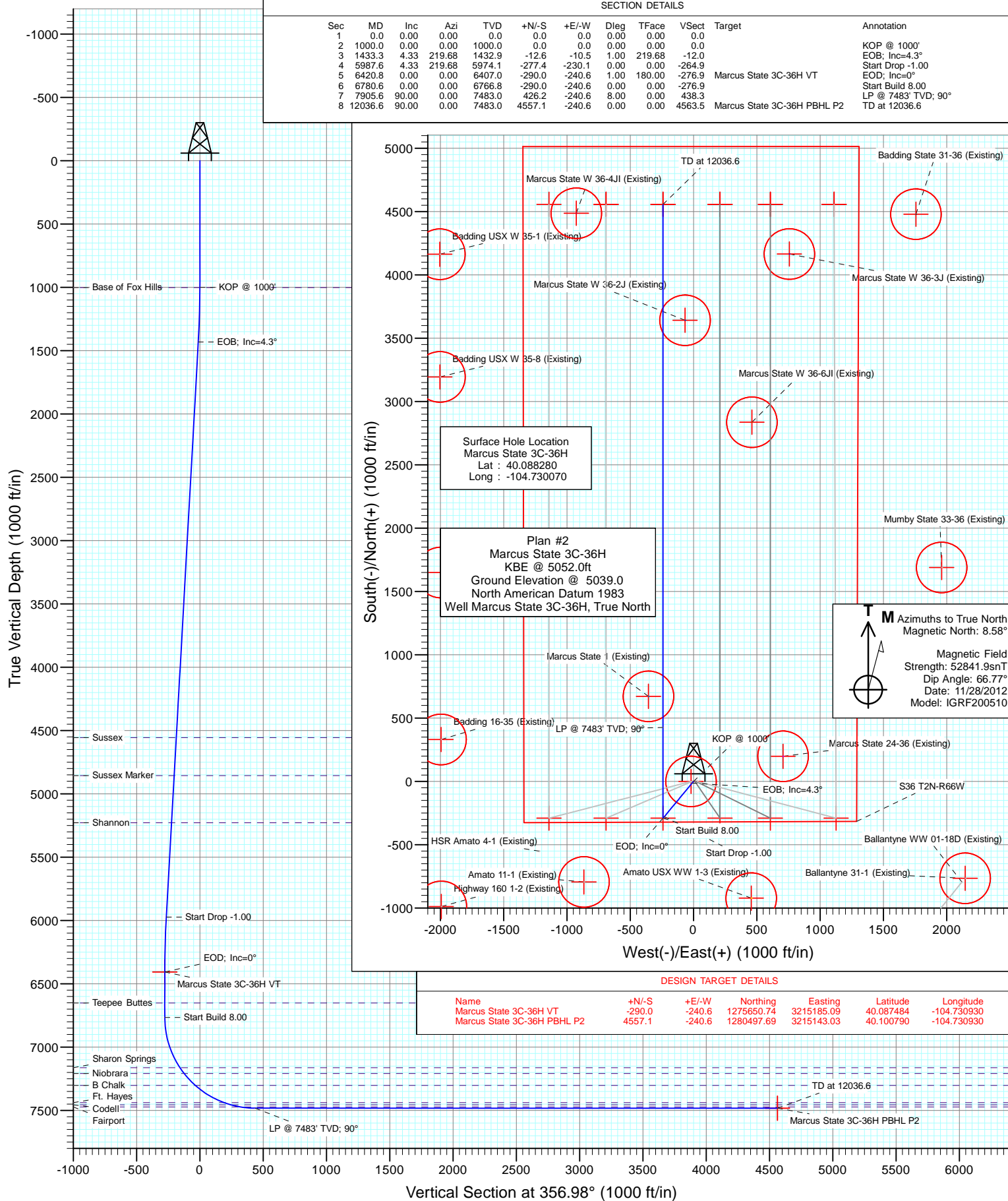




Project: DJ Wattenberg
Site: S36 T2N-R66W (Marcus State)
Well: Marcus State 3C-36H
Wellbore: HZ
Design: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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 3C-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,275,942.81 ft	Latitude:	40.088280
	+E/-W	0.0 ft	Easting:	3,215,423.16 ft	Longitude:	-104.730070
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	356.98

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,433.3	4.33	219.68	1,432.9	-12.6	-10.5	1.00	1.00	0.00	219.68	
5,987.6	4.33	219.68	5,974.1	-277.4	-230.1	0.00	0.00	0.00	0.00	
6,420.8	0.00	0.00	6,407.0	-290.0	-240.6	1.00	-1.00	0.00	180.00	Marcus State 3C-36H
6,780.6	0.00	0.00	6,766.8	-290.0	-240.6	0.00	0.00	0.00	0.00	
7,905.6	90.00	0.00	7,483.0	426.2	-240.6	8.00	8.00	0.00	0.00	
12,036.6	90.00	0.00	7,483.0	4,557.1	-240.6	0.00	0.00	0.00	0.00	Marcus State 3C-36H

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1000'
1,002.0	0.02	219.68	1,002.0	0.0	0.0	0.0	1.00	1.00	Base of Fox Hills
1,100.0	1.00	219.68	1,100.0	-0.7	-0.6	-0.6	1.00	1.00	
1,200.0	2.00	219.68	1,200.0	-2.7	-2.2	-2.6	1.00	1.00	
1,300.0	3.00	219.68	1,299.9	-6.0	-5.0	-5.8	1.00	1.00	
1,400.0	4.00	219.68	1,399.7	-10.7	-8.9	-10.3	1.00	1.00	
1,433.3	4.33	219.68	1,432.9	-12.6	-10.5	-12.0	1.00	1.00	EOB; Inc=4.3°
1,500.0	4.33	219.68	1,499.4	-16.5	-13.7	-15.7	0.00	0.00	
1,600.0	4.33	219.68	1,599.1	-22.3	-18.5	-21.3	0.00	0.00	
1,700.0	4.33	219.68	1,698.8	-28.1	-23.3	-26.8	0.00	0.00	
1,800.0	4.33	219.68	1,798.5	-33.9	-28.1	-32.4	0.00	0.00	
1,900.0	4.33	219.68	1,898.3	-39.7	-33.0	-37.9	0.00	0.00	
2,000.0	4.33	219.68	1,998.0	-45.6	-37.8	-43.5	0.00	0.00	
2,100.0	4.33	219.68	2,097.7	-51.4	-42.6	-49.0	0.00	0.00	
2,200.0	4.33	219.68	2,197.4	-57.2	-47.4	-54.6	0.00	0.00	
2,300.0	4.33	219.68	2,297.1	-63.0	-52.3	-60.2	0.00	0.00	
2,400.0	4.33	219.68	2,396.8	-68.8	-57.1	-65.7	0.00	0.00	
2,500.0	4.33	219.68	2,496.5	-74.6	-61.9	-71.3	0.00	0.00	
2,600.0	4.33	219.68	2,596.3	-80.4	-66.7	-76.8	0.00	0.00	
2,700.0	4.33	219.68	2,696.0	-86.3	-71.6	-82.4	0.00	0.00	
2,800.0	4.33	219.68	2,795.7	-92.1	-76.4	-87.9	0.00	0.00	
2,900.0	4.33	219.68	2,895.4	-97.9	-81.2	-93.5	0.00	0.00	
3,000.0	4.33	219.68	2,995.1	-103.7	-86.0	-99.0	0.00	0.00	
3,100.0	4.33	219.68	3,094.8	-109.5	-90.9	-104.6	0.00	0.00	
3,200.0	4.33	219.68	3,194.5	-115.3	-95.7	-110.1	0.00	0.00	
3,300.0	4.33	219.68	3,294.3	-121.1	-100.5	-115.7	0.00	0.00	
3,400.0	4.33	219.68	3,394.0	-126.9	-105.3	-121.2	0.00	0.00	
3,500.0	4.33	219.68	3,493.7	-132.8	-110.1	-126.8	0.00	0.00	
3,600.0	4.33	219.68	3,593.4	-138.6	-115.0	-132.3	0.00	0.00	
3,700.0	4.33	219.68	3,693.1	-144.4	-119.8	-137.9	0.00	0.00	
3,800.0	4.33	219.68	3,792.8	-150.2	-124.6	-143.4	0.00	0.00	
3,900.0	4.33	219.68	3,892.5	-156.0	-129.4	-149.0	0.00	0.00	
4,000.0	4.33	219.68	3,992.3	-161.8	-134.3	-154.5	0.00	0.00	
4,100.0	4.33	219.68	4,092.0	-167.6	-139.1	-160.1	0.00	0.00	
4,200.0	4.33	219.68	4,191.7	-173.5	-143.9	-165.6	0.00	0.00	
4,300.0	4.33	219.68	4,291.4	-179.3	-148.7	-171.2	0.00	0.00	
4,400.0	4.33	219.68	4,391.1	-185.1	-153.6	-176.7	0.00	0.00	
4,500.0	4.33	219.68	4,490.8	-190.9	-158.4	-182.3	0.00	0.00	
4,565.4	4.33	219.68	4,556.0	-194.7	-161.5	-185.9	0.00	0.00	Sussex
4,600.0	4.33	219.68	4,590.5	-196.7	-163.2	-187.8	0.00	0.00	
4,700.0	4.33	219.68	4,690.3	-202.5	-168.0	-193.4	0.00	0.00	
4,800.0	4.33	219.68	4,790.0	-208.3	-172.9	-198.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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
4,866.2	4.33	219.68	4,856.0	-212.2	-176.1	-202.6	0.00	0.00	Sussex Marker
4,900.0	4.33	219.68	4,889.7	-214.2	-177.7	-204.5	0.00	0.00	
5,000.0	4.33	219.68	4,989.4	-220.0	-182.5	-210.0	0.00	0.00	
5,100.0	4.33	219.68	5,089.1	-225.8	-187.3	-215.6	0.00	0.00	
5,200.0	4.33	219.68	5,188.8	-231.6	-192.2	-221.2	0.00	0.00	
5,240.3	4.33	219.68	5,229.0	-233.9	-194.1	-223.4	0.00	0.00	Shannon
5,300.0	4.33	219.68	5,288.5	-237.4	-197.0	-226.7	0.00	0.00	
5,400.0	4.33	219.68	5,388.3	-243.2	-201.8	-232.3	0.00	0.00	
5,500.0	4.33	219.68	5,488.0	-249.0	-206.6	-237.8	0.00	0.00	
5,600.0	4.33	219.68	5,587.7	-254.9	-211.4	-243.4	0.00	0.00	
5,700.0	4.33	219.68	5,687.4	-260.7	-216.3	-248.9	0.00	0.00	
5,800.0	4.33	219.68	5,787.1	-266.5	-221.1	-254.5	0.00	0.00	
5,900.0	4.33	219.68	5,886.8	-272.3	-225.9	-260.0	0.00	0.00	
5,987.6	4.33	219.68	5,974.1	-277.4	-230.1	-264.9	0.00	0.00	Start Drop -1.00
6,000.0	4.21	219.68	5,986.5	-278.1	-230.7	-265.6	1.00	-1.00	
6,100.0	3.21	219.68	6,086.3	-283.1	-234.9	-270.3	1.00	-1.00	
6,200.0	2.21	219.68	6,186.2	-286.7	-237.9	-273.8	1.00	-1.00	
6,300.0	1.21	219.68	6,286.2	-289.0	-239.8	-276.0	1.00	-1.00	
6,400.0	0.21	219.68	6,386.2	-290.0	-240.6	-276.9	1.00	-1.00	
6,420.8	0.00	0.00	6,407.0	-290.0	-240.6	-276.9	1.00	-1.00	EOD; Inc=0° - Marcus State 3C-36H VT
6,500.0	0.00	0.00	6,486.2	-290.0	-240.6	-276.9	0.00	0.00	
6,600.0	0.00	0.00	6,586.2	-290.0	-240.6	-276.9	0.00	0.00	
6,665.8	0.00	0.00	6,652.0	-290.0	-240.6	-276.9	0.00	0.00	Teepee Buttes
6,700.0	0.00	0.00	6,686.2	-290.0	-240.6	-276.9	0.00	0.00	
6,780.6	0.00	0.00	6,766.8	-290.0	-240.6	-276.9	0.00	0.00	Start Build 8.00
6,800.0	1.55	0.00	6,786.2	-289.7	-240.6	-276.6	8.00	8.00	
6,900.0	9.55	0.00	6,885.6	-280.1	-240.6	-267.0	8.00	8.00	
7,000.0	17.55	0.00	6,982.7	-256.7	-240.6	-243.6	8.00	8.00	
7,100.0	25.55	0.00	7,075.7	-220.0	-240.6	-207.0	8.00	8.00	
7,200.0	33.55	0.00	7,162.6	-170.7	-240.6	-157.8	8.00	8.00	
7,200.5	33.59	0.00	7,163.0	-170.4	-240.6	-157.5	8.00	8.00	Sharon Springs
7,257.2	38.13	0.00	7,209.0	-137.2	-240.6	-124.3	8.00	8.00	Niobrara
7,300.0	41.55	0.00	7,241.8	-109.8	-240.6	-97.0	8.00	8.00	
7,386.6	48.48	0.00	7,303.0	-48.6	-240.6	-35.8	8.00	8.00	B Chalk
7,400.0	49.55	0.00	7,311.8	-38.5	-240.6	-25.7	8.00	8.00	
7,500.0	57.55	0.00	7,371.2	41.9	-240.6	54.5	8.00	8.00	
7,600.0	65.55	0.00	7,418.8	129.8	-240.6	142.3	8.00	8.00	
7,653.3	69.81	0.00	7,439.0	179.0	-240.6	191.5	8.00	8.00	Ft. Hayes
7,700.0	73.55	0.00	7,453.7	223.4	-240.6	235.7	8.00	8.00	
7,708.4	74.22	0.00	7,456.0	231.4	-240.6	243.8	8.00	8.00	Codell
7,785.8	80.41	0.00	7,473.0	306.9	-240.6	319.2	8.00	8.00	Fairport
7,800.0	81.55	0.00	7,475.2	320.9	-240.6	333.2	8.00	8.00	
7,900.0	89.55	0.00	7,483.0	420.6	-240.6	432.7	8.00	8.00	
7,905.6	90.00	0.00	7,483.0	426.2	-240.6	438.3	8.00	8.00	LP @ 7483' TVD; 90°
8,000.0	90.00	0.00	7,483.0	520.6	-240.6	532.5	0.00	0.00	
8,100.0	90.00	0.00	7,483.0	620.6	-240.6	632.4	0.00	0.00	
8,200.0	90.00	0.00	7,483.0	720.6	-240.6	732.2	0.00	0.00	
8,300.0	90.00	0.00	7,483.0	820.6	-240.6	832.1	0.00	0.00	
8,400.0	90.00	0.00	7,483.0	920.6	-240.6	932.0	0.00	0.00	
8,500.0	90.00	0.00	7,483.0	1,020.6	-240.6	1,031.8	0.00	0.00	
8,600.0	90.00	0.00	7,483.0	1,120.6	-240.6	1,131.7	0.00	0.00	
8,700.0	90.00	0.00	7,483.0	1,220.6	-240.6	1,231.5	0.00	0.00	

Cathedral Energy Services

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Well:	Marcus State 3C-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
8,800.0	90.00	0.00	7,483.0	1,320.6	-240.6	1,331.4	0.00	0.00	
8,900.0	90.00	0.00	7,483.0	1,420.6	-240.6	1,431.3	0.00	0.00	
9,000.0	90.00	0.00	7,483.0	1,520.6	-240.6	1,531.1	0.00	0.00	
9,100.0	90.00	0.00	7,483.0	1,620.6	-240.6	1,631.0	0.00	0.00	
9,200.0	90.00	0.00	7,483.0	1,720.6	-240.6	1,730.8	0.00	0.00	
9,300.0	90.00	0.00	7,483.0	1,820.6	-240.6	1,830.7	0.00	0.00	
9,400.0	90.00	0.00	7,483.0	1,920.6	-240.6	1,930.6	0.00	0.00	
9,500.0	90.00	0.00	7,483.0	2,020.6	-240.6	2,030.4	0.00	0.00	
9,600.0	90.00	0.00	7,483.0	2,120.6	-240.6	2,130.3	0.00	0.00	
9,700.0	90.00	0.00	7,483.0	2,220.6	-240.6	2,230.2	0.00	0.00	
9,800.0	90.00	0.00	7,483.0	2,320.6	-240.6	2,330.0	0.00	0.00	
9,900.0	90.00	0.00	7,483.0	2,420.6	-240.6	2,429.9	0.00	0.00	
10,000.0	90.00	0.00	7,483.0	2,520.6	-240.6	2,529.7	0.00	0.00	
10,100.0	90.00	0.00	7,483.0	2,620.6	-240.6	2,629.6	0.00	0.00	
10,200.0	90.00	0.00	7,483.0	2,720.6	-240.6	2,729.5	0.00	0.00	
10,300.0	90.00	0.00	7,483.0	2,820.6	-240.6	2,829.3	0.00	0.00	
10,400.0	90.00	0.00	7,483.0	2,920.6	-240.6	2,929.2	0.00	0.00	
10,500.0	90.00	0.00	7,483.0	3,020.6	-240.6	3,029.0	0.00	0.00	
10,600.0	90.00	0.00	7,483.0	3,120.6	-240.6	3,128.9	0.00	0.00	
10,700.0	90.00	0.00	7,483.0	3,220.6	-240.6	3,228.8	0.00	0.00	
10,800.0	90.00	0.00	7,483.0	3,320.6	-240.6	3,328.6	0.00	0.00	
10,900.0	90.00	0.00	7,483.0	3,420.6	-240.6	3,428.5	0.00	0.00	
11,000.0	90.00	0.00	7,483.0	3,520.6	-240.6	3,528.3	0.00	0.00	
11,100.0	90.00	0.00	7,483.0	3,620.6	-240.6	3,628.2	0.00	0.00	
11,200.0	90.00	0.00	7,483.0	3,720.6	-240.6	3,728.1	0.00	0.00	
11,300.0	90.00	0.00	7,483.0	3,820.6	-240.6	3,827.9	0.00	0.00	
11,400.0	90.00	0.00	7,483.0	3,920.6	-240.6	3,927.8	0.00	0.00	
11,500.0	90.00	0.00	7,483.0	4,020.6	-240.6	4,027.7	0.00	0.00	
11,600.0	90.00	0.00	7,483.0	4,120.6	-240.6	4,127.5	0.00	0.00	
11,700.0	90.00	0.00	7,483.0	4,220.6	-240.6	4,227.4	0.00	0.00	
11,800.0	90.00	0.00	7,483.0	4,320.6	-240.6	4,327.2	0.00	0.00	
11,900.0	90.00	0.00	7,483.0	4,420.6	-240.6	4,427.1	0.00	0.00	
12,000.0	90.00	0.00	7,483.0	4,520.6	-240.6	4,527.0	0.00	0.00	
12,036.6	90.00	0.00	7,483.0	4,557.1	-240.6	4,563.5	0.00	0.00	TD at 12036.6 - Marcus State 3C-36H PBHL - M

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 3C-36H PI	0.00	0.00	7,496.0	4,557.1	-240.6	1,280,497.69	3,215,143.03	40.100790	-104.730930
- plan misses target center by 13.0ft at 12036.6ft MD (7483.0 TVD, 4557.1 N, -240.6 E)									
- Point									
Marcus State 3C-36H PI	0.00	0.00	7,483.0	4,557.1	-240.6	1,280,497.69	3,215,143.03	40.100790	-104.730930
- plan hits target center									
- Point									
Marcus State 3C-36H V'	0.00	0.00	6,407.0	-290.0	-240.6	1,275,650.74	3,215,185.09	40.087484	-104.730930
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: DJ Wattenberg
Site: S36 T2N-R66W (Marcus State)
Well: Marcus State 3C-36H
Wellbore: HZ
Design: Plan #2

Local Co-ordinate Reference: Well Marcus State 3C-36H
TVD Reference: KBE @ 5052.0ft
MD Reference: KBE @ 5052.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,002.0	1,002.0	Base of Fox Hills		0.00	
4,565.4	4,556.0	Sussex		0.00	
4,866.2	4,856.0	Sussex Marker		0.00	
5,240.3	5,229.0	Shannon		0.00	
6,665.8	6,652.0	Teepee Buttes		0.00	
7,200.5	7,163.0	Sharon Springs		0.00	
7,257.2	7,209.0	Niobrara		0.00	
7,386.6	7,303.0	B Chalk		0.00	
7,653.3	7,439.0	Ft. Hayes		0.00	
7,708.4	7,456.0	Codell		0.00	
7,785.8	7,473.0	Fairport		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP @ 1000'
1,433.3	1,432.9	-12.6	-10.5	EOB; Inc=4.3°
5,987.6	5,974.1	-277.4	-230.1	Start Drop -1.00
6,420.8	6,407.0	-290.0	-240.6	EOD; Inc=0°
6,780.6	6,766.8	-290.0	-240.6	Start Build 8.00
7,905.6	7,483.0	426.2	-240.6	LP @ 7483' TVD; 90°
12,036.6	7,483.0	4,557.1	-240.6	TD at 12036.6

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S36 T2N-R66W (Marcus State)

Marcus State 3C-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 3C-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 3C-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	12,036.6	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	8,151.5	7,484.0	115.0	83.3	3.623	CC, ES, SF
Marcus State 24-36 (Existing) - VT - Existing						Out of range
Marcus State 3A-36H - HZ - Plan #2	166.3	167.3	19.6	19.0	36.474	CC
Marcus State 3A-36H - HZ - Plan #2	200.0	201.0	19.6	18.9	29.924	ES
Marcus State 3A-36H - HZ - Plan #2	500.0	499.7	27.3	25.6	16.008	SF
Marcus State 3B-36H - HZ - Plan #2	300.0	300.0	11.2	10.2	11.171	CC, ES
Marcus State 3B-36H - HZ - Plan #2	12,036.6	11,906.4	479.7	323.9	3.079	SF
Marcus State 3D-36H - HZ - Plan #2	900.0	900.0	11.2	8.1	3.615	CC, ES
Marcus State 3D-36H - HZ - Plan #2	1,000.0	999.9	11.7	8.3	3.398	SF
Marcus State 3E-36H - HZ - Plan #2	700.0	700.0	19.6	17.2	8.167	CC, ES
Marcus State 3E-36H - HZ - Plan #2	900.0	899.3	22.8	19.7	7.348	SF
Marcus State 3F-36H - HZ - Plan #2	400.0	400.0	30.8	29.4	22.783	CC, ES
Marcus State 3F-36H - HZ - Plan #2	700.0	698.2	38.4	36.0	15.969	SF
Marcus State W 36-2J (Existing) - VT - Existing	11,121.5	7,484.0	174.0	94.1	2.178	CC, ES, SF
Marcus State W 36-3J (Existing) - VT - Existing						Out of range
Marcus State W 36-4JI (Existing) - VT - Existing						Out of range
Marcus State W 36-6JI (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

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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 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						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		
7,700.0	7,453.7	7,454.7	7,454.7	14.7	13.0	-42.15	672.1	-355.6	463.2	441.2	22.01	21.048		
7,800.0	7,475.2	7,476.2	7,476.2	15.4	13.0	-65.83	672.1	-355.6	369.5	343.2	26.30	14.048		
7,900.0	7,483.0	7,484.0	7,484.0	16.4	13.0	-89.01	672.1	-355.6	276.6	247.7	28.84	9.589		
8,000.0	7,483.0	7,484.0	7,484.0	17.4	13.0	-90.00	672.1	-355.6	190.2	160.3	29.91	6.360		
8,100.0	7,483.0	7,484.0	7,484.0	18.5	13.0	-90.00	672.1	-355.6	126.0	94.9	31.09	4.054		
8,151.5	7,483.0	7,484.0	7,484.0	19.2	13.0	-90.00	672.1	-355.6	115.0	83.3	31.74	3.623 CC, ES, SF		
8,200.0	7,483.0	7,484.0	7,484.0	19.8	13.0	-90.00	672.1	-355.6	124.8	92.4	32.36	3.857		
8,300.0	7,483.0	7,484.0	7,484.0	21.1	13.0	-90.00	672.1	-355.6	187.8	154.1	33.69	5.574		
8,400.0	7,483.0	7,484.0	7,484.0	22.4	13.0	-90.00	672.1	-355.6	273.8	238.7	35.09	7.803		
8,500.0	7,483.0	7,484.0	7,484.0	23.9	13.0	-90.00	672.1	-355.6	366.9	330.4	36.53	10.044		
8,600.0	7,483.0	7,484.0	7,484.0	25.3	13.0	-90.00	672.1	-355.6	463.0	425.0	38.02	12.178		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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		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	1.0	1.0	0.0	0.0	-90.00	0.0	-19.6	19.6					
100.0	100.0	101.0	101.0	0.2	0.2	-90.00	0.0	-19.6	19.6	19.3	0.31	64.123		
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-19.6	19.6	19.0	0.54	36.474 CC		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-19.6	19.6	18.9	0.65	29.924 ES		
300.0	300.0	300.7	300.7	0.5	0.5	-90.62	-0.2	-20.4	20.4	19.4	1.00	20.381		
400.0	400.0	400.3	400.2	0.7	0.7	-92.18	-0.9	-23.0	23.0	21.7	1.35	17.006		
500.0	500.0	499.7	499.6	0.8	0.9	-94.13	-2.0	-27.2	27.3	25.6	1.70	16.008 SF		
600.0	600.0	599.0	598.7	1.0	1.1	-96.01	-3.5	-33.0	33.3	31.2	2.06	16.167		
700.0	700.0	698.1	697.5	1.2	1.3	-97.61	-5.4	-40.5	41.0	38.6	2.42	16.963		
800.0	800.0	796.8	795.8	1.4	1.5	-98.90	-7.8	-49.7	50.5	47.7	2.79	18.131		
900.0	900.0	895.3	893.6	1.5	1.8	-99.91	-10.5	-60.4	61.7	58.6	3.16	19.523		
1,000.0	1,000.0	993.3	990.7	1.7	2.0	-100.69	-13.7	-72.7	74.7	71.1	3.55	21.048		
1,100.0	1,100.0	1,090.9	1,087.3	1.9	2.3	39.27	-17.3	-86.5	88.6	84.8	3.78	23.441		
1,200.0	1,200.0	1,188.2	1,183.3	2.1	2.6	39.55	-21.3	-101.9	102.9	98.8	4.13	24.937		
1,300.0	1,299.9	1,285.3	1,278.8	2.3	3.0	40.21	-25.6	-118.8	117.6	113.1	4.48	26.267		
1,400.0	1,399.7	1,382.0	1,373.6	2.4	3.3	41.13	-30.4	-137.2	132.6	127.8	4.83	27.458		
1,500.0	1,499.4	1,478.4	1,467.8	2.6	3.7	42.17	-35.5	-157.1	148.3	143.1	5.19	28.587		
1,600.0	1,599.1	1,575.2	1,562.1	2.8	4.1	43.01	-41.1	-178.5	165.5	160.0	5.55	29.816		
1,700.0	1,698.8	1,673.6	1,657.8	3.0	4.6	43.68	-46.8	-200.6	183.1	177.2	5.92	30.921		
1,800.0	1,798.5	1,772.0	1,753.5	3.2	5.0	44.23	-52.5	-222.7	200.8	194.5	6.30	31.883		
1,900.0	1,898.3	1,870.5	1,849.3	3.4	5.4	44.70	-58.2	-244.8	218.4	211.7	6.67	32.726		
2,000.0	1,998.0	1,968.9	1,945.0	3.6	5.8	45.09	-63.9	-266.9	236.1	229.0	7.05	33.469		
2,100.0	2,097.7	2,067.3	2,040.7	3.8	6.3	45.43	-69.6	-289.0	253.7	246.3	7.43	34.129		
2,200.0	2,197.4	2,165.7	2,136.5	4.1	6.7	45.73	-75.3	-311.1	271.4	263.6	7.82	34.718		
2,300.0	2,297.1	2,264.1	2,232.2	4.3	7.1	45.99	-81.1	-333.2	289.1	280.9	8.20	35.245		
2,400.0	2,396.8	2,362.5	2,327.9	4.5	7.6	46.22	-86.8	-355.2	306.8	298.2	8.59	35.721		
2,500.0	2,496.5	2,461.0	2,423.7	4.7	8.0	46.43	-92.5	-377.3	324.4	315.5	8.97	36.151		
2,600.0	2,596.3	2,559.4	2,519.4	4.9	8.4	46.61	-98.2	-399.4	342.1	332.8	9.36	36.542		
2,700.0	2,696.0	2,657.8	2,615.2	5.1	8.9	46.78	-103.9	-421.5	359.8	350.1	9.75	36.899		
2,800.0	2,795.7	2,756.2	2,710.9	5.3	9.3	46.93	-109.6	-443.6	377.5	367.4	10.14	37.225		
2,900.0	2,895.4	2,854.6	2,806.6	5.5	9.8	47.06	-115.3	-465.7	395.2	384.7	10.53	37.525		
3,000.0	2,995.1	2,953.0	2,902.4	5.7	10.2	47.19	-121.0	-487.8	412.9	402.0	10.92	37.802		
3,100.0	3,094.8	3,051.5	2,998.1	6.0	10.6	47.30	-126.7	-509.9	430.6	419.3	11.32	38.057		
3,200.0	3,194.5	3,149.9	3,093.8	6.2	11.1	47.41	-132.5	-532.0	448.3	436.6	11.71	38.294		
3,300.0	3,294.3	3,248.3	3,189.6	6.4	11.5	47.51	-138.2	-554.1	466.0	453.9	12.10	38.514		
3,400.0	3,394.0	3,346.7	3,285.3	6.6	12.0	47.60	-143.9	-576.2	483.7	471.2	12.49	38.719		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-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	399.8	399.8	0.7	0.7	-91.63	-0.3	-12.0	12.0	10.6	1.35	8.883		
500.0	500.0	499.6	499.5	0.8	0.9	-95.41	-1.4	-14.4	14.5	12.8	1.70	8.507		
600.0	600.0	599.2	599.1	1.0	1.0	-99.47	-3.1	-18.4	18.7	16.6	2.05	9.096		
700.0	700.0	698.6	698.3	1.2	1.2	-102.80	-5.4	-23.9	24.6	22.2	2.40	10.233		
800.0	800.0	797.8	797.2	1.4	1.4	-105.27	-8.5	-31.1	32.3	29.6	2.76	11.696		
900.0	900.0	896.8	895.7	1.5	1.7	-107.04	-12.2	-39.8	41.8	38.7	3.13	13.355		
1,000.0	1,000.0	995.3	993.6	1.7	1.9	-108.32	-16.5	-50.0	53.0	49.5	3.50	15.128		
1,100.0	1,100.0	1,093.6	1,091.0	1.9	2.2	31.40	-21.5	-61.7	65.2	61.4	3.78	17.222		
1,200.0	1,200.0	1,192.9	1,189.4	2.1	2.4	31.61	-26.9	-74.2	76.7	72.6	4.13	18.554		
1,300.0	1,299.9	1,292.4	1,288.0	2.3	2.7	32.36	-32.3	-86.9	86.8	82.3	4.49	19.341		
1,400.0	1,399.7	1,392.0	1,386.6	2.4	3.0	33.52	-37.7	-99.5	95.4	90.5	4.84	19.700		
1,500.0	1,499.4	1,491.7	1,485.4	2.6	3.3	34.95	-43.0	-112.1	102.9	97.7	5.20	19.781		
1,600.0	1,599.1	1,591.4	1,584.1	2.8	3.6	36.22	-48.4	-124.7	110.4	104.9	5.57	19.831		
1,700.0	1,698.8	1,691.1	1,682.8	3.0	3.9	37.33	-53.8	-137.4	118.0	112.1	5.94	19.871		
1,800.0	1,798.5	1,790.8	1,781.6	3.2	4.2	38.31	-59.2	-150.0	125.6	119.3	6.31	19.902		
1,900.0	1,898.3	1,890.4	1,880.3	3.4	4.5	39.17	-64.6	-162.6	133.2	126.6	6.69	19.926		
2,000.0	1,998.0	1,990.1	1,979.0	3.6	4.7	39.94	-70.0	-175.3	140.9	133.8	7.07	19.943		
2,100.0	2,097.7	2,089.8	2,077.8	3.8	5.0	40.63	-75.4	-187.9	148.6	141.1	7.45	19.955		
2,200.0	2,197.4	2,189.5	2,176.5	4.1	5.3	41.26	-80.8	-200.5	156.3	148.5	7.83	19.963		
2,300.0	2,297.1	2,289.2	2,275.3	4.3	5.6	41.82	-86.2	-213.2	164.0	155.8	8.21	19.967		
2,400.0	2,396.8	2,388.9	2,374.0	4.5	5.9	42.33	-91.5	-225.8	171.7	163.1	8.60	19.969		
2,500.0	2,496.5	2,488.6	2,472.7	4.7	6.2	42.80	-96.9	-238.4	179.5	170.5	8.99	19.968		
2,600.0	2,596.3	2,588.3	2,571.5	4.9	6.5	43.23	-102.3	-251.0	187.3	177.9	9.38	19.966		
2,700.0	2,696.0	2,688.0	2,670.2	5.1	6.8	43.63	-107.7	-263.7	195.0	185.3	9.77	19.962		
2,800.0	2,795.7	2,787.6	2,769.0	5.3	7.1	43.99	-113.1	-276.3	202.8	192.6	10.16	19.957		
2,900.0	2,895.4	2,887.3	2,867.7	5.5	7.4	44.33	-118.5	-288.9	210.6	200.0	10.55	19.952		
3,000.0	2,995.1	2,987.0	2,966.4	5.7	7.7	44.65	-123.9	-301.6	218.4	207.4	10.95	19.945		
3,100.0	3,094.8	3,086.7	3,065.2	6.0	8.0	44.94	-129.3	-314.2	226.2	214.8	11.34	19.938		
3,200.0	3,194.5	3,186.4	3,163.9	6.2	8.3	45.21	-134.7	-326.8	234.0	222.2	11.74	19.931		
3,300.0	3,294.3	3,286.1	3,262.7	6.4	8.6	45.47	-140.0	-339.5	241.8	229.7	12.14	19.924		
3,400.0	3,394.0	3,385.8	3,361.4	6.6	8.9	45.71	-145.4	-352.1	249.6	237.1	12.53	19.916		
3,500.0	3,493.7	3,485.5	3,460.1	6.8	9.2	45.93	-150.8	-364.7	257.4	244.5	12.93	19.908		
3,600.0	3,593.4	3,585.2	3,558.9	7.0	9.5	46.15	-156.2	-377.4	265.2	251.9	13.33	19.900		
3,700.0	3,693.1	3,684.8	3,657.6	7.3	9.8	46.35	-161.6	-390.0	273.1	259.3	13.73	19.892		
3,800.0	3,792.8	3,784.5	3,756.3	7.5	10.1	46.54	-167.0	-402.6	280.9	266.8	14.13	19.884		
3,900.0	3,892.5	3,884.2	3,855.1	7.7	10.4	46.71	-172.4	-415.3	288.7	274.2	14.53	19.876		
4,000.0	3,992.3	3,983.9	3,953.8	7.9	10.6	46.88	-177.8	-427.9	296.6	281.6	14.93	19.868		
4,100.0	4,092.0	4,083.6	4,052.6	8.1	10.9	47.04	-183.1	-440.5	304.4	289.1	15.33	19.861		
4,200.0	4,191.7	4,183.3	4,151.3	8.3	11.2	47.19	-188.5	-453.2	312.2	296.5	15.73	19.853		
4,300.0	4,291.4	4,283.0	4,250.0	8.5	11.5	47.34	-193.9	-465.8	320.1	303.9	16.13	19.846		
4,400.0	4,391.1	4,382.7	4,348.8	8.8	11.8	47.48	-199.3	-478.4	327.9	311.4	16.53	19.838		
4,500.0	4,490.8	4,482.4	4,447.5	9.0	12.1	47.61	-204.7	-491.0	335.7	318.8	16.93	19.831		
4,600.0	4,590.5	4,582.0	4,546.3	9.2	12.4	47.73	-210.1	-503.7	343.6	326.3	17.33	19.824		
4,700.0	4,690.3	4,681.7	4,645.0	9.4	12.7	47.85	-215.5	-516.3	351.4	333.7	17.73	19.817		
4,800.0	4,790.0	4,781.4	4,743.7	9.6	13.0	47.97	-220.9	-528.9	359.3	341.2	18.14	19.810		
4,900.0	4,889.7	4,881.1	4,842.5	9.8	13.3	48.08	-226.3	-541.6	367.1	348.6	18.54	19.803		
5,000.0	4,989.4	4,980.8	4,941.2	10.1	13.6	48.18	-231.6	-554.2	375.0	356.0	18.94	19.797		
5,100.0	5,089.1	5,080.5	5,039.9	10.3	13.9	48.28	-237.0	-566.8	382.8	363.5	19.34	19.790		

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 3C-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 3C-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: 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	5,188.8	5,180.2	5,138.7	10.5	14.2	48.38	-242.4	-579.5	390.7	370.9	19.75	19.784	
5,300.0	5,288.5	5,279.9	5,237.4	10.7	14.5	48.47	-247.8	-592.1	398.5	378.4	20.15	19.778	
5,400.0	5,388.3	5,379.6	5,336.2	10.9	14.8	48.56	-253.2	-604.7	406.4	385.8	20.55	19.772	
5,500.0	5,488.0	5,479.2	5,434.9	11.2	15.1	48.65	-258.6	-617.4	414.3	393.3	20.96	19.766	
5,600.0	5,587.7	5,578.9	5,533.6	11.4	15.4	48.73	-264.0	-630.0	422.1	400.8	21.36	19.760	
5,700.0	5,687.4	5,679.7	5,633.5	11.6	15.7	48.81	-269.4	-642.7	430.0	408.2	21.77	19.752	
5,800.0	5,787.1	5,787.0	5,739.9	11.8	16.0	48.96	-274.7	-655.2	436.7	414.5	22.19	19.681	
5,900.0	5,886.8	5,894.5	5,846.8	12.0	16.3	49.20	-279.2	-665.7	441.7	419.1	22.62	19.530	
6,000.0	5,986.5	6,002.2	5,954.0	12.2	16.5	49.53	-283.0	-674.5	445.0	421.9	23.05	19.306	
6,100.0	6,086.3	6,109.9	6,061.4	12.4	16.7	49.86	-285.9	-681.4	447.2	423.8	23.46	19.064	
6,200.0	6,186.2	6,217.6	6,169.0	12.6	16.9	50.10	-288.1	-686.4	448.9	425.0	23.84	18.827	
6,300.0	6,286.2	6,325.4	6,276.8	12.8	17.0	50.25	-289.4	-689.6	449.9	425.7	24.20	18.593	
6,400.0	6,386.2	6,433.2	6,384.5	12.9	17.2	50.32	-290.0	-691.0	450.4	425.8	24.53	18.359	
6,500.0	6,486.2	6,534.8	6,486.2	13.1	17.3	-90.00	-290.0	-691.0	450.4	425.5	24.85	18.124	
6,600.0	6,586.2	6,634.8	6,586.2	13.2	17.4	-90.00	-290.0	-691.0	450.4	425.2	25.17	17.894	
6,636.7	6,622.8	6,671.5	6,622.8	13.3	17.4	-89.96	-289.7	-691.0	450.4	425.1	25.28	17.815	
6,700.0	6,686.2	6,734.4	6,685.6	13.4	17.5	-89.37	-285.1	-691.0	450.4	424.9	25.50	17.661	
6,800.0	6,786.2	6,830.9	6,780.4	13.5	17.5	-87.14	-267.4	-691.0	451.0	425.1	25.92	17.400	
6,900.0	6,885.6	6,924.1	6,868.8	13.6	17.5	-84.43	-238.3	-691.0	452.6	426.4	26.21	17.268	
7,000.0	6,982.7	7,014.9	6,950.7	13.6	17.4	-81.86	-199.3	-691.0	455.2	428.9	26.31	17.302	
7,100.0	7,075.7	7,103.6	7,025.3	13.6	17.4	-79.48	-151.3	-691.0	458.4	432.1	26.23	17.477	
7,200.0	7,162.6	7,190.6	7,092.2	13.5	17.4	-77.32	-95.8	-691.0	462.0	436.0	26.03	17.750	
7,300.0	7,241.8	7,276.1	7,150.9	13.5	17.4	-75.40	-33.6	-691.0	465.7	440.0	25.77	18.072	
7,400.0	7,311.8	7,360.4	7,201.1	13.6	17.6	-73.75	34.0	-691.0	469.4	443.8	25.67	18.284	
7,500.0	7,371.2	7,443.6	7,242.5	13.8	17.8	-72.38	106.2	-691.0	472.8	447.0	25.77	18.348	
7,600.0	7,418.8	7,526.1	7,275.0	14.1	18.1	-71.30	181.9	-691.0	475.6	449.4	26.23	18.136	
7,700.0	7,453.7	7,608.0	7,298.5	14.7	18.5	-70.53	260.3	-691.0	477.8	450.7	27.13	17.612	
7,800.0	7,475.2	7,689.5	7,312.9	15.4	19.0	-70.05	340.5	-691.0	479.2	450.6	28.53	16.798	
7,900.0	7,483.0	7,770.8	7,318.0	16.4	19.6	-69.88	421.6	-691.0	479.7	449.3	30.38	15.790	
8,000.0	7,483.0	7,869.8	7,318.0	17.4	20.5	-69.88	520.6	-691.0	479.7	447.3	32.40	14.804	
8,100.0	7,483.0	7,969.8	7,318.0	18.5	21.5	-69.88	620.6	-691.0	479.7	445.1	34.60	13.863	
8,200.0	7,483.0	8,069.8	7,318.0	19.8	22.5	-69.88	720.6	-691.0	479.7	442.7	36.96	12.977	
8,300.0	7,483.0	8,169.8	7,318.0	21.1	23.7	-69.88	820.6	-691.0	479.7	440.2	39.46	12.156	
8,400.0	7,483.0	8,269.8	7,318.0	22.4	24.9	-69.88	920.6	-691.0	479.7	437.6	42.07	11.403	
8,500.0	7,483.0	8,369.8	7,318.0	23.9	26.2	-69.88	1,020.6	-691.0	479.7	434.9	44.76	10.715	
8,600.0	7,483.0	8,469.8	7,318.0	25.3	27.5	-69.88	1,120.6	-691.0	479.7	432.1	47.54	10.090	
8,700.0	7,483.0	8,569.8	7,318.0	26.8	28.9	-69.88	1,220.6	-691.0	479.7	429.3	50.38	9.522	
8,800.0	7,483.0	8,669.8	7,318.0	28.4	30.3	-69.88	1,320.6	-691.0	479.7	426.4	53.27	9.005	
8,900.0	7,483.0	8,769.8	7,318.0	29.9	31.8	-69.88	1,420.6	-691.0	479.7	423.5	56.20	8.535	
9,000.0	7,483.0	8,869.8	7,318.0	31.5	33.3	-69.88	1,520.6	-691.0	479.7	420.5	59.17	8.106	
9,100.0	7,483.0	8,969.8	7,318.0	33.1	34.8	-69.88	1,620.6	-691.0	479.7	417.5	62.18	7.714	
9,200.0	7,483.0	9,069.8	7,318.0	34.7	36.3	-69.88	1,720.6	-691.0	479.7	414.4	65.21	7.355	
9,300.0	7,483.0	9,169.8	7,318.0	36.3	37.9	-69.88	1,820.6	-691.0	479.7	411.4	68.27	7.026	
9,400.0	7,483.0	9,269.8	7,318.0	37.9	39.4	-69.88	1,920.6	-691.0	479.7	408.3	71.35	6.723	
9,500.0	7,483.0	9,369.8	7,318.0	39.6	41.0	-69.88	2,020.6	-691.0	479.7	405.2	74.45	6.443	
9,600.0	7,483.0	9,469.8	7,318.0	41.2	42.6	-69.88	2,120.6	-691.0	479.7	402.1	77.56	6.184	
9,700.0	7,483.0	9,569.8	7,318.0	42.9	44.2	-69.88	2,220.6	-691.0	479.7	399.0	80.69	5.944	
9,800.0	7,483.0	9,669.8	7,318.0	44.5	45.8	-69.88	2,320.6	-691.0	479.7	395.8	83.83	5.722	
9,900.0	7,483.0	9,769.8	7,318.0	46.2	47.5	-69.88	2,420.6	-691.0	479.7	392.7	86.99	5.514	
10,000.0	7,483.0	9,869.8	7,318.0	47.9	49.1	-69.88	2,520.6	-691.0	479.7	389.5	90.15	5.321	
10,100.0	7,483.0	9,969.8	7,318.0	49.6	50.7	-69.88	2,620.6	-691.0	479.7	386.3	93.32	5.140	
10,200.0	7,483.0	10,069.8	7,318.0	51.3	52.4	-69.88	2,720.6	-691.0	479.7	383.2	96.51	4.970	

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 3C-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 3C-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		
10,300.0	7,483.0	10,169.8	7,318.0	53.0	54.0	-69.88	2,820.6	-691.0	479.7	380.0	99.69	4.811	
10,400.0	7,483.0	10,269.8	7,318.0	54.7	55.7	-69.88	2,920.6	-691.0	479.7	376.8	102.89	4.662	
10,500.0	7,483.0	10,369.8	7,318.0	56.4	57.4	-69.88	3,020.6	-691.0	479.7	373.6	106.09	4.521	
10,600.0	7,483.0	10,469.8	7,318.0	58.1	59.1	-69.88	3,120.6	-691.0	479.7	370.4	109.30	4.389	
10,700.0	7,483.0	10,569.8	7,318.0	59.8	60.7	-69.88	3,220.6	-691.0	479.7	367.1	112.51	4.263	
10,800.0	7,483.0	10,669.8	7,318.0	61.5	62.4	-69.88	3,320.6	-691.0	479.7	363.9	115.73	4.145	
10,900.0	7,483.0	10,769.8	7,318.0	63.2	64.1	-69.88	3,420.6	-691.0	479.7	360.7	118.95	4.032	
11,000.0	7,483.0	10,869.8	7,318.0	64.9	65.8	-69.88	3,520.6	-691.0	479.7	357.5	122.18	3.926	
11,100.0	7,483.0	10,969.8	7,318.0	66.6	67.5	-69.88	3,620.6	-691.0	479.7	354.3	125.40	3.825	
11,200.0	7,483.0	11,069.8	7,318.0	68.3	69.2	-69.88	3,720.6	-691.0	479.7	351.0	128.64	3.729	
11,300.0	7,483.0	11,169.8	7,318.0	70.1	70.9	-69.88	3,820.6	-691.0	479.7	347.8	131.87	3.637	
11,400.0	7,483.0	11,269.8	7,318.0	71.8	72.6	-69.88	3,920.6	-691.0	479.7	344.5	135.11	3.550	
11,500.0	7,483.0	11,369.8	7,318.0	73.5	74.3	-69.88	4,020.6	-691.0	479.7	341.3	138.35	3.467	
11,600.0	7,483.0	11,469.8	7,318.0	75.2	76.0	-69.88	4,120.6	-691.0	479.7	338.1	141.60	3.387	
11,700.0	7,483.0	11,569.8	7,318.0	77.0	77.7	-69.88	4,220.6	-691.0	479.7	334.8	144.84	3.312	
11,800.0	7,483.0	11,669.8	7,318.0	78.7	79.4	-69.88	4,320.6	-691.0	479.7	331.6	148.09	3.239	
11,900.0	7,483.0	11,769.8	7,318.0	80.4	81.1	-69.88	4,420.6	-691.0	479.7	328.3	151.34	3.169	
12,000.0	7,483.0	11,869.8	7,318.0	82.1	82.8	-69.88	4,520.6	-691.0	479.7	325.1	154.60	3.103	
12,036.6	7,483.0	11,906.4	7,318.0	82.8	83.5	-69.88	4,557.1	-691.0	479.7	323.9	155.79	3.079 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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 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				Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	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	999.9	999.9	1.7	1.7	93.52	-0.7	11.7	11.7	8.3	3.45	3.398 SF			
1,100.0	1,100.0	1,099.7	1,099.7	1.9	1.9	-120.55	-2.9	13.2	13.9	10.1	3.80	3.661			
1,200.0	1,200.0	1,199.4	1,199.3	2.1	2.1	-117.68	-6.5	15.6	18.2	14.1	4.15	4.399			
1,300.0	1,299.9	1,298.9	1,298.6	2.3	2.3	-116.83	-11.5	19.0	24.7	20.2	4.50	5.479			
1,400.0	1,399.7	1,398.4	1,397.8	2.4	2.5	-117.34	-17.6	23.3	33.0	28.1	4.87	6.768			
1,500.0	1,499.4	1,498.0	1,497.1	2.6	2.7	-119.16	-23.9	27.6	42.0	36.7	5.24	8.008			
1,600.0	1,599.1	1,597.6	1,596.4	2.8	2.9	-120.45	-30.2	31.9	51.1	45.5	5.62	9.089			
1,700.0	1,698.8	1,697.2	1,695.7	3.0	3.1	-121.35	-36.5	36.2	60.2	54.2	6.00	10.030			
1,800.0	1,798.5	1,796.8	1,795.0	3.2	3.3	-122.01	-42.9	40.5	69.4	63.0	6.39	10.855			
1,900.0	1,898.3	1,896.3	1,894.3	3.4	3.5	-122.52	-49.2	44.9	78.5	71.7	6.78	11.583			
2,000.0	1,998.0	1,995.9	1,993.6	3.6	3.7	-122.92	-55.5	49.2	87.6	80.5	7.17	12.229			
2,100.0	2,097.7	2,095.5	2,092.8	3.8	3.9	-123.25	-61.8	53.5	96.8	89.2	7.56	12.805			
2,200.0	2,197.4	2,195.1	2,192.1	4.1	4.1	-123.52	-68.1	57.8	105.9	98.0	7.95	13.323			
2,300.0	2,297.1	2,294.7	2,291.4	4.3	4.3	-123.74	-74.4	62.1	115.1	106.8	8.35	13.789			
2,400.0	2,396.8	2,394.2	2,390.7	4.5	4.5	-123.94	-80.7	66.4	124.3	115.5	8.74	14.212			
2,500.0	2,496.5	2,493.8	2,490.0	4.7	4.7	-124.10	-87.0	70.8	133.4	124.3	9.14	14.597			
2,600.0	2,596.3	2,593.4	2,589.3	4.9	4.9	-124.25	-93.3	75.1	142.6	133.0	9.54	14.948			
2,700.0	2,696.0	2,693.0	2,688.6	5.1	5.2	-124.38	-99.6	79.4	151.7	141.8	9.94	15.271			
2,800.0	2,795.7	2,792.6	2,787.8	5.3	5.4	-124.49	-105.9	83.7	160.9	150.6	10.34	15.567			
2,900.0	2,895.4	2,892.1	2,887.1	5.5	5.6	-124.59	-112.2	88.0	170.0	159.3	10.74	15.840			
3,000.0	2,995.1	2,991.7	2,986.4	5.7	5.8	-124.68	-118.5	92.4	179.2	168.1	11.14	16.094			
3,100.0	3,094.8	3,091.3	3,085.7	6.0	6.0	-124.76	-124.8	96.7	188.4	176.8	11.54	16.328			
3,200.0	3,194.5	3,190.9	3,185.0	6.2	6.2	-124.84	-131.1	101.0	197.5	185.6	11.94	16.547			
3,300.0	3,294.3	3,290.5	3,284.3	6.4	6.4	-124.91	-137.4	105.3	206.7	194.4	12.34	16.751			
3,400.0	3,394.0	3,390.0	3,383.6	6.6	6.7	-124.97	-143.7	109.6	215.9	203.1	12.74	16.941			
3,500.0	3,493.7	3,489.6	3,482.8	6.8	6.9	-125.03	-150.0	113.9	225.0	211.9	13.14	17.120			
3,600.0	3,593.4	3,589.2	3,582.1	7.0	7.1	-125.08	-156.3	118.3	234.2	220.6	13.55	17.287			
3,700.0	3,693.1	3,688.8	3,681.4	7.3	7.3	-125.13	-162.6	122.6	243.3	229.4	13.95	17.445			
3,800.0	3,792.8	3,788.3	3,780.7	7.5	7.5	-125.17	-169.0	126.9	252.5	238.2	14.35	17.593			
3,900.0	3,892.5	3,887.9	3,880.0	7.7	7.7	-125.21	-175.3	131.2	261.7	246.9	14.76	17.733			
4,000.0	3,992.3	3,987.5	3,979.3	7.9	8.0	-125.25	-181.6	135.5	270.8	255.7	15.16	17.866			
4,100.0	4,092.0	4,087.1	4,078.6	8.1	8.2	-125.29	-187.9	139.8	280.0	264.4	15.56	17.991			
4,200.0	4,191.7	4,186.7	4,177.8	8.3	8.4	-125.32	-194.2	144.2	289.2	273.2	15.97	18.110			
4,300.0	4,291.4	4,286.2	4,277.1	8.5	8.6	-125.36	-200.5	148.5	298.3	282.0	16.37	18.222			
4,400.0	4,391.1	4,385.8	4,376.4	8.8	8.8	-125.39	-206.8	152.8	307.5	290.7	16.78	18.329			
4,500.0	4,490.8	4,485.4	4,475.7	9.0	9.0	-125.41	-213.1	157.1	316.6	299.5	17.18	18.431			
4,600.0	4,590.5	4,585.0	4,575.0	9.2	9.3	-125.44	-219.4	161.4	325.8	308.2	17.58	18.528			
4,700.0	4,690.3	4,684.6	4,674.3	9.4	9.5	-125.47	-225.7	165.8	335.0	317.0	17.99	18.621			
4,800.0	4,790.0	4,784.1	4,773.6	9.6	9.7	-125.49	-232.0	170.1	344.1	325.7	18.39	18.709			
4,900.0	4,889.7	4,883.7	4,872.8	9.8	9.9	-125.51	-238.3	174.4	353.3	334.5	18.80	18.794			
5,000.0	4,989.4	4,983.3	4,972.1	10.1	10.1	-125.53	-244.6	178.7	362.5	343.3	19.20	18.875			
5,100.0	5,089.1	5,082.9	5,071.4	10.3	10.4	-125.55	-250.9	183.0	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 3C-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 3C-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 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	
5,200.0	5,188.8	5,182.5	5,170.7	10.5	10.6	-125.57	-257.2	187.3	380.8	360.8	20.01	19.026	
5,300.0	5,288.5	5,282.0	5,270.0	10.7	10.8	-125.59	-263.5	191.7	390.0	369.5	20.42	19.097	
5,400.0	5,388.3	5,381.6	5,369.3	10.9	11.0	-125.61	-269.8	196.0	399.1	378.3	20.82	19.166	
5,500.0	5,488.0	5,481.3	5,468.6	11.2	11.2	-125.63	-276.1	200.3	408.3	387.1	21.23	19.231	
5,600.0	5,587.7	5,585.5	5,572.6	11.4	11.4	-125.75	-281.9	204.3	416.9	395.2	21.63	19.269	
5,700.0	5,687.4	5,689.9	5,676.9	11.6	11.6	-126.07	-286.2	207.2	424.4	402.3	22.03	19.264	
5,800.0	5,787.1	5,794.4	5,781.4	11.8	11.8	-126.58	-288.9	209.0	430.7	408.3	22.41	19.220	
5,900.0	5,886.8	5,898.9	5,885.9	12.0	12.0	-127.27	-290.0	209.8	436.0	413.3	22.78	19.142	
6,000.0	5,986.5	5,999.6	5,986.5	12.2	12.1	-128.06	-290.0	209.8	440.7	417.5	23.14	19.044	
6,100.0	6,086.3	6,099.4	6,086.3	12.4	12.3	-128.75	-290.0	209.8	444.7	421.2	23.49	18.930	
6,200.0	6,186.2	6,199.3	6,186.2	12.6	12.4	-129.24	-290.0	209.8	447.7	423.9	23.83	18.784	
6,300.0	6,286.2	6,299.2	6,286.2	12.8	12.6	-129.55	-290.0	209.8	449.6	425.4	24.16	18.605	
6,400.0	6,386.2	6,399.2	6,386.2	12.9	12.7	-129.68	-290.0	209.8	450.4	425.9	24.48	18.394	
6,500.0	6,486.2	6,499.2	6,486.2	13.1	12.9	90.00	-290.0	209.8	450.4	425.6	24.80	18.159	
6,549.3	6,535.4	6,548.5	6,535.4	13.2	13.0	90.00	-290.0	209.8	450.4	425.4	24.96	18.045	
6,600.0	6,586.2	6,599.1	6,586.0	13.2	13.0	89.76	-288.1	209.8	450.4	425.3	25.09	17.948	
6,700.0	6,686.2	6,697.0	6,682.8	13.4	13.0	88.01	-274.3	209.8	450.7	425.4	25.28	17.826	
6,800.0	6,786.2	6,789.6	6,771.9	13.5	13.0	84.82	-249.3	209.8	452.4	427.1	25.38	17.826	
6,900.0	6,885.6	6,877.9	6,853.1	13.6	13.0	81.20	-214.9	209.8	456.2	430.9	25.34	18.001	
7,000.0	6,982.7	6,963.4	6,927.2	13.6	12.9	77.82	-172.2	209.8	461.6	436.4	25.22	18.302	
7,100.0	7,075.7	7,050.0	6,996.6	13.6	12.9	74.61	-120.4	209.8	468.0	442.9	25.05	18.681	
7,200.0	7,162.6	7,128.0	7,053.2	13.5	12.9	71.93	-66.9	209.8	475.0	450.1	24.91	19.069	
7,300.0	7,241.8	7,207.8	7,104.8	13.5	13.0	69.49	-6.1	209.8	482.1	457.2	24.83	19.413	
7,400.0	7,311.8	7,286.3	7,148.7	13.6	13.2	67.42	59.0	209.8	488.8	463.9	24.88	19.646	
7,500.0	7,371.2	7,363.7	7,184.7	13.8	13.5	65.71	127.5	209.8	494.9	469.8	25.12	19.700	
7,600.0	7,418.8	7,440.4	7,212.9	14.1	14.0	64.38	198.7	209.8	500.0	474.4	25.61	19.525	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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				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			
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			
500.0	500.0	500.0	500.0	0.8	0.8	90.00	0.0	19.6	19.6	17.9	1.70	11.521			
600.0	600.0	600.0	600.0	1.0	1.0	90.00	0.0	19.6	19.6	17.5	2.05	9.558			
700.0	700.0	700.0	700.0	1.2	1.2	90.00	0.0	19.6	19.6	17.2	2.40	8.167 CC, ES			
800.0	800.0	799.7	799.7	1.4	1.4	91.08	-0.4	20.4	20.4	17.6	2.75	7.415			
900.0	900.0	899.3	899.3	1.5	1.5	93.86	-1.5	22.7	22.8	19.7	3.10	7.348 SF			
1,000.0	1,000.0	998.8	998.7	1.7	1.7	97.39	-3.4	26.6	26.8	23.4	3.45	7.776			
1,100.0	1,100.0	1,098.1	1,097.8	1.9	1.9	-120.13	-6.1	32.0	33.1	29.3	3.79	8.718			
1,200.0	1,200.0	1,197.1	1,196.5	2.1	2.1	-120.08	-9.5	38.9	41.9	37.7	4.14	10.102			
1,300.0	1,299.9	1,295.7	1,294.6	2.3	2.3	-121.09	-13.7	47.3	53.2	48.7	4.50	11.823			
1,400.0	1,399.7	1,393.7	1,392.0	2.4	2.6	-122.50	-18.5	57.2	67.0	62.2	4.86	13.801			
1,500.0	1,499.4	1,491.7	1,489.2	2.6	2.8	-123.86	-24.1	68.5	83.1	77.9	5.22	15.915			
1,600.0	1,599.1	1,590.3	1,587.0	2.8	3.0	-124.80	-29.8	80.1	99.6	94.0	5.60	17.801			
1,700.0	1,698.8	1,688.9	1,684.7	3.0	3.3	-125.47	-35.5	91.7	116.1	110.1	5.97	19.443			
1,800.0	1,798.5	1,787.6	1,782.5	3.2	3.6	-125.98	-41.3	103.3	132.6	126.3	6.35	20.883			
1,900.0	1,898.3	1,886.2	1,880.3	3.4	3.8	-126.37	-47.0	114.9	149.2	142.4	6.73	22.154			
2,000.0	1,998.0	1,984.8	1,978.0	3.6	4.1	-126.68	-52.7	126.5	165.7	158.6	7.12	23.283			
2,100.0	2,097.7	2,083.4	2,075.8	3.8	4.4	-126.94	-58.5	138.1	182.2	174.7	7.50	24.291			
2,200.0	2,197.4	2,182.0	2,173.6	4.1	4.6	-127.15	-64.2	149.8	198.8	190.9	7.89	25.196			
2,300.0	2,297.1	2,280.7	2,271.3	4.3	4.9	-127.33	-69.9	161.4	215.3	207.0	8.28	26.013			
2,400.0	2,396.8	2,379.3	2,369.1	4.5	5.2	-127.49	-75.6	173.0	231.8	223.2	8.67	26.754			
2,500.0	2,496.5	2,477.9	2,466.9	4.7	5.4	-127.62	-81.4	184.6	248.4	239.3	9.06	27.429			
2,600.0	2,596.3	2,576.5	2,564.6	4.9	5.7	-127.74	-87.1	196.2	264.9	255.5	9.45	28.045			
2,700.0	2,696.0	2,675.1	2,662.4	5.1	6.0	-127.85	-92.8	207.8	281.5	271.6	9.84	28.610			
2,800.0	2,795.7	2,773.8	2,760.2	5.3	6.3	-127.94	-98.5	219.4	298.0	287.8	10.23	29.131			
2,900.0	2,895.4	2,872.4	2,857.9	5.5	6.6	-128.02	-104.3	231.1	314.6	303.9	10.62	29.611			
3,000.0	2,995.1	2,971.0	2,955.7	5.7	6.8	-128.10	-110.0	242.7	331.1	320.1	11.02	30.056			
3,100.0	3,094.8	3,069.6	3,053.5	6.0	7.1	-128.16	-115.7	254.3	347.7	336.3	11.41	30.469			
3,200.0	3,194.5	3,168.2	3,151.2	6.2	7.4	-128.22	-121.4	265.9	364.2	352.4	11.80	30.854			
3,300.0	3,294.3	3,266.9	3,249.0	6.4	7.7	-128.28	-127.2	277.5	380.8	368.6	12.20	31.212			
3,400.0	3,394.0	3,365.5	3,346.8	6.6	8.0	-128.33	-132.9	289.1	397.3	384.7	12.59	31.548			
3,500.0	3,493.7	3,464.1	3,444.5	6.8	8.2	-128.38	-138.6	300.7	413.9	400.9	12.99	31.862			
3,600.0	3,593.4	3,562.7	3,542.3	7.0	8.5	-128.42	-144.3	312.4	430.4	417.0	13.38	32.157			
3,700.0	3,693.1	3,661.3	3,640.1	7.3	8.8	-128.46	-150.1	324.0	447.0	433.2	13.78	32.434			
3,800.0	3,792.8	3,760.0	3,737.8	7.5	9.1	-128.50	-155.8	335.6	463.5	449.3	14.18	32.696			
3,900.0	3,892.5	3,858.6	3,835.6	7.7	9.4	-128.54	-161.5	347.2	480.1	465.5	14.57	32.943			
4,000.0	3,992.3	3,957.2	3,933.4	7.9	9.6	-128.57	-167.2	358.8	496.6	481.6	14.97	33.176			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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							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	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		
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	30.8	30.8	29.4	1.35	22.783	CC, ES	
500.0	500.0	499.5	499.5	0.8	0.8	90.40	-0.2	31.6	31.6	29.9	1.70	18.605		
600.0	600.0	598.9	598.8	1.0	1.0	91.48	-0.9	34.1	34.1	32.1	2.05	16.659		
700.0	700.0	698.2	698.0	1.2	1.2	92.97	-2.0	38.3	38.4	36.0	2.40	15.969	SF	
800.0	800.0	797.3	797.0	1.4	1.4	94.57	-3.5	44.1	44.3	41.6	2.76	16.052		
900.0	900.0	896.2	895.6	1.5	1.6	96.08	-5.5	51.5	52.0	48.9	3.13	16.639		
1,000.0	1,000.0	994.8	993.7	1.7	1.8	97.42	-7.9	60.6	61.4	57.9	3.50	17.564		
1,100.0	1,100.0	1,092.9	1,091.2	1.9	2.1	-121.62	-10.7	71.2	73.0	69.2	3.78	19.296		
1,200.0	1,200.0	1,190.6	1,188.1	2.1	2.3	-121.95	-13.9	83.4	87.2	83.1	4.13	21.111		
1,300.0	1,299.9	1,287.5	1,284.0	2.3	2.6	-122.83	-17.5	97.1	104.0	99.5	4.48	23.211		
1,400.0	1,399.7	1,383.7	1,378.9	2.4	2.9	-123.95	-21.5	112.2	123.4	118.5	4.83	25.527		
1,500.0	1,499.4	1,479.1	1,472.7	2.6	3.2	-125.15	-25.9	128.7	145.2	140.0	5.19	27.960		
1,600.0	1,599.1	1,573.7	1,565.5	2.8	3.6	-126.00	-30.6	146.6	168.7	163.1	5.56	30.360		
1,700.0	1,698.8	1,667.6	1,657.3	3.0	3.9	-126.53	-35.7	165.8	193.8	187.8	5.92	32.721		
1,800.0	1,798.5	1,760.7	1,747.9	3.2	4.3	-126.86	-41.1	186.2	220.4	214.1	6.29	35.046		
1,900.0	1,898.3	1,856.1	1,840.6	3.4	4.7	-127.06	-46.9	208.2	248.1	241.4	6.66	37.232		
2,000.0	1,998.0	1,952.2	1,933.9	3.6	5.1	-127.23	-52.8	230.3	275.7	268.7	7.04	39.172		
2,100.0	2,097.7	2,048.3	2,027.3	3.8	5.6	-127.37	-58.7	252.4	303.4	296.0	7.42	40.905		
2,200.0	2,197.4	2,144.4	2,120.6	4.1	6.0	-127.48	-64.5	274.6	331.1	323.3	7.80	42.462		
2,300.0	2,297.1	2,240.5	2,213.9	4.3	6.4	-127.57	-70.4	296.7	358.8	350.6	8.18	43.867		
2,400.0	2,396.8	2,336.5	2,307.2	4.5	6.8	-127.65	-76.2	318.8	386.5	378.0	8.56	45.142		
2,500.0	2,496.5	2,432.6	2,400.5	4.7	7.3	-127.73	-82.1	341.0	414.2	405.3	8.95	46.302		
2,600.0	2,596.3	2,528.7	2,493.9	4.9	7.7	-127.79	-87.9	363.1	441.9	432.6	9.33	47.363		
2,700.0	2,696.0	2,624.8	2,587.2	5.1	8.1	-127.84	-93.8	385.2	469.6	459.9	9.72	48.336		
2,800.0	2,795.7	2,720.9	2,680.5	5.3	8.6	-127.89	-99.6	407.3	497.3	487.2	10.10	49.231		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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		
10,700.0	7,483.0	7,484.0	7,484.0	59.8	13.0	90.00	3,642.1	-66.6	456.0	383.3	72.66	6.276		
10,800.0	7,483.0	7,484.0	7,484.0	61.5	13.0	90.00	3,642.1	-66.6	365.6	291.2	74.38	4.915		
10,900.0	7,483.0	7,484.0	7,484.0	63.2	13.0	90.00	3,642.1	-66.6	281.7	205.6	76.09	3.702		
11,000.0	7,483.0	7,484.0	7,484.0	64.9	13.0	90.00	3,642.1	-66.6	212.2	134.4	77.81	2.727		
11,100.0	7,483.0	7,484.0	7,484.0	66.6	13.0	90.00	3,642.1	-66.6	175.3	95.8	79.53	2.204		
11,121.5	7,483.0	7,484.0	7,484.0	67.0	13.0	90.00	3,642.1	-66.6	174.0	94.1	79.90	2.178	CC, ES, SF	
11,200.0	7,483.0	7,484.0	7,484.0	68.3	13.0	90.00	3,642.1	-66.6	190.9	109.6	81.25	2.349		
11,300.0	7,483.0	7,484.0	7,484.0	70.1	13.0	90.00	3,642.1	-66.6	249.3	166.3	82.98	3.004		
11,400.0	7,483.0	7,484.0	7,484.0	71.8	13.0	90.00	3,642.1	-66.6	328.4	243.7	84.70	3.877		
11,500.0	7,483.0	7,484.0	7,484.0	73.5	13.0	90.00	3,642.1	-66.6	416.6	330.1	86.43	4.820		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Marcus State 3C-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 3C-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

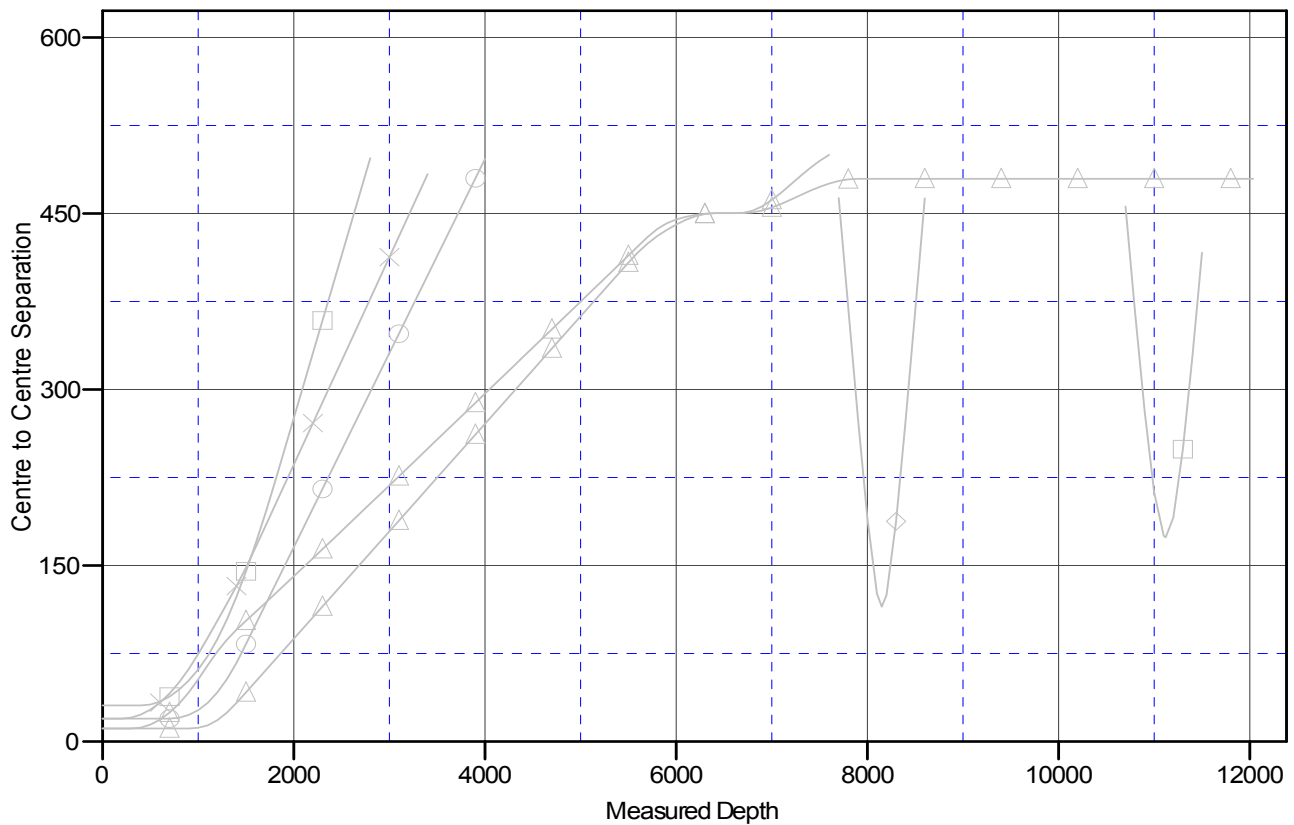
Central Meridian is -105.500000 °

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

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.50°

Ladder Plot



LEGEND

- Marcus State 1 (Existing), VT, Existing V0
- Marcus State 3A-36H, HZ, Plan #2 V0
- Marcus State 3B-36H, HZ, Plan #2 V0
- Marcus State 3D-36H, HZ, Plan #2 V0
- Marcus State 3E-36H, HZ, Plan #2 V0
- Marcus State 3F-36H, HZ, Plan #2 V0
- Marcus State W36-2J (Existing), VT, Existing V0