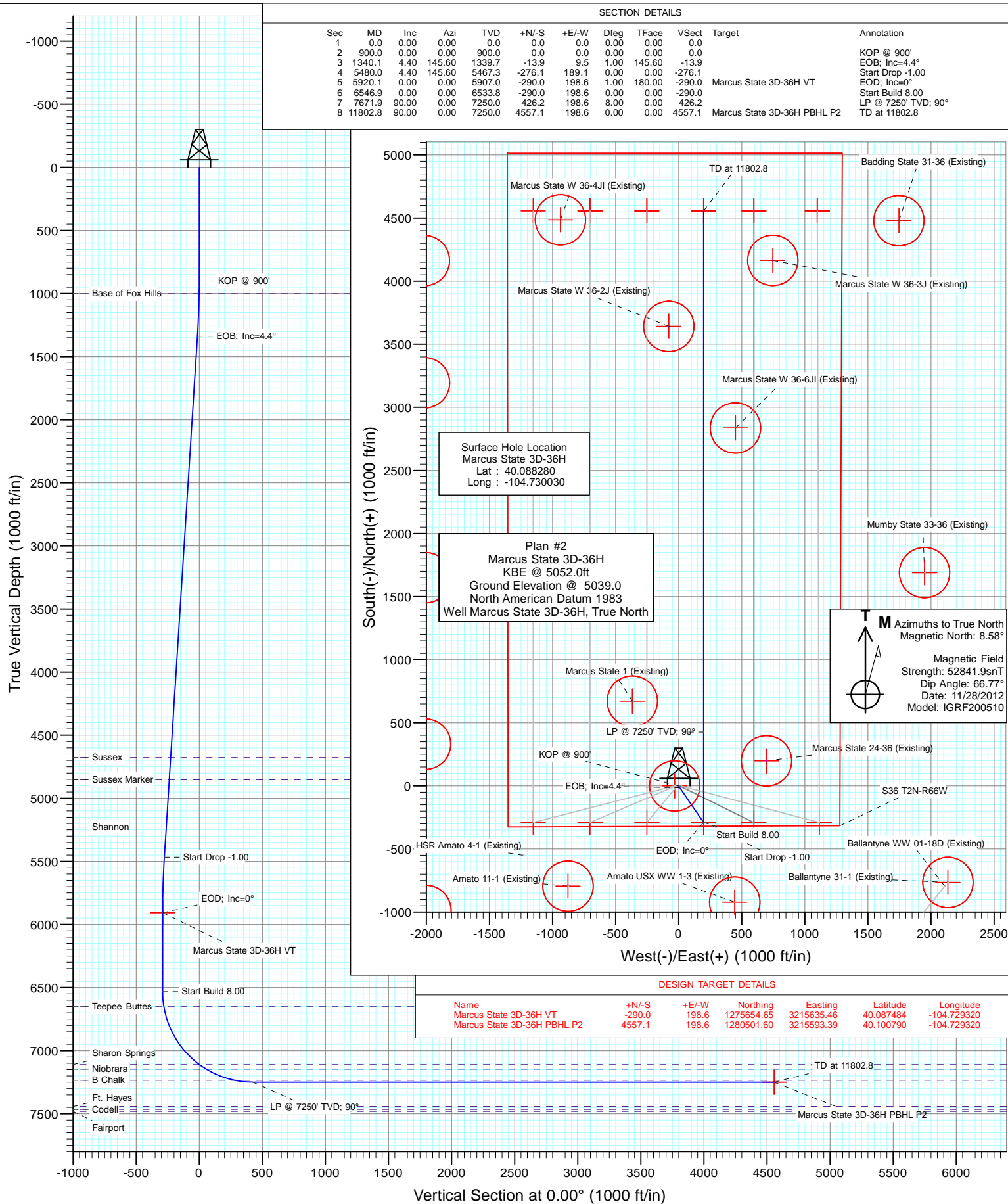




Project: DJ Wattenberg
Site: S36 T2N-R66W (Marcus State)
Well: Marcus State 3D-36H
Wellbore: HZ
Design: Plan #2



Planning Report

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

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

Site		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 3D-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,275,942.91 ft	Latitude:	40.088280
	+E/-W	0.0 ft	Easting:	3,215,434.35 ft	Longitude:	-104.730030
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,039.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/28/2012	8.58	66.77	52,842

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	0.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,340.1	4.40	145.60	1,339.7	-13.9	9.5	1.00	1.00	0.00	145.60	
5,480.0	4.40	145.60	5,467.3	-276.1	189.1	0.00	0.00	0.00	0.00	
5,920.1	0.00	0.00	5,907.0	-290.0	198.6	1.00	-1.00	0.00	180.00	Marcus State 3D-36H
6,546.9	0.00	0.00	6,533.8	-290.0	198.6	0.00	0.00	0.00	0.00	
7,671.9	90.00	0.00	7,250.0	426.2	198.6	8.00	8.00	0.00	0.00	
11,802.8	90.00	0.00	7,250.0	4,557.1	198.6	0.00	0.00	0.00	0.00	Marcus State 3D-36H

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 5052.0ft
Project:	DJ Wattenberg	MD Reference:	KBE @ 5052.0ft
Site:	S36 T2N-R66W (Marcus State)	North Reference:	True
Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	KOP @ 900'
1,000.0	1.00	145.60	1,000.0	-0.7	0.5	-0.7	1.00	1.00	
1,002.0	1.02	145.60	1,002.0	-0.7	0.5	-0.7	1.00	1.00	Base of Fox Hills
1,100.0	2.00	145.60	1,100.0	-2.9	2.0	-2.9	1.00	1.00	
1,200.0	3.00	145.60	1,199.9	-6.5	4.4	-6.5	1.00	1.00	
1,300.0	4.00	145.60	1,299.7	-11.5	7.9	-11.5	1.00	1.00	
1,340.1	4.40	145.60	1,339.7	-13.9	9.5	-13.9	1.00	1.00	EOB; Inc=4.4°
1,400.0	4.40	145.60	1,399.4	-17.7	12.1	-17.7	0.00	0.00	
1,500.0	4.40	145.60	1,499.1	-24.1	16.5	-24.1	0.00	0.00	
1,600.0	4.40	145.60	1,598.8	-30.4	20.8	-30.4	0.00	0.00	
1,700.0	4.40	145.60	1,698.5	-36.7	25.2	-36.7	0.00	0.00	
1,800.0	4.40	145.60	1,798.2	-43.1	29.5	-43.1	0.00	0.00	
1,900.0	4.40	145.60	1,897.9	-49.4	33.8	-49.4	0.00	0.00	
2,000.0	4.40	145.60	1,997.6	-55.7	38.2	-55.7	0.00	0.00	
2,100.0	4.40	145.60	2,097.3	-62.1	42.5	-62.1	0.00	0.00	
2,200.0	4.40	145.60	2,197.0	-68.4	46.8	-68.4	0.00	0.00	
2,300.0	4.40	145.60	2,296.7	-74.7	51.2	-74.7	0.00	0.00	
2,400.0	4.40	145.60	2,396.4	-81.0	55.5	-81.0	0.00	0.00	
2,500.0	4.40	145.60	2,496.1	-87.4	59.8	-87.4	0.00	0.00	
2,600.0	4.40	145.60	2,595.9	-93.7	64.2	-93.7	0.00	0.00	
2,700.0	4.40	145.60	2,695.6	-100.0	68.5	-100.0	0.00	0.00	
2,800.0	4.40	145.60	2,795.3	-106.4	72.8	-106.4	0.00	0.00	
2,900.0	4.40	145.60	2,895.0	-112.7	77.2	-112.7	0.00	0.00	
3,000.0	4.40	145.60	2,994.7	-119.0	81.5	-119.0	0.00	0.00	
3,100.0	4.40	145.60	3,094.4	-125.4	85.9	-125.4	0.00	0.00	
3,200.0	4.40	145.60	3,194.1	-131.7	90.2	-131.7	0.00	0.00	
3,300.0	4.40	145.60	3,293.8	-138.0	94.5	-138.0	0.00	0.00	
3,400.0	4.40	145.60	3,393.5	-144.4	98.9	-144.4	0.00	0.00	
3,500.0	4.40	145.60	3,493.2	-150.7	103.2	-150.7	0.00	0.00	
3,600.0	4.40	145.60	3,592.9	-157.0	107.5	-157.0	0.00	0.00	
3,700.0	4.40	145.60	3,692.6	-163.4	111.9	-163.4	0.00	0.00	
3,800.0	4.40	145.60	3,792.3	-169.7	116.2	-169.7	0.00	0.00	
3,900.0	4.40	145.60	3,892.0	-176.0	120.5	-176.0	0.00	0.00	
4,000.0	4.40	145.60	3,991.7	-182.4	124.9	-182.4	0.00	0.00	
4,100.0	4.40	145.60	4,091.4	-188.7	129.2	-188.7	0.00	0.00	
4,200.0	4.40	145.60	4,191.1	-195.0	133.6	-195.0	0.00	0.00	
4,300.0	4.40	145.60	4,290.8	-201.3	137.9	-201.3	0.00	0.00	
4,400.0	4.40	145.60	4,390.5	-207.7	142.2	-207.7	0.00	0.00	
4,500.0	4.40	145.60	4,490.2	-214.0	146.6	-214.0	0.00	0.00	
4,600.0	4.40	145.60	4,590.0	-220.3	150.9	-220.3	0.00	0.00	
4,688.3	4.40	145.60	4,678.0	-225.9	154.7	-225.9	0.00	0.00	Sussex
4,700.0	4.40	145.60	4,689.7	-226.7	155.2	-226.7	0.00	0.00	
4,800.0	4.40	145.60	4,789.4	-233.0	159.6	-233.0	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 5052.0ft
Project:	DJ Wattenberg	MD Reference:	KBE @ 5052.0ft
Site:	S36 T2N-R66W (Marcus State)	North Reference:	True
Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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
4,863.8	4.40	145.60	4,853.0	-237.0	162.3	-237.0	0.00	0.00	Sussex Marker
4,900.0	4.40	145.60	4,889.1	-239.3	163.9	-239.3	0.00	0.00	
5,000.0	4.40	145.60	4,988.8	-245.7	168.2	-245.7	0.00	0.00	
5,100.0	4.40	145.60	5,088.5	-252.0	172.6	-252.0	0.00	0.00	
5,200.0	4.40	145.60	5,188.2	-258.3	176.9	-258.3	0.00	0.00	
5,240.9	4.40	145.60	5,229.0	-260.9	178.7	-260.9	0.00	0.00	Shannon
5,300.0	4.40	145.60	5,287.9	-264.7	181.3	-264.7	0.00	0.00	
5,400.0	4.40	145.60	5,387.6	-271.0	185.6	-271.0	0.00	0.00	
5,480.0	4.40	145.60	5,467.3	-276.1	189.1	-276.1	0.00	0.00	Start Drop -1.00
5,500.0	4.20	145.60	5,487.3	-277.3	189.9	-277.3	1.00	-1.00	
5,600.0	3.20	145.60	5,587.1	-282.6	193.5	-282.6	1.00	-1.00	
5,700.0	2.20	145.60	5,687.0	-286.5	196.2	-286.5	1.00	-1.00	
5,800.0	1.20	145.60	5,786.9	-289.0	197.9	-289.0	1.00	-1.00	
5,900.0	0.20	145.60	5,886.9	-290.0	198.6	-290.0	1.00	-1.00	
5,920.1	0.00	0.00	5,907.0	-290.0	198.6	-290.0	1.00	-1.00	EOD; Inc=0°
6,000.0	0.00	0.00	5,986.9	-290.0	198.6	-290.0	0.00	0.00	
6,100.0	0.00	0.00	6,086.9	-290.0	198.6	-290.0	0.00	0.00	
6,200.0	0.00	0.00	6,186.9	-290.0	198.6	-290.0	0.00	0.00	
6,300.0	0.00	0.00	6,286.9	-290.0	198.6	-290.0	0.00	0.00	
6,400.0	0.00	0.00	6,386.9	-290.0	198.6	-290.0	0.00	0.00	
6,500.0	0.00	0.00	6,486.9	-290.0	198.6	-290.0	0.00	0.00	
6,546.9	0.00	0.00	6,533.8	-290.0	198.6	-290.0	0.00	0.00	Start Build 8.00
6,600.0	4.25	0.00	6,586.9	-288.0	198.6	-288.0	8.00	8.00	
6,665.6	9.50	0.00	6,652.0	-280.2	198.6	-280.2	8.00	8.00	Teepee Buttes
6,700.0	12.25	0.00	6,685.8	-273.7	198.6	-273.7	8.00	8.00	
6,800.0	20.25	0.00	6,781.7	-245.7	198.6	-245.7	8.00	8.00	
6,900.0	28.25	0.00	6,872.8	-204.7	198.6	-204.7	8.00	8.00	
7,000.0	36.25	0.00	6,957.3	-151.4	198.6	-151.4	8.00	8.00	
7,100.0	44.25	0.00	7,033.6	-86.8	198.6	-86.8	8.00	8.00	
7,200.0	52.25	0.00	7,100.1	-12.3	198.6	-12.3	8.00	8.00	
7,216.4	53.56	0.00	7,110.0	0.8	198.6	0.8	8.00	8.00	Sharon Springs
7,283.0	58.89	0.00	7,147.0	56.2	198.6	56.2	8.00	8.00	Niobrara
7,300.0	60.25	0.00	7,155.6	70.8	198.6	70.8	8.00	8.00	
7,400.0	68.25	0.00	7,199.0	160.8	198.6	160.8	8.00	8.00	
7,500.0	76.25	0.00	7,229.5	256.0	198.6	256.0	8.00	8.00	
7,525.0	78.25	0.00	7,235.0	280.4	198.6	280.4	8.00	8.00	B Chalk
7,600.0	84.25	0.00	7,246.4	354.4	198.6	354.4	8.00	8.00	
7,671.9	90.00	0.00	7,250.0	426.2	198.6	426.2	8.00	8.00	LP @ 7250' TVD; 90°
7,700.0	90.00	0.00	7,250.0	454.3	198.6	454.3	0.00	0.00	
7,800.0	90.00	0.00	7,250.0	554.3	198.6	554.3	0.00	0.00	
7,900.0	90.00	0.00	7,250.0	654.3	198.6	654.3	0.00	0.00	
8,000.0	90.00	0.00	7,250.0	754.3	198.6	754.3	0.00	0.00	
8,100.0	90.00	0.00	7,250.0	854.3	198.6	854.3	0.00	0.00	
8,200.0	90.00	0.00	7,250.0	954.3	198.6	954.3	0.00	0.00	
8,300.0	90.00	0.00	7,250.0	1,054.3	198.6	1,054.3	0.00	0.00	
8,400.0	90.00	0.00	7,250.0	1,154.3	198.6	1,154.3	0.00	0.00	
8,500.0	90.00	0.00	7,250.0	1,254.3	198.6	1,254.3	0.00	0.00	
8,600.0	90.00	0.00	7,250.0	1,354.3	198.6	1,354.3	0.00	0.00	
8,700.0	90.00	0.00	7,250.0	1,454.3	198.6	1,454.3	0.00	0.00	
8,800.0	90.00	0.00	7,250.0	1,554.3	198.6	1,554.3	0.00	0.00	
8,900.0	90.00	0.00	7,250.0	1,654.3	198.6	1,654.3	0.00	0.00	
9,000.0	90.00	0.00	7,250.0	1,754.3	198.6	1,754.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 5052.0ft
Project:	DJ Wattenberg	MD Reference:	KBE @ 5052.0ft
Site:	S36 T2N-R66W (Marcus State)	North Reference:	True
Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	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	7,250.0	1,854.3	198.6	1,854.3	0.00	0.00	
9,200.0	90.00	0.00	7,250.0	1,954.3	198.6	1,954.3	0.00	0.00	
9,300.0	90.00	0.00	7,250.0	2,054.3	198.6	2,054.3	0.00	0.00	
9,400.0	90.00	0.00	7,250.0	2,154.3	198.6	2,154.3	0.00	0.00	
9,500.0	90.00	0.00	7,250.0	2,254.3	198.6	2,254.3	0.00	0.00	
9,600.0	90.00	0.00	7,250.0	2,354.3	198.6	2,354.3	0.00	0.00	
9,700.0	90.00	0.00	7,250.0	2,454.3	198.6	2,454.3	0.00	0.00	
9,800.0	90.00	0.00	7,250.0	2,554.3	198.6	2,554.3	0.00	0.00	
9,900.0	90.00	0.00	7,250.0	2,654.3	198.6	2,654.3	0.00	0.00	
10,000.0	90.00	0.00	7,250.0	2,754.3	198.6	2,754.3	0.00	0.00	
10,100.0	90.00	0.00	7,250.0	2,854.3	198.6	2,854.3	0.00	0.00	
10,200.0	90.00	0.00	7,250.0	2,954.3	198.6	2,954.3	0.00	0.00	
10,300.0	90.00	0.00	7,250.0	3,054.3	198.6	3,054.3	0.00	0.00	
10,400.0	90.00	0.00	7,250.0	3,154.3	198.6	3,154.3	0.00	0.00	
10,500.0	90.00	0.00	7,250.0	3,254.3	198.6	3,254.3	0.00	0.00	
10,600.0	90.00	0.00	7,250.0	3,354.3	198.6	3,354.3	0.00	0.00	
10,700.0	90.00	0.00	7,250.0	3,454.3	198.6	3,454.3	0.00	0.00	
10,800.0	90.00	0.00	7,250.0	3,554.3	198.6	3,554.3	0.00	0.00	
10,900.0	90.00	0.00	7,250.0	3,654.3	198.6	3,654.3	0.00	0.00	
11,000.0	90.00	0.00	7,250.0	3,754.3	198.6	3,754.3	0.00	0.00	
11,100.0	90.00	0.00	7,250.0	3,854.3	198.6	3,854.3	0.00	0.00	
11,200.0	90.00	0.00	7,250.0	3,954.3	198.6	3,954.3	0.00	0.00	
11,300.0	90.00	0.00	7,250.0	4,054.3	198.6	4,054.3	0.00	0.00	
11,400.0	90.00	0.00	7,250.0	4,154.3	198.6	4,154.3	0.00	0.00	
11,500.0	90.00	0.00	7,250.0	4,254.3	198.6	4,254.3	0.00	0.00	
11,600.0	90.00	0.00	7,250.0	4,354.3	198.6	4,354.3	0.00	0.00	
11,700.0	90.00	0.00	7,250.0	4,454.3	198.6	4,454.3	0.00	0.00	
11,800.0	90.00	0.00	7,250.0	4,554.3	198.6	4,554.3	0.00	0.00	
11,802.8	90.00	0.00	7,250.0	4,557.1	198.6	4,557.1	0.00	0.00	TD at 11802.8

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 3D-36H V	0.00	0.00	5,907.0	-290.0	198.6	1,275,654.65	3,215,635.46	40.087484	-104.729320
- plan hits target center									
- Point									
Marcus State 3D-36H PI	0.00	0.00	7,250.0	4,557.1	198.6	1,280,501.60	3,215,593.39	40.100790	-104.729320
- plan hits target center									
- Point									
Marcus State 3D-36H PI	0.00	0.00	7,334.0	4,557.1	198.6	1,280,501.60	3,215,593.39	40.100790	-104.729320
- plan misses target center by 84.0ft at 11802.8ft MD (7250.0 TVD, 4557.1 N, 198.6 E)									
- Point									

Planning Report

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

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,002.0	1,002.0	Base of Fox Hills		0.00		
4,688.3	4,678.0	Sussex		0.00		
4,863.8	4,853.0	Sussex Marker		0.00		
5,240.9	5,229.0	Shannon		0.00		
6,665.6	6,652.0	Teepee Buttes		0.00		
7,216.4	7,110.0	Sharon Springs		0.00		
7,283.0	7,147.0	Niobrara		0.00		
7,525.0	7,235.0	B Chalk		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
900.0	900.0	0.0	0.0	KOP @ 900'	
1,340.1	1,339.7	-13.9	9.5	EOB; Inc=4.4°	
5,480.0	5,467.3	-276.1	189.1	Start Drop -1.00	
5,920.1	5,907.0	-290.0	198.6	EOD; Inc=0°	
6,546.9	6,533.8	-290.0	198.6	Start Build 8.00	
7,671.9	7,250.0	426.2	198.6	LP @ 7250' TVD; 90°	
11,802.8	7,250.0	4,557.1	198.6	TD at 11802.8	

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S36 T2N-R66W (Marcus State)

Marcus State 3D-36H

HZ

Plan #2

Anticollision Report

01 March, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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	11,802.8	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						Out of range
Marcus State 24-36 (Existing) - VT - Existing	7,440.2	7,213.8	498.1	472.0	19.069	CC, ES, SF
Marcus State 3A-36H - HZ - Plan #2	166.3	167.3	30.8	30.2	57.316	CC
Marcus State 3A-36H - HZ - Plan #2	200.0	201.0	30.8	30.1	47.024	ES
Marcus State 3A-36H - HZ - Plan #2	700.0	697.2	52.1	49.7	21.428	SF
Marcus State 3B-36H - HZ - Plan #2	300.0	300.0	22.4	21.4	22.343	CC, ES
Marcus State 3B-36H - HZ - Plan #2	600.0	598.7	29.7	27.7	14.459	SF
Marcus State 3C-36H - HZ - Plan #2	900.0	900.0	11.2	8.1	3.615	CC, ES
Marcus State 3C-36H - HZ - Plan #2	1,000.0	1,000.0	11.7	8.3	3.398	SF
Marcus State 3E-36H - HZ - Plan #2	700.0	700.0	8.4	6.0	3.500	CC, ES
Marcus State 3E-36H - HZ - Plan #2	11,802.8	12,056.8	457.7	312.9	3.162	SF
Marcus State 3F-36H - HZ - Plan #2	400.0	400.0	19.6	18.2	14.498	CC, ES
Marcus State 3F-36H - HZ - Plan #2	600.0	599.3	23.0	20.9	11.212	SF
Marcus State W 36-2J (Existing) - VT - Existing	10,887.7	7,251.0	276.4	197.0	3.482	CC, ES
Marcus State W 36-2J (Existing) - VT - Existing	10,900.0	7,251.0	276.7	197.1	3.476	SF
Marcus State W 36-3J (Existing) - VT - Existing						Out of range
Marcus State W 36-4J (Existing) - VT - Existing						Out of range
Marcus State W 36-6J (Existing) - VT - Existing	10,082.7	7,251.0	251.8	186.2	3.840	CC, ES
Marcus State W 36-6J (Existing) - VT - Existing	10,100.0	7,251.0	252.4	186.5	3.832	SF
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

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design		S36 T2N-R66W (Marcus State) - Marcus State 24-36 (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						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	
7,400.0	7,199.0	7,200.0	7,200.0	13.7	12.5	88.39	198.5	696.7	499.5	473.7	25.82	19.345	
7,440.2	7,212.8	7,213.8	7,213.8	14.0	12.6	90.00	198.5	696.7	498.1	472.0	26.12	19.069	CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-30.8	30.8				
100.0	100.0	101.0	101.0	0.2	0.2	-90.00	0.0	-30.8	30.8	30.5	0.31	100.765	
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-30.8	30.8	30.2	0.54	57.316 CC	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-30.8	30.8	30.1	0.65	47.024 ES	
300.0	300.0	300.5	300.5	0.5	0.5	-90.40	-0.2	-31.6	31.6	30.6	1.00	31.535	
400.0	400.0	400.0	400.0	0.7	0.7	-91.47	-0.9	-34.2	34.2	32.8	1.35	25.242	
500.0	500.0	499.2	499.0	0.8	0.9	-92.92	-2.0	-38.3	38.4	36.7	1.71	22.497	
600.0	600.0	598.3	598.0	1.0	1.1	-94.48	-3.5	-44.2	44.4	42.3	2.07	21.479	
700.0	700.0	697.2	696.5	1.2	1.3	-95.96	-5.4	-51.6	52.1	49.7	2.43	21.428 SF	
800.0	800.0	795.7	794.7	1.4	1.5	-97.27	-7.7	-60.7	61.6	58.8	2.80	21.961	
900.0	900.0	894.0	892.3	1.5	1.8	-98.37	-10.5	-71.4	72.7	69.5	3.18	22.866	
1,000.0	1,000.0	991.7	989.2	1.7	2.0	115.53	-13.7	-83.7	85.9	82.5	3.43	25.035	
1,100.0	1,100.0	1,088.9	1,085.4	1.9	2.3	115.90	-17.2	-97.4	101.6	97.8	3.78	26.885	
1,200.0	1,199.9	1,185.4	1,180.5	2.1	2.6	116.76	-21.2	-112.6	119.7	115.6	4.13	28.990	
1,300.0	1,299.7	1,281.1	1,274.7	2.3	3.0	117.88	-25.4	-129.2	140.3	135.8	4.48	31.274	
1,400.0	1,399.4	1,375.9	1,367.6	2.5	3.3	119.11	-30.1	-147.2	163.1	158.3	4.85	33.651	
1,500.0	1,499.1	1,469.9	1,459.6	2.7	3.7	120.04	-35.1	-166.5	187.7	182.5	5.22	35.989	
1,600.0	1,598.8	1,564.0	1,551.2	2.9	4.1	120.68	-40.4	-187.2	213.8	208.3	5.59	38.270	
1,700.0	1,698.5	1,660.4	1,645.0	3.1	4.5	121.18	-46.0	-208.8	240.4	234.5	5.97	40.291	
1,800.0	1,798.2	1,756.8	1,738.7	3.3	4.9	121.57	-51.6	-230.5	267.0	260.7	6.35	42.056	
1,900.0	1,897.9	1,853.2	1,832.5	3.5	5.3	121.89	-57.2	-252.1	293.6	286.9	6.73	43.607	
2,000.0	1,997.6	1,949.6	1,926.2	3.7	5.8	122.16	-62.8	-273.7	320.3	313.1	7.12	44.979	
2,100.0	2,097.3	2,045.9	2,020.0	3.9	6.2	122.39	-68.4	-295.4	346.9	339.4	7.51	46.201	
2,200.0	2,197.0	2,142.3	2,113.7	4.1	6.6	122.58	-74.0	-317.0	373.5	365.6	7.90	47.296	
2,300.0	2,296.7	2,238.7	2,207.5	4.3	7.0	122.75	-79.6	-338.6	400.1	391.9	8.29	48.281	
2,400.0	2,396.4	2,335.1	2,301.2	4.5	7.4	122.90	-85.2	-360.3	426.8	418.1	8.68	49.172	
2,500.0	2,496.1	2,431.5	2,395.0	4.7	7.9	123.03	-90.8	-381.9	453.4	444.3	9.07	49.982	
2,600.0	2,595.9	2,527.9	2,488.8	5.0	8.3	123.15	-96.4	-403.5	480.1	470.6	9.46	50.721	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3B-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	399.6	399.6	0.7	0.7	-90.84	-0.3	-23.2	23.2	21.8	1.35	17.165		
500.0	500.0	499.2	499.2	0.8	0.9	-93.04	-1.4	-25.6	25.6	23.9	1.70	15.054		
600.0	600.0	598.7	598.5	1.0	1.0	-95.90	-3.1	-29.5	29.7	27.7	2.06	14.459 SF		
700.0	700.0	697.9	697.6	1.2	1.2	-98.78	-5.4	-35.1	35.6	33.2	2.42	14.730		
800.0	800.0	797.0	796.3	1.4	1.4	-101.33	-8.5	-42.2	43.2	40.4	2.78	15.534		
900.0	900.0	895.7	894.6	1.5	1.7	-103.43	-12.1	-50.8	52.5	49.4	3.15	16.680		
1,000.0	1,000.0	994.1	992.4	1.7	1.9	-109.92	-16.5	-61.0	63.9	60.5	3.44	18.592		
1,100.0	1,100.0	1,091.9	1,089.4	1.9	2.2	-110.17	-21.4	-72.6	77.6	73.8	3.79	20.489		
1,200.0	1,199.9	1,190.8	1,187.3	2.1	2.4	-111.23	-26.8	-85.2	92.7	88.6	4.14	22.378		
1,300.0	1,299.7	1,289.4	1,285.0	2.3	2.7	-112.81	-32.1	-97.7	108.5	104.0	4.51	24.076		
1,400.0	1,399.4	1,388.0	1,382.7	2.5	3.0	-114.64	-37.4	-110.2	125.0	120.1	4.88	25.606		
1,500.0	1,499.1	1,486.6	1,480.3	2.7	3.3	-116.15	-42.8	-122.6	141.6	136.4	5.26	26.918		
1,600.0	1,598.8	1,585.1	1,577.9	2.9	3.6	-117.34	-48.1	-135.1	158.3	152.7	5.65	28.048		
1,700.0	1,698.5	1,683.7	1,675.5	3.1	3.8	-118.30	-53.4	-147.6	175.1	169.1	6.03	29.029		
1,800.0	1,798.2	1,782.2	1,773.1	3.3	4.1	-119.09	-58.8	-160.1	191.9	185.5	6.42	29.886		
1,900.0	1,897.9	1,880.7	1,870.7	3.5	4.4	-119.76	-64.1	-172.6	208.7	201.9	6.81	30.640		
2,000.0	1,997.6	1,979.3	1,968.3	3.7	4.7	-120.32	-69.4	-185.1	225.6	218.4	7.20	31.310		
2,100.0	2,097.3	2,077.8	2,065.9	3.9	5.0	-120.81	-74.7	-197.6	242.4	234.8	7.60	31.906		
2,200.0	2,197.0	2,176.4	2,163.5	4.1	5.3	-121.24	-80.1	-210.1	259.3	251.3	7.99	32.442		
2,300.0	2,296.7	2,274.9	2,261.1	4.3	5.6	-121.61	-85.4	-222.5	276.2	267.8	8.39	32.924		
2,400.0	2,396.4	2,373.5	2,358.7	4.5	5.9	-121.94	-90.7	-235.0	293.1	284.3	8.79	33.361		
2,500.0	2,496.1	2,472.0	2,456.4	4.7	6.2	-122.23	-96.0	-247.5	310.0	300.9	9.18	33.759		
2,600.0	2,595.9	2,570.6	2,554.0	5.0	6.5	-122.50	-101.4	-260.0	327.0	317.4	9.58	34.122		
2,700.0	2,695.6	2,669.1	2,651.6	5.2	6.7	-122.73	-106.7	-272.5	343.9	333.9	9.98	34.455		
2,800.0	2,795.3	2,767.7	2,749.2	5.4	7.0	-122.95	-112.0	-285.0	360.8	350.4	10.38	34.761		
2,900.0	2,895.0	2,866.2	2,846.8	5.6	7.3	-123.14	-117.3	-297.5	377.8	367.0	10.78	35.044		
3,000.0	2,994.7	2,964.8	2,944.4	5.8	7.6	-123.32	-122.7	-309.9	394.7	383.5	11.18	35.306		
3,100.0	3,094.4	3,063.3	3,042.0	6.0	7.9	-123.49	-128.0	-322.4	411.6	400.1	11.58	35.549		
3,200.0	3,194.1	3,161.9	3,139.6	6.3	8.2	-123.64	-133.3	-334.9	428.6	416.6	11.98	35.775		
3,300.0	3,293.8	3,260.4	3,237.2	6.5	8.5	-123.78	-138.7	-347.4	445.5	433.2	12.38	35.985		
3,400.0	3,393.5	3,359.0	3,334.8	6.7	8.8	-123.91	-144.0	-359.9	462.5	449.7	12.78	36.182		
3,500.0	3,493.2	3,457.5	3,432.4	6.9	9.1	-124.03	-149.3	-372.4	479.5	466.3	13.18	36.367		
3,600.0	3,592.9	3,556.1	3,530.0	7.1	9.4	-124.14	-154.6	-384.9	496.4	482.8	13.59	36.541		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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		
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		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-11.2	11.2	9.8	1.35	8.285		
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-11.2	11.2	9.5	1.70	6.584		
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-11.2	11.2	9.1	2.05	5.462		
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-11.2	11.2	8.8	2.40	4.667		
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-11.2	11.2	8.4	2.75	4.074		
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-11.2	11.2	8.1	3.10	3.615 CC, ES		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	127.93	0.0	-11.2	11.7	8.3	3.45	3.398 SF		
1,100.0	1,100.0	1,099.8	1,099.8	1.9	1.9	133.53	-0.7	-11.7	13.9	10.1	3.79	3.662		
1,200.0	1,199.9	1,199.6	1,199.6	2.1	2.1	136.36	-2.7	-13.4	18.3	14.1	4.15	4.402		
1,300.0	1,299.7	1,299.2	1,299.1	2.3	2.3	137.15	-6.0	-16.2	24.7	20.2	4.50	5.484		
1,400.0	1,399.4	1,398.7	1,398.3	2.5	2.4	136.60	-10.7	-20.0	33.0	28.1	4.87	6.772		
1,500.0	1,499.1	1,498.1	1,497.5	2.7	2.6	134.76	-16.4	-24.8	42.0	36.8	5.24	8.011		
1,600.0	1,598.8	1,597.7	1,596.8	2.9	2.8	133.47	-22.2	-29.6	51.1	45.5	5.62	9.092		
1,700.0	1,698.5	1,697.3	1,696.1	3.1	3.0	132.58	-28.0	-34.4	60.2	54.2	6.00	10.033		
1,800.0	1,798.2	1,796.9	1,795.4	3.3	3.2	131.91	-33.7	-39.2	69.4	63.0	6.39	10.857		
1,900.0	1,897.9	1,896.5	1,894.7	3.5	3.4	131.41	-39.5	-44.0	78.5	71.7	6.78	11.585		
2,000.0	1,997.6	1,996.0	1,994.0	3.7	3.6	131.00	-45.3	-48.8	87.6	80.5	7.17	12.230		
2,100.0	2,097.3	2,095.6	2,093.3	3.9	3.8	130.68	-51.1	-53.6	96.8	89.2	7.56	12.807		
2,200.0	2,197.0	2,195.2	2,192.6	4.1	4.0	130.41	-56.9	-58.4	105.9	98.0	7.95	13.324		
2,300.0	2,296.7	2,294.8	2,291.9	4.3	4.3	130.18	-62.7	-63.2	115.1	106.8	8.35	13.790		
2,400.0	2,396.4	2,394.4	2,391.2	4.5	4.5	129.99	-68.5	-68.0	124.3	115.5	8.74	14.213		
2,500.0	2,496.1	2,493.9	2,490.5	4.7	4.7	129.82	-74.3	-72.8	133.4	124.3	9.14	14.598		
2,600.0	2,595.9	2,593.5	2,589.8	5.0	4.9	129.68	-80.1	-77.6	142.6	133.0	9.54	14.949		
2,700.0	2,695.6	2,693.1	2,689.1	5.2	5.1	129.55	-85.8	-82.4	151.7	141.8	9.94	15.271		
2,800.0	2,795.3	2,792.7	2,788.4	5.4	5.3	129.44	-91.6	-87.2	160.9	150.6	10.34	15.567		
2,900.0	2,895.0	2,892.3	2,887.7	5.6	5.5	129.33	-97.4	-92.0	170.1	159.3	10.74	15.841		
3,000.0	2,994.7	2,991.8	2,987.0	5.8	5.7	129.24	-103.2	-96.8	179.2	168.1	11.14	16.094		
3,100.0	3,094.4	3,091.4	3,086.3	6.0	5.9	129.16	-109.0	-101.6	188.4	176.8	11.54	16.329		
3,200.0	3,194.1	3,191.0	3,185.6	6.3	6.2	129.09	-114.8	-106.4	197.5	185.6	11.94	16.547		
3,300.0	3,293.8	3,290.6	3,284.9	6.5	6.4	129.02	-120.6	-111.2	206.7	194.4	12.34	16.751		
3,400.0	3,393.5	3,390.2	3,384.1	6.7	6.6	128.96	-126.4	-116.0	215.9	203.1	12.74	16.942		
3,500.0	3,493.2	3,489.7	3,483.4	6.9	6.8	128.90	-132.2	-120.8	225.0	211.9	13.14	17.120		
3,600.0	3,592.9	3,589.3	3,582.7	7.1	7.0	128.85	-138.0	-125.6	234.2	220.6	13.55	17.288		
3,700.0	3,692.6	3,688.9	3,682.0	7.3	7.2	128.80	-143.7	-130.5	243.3	229.4	13.95	17.445		
3,800.0	3,792.3	3,788.5	3,781.3	7.6	7.4	128.75	-149.5	-135.3	252.5	238.2	14.35	17.593		
3,900.0	3,892.0	3,888.0	3,880.6	7.8	7.7	128.71	-155.3	-140.1	261.7	246.9	14.76	17.733		
4,000.0	3,991.7	3,987.6	3,979.9	8.0	7.9	128.67	-161.1	-144.9	270.8	255.7	15.16	17.866		
4,100.0	4,091.4	4,087.2	4,079.2	8.2	8.1	128.64	-166.9	-149.7	280.0	264.4	15.56	17.991		
4,200.0	4,191.1	4,186.8	4,178.5	8.4	8.3	128.60	-172.7	-154.5	289.2	273.2	15.97	18.110		
4,300.0	4,290.8	4,286.4	4,277.8	8.6	8.5	128.57	-178.5	-159.3	298.3	282.0	16.37	18.222		
4,400.0	4,390.5	4,385.9	4,377.1	8.9	8.7	128.54	-184.3	-164.1	307.5	290.7	16.78	18.329		
4,500.0	4,490.2	4,485.5	4,476.4	9.1	8.9	128.51	-190.1	-168.9	316.7	299.5	17.18	18.431		
4,600.0	4,590.0	4,585.1	4,575.7	9.3	9.2	128.49	-195.9	-173.7	325.8	308.2	17.58	18.528		
4,700.0	4,689.7	4,684.7	4,675.0	9.5	9.4	128.46	-201.6	-178.5	335.0	317.0	17.99	18.621		
4,800.0	4,789.4	4,784.3	4,774.3	9.7	9.6	128.44	-207.4	-183.3	344.1	325.8	18.39	18.709		
4,900.0	4,889.1	4,883.8	4,873.6	10.0	9.8	128.41	-213.2	-188.1	353.3	334.5	18.80	18.794		
5,000.0	4,988.8	4,983.4	4,972.9	10.2	10.0	128.39	-219.0	-192.9	362.5	343.3	19.20	18.875		
5,100.0	5,088.5	5,083.0	5,072.2	10.4	10.2	128.37	-224.8	-197.7	371.6	352.0	19.61	18.952		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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		
5,200.0	5,188.2	5,182.6	5,171.4	10.6	10.5	128.35	-230.6	-202.5	380.8	360.8	20.01	19.026		
5,300.0	5,287.9	5,282.2	5,270.7	10.8	10.7	128.33	-236.4	-207.3	390.0	369.5	20.42	19.097		
5,400.0	5,387.6	5,381.7	5,370.0	11.0	10.9	128.32	-242.2	-212.1	399.1	378.3	20.83	19.166		
5,500.0	5,487.3	5,481.3	5,469.3	11.3	11.1	128.31	-248.0	-216.9	408.3	387.0	21.23	19.229		
5,600.0	5,587.1	5,581.0	5,568.7	11.5	11.3	128.23	-253.8	-221.7	416.7	395.0	21.63	19.263		
5,700.0	5,687.0	5,680.7	5,668.1	11.6	11.5	127.96	-259.5	-226.5	424.0	402.0	22.02	19.257		
5,800.0	5,786.9	5,780.4	5,767.5	11.8	11.8	127.50	-265.3	-231.3	430.3	407.9	22.40	19.214		
5,900.0	5,886.9	5,880.1	5,867.0	12.0	12.0	126.88	-271.1	-236.2	435.6	412.8	22.76	19.140		
6,000.0	5,986.9	5,979.8	5,966.4	12.1	12.2	-88.30	-276.9	-241.0	440.2	417.1	23.12	19.044		
6,100.0	6,086.9	6,084.2	6,070.6	12.3	12.4	-89.02	-282.4	-245.5	444.4	421.0	23.47	18.934		
6,200.0	6,186.9	6,189.3	6,175.5	12.4	12.6	-89.54	-286.4	-248.8	447.6	423.7	23.82	18.789		
6,300.0	6,286.9	6,294.4	6,280.6	12.6	12.8	-89.86	-288.9	-250.9	449.5	425.4	24.16	18.610		
6,400.0	6,386.9	6,399.7	6,385.9	12.7	12.9	-90.00	-290.0	-251.8	450.4	425.9	24.48	18.394		
6,500.0	6,486.9	6,500.8	6,486.9	12.9	13.1	-90.00	-290.0	-251.8	450.4	425.6	24.80	18.158		
6,549.0	6,536.0	6,549.8	6,536.0	12.9	13.2	-90.11	-290.0	-251.8	450.4	425.4	24.95	18.054		
6,600.0	6,586.9	6,600.7	6,586.9	13.0	13.2	-90.25	-290.0	-251.8	450.4	425.3	25.10	17.947		
6,700.0	6,685.8	6,699.6	6,685.8	13.0	13.4	-92.03	-290.0	-251.8	450.7	425.4	25.28	17.827		
6,800.0	6,781.7	6,796.5	6,782.7	13.0	13.5	-95.29	-289.8	-251.8	452.5	427.2	25.36	17.845		
6,900.0	6,872.8	6,899.9	6,885.5	13.0	13.6	-99.13	-280.1	-251.8	456.8	431.6	25.28	18.071		
7,000.0	6,957.3	7,008.8	6,991.1	12.9	13.6	-102.85	-254.0	-251.8	463.2	438.1	25.08	18.470		
7,100.0	7,033.6	7,124.1	7,097.2	12.9	13.6	-106.35	-209.2	-251.8	471.1	446.2	24.83	18.975		
7,200.0	7,100.1	7,246.1	7,200.2	13.0	13.5	-109.53	-144.0	-251.8	479.8	455.2	24.64	19.476		
7,300.0	7,155.6	7,375.3	7,295.4	13.3	13.5	-112.31	-57.0	-251.8	488.6	463.9	24.66	19.812		
7,400.0	7,199.0	7,511.3	7,377.1	13.7	13.8	-114.57	51.4	-251.8	496.5	471.5	25.06	19.817		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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							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	8.4	8.4						
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	8.4	8.4	8.1	0.30	27.639			
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	8.4	8.4	7.7	0.65	12.859			
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	8.4	8.4	7.4	1.00	8.379			
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	8.4	8.4	7.0	1.35	6.214			
500.0	500.0	500.0	500.0	0.8	0.8	90.00	0.0	8.4	8.4	6.7	1.70	4.938			
600.0	600.0	600.0	600.0	1.0	1.0	90.00	0.0	8.4	8.4	6.3	2.05	4.096			
700.0	700.0	700.0	700.0	1.2	1.2	90.00	0.0	8.4	8.4	6.0	2.40	3.500	CC, ES		
800.0	800.0	799.9	799.9	1.4	1.4	92.40	-0.4	9.2	9.2	6.4	2.75	3.343			
900.0	900.0	899.7	899.6	1.5	1.6	97.61	-1.5	11.5	11.6	8.5	3.10	3.754			
1,000.0	1,000.0	999.4	999.2	1.7	1.7	-45.16	-3.5	15.4	15.2	11.7	3.44	4.407			
1,100.0	1,100.0	1,099.0	1,098.7	1.9	1.9	-45.72	-6.1	20.8	19.2	15.4	3.80	5.059			
1,200.0	1,199.9	1,198.5	1,197.9	2.1	2.1	-47.89	-9.6	27.8	23.7	19.5	4.15	5.708			
1,300.0	1,299.7	1,298.0	1,296.9	2.3	2.3	-50.80	-13.8	36.4	28.7	24.2	4.51	6.360			
1,400.0	1,399.4	1,397.3	1,395.6	2.5	2.6	-53.60	-18.7	46.4	34.5	29.6	4.89	7.058			
1,500.0	1,499.1	1,496.7	1,494.2	2.7	2.8	-54.80	-24.4	57.9	41.7	36.4	5.27	7.911			
1,600.0	1,598.8	1,596.4	1,593.0	2.9	3.1	-55.50	-30.2	69.6	49.1	43.5	5.65	8.690			
1,700.0	1,698.5	1,696.1	1,691.9	3.1	3.3	-56.02	-36.0	81.3	56.6	50.5	6.04	9.363			
1,800.0	1,798.2	1,795.9	1,790.7	3.3	3.6	-56.41	-41.8	93.1	64.1	57.6	6.44	9.950			
1,900.0	1,897.9	1,895.6	1,889.6	3.5	3.8	-56.73	-47.5	104.8	71.5	64.7	6.83	10.465			
2,000.0	1,997.6	1,995.3	1,988.4	3.7	4.1	-56.98	-53.3	116.6	79.0	71.8	7.23	10.920			
2,100.0	2,097.3	2,095.0	2,087.3	3.9	4.4	-57.19	-59.1	128.3	86.5	78.8	7.63	11.325			
2,200.0	2,197.0	2,194.7	2,186.2	4.1	4.7	-57.37	-64.9	140.1	93.9	85.9	8.04	11.687			
2,300.0	2,296.7	2,294.5	2,285.0	4.3	4.9	-57.52	-70.7	151.8	101.4	93.0	8.44	12.012			
2,400.0	2,396.4	2,394.2	2,383.9	4.5	5.2	-57.65	-76.5	163.5	108.9	100.0	8.85	12.306			
2,500.0	2,496.1	2,493.9	2,482.7	4.7	5.5	-57.77	-82.3	175.3	116.3	107.1	9.25	12.573			
2,600.0	2,595.9	2,593.6	2,581.6	5.0	5.8	-57.86	-88.1	187.0	123.8	114.2	9.66	12.816			
2,700.0	2,695.6	2,693.3	2,680.4	5.2	6.1	-57.95	-93.9	198.8	131.3	121.2	10.07	13.038			
2,800.0	2,795.3	2,793.1	2,779.3	5.4	6.3	-58.03	-99.7	210.5	138.8	128.3	10.48	13.242			
2,900.0	2,895.0	2,892.8	2,878.2	5.6	6.6	-58.10	-105.4	222.3	146.2	135.3	10.89	13.430			
3,000.0	2,994.7	2,992.5	2,977.0	5.8	6.9	-58.17	-111.2	234.0	153.7	142.4	11.30	13.603			
3,100.0	3,094.4	3,092.2	3,075.9	6.0	7.2	-58.23	-117.0	245.8	161.2	149.5	11.71	13.764			
3,200.0	3,194.1	3,191.9	3,174.7	6.3	7.5	-58.28	-122.8	257.5	168.7	156.5	12.12	13.913			
3,300.0	3,293.8	3,291.7	3,273.6	6.5	7.7	-58.33	-128.6	269.2	176.1	163.6	12.53	14.052			
3,400.0	3,393.5	3,391.4	3,372.4	6.7	8.0	-58.37	-134.4	281.0	183.6	170.7	12.95	14.182			
3,500.0	3,493.2	3,491.1	3,471.3	6.9	8.3	-58.41	-140.2	292.7	191.1	177.7	13.36	14.303			
3,600.0	3,592.9	3,590.8	3,570.2	7.1	8.6	-58.45	-146.0	304.5	198.6	184.8	13.77	14.417			
3,700.0	3,692.6	3,690.5	3,669.0	7.3	8.9	-58.48	-151.8	316.2	206.0	191.8	14.19	14.524			
3,800.0	3,792.3	3,790.3	3,767.9	7.6	9.2	-58.52	-157.6	328.0	213.5	198.9	14.60	14.624			
3,900.0	3,892.0	3,890.0	3,866.7	7.8	9.5	-58.55	-163.3	339.7	221.0	206.0	15.01	14.719			
4,000.0	3,991.7	3,989.7	3,965.6	8.0	9.7	-58.58	-169.1	351.4	228.5	213.0	15.43	14.809			
4,100.0	4,091.4	4,089.4	4,064.4	8.2	10.0	-58.60	-174.9	363.2	235.9	220.1	15.84	14.893			
4,200.0	4,191.1	4,189.2	4,163.3	8.4	10.3	-58.63	-180.7	374.9	243.4	227.1	16.26	14.973			
4,300.0	4,290.8	4,288.9	4,262.2	8.6	10.6	-58.65	-186.5	386.7	250.9	234.2	16.67	15.049			
4,400.0	4,390.5	4,388.6	4,361.0	8.9	10.9	-58.67	-192.3	398.4	258.4	241.3	17.09	15.121			
4,500.0	4,490.2	4,488.3	4,459.9	9.1	11.2	-58.69	-198.1	410.2	265.8	248.3	17.50	15.190			
4,600.0	4,590.0	4,588.0	4,558.7	9.3	11.5	-58.71	-203.9	421.9	273.3	255.4	17.92	15.255			
4,700.0	4,689.7	4,687.8	4,657.6	9.5	11.7	-58.73	-209.7	433.7	280.8	262.4	18.33	15.317			
4,800.0	4,789.4	4,787.5	4,756.4	9.7	12.0	-58.75	-215.5	445.4	288.3	269.5	18.75	15.377			
4,900.0	4,889.1	4,887.2	4,855.3	10.0	12.3	-58.77	-221.2	457.1	295.7	276.6	19.16	15.433			
5,000.0	4,988.8	4,986.9	4,954.2	10.2	12.6	-58.78	-227.0	468.9	303.2	283.6	19.58	15.488			
5,100.0	5,088.5	5,086.6	5,053.0	10.4	12.9	-58.80	-232.8	480.6	310.7	290.7	19.99	15.539			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State 3E-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							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	5,188.2	5,186.4	5,151.9	10.6	13.2	-58.81	-238.6	492.4	318.2	297.7	20.41	15.589			
5,300.0	5,287.9	5,286.1	5,250.7	10.8	13.5	-58.83	-244.4	504.1	325.6	304.8	20.82	15.637			
5,400.0	5,387.6	5,385.8	5,349.6	11.0	13.7	-58.84	-250.2	515.9	333.1	311.9	21.24	15.682			
5,500.0	5,487.3	5,485.5	5,448.4	11.3	14.0	-58.86	-256.0	527.6	340.6	318.9	21.66	15.727			
5,600.0	5,587.1	5,585.2	5,547.2	11.5	14.3	-58.77	-261.8	539.3	348.7	326.7	22.04	15.819			
5,700.0	5,687.0	5,684.7	5,645.9	11.6	14.6	-58.46	-267.5	551.1	357.7	335.3	22.39	15.975			
5,800.0	5,786.9	5,789.6	5,750.0	11.8	14.9	-57.96	-273.3	562.7	367.0	344.3	22.71	16.157			
5,900.0	5,886.9	5,895.1	5,854.9	12.0	15.1	-57.38	-278.2	572.7	375.7	352.6	23.01	16.327			
6,000.0	5,986.9	6,001.0	5,960.4	12.1	15.4	88.84	-282.3	581.0	383.4	360.1	23.29	16.458			
6,100.0	6,086.9	6,107.1	6,066.3	12.3	15.6	89.34	-285.5	587.5	389.5	365.9	23.59	16.513			
6,200.0	6,186.9	6,213.5	6,172.5	12.4	15.8	89.69	-287.9	592.3	394.0	370.1	23.89	16.491			
6,300.0	6,286.9	6,320.0	6,279.0	12.6	15.9	89.91	-289.4	595.3	396.8	372.6	24.20	16.395			
6,400.0	6,386.9	6,426.6	6,385.6	12.7	16.1	90.00	-290.0	596.6	398.0	373.4	24.52	16.228			
6,500.0	6,486.9	6,528.0	6,486.9	12.9	16.2	90.00	-290.0	596.6	398.0	373.2	24.84	16.020			
6,549.1	6,536.0	6,577.0	6,536.0	12.9	16.2	90.13	-290.0	596.6	398.0	373.0	24.97	15.936			
6,600.0	6,586.9	6,627.9	6,586.9	13.0	16.3	90.28	-290.0	596.6	398.0	372.9	25.11	15.851			
6,700.0	6,685.8	6,726.8	6,685.8	13.0	16.4	92.29	-290.0	596.6	398.3	373.2	25.12	15.858			
6,800.0	6,781.7	6,824.2	6,783.1	13.0	16.5	95.98	-289.6	596.6	400.4	375.5	24.92	16.066			
6,900.0	6,872.8	6,927.8	6,886.1	13.0	16.6	100.19	-278.8	596.6	405.0	380.4	24.65	16.434			
7,000.0	6,957.3	7,036.8	6,991.5	12.9	16.6	104.23	-251.5	596.6	411.8	387.4	24.41	16.874			
7,100.0	7,033.6	7,151.9	7,097.0	12.9	16.5	108.01	-205.7	596.6	420.2	395.9	24.26	17.320			
7,200.0	7,100.1	7,273.5	7,198.9	13.0	16.5	111.41	-139.6	596.6	429.4	405.1	24.27	17.691			
7,300.0	7,155.6	7,401.9	7,292.7	13.3	16.5	114.35	-52.3	596.6	438.6	414.1	24.50	17.904			
7,400.0	7,199.0	7,536.6	7,372.8	13.7	16.8	116.72	55.8	596.6	446.8	421.8	25.00	17.874			
7,500.0	7,229.5	7,676.8	7,433.1	14.4	17.3	118.42	182.2	596.6	453.1	427.3	25.85	17.530			
7,600.0	7,246.4	7,821.0	7,468.3	15.2	18.1	119.38	321.7	596.6	456.9	429.8	27.09	16.865			
7,700.0	7,250.0	7,954.0	7,476.0	16.2	19.2	119.59	454.3	596.6	457.7	428.9	28.75	15.919			
7,800.0	7,250.0	8,054.0	7,476.0	17.3	20.1	119.59	554.3	596.6	457.7	427.0	30.72	14.900			
7,900.0	7,250.0	8,154.0	7,476.0	18.5	21.2	119.59	654.3	596.6	457.7	424.8	32.84	13.935			
8,000.0	7,250.0	8,254.0	7,476.0	19.8	22.3	119.59	754.3	596.6	457.7	422.6	35.11	13.036			
8,100.0	7,250.0	8,354.0	7,476.0	21.1	23.5	119.59	854.3	596.6	457.7	420.2	37.49	12.209			
8,200.0	7,250.0	8,454.0	7,476.0	22.5	24.8	119.59	954.3	596.6	457.7	417.7	39.96	11.454			
8,300.0	7,250.0	8,554.0	7,476.0	24.0	26.1	119.59	1,054.3	596.6	457.7	415.2	42.50	10.768			
8,400.0	7,250.0	8,654.0	7,476.0	25.5	27.5	119.59	1,154.3	596.6	457.7	412.6	45.12	10.145			
8,500.0	7,250.0	8,754.0	7,476.0	27.0	28.9	119.59	1,254.3	596.6	457.7	409.9	47.78	9.579			
8,600.0	7,250.0	8,854.0	7,476.0	28.6	30.4	119.59	1,354.3	596.6	457.7	407.2	50.49	9.065			
8,700.0	7,250.0	8,954.0	7,476.0	30.1	31.9	119.59	1,454.3	596.6	457.7	404.4	53.23	8.598			
8,800.0	7,250.0	9,054.0	7,476.0	31.7	33.4	119.59	1,554.3	596.6	457.7	401.7	56.01	8.171			
8,900.0	7,250.0	9,154.0	7,476.0	33.3	34.9	119.59	1,654.3	596.6	457.7	398.9	58.82	7.782			
9,000.0	7,250.0	9,254.0	7,476.0	35.0	36.5	119.59	1,754.3	596.6	457.7	396.0	61.65	7.424			
9,100.0	7,250.0	9,354.0	7,476.0	36.6	38.0	119.59	1,854.3	596.6	457.7	393.2	64.50	7.096			
9,200.0	7,250.0	9,454.0	7,476.0	38.2	39.6	119.59	1,954.3	596.6	457.7	390.3	67.36	6.794			
9,300.0	7,250.0	9,554.0	7,476.0	39.9	41.2	119.59	2,054.3	596.6	457.7	387.4	70.25	6.515			
9,400.0	7,250.0	9,654.0	7,476.0	41.6	42.8	119.59	2,154.3	596.6	457.7	384.5	73.15	6.257			
9,500.0	7,250.0	9,754.0	7,476.0	43.2	44.5	119.59	2,254.3	596.6	457.7	381.6	76.06	6.018			
9,600.0	7,250.0	9,854.0	7,476.0	44.9	46.1	119.59	2,354.3	596.6	457.7	378.7	78.98	5.795			
9,700.0	7,250.0	9,954.0	7,476.0	46.6	47.7	119.59	2,454.3	596.6	457.7	375.8	81.91	5.588			
9,800.0	7,250.0	10,054.0	7,476.0	48.3	49.4	119.59	2,554.3	596.6	457.7	372.8	84.85	5.394			
9,900.0	7,250.0	10,154.0	7,476.0	50.0	51.0	119.59	2,654.3	596.6	457.7	369.9	87.80	5.213			
10,000.0	7,250.0	10,254.0	7,476.0	51.7	52.7	119.59	2,754.3	596.6	457.7	366.9	90.75	5.043			
10,100.0	7,250.0	10,354.0	7,476.0	53.4	54.4	119.59	2,854.3	596.6	457.7	364.0	93.72	4.884			
10,200.0	7,250.0	10,454.0	7,476.0	55.1	56.0	119.59	2,954.3	596.6	457.7	361.0	96.68	4.734			

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	7,250.0	10,554.0	7,476.0	56.8	57.7	119.59	3,054.3	596.6	457.7	358.0	99.66	4.592	
10,400.0	7,250.0	10,654.0	7,476.0	58.5	59.4	119.59	3,154.3	596.6	457.7	355.0	102.64	4.459	
10,500.0	7,250.0	10,754.0	7,476.0	60.2	61.1	119.59	3,254.3	596.6	457.7	352.1	105.62	4.333	
10,600.0	7,250.0	10,854.0	7,476.0	61.9	62.8	119.59	3,354.3	596.6	457.7	349.1	108.61	4.214	
10,700.0	7,250.0	10,954.0	7,476.0	63.6	64.5	119.59	3,454.3	596.6	457.7	346.1	111.60	4.101	
10,800.0	7,250.0	11,054.0	7,476.0	65.3	66.2	119.59	3,554.3	596.6	457.7	343.1	114.59	3.994	
10,900.0	7,250.0	11,154.0	7,476.0	67.1	67.9	119.59	3,654.3	596.6	457.7	340.1	117.59	3.892	
11,000.0	7,250.0	11,254.0	7,476.0	68.8	69.6	119.59	3,754.3	596.6	457.7	337.1	120.59	3.795	
11,100.0	7,250.0	11,354.0	7,476.0	70.5	71.3	119.59	3,854.3	596.6	457.7	334.1	123.59	3.703	
11,200.0	7,250.0	11,454.0	7,476.0	72.2	73.0	119.59	3,954.3	596.6	457.7	331.1	126.60	3.615	
11,300.0	7,250.0	11,554.0	7,476.0	73.9	74.7	119.59	4,054.3	596.6	457.7	328.1	129.60	3.531	
11,400.0	7,250.0	11,654.0	7,476.0	75.7	76.4	119.59	4,154.3	596.6	457.7	325.1	132.61	3.451	
11,500.0	7,250.0	11,754.0	7,476.0	77.4	78.1	119.59	4,254.3	596.6	457.7	322.0	135.63	3.375	
11,600.0	7,250.0	11,854.0	7,476.0	79.1	79.8	119.59	4,354.3	596.6	457.7	319.0	138.64	3.301	
11,700.0	7,250.0	11,954.0	7,476.0	80.9	81.6	119.59	4,454.3	596.6	457.7	316.0	141.66	3.231	
11,800.0	7,250.0	12,054.0	7,476.0	82.6	83.3	119.59	4,554.3	596.6	457.7	313.0	144.67	3.163	
11,802.8	7,250.0	12,056.8	7,476.0	82.6	83.3	119.59	4,557.1	596.6	457.7	312.9	144.76	3.162 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	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									
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	19.6	19.6						
100.0	100.0	100.0	100.0	0.2	0.2	90.00	0.0	19.6	19.6	19.3	0.30	64.492			
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	19.6	19.6	18.9	0.65	30.004			
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	19.6	19.6	18.6	1.00	19.550			
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	19.6	19.6	18.2	1.35	14.498 CC, ES			
500.0	500.0	499.7	499.7	0.8	0.8	90.62	-0.2	20.4	20.4	18.7	1.70	12.020			
600.0	600.0	599.3	599.2	1.0	1.0	92.21	-0.9	22.9	23.0	20.9	2.05	11.212 SF			
700.0	700.0	698.7	698.6	1.2	1.2	94.20	-2.0	27.1	27.2	24.8	2.40	11.351			
800.0	800.0	798.0	797.7	1.4	1.4	96.12	-3.5	32.9	33.2	30.5	2.75	12.078			
900.0	900.0	897.1	896.5	1.5	1.6	97.77	-5.5	40.4	40.9	37.8	3.11	13.186			
1,000.0	1,000.0	995.9	994.9	1.7	1.8	-47.17	-7.9	49.5	49.8	46.4	3.44	14.482			
1,100.0	1,100.0	1,094.6	1,092.9	1.9	2.1	-47.74	-10.8	60.2	59.2	55.4	3.79	15.629			
1,200.0	1,199.9	1,193.0	1,190.4	2.1	2.3	-49.01	-14.0	72.5	69.2	65.0	4.14	16.702			
1,300.0	1,299.7	1,291.1	1,287.5	2.3	2.6	-50.69	-17.7	86.4	79.7	75.2	4.50	17.712			
1,400.0	1,399.4	1,389.0	1,384.1	2.5	2.9	-52.50	-21.8	101.9	91.1	86.3	4.87	18.711			
1,500.0	1,499.1	1,486.5	1,480.0	2.7	3.2	-53.78	-26.3	118.9	104.2	98.9	5.25	19.857			
1,600.0	1,598.8	1,583.6	1,575.2	2.9	3.6	-54.57	-31.2	137.3	118.9	113.3	5.63	21.130			
1,700.0	1,698.5	1,680.1	1,669.5	3.1	4.0	-55.01	-36.4	157.3	135.3	129.2	6.01	22.503			
1,800.0	1,798.2	1,776.2	1,763.0	3.3	4.4	-55.20	-42.1	178.6	153.2	146.8	6.40	23.957			
1,900.0	1,897.9	1,874.3	1,858.3	3.5	4.8	-55.28	-48.1	201.2	172.0	165.2	6.79	25.346			
2,000.0	1,997.6	1,972.6	1,953.7	3.7	5.2	-55.34	-54.0	223.8	190.8	183.6	7.18	26.576			
2,100.0	2,097.3	2,070.8	2,049.1	3.9	5.7	-55.39	-60.0	246.4	209.6	202.0	7.57	27.672			
2,200.0	2,197.0	2,169.0	2,144.5	4.1	6.1	-55.43	-66.0	269.1	228.4	220.4	7.97	28.654			
2,300.0	2,296.7	2,267.2	2,239.9	4.3	6.5	-55.46	-72.0	291.7	247.1	238.8	8.37	29.538			
2,400.0	2,396.4	2,365.4	2,335.3	4.5	7.0	-55.50	-78.0	314.3	265.9	257.2	8.77	30.339			
2,500.0	2,496.1	2,463.6	2,430.7	4.7	7.4	-55.52	-84.0	336.9	284.7	275.6	9.17	31.066			
2,600.0	2,595.9	2,561.9	2,526.1	5.0	7.8	-55.55	-89.9	359.5	303.5	293.9	9.57	31.730			
2,700.0	2,695.6	2,660.1	2,621.4	5.2	8.3	-55.57	-95.9	382.1	322.3	312.3	9.97	32.338			
2,800.0	2,795.3	2,758.3	2,716.8	5.4	8.7	-55.58	-101.9	404.8	341.1	330.7	10.37	32.897			
2,900.0	2,895.0	2,856.5	2,812.2	5.6	9.2	-55.60	-107.9	427.4	359.9	349.1	10.77	33.412			
3,000.0	2,994.7	2,954.7	2,907.6	5.8	9.6	-55.62	-113.9	450.0	378.7	367.5	11.17	33.888			
3,100.0	3,094.4	3,053.0	3,003.0	6.0	10.1	-55.63	-119.9	472.6	397.4	385.9	11.58	34.330			
3,200.0	3,194.1	3,151.2	3,098.4	6.3	10.5	-55.64	-125.9	495.2	416.2	404.3	11.98	34.742			
3,300.0	3,293.8	3,249.4	3,193.8	6.5	11.0	-55.65	-131.8	517.9	435.0	422.6	12.39	35.125			
3,400.0	3,393.5	3,347.6	3,289.2	6.7	11.4	-55.66	-137.8	540.5	453.8	441.0	12.79	35.483			
3,500.0	3,493.2	3,445.8	3,384.6	6.9	11.9	-55.67	-143.8	563.1	472.6	459.4	13.19	35.818			
3,600.0	3,592.9	3,544.1	3,480.0	7.1	12.3	-55.68	-149.8	585.7	491.4	477.8	13.60	36.132			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State W 36-2J (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							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		
10,500.0	7,250.0	7,251.0	7,251.0	60.2	12.6	-90.00	3,642.1	-77.8	476.2	403.4	72.72	6.548		
10,600.0	7,250.0	7,251.0	7,251.0	61.9	12.6	-90.00	3,642.1	-77.8	399.0	324.5	74.43	5.360		
10,700.0	7,250.0	7,251.0	7,251.0	63.6	12.6	-90.00	3,642.1	-77.8	334.1	258.0	76.15	4.388		
10,800.0	7,250.0	7,251.0	7,251.0	65.3	12.6	-90.00	3,642.1	-77.8	290.0	212.1	77.87	3.724		
10,887.7	7,250.0	7,251.0	7,251.0	66.8	12.6	-90.00	3,642.1	-77.8	276.4	197.0	79.38	3.482 CC, ES		
10,900.0	7,250.0	7,251.0	7,251.0	67.1	12.6	-90.00	3,642.1	-77.8	276.7	197.1	79.59	3.476 SF		
11,000.0	7,250.0	7,251.0	7,251.0	68.8	12.6	-90.00	3,642.1	-77.8	298.3	217.0	81.32	3.668		
11,100.0	7,250.0	7,251.0	7,251.0	70.5	12.6	-90.00	3,642.1	-77.8	348.5	265.4	83.04	4.196		
11,200.0	7,250.0	7,251.0	7,251.0	72.2	12.6	-90.00	3,642.1	-77.8	417.0	332.2	84.77	4.919		
11,300.0	7,250.0	7,251.0	7,251.0	73.9	12.6	-90.00	3,642.1	-77.8	496.3	409.8	86.50	5.738		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S36 T2N-R66W (Marcus State) - Marcus State W 36-6Jl (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						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
9,700.0	7,250.0	7,251.0	7,251.0	46.6	12.6	90.00	2,837.0	450.4	458.1	399.0	59.08	7.753		
9,800.0	7,250.0	7,251.0	7,251.0	48.3	12.6	90.00	2,837.0	450.4	378.6	317.8	60.77	6.229		
9,900.0	7,250.0	7,251.0	7,251.0	50.0	12.6	90.00	2,837.0	450.4	311.1	248.6	62.47	4.980		
10,000.0	7,250.0	7,251.0	7,251.0	51.7	12.6	90.00	2,837.0	450.4	265.0	200.9	64.17	4.130		
10,082.7	7,250.0	7,251.0	7,251.0	53.1	12.6	90.00	2,837.0	450.4	251.8	186.2	65.58	3.840 CC, ES		
10,100.0	7,250.0	7,251.0	7,251.0	53.4	12.6	90.00	2,837.0	450.4	252.4	186.5	65.87	3.832 SF		
10,200.0	7,250.0	7,251.0	7,251.0	55.1	12.6	90.00	2,837.0	450.4	277.8	210.2	67.58	4.111		
10,300.0	7,250.0	7,251.0	7,251.0	56.8	12.6	90.00	2,837.0	450.4	332.6	263.3	69.29	4.800		
10,400.0	7,250.0	7,251.0	7,251.0	58.5	12.6	90.00	2,837.0	450.4	405.1	334.1	71.00	5.705		
10,500.0	7,250.0	7,251.0	7,251.0	60.2	12.6	90.00	2,837.0	450.4	487.4	414.7	72.72	6.703		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3D-36H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 5052.0ft
Reference Site:	S36 T2N-R66W (Marcus State)	MD Reference:	KBE @ 5052.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Marcus State 3D-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 5052.0ft

Offset Depths are relative to Offset Datum

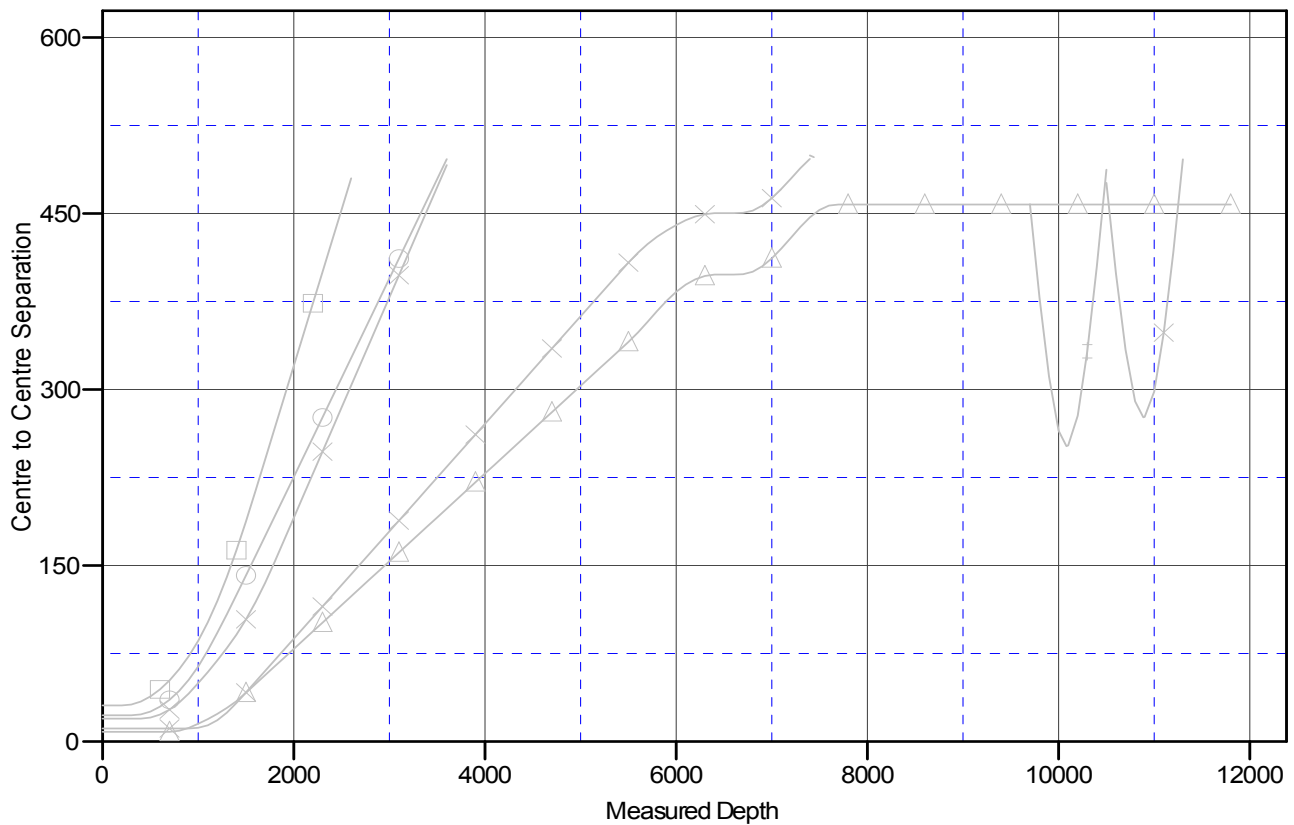
Central Meridian is -105.500000 °

Coordinates are relative to: Marcus State 3D-36H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.50°

Ladder Plot



LEGEND

Marcus State 3A-36H, HZ, Plan #2 V0	Marcus State W 36-6J (Existing), VT, Existing V0	Marcus State 24-36 (Existing), VT, Existing V0
Marcus State 3F-36H, HZ, Plan #2 V0	Marcus State 3C-36H, HZ, Plan #2 V0	Marcus State 3B-36H, HZ, Plan #2 V0
Marcus State 3E-36H, HZ, Plan #2 V0	Marcus State W 36-2J (Existing), VT, Existing V0	