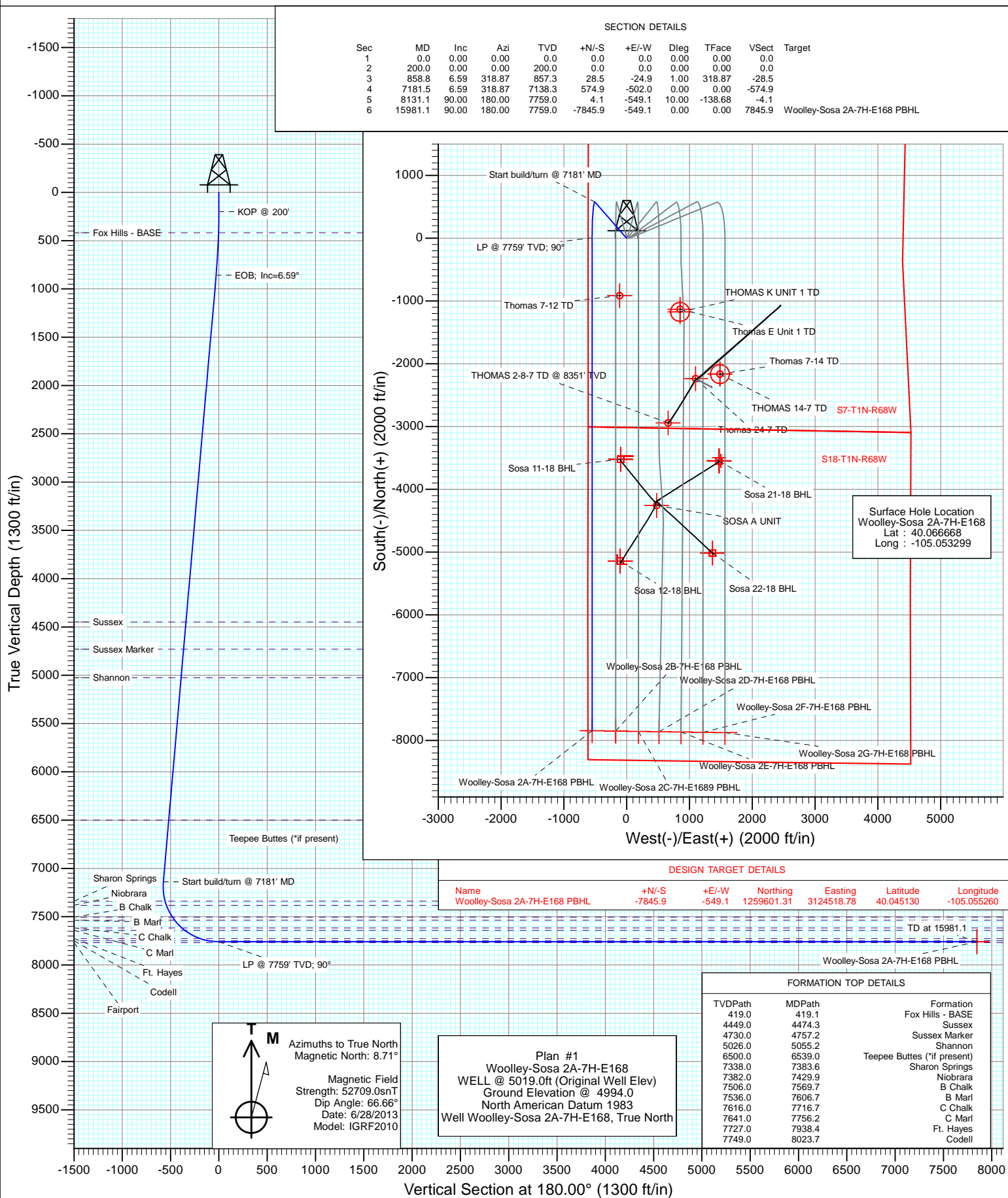




Project: DJ Wattenberg
Site: S7-T1N-R68W (Woolley-Sosa)
Well: Woolley-Sosa 2A-7H-E168
Wellbore: Hz
Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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		S7-T1N-R68W (Woolley-Sosa)			
Site Position:		Northing:	1,265,219.42 ft	Latitude:	40.060530
From:	Lat/Long	Easting:	3,126,139.27 ft	Longitude:	-105.049370
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	Woolley-Sosa 2A-7H-E168					
Well Position	+N/-S	0.0 ft	Northing:	1,267,449.90 ft	Latitude:	40.066668
	+E/-W	0.0 ft	Easting:	3,125,028.39 ft	Longitude:	-105.053299
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,994.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/28/2013	8.71	66.66	52,709

Design	Plan #1			
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	180.00

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
858.8	6.59	318.87	857.3	28.5	-24.9	1.00	1.00	0.00	318.87	
7,181.5	6.59	318.87	7,138.3	574.9	-502.0	0.00	0.00	0.00	0.00	
8,131.1	90.00	180.00	7,759.0	4.1	-549.1	10.00	8.78	-14.62	-138.68	
15,981.1	90.00	180.00	7,759.0	-7,845.9	-549.1	0.00	0.00	0.00	0.00	Woolley-Sosa 2A-7H-

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	1.00	318.87	300.0	0.7	-0.6	-0.7	1.00	1.00	
400.0	2.00	318.87	400.0	2.6	-2.3	-2.6	1.00	1.00	
419.1	2.19	318.87	419.0	3.2	-2.8	-3.2	1.00	1.00	Fox Hills - BASE
500.0	3.00	318.87	499.9	5.9	-5.2	-5.9	1.00	1.00	
600.0	4.00	318.87	599.7	10.5	-9.2	-10.5	1.00	1.00	
700.0	5.00	318.87	699.4	16.4	-14.3	-16.4	1.00	1.00	
800.0	6.00	318.87	798.9	23.6	-20.6	-23.6	1.00	1.00	
858.8	6.59	318.87	857.3	28.5	-24.9	-28.5	1.00	1.00	EOB; Inc=6.59°
900.0	6.59	318.87	898.3	32.1	-28.0	-32.1	0.00	0.00	
1,000.0	6.59	318.87	997.6	40.7	-35.5	-40.7	0.00	0.00	
1,100.0	6.59	318.87	1,097.0	49.3	-43.1	-49.3	0.00	0.00	
1,200.0	6.59	318.87	1,196.3	58.0	-50.6	-58.0	0.00	0.00	
1,300.0	6.59	318.87	1,295.6	66.6	-58.2	-66.6	0.00	0.00	
1,400.0	6.59	318.87	1,395.0	75.3	-65.7	-75.3	0.00	0.00	
1,500.0	6.59	318.87	1,494.3	83.9	-73.3	-83.9	0.00	0.00	
1,600.0	6.59	318.87	1,593.7	92.6	-80.8	-92.6	0.00	0.00	
1,700.0	6.59	318.87	1,693.0	101.2	-88.4	-101.2	0.00	0.00	
1,800.0	6.59	318.87	1,792.3	109.8	-95.9	-109.8	0.00	0.00	
1,900.0	6.59	318.87	1,891.7	118.5	-103.5	-118.5	0.00	0.00	
2,000.0	6.59	318.87	1,991.0	127.1	-111.0	-127.1	0.00	0.00	
2,100.0	6.59	318.87	2,090.4	135.8	-118.5	-135.8	0.00	0.00	
2,200.0	6.59	318.87	2,189.7	144.4	-126.1	-144.4	0.00	0.00	
2,300.0	6.59	318.87	2,289.0	153.0	-133.6	-153.0	0.00	0.00	
2,400.0	6.59	318.87	2,388.4	161.7	-141.2	-161.7	0.00	0.00	
2,500.0	6.59	318.87	2,487.7	170.3	-148.7	-170.3	0.00	0.00	
2,600.0	6.59	318.87	2,587.1	179.0	-156.3	-179.0	0.00	0.00	
2,700.0	6.59	318.87	2,686.4	187.6	-163.8	-187.6	0.00	0.00	
2,800.0	6.59	318.87	2,785.7	196.3	-171.4	-196.3	0.00	0.00	
2,900.0	6.59	318.87	2,885.1	204.9	-178.9	-204.9	0.00	0.00	
3,000.0	6.59	318.87	2,984.4	213.5	-186.5	-213.5	0.00	0.00	
3,100.0	6.59	318.87	3,083.8	222.2	-194.0	-222.2	0.00	0.00	
3,200.0	6.59	318.87	3,183.1	230.8	-201.5	-230.8	0.00	0.00	
3,300.0	6.59	318.87	3,282.4	239.5	-209.1	-239.5	0.00	0.00	
3,400.0	6.59	318.87	3,381.8	248.1	-216.6	-248.1	0.00	0.00	
3,500.0	6.59	318.87	3,481.1	256.7	-224.2	-256.7	0.00	0.00	
3,600.0	6.59	318.87	3,580.4	265.4	-231.7	-265.4	0.00	0.00	
3,700.0	6.59	318.87	3,679.8	274.0	-239.3	-274.0	0.00	0.00	
3,800.0	6.59	318.87	3,779.1	282.7	-246.8	-282.7	0.00	0.00	
3,900.0	6.59	318.87	3,878.5	291.3	-254.4	-291.3	0.00	0.00	
4,000.0	6.59	318.87	3,977.8	300.0	-261.9	-300.0	0.00	0.00	
4,100.0	6.59	318.87	4,077.1	308.6	-269.5	-308.6	0.00	0.00	
4,200.0	6.59	318.87	4,176.5	317.2	-277.0	-317.2	0.00	0.00	
4,300.0	6.59	318.87	4,275.8	325.9	-284.6	-325.9	0.00	0.00	
4,400.0	6.59	318.87	4,375.2	334.5	-292.1	-334.5	0.00	0.00	
4,474.3	6.59	318.87	4,449.0	340.9	-297.7	-340.9	0.00	0.00	Sussex
4,500.0	6.59	318.87	4,474.5	343.2	-299.6	-343.2	0.00	0.00	
4,600.0	6.59	318.87	4,573.8	351.8	-307.2	-351.8	0.00	0.00	
4,700.0	6.59	318.87	4,673.2	360.4	-314.7	-360.4	0.00	0.00	
4,757.2	6.59	318.87	4,730.0	365.4	-319.1	-365.4	0.00	0.00	Sussex Marker

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	6.59	318.87	4,772.5	369.1	-322.3	-369.1	0.00	0.00	
4,900.0	6.59	318.87	4,871.9	377.7	-329.8	-377.7	0.00	0.00	
5,000.0	6.59	318.87	4,971.2	386.4	-337.4	-386.4	0.00	0.00	
5,055.2	6.59	318.87	5,026.0	391.1	-341.5	-391.1	0.00	0.00	Shannon
5,100.0	6.59	318.87	5,070.5	395.0	-344.9	-395.0	0.00	0.00	
5,200.0	6.59	318.87	5,169.9	403.7	-352.5	-403.7	0.00	0.00	
5,300.0	6.59	318.87	5,269.2	412.3	-360.0	-412.3	0.00	0.00	
5,400.0	6.59	318.87	5,368.6	420.9	-367.6	-420.9	0.00	0.00	
5,500.0	6.59	318.87	5,467.9	429.6	-375.1	-429.6	0.00	0.00	
5,600.0	6.59	318.87	5,567.2	438.2	-382.7	-438.2	0.00	0.00	
5,700.0	6.59	318.87	5,666.6	446.9	-390.2	-446.9	0.00	0.00	
5,800.0	6.59	318.87	5,765.9	455.5	-397.7	-455.5	0.00	0.00	
5,900.0	6.59	318.87	5,865.3	464.1	-405.3	-464.1	0.00	0.00	
6,000.0	6.59	318.87	5,964.6	472.8	-412.8	-472.8	0.00	0.00	
6,100.0	6.59	318.87	6,063.9	481.4	-420.4	-481.4	0.00	0.00	
6,200.0	6.59	318.87	6,163.3	490.1	-427.9	-490.1	0.00	0.00	
6,300.0	6.59	318.87	6,262.6	498.7	-435.5	-498.7	0.00	0.00	
6,400.0	6.59	318.87	6,362.0	507.4	-443.0	-507.4	0.00	0.00	
6,500.0	6.59	318.87	6,461.3	516.0	-450.6	-516.0	0.00	0.00	
6,539.0	6.59	318.87	6,500.0	519.4	-453.5	-519.4	0.00	0.00	Teepee Buttes (*if present)
6,600.0	6.59	318.87	6,560.6	524.6	-458.1	-524.6	0.00	0.00	
6,700.0	6.59	318.87	6,660.0	533.3	-465.7	-533.3	0.00	0.00	
6,800.0	6.59	318.87	6,759.3	541.9	-473.2	-541.9	0.00	0.00	
6,900.0	6.59	318.87	6,858.7	550.6	-480.7	-550.6	0.00	0.00	
7,000.0	6.59	318.87	6,958.0	559.2	-488.3	-559.2	0.00	0.00	
7,100.0	6.59	318.87	7,057.3	567.8	-495.8	-567.8	0.00	0.00	
7,181.5	6.59	318.87	7,138.3	574.9	-502.0	-574.9	0.00	0.00	Start build/turn @ 7181' MD
7,200.0	5.34	305.64	7,156.7	576.2	-503.4	-576.2	9.99	-6.74	
7,300.0	8.14	212.08	7,256.2	572.9	-510.9	-572.9	10.00	2.80	
7,383.6	15.85	195.52	7,338.0	556.8	-517.2	-556.8	10.00	9.21	Sharon Springs
7,400.0	17.42	194.01	7,353.7	552.3	-518.3	-552.3	10.00	9.64	
7,429.9	20.33	191.83	7,382.0	542.9	-520.5	-542.9	10.00	9.72	Niobrara
7,500.0	27.21	188.49	7,446.1	515.1	-525.4	-515.1	10.00	9.82	
7,569.7	34.10	186.44	7,506.0	479.9	-529.9	-479.9	10.00	9.89	B Chalk
7,600.0	37.11	185.76	7,530.6	462.3	-531.8	-462.3	10.00	9.91	
7,606.7	37.78	185.62	7,536.0	458.2	-532.2	-458.2	10.00	9.92	B Marl
7,700.0	47.04	184.06	7,604.8	395.6	-537.4	-395.6	10.00	9.94	
7,716.7	48.71	183.83	7,616.0	383.2	-538.3	-383.2	10.00	9.95	C Chalk
7,756.2	52.64	183.33	7,641.0	352.8	-540.2	-352.8	10.00	9.95	C Marl
7,800.0	57.00	182.83	7,666.2	317.0	-542.1	-317.0	10.00	9.96	
7,900.0	66.96	181.85	7,713.2	228.9	-545.7	-228.9	10.00	9.96	
7,938.4	70.79	181.52	7,727.0	193.1	-546.7	-193.1	10.00	9.97	Ft. Hayes
8,000.0	76.93	181.01	7,744.1	134.0	-548.0	-134.0	10.00	9.97	
8,023.7	79.30	180.82	7,749.0	110.8	-548.4	-110.8	10.00	9.97	Codell
8,100.0	86.90	180.24	7,758.2	35.1	-549.1	-35.1	10.00	9.97	
8,131.1	90.00	180.00	7,759.0	4.0	-549.1	-4.0	9.99	9.96	LP @ 7759' TVD; 90°
8,200.0	90.00	180.00	7,759.0	-64.8	-549.1	64.8	0.00	0.00	
8,300.0	90.00	180.00	7,759.0	-164.8	-549.1	164.8	0.00	0.00	
8,400.0	90.00	180.00	7,759.0	-264.8	-549.1	264.8	0.00	0.00	
8,500.0	90.00	180.00	7,759.0	-364.8	-549.1	364.8	0.00	0.00	
8,600.0	90.00	180.00	7,759.0	-464.8	-549.1	464.8	0.00	0.00	
8,700.0	90.00	180.00	7,759.0	-564.8	-549.1	564.8	0.00	0.00	

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.00	180.00	7,759.0	-664.8	-549.1	664.8	0.00	0.00	
8,900.0	90.00	180.00	7,759.0	-764.8	-549.1	764.8	0.00	0.00	
9,000.0	90.00	180.00	7,759.0	-864.8	-549.1	864.8	0.00	0.00	
9,100.0	90.00	180.00	7,759.0	-964.8	-549.1	964.8	0.00	0.00	
9,200.0	90.00	180.00	7,759.0	-1,064.8	-549.1	1,064.8	0.00	0.00	
9,300.0	90.00	180.00	7,759.0	-1,164.8	-549.1	1,164.8	0.00	0.00	
9,400.0	90.00	180.00	7,759.0	-1,264.8	-549.1	1,264.8	0.00	0.00	
9,500.0	90.00	180.00	7,759.0	-1,364.8	-549.1	1,364.8	0.00	0.00	
9,600.0	90.00	180.00	7,759.0	-1,464.8	-549.1	1,464.8	0.00	0.00	
9,700.0	90.00	180.00	7,759.0	-1,564.8	-549.1	1,564.8	0.00	0.00	
9,800.0	90.00	180.00	7,759.0	-1,664.8	-549.1	1,664.8	0.00	0.00	
9,900.0	90.00	180.00	7,759.0	-1,764.8	-549.1	1,764.8	0.00	0.00	
10,000.0	90.00	180.00	7,759.0	-1,864.8	-549.1	1,864.8	0.00	0.00	
10,100.0	90.00	180.00	7,759.0	-1,964.8	-549.1	1,964.8	0.00	0.00	
10,200.0	90.00	180.00	7,759.0	-2,064.8	-549.1	2,064.8	0.00	0.00	
10,300.0	90.00	180.00	7,759.0	-2,164.8	-549.1	2,164.8	0.00	0.00	
10,400.0	90.00	180.00	7,759.0	-2,264.8	-549.1	2,264.8	0.00	0.00	
10,500.0	90.00	180.00	7,759.0	-2,364.8	-549.1	2,364.8	0.00	0.00	
10,600.0	90.00	180.00	7,759.0	-2,464.8	-549.1	2,464.8	0.00	0.00	
10,700.0	90.00	180.00	7,759.0	-2,564.8	-549.1	2,564.8	0.00	0.00	
10,800.0	90.00	180.00	7,759.0	-2,664.8	-549.1	2,664.8	0.00	0.00	
10,900.0	90.00	180.00	7,759.0	-2,764.8	-549.1	2,764.8	0.00	0.00	
11,000.0	90.00	180.00	7,759.0	-2,864.8	-549.1	2,864.8	0.00	0.00	
11,100.0	90.00	180.00	7,759.0	-2,964.8	-549.1	2,964.8	0.00	0.00	
11,200.0	90.00	180.00	7,759.0	-3,064.8	-549.1	3,064.8	0.00	0.00	
11,300.0	90.00	180.00	7,759.0	-3,164.8	-549.1	3,164.8	0.00	0.00	
11,400.0	90.00	180.00	7,759.0	-3,264.8	-549.1	3,264.8	0.00	0.00	
11,500.0	90.00	180.00	7,759.0	-3,364.8	-549.1	3,364.8	0.00	0.00	
11,600.0	90.00	180.00	7,759.0	-3,464.8	-549.1	3,464.8	0.00	0.00	
11,700.0	90.00	180.00	7,759.0	-3,564.8	-549.1	3,564.8	0.00	0.00	
11,800.0	90.00	180.00	7,759.0	-3,664.8	-549.1	3,664.8	0.00	0.00	
11,900.0	90.00	180.00	7,759.0	-3,764.8	-549.1	3,764.8	0.00	0.00	
12,000.0	90.00	180.00	7,759.0	-3,864.8	-549.1	3,864.8	0.00	0.00	
12,100.0	90.00	180.00	7,759.0	-3,964.8	-549.1	3,964.8	0.00	0.00	
12,200.0	90.00	180.00	7,759.0	-4,064.8	-549.1	4,064.8	0.00	0.00	
12,300.0	90.00	180.00	7,759.0	-4,164.8	-549.1	4,164.8	0.00	0.00	
12,400.0	90.00	180.00	7,759.0	-4,264.8	-549.1	4,264.8	0.00	0.00	
12,500.0	90.00	180.00	7,759.0	-4,364.8	-549.1	4,364.8	0.00	0.00	
12,600.0	90.00	180.00	7,759.0	-4,464.8	-549.1	4,464.8	0.00	0.00	
12,700.0	90.00	180.00	7,759.0	-4,564.8	-549.1	4,564.8	0.00	0.00	
12,800.0	90.00	180.00	7,759.0	-4,664.8	-549.1	4,664.8	0.00	0.00	
12,900.0	90.00	180.00	7,759.0	-4,764.8	-549.1	4,764.8	0.00	0.00	
13,000.0	90.00	180.00	7,759.0	-4,864.8	-549.1	4,864.8	0.00	0.00	
13,100.0	90.00	180.00	7,759.0	-4,964.8	-549.1	4,964.8	0.00	0.00	
13,200.0	90.00	180.00	7,759.0	-5,064.8	-549.1	5,064.8	0.00	0.00	
13,300.0	90.00	180.00	7,759.0	-5,164.8	-549.1	5,164.8	0.00	0.00	
13,400.0	90.00	180.00	7,759.0	-5,264.8	-549.1	5,264.8	0.00	0.00	
13,500.0	90.00	180.00	7,759.0	-5,364.8	-549.1	5,364.8	0.00	0.00	
13,600.0	90.00	180.00	7,759.0	-5,464.8	-549.1	5,464.8	0.00	0.00	
13,700.0	90.00	180.00	7,759.0	-5,564.8	-549.1	5,564.8	0.00	0.00	
13,800.0	90.00	180.00	7,759.0	-5,664.8	-549.1	5,664.8	0.00	0.00	
13,900.0	90.00	180.00	7,759.0	-5,764.8	-549.1	5,764.8	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
14,000.0	90.00	180.00	7,759.0	-5,864.8	-549.1	5,864.8	0.00	0.00	
14,100.0	90.00	180.00	7,759.0	-5,964.8	-549.1	5,964.8	0.00	0.00	
14,200.0	90.00	180.00	7,759.0	-6,064.8	-549.1	6,064.8	0.00	0.00	
14,300.0	90.00	180.00	7,759.0	-6,164.8	-549.1	6,164.8	0.00	0.00	
14,400.0	90.00	180.00	7,759.0	-6,264.8	-549.1	6,264.8	0.00	0.00	
14,500.0	90.00	180.00	7,759.0	-6,364.8	-549.1	6,364.8	0.00	0.00	
14,600.0	90.00	180.00	7,759.0	-6,464.8	-549.1	6,464.8	0.00	0.00	
14,700.0	90.00	180.00	7,759.0	-6,564.8	-549.1	6,564.8	0.00	0.00	
14,800.0	90.00	180.00	7,759.0	-6,664.8	-549.1	6,664.8	0.00	0.00	
14,900.0	90.00	180.00	7,759.0	-6,764.8	-549.1	6,764.8	0.00	0.00	
15,000.0	90.00	180.00	7,759.0	-6,864.8	-549.1	6,864.8	0.00	0.00	
15,100.0	90.00	180.00	7,759.0	-6,964.8	-549.1	6,964.8	0.00	0.00	
15,200.0	90.00	180.00	7,759.0	-7,064.8	-549.1	7,064.8	0.00	0.00	
15,300.0	90.00	180.00	7,759.0	-7,164.8	-549.1	7,164.8	0.00	0.00	
15,400.0	90.00	180.00	7,759.0	-7,264.8	-549.1	7,264.8	0.00	0.00	
15,500.0	90.00	180.00	7,759.0	-7,364.8	-549.1	7,364.8	0.00	0.00	
15,600.0	90.00	180.00	7,759.0	-7,464.8	-549.1	7,464.8	0.00	0.00	
15,700.0	90.00	180.00	7,759.0	-7,564.8	-549.1	7,564.8	0.00	0.00	
15,800.0	90.00	180.00	7,759.0	-7,664.8	-549.1	7,664.8	0.00	0.00	
15,900.0	90.00	180.00	7,759.0	-7,764.8	-549.1	7,764.8	0.00	0.00	
15,981.1	90.00	180.00	7,759.0	-7,845.9	-549.1	7,845.9	0.00	0.00	TD at 15981.1

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									
Woolley-Sosa 2A-7H-E1	0.00	0.00	7,759.0	-7,845.9	-549.1	1,259,601.31	3,124,518.78	40.045130	-105.055260
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
419.1	419.0	Fox Hills - BASE			
4,474.3	4,449.0	Sussex			
4,757.2	4,730.0	Sussex Marker			
5,055.2	5,026.0	Shannon			
6,539.0	6,500.0	Teepee Buttes (*if present)			
7,383.6	7,338.0	Sharon Springs			
7,429.9	7,382.0	Niobrara			
7,569.7	7,506.0	B Chalk			
7,606.7	7,536.0	B Marl			
7,716.7	7,616.0	C Chalk			
7,756.2	7,641.0	C Marl			
7,938.4	7,727.0	Ft. Hayes			
8,023.7	7,749.0	Codell			

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site:	S7-T1N-R68W (Woolley-Sosa)	North Reference:	True
Well:	Woolley-Sosa 2A-7H-E168	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
858.8	857.3	28.5	-24.9	EOB; Inc=6.59°
7,181.5	7,138.3	574.9	-502.0	Start build/turn @ 7181' MD
8,131.1	7,759.0	4.0	-549.1	LP @ 7759' TVD; 90°
15,981.1	7,759.0	-7,845.9	-549.1	TD at 15981.1



EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S7-T1N-R68W (Woolley-Sosa)

Woolley-Sosa 2A-7H-E168

Hz

Plan #1

Anticollision Report

28 June, 2013





Cathedral Energy Services
Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	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 6/28/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	15,981.1	Plan #1 (Hz)	Geolink MWD	Geolink MWD	



Cathedral Energy Services

Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
S7-T1N-R68W (Woolley-Sosa)						
Sosa 11-18 - DD - DD	11,671.3	7,842.5	457.1	373.8	5.484	CC, ES
Sosa 11-18 - DD - DD	11,700.0	7,842.6	458.0	374.2	5.462	SF
Sosa 12-18 - DD - DD	13,305.6	7,886.6	460.2	344.8	3.987	CC, ES, SF
Sosa 21-18 - DD (Gyro) - DD						Out of range
Sosa 21-18 - DD (MWD) - DD						Out of range
Sosa 22-18 - DD - DD						Out of range
Sosa A #1 (Existing) - DD - DD						Out of range
THOMAS 14-7(EXISTING) - EXISTING - NO SURVEY						Out of range
THOMAS 24-7 (EXISTING) - ENCANA WELL - Plan #1						Out of range
THOMAS 24-7 (EXISTING) - ENCANA WELL - Plan #2						Out of range
THOMAS 24-7 (EXISTING) - ENCANA WELL - SURVEY						Out of range
THOMAS 24-7 (Existing) - Existing - NO SURVEYS						Out of range
THOMAS 2-8-7 (EXISTING) - ENCANA WELL - Plan #1						Out of range
THOMAS 2-8-7 (EXISTING) - ENCANA WELL - SURVEY						Out of range
THOMAS 33-7 (EXISTING) - ENCANA WELL - Plan #1						Out of range
THOMAS 33-7 (EXISTING) - ENCANA WELL - Plan #2						Out of range
THOMAS 33-7 (EXISTING) - ENCANA WELL - Plan #3						Out of range
THOMAS 33-7 (EXISTING) - ENCANA WELL - SURVEY						Out of range
Thomas 7-12 (Existing) - Existing - NO SURVEYS	9,050.4	7,735.0	437.9	401.7	12.093	CC, ES
Thomas 7-12 (Existing) - Existing - NO SURVEYS	9,100.0	7,735.0	440.7	403.8	11.945	SF
Thomas 7-14 (Existing) - Existing - NO SURVEYS						Out of range
THOMAS E UNIT 1 (EXISTING) - Existing - NO SURVEY						Out of range
THOMAS K UNIT 1 (EXISTING) - EXISTING - NO SURV						Out of range
Woolley-Sosa 2B-7H-E168 - HZ - Plan #1	306.4	306.4	7.7	6.7	7.853	CC, ES
Woolley-Sosa 2B-7H-E168 - HZ - Plan #1	15,981.1	15,966.2	375.2	94.8	1.338	Level 3, SF
Woolley-Sosa 2C-7H-E168 - HZ - Plan #1	200.0	200.0	10.0	9.4	16.370	CC, ES
Woolley-Sosa 2C-7H-E168 - HZ - Plan #1	400.0	400.0	12.6	11.3	9.599	SF
Woolley-Sosa 2D-7H-E168 - HZ - Plan #1	200.0	200.0	16.2	15.5	26.447	CC
Woolley-Sosa 2D-7H-E168 - HZ - Plan #1	300.0	300.0	16.5	15.5	17.142	ES
Woolley-Sosa 2D-7H-E168 - HZ - Plan #1	500.0	499.9	20.2	18.5	12.102	SF
Woolley-Sosa 2E-7H-E168 - HZ - Plan #1	200.0	200.0	30.0	29.4	49.111	CC, ES
Woolley-Sosa 2E-7H-E168 - HZ - Plan #1	600.0	599.7	40.6	38.6	20.110	SF
Woolley-Sosa 2F-7H-E168 - HZ - Plan #1	200.0	200.0	35.5	34.9	58.132	CC, ES
Woolley-Sosa 2F-7H-E168 - HZ - Plan #1	700.0	699.4	50.5	48.1	21.181	SF
Woolley-Sosa 2G-7H-E168 - HZ - Plan #1	200.0	200.0	40.0	39.4	65.481	CC, ES
Woolley-Sosa 2G-7H-E168 - HZ - Plan #1	800.0	798.9	65.2	62.4	23.868	SF

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design													S7-T1N-R68W (Woolley-Sosa) - Sosa 11-18 - DD - DD		Offset Site Error:		0.0 ft	
Survey Program: 811-MWD															Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)								
11,500.0	7,759.0	7,841.6	7,770.7	63.2	20.3	-89.96	-3,536.1	-92.0	488.2	407.7	80.43	6.069						
11,600.0	7,759.0	7,842.1	7,771.1	64.8	20.3	-90.02	-3,536.1	-92.0	462.7	380.5	82.14	5.632	5.484 CC, ES 5.462 SF					
11,671.3	7,759.0	7,842.5	7,771.5	66.1	20.3	-90.06	-3,536.1	-92.0	457.1	373.8	83.37							
11,700.0	7,759.0	7,842.6	7,771.6	66.5	20.3	-90.07	-3,536.1	-92.0	458.0	374.2	83.86							
11,800.0	7,759.0	7,843.1	7,772.1	68.2	20.3	-90.13	-3,536.1	-92.0	474.9	389.3	85.57	5.550						



Cathedral Energy Services
Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Sosa 12-18 - DD - DD												Offset Site Error:	0.0 ft
Survey Program: 56-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				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)			
13,200.0	7,759.0	7,886.6	7,767.8	92.2	24.0	-89.59	-5,170.4	-89.0	472.1	358.5	113.58	4.157	
13,300.0	7,759.0	7,886.6	7,767.8	93.9	24.0	-89.60	-5,170.4	-89.0	460.2	344.9	115.31	3.991	
13,305.6	7,759.0	7,886.6	7,767.8	94.0	24.0	-89.60	-5,170.4	-89.0	460.2	344.8	115.41	3.987 CC, ES, SF	
13,400.0	7,759.0	7,886.7	7,767.9	95.7	24.0	-89.61	-5,170.4	-89.0	469.7	352.7	117.05	4.013	
13,500.0	7,759.0	7,886.7	7,767.9	97.4	24.0	-89.61	-5,170.4	-89.0	499.5	380.8	118.78	4.206	



Cathedral Energy Services
Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Thomas 7-12 (Existing) - Existing - NO SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 7894-Geolink 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		
8,900.0	7,759.0	7,735.0	7,735.0	22.8	13.5	-90.00	-915.2	-111.2	463.0	428.8	34.20	13.540		
9,000.0	7,759.0	7,735.0	7,735.0	24.0	13.5	-90.00	-915.2	-111.2	440.8	405.3	35.52	12.411		
9,050.4	7,759.0	7,735.0	7,735.0	24.7	13.5	-90.00	-915.2	-111.2	437.9	401.7	36.21	12.093 CC, ES		
9,100.0	7,759.0	7,735.0	7,735.0	25.3	13.5	-90.00	-915.2	-111.2	440.7	403.8	36.90	11.945 SF		
9,200.0	7,759.0	7,735.0	7,735.0	26.6	13.5	-90.00	-915.2	-111.2	462.8	424.4	38.32	12.076		



Cathedral Energy Services

Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2B-7H-E168 - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program:		0-Geolink 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	40.09	6.0	5.0	7.8					
100.0	100.0	100.0	100.0	0.1	0.1	40.09	6.0	5.0	7.8	7.5	0.26	29.833		
200.0	200.0	200.0	200.0	0.3	0.3	40.09	6.0	5.0	7.8	7.2	0.61	12.786		
300.0	300.0	300.0	300.0	0.5	0.5	87.63	6.0	5.0	7.7	6.8	0.96	8.040		
306.4	306.4	306.4	306.4	0.5	0.5	88.46	6.0	5.0	7.7	6.7	0.98	7.853	CC, ES	
400.0	400.0	399.9	399.9	0.7	0.7	100.56	6.8	4.8	8.2	6.9	1.32	6.255		
500.0	499.9	499.9	499.8	0.8	0.8	110.82	9.3	4.1	9.8	8.2	1.68	5.861		
600.0	599.7	599.8	599.7	1.0	1.0	117.09	13.5	2.9	12.4	10.4	2.06	6.034		
700.0	699.4	699.8	699.5	1.3	1.2	120.28	19.4	1.2	15.8	13.4	2.46	6.437		
800.0	798.9	799.7	799.1	1.5	1.4	121.60	26.9	-1.0	20.0	17.1	2.88	6.925		
858.8	857.3	858.5	857.6	1.6	1.6	122.21	32.0	-2.4	22.8	19.6	3.14	7.242		
900.0	898.3	899.6	898.6	1.7	1.6	122.95	35.5	-3.4	24.8	21.5	3.32	7.470		
1,000.0	997.6	999.5	998.0	2.0	1.9	124.30	44.2	-5.9	29.9	26.1	3.77	7.925		
1,100.0	1,097.0	1,099.4	1,097.5	2.3	2.1	125.26	52.9	-8.4	34.9	30.7	4.22	8.279		
1,200.0	1,196.3	1,199.2	1,197.0	2.5	2.3	125.98	61.5	-10.8	40.0	35.3	4.67	8.561		
1,300.0	1,295.6	1,299.1	1,296.4	2.8	2.5	126.54	70.2	-13.3	45.0	39.9	5.12	8.792		
1,400.0	1,395.0	1,399.0	1,395.9	3.0	2.8	126.98	78.8	-15.8	50.1	44.5	5.57	8.983		
1,500.0	1,494.3	1,498.8	1,495.4	3.3	3.0	127.35	87.5	-18.3	55.1	49.1	6.03	9.144		
1,600.0	1,593.7	1,598.7	1,594.8	3.5	3.2	127.65	96.1	-20.7	60.2	53.7	6.49	9.282		
1,700.0	1,693.0	1,698.6	1,694.3	3.8	3.5	127.90	104.8	-23.2	65.3	58.3	6.94	9.400		
1,800.0	1,792.3	1,798.5	1,793.8	4.1	3.7	128.12	113.4	-25.7	70.3	62.9	7.40	9.504		
1,900.0	1,891.7	1,898.3	1,893.2	4.3	3.9	128.31	122.1	-28.1	75.4	67.5	7.86	9.594		
2,000.0	1,991.0	1,998.2	1,992.7	4.6	4.2	128.48	130.7	-30.6	80.5	72.2	8.32	9.675		
2,100.0	2,090.4	2,098.1	2,092.2	4.9	4.4	128.62	139.4	-33.1	85.5	76.8	8.78	9.747		
2,200.0	2,189.7	2,197.9	2,191.6	5.1	4.6	128.75	148.0	-35.6	90.6	81.4	9.24	9.811		
2,300.0	2,289.0	2,297.8	2,291.1	5.4	4.9	128.87	156.7	-38.0	95.7	86.0	9.70	9.869		
2,400.0	2,388.4	2,397.7	2,390.6	5.7	5.1	128.97	165.3	-40.5	100.8	90.6	10.16	9.922		
2,500.0	2,487.7	2,497.6	2,490.0	5.9	5.3	129.07	174.0	-43.0	105.8	95.2	10.62	9.970		
2,600.0	2,587.1	2,597.4	2,589.5	6.2	5.6	129.15	182.6	-45.5	110.9	99.8	11.08	10.013		
2,700.0	2,686.4	2,697.3	2,689.0	6.5	5.8	129.23	191.3	-47.9	116.0	104.4	11.54	10.054		
2,800.0	2,785.7	2,797.2	2,788.4	6.7	6.0	129.30	200.0	-50.4	121.0	109.1	12.00	10.091		
2,900.0	2,885.1	2,897.0	2,887.9	7.0	6.3	129.37	208.6	-52.9	126.1	113.7	12.46	10.125		
3,000.0	2,984.4	2,996.9	2,987.3	7.2	6.5	129.43	217.3	-55.4	131.2	118.3	12.92	10.157		
3,100.0	3,083.8	3,096.8	3,086.8	7.5	6.7	129.48	225.9	-57.8	136.3	122.9	13.38	10.186		
3,200.0	3,183.1	3,196.7	3,186.3	7.8	7.0	129.54	234.6	-60.3	141.3	127.5	13.84	10.214		
3,300.0	3,282.4	3,296.5	3,285.7	8.0	7.2	129.58	243.2	-62.8	146.4	132.1	14.30	10.239		
3,400.0	3,381.8	3,396.4	3,385.2	8.3	7.4	129.63	251.9	-65.2	151.5	136.7	14.76	10.263		
3,500.0	3,481.1	3,496.3	3,484.7	8.6	7.7	129.67	260.5	-67.7	156.6	141.3	15.22	10.286		
3,600.0	3,580.4	3,596.1	3,584.1	8.8	7.9	129.71	269.2	-70.2	161.6	146.0	15.68	10.307		
3,700.0	3,679.8	3,696.0	3,683.6	9.1	8.1	129.75	277.8	-72.7	166.7	150.6	16.14	10.327		
3,800.0	3,779.1	3,795.9	3,783.1	9.4	8.4	129.78	286.5	-75.1	171.8	155.2	16.60	10.346		
3,900.0	3,878.5	3,895.8	3,882.5	9.6	8.6	129.82	295.1	-77.6	176.9	159.8	17.06	10.364		
4,000.0	3,977.8	3,995.6	3,982.0	9.9	8.8	129.85	303.8	-80.1	181.9	164.4	17.53	10.380		
4,100.0	4,077.1	4,095.5	4,081.5	10.2	9.1	129.88	312.4	-82.6	187.0	169.0	17.99	10.396		
4,200.0	4,176.5	4,195.4	4,180.9	10.4	9.3	129.90	321.1	-85.0	192.1	173.6	18.45	10.412		
4,300.0	4,275.8	4,295.2	4,280.4	10.7	9.5	129.93	329.7	-87.5	197.1	178.2	18.91	10.426		
4,400.0	4,375.2	4,395.1	4,379.9	11.0	9.8	129.96	338.4	-90.0	202.2	182.9	19.37	10.440		
4,500.0	4,474.5	4,495.0	4,479.3	11.2	10.0	129.98	347.1	-92.4	207.3	187.5	19.83	10.453		
4,600.0	4,573.8	4,594.9	4,578.8	11.5	10.2	130.00	355.7	-94.9	212.4	192.1	20.29	10.465		
4,700.0	4,673.2	4,694.7	4,678.2	11.8	10.5	130.02	364.4	-97.4	217.4	196.7	20.75	10.477		
4,800.0	4,772.5	4,794.6	4,777.7	12.0	10.7	130.05	373.0	-99.9	222.5	201.3	21.22	10.488		
4,900.0	4,871.9	4,894.5	4,877.2	12.3	10.9	130.07	381.7	-102.3	227.6	205.9	21.68	10.499		

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2B-7H-E168 - HZ - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,000.0	4,971.2	4,994.3	4,976.6	12.6	11.2	130.08	390.3	-104.8	232.7	210.5	22.14	10.509		
5,100.0	5,070.5	5,094.2	5,076.1	12.8	11.4	130.10	399.0	-107.3	237.7	215.1	22.60	10.519		
5,200.0	5,169.9	5,194.1	5,175.6	13.1	11.6	130.12	407.6	-109.8	242.8	219.8	23.06	10.529		
5,300.0	5,269.2	5,294.0	5,275.0	13.4	11.9	130.14	416.3	-112.2	247.9	224.4	23.52	10.538		
5,400.0	5,368.6	5,393.8	5,374.5	13.6	12.1	130.15	424.9	-114.7	253.0	229.0	23.98	10.547		
5,500.0	5,467.9	5,493.7	5,474.0	13.9	12.4	130.17	433.6	-117.2	258.0	233.6	24.45	10.555		
5,600.0	5,567.2	5,593.6	5,573.4	14.2	12.6	130.18	442.2	-119.6	263.1	238.2	24.91	10.564		
5,700.0	5,666.6	5,693.4	5,672.9	14.4	12.8	130.20	450.9	-122.1	268.2	242.8	25.37	10.571		
5,800.0	5,765.9	5,793.3	5,772.4	14.7	13.1	130.21	459.5	-124.6	273.3	247.4	25.83	10.579		
5,900.0	5,865.3	5,893.2	5,871.8	15.0	13.3	130.22	468.2	-127.1	278.3	252.0	26.29	10.586		
6,000.0	5,964.6	5,993.1	5,971.3	15.2	13.5	130.24	476.9	-129.5	283.4	256.7	26.75	10.593		
6,100.0	6,063.9	6,092.9	6,070.8	15.5	13.8	130.25	485.5	-132.0	288.5	261.3	27.21	10.600		
6,200.0	6,163.3	6,192.8	6,170.2	15.7	14.0	130.26	494.2	-134.5	293.6	265.9	27.68	10.607		
6,300.0	6,262.6	6,292.7	6,269.7	16.0	14.2	130.27	502.8	-137.0	298.6	270.5	28.14	10.613		
6,400.0	6,362.0	6,392.5	6,369.2	16.3	14.5	130.28	511.5	-139.4	303.7	275.1	28.60	10.619		
6,500.0	6,461.3	6,492.4	6,468.6	16.5	14.7	130.29	520.1	-141.9	308.8	279.7	29.06	10.625		
6,600.0	6,560.6	6,592.3	6,568.1	16.8	14.9	130.30	528.8	-144.4	313.9	284.3	29.52	10.631		
6,700.0	6,660.0	6,692.1	6,667.5	17.1	15.2	130.31	537.4	-146.8	318.9	288.9	29.98	10.637		
6,800.0	6,759.3	6,792.0	6,767.0	17.3	15.4	130.32	546.1	-149.3	324.0	293.6	30.45	10.642		
6,900.0	6,858.7	6,891.9	6,866.5	17.6	15.6	130.33	554.7	-151.8	329.1	298.2	30.91	10.647		
7,000.0	6,958.0	6,991.8	6,965.9	17.9	15.9	130.34	563.4	-154.3	334.1	302.8	31.37	10.652		
7,100.0	7,057.3	7,091.6	7,065.4	18.1	16.1	130.35	572.0	-156.7	339.2	307.4	31.83	10.657		
7,181.5	7,138.3	7,173.1	7,146.6	18.4	16.3	130.37	579.0	-158.8	343.4	311.2	32.20	10.664		
7,200.0	7,156.7	7,191.7	7,165.1	18.4	16.3	143.68	580.0	-159.2	344.3	312.0	32.24	10.678		
7,250.0	7,206.5	7,241.9	7,215.3	18.5	16.4	-156.91	579.6	-160.5	346.8	314.5	32.28	10.743		
7,300.0	7,256.2	7,292.1	7,265.2	18.5	16.4	-122.32	574.9	-161.7	349.4	317.1	32.23	10.840		
7,350.0	7,305.4	7,342.1	7,314.4	18.5	16.3	-109.82	565.8	-162.9	351.9	319.8	32.09	10.965		
7,400.0	7,353.7	7,392.1	7,362.6	18.5	16.2	-103.84	552.6	-164.1	354.3	322.5	31.88	11.116		
7,450.0	7,400.7	7,442.0	7,409.3	18.4	16.1	-100.32	535.1	-165.3	356.7	325.1	31.59	11.292		
7,500.0	7,446.1	7,491.9	7,454.3	18.3	16.0	-97.97	513.7	-166.4	359.1	327.8	31.26	11.488		
7,550.0	7,489.5	7,541.7	7,497.2	18.2	15.8	-96.27	488.6	-167.5	361.3	330.4	30.88	11.701		
7,600.0	7,530.6	7,591.4	7,537.7	18.0	15.6	-94.96	459.8	-168.5	363.4	332.9	30.47	11.927		
7,650.0	7,569.2	7,641.0	7,575.5	17.9	15.4	-93.92	427.7	-169.4	365.4	335.3	30.05	12.160		
7,700.0	7,604.8	7,690.6	7,610.4	17.7	15.2	-93.07	392.4	-170.3	367.2	337.6	29.63	12.394		
7,750.0	7,637.2	7,740.1	7,642.0	17.5	15.0	-92.37	354.4	-171.1	368.9	339.6	29.23	12.620		
7,800.0	7,666.2	7,789.6	7,670.3	17.4	14.8	-91.79	313.8	-171.8	370.4	341.5	28.86	12.831		
7,850.0	7,691.6	7,839.0	7,694.8	17.3	14.6	-91.30	270.9	-172.4	371.7	343.1	28.55	13.018		
7,900.0	7,713.2	7,888.4	7,715.6	17.2	14.5	-90.90	226.1	-172.9	372.8	344.5	28.30	13.172		
7,950.0	7,730.7	7,937.7	7,732.5	17.1	14.4	-90.58	179.8	-173.3	373.7	345.5	28.13	13.284		
8,000.0	7,744.1	7,987.0	7,745.3	17.0	14.4	-90.34	132.2	-173.6	374.4	346.3	28.04	13.349		
8,050.0	7,753.3	8,036.3	7,753.9	17.0	14.4	-90.15	83.7	-173.9	374.9	346.8	28.05	13.362		
8,100.0	7,758.2	8,085.5	7,758.4	17.1	14.4	-90.04	34.7	-174.0	375.1	346.9	28.16	13.321		
8,131.1	7,759.0	8,116.2	7,759.0	17.1	14.5	-90.00	4.1	-174.0	375.2	346.9	28.27	13.269		
8,200.0	7,759.0	8,185.1	7,759.0	17.3	14.7	-90.00	-64.8	-174.0	375.2	346.5	28.68	13.079		
8,300.0	7,759.0	8,285.1	7,759.0	17.7	15.1	-90.00	-164.8	-174.0	375.2	345.5	29.61	12.668		
8,400.0	7,759.0	8,385.1	7,759.0	18.2	15.8	-90.00	-264.8	-174.0	375.2	344.2	30.91	12.135		
8,500.0	7,759.0	8,485.1	7,759.0	18.9	16.6	-90.00	-364.8	-174.0	375.2	342.6	32.54	11.528		
8,600.0	7,759.0	8,585.1	7,759.0	19.7	17.5	-90.00	-464.8	-174.0	375.2	340.7	34.45	10.889		
8,700.0	7,759.0	8,685.1	7,759.0	20.7	18.6	-90.00	-564.8	-174.0	375.2	338.6	36.60	10.251		
8,800.0	7,759.0	8,785.1	7,759.0	21.7	19.8	-90.00	-664.8	-174.0	375.2	336.2	38.94	9.633		
8,900.0	7,759.0	8,885.1	7,759.0	22.8	21.0	-90.00	-764.8	-174.0	375.2	333.7	41.45	9.050		
9,000.0	7,759.0	8,985.1	7,759.0	24.0	22.3	-90.00	-864.8	-174.0	375.2	331.1	44.10	8.507		

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2B-7H-E168 - HZ - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-Geolink 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				
9,100.0	7,759.0	9,085.1	7,759.0	25.3	23.7	-90.00	-964.8	-174.0	375.2	328.3	46.86	8.006				
9,200.0	7,759.0	9,185.1	7,759.0	26.6	25.1	-90.00	-1,064.8	-174.0	375.2	325.4	49.71	7.547				
9,300.0	7,759.0	9,285.1	7,759.0	28.0	26.5	-90.00	-1,164.8	-174.0	375.2	322.5	52.65	7.126				
9,400.0	7,759.0	9,385.1	7,759.0	29.4	28.0	-90.00	-1,264.8	-174.0	375.2	319.5	55.65	6.742				
9,500.0	7,759.0	9,485.1	7,759.0	30.9	29.6	-90.00	-1,364.8	-174.0	375.2	316.5	58.70	6.391				
9,600.0	7,759.0	9,585.1	7,759.0	32.3	31.1	-90.00	-1,464.8	-174.0	375.2	313.4	61.81	6.070				
9,700.0	7,759.0	9,685.1	7,759.0	33.8	32.7	-90.00	-1,564.8	-174.0	375.2	310.2	64.95	5.776				
9,800.0	7,759.0	9,785.1	7,759.0	35.4	34.3	-90.00	-1,664.8	-174.0	375.2	307.0	68.13	5.506				
9,900.0	7,759.0	9,885.1	7,759.0	36.9	35.9	-90.00	-1,764.8	-174.0	375.2	303.8	71.34	5.258				
10,000.0	7,759.0	9,985.1	7,759.0	38.5	37.5	-90.00	-1,864.8	-174.0	375.2	300.6	74.58	5.030				
10,100.0	7,759.0	10,085.1	7,759.0	40.1	39.1	-90.00	-1,964.8	-174.0	375.2	297.3	77.84	4.819				
10,200.0	7,759.0	10,185.1	7,759.0	41.7	40.7	-90.00	-2,064.8	-174.0	375.2	294.0	81.13	4.624				
10,300.0	7,759.0	10,285.1	7,759.0	43.3	42.4	-90.00	-2,164.8	-174.0	375.2	290.7	84.43	4.444				
10,400.0	7,759.0	10,385.1	7,759.0	44.9	44.0	-90.00	-2,264.8	-174.0	375.2	287.4	87.74	4.276				
10,500.0	7,759.0	10,485.1	7,759.0	46.5	45.7	-90.00	-2,364.8	-174.0	375.2	284.1	91.07	4.119				
10,600.0	7,759.0	10,585.1	7,759.0	48.1	47.4	-90.00	-2,464.8	-174.0	375.2	280.7	94.42	3.973				
10,700.0	7,759.0	10,685.1	7,759.0	49.8	49.0	-90.00	-2,564.8	-174.0	375.2	277.4	97.77	3.837				
10,800.0	7,759.0	10,785.1	7,759.0	51.4	50.7	-90.00	-2,664.8	-174.0	375.2	274.0	101.14	3.709				
10,900.0	7,759.0	10,885.1	7,759.0	53.1	52.4	-90.00	-2,764.8	-174.0	375.2	270.6	104.51	3.590				
11,000.0	7,759.0	10,985.1	7,759.0	54.8	54.1	-90.00	-2,864.8	-174.0	375.2	267.3	107.90	3.477				
11,100.0	7,759.0	11,085.1	7,759.0	56.4	55.8	-90.00	-2,964.8	-174.0	375.2	263.9	111.29	3.371				
11,200.0	7,759.0	11,185.1	7,759.0	58.1	57.5	-90.00	-3,064.8	-174.0	375.2	260.5	114.69	3.271				
11,300.0	7,759.0	11,285.1	7,759.0	59.8	59.2	-90.00	-3,164.8	-174.0	375.2	257.1	118.09	3.177				
11,400.0	7,759.0	11,385.1	7,759.0	61.5	60.9	-90.00	-3,264.8	-174.0	375.2	253.7	121.50	3.088				
11,500.0	7,759.0	11,485.1	7,759.0	63.2	62.6	-90.00	-3,364.8	-174.0	375.2	250.2	124.92	3.003				
11,600.0	7,759.0	11,585.1	7,759.0	64.8	64.3	-90.00	-3,464.8	-174.0	375.2	246.8	128.34	2.923				
11,700.0	7,759.0	11,685.1	7,759.0	66.5	66.0	-90.00	-3,564.8	-174.0	375.2	243.4	131.76	2.847				
11,800.0	7,759.0	11,785.1	7,759.0	68.2	67.7	-90.00	-3,664.8	-174.0	375.2	240.0	135.19	2.775				
11,900.0	7,759.0	11,885.1	7,759.0	69.9	69.4	-90.00	-3,764.8	-174.0	375.2	236.5	138.63	2.706				
12,000.0	7,759.0	11,985.1	7,759.0	71.6	71.1	-90.00	-3,864.8	-174.0	375.2	233.1	142.06	2.641				
12,100.0	7,759.0	12,085.1	7,759.0	73.3	72.9	-90.00	-3,964.8	-174.0	375.2	229.7	145.51	2.578				
12,200.0	7,759.0	12,185.1	7,759.0	75.0	74.6	-90.00	-4,064.8	-174.0	375.2	226.2	148.95	2.519				
12,300.0	7,759.0	12,285.1	7,759.0	76.8	76.3	-90.00	-4,164.8	-174.0	375.2	222.8	152.40	2.462				
12,400.0	7,759.0	12,385.1	7,759.0	78.5	78.0	-90.00	-4,264.8	-174.0	375.2	219.3	155.85	2.407				
12,500.0	7,759.0	12,485.1	7,759.0	80.2	79.8	-90.00	-4,364.8	-174.0	375.2	215.9	159.30	2.355				
12,600.0	7,759.0	12,585.1	7,759.0	81.9	81.5	-90.00	-4,464.8	-174.0	375.2	212.4	162.75	2.305				
12,700.0	7,759.0	12,685.1	7,759.0	83.6	83.2	-90.00	-4,564.8	-174.0	375.2	208.9	166.21	2.257				
12,800.0	7,759.0	12,785.1	7,759.0	85.3	84.9	-90.00	-4,664.8	-174.0	375.2	205.5	169.67	2.211				
12,900.0	7,759.0	12,885.1	7,759.0	87.1	86.7	-90.00	-4,764.8	-174.0	375.2	202.0	173.13	2.167				
13,000.0	7,759.0	12,985.1	7,759.0	88.8	88.4	-90.00	-4,864.8	-174.0	375.2	198.6	176.59	2.124				
13,100.0	7,759.0	13,085.1	7,759.0	90.5	90.1	-90.00	-4,964.8	-174.0	375.2	195.1	180.06	2.084				
13,200.0	7,759.0	13,185.1	7,759.0	92.2	91.9	-90.00	-5,064.8	-174.0	375.2	191.6	183.52	2.044				
13,300.0	7,759.0	13,285.1	7,759.0	93.9	93.6	-90.00	-5,164.8	-174.0	375.2	188.2	186.99	2.006				
13,400.0	7,759.0	13,385.1	7,759.0	95.7	95.3	-90.00	-5,264.8	-174.0	375.2	184.7	190.46	1.970				
13,500.0	7,759.0	13,485.1	7,759.0	97.4	97.1	-90.00	-5,364.8	-174.0	375.2	181.2	193.93	1.935				
13,600.0	7,759.0	13,585.1	7,759.0	99.1	98.8	-90.00	-5,464.8	-174.0	375.2	177.8	197.40	1.900				
13,700.0	7,759.0	13,685.1	7,759.0	100.9	100.5	-90.00	-5,564.8	-174.0	375.2	174.3	200.87	1.868				
13,800.0	7,759.0	13,785.1	7,759.0	102.6	102.3	-90.00	-5,664.8	-174.0	375.2	170.8	204.35	1.836				
13,900.0	7,759.0	13,885.1	7,759.0	104.3	104.0	-90.00	-5,764.8	-174.0	375.2	167.3	207.82	1.805				
14,000.0	7,759.0	13,985.1	7,759.0	106.0	105.7	-90.00	-5,864.8	-174.0	375.2	163.9	211.30	1.775				
14,100.0	7,759.0	14,085.1	7,759.0	107.8	107.5	-90.00	-5,964.8	-174.0	375.2	160.4	214.78	1.747				
14,200.0	7,759.0	14,185.1	7,759.0	109.5	109.2	-90.00	-6,064.8	-174.0	375.2	156.9	218.26	1.719				

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2B-7H-E168 - HZ - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
14,300.0	7,759.0	14,285.1	7,759.0	111.2	111.0	-90.00	-6,164.8	-174.0	375.2	153.4	221.73	1.692	
14,400.0	7,759.0	14,385.1	7,759.0	113.0	112.7	-90.00	-6,264.8	-174.0	375.2	149.9	225.22	1.666	
14,500.0	7,759.0	14,485.1	7,759.0	114.7	114.4	-90.00	-6,364.8	-174.0	375.2	146.5	228.70	1.640	
14,600.0	7,759.0	14,585.1	7,759.0	116.4	116.2	-90.00	-6,464.8	-174.0	375.2	143.0	232.18	1.616	
14,700.0	7,759.0	14,685.1	7,759.0	118.2	117.9	-90.00	-6,564.8	-174.0	375.2	139.5	235.66	1.592	
14,800.0	7,759.0	14,785.1	7,759.0	119.9	119.7	-90.00	-6,664.8	-174.0	375.2	136.0	239.14	1.569	
14,900.0	7,759.0	14,885.1	7,759.0	121.6	121.4	-90.00	-6,764.8	-174.0	375.2	132.5	242.63	1.546	
15,000.0	7,759.0	14,985.1	7,759.0	123.4	123.1	-90.00	-6,864.8	-174.0	375.2	129.0	246.11	1.524	
15,100.0	7,759.0	15,085.1	7,759.0	125.1	124.9	-90.00	-6,964.8	-174.0	375.2	125.6	249.60	1.503	
15,200.0	7,759.0	15,185.1	7,759.0	126.9	126.6	-90.00	-7,064.8	-174.0	375.2	122.1	253.09	1.482 Level 3	
15,300.0	7,759.0	15,285.1	7,759.0	128.6	128.4	-90.00	-7,164.8	-174.0	375.2	118.6	256.57	1.462 Level 3	
15,400.0	7,759.0	15,385.1	7,759.0	130.3	130.1	-90.00	-7,264.8	-174.0	375.2	115.1	260.06	1.443 Level 3	
15,500.0	7,759.0	15,485.1	7,759.0	132.1	131.9	-90.00	-7,364.8	-174.0	375.2	111.6	263.55	1.423 Level 3	
15,600.0	7,759.0	15,585.1	7,759.0	133.8	133.6	-90.00	-7,464.8	-174.0	375.2	108.1	267.04	1.405 Level 3	
15,700.0	7,759.0	15,685.1	7,759.0	135.6	135.3	-90.00	-7,564.8	-174.0	375.2	104.6	270.52	1.387 Level 3	
15,800.0	7,759.0	15,785.1	7,759.0	137.3	137.1	-90.00	-7,664.8	-174.0	375.2	101.1	274.01	1.369 Level 3	
15,900.0	7,759.0	15,885.1	7,759.0	139.0	138.8	-90.00	-7,764.8	-174.0	375.2	97.7	277.50	1.352 Level 3	
15,981.1	7,759.0	15,966.2	7,759.0	140.4	140.3	-90.00	-7,845.9	-174.0	375.2	94.8	280.33	1.338 Level 3, SF	



Cathedral Energy Services

Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2C-7H-E168 - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program:		0-Geolink 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	90.29	-0.1	10.0	10.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.29	-0.1	10.0	10.0	9.7	0.26	38.197		
200.0	200.0	200.0	200.0	0.3	0.3	90.29	-0.1	10.0	10.0	9.4	0.61	16.370	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	134.95	-0.1	10.0	10.6	9.6	0.96	11.035		
400.0	400.0	400.0	400.0	0.7	0.7	143.40	-0.1	10.0	12.6	11.3	1.31	9.599	SF	
500.0	499.9	499.9	499.9	0.8	0.8	149.51	0.8	10.2	16.2	14.6	1.66	9.764		
600.0	599.7	599.8	599.7	1.0	1.0	150.79	3.3	11.0	21.4	19.4	2.02	10.589		
700.0	699.4	699.6	699.4	1.3	1.2	149.70	7.5	12.1	28.0	25.6	2.39	11.705		
800.0	798.9	799.3	798.9	1.5	1.4	147.66	13.3	13.8	36.0	33.2	2.78	12.962		
858.8	857.3	857.8	857.3	1.6	1.5	146.32	17.5	15.0	41.4	38.4	3.01	13.727		
900.0	898.3	898.8	898.2	1.7	1.6	145.29	20.8	16.0	45.4	42.2	3.19	14.241		
1,000.0	997.6	998.3	997.2	2.0	1.8	142.59	29.5	18.5	55.1	51.5	3.61	15.251		
1,100.0	1,097.0	1,097.8	1,096.3	2.3	2.0	140.64	38.3	21.0	65.0	60.9	4.05	16.037		
1,200.0	1,196.3	1,197.3	1,195.4	2.5	2.2	139.21	47.1	23.5	74.9	70.4	4.50	16.662		
1,300.0	1,295.6	1,296.8	1,294.4	2.8	2.5	138.11	55.9	26.0	84.8	79.9	4.94	17.168		
1,400.0	1,395.0	1,396.3	1,393.5	3.0	2.7	137.24	64.7	28.5	94.8	89.4	5.39	17.586		
1,500.0	1,494.3	1,495.7	1,492.6	3.3	2.9	136.54	73.5	31.0	104.8	99.0	5.84	17.936		
1,600.0	1,593.7	1,595.2	1,591.7	3.5	3.2	135.96	82.4	33.5	114.8	108.5	6.30	18.232		
1,700.0	1,693.0	1,694.7	1,690.7	3.8	3.4	135.47	91.2	36.0	124.8	118.1	6.75	18.486		
1,800.0	1,792.3	1,794.2	1,789.8	4.1	3.6	135.05	100.0	38.6	134.8	127.6	7.21	18.707		
1,900.0	1,891.7	1,893.7	1,888.9	4.3	3.9	134.70	108.8	41.1	144.9	137.2	7.67	18.900		
2,000.0	1,991.0	1,993.2	1,987.9	4.6	4.1	134.38	117.6	43.6	154.9	146.8	8.12	19.070		
2,100.0	2,090.4	2,092.7	2,087.0	4.9	4.3	134.11	126.4	46.1	164.9	156.4	8.58	19.221		
2,200.0	2,189.7	2,192.2	2,186.1	5.1	4.6	133.87	135.2	48.6	175.0	165.9	9.04	19.356		
2,300.0	2,289.0	2,291.7	2,285.2	5.4	4.8	133.65	144.0	51.1	185.0	175.5	9.50	19.477		
2,400.0	2,388.4	2,391.2	2,384.2	5.7	5.0	133.46	152.8	53.6	195.1	185.1	9.96	19.587		
2,500.0	2,487.7	2,490.7	2,483.3	5.9	5.3	133.28	161.6	56.1	205.1	194.7	10.42	19.686		
2,600.0	2,587.1	2,590.2	2,582.4	6.2	5.5	133.13	170.4	58.7	215.2	204.3	10.88	19.777		
2,700.0	2,686.4	2,689.7	2,681.4	6.5	5.7	132.98	179.2	61.2	225.2	213.9	11.34	19.860		
2,800.0	2,785.7	2,789.1	2,780.5	6.7	6.0	132.85	188.0	63.7	235.3	223.5	11.80	19.936		
2,900.0	2,885.1	2,888.6	2,879.6	7.0	6.2	132.73	196.8	66.2	245.3	233.0	12.26	20.007		
3,000.0	2,984.4	2,988.1	2,978.6	7.2	6.4	132.62	205.6	68.7	255.4	242.6	12.72	20.072		
3,100.0	3,083.8	3,087.6	3,077.7	7.5	6.7	132.51	214.4	71.2	265.4	252.2	13.18	20.132		
3,200.0	3,183.1	3,187.1	3,176.8	7.8	6.9	132.42	223.2	73.7	275.5	261.8	13.65	20.188		
3,300.0	3,282.4	3,286.6	3,275.9	8.0	7.1	132.33	232.0	76.3	285.5	271.4	14.11	20.240		
3,400.0	3,381.8	3,386.1	3,374.9	8.3	7.4	132.25	240.8	78.8	295.6	281.0	14.57	20.289		
3,500.0	3,481.1	3,485.6	3,474.0	8.6	7.6	132.17	249.6	81.3	305.6	290.6	15.03	20.335		
3,600.0	3,580.4	3,585.1	3,573.1	8.8	7.8	132.10	258.4	83.8	315.7	300.2	15.49	20.378		
3,700.0	3,679.8	3,684.6	3,672.1	9.1	8.1	132.03	267.2	86.3	325.7	309.8	15.95	20.418		
3,800.0	3,779.1	3,784.1	3,771.2	9.4	8.3	131.97	276.0	88.8	335.8	319.4	16.42	20.456		
3,900.0	3,878.5	3,883.6	3,870.3	9.6	8.5	131.91	284.8	91.3	345.9	329.0	16.88	20.492		
4,000.0	3,977.8	3,983.1	3,969.4	9.9	8.8	131.85	293.6	93.8	355.9	338.6	17.34	20.526		
4,100.0	4,077.1	4,082.5	4,068.4	10.2	9.0	131.79	302.4	96.4	366.0	348.2	17.80	20.558		
4,200.0	4,176.5	4,182.0	4,167.5	10.4	9.2	131.74	311.2	98.9	376.0	357.8	18.26	20.589		
4,300.0	4,275.8	4,281.5	4,266.6	10.7	9.5	131.70	320.0	101.4	386.1	367.4	18.73	20.617		
4,400.0	4,375.2	4,381.0	4,365.6	11.0	9.7	131.65	328.8	103.9	396.2	377.0	19.19	20.645		
4,500.0	4,474.5	4,480.5	4,464.7	11.2	10.0	131.61	337.6	106.4	406.2	386.6	19.65	20.671		
4,600.0	4,573.8	4,580.0	4,563.8	11.5	10.2	131.57	346.4	108.9	416.3	396.2	20.11	20.696		
4,700.0	4,673.2	4,679.5	4,662.8	11.8	10.4	131.53	355.2	111.4	426.3	405.8	20.58	20.720		
4,800.0	4,772.5	4,779.0	4,761.9	12.0	10.7	131.49	364.0	113.9	436.4	415.4	21.04	20.742		
4,900.0	4,871.9	4,878.5	4,861.0	12.3	10.9	131.45	372.8	116.5	446.5	425.0	21.50	20.764		
5,000.0	4,971.2	4,978.0	4,960.1	12.6	11.1	131.42	381.6	119.0	456.5	434.5	21.96	20.785		

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2C-7H-E168 - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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		
5,100.0	5,070.5	5,077.5	5,059.1	12.8	11.4	131.39	390.4	121.5	466.6	444.1	22.43	20.805		
5,200.0	5,169.9	5,177.0	5,158.2	13.1	11.6	131.35	399.2	124.0	476.6	453.7	22.89	20.824		
5,300.0	5,269.2	5,276.5	5,257.3	13.4	11.8	131.32	408.0	126.5	486.7	463.3	23.35	20.842		
5,400.0	5,368.6	5,375.9	5,356.3	13.6	12.1	131.30	416.8	129.0	496.8	472.9	23.81	20.859		



Cathedral Energy Services

Anticollision Report



Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2D-7H-E168 - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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	68.49	5.9	15.0	16.2						
100.0	100.0	100.0	100.0	0.1	0.1	68.49	5.9	15.0	16.2	15.9	0.26	61.709			
200.0	200.0	200.0	200.0	0.3	0.3	68.49	5.9	15.0	16.2	15.5	0.61	26.447 CC			
300.0	300.0	300.0	300.0	0.5	0.5	112.47	5.9	15.0	16.5	15.5	0.96	17.142 ES			
400.0	400.0	400.0	400.0	0.7	0.7	120.34	5.9	15.0	17.6	16.3	1.31	13.426			
500.0	499.9	499.9	499.9	0.8	0.8	131.06	5.9	15.0	20.2	18.5	1.67	12.102 SF			
600.0	599.7	599.5	599.5	1.0	1.0	140.02	6.6	15.6	25.1	23.0	2.02	12.380			
700.0	699.4	698.9	698.9	1.3	1.2	144.88	8.6	17.2	32.5	30.1	2.38	13.628			
800.0	798.9	798.2	798.1	1.5	1.4	146.97	12.0	19.9	42.2	39.4	2.75	15.325			
858.8	857.3	856.4	856.2	1.6	1.5	147.42	14.6	21.9	48.9	45.9	2.97	16.427			
900.0	898.3	897.2	896.9	1.7	1.6	147.46	16.7	23.6	53.9	50.7	3.13	17.194			
1,000.0	997.6	996.0	995.4	2.0	1.8	146.56	22.7	28.4	66.5	63.0	3.53	18.819			
1,100.0	1,097.0	1,094.6	1,093.5	2.3	2.0	144.82	30.0	34.3	79.8	75.9	3.95	20.195			
1,200.0	1,196.3	1,193.1	1,191.4	2.5	2.2	142.68	38.6	41.1	93.9	89.5	4.39	21.400			
1,300.0	1,295.6	1,292.0	1,289.7	2.8	2.4	140.91	47.5	48.2	108.3	103.5	4.83	22.411			
1,400.0	1,395.0	1,390.9	1,387.9	3.0	2.7	139.55	56.4	55.4	122.8	117.5	5.28	23.251			
1,500.0	1,494.3	1,489.8	1,486.2	3.3	2.9	138.47	65.3	62.5	137.3	131.5	5.73	23.958			
1,600.0	1,593.7	1,588.7	1,584.4	3.5	3.2	137.61	74.2	69.6	151.8	145.7	6.18	24.560			
1,700.0	1,693.0	1,687.6	1,682.7	3.8	3.4	136.89	83.2	76.8	166.4	159.8	6.64	25.079			
1,800.0	1,792.3	1,786.6	1,780.9	4.1	3.7	136.29	92.1	83.9	181.0	173.9	7.09	25.530			
1,900.0	1,891.7	1,885.5	1,879.2	4.3	3.9	135.78	101.0	91.0	195.6	188.1	7.55	25.926			
2,000.0	1,991.0	1,984.4	1,977.4	4.6	4.2	135.34	109.9	98.1	210.3	202.3	8.00	26.275			
2,100.0	2,090.4	2,083.3	2,075.7	4.9	4.4	134.96	118.8	105.3	224.9	216.5	8.46	26.586			
2,200.0	2,189.7	2,182.2	2,173.9	5.1	4.7	134.62	127.7	112.4	239.6	230.7	8.92	26.865			
2,300.0	2,289.0	2,281.1	2,272.2	5.4	5.0	134.33	136.7	119.5	254.2	244.9	9.38	27.115			
2,400.0	2,388.4	2,380.0	2,370.4	5.7	5.2	134.06	145.6	126.6	268.9	259.1	9.84	27.342			
2,500.0	2,487.7	2,478.9	2,468.7	5.9	5.5	133.82	154.5	133.8	283.6	273.3	10.29	27.548			
2,600.0	2,587.1	2,577.8	2,566.9	6.2	5.7	133.61	163.4	140.9	298.3	287.5	10.75	27.737			
2,700.0	2,686.4	2,676.8	2,665.2	6.5	6.0	133.42	172.3	148.0	312.9	301.7	11.21	27.909			
2,800.0	2,785.7	2,775.7	2,763.4	6.7	6.3	133.24	181.2	155.2	327.6	316.0	11.67	28.068			
2,900.0	2,885.1	2,874.6	2,861.7	7.0	6.5	133.08	190.2	162.3	342.3	330.2	12.13	28.214			
3,000.0	2,984.4	2,973.5	2,959.9	7.2	6.8	132.93	199.1	169.4	357.0	344.4	12.59	28.349			
3,100.0	3,083.8	3,072.4	3,058.2	7.5	7.0	132.79	208.0	176.5	371.7	358.6	13.05	28.475			
3,200.0	3,183.1	3,171.3	3,156.4	7.8	7.3	132.67	216.9	183.7	386.4	372.9	13.51	28.597			
3,300.0	3,282.4	3,270.2	3,254.7	8.0	7.6	132.55	225.8	190.8	401.1	387.1	13.97	28.701			
3,400.0	3,381.8	3,369.1	3,352.9	8.3	7.8	132.44	234.8	197.9	415.8	401.3	14.43	28.803			
3,500.0	3,481.1	3,468.0	3,451.2	8.6	8.1	132.34	243.7	205.0	430.5	415.6	14.90	28.899			
3,600.0	3,580.4	3,567.0	3,549.4	8.8	8.4	132.25	252.6	212.2	445.2	429.8	15.36	28.989			
3,700.0	3,679.8	3,665.9	3,647.7	9.1	8.6	132.16	261.5	219.3	459.9	444.1	15.82	29.073			
3,800.0	3,779.1	3,764.8	3,745.9	9.4	8.9	132.08	270.4	226.4	474.6	458.3	16.28	29.153			
3,900.0	3,878.5	3,863.7	3,844.2	9.6	9.1	132.00	279.3	233.6	489.3	472.5	16.74	29.228			

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2E-7H-E168 - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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	90.29	-0.2	30.0	30.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.29	-0.2	30.0	30.0	29.7	0.26	114.591		
200.0	200.0	200.0	200.0	0.3	0.3	90.29	-0.2	30.0	30.0	29.4	0.61	49.111 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	132.64	-0.2	30.0	30.6	29.6	0.96	31.845		
400.0	400.0	400.0	400.0	0.7	0.7	136.03	-0.2	30.0	32.4	31.1	1.31	24.711		
500.0	499.9	499.9	499.9	0.8	0.8	140.88	-0.2	30.0	35.7	34.0	1.67	21.430		
600.0	599.7	599.7	599.7	1.0	1.0	146.29	-0.2	30.0	40.6	38.6	2.02	20.110 SF		
700.0	699.4	698.9	698.9	1.3	1.2	150.64	0.4	30.7	47.8	45.4	2.37	20.149		
800.0	798.9	797.9	797.9	1.5	1.4	153.11	1.9	32.7	57.6	54.9	2.73	21.122		
858.8	857.3	856.0	855.9	1.6	1.5	153.89	3.3	34.6	64.6	61.7	2.94	21.959		
900.0	898.3	896.6	896.5	1.7	1.5	154.19	4.5	36.1	69.8	66.7	3.09	22.585		
1,000.0	997.6	995.1	994.8	2.0	1.7	154.02	8.0	40.9	83.2	79.7	3.47	23.990		
1,100.0	1,097.0	1,093.3	1,092.7	2.3	1.9	153.04	12.6	47.0	97.3	93.5	3.85	25.262		
1,200.0	1,196.3	1,191.1	1,190.1	2.5	2.1	151.57	18.2	54.4	112.5	108.2	4.26	26.428		
1,300.0	1,295.6	1,288.6	1,287.0	2.8	2.4	149.82	24.7	63.0	128.6	123.9	4.67	27.514		
1,400.0	1,395.0	1,385.7	1,383.3	3.0	2.6	147.93	32.2	73.0	145.7	140.6	5.10	28.547		
1,500.0	1,494.3	1,482.3	1,478.8	3.3	2.9	145.98	40.6	84.2	164.0	158.5	5.55	29.553		
1,600.0	1,593.7	1,580.2	1,575.6	3.5	3.1	144.18	49.7	96.3	183.1	177.1	6.01	30.485		
1,700.0	1,693.0	1,678.3	1,672.4	3.8	3.4	142.71	58.8	108.3	202.3	195.8	6.46	31.299		
1,800.0	1,792.3	1,776.3	1,769.3	4.1	3.7	141.50	67.8	120.4	221.6	214.6	6.92	32.017		
1,900.0	1,891.7	1,874.3	1,866.1	4.3	4.0	140.48	76.9	132.5	240.9	233.6	7.38	32.653		
2,000.0	1,991.0	1,972.3	1,963.0	4.6	4.3	139.62	86.0	144.6	260.4	252.5	7.84	33.220		
2,100.0	2,090.4	2,070.4	2,059.8	4.9	4.6	138.87	95.1	156.7	279.9	271.6	8.30	33.730		
2,200.0	2,189.7	2,168.4	2,156.7	5.1	4.9	138.22	104.2	168.7	299.4	290.6	8.76	34.189		
2,300.0	2,289.0	2,266.4	2,253.5	5.4	5.2	137.65	113.3	180.8	318.9	309.7	9.22	34.606		
2,400.0	2,388.4	2,364.4	2,350.4	5.7	5.5	137.15	122.3	192.9	338.5	328.8	9.68	34.985		
2,500.0	2,487.7	2,462.4	2,447.2	5.9	5.8	136.70	131.4	205.0	358.1	348.0	10.14	35.331		
2,600.0	2,587.1	2,560.5	2,544.1	6.2	6.1	136.30	140.5	217.1	377.8	367.2	10.60	35.649		
2,700.0	2,686.4	2,658.5	2,640.9	6.5	6.4	135.94	149.6	229.1	397.4	386.3	11.06	35.942		
2,800.0	2,785.7	2,756.5	2,737.8	6.7	6.7	135.61	158.7	241.2	417.1	405.5	11.52	36.212		
2,900.0	2,885.1	2,854.5	2,834.6	7.0	7.1	135.31	167.8	253.3	436.7	424.7	11.98	36.463		
3,000.0	2,984.4	2,952.6	2,931.5	7.2	7.4	135.04	176.8	265.4	456.4	444.0	12.44	36.695		
3,100.0	3,083.8	3,050.6	3,028.3	7.5	7.7	134.79	185.9	277.5	476.1	463.2	12.90	36.912		
3,200.0	3,183.1	3,148.6	3,125.2	7.8	8.0	134.55	195.0	289.5	495.8	482.4	13.36	37.114		

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2F-7H-E168 - HZ - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-Geolink 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	80.56	5.8	35.0	35.5				
100.0	100.0	100.0	100.0	0.1	0.1	80.56	5.8	35.0	35.5	35.2	0.26	135.640	
200.0	200.0	200.0	200.0	0.3	0.3	80.56	5.8	35.0	35.5	34.9	0.61	58.132 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	122.87	5.8	35.0	36.0	35.0	0.96	37.453	
400.0	400.0	400.0	400.0	0.7	0.7	126.22	5.8	35.0	37.5	36.1	1.31	28.533	
500.0	499.9	499.9	499.9	0.8	0.8	131.22	5.8	35.0	40.2	38.5	1.67	24.088	
600.0	599.7	599.7	599.7	1.0	1.0	137.11	5.8	35.0	44.5	42.4	2.03	21.938	
700.0	699.4	699.4	699.4	1.3	1.2	143.14	5.8	35.0	50.5	48.1	2.38	21.181 SF	
800.0	798.9	798.2	798.2	1.5	1.3	148.11	6.2	35.8	59.0	56.3	2.74	21.558	
858.8	857.3	856.1	856.1	1.6	1.5	150.23	6.8	36.9	65.5	62.5	2.95	22.214	
900.0	898.3	896.7	896.7	1.7	1.5	151.37	7.4	38.0	70.5	67.4	3.10	22.765	
1,000.0	997.6	995.0	994.9	2.0	1.7	152.93	9.4	41.7	83.4	79.9	3.46	24.124	
1,100.0	1,097.0	1,093.0	1,092.7	2.3	1.9	153.28	12.2	46.9	97.5	93.6	3.83	25.465	
1,200.0	1,196.3	1,190.7	1,190.1	2.5	2.1	152.89	15.7	53.5	112.6	108.4	4.21	26.763	
1,300.0	1,295.6	1,288.1	1,287.0	2.8	2.3	152.01	20.0	61.6	128.8	124.2	4.60	28.015	
1,400.0	1,395.0	1,385.0	1,383.3	3.0	2.5	150.84	25.1	71.1	146.2	141.2	5.00	29.227	
1,500.0	1,494.3	1,481.4	1,479.0	3.3	2.8	149.50	30.9	81.9	164.7	159.3	5.42	30.409	
1,600.0	1,593.7	1,577.3	1,573.9	3.5	3.0	148.07	37.4	94.1	184.5	178.6	5.84	31.570	
1,700.0	1,693.0	1,672.6	1,667.9	3.8	3.3	146.59	44.7	107.6	205.5	199.2	6.28	32.720	
1,800.0	1,792.3	1,767.3	1,761.1	4.1	3.6	145.12	52.6	122.4	227.9	221.1	6.73	33.866	
1,900.0	1,891.7	1,861.3	1,853.4	4.3	3.9	143.68	61.1	138.5	251.5	244.4	7.18	35.024	
2,000.0	1,991.0	1,957.8	1,947.8	4.6	4.3	142.32	70.4	155.7	276.1	268.4	7.64	36.112	
2,100.0	2,090.4	2,054.5	2,042.6	4.9	4.6	141.17	79.6	173.0	300.7	292.6	8.11	37.091	
2,200.0	2,189.7	2,151.3	2,137.3	5.1	5.0	140.20	88.9	190.3	325.5	316.9	8.57	37.978	
2,300.0	2,289.0	2,248.0	2,232.0	5.4	5.3	139.37	98.1	207.6	350.3	341.3	9.03	38.784	
2,400.0	2,388.4	2,344.8	2,326.8	5.7	5.7	138.65	107.4	224.9	375.2	365.7	9.49	39.520	
2,500.0	2,487.7	2,441.5	2,421.5	5.9	6.0	138.01	116.7	242.3	400.2	390.2	9.96	40.194	
2,600.0	2,587.1	2,538.3	2,516.3	6.2	6.4	137.46	125.9	259.6	425.1	414.7	10.42	40.813	
2,700.0	2,686.4	2,635.0	2,611.0	6.5	6.8	136.96	135.2	276.9	450.2	439.3	10.88	41.385	
2,800.0	2,785.7	2,731.8	2,705.7	6.7	7.2	136.51	144.4	294.2	475.2	463.9	11.34	41.913	

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 Woolley-Sosa 2A-7H-E168
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5019.0ft (Original Well Elev)
Reference Site:	S7-T1N-R68W (Woolley-Sosa)	MD Reference:	WELL @ 5019.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Woolley-Sosa 2A-7H-E168	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 #1	Offset TVD Reference:	Offset Datum

Offset Design S7-T1N-R68W (Woolley-Sosa) - Woolley-Sosa 2G-7H-E168 - HZ - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	90.29	-0.2	40.0	40.0				
100.0	100.0	100.0	100.0	0.1	0.1	90.29	-0.2	40.0	40.0	39.7	0.26	152.789	
200.0	200.0	200.0	200.0	0.3	0.3	90.29	-0.2	40.0	40.0	39.4	0.61	65.481 CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	132.34	-0.2	40.0	40.6	39.6	0.96	42.255	
400.0	400.0	400.0	400.0	0.7	0.7	134.94	-0.2	40.0	42.4	41.1	1.31	32.312	
500.0	499.9	499.9	499.9	0.8	0.8	138.80	-0.2	40.0	45.6	43.9	1.67	27.359	
600.0	599.7	599.7	599.7	1.0	1.0	143.35	-0.2	40.0	50.3	48.3	2.02	24.900	
700.0	699.4	699.4	699.4	1.3	1.2	148.04	-0.2	40.0	56.8	54.4	2.38	23.909	
800.0	798.9	798.9	798.9	1.5	1.4	152.46	-0.2	40.0	65.2	62.4	2.73	23.868 SF	
858.8	857.3	856.8	856.8	1.6	1.5	154.66	-0.1	40.3	71.1	68.2	2.94	24.232	
900.0	898.3	897.4	897.4	1.7	1.5	155.87	0.1	40.8	75.8	72.7	3.08	24.609	
1,000.0	997.6	995.7	995.7	2.0	1.7	157.68	1.1	43.1	88.1	84.6	3.43	25.640	
1,100.0	1,097.0	1,093.7	1,093.6	2.3	1.9	158.31	2.7	47.0	101.5	97.7	3.79	26.748	
1,200.0	1,196.3	1,191.5	1,191.2	2.5	2.1	158.15	4.9	52.3	116.0	111.8	4.16	27.882	
1,300.0	1,295.6	1,288.9	1,288.3	2.8	2.2	157.47	7.8	59.3	131.6	127.0	4.53	29.019	
1,400.0	1,395.0	1,385.9	1,384.9	3.0	2.5	156.44	11.3	67.6	148.3	143.4	4.92	30.151	
1,500.0	1,494.3	1,482.4	1,480.8	3.3	2.7	155.21	15.4	77.5	166.2	160.9	5.31	31.276	
1,600.0	1,593.7	1,578.4	1,576.0	3.5	2.9	153.85	20.0	88.8	185.3	179.6	5.72	32.398	
1,700.0	1,693.0	1,673.9	1,670.5	3.8	3.2	152.43	25.3	101.4	205.6	199.5	6.14	33.519	
1,800.0	1,792.3	1,768.8	1,764.2	4.1	3.4	151.00	31.1	115.5	227.3	220.7	6.56	34.645	
1,900.0	1,891.7	1,863.0	1,856.9	4.3	3.7	149.57	37.5	130.8	250.3	243.3	7.00	35.778	
2,000.0	1,991.0	1,956.5	1,948.7	4.6	4.0	148.17	44.4	147.4	274.6	267.2	7.44	36.922	
2,100.0	2,090.4	2,049.3	2,039.4	4.9	4.4	146.81	51.8	165.3	300.4	292.5	7.89	38.080	
2,200.0	2,189.7	2,141.3	2,129.1	5.1	4.7	145.51	59.7	184.3	327.5	319.1	8.34	39.254	
2,300.0	2,289.0	2,232.5	2,217.6	5.4	5.1	144.26	68.1	204.5	355.9	347.1	8.80	40.446	
2,400.0	2,388.4	2,324.6	2,306.6	5.7	5.5	143.06	77.0	226.2	385.7	376.5	9.26	41.636	
2,500.0	2,487.7	2,419.6	2,398.5	5.9	5.9	141.97	86.4	248.8	415.9	406.2	9.73	42.727	
2,600.0	2,587.1	2,514.7	2,490.3	6.2	6.4	141.03	95.8	271.3	446.2	436.0	10.20	43.737	
2,700.0	2,686.4	2,609.7	2,582.2	6.5	6.8	140.21	105.2	293.9	476.7	466.0	10.67	44.674	

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Reference Depths are relative to WELL @ 5019.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Woolley-Sosa 2A-7H-E168
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.29°

