00	7,334.0	4,557.1	-679.8	1,280,493.79	3,214,692.66	40.100790	-104.732540
- plan misses target center by 16.0ft at 11906.4ft MD (7318.0 TVD, 4557.1 N, -679.8 E)									
- Point									
Marcus State 3B-36H V1	0.00	0.00	6,407.0	-290.0	-679.8	1,275,646.83	3,214,734.71	40.087484	-104.732540
- plan hits target center									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site:</b>	S36 T2N-R66W (Marcus State)	<b>North Reference:</b>	True
<b>Well:</b>	Marcus State 3B-36H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #2		

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,003.8	1,002.0	Base of Fox Hills		0.00	
4,591.9	4,556.0	Sussex		0.00	
4,894.8	4,856.0	Sussex Marker		0.00	
5,271.4	5,229.0	Shannon		0.00	
6,700.7	6,652.0	Teepee Buttes		0.00	
7,295.3	7,163.0	Sharon Springs		0.00	
7,375.1	7,209.0	Niobrara		0.00	
7,628.6	7,303.0	B Chalk		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.0	300.0	0.0	0.0	KOP @ 300'
1,091.8	1,089.3	-21.4	-50.2	EOB; Inc=7.92°
5,663.8	5,617.7	-268.6	-629.6	Start Drop -1.00
6,455.6	6,407.0	-290.0	-679.8	EOD; Inc=0°
6,650.4	6,601.8	-290.0	-679.8	Start Build 8.00
7,775.4	7,318.0	426.2	-679.8	LP @ 7318' TVD; 90°
11,906.4	7,318.0	4,557.1	-679.8	TD at 11906.4

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

**DJ Wattenberg**

**S36 T2N-R66W (Marcus State)**

**Marcus State 3B-36H**

**HZ**

**Plan #2**

## **Anticollision Report**

**01 March, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #2		
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	3/1/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,906.4	Plan #2 (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						
S36 T2N-R66W (Marcus State)						
Amato 11-1 (Existing) - VT - Existing						Out of range
Amato USX WW 1-3 (Existing) - VT - Existing						Out of range
Badding 16-35 (Existing) - VT - Existing						Out of range
Badding 9-35 (Existing) - VT - Existing						Out of range
Badding State 1 (Existing) - VT - Existing						Out of range
Badding State 31-36 (Existing) - VT - Existing						Out of range
Badding State 42-36 (Existing) - VT - Existing						Out of range
Badding USX W 35-1 (Existing) - VT - Existing						Out of range
Badding USX W 35-8 (Existing) - VT - Existing						Out of range
Ballantyne 31-1 (Existing) - VT - Existing						Out of range
Ballantyne WW 01-18D (Existing) - DD - Existing						Out of range
Highway 160 1-2 (Existing) - VT - Existing						Out of range
HSR Amato 4-1 (Existing) - VT - Existing						Out of range
Marcus State 1 (Existing) - VT - Existing	8,021.3	7,319.0	335.4	304.1	10.723	CC, ES
Marcus State 1 (Existing) - VT - Existing	8,100.0	7,319.0	344.5	312.2	10.665	SF
Marcus State 24-36 (Existing) - VT - Existing						Out of range
Marcus State 3A-36H - HZ - Plan #2	166.3	167.3	8.4	7.9	15.632	CC
Marcus State 3A-36H - HZ - Plan #2	200.0	201.0	8.4	7.7	12.825	ES
Marcus State 3A-36H - HZ - Plan #2	11,906.4	12,130.6	474.1	316.7	3.013	SF
Marcus State 3C-36H - HZ - Plan #2	300.0	300.0	11.2	10.2	11.171	CC, ES
Marcus State 3C-36H - HZ - Plan #2	11,906.4	12,036.6	479.7	323.9	3.079	SF
Marcus State 3D-36H - HZ - Plan #2	300.0	300.0	22.4	21.4	22.343	CC, ES
Marcus State 3D-36H - HZ - Plan #2	600.0	599.9	29.8	27.7	14.528	SF
Marcus State 3E-36H - HZ - Plan #2	300.0	300.0	30.8	29.8	30.721	CC, ES
Marcus State 3E-36H - HZ - Plan #2	700.0	699.7	44.0	41.6	18.333	SF
Marcus State 3F-36H - HZ - Plan #2	300.0	300.0	42.0	41.0	41.893	CC, ES
Marcus State 3F-36H - HZ - Plan #2	600.0	598.2	52.6	50.5	25.688	SF
Marcus State W 36-2J (Existing) - VT - Existing						Out of range
Marcus State W 36-3J (Existing) - VT - Existing						Out of range
Marcus State W 36-4J (Existing) - VT - Existing	11,836.4	7,319.0	234.4	140.3	2.490	CC, ES, SF
Marcus State W 36-6J (Existing) - VT - Existing						Out of range
Mumby State 1 (Existing) - VT - Existing						Out of range
Mumby State 33-36 (Existing) - VT - Existing						Out of range

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 Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													S36 T2N-R66W (Marcus State) - Marcus State 1 (Existing) - VT - Existing		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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning				
7,700.0	7,314.0	7,315.0	7,315.0	19.1	12.7	84.25	672.1	-344.4	464.4	436.8	27.56	16.850					
7,800.0	7,318.0	7,319.0	7,319.0	19.9	12.8	90.00	672.1	-344.4	401.8	373.2	28.67	14.017					
7,900.0	7,318.0	7,319.0	7,319.0	20.8	12.8	90.00	672.1	-344.4	356.7	326.9	29.78	11.975					
8,000.0	7,318.0	7,319.0	7,319.0	21.8	12.8	90.00	672.1	-344.4	336.1	305.1	31.00	10.840					
8,021.3	7,318.0	7,319.0	7,319.0	22.0	12.8	90.00	672.1	-344.4	335.4	304.1	31.28	10.723 CC, ES					
8,100.0	7,318.0	7,319.0	7,319.0	22.9	12.8	90.00	672.1	-344.4	344.5	312.2	32.30	10.665 SF					
8,200.0	7,318.0	7,319.0	7,319.0	24.1	12.8	90.00	672.1	-344.4	380.0	346.3	33.66	11.288					
8,300.0	7,318.0	7,319.0	7,319.0	25.3	12.8	90.00	672.1	-344.4	436.0	401.0	35.08	12.429					

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3A-36H - HZ - Plan #2														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		
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-8.4	8.4						
100.0	100.0	101.0	101.0	0.2	0.2	-90.00	0.0	-8.4	8.4	8.1	0.31	27.481			
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-8.4	8.4	7.9	0.54	15.632 CC			
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-8.4	8.4	7.7	0.65	12.825 ES			
300.0	300.0	300.8	300.8	0.5	0.5	-91.38	-0.2	-9.3	9.3	8.3	1.00	9.221			
400.0	400.0	400.7	400.6	0.7	0.7	20.30	-0.9	-11.8	11.0	9.7	1.35	8.143			
500.0	500.0	500.4	500.3	0.9	0.9	20.39	-2.0	-16.0	12.8	11.1	1.70	7.544			
600.0	599.9	600.2	599.9	1.0	1.1	21.44	-3.5	-21.9	14.7	12.7	2.05	7.178			
700.0	699.7	700.0	699.4	1.2	1.3	23.10	-5.5	-29.5	16.7	14.3	2.41	6.941			
800.0	799.4	799.6	798.5	1.4	1.5	25.15	-7.8	-38.7	18.8	16.0	2.77	6.784			
900.0	898.9	899.2	897.5	1.7	1.8	27.45	-10.7	-49.7	21.0	17.8	3.14	6.673			
1,000.0	998.3	998.8	996.2	1.9	2.0	29.90	-13.9	-62.2	23.3	19.8	3.54	6.590			
1,100.0	1,097.4	1,098.4	1,094.7	2.2	2.3	32.40	-17.6	-76.4	25.8	21.8	3.96	6.520			
1,200.0	1,196.5	1,197.9	1,192.9	2.5	2.7	33.80	-21.7	-92.3	29.3	24.9	4.39	6.672			
1,300.0	1,295.5	1,297.3	1,290.6	2.7	3.0	33.62	-26.2	-109.8	34.3	29.5	4.81	7.140			
1,400.0	1,394.5	1,396.5	1,387.8	3.0	3.4	32.47	-31.2	-128.9	41.0	35.7	5.21	7.859			
1,500.0	1,493.6	1,495.4	1,484.4	3.3	3.8	30.85	-36.5	-149.6	49.2	43.6	5.60	8.787			
1,600.0	1,592.6	1,594.5	1,580.9	3.6	4.2	29.18	-42.2	-171.7	58.8	52.8	5.97	9.849			
1,700.0	1,691.7	1,694.1	1,677.7	3.9	4.6	27.92	-48.0	-194.0	68.6	62.3	6.35	10.813			
1,800.0	1,790.7	1,793.6	1,774.5	4.2	5.1	26.98	-53.8	-216.3	78.5	71.8	6.73	11.669			
1,900.0	1,889.8	1,893.1	1,871.3	4.5	5.5	26.25	-59.5	-238.7	88.4	81.3	7.11	12.432			
2,000.0	1,988.8	1,992.6	1,968.1	4.8	5.9	25.66	-65.3	-261.0	98.3	90.8	7.49	13.118			
2,100.0	2,087.9	2,092.1	2,064.8	5.1	6.4	25.18	-71.1	-283.3	108.2	100.3	7.87	13.735			
2,200.0	2,186.9	2,191.6	2,161.6	5.4	6.8	24.79	-76.9	-305.7	118.1	109.8	8.26	14.295			
2,300.0	2,286.0	2,291.1	2,258.4	5.7	7.3	24.45	-82.6	-328.0	128.0	119.3	8.64	14.805			
2,400.0	2,385.0	2,390.6	2,355.2	5.9	7.7	24.16	-88.4	-350.4	137.9	128.9	9.03	15.271			
2,500.0	2,484.1	2,490.1	2,452.0	6.2	8.1	23.91	-94.2	-372.7	147.8	138.4	9.41	15.699			
2,600.0	2,583.1	2,589.6	2,548.8	6.5	8.6	23.70	-99.9	-395.0	157.7	147.9	9.80	16.093			
2,700.0	2,682.1	2,689.1	2,645.6	6.8	9.0	23.50	-105.7	-417.4	167.6	157.4	10.19	16.456			
2,800.0	2,781.2	2,788.6	2,742.4	7.1	9.5	23.33	-111.5	-439.7	177.5	167.0	10.57	16.793			
2,900.0	2,880.2	2,888.1	2,839.2	7.4	9.9	23.18	-117.3	-462.0	187.5	176.5	10.96	17.106			
3,000.0	2,979.3	2,987.6	2,936.0	7.7	10.4	23.04	-123.0	-484.4	197.4	186.0	11.35	17.398			
3,100.0	3,078.3	3,087.1	3,032.8	8.0	10.8	22.92	-128.8	-506.7	207.3	195.6	11.73	17.670			
3,200.0	3,177.4	3,186.6	3,129.6	8.3	11.2	22.81	-134.6	-529.0	217.2	205.1	12.12	17.924			
3,300.0	3,276.4	3,286.1	3,226.4	8.6	11.7	22.70	-140.4	-551.4	227.2	214.6	12.51	18.163			
3,400.0	3,375.5	3,385.6	3,323.2	8.9	12.1	22.61	-146.1	-573.7	237.1	224.2	12.89	18.388			
3,500.0	3,474.5	3,485.2	3,420.0	9.2	12.6	22.52	-151.9	-596.1	247.0	233.7	13.28	18.599			
3,600.0	3,573.6	3,584.7	3,516.8	9.5	13.0	22.44	-157.7	-618.4	256.9	243.3	13.67	18.798			
3,700.0	3,672.6	3,684.2	3,613.6	9.8	13.5	22.37	-163.5	-640.7	266.9	252.8	14.05	18.986			
3,800.0	3,771.7	3,783.7	3,710.3	10.1	13.9	22.30	-169.2	-663.1	276.8	262.3	14.44	19.164			
3,900.0	3,870.7	3,883.2	3,807.1	10.4	14.4	22.24	-175.0	-685.4	286.7	271.9	14.83	19.333			
4,000.0	3,969.8	3,982.7	3,903.9	10.7	14.8	22.18	-180.8	-707.7	296.6	281.4	15.22	19.493			
4,100.0	4,068.8	4,082.2	4,000.7	11.0	15.2	22.12	-186.6	-730.1	306.6	291.0	15.60	19.645			
4,200.0	4,167.8	4,181.7	4,097.5	11.3	15.7	22.07	-192.3	-752.4	316.5	300.5	15.99	19.790			
4,300.0	4,266.9	4,281.2	4,194.3	11.6	16.1	22.02	-198.1	-774.7	326.4	310.0	16.38	19.928			
4,400.0	4,365.9	4,380.7	4,291.1	11.9	16.6	21.97	-203.9	-797.1	336.3	319.6	16.77	20.059			
4,500.0	4,465.0	4,480.2	4,387.9	12.2	17.0	21.93	-209.7	-819.4	346.3	329.1	17.16	20.185			
4,600.0	4,564.0	4,579.7	4,484.7	12.5	17.5	21.89	-215.4	-841.8	356.2	338.7	17.54	20.305			
4,700.0	4,663.1	4,679.2	4,581.5	12.8	17.9	21.85	-221.2	-864.1	366.1	348.2	17.93	20.419			
4,800.0	4,762.1	4,778.7	4,678.3	13.1	18.4	21.81	-227.0	-886.4	376.1	357.7	18.32	20.529			
4,900.0	4,861.2	4,878.2	4,775.1	13.4	18.8	21.78	-232.8	-908.8	386.0	367.3	18.71	20.634			
5,000.0	4,960.2	4,977.7	4,871.9	13.7	19.3	21.74	-238.5	-931.1	395.9	376.8	19.09	20.735			

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 Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3A-36H - HZ - Plan #2													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,100.0	5,059.3	5,077.2	4,968.7	14.0	19.7	21.71	-244.3	-953.4	405.8	386.4	19.48	20.832		
5,200.0	5,158.3	5,176.7	5,065.5	14.3	20.2	21.68	-250.1	-975.8	415.8	395.9	19.87	20.925		
5,300.0	5,257.4	5,282.9	5,168.9	14.6	20.6	21.67	-256.1	-998.9	425.0	404.8	20.27	20.967		
5,400.0	5,356.4	5,390.4	5,274.1	14.9	21.0	21.73	-261.6	-1,020.5	432.5	411.8	20.69	20.908		
5,500.0	5,455.5	5,498.2	5,380.0	15.2	21.4	21.84	-266.7	-1,040.2	438.2	417.0	21.11	20.755		
5,600.0	5,554.5	5,606.2	5,486.4	15.5	21.8	22.01	-271.3	-1,058.0	442.0	420.4	21.55	20.513		
5,700.0	5,653.6	5,714.3	5,593.2	15.8	22.1	22.23	-275.4	-1,073.8	444.1	422.1	21.99	20.196		
5,800.0	5,752.8	5,822.5	5,700.4	16.0	22.4	22.45	-279.0	-1,087.7	445.6	423.2	22.41	19.882		
5,900.0	5,852.2	5,930.6	5,807.8	16.3	22.7	22.64	-282.1	-1,099.7	447.0	424.1	22.82	19.586		
6,000.0	5,951.9	6,038.8	5,915.5	16.5	22.9	22.79	-284.7	-1,109.7	448.1	424.9	23.21	19.306		
6,100.0	6,051.6	6,147.0	6,023.4	16.7	23.1	22.91	-286.8	-1,117.7	449.0	425.4	23.58	19.040		
6,200.0	6,151.5	6,255.2	6,131.4	16.8	23.3	23.00	-288.3	-1,123.7	449.7	425.7	23.93	18.788		
6,300.0	6,251.4	6,363.4	6,239.6	17.0	23.4	23.07	-289.4	-1,127.8	450.1	425.9	24.27	18.549		
6,400.0	6,351.4	6,471.7	6,347.8	17.1	23.5	23.10	-289.9	-1,129.9	450.4	425.8	24.58	18.320		
6,500.0	6,451.4	6,576.3	6,452.4	17.2	23.6	-90.00	-290.0	-1,130.2	450.4	425.5	24.89	18.093		
6,600.0	6,551.4	6,676.3	6,552.4	17.4	23.7	-90.00	-290.0	-1,130.2	450.4	425.2	25.21	17.863		
6,650.1	6,601.5	6,726.3	6,602.5	17.4	23.7	-90.11	-290.0	-1,130.2	450.4	425.1	25.34	17.776		
6,700.0	6,651.3	6,776.2	6,652.3	17.5	23.8	-90.22	-290.0	-1,130.2	450.4	424.9	25.46	17.690		
6,800.0	6,750.3	6,875.2	6,751.3	17.5	23.9	-91.94	-290.0	-1,130.2	450.7	425.4	25.31	17.808		
6,900.0	6,846.4	6,976.7	6,852.5	17.5	23.9	-94.49	-282.7	-1,130.2	451.8	426.9	24.96	18.101		
7,000.0	6,937.7	7,081.4	6,954.7	17.4	23.9	-96.99	-260.4	-1,130.2	453.9	429.2	24.70	18.375		
7,100.0	7,022.4	7,189.5	7,055.6	17.4	23.9	-99.37	-221.9	-1,130.2	456.7	432.1	24.61	18.556		
7,200.0	7,099.0	7,301.1	7,152.5	17.4	23.9	-101.57	-166.7	-1,130.2	460.0	435.3	24.74	18.593		
7,300.0	7,165.9	7,416.2	7,242.2	17.5	23.8	-103.54	-94.9	-1,130.2	463.6	438.4	25.12	18.454		
7,400.0	7,221.8	7,534.5	7,321.2	17.6	23.9	-105.22	-6.9	-1,130.2	467.0	441.3	25.73	18.151		
7,500.0	7,265.7	7,655.8	7,386.0	18.0	24.1	-106.56	95.4	-1,130.2	470.1	443.5	26.57	17.693		
7,600.0	7,296.6	7,779.4	7,433.4	18.5	24.4	-107.52	209.4	-1,130.2	472.4	444.8	27.63	17.095		
7,700.0	7,314.0	7,904.7	7,460.7	19.1	25.0	-108.07	331.5	-1,130.2	473.8	444.9	28.91	16.390		
7,800.0	7,318.0	8,024.3	7,467.0	19.9	25.7	-108.19	450.8	-1,130.2	474.1	443.6	30.51	15.539		
7,900.0	7,318.0	8,124.3	7,467.0	20.8	26.3	-108.19	550.8	-1,130.2	474.1	441.4	32.64	14.524		
8,000.0	7,318.0	8,224.3	7,467.0	21.8	27.1	-108.19	650.8	-1,130.2	474.1	439.1	34.96	13.560		
8,100.0	7,318.0	8,324.3	7,467.0	22.9	28.0	-108.19	750.8	-1,130.2	474.1	436.6	37.44	12.663		
8,200.0	7,318.0	8,424.3	7,467.0	24.1	29.0	-108.19	850.8	-1,130.2	474.1	434.0	40.04	11.841		
8,300.0	7,318.0	8,524.3	7,467.0	25.3	30.0	-108.19	950.8	-1,130.2	474.1	431.3	42.74	11.092		
8,400.0	7,318.0	8,624.3	7,467.0	26.6	31.1	-108.19	1,050.8	-1,130.2	474.1	428.6	45.53	10.413		
8,500.0	7,318.0	8,724.3	7,467.0	28.0	32.2	-108.19	1,150.8	-1,130.2	474.1	425.7	48.38	9.798		
8,600.0	7,318.0	8,824.3	7,467.0	29.3	33.5	-108.19	1,250.8	-1,130.2	474.1	422.8	51.30	9.242		
8,700.0	7,318.0	8,924.3	7,467.0	30.8	34.7	-108.19	1,350.8	-1,130.2	474.1	419.8	54.26	8.737		
8,800.0	7,318.0	9,024.3	7,467.0	32.2	36.0	-108.19	1,450.8	-1,130.2	474.1	416.8	57.26	8.279		
8,900.0	7,318.0	9,124.3	7,467.0	33.7	37.3	-108.19	1,550.8	-1,130.2	474.1	413.8	60.30	7.862		
9,000.0	7,318.0	9,224.3	7,467.0	35.2	38.7	-108.19	1,650.8	-1,130.2	474.1	410.7	63.37	7.481		
9,100.0	7,318.0	9,324.3	7,467.0	36.8	40.1	-108.19	1,750.8	-1,130.2	474.1	407.6	66.46	7.133		
9,200.0	7,318.0	9,424.3	7,467.0	38.3	41.5	-108.19	1,850.8	-1,130.2	474.1	404.5	69.58	6.814		
9,300.0	7,318.0	9,524.3	7,467.0	39.9	43.0	-108.19	1,950.8	-1,130.2	474.1	401.4	72.72	6.520		
9,400.0	7,318.0	9,624.3	7,467.0	41.5	44.5	-108.19	2,050.8	-1,130.2	474.1	398.2	75.87	6.249		
9,500.0	7,318.0	9,724.3	7,467.0	43.1	46.0	-108.19	2,150.8	-1,130.2	474.1	395.0	79.04	5.998		
9,600.0	7,318.0	9,824.3	7,467.0	44.7	47.5	-108.19	2,250.8	-1,130.2	474.1	391.9	82.22	5.766		
9,700.0	7,318.0	9,924.3	7,467.0	46.3	49.0	-108.19	2,350.8	-1,130.2	474.1	388.7	85.41	5.551		
9,800.0	7,318.0	10,024.3	7,467.0	48.0	50.6	-108.19	2,450.8	-1,130.2	474.1	385.5	88.61	5.350		
9,900.0	7,318.0	10,124.3	7,467.0	49.6	52.1	-108.19	2,550.8	-1,130.2	474.1	382.3	91.82	5.163		
10,000.0	7,318.0	10,224.3	7,467.0	51.2	53.7	-108.19	2,650.8	-1,130.2	474.1	379.0	95.05	4.988		
10,100.0	7,318.0	10,324.3	7,467.0	52.9	55.3	-108.19	2,750.8	-1,130.2	474.1	375.8	98.27	4.824		

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 Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3A-36H - HZ - Plan #2													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		
10,200.0	7,318.0	10,424.3	7,467.0	54.6	56.9	-108.19	2,850.8	-1,130.2	474.1	372.6	101.51	4.670		
10,300.0	7,318.0	10,524.3	7,467.0	56.2	58.5	-108.19	2,950.8	-1,130.2	474.1	369.3	104.75	4.526		
10,400.0	7,318.0	10,624.3	7,467.0	57.9	60.1	-108.19	3,050.8	-1,130.2	474.1	366.1	108.00	4.390		
10,500.0	7,318.0	10,724.3	7,467.0	59.6	61.7	-108.19	3,150.8	-1,130.2	474.1	362.8	111.25	4.261		
10,600.0	7,318.0	10,824.3	7,467.0	61.2	63.3	-108.19	3,250.8	-1,130.2	474.1	359.6	114.51	4.140		
10,700.0	7,318.0	10,924.3	7,467.0	62.9	64.9	-108.19	3,350.8	-1,130.2	474.1	356.3	117.77	4.025		
10,800.0	7,318.0	11,024.3	7,467.0	64.6	66.6	-108.19	3,450.8	-1,130.2	474.1	353.0	121.04	3.917		
10,900.0	7,318.0	11,124.3	7,467.0	66.3	68.2	-108.19	3,550.8	-1,130.2	474.1	349.8	124.30	3.814		
11,000.0	7,318.0	11,224.3	7,467.0	68.0	69.9	-108.19	3,650.8	-1,130.2	474.1	346.5	127.58	3.716		
11,100.0	7,318.0	11,324.3	7,467.0	69.7	71.5	-108.19	3,750.8	-1,130.2	474.1	343.2	130.85	3.623		
11,200.0	7,318.0	11,424.3	7,467.0	71.4	73.2	-108.19	3,850.8	-1,130.2	474.1	339.9	134.13	3.534		
11,300.0	7,318.0	11,524.3	7,467.0	73.1	74.8	-108.19	3,950.8	-1,130.2	474.1	336.7	137.41	3.450		
11,400.0	7,318.0	11,624.3	7,467.0	74.8	76.5	-108.19	4,050.8	-1,130.2	474.1	333.4	140.70	3.369		
11,500.0	7,318.0	11,724.3	7,467.0	76.5	78.2	-108.19	4,150.8	-1,130.2	474.1	330.1	143.98	3.293		
11,600.0	7,318.0	11,824.3	7,467.0	78.2	79.9	-108.19	4,250.8	-1,130.2	474.1	326.8	147.27	3.219		
11,700.0	7,318.0	11,924.3	7,467.0	79.9	81.5	-108.19	4,350.8	-1,130.2	474.1	323.5	150.56	3.149		
11,800.0	7,318.0	12,024.3	7,467.0	81.6	83.2	-108.19	4,450.8	-1,130.2	474.1	320.2	153.85	3.081		
11,900.0	7,318.0	12,124.3	7,467.0	83.4	84.9	-108.19	4,550.8	-1,130.2	474.1	316.9	157.15	3.017		
11,906.4	7,318.0	12,130.6	7,467.0	83.5	85.0	-108.19	4,557.2	-1,130.2	474.1	316.7	157.36	3.013 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3C-36H - HZ - Plan #2														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		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	11.2	11.2						
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	11.2	11.2	10.9	0.30	36.853			
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	11.2	11.2	10.5	0.65	17.145			
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	11.2	11.2	10.2	1.00	11.171 CC, ES			
400.0	400.0	400.0	400.0	0.7	0.7	-158.53	0.0	11.2	12.0	10.6	1.35	8.883			
500.0	500.0	500.0	500.0	0.9	0.8	-162.32	0.0	11.2	14.5	12.8	1.70	8.511			
600.0	599.9	599.9	599.9	1.0	1.0	-166.38	0.0	11.2	18.7	16.6	2.05	9.115			
700.0	699.7	699.7	699.7	1.2	1.2	-169.71	0.0	11.2	24.6	22.2	2.40	10.287			
800.0	799.4	799.4	799.4	1.4	1.4	-172.18	0.0	11.2	32.4	29.7	2.74	11.813			
900.0	898.9	898.9	898.9	1.7	1.5	-173.95	0.0	11.2	41.9	38.8	3.09	13.573			
1,000.0	998.3	998.3	998.3	1.9	1.7	-175.23	0.0	11.2	53.2	49.8	3.43	15.497			
1,100.0	1,097.4	1,098.4	1,098.4	2.2	1.9	-175.78	-0.6	10.7	65.5	61.7	3.78	17.336			
1,200.0	1,196.5	1,198.8	1,198.7	2.5	2.1	-175.53	-2.7	9.0	77.0	72.9	4.13	18.659			
1,300.0	1,295.5	1,299.5	1,299.3	2.7	2.3	-174.73	-6.0	6.2	87.1	82.6	4.48	19.431			
1,400.0	1,394.5	1,400.4	1,400.1	3.0	2.4	-173.51	-10.8	2.3	95.7	90.9	4.84	19.771			
1,500.0	1,493.6	1,500.6	1,500.0	3.3	2.6	-172.07	-16.5	-2.5	103.2	98.0	5.20	19.841			
1,600.0	1,592.6	1,600.3	1,599.4	3.6	2.8	-170.80	-22.3	-7.3	110.8	105.2	5.57	19.887			
1,700.0	1,691.7	1,700.0	1,698.8	3.9	3.0	-169.70	-28.1	-12.1	118.3	112.4	5.94	19.923			
1,800.0	1,790.7	1,799.6	1,798.2	4.2	3.2	-168.73	-33.9	-16.9	125.9	119.6	6.31	19.950			
1,900.0	1,889.8	1,899.3	1,897.6	4.5	3.4	-167.87	-39.7	-21.7	133.6	126.9	6.69	19.970			
2,000.0	1,988.8	1,999.0	1,997.0	4.8	3.6	-167.10	-45.5	-26.6	141.2	134.2	7.07	19.985			
2,100.0	2,087.9	2,098.7	2,096.4	5.1	3.8	-166.42	-51.3	-31.4	148.9	141.5	7.45	19.994			
2,200.0	2,186.9	2,198.4	2,195.8	5.4	4.0	-165.80	-57.1	-36.2	156.6	148.8	7.83	20.000			
2,300.0	2,286.0	2,298.1	2,295.2	5.7	4.3	-165.24	-62.9	-41.0	164.4	156.1	8.22	20.002			
2,400.0	2,385.0	2,397.8	2,394.6	5.9	4.5	-164.72	-68.7	-45.8	172.1	163.5	8.60	20.002			
2,500.0	2,484.1	2,497.5	2,494.0	6.2	4.7	-164.26	-74.5	-50.6	179.8	170.8	8.99	19.999			
2,600.0	2,583.1	2,597.2	2,593.4	6.5	4.9	-163.83	-80.3	-55.4	187.6	178.2	9.38	19.996			
2,700.0	2,682.1	2,696.8	2,692.8	6.8	5.1	-163.43	-86.1	-60.2	195.4	185.6	9.77	19.990			
2,800.0	2,781.2	2,796.5	2,792.2	7.1	5.3	-163.07	-91.9	-65.0	203.1	193.0	10.17	19.984			
2,900.0	2,880.2	2,896.2	2,891.6	7.4	5.5	-162.73	-97.7	-69.8	210.9	200.4	10.56	19.977			
3,000.0	2,979.3	2,995.9	2,991.0	7.7	5.7	-162.42	-103.5	-74.6	218.7	207.8	10.95	19.970			
3,100.0	3,078.3	3,095.6	3,090.4	8.0	6.0	-162.13	-109.3	-79.5	226.5	215.2	11.35	19.962			
3,200.0	3,177.4	3,195.3	3,189.8	8.3	6.2	-161.85	-115.0	-84.3	234.3	222.6	11.74	19.954			
3,300.0	3,276.4	3,295.0	3,289.3	8.6	6.4	-161.60	-120.8	-89.1	242.1	230.0	12.14	19.945			
3,400.0	3,375.5	3,394.7	3,388.7	8.9	6.6	-161.36	-126.6	-93.9	249.9	237.4	12.54	19.937			
3,500.0	3,474.5	3,494.4	3,488.1	9.2	6.8	-161.13	-132.4	-98.7	257.8	244.8	12.93	19.928			
3,600.0	3,573.6	3,594.1	3,587.5	9.5	7.0	-160.92	-138.2	-103.5	265.6	252.3	13.33	19.920			
3,700.0	3,672.6	3,693.7	3,686.9	9.8	7.2	-160.72	-144.0	-108.3	273.4	259.7	13.73	19.911			
3,800.0	3,771.7	3,793.4	3,786.3	10.1	7.5	-160.54	-149.8	-113.1	281.2	267.1	14.13	19.902			
3,900.0	3,870.7	3,893.1	3,885.7	10.4	7.7	-160.36	-155.6	-117.9	289.1	274.5	14.53	19.894			
4,000.0	3,969.8	3,992.8	3,985.1	10.7	7.9	-160.19	-161.4	-122.7	296.9	282.0	14.93	19.886			
4,100.0	4,068.8	4,092.5	4,084.5	11.0	8.1	-160.03	-167.2	-127.5	304.7	289.4	15.33	19.877			
4,200.0	4,167.8	4,192.2	4,183.9	11.3	8.3	-159.88	-173.0	-132.3	312.6	296.8	15.73	19.869			
4,300.0	4,266.9	4,291.9	4,283.3	11.6	8.5	-159.73	-178.8	-137.2	320.4	304.3	16.13	19.861			
4,400.0	4,365.9	4,391.6	4,382.7	11.9	8.7	-159.60	-184.6	-142.0	328.3	311.7	16.53	19.853			
4,500.0	4,465.0	4,491.3	4,482.1	12.2	9.0	-159.46	-190.4	-146.8	336.1	319.2	16.94	19.846			
4,600.0	4,564.0	4,590.9	4,581.5	12.5	9.2	-159.34	-196.2	-151.6	343.9	326.6	17.34	19.838			
4,700.0	4,663.1	4,690.6	4,680.9	12.8	9.4	-159.22	-202.0	-156.4	351.8	334.1	17.74	19.831			
4,800.0	4,762.1	4,790.3	4,780.3	13.1	9.6	-159.11	-207.8	-161.2	359.6	341.5	18.14	19.824			
4,900.0	4,861.2	4,890.0	4,879.7	13.4	9.8	-159.00	-213.6	-166.0	367.5	348.9	18.54	19.817			
5,000.0	4,960.2	4,989.7	4,979.1	13.7	10.0	-158.89	-219.4	-170.8	375.3	356.4	18.95	19.810			
5,100.0	5,059.3	5,089.4	5,078.5	14.0	10.3	-158.79	-225.2	-175.6	383.2	363.8	19.35	19.803			

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 Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3C-36H - HZ - Plan #2												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	5,158.3	5,189.1	5,177.9	14.3	10.5	-158.69	-231.0	-180.4	391.0	371.3	19.75	19.796	
5,300.0	5,257.4	5,288.8	5,277.3	14.6	10.7	-158.60	-236.8	-185.2	398.9	378.7	20.16	19.790	
5,400.0	5,356.4	5,388.5	5,376.7	14.9	10.9	-158.51	-242.6	-190.1	406.8	386.2	20.56	19.784	
5,500.0	5,455.5	5,488.1	5,476.1	15.2	11.1	-158.43	-248.4	-194.9	414.6	393.6	20.96	19.777	
5,600.0	5,554.5	5,587.8	5,575.5	15.5	11.3	-158.34	-254.2	-199.7	422.5	401.1	21.37	19.771	
5,700.0	5,653.6	5,687.5	5,675.0	15.8	11.6	-158.27	-259.9	-204.5	430.2	408.4	21.77	19.758	
5,800.0	5,752.8	5,787.3	5,774.5	16.0	11.8	-158.14	-265.8	-209.3	436.7	414.5	22.19	19.681	
5,900.0	5,852.2	5,887.2	5,874.0	16.3	12.0	-157.93	-271.6	-214.1	441.5	418.9	22.60	19.534	
6,000.0	5,951.9	5,987.1	5,973.7	16.5	12.2	-157.63	-277.4	-218.9	444.8	421.8	23.02	19.320	
6,100.0	6,051.6	6,082.3	6,068.6	16.7	12.4	-157.34	-282.3	-223.0	447.0	423.6	23.41	19.091	
6,200.0	6,151.5	6,177.5	6,163.7	16.8	12.6	-157.13	-286.0	-226.1	448.6	424.8	23.78	18.867	
6,300.0	6,251.4	6,272.7	6,258.8	17.0	12.7	-156.98	-288.5	-228.2	449.7	425.6	24.12	18.647	
6,400.0	6,351.4	6,367.9	6,354.0	17.1	12.9	-156.91	-289.8	-229.3	450.3	425.9	24.43	18.431	
6,500.0	6,451.4	6,465.2	6,451.4	17.2	13.0	90.00	-290.0	-229.4	450.4	425.7	24.74	18.205	
6,600.0	6,551.4	6,565.2	6,551.4	17.4	13.2	90.00	-290.0	-229.4	450.4	425.3	25.06	17.974	
6,650.1	6,601.5	6,615.4	6,601.5	17.4	13.3	90.11	-290.0	-229.4	450.4	425.2	25.22	17.859	
6,700.0	6,651.3	6,665.2	6,651.3	17.5	13.3	90.22	-290.0	-229.4	450.4	425.0	25.38	17.746	
6,800.0	6,750.3	6,764.1	6,750.3	17.5	13.5	91.94	-290.0	-229.4	450.7	424.9	25.77	17.486	
6,900.0	6,846.4	6,864.9	6,850.9	17.5	13.6	94.74	-285.0	-229.4	452.0	425.9	26.12	17.306	
7,000.0	6,937.7	6,969.6	6,953.6	17.4	13.6	97.52	-265.2	-229.4	454.5	428.3	26.23	17.325	
7,100.0	7,022.4	7,078.1	7,055.8	17.4	13.6	100.17	-229.1	-229.4	457.9	431.8	26.13	17.527	
7,200.0	7,099.0	7,190.6	7,154.8	17.4	13.5	102.64	-175.8	-229.4	462.0	436.1	25.88	17.853	
7,300.0	7,165.9	7,307.2	7,247.2	17.5	13.5	104.85	-105.0	-229.4	466.4	440.8	25.63	18.198	
7,400.0	7,221.8	7,427.8	7,329.4	17.6	13.6	106.75	-17.0	-229.4	470.7	445.2	25.59	18.395	
7,500.0	7,265.7	7,551.8	7,397.4	18.0	13.9	108.27	86.6	-229.4	474.6	448.6	25.98	18.266	
7,600.0	7,296.6	7,678.8	7,447.4	18.5	14.6	109.36	203.1	-229.4	477.5	450.5	27.01	17.679	
7,700.0	7,314.0	7,807.7	7,476.3	19.1	15.5	109.98	328.6	-229.4	479.3	450.5	28.74	16.673	
7,800.0	7,318.0	7,930.2	7,483.0	19.9	16.7	110.12	450.8	-229.4	479.7	448.7	30.98	15.484	
7,900.0	7,318.0	8,030.2	7,483.0	20.8	17.7	110.12	550.8	-229.4	479.7	446.6	33.04	14.516	
8,000.0	7,318.0	8,130.2	7,483.0	21.8	18.9	110.12	650.8	-229.4	479.7	444.4	35.30	13.589	
8,100.0	7,318.0	8,230.2	7,483.0	22.9	20.2	110.12	750.8	-229.4	479.7	442.0	37.70	12.722	
8,200.0	7,318.0	8,330.2	7,483.0	24.1	21.5	110.12	850.8	-229.4	479.7	439.4	40.24	11.921	
8,300.0	7,318.0	8,430.2	7,483.0	25.3	22.9	110.12	950.8	-229.4	479.7	436.8	42.87	11.188	
8,400.0	7,318.0	8,530.2	7,483.0	26.6	24.3	110.12	1,050.8	-229.4	479.7	434.1	45.59	10.520	
8,500.0	7,318.0	8,630.2	7,483.0	28.0	25.8	110.12	1,150.8	-229.4	479.7	431.3	48.39	9.913	
8,600.0	7,318.0	8,730.2	7,483.0	29.3	27.3	110.12	1,250.8	-229.4	479.7	428.4	51.24	9.360	
8,700.0	7,318.0	8,830.2	7,483.0	30.8	28.8	110.12	1,350.8	-229.4	479.7	425.5	54.15	8.858	
8,800.0	7,318.0	8,930.2	7,483.0	32.2	30.4	110.12	1,450.8	-229.4	479.7	422.6	57.09	8.401	
8,900.0	7,318.0	9,030.2	7,483.0	33.7	32.0	110.12	1,550.8	-229.4	479.7	419.6	60.08	7.984	
9,000.0	7,318.0	9,130.2	7,483.0	35.2	33.6	110.12	1,650.8	-229.4	479.7	416.6	63.09	7.602	
9,100.0	7,318.0	9,230.2	7,483.0	36.8	35.2	110.12	1,750.8	-229.4	479.7	413.5	66.13	7.253	
9,200.0	7,318.0	9,330.2	7,483.0	38.3	36.8	110.12	1,850.8	-229.4	479.7	410.5	69.20	6.932	
9,300.0	7,318.0	9,430.2	7,483.0	39.9	38.4	110.12	1,950.8	-229.4	479.7	407.4	72.29	6.636	
9,400.0	7,318.0	9,530.2	7,483.0	41.5	40.1	110.12	2,050.8	-229.4	479.7	404.3	75.39	6.363	
9,500.0	7,318.0	9,630.2	7,483.0	43.1	41.7	110.12	2,150.8	-229.4	479.7	401.2	78.51	6.110	
9,600.0	7,318.0	9,730.2	7,483.0	44.7	43.4	110.12	2,250.8	-229.4	479.7	398.0	81.64	5.875	
9,700.0	7,318.0	9,830.2	7,483.0	46.3	45.1	110.12	2,350.8	-229.4	479.7	394.9	84.79	5.657	
9,800.0	7,318.0	9,930.2	7,483.0	48.0	46.7	110.12	2,450.8	-229.4	479.7	391.7	87.94	5.454	
9,900.0	7,318.0	10,030.2	7,483.0	49.6	48.4	110.12	2,550.8	-229.4	479.7	388.5	91.11	5.265	
10,000.0	7,318.0	10,130.2	7,483.0	51.2	50.1	110.12	2,650.8	-229.4	479.7	385.4	94.28	5.087	
10,100.0	7,318.0	10,230.2	7,483.0	52.9	51.8	110.12	2,750.8	-229.4	479.7	382.2	97.47	4.921	
10,200.0	7,318.0	10,330.2	7,483.0	54.6	53.5	110.12	2,850.8	-229.4	479.7	379.0	100.66	4.765	

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 Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3C-36H - HZ - Plan #2													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	7,318.0	10,430.2	7,483.0	56.2	55.2	110.12	2,950.8	-229.4	479.7	375.8	103.86	4.618		
10,400.0	7,318.0	10,530.2	7,483.0	57.9	56.9	110.12	3,050.8	-229.4	479.7	372.6	107.06	4.480		
10,500.0	7,318.0	10,630.2	7,483.0	59.6	58.6	110.12	3,150.8	-229.4	479.7	369.4	110.27	4.350		
10,600.0	7,318.0	10,730.2	7,483.0	61.2	60.3	110.12	3,250.8	-229.4	479.7	366.2	113.48	4.227		
10,700.0	7,318.0	10,830.2	7,483.0	62.9	62.0	110.12	3,350.8	-229.4	479.7	363.0	116.70	4.110		
10,800.0	7,318.0	10,930.2	7,483.0	64.6	63.7	110.12	3,450.8	-229.4	479.7	359.7	119.92	4.000		
10,900.0	7,318.0	11,030.2	7,483.0	66.3	65.4	110.12	3,550.8	-229.4	479.7	356.5	123.15	3.895		
11,000.0	7,318.0	11,130.2	7,483.0	68.0	67.1	110.12	3,650.8	-229.4	479.7	353.3	126.38	3.795		
11,100.0	7,318.0	11,230.2	7,483.0	69.7	68.9	110.12	3,750.8	-229.4	479.7	350.0	129.61	3.701		
11,200.0	7,318.0	11,330.2	7,483.0	71.4	70.6	110.12	3,850.8	-229.4	479.7	346.8	132.85	3.610		
11,300.0	7,318.0	11,430.2	7,483.0	73.1	72.3	110.12	3,950.8	-229.4	479.7	343.6	136.09	3.525		
11,400.0	7,318.0	11,530.2	7,483.0	74.8	74.0	110.12	4,050.8	-229.4	479.7	340.3	139.33	3.443		
11,500.0	7,318.0	11,630.2	7,483.0	76.5	75.8	110.12	4,150.8	-229.4	479.7	337.1	142.58	3.364		
11,600.0	7,318.0	11,730.2	7,483.0	78.2	77.5	110.12	4,250.8	-229.4	479.7	333.8	145.83	3.289		
11,700.0	7,318.0	11,830.2	7,483.0	79.9	79.2	110.12	4,350.8	-229.4	479.7	330.6	149.07	3.218		
11,800.0	7,318.0	11,930.2	7,483.0	81.6	80.9	110.12	4,450.8	-229.4	479.7	327.3	152.33	3.149		
11,900.0	7,318.0	12,030.2	7,483.0	83.4	82.7	110.12	4,550.8	-229.4	479.7	324.1	155.58	3.083		
11,904.7	7,318.0	12,034.9	7,483.0	83.4	82.7	110.12	4,555.5	-229.4	479.7	323.9	155.73	3.080		
11,906.4	7,318.0	12,036.6	7,483.0	83.5	82.8	110.12	4,557.1	-229.4	479.7	323.9	155.79	3.079 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3D-36H - HZ - Plan #2													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	90.00	0.0	22.4	22.4					
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	22.4	22.4	22.1	0.30	73.705		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	22.4	22.4	21.7	0.65	34.291		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	22.4	22.4	21.4	1.00	22.343 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	-157.74	0.0	22.4	23.2	21.8	1.35	17.166		
500.0	500.0	500.0	500.0	0.9	0.8	-159.95	0.0	22.4	25.6	23.9	1.70	15.077		
600.0	599.9	599.9	599.9	1.0	1.0	-162.82	0.0	22.4	29.8	27.7	2.05	14.528 SF		
700.0	699.7	699.7	699.7	1.2	1.2	-165.70	0.0	22.4	35.6	33.2	2.40	14.870		
800.0	799.4	799.4	799.4	1.4	1.4	-168.25	0.0	22.4	43.3	40.5	2.74	15.775		
900.0	898.9	898.9	898.9	1.7	1.5	-170.36	0.0	22.4	52.7	49.6	3.09	17.058		
1,000.0	998.3	997.9	997.9	1.9	1.7	-171.33	-0.7	22.9	64.2	60.7	3.43	18.685		
1,100.0	1,097.4	1,096.5	1,096.5	2.2	1.9	-170.98	-2.8	24.3	78.0	74.2	3.78	20.612		
1,200.0	1,196.5	1,194.8	1,194.7	2.5	2.1	-169.84	-6.3	26.7	93.0	88.9	4.14	22.487		
1,300.0	1,295.5	1,292.9	1,292.6	2.7	2.3	-168.19	-11.1	30.0	108.8	104.3	4.50	24.168		
1,400.0	1,394.5	1,391.1	1,390.5	3.0	2.4	-166.33	-17.2	34.1	125.3	120.4	4.88	25.686		
1,500.0	1,493.6	1,489.6	1,488.8	3.3	2.6	-164.83	-23.4	38.4	141.9	136.6	5.26	26.991		
1,600.0	1,592.6	1,588.2	1,587.0	3.6	2.8	-163.65	-29.6	42.7	158.6	153.0	5.64	28.115		
1,700.0	1,691.7	1,686.7	1,685.3	3.9	3.0	-162.69	-35.9	47.0	175.4	169.3	6.03	29.090		
1,800.0	1,790.7	1,785.3	1,783.5	4.2	3.2	-161.90	-42.1	51.2	192.2	185.7	6.42	29.942		
1,900.0	1,889.8	1,883.8	1,881.8	4.5	3.4	-161.24	-48.4	55.5	209.0	202.2	6.81	30.693		
2,000.0	1,988.8	1,982.4	1,980.0	4.8	3.6	-160.67	-54.6	59.8	225.8	218.6	7.20	31.358		
2,100.0	2,087.9	2,080.9	2,078.3	5.1	3.9	-160.18	-60.8	64.1	242.7	235.1	7.60	31.952		
2,200.0	2,186.9	2,179.5	2,176.6	5.4	4.1	-159.76	-67.1	68.3	259.6	251.6	7.99	32.484		
2,300.0	2,286.0	2,278.0	2,274.8	5.7	4.3	-159.39	-73.3	72.6	276.5	268.1	8.39	32.964		
2,400.0	2,385.0	2,376.6	2,373.1	5.9	4.5	-159.06	-79.6	76.9	293.4	284.6	8.78	33.399		
2,500.0	2,484.1	2,475.1	2,471.3	6.2	4.7	-158.77	-85.8	81.1	310.3	301.1	9.18	33.795		
2,600.0	2,583.1	2,573.7	2,569.6	6.5	4.9	-158.50	-92.0	85.4	327.2	317.6	9.58	34.156		
2,700.0	2,682.1	2,672.2	2,667.8	6.8	5.1	-158.27	-98.3	89.7	344.2	334.2	9.98	34.487		
2,800.0	2,781.2	2,770.8	2,766.1	7.1	5.3	-158.05	-104.5	94.0	361.1	350.7	10.38	34.792		
2,900.0	2,880.2	2,869.3	2,864.4	7.4	5.5	-157.86	-110.8	98.2	378.0	367.2	10.78	35.073		
3,000.0	2,979.3	2,967.8	2,962.6	7.7	5.7	-157.68	-117.0	102.5	395.0	383.8	11.18	35.334		
3,100.0	3,078.3	3,066.4	3,060.9	8.0	6.0	-157.51	-123.2	106.8	411.9	400.3	11.58	35.575		
3,200.0	3,177.4	3,164.9	3,159.1	8.3	6.2	-157.36	-129.5	111.1	428.9	416.9	11.98	35.800		
3,300.0	3,276.4	3,263.5	3,257.4	8.6	6.4	-157.22	-135.7	115.3	445.8	433.4	12.38	36.010		
3,400.0	3,375.5	3,362.0	3,355.6	8.9	6.6	-157.09	-142.0	119.6	462.8	450.0	12.78	36.206		
3,500.0	3,474.5	3,460.6	3,453.9	9.2	6.8	-156.97	-148.2	123.9	479.7	466.5	13.18	36.390		
3,600.0	3,573.6	3,559.1	3,552.2	9.5	7.0	-156.86	-154.4	128.1	496.7	483.1	13.58	36.562		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3E-36H - HZ - Plan #2													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			
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.8	30.8					
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	30.8	30.8	30.5	0.30	101.344		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.8	30.8	30.1	0.65	47.150		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	30.8	30.8	29.8	1.00	30.721 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	-157.52	0.0	30.8	31.6	30.2	1.35	23.379		
500.0	500.0	500.0	500.0	0.9	0.8	-159.19	0.0	30.8	34.0	32.3	1.70	20.009		
600.0	599.9	599.9	599.9	1.0	1.0	-161.51	0.0	30.8	38.1	36.1	2.05	18.605		
700.0	699.7	699.7	699.7	1.2	1.2	-164.02	0.0	30.8	44.0	41.6	2.40	18.333 SF		
800.0	799.4	798.6	798.6	1.4	1.4	-165.84	-0.4	31.5	52.2	49.5	2.74	19.034		
900.0	898.9	897.2	897.1	1.7	1.5	-166.58	-1.5	33.8	63.6	60.5	3.09	20.586		
1,000.0	998.3	995.1	995.0	1.9	1.7	-166.62	-3.4	37.6	78.1	74.7	3.44	22.709		
1,100.0	1,097.4	1,092.4	1,092.1	2.2	1.9	-166.28	-5.9	42.8	95.6	91.8	3.79	25.225		
1,200.0	1,196.5	1,189.0	1,188.4	2.5	2.1	-165.68	-9.2	49.5	115.1	111.0	4.15	27.761		
1,300.0	1,295.5	1,285.1	1,284.0	2.7	2.3	-164.85	-13.2	57.5	136.1	131.6	4.51	30.163		
1,400.0	1,394.5	1,380.5	1,378.9	3.0	2.5	-163.92	-17.8	67.0	158.4	153.5	4.88	32.456		
1,500.0	1,493.6	1,475.8	1,473.4	3.3	2.8	-162.94	-23.2	77.8	182.0	176.8	5.25	34.651		
1,600.0	1,592.6	1,572.8	1,569.6	3.6	3.0	-162.10	-28.8	89.2	206.1	200.5	5.63	36.595		
1,700.0	1,691.7	1,669.8	1,665.8	3.9	3.2	-161.43	-34.4	100.6	230.3	224.2	6.01	38.288		
1,800.0	1,790.7	1,766.8	1,761.9	4.2	3.5	-160.89	-40.1	112.1	254.4	248.0	6.40	39.774		
1,900.0	1,889.8	1,863.8	1,858.1	4.5	3.8	-160.44	-45.7	123.5	278.6	271.8	6.78	41.089		
2,000.0	1,988.8	1,960.8	1,954.3	4.8	4.0	-160.07	-51.3	134.9	302.8	295.6	7.17	42.259		
2,100.0	2,087.9	2,057.9	2,050.5	5.1	4.3	-159.75	-57.0	146.3	327.0	319.5	7.55	43.307		
2,200.0	2,186.9	2,154.9	2,146.6	5.4	4.6	-159.48	-62.6	157.7	351.2	343.3	7.94	44.250		
2,300.0	2,286.0	2,251.9	2,242.8	5.7	4.8	-159.24	-68.2	169.2	375.5	367.1	8.32	45.104		
2,400.0	2,385.0	2,348.9	2,339.0	5.9	5.1	-159.03	-73.9	180.6	399.7	391.0	8.71	45.880		
2,500.0	2,484.1	2,445.9	2,435.1	6.2	5.4	-158.84	-79.5	192.0	423.9	414.8	9.10	46.588		
2,600.0	2,583.1	2,542.9	2,531.3	6.5	5.6	-158.67	-85.1	203.4	448.2	438.7	9.49	47.237		
2,700.0	2,682.1	2,639.9	2,627.5	6.8	5.9	-158.52	-90.8	214.9	472.4	462.5	9.88	47.834		
2,800.0	2,781.2	2,736.9	2,723.7	7.1	6.2	-158.39	-96.4	226.3	496.6	486.4	10.26	48.385		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3F-36H - HZ - Plan #2													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	90.00	0.0	42.0	42.0					
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	42.0	42.0	41.7	0.30	138.197		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	42.0	42.0	41.3	0.65	64.295		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	42.0	42.0	41.0	1.00	41.893 CC, ES		
400.0	400.0	400.0	400.0	0.7	0.7	-157.35	0.0	42.0	42.8	41.4	1.35	31.663		
500.0	500.0	499.2	499.2	0.9	0.8	-158.30	-0.2	42.8	46.0	44.3	1.70	27.096		
600.0	599.9	598.2	598.1	1.0	1.0	-159.24	-0.9	45.3	52.6	50.5	2.05	25.688 SF		
700.0	699.7	696.7	696.6	1.2	1.2	-160.01	-2.0	49.4	62.4	60.0	2.40	26.056		
800.0	799.4	794.8	794.4	1.4	1.4	-160.59	-3.5	55.1	75.5	72.8	2.74	27.513		
900.0	898.9	892.1	891.5	1.7	1.6	-160.97	-5.4	62.4	91.8	88.7	3.09	29.678		
1,000.0	998.3	988.5	987.5	1.9	1.8	-161.22	-7.7	71.2	111.3	107.9	3.44	32.321		
1,100.0	1,097.4	1,084.0	1,082.4	2.2	2.0	-161.38	-10.4	81.4	134.0	130.2	3.80	35.292		
1,200.0	1,196.5	1,178.6	1,176.2	2.5	2.3	-161.42	-13.5	93.0	158.9	154.7	4.16	38.233		
1,300.0	1,295.5	1,272.4	1,269.0	2.7	2.6	-161.29	-17.0	106.0	185.3	180.7	4.52	41.020		
1,400.0	1,394.5	1,365.4	1,360.8	3.0	2.8	-161.04	-20.8	120.4	213.1	208.2	4.88	43.681		
1,500.0	1,493.6	1,457.5	1,451.5	3.3	3.1	-160.74	-24.9	136.0	242.4	237.2	5.24	46.239		
1,600.0	1,592.6	1,548.8	1,541.1	3.6	3.5	-160.39	-29.4	152.9	273.2	267.6	5.61	48.711		
1,700.0	1,691.7	1,639.1	1,629.5	3.9	3.8	-160.03	-34.1	171.0	305.4	299.4	5.98	51.110		
1,800.0	1,790.7	1,728.5	1,716.6	4.2	4.2	-159.66	-39.2	190.2	339.0	332.7	6.34	53.449		
1,900.0	1,889.8	1,819.3	1,804.9	4.5	4.6	-159.28	-44.7	210.9	373.9	367.2	6.71	55.682		
2,000.0	1,988.8	1,912.9	1,895.8	4.8	5.0	-158.95	-50.4	232.5	409.0	401.9	7.09	57.664		
2,100.0	2,087.9	2,006.5	1,986.7	5.1	5.4	-158.67	-56.1	254.0	444.1	436.7	7.47	59.443		
2,200.0	2,186.9	2,100.1	2,077.6	5.4	5.8	-158.43	-61.8	275.6	479.3	471.4	7.85	61.047		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> S36 T2N-R66W (Marcus State) - Marcus State W 36-4Jl (Existing) - VT - Existing													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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		
11,400.0	7,318.0	7,319.0	7,319.0	74.8	12.8	-90.00	4,487.2	-914.2	495.4	408.8	86.60	5.720		
11,500.0	7,318.0	7,319.0	7,319.0	76.5	12.8	-90.00	4,487.2	-914.2	410.0	321.7	88.33	4.642		
11,600.0	7,318.0	7,319.0	7,319.0	78.2	12.8	-90.00	4,487.2	-914.2	332.9	242.9	90.06	3.697		
11,700.0	7,318.0	7,319.0	7,319.0	79.9	12.8	-90.00	4,487.2	-914.2	271.2	179.4	91.79	2.955		
11,800.0	7,318.0	7,319.0	7,319.0	81.6	12.8	-90.00	4,487.2	-914.2	237.2	143.7	93.52	2.537		
11,836.4	7,318.0	7,319.0	7,319.0	82.3	12.8	-90.00	4,487.2	-914.2	234.4	140.3	94.15	2.490	CC, ES, SF	
11,900.0	7,318.0	7,319.0	7,319.0	83.4	12.8	-90.00	4,487.2	-914.2	242.9	147.6	95.26	2.550		
11,906.4	7,318.0	7,319.0	7,319.0	83.5	12.8	-90.00	4,487.2	-914.2	244.6	149.3	95.37	2.565		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Marcus State 3B-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KBE @ 5052.0ft
<b>Reference Site:</b>	S36 T2N-R66W (Marcus State)	<b>MD Reference:</b>	KBE @ 5052.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Marcus State 3B-36H	<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 #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 5052.0ft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: Marcus State 3B-36H  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.50°

