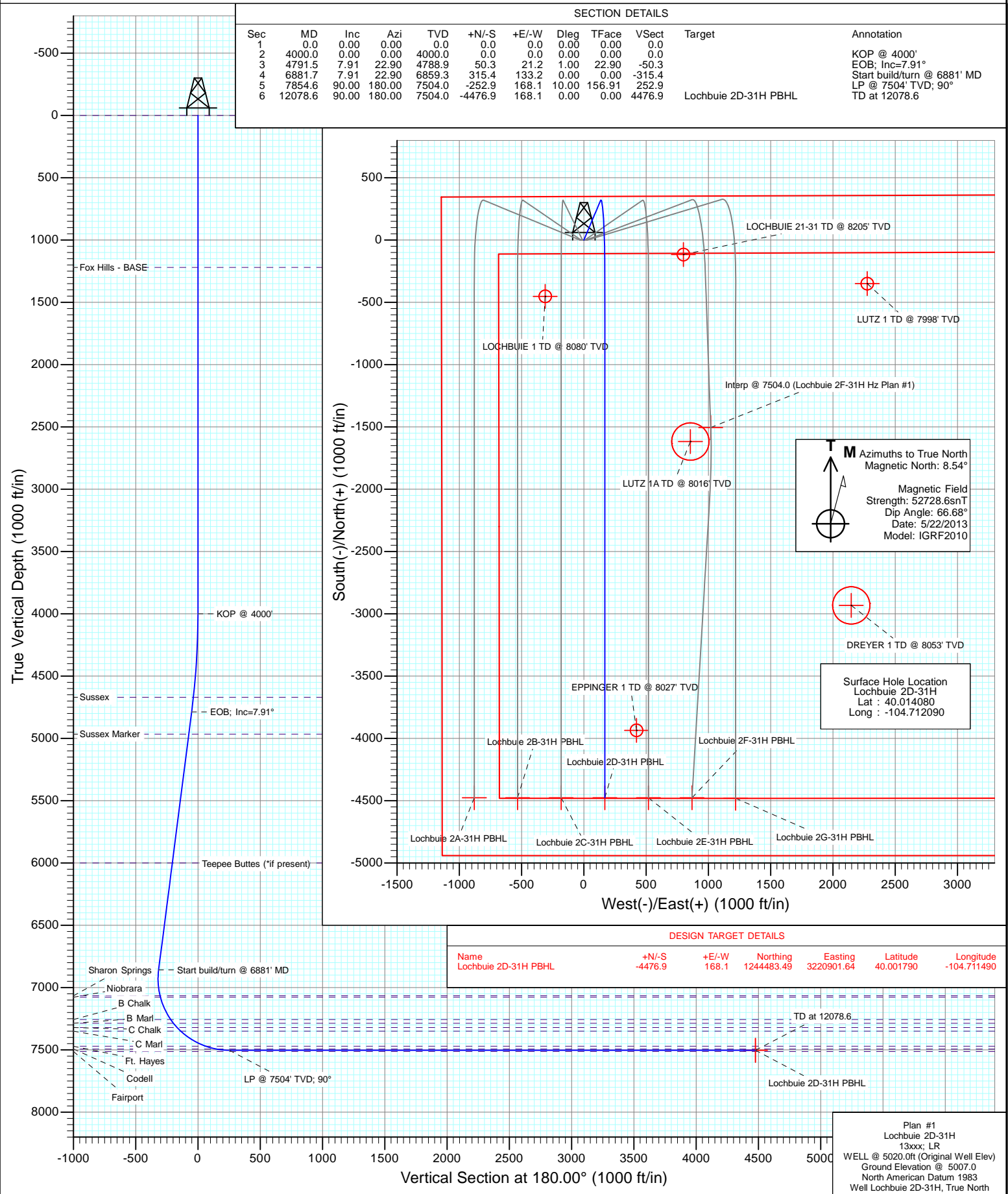




Project: DJ Wattenberg
Site: S31-T1N-R65W (Lochbuie)
Well: Lochbuie 2D-31H
Wellbore: Hz
Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site:	S31-T1N-R65W (Lochbuie)	North Reference:	True
Well:	Lochbuie 2D-31H	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		S31-T1N-R65W (Lochbuie)			
Site Position:		Northing:	1,248,958.49 ft	Latitude:	40.014080
From:	Lat/Long	Easting:	3,220,662.97 ft	Longitude:	-104.712200
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.51 °

Well	Lochbuie 2D-31H					
Well Position	+N/-S	0.0 ft	Northing:	1,248,958.73 ft	Latitude:	40.014080
	+E/-W	0.0 ft	Easting:	3,220,693.78 ft	Longitude:	-104.712090
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,007.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/22/2013	8.54	66.68	52,729

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	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,791.5	7.91	22.90	4,788.9	50.3	21.2	1.00	1.00	0.00	22.90	
6,881.7	7.91	22.90	6,859.3	315.4	133.2	0.00	0.00	0.00	0.00	
7,854.6	90.00	180.00	7,504.0	-252.9	168.1	10.00	8.44	16.15	156.91	
12,078.6	90.00	180.00	7,504.0	-4,476.9	168.1	0.00	0.00	0.00	0.00	Lochbuie 2D-31H PBI

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site:	S31-T1N-R65W (Lochbuie)	North Reference:	True
Well:	Lochbuie 2D-31H	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	Shannon
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	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,220.0	0.00	0.00	1,220.0	0.0	0.0	0.0	0.00	0.00	Fox Hills - BASE
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4000'
4,100.0	1.00	22.90	4,100.0	0.8	0.3	-0.8	1.00	1.00	
4,200.0	2.00	22.90	4,200.0	3.2	1.4	-3.2	1.00	1.00	
4,300.0	3.00	22.90	4,299.9	7.2	3.1	-7.2	1.00	1.00	
4,400.0	4.00	22.90	4,399.7	12.9	5.4	-12.9	1.00	1.00	
4,500.0	5.00	22.90	4,499.4	20.1	8.5	-20.1	1.00	1.00	
4,600.0	6.00	22.90	4,598.9	28.9	12.2	-28.9	1.00	1.00	
4,671.5	6.72	22.90	4,670.0	36.2	15.3	-36.2	1.00	1.00	Sussex
4,700.0	7.00	22.90	4,698.3	39.3	16.6	-39.3	1.00	1.00	
4,791.5	7.91	22.90	4,788.9	50.3	21.2	-50.3	1.00	1.00	EOB; Inc=7.91°
4,800.0	7.91	22.90	4,797.4	51.4	21.7	-51.4	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site:	S31-T1N-R65W (Lochbuie)	North Reference:	True
Well:	Lochbuie 2D-31H	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
4,900.0	7.91	22.90	4,896.5	64.0	27.0	-64.0	0.00	0.00	
4,970.2	7.91	22.90	4,966.0	73.0	30.8	-73.0	0.00	0.00	Sussex Marker
5,000.0	7.91	22.90	4,995.5	76.7	32.4	-76.7	0.00	0.00	
5,100.0	7.91	22.90	5,094.5	89.4	37.8	-89.4	0.00	0.00	
5,200.0	7.91	22.90	5,193.6	102.1	43.1	-102.1	0.00	0.00	
5,300.0	7.91	22.90	5,292.6	114.8	48.5	-114.8	0.00	0.00	
5,400.0	7.91	22.90	5,391.7	127.5	53.8	-127.5	0.00	0.00	
5,500.0	7.91	22.90	5,490.7	140.2	59.2	-140.2	0.00	0.00	
5,600.0	7.91	22.90	5,589.8	152.8	64.6	-152.8	0.00	0.00	
5,700.0	7.91	22.90	5,688.8	165.5	69.9	-165.5	0.00	0.00	
5,800.0	7.91	22.90	5,787.9	178.2	75.3	-178.2	0.00	0.00	
5,900.0	7.91	22.90	5,886.9	190.9	80.6	-190.9	0.00	0.00	
6,000.0	7.91	22.90	5,986.0	203.6	86.0	-203.6	0.00	0.00	
6,014.2	7.91	22.90	6,000.0	205.4	86.7	-205.4	0.00	0.00	Teepee Buttes (*if present)
6,100.0	7.91	22.90	6,085.0	216.3	91.3	-216.3	0.00	0.00	
6,200.0	7.91	22.90	6,184.1	228.9	96.7	-228.9	0.00	0.00	
6,300.0	7.91	22.90	6,283.1	241.6	102.1	-241.6	0.00	0.00	
6,400.0	7.91	22.90	6,382.2	254.3	107.4	-254.3	0.00	0.00	
6,500.0	7.91	22.90	6,481.2	267.0	112.8	-267.0	0.00	0.00	
6,600.0	7.91	22.90	6,580.3	279.7	118.1	-279.7	0.00	0.00	
6,700.0	7.91	22.90	6,679.3	292.4	123.5	-292.4	0.00	0.00	
6,800.0	7.91	22.90	6,778.4	305.1	128.8	-305.1	0.00	0.00	
6,881.7	7.91	22.90	6,859.3	315.4	133.2	-315.4	0.00	0.00	Start build/turn @ 6881' MD
6,900.0	6.27	29.47	6,877.4	317.4	134.2	-317.4	10.00	-8.98	
7,000.0	5.49	145.77	6,977.2	318.3	139.6	-318.3	10.00	-0.78	
7,090.2	13.90	167.38	7,066.0	304.1	144.4	-304.1	10.00	9.32	Sharon Springs
7,100.0	14.86	168.24	7,075.5	301.7	144.9	-301.7	10.00	9.76	
7,102.6	15.11	168.44	7,078.0	301.0	145.0	-301.0	10.00	9.78	Niobrara
7,200.0	24.72	173.25	7,169.5	268.3	150.0	-268.3	10.00	9.87	
7,300.0	34.66	175.51	7,256.3	219.1	154.7	-219.1	10.00	9.94	
7,300.9	34.75	175.53	7,257.0	218.5	154.7	-218.5	10.00	9.95	B Chalk
7,338.3	38.47	176.10	7,287.0	196.3	156.4	-196.3	10.00	9.96	B Marl
7,383.2	42.94	176.67	7,321.0	167.1	158.2	-167.1	10.00	9.97	C Chalk
7,400.0	44.62	176.86	7,333.2	155.5	158.8	-155.5	10.00	9.97	
7,424.2	47.03	177.11	7,350.0	138.2	159.8	-138.2	10.00	9.97	C Marl
7,500.0	54.60	177.80	7,397.9	79.5	162.3	-79.5	10.00	9.98	
7,600.0	64.58	178.53	7,448.4	-6.6	165.1	6.6	10.00	9.98	
7,659.1	70.47	178.90	7,471.0	-61.1	166.3	61.1	10.00	9.98	Ft. Hayes
7,700.0	74.56	179.14	7,483.3	-100.2	167.0	100.2	10.00	9.98	
7,747.3	79.29	179.41	7,494.0	-146.3	167.5	146.3	10.00	9.98	Codell
7,800.0	84.55	179.70	7,501.4	-198.4	167.9	198.4	10.00	9.99	
7,854.6	90.00	180.00	7,504.0	-252.9	168.1	252.9	10.00	9.99	LP @ 7504' TVD; 90°
7,900.0	90.00	180.00	7,504.0	-298.3	168.1	298.3	0.00	0.00	
8,000.0	90.00	180.00	7,504.0	-398.3	168.1	398.3	0.00	0.00	
8,100.0	90.00	180.00	7,504.0	-498.3	168.1	498.3	0.00	0.00	
8,200.0	90.00	180.00	7,504.0	-598.3	168.1	598.3	0.00	0.00	
8,300.0	90.00	180.00	7,504.0	-698.3	168.1	698.3	0.00	0.00	
8,400.0	90.00	180.00	7,504.0	-798.3	168.1	798.3	0.00	0.00	
8,500.0	90.00	180.00	7,504.0	-898.3	168.1	898.3	0.00	0.00	
8,600.0	90.00	180.00	7,504.0	-998.3	168.1	998.3	0.00	0.00	
8,700.0	90.00	180.00	7,504.0	-1,098.3	168.1	1,098.3	0.00	0.00	
8,800.0	90.00	180.00	7,504.0	-1,198.3	168.1	1,198.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site:	S31-T1N-R65W (Lochbuie)	North Reference:	True
Well:	Lochbuie 2D-31H	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
8,900.0	90.00	180.00	7,504.0	-1,298.3	168.1	1,298.3	0.00	0.00	
9,000.0	90.00	180.00	7,504.0	-1,398.3	168.1	1,398.3	0.00	0.00	
9,100.0	90.00	180.00	7,504.0	-1,498.3	168.1	1,498.3	0.00	0.00	
9,200.0	90.00	180.00	7,504.0	-1,598.3	168.1	1,598.3	0.00	0.00	
9,300.0	90.00	180.00	7,504.0	-1,698.3	168.1	1,698.3	0.00	0.00	
9,400.0	90.00	180.00	7,504.0	-1,798.3	168.1	1,798.3	0.00	0.00	
9,500.0	90.00	180.00	7,504.0	-1,898.3	168.1	1,898.3	0.00	0.00	
9,600.0	90.00	180.00	7,504.0	-1,998.3	168.1	1,998.3	0.00	0.00	
9,700.0	90.00	180.00	7,504.0	-2,098.3	168.1	2,098.3	0.00	0.00	
9,800.0	90.00	180.00	7,504.0	-2,198.3	168.1	2,198.3	0.00	0.00	
9,900.0	90.00	180.00	7,504.0	-2,298.3	168.1	2,298.3	0.00	0.00	
10,000.0	90.00	180.00	7,504.0	-2,398.3	168.1	2,398.3	0.00	0.00	
10,100.0	90.00	180.00	7,504.0	-2,498.3	168.1	2,498.3	0.00	0.00	
10,200.0	90.00	180.00	7,504.0	-2,598.3	168.1	2,598.3	0.00	0.00	
10,300.0	90.00	180.00	7,504.0	-2,698.3	168.1	2,698.3	0.00	0.00	
10,400.0	90.00	180.00	7,504.0	-2,798.3	168.1	2,798.3	0.00	0.00	
10,500.0	90.00	180.00	7,504.0	-2,898.3	168.1	2,898.3	0.00	0.00	
10,600.0	90.00	180.00	7,504.0	-2,998.3	168.1	2,998.3	0.00	0.00	
10,700.0	90.00	180.00	7,504.0	-3,098.3	168.1	3,098.3	0.00	0.00	
10,800.0	90.00	180.00	7,504.0	-3,198.3	168.1	3,198.3	0.00	0.00	
10,900.0	90.00	180.00	7,504.0	-3,298.3	168.1	3,298.3	0.00	0.00	
11,000.0	90.00	180.00	7,504.0	-3,398.3	168.1	3,398.3	0.00	0.00	
11,100.0	90.00	180.00	7,504.0	-3,498.3	168.1	3,498.3	0.00	0.00	
11,200.0	90.00	180.00	7,504.0	-3,598.3	168.1	3,598.3	0.00	0.00	
11,300.0	90.00	180.00	7,504.0	-3,698.3	168.1	3,698.3	0.00	0.00	
11,400.0	90.00	180.00	7,504.0	-3,798.3	168.1	3,798.3	0.00	0.00	
11,500.0	90.00	180.00	7,504.0	-3,898.3	168.1	3,898.3	0.00	0.00	
11,600.0	90.00	180.00	7,504.0	-3,998.3	168.1	3,998.3	0.00	0.00	
11,700.0	90.00	180.00	7,504.0	-4,098.3	168.1	4,098.3	0.00	0.00	
11,800.0	90.00	180.00	7,504.0	-4,198.3	168.1	4,198.3	0.00	0.00	
11,900.0	90.00	180.00	7,504.0	-4,298.3	168.1	4,298.3	0.00	0.00	
12,000.0	90.00	180.00	7,504.0	-4,398.3	168.1	4,398.3	0.00	0.00	
12,078.6	90.00	180.00	7,504.0	-4,476.9	168.1	4,476.9	0.00	0.00	TD at 12078.6 - Lochbuie 2D-31H PBHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lochbuie 2D-31H PBHL	0.00	0.00	7,504.0	-4,476.9	168.1	1,244,483.49	3,220,901.64	40.001790	-104.711490
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site:	S31-T1N-R65W (Lochbuie)	North Reference:	True
Well:	Lochbuie 2D-31H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
0.0	0.0	Shannon			
1,220.0	1,220.0	Fox Hills - BASE			
4,671.5	4,670.0	Sussex			
4,970.2	4,966.0	Sussex Marker			
6,014.2	6,000.0	Teepee Buttes (*if present)			
7,090.2	7,066.0	Sharon Springs			
7,102.6	7,078.0	Niobrara			
7,300.9	7,257.0	B Chalk			
7,338.3	7,287.0	B Marl			
7,383.2	7,321.0	C Chalk			
7,424.2	7,350.0	C Marl			
7,659.1	7,471.0	Ft. Hayes			
7,747.3	7,494.0	Codell			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,000.0	4,000.0	0.0	0.0	KOP @ 4000'
4,791.5	4,788.9	50.3	21.2	EOB; Inc=7.91°
6,881.7	6,859.3	315.4	133.2	Start build/turn @ 6881' MD
7,854.6	7,504.0	-252.9	168.1	LP @ 7504' TVD; 90°
12,078.6	7,504.0	-4,476.9	168.1	TD at 12078.6

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S31-T1N-R65W (Lochbuie)

Lochbuie 2D-31H

Hz

Plan #1

Anticollision Report

22 May, 2013

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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:	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	5/22/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,078.6	Plan #1 (Hz)	MWD	Geolink MWD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S31-T1N-R65W (Lochbuie)						
DREYER 1 (EXISTING) - VESSELS WELL - NO SURVE						Out of range
EPPINGER 1 (EXISTING) - ENCANA WELL - NO SURV	11,536.9	7,495.0	254.6	169.6	2.996	CC, ES, SF
LOCHBUIE 1 (EXISTING) - ENCANA WELL - NO SURV	8,053.7	7,490.0	478.2	448.8	16.281	CC, ES
LOCHBUIE 1 (EXISTING) - ENCANA WELL - NO SURV	8,100.0	7,490.0	480.4	450.5	16.096	SF
LOCHBUIE 21-31 (EXISTING) - ENCANA WELL - NO SU						Out of range
Lochbuie 2A-31H - Hz - Plan #1	166.3	167.3	30.8	30.3	57.379	CC
Lochbuie 2A-31H - Hz - Plan #1	200.0	201.0	30.8	30.2	47.076	ES
Lochbuie 2A-31H - Hz - Plan #1	700.0	697.3	51.6	49.2	21.296	SF
Lochbuie 2B-31H - Hz - Plan #1	300.0	300.0	22.4	21.4	22.367	CC, ES
Lochbuie 2B-31H - Hz - Plan #1	600.0	598.8	29.2	27.1	14.203	SF
Lochbuie 2C-31H - Hz - Plan #1	400.0	400.0	11.2	9.9	8.294	CC, ES
Lochbuie 2C-31H - Hz - Plan #1	12,078.6	11,828.5	422.8	286.7	3.106	SF
Lochbuie 2E-31H - Hz - Plan #1	500.0	500.0	8.4	6.7	4.943	CC, ES
Lochbuie 2E-31H - Hz - Plan #1	12,078.6	11,846.2	422.8	286.6	3.104	SF
Lochbuie 2F-31H - Hz - Plan #1	500.0	500.0	19.6	17.9	11.534	CC, ES
Lochbuie 2F-31H - Hz - Plan #1	700.0	699.3	22.9	20.5	9.550	SF
Lochbuie 2G-31H - Hz - Plan #1	200.0	200.0	28.0	27.4	42.910	CC, ES
Lochbuie 2G-31H - Hz - Plan #1	600.0	597.5	41.5	39.4	20.274	SF
LUTZ 1 (EXISTING) - ENCANA WELL - NO SURVEYS						Out of range
LUTZ 1A (EXISTING) - VESSELS WELL - NO SURVEYS						Out of range

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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										S31-T1N-R65W (Lochbuie) - EPPINGER 1 (EXISTING) - ENCANA WELL - NO SURVEYS				Offset Site Error:		0.0 ft
Survey Program: 8027-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Total	Separation	Warning			
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	Axis					
11,200.0	7,504.0	7,495.0	7,495.0	66.2	13.1	-90.00	-3,935.2	422.7	422.3	343.1	79.20	5.333				
11,300.0	7,504.0	7,495.0	7,495.0	67.9	13.1	-90.00	-3,935.2	422.7	347.8	266.9	80.92	4.298				
11,400.0	7,504.0	7,495.0	7,495.0	69.6	13.1	-90.00	-3,935.2	422.7	289.1	206.5	82.64	3.499				
11,500.0	7,504.0	7,495.0	7,495.0	71.3	13.1	-90.00	-3,935.2	422.7	257.3	172.9	84.36	3.050				
11,536.9	7,504.0	7,495.0	7,495.0	72.0	13.1	-90.00	-3,935.2	422.7	254.6	169.6	85.00	2.996	CC, ES, SF			
11,600.0	7,504.0	7,495.0	7,495.0	73.1	13.1	-90.00	-3,935.2	422.7	262.3	176.2	86.09	3.047				
11,700.0	7,504.0	7,495.0	7,495.0	74.8	13.1	-90.00	-3,935.2	422.7	302.4	214.6	87.81	3.443				
11,800.0	7,504.0	7,495.0	7,495.0	76.5	13.1	-90.00	-3,935.2	422.7	366.1	276.6	89.54	4.089				
11,900.0	7,504.0	7,495.0	7,495.0	78.2	13.1	-90.00	-3,935.2	422.7	443.5	352.2	91.27	4.859				

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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												Offset Site Error:	0.0 ft
S31-T1N-R65W (Lochbuie) - LOCHBUIE 1 (EXISTING) - ENCANA WELL - NO SURVEYS												Offset Well Error:	0.0 ft
Survey Program: 8080-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)			
8,000.0	7,504.0	7,490.0	7,490.0	16.0	13.1	90.00	-452.0	-310.1	481.2	452.4	28.82	16.698	
8,053.7	7,504.0	7,490.0	7,490.0	16.6	13.1	90.00	-452.0	-310.1	478.2	448.8	29.37	16.281 CC, ES	
8,100.0	7,504.0	7,490.0	7,490.0	17.0	13.1	90.00	-452.0	-310.1	480.4	450.5	29.85	16.096 SF	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2A-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-89.95	0.0	-30.8	30.8					
100.0	100.0	101.0	101.0	0.2	0.2	-89.95	0.0	-30.8	30.8	30.5	0.31	100.875		
166.3	166.3	167.3	167.3	0.3	0.3	-89.95	0.0	-30.8	30.8	30.3	0.54	57.379 CC		
200.0	200.0	201.0	201.0	0.3	0.3	-89.95	0.0	-30.8	30.8	30.2	0.65	47.076 ES		
300.0	300.0	300.5	300.5	0.5	0.5	-89.34	0.4	-31.6	31.6	30.6	1.00	31.532		
400.0	400.0	400.0	400.0	0.7	0.7	-87.72	1.4	-34.0	34.1	32.7	1.35	25.174		
500.0	500.0	499.2	499.1	0.8	0.9	-85.48	3.0	-38.0	38.2	36.5	1.71	22.377		
600.0	600.0	598.4	598.1	1.0	1.1	-83.06	5.3	-43.6	44.0	42.0	2.06	21.337		
700.0	700.0	697.3	696.6	1.2	1.3	-80.75	8.3	-50.7	51.6	49.2	2.42	21.296 SF		
800.0	800.0	795.9	794.8	1.4	1.5	-78.73	11.8	-59.4	60.9	58.1	2.79	21.869		
900.0	900.0	894.1	892.4	1.5	1.8	-77.01	16.1	-69.6	72.0	68.8	3.15	22.843		
1,000.0	1,000.0	992.1	989.6	1.7	2.0	-75.59	20.9	-81.3	84.7	81.2	3.52	24.088		
1,100.0	1,100.0	1,091.1	1,087.7	1.9	2.3	-74.48	26.1	-93.8	98.3	94.4	3.89	25.272		
1,200.0	1,200.0	1,190.2	1,185.8	2.1	2.6	-73.64	31.2	-106.3	111.8	107.5	4.26	26.257		
1,300.0	1,300.0	1,289.3	1,284.0	2.2	2.9	-72.98	36.4	-118.8	125.4	120.7	4.63	27.088		
1,400.0	1,400.0	1,388.3	1,382.1	2.4	3.1	-72.45	41.5	-131.3	138.9	134.0	5.00	27.799		
1,500.0	1,500.0	1,487.4	1,480.3	2.6	3.4	-72.01	46.7	-143.7	152.5	147.2	5.37	28.414		
1,600.0	1,600.0	1,586.5	1,578.4	2.8	3.7	-71.64	51.8	-156.2	166.1	160.4	5.74	28.950		
1,700.0	1,700.0	1,685.5	1,676.6	2.9	4.0	-71.33	57.0	-168.7	179.7	173.6	6.11	29.423		
1,800.0	1,800.0	1,784.6	1,774.7	3.1	4.3	-71.07	62.1	-181.2	193.3	186.9	6.48	29.842		
1,900.0	1,900.0	1,883.7	1,872.8	3.3	4.6	-70.84	67.3	-193.7	206.9	200.1	6.85	30.216		
2,000.0	2,000.0	1,982.7	1,971.0	3.5	4.9	-70.63	72.5	-206.1	220.6	213.3	7.22	30.553		
2,100.0	2,100.0	2,081.8	2,069.1	3.6	5.2	-70.45	77.6	-218.6	234.2	226.6	7.59	30.857		
2,200.0	2,200.0	2,180.9	2,167.3	3.8	5.5	-70.29	82.8	-231.1	247.8	239.8	7.96	31.133		
2,300.0	2,300.0	2,279.9	2,265.4	4.0	5.7	-70.15	87.9	-243.6	261.4	253.1	8.33	31.384		
2,400.0	2,400.0	2,379.0	2,363.5	4.2	6.0	-70.02	93.1	-256.1	275.0	266.3	8.70	31.614		
2,500.0	2,500.0	2,478.1	2,461.7	4.3	6.3	-69.91	98.2	-268.5	288.6	279.6	9.07	31.826		
2,600.0	2,600.0	2,577.1	2,559.8	4.5	6.6	-69.80	103.4	-281.0	302.3	292.8	9.44	32.021		
2,700.0	2,700.0	2,676.2	2,658.0	4.7	6.9	-69.70	108.6	-293.5	315.9	306.1	9.81	32.202		
2,800.0	2,800.0	2,775.3	2,756.1	4.9	7.2	-69.61	113.7	-306.0	329.5	319.3	10.18	32.369		
2,900.0	2,900.0	2,874.3	2,854.3	5.0	7.5	-69.53	118.9	-318.5	343.1	332.6	10.55	32.525		
3,000.0	3,000.0	2,973.4	2,952.4	5.2	7.8	-69.46	124.0	-330.9	356.7	345.8	10.92	32.671		
3,100.0	3,100.0	3,072.5	3,050.5	5.4	8.1	-69.39	129.2	-343.4	370.4	359.1	11.29	32.806		
3,200.0	3,200.0	3,171.5	3,148.7	5.6	8.4	-69.32	134.3	-355.9	384.0	372.3	11.66	32.934		
3,300.0	3,300.0	3,270.6	3,246.8	5.7	8.7	-69.26	139.5	-368.4	397.6	385.6	12.03	33.053		
3,400.0	3,400.0	3,369.7	3,345.0	5.9	9.0	-69.20	144.6	-380.9	411.2	398.8	12.40	33.166		
3,500.0	3,500.0	3,468.7	3,443.1	6.1	9.3	-69.15	149.8	-393.4	424.9	412.1	12.77	33.271		
3,600.0	3,600.0	3,567.8	3,541.2	6.3	9.5	-69.10	155.0	-405.8	438.5	425.4	13.14	33.371		
3,700.0	3,700.0	3,666.9	3,639.4	6.4	9.8	-69.06	160.1	-418.3	452.1	438.6	13.51	33.466		
3,800.0	3,800.0	3,765.9	3,737.5	6.6	10.1	-69.01	165.3	-430.8	465.8	451.9	13.88	33.555		
3,900.0	3,900.0	3,865.0	3,835.7	6.8	10.4	-68.97	170.4	-443.3	479.4	465.1	14.25	33.640		
4,000.0	4,000.0	3,964.1	3,933.8	7.0	10.7	-68.93	175.6	-455.8	493.0	478.4	14.62	33.721		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2B-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-89.96	0.0	-22.4	22.4					
100.0	100.0	100.0	100.0	0.2	0.2	-89.96	0.0	-22.4	22.4	22.1	0.30	73.785		
200.0	200.0	200.0	200.0	0.3	0.3	-89.96	0.0	-22.4	22.4	21.8	0.65	34.328		
300.0	300.0	300.0	300.0	0.5	0.5	-89.96	0.0	-22.4	22.4	21.4	1.00	22.367 CC, ES		
400.0	400.0	399.7	399.7	0.7	0.7	-88.74	0.5	-23.1	23.1	21.8	1.35	17.124		
500.0	500.0	499.3	499.2	0.8	0.9	-85.53	2.0	-25.3	25.4	23.7	1.70	14.899		
600.0	600.0	598.8	598.6	1.0	1.0	-81.28	4.4	-28.8	29.2	27.1	2.06	14.203 SF		
700.0	700.0	698.1	697.8	1.2	1.2	-76.96	7.8	-33.8	34.8	32.4	2.41	14.411		
800.0	800.0	797.1	796.5	1.4	1.4	-73.11	12.2	-40.2	42.1	39.4	2.77	15.193		
900.0	900.0	896.7	895.7	1.5	1.7	-70.09	17.2	-47.5	50.7	47.5	3.13	16.162		
1,000.0	1,000.0	996.3	994.9	1.7	1.9	-67.95	22.2	-54.7	59.3	55.8	3.49	16.962		
1,100.0	1,100.0	1,095.9	1,094.1	1.9	2.1	-66.35	27.2	-62.0	68.0	64.1	3.85	17.631		
1,200.0	1,200.0	1,195.5	1,193.3	2.1	2.3	-65.11	32.2	-69.3	76.7	72.5	4.21	18.197		
1,300.0	1,300.0	1,295.1	1,292.5	2.2	2.6	-64.12	37.1	-76.6	85.4	80.9	4.57	18.681		
1,400.0	1,400.0	1,394.7	1,391.7	2.4	2.8	-63.32	42.1	-83.8	94.2	89.3	4.93	19.099		
1,500.0	1,500.0	1,494.3	1,490.9	2.6	3.0	-62.66	47.1	-91.1	103.0	97.7	5.29	19.463		
1,600.0	1,600.0	1,593.9	1,590.2	2.8	3.2	-62.10	52.1	-98.4	111.8	106.1	5.65	19.784		
1,700.0	1,700.0	1,693.5	1,689.4	2.9	3.5	-61.62	57.1	-105.7	120.6	114.6	6.01	20.068		
1,800.0	1,800.0	1,793.1	1,788.6	3.1	3.7	-61.21	62.1	-113.0	129.4	123.0	6.37	20.322		
1,900.0	1,900.0	1,892.7	1,887.8	3.3	3.9	-60.84	67.1	-120.2	138.2	131.5	6.73	20.550		
2,000.0	2,000.0	1,992.3	1,987.0	3.5	4.2	-60.53	72.1	-127.5	147.0	140.0	7.08	20.755		
2,100.0	2,100.0	2,091.9	2,086.2	3.6	4.4	-60.25	77.1	-134.8	155.9	148.4	7.44	20.941		
2,200.0	2,200.0	2,191.6	2,185.5	3.8	4.6	-59.99	82.0	-142.1	164.7	156.9	7.80	21.111		
2,300.0	2,300.0	2,291.2	2,284.7	4.0	4.8	-59.77	87.0	-149.4	173.5	165.4	8.16	21.266		
2,400.0	2,400.0	2,390.8	2,383.9	4.2	5.1	-59.57	92.0	-156.6	182.4	173.9	8.52	21.408		
2,500.0	2,500.0	2,490.4	2,483.1	4.3	5.3	-59.38	97.0	-163.9	191.2	182.3	8.88	21.540		
2,600.0	2,600.0	2,590.0	2,582.3	4.5	5.5	-59.21	102.0	-171.2	200.1	190.8	9.24	21.661		
2,700.0	2,700.0	2,689.6	2,681.5	4.7	5.8	-59.06	107.0	-178.5	208.9	199.3	9.59	21.773		
2,800.0	2,800.0	2,789.2	2,780.7	4.9	6.0	-58.92	112.0	-185.8	217.7	207.8	9.95	21.878		
2,900.0	2,900.0	2,888.8	2,880.0	5.0	6.2	-58.79	117.0	-193.0	226.6	216.3	10.31	21.975		
3,000.0	3,000.0	2,988.4	2,979.2	5.2	6.5	-58.66	122.0	-200.3	235.4	224.8	10.67	22.066		
3,100.0	3,100.0	3,088.0	3,078.4	5.4	6.7	-58.55	127.0	-207.6	244.3	233.3	11.03	22.151		
3,200.0	3,200.0	3,187.6	3,177.6	5.6	6.9	-58.45	131.9	-214.9	253.1	241.7	11.39	22.231		
3,300.0	3,300.0	3,287.2	3,276.8	5.7	7.2	-58.35	136.9	-222.1	262.0	250.2	11.74	22.306		
3,400.0	3,400.0	3,386.8	3,376.0	5.9	7.4	-58.26	141.9	-229.4	270.8	258.7	12.10	22.377		
3,500.0	3,500.0	3,486.4	3,475.2	6.1	7.6	-58.17	146.9	-236.7	279.7	267.2	12.46	22.444		
3,600.0	3,600.0	3,586.1	3,574.5	6.3	7.9	-58.09	151.9	-244.0	288.5	275.7	12.82	22.507		
3,700.0	3,700.0	3,685.7	3,673.7	6.4	8.1	-58.02	156.9	-251.3	297.4	284.2	13.18	22.566		
3,800.0	3,800.0	3,785.3	3,772.9	6.6	8.3	-57.95	161.9	-258.5	306.2	292.7	13.54	22.623		
3,900.0	3,900.0	3,884.9	3,872.1	6.8	8.6	-57.88	166.9	-265.8	315.1	301.2	13.89	22.677		
4,000.0	4,000.0	3,984.5	3,971.3	7.0	8.8	-57.82	171.9	-273.1	323.9	309.7	14.25	22.728		
4,100.0	4,100.0	4,084.1	4,070.5	7.1	9.0	-80.72	176.8	-280.4	332.7	318.4	14.23	23.370		
4,200.0	4,200.0	4,183.7	4,169.8	7.3	9.2	-81.01	181.8	-287.7	341.1	326.5	14.59	23.387		
4,300.0	4,299.9	4,283.3	4,269.0	7.5	9.5	-81.57	186.8	-294.9	349.3	334.4	14.94	23.383		
4,400.0	4,399.7	4,382.8	4,368.1	7.7	9.7	-82.38	191.8	-302.2	357.3	342.0	15.29	23.361		
4,500.0	4,499.4	4,482.3	4,467.2	7.8	9.9	-83.42	196.8	-309.5	365.2	349.5	15.66	23.324		
4,600.0	4,598.9	4,581.6	4,566.1	8.0	10.2	-84.68	201.8	-316.7	373.0	357.0	16.03	23.274		
4,700.0	4,698.3	4,680.7	4,664.9	8.2	10.4	-86.14	206.7	-324.0	381.0	364.6	16.41	23.215		
4,800.0	4,797.4	4,779.7	4,763.5	8.4	10.6	-87.79	211.7	-331.2	389.1	372.3	16.81	23.152		
4,900.0	4,896.5	4,878.6	4,862.0	8.6	10.9	-89.55	216.6	-338.4	397.6	380.4	17.21	23.094		
5,000.0	4,995.5	4,977.5	4,960.5	8.8	11.1	-91.23	221.6	-345.7	406.4	388.8	17.63	23.048		
5,100.0	5,094.5	5,076.4	5,059.0	9.1	11.3	-92.84	226.6	-352.9	415.6	397.5	18.06	23.012		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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													S31-T1N-R65W (Lochbuie) - Lochbuie 2B-31H - Hz - Plan #1		Offset Site Error:		0.0 ft	
Survey Program: 0-MWD															Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning					
5,200.0	5,193.6	5,175.3	5,157.5	9.3	11.6	-94.39	231.5	-360.1	425.0	406.5	18.49	22.985						
5,300.0	5,292.6	5,274.2	5,256.0	9.5	11.8	-95.86	236.5	-367.4	434.8	415.9	18.93	22.968						
5,400.0	5,391.7	5,373.1	5,354.5	9.7	12.0	-97.27	241.4	-374.6	444.9	425.5	19.38	22.958						
5,500.0	5,490.7	5,472.0	5,453.0	10.0	12.3	-98.62	246.4	-381.8	455.2	435.3	19.83	22.956						
5,600.0	5,589.8	5,570.9	5,551.6	10.2	12.5	-99.91	251.3	-389.0	465.7	445.4	20.28	22.961						
5,700.0	5,688.8	5,669.9	5,650.1	10.4	12.7	-101.14	256.3	-396.3	476.5	455.8	20.74	22.973						
5,800.0	5,787.9	5,768.8	5,748.6	10.7	12.9	-102.31	261.2	-403.5	487.5	466.3	21.20	22.991						
5,900.0	5,886.9	5,867.7	5,847.1	10.9	13.2	-103.44	266.2	-410.7	498.7	477.0	21.67	23.014						

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2C-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-89.96	0.0	-11.2	11.2					
100.0	100.0	100.0	100.0	0.2	0.2	-89.96	0.0	-11.2	11.2	10.9	0.30	36.893		
200.0	200.0	200.0	200.0	0.3	0.3	-89.96	0.0	-11.2	11.2	10.6	0.65	17.164		
300.0	300.0	300.0	300.0	0.5	0.5	-89.96	0.0	-11.2	11.2	10.2	1.00	11.184		
400.0	400.0	400.0	400.0	0.7	0.7	-89.96	0.0	-11.2	11.2	9.9	1.35	8.294 CC, ES		
500.0	500.0	499.9	499.9	0.8	0.9	-86.09	0.8	-11.6	11.6	9.9	1.70	6.830		
600.0	600.0	599.7	599.7	1.0	1.0	-76.15	3.1	-12.7	13.1	11.1	2.05	6.389		
700.0	700.0	699.5	699.3	1.2	1.2	-64.29	7.0	-14.6	16.3	13.8	2.41	6.749		
800.0	800.0	799.2	798.9	1.4	1.4	-54.61	12.2	-17.1	21.0	18.3	2.76	7.612		
900.0	900.0	899.1	898.6	1.5	1.6	-48.53	17.4	-19.7	26.3	23.2	3.12	8.429		
1,000.0	1,000.0	998.9	998.3	1.7	1.8	-44.50	22.6	-22.2	31.7	28.3	3.47	9.138		
1,100.0	1,100.0	1,098.7	1,097.9	1.9	2.0	-41.66	27.8	-24.8	37.3	33.5	3.83	9.746		
1,200.0	1,200.0	1,198.5	1,197.6	2.1	2.2	-39.56	33.0	-27.3	42.9	38.7	4.18	10.267		
1,300.0	1,300.0	1,298.4	1,297.2	2.2	2.4	-37.95	38.3	-29.8	48.6	44.1	4.53	10.717		
1,400.0	1,400.0	1,398.2	1,396.9	2.4	2.6	-36.68	43.5	-32.4	54.3	49.4	4.89	11.108		
1,500.0	1,500.0	1,498.0	1,496.6	2.6	2.8	-35.65	48.7	-34.9	60.0	54.8	5.24	11.451		
1,600.0	1,600.0	1,597.9	1,596.2	2.8	3.0	-34.79	53.9	-37.5	65.8	60.2	5.59	11.754		
1,700.0	1,700.0	1,697.7	1,695.9	2.9	3.2	-34.08	59.1	-40.0	71.5	65.6	5.95	12.023		
1,800.0	1,800.0	1,797.5	1,795.5	3.1	3.4	-33.47	64.3	-42.5	77.3	71.0	6.30	12.263		
1,900.0	1,900.0	1,897.4	1,895.2	3.3	3.6	-32.95	69.6	-45.1	83.0	76.4	6.65	12.479		
2,000.0	2,000.0	1,997.2	1,994.9	3.5	3.8	-32.49	74.8	-47.6	88.8	81.8	7.01	12.674		
2,100.0	2,100.0	2,097.0	2,094.5	3.6	4.0	-32.09	80.0	-50.2	94.6	87.2	7.36	12.851		
2,200.0	2,200.0	2,196.9	2,194.2	3.8	4.2	-31.74	85.2	-52.7	100.4	92.7	7.71	13.012		
2,300.0	2,300.0	2,296.7	2,293.9	4.0	4.4	-31.42	90.4	-55.3	106.2	98.1	8.07	13.160		
2,400.0	2,400.0	2,396.5	2,393.5	4.2	4.6	-31.14	95.7	-57.8	111.9	103.5	8.42	13.295		
2,500.0	2,500.0	2,496.3	2,493.2	4.3	4.8	-30.89	100.9	-60.3	117.7	109.0	8.77	13.420		
2,600.0	2,600.0	2,596.2	2,592.8	4.5	5.0	-30.65	106.1	-62.9	123.5	114.4	9.13	13.536		
2,700.0	2,700.0	2,696.0	2,692.5	4.7	5.2	-30.44	111.3	-65.4	129.3	119.9	9.48	13.643		
2,800.0	2,800.0	2,795.8	2,792.2	4.9	5.4	-30.25	116.5	-68.0	135.1	125.3	9.83	13.742		
2,900.0	2,900.0	2,895.7	2,891.8	5.0	5.6	-30.08	121.7	-70.5	140.9	130.7	10.19	13.835		
3,000.0	3,000.0	2,995.5	2,991.5	5.2	5.8	-29.91	127.0	-73.0	146.7	136.2	10.54	13.922		
3,100.0	3,100.0	3,095.3	3,091.2	5.4	6.0	-29.76	132.2	-75.6	152.5	141.6	10.89	14.003		
3,200.0	3,200.0	3,195.2	3,190.8	5.6	6.2	-29.62	137.4	-78.1	158.3	147.1	11.25	14.080		
3,300.0	3,300.0	3,295.0	3,290.5	5.7	6.4	-29.49	142.6	-80.7	164.1	152.5	11.60	14.151		
3,400.0	3,400.0	3,394.8	3,390.1	5.9	6.6	-29.37	147.8	-83.2	169.9	158.0	11.95	14.219		
3,500.0	3,500.0	3,494.7	3,489.8	6.1	6.8	-29.26	153.1	-85.8	175.7	163.4	12.30	14.282		
3,600.0	3,600.0	3,594.5	3,589.5	6.3	7.0	-29.16	158.3	-88.3	181.5	168.9	12.66	14.343		
3,700.0	3,700.0	3,694.3	3,689.1	6.4	7.2	-29.06	163.5	-90.8	187.4	174.3	13.01	14.399		
3,800.0	3,800.0	3,794.2	3,788.8	6.6	7.4	-28.96	168.7	-93.4	193.2	179.8	13.36	14.453		
3,900.0	3,900.0	3,894.0	3,888.4	6.8	7.6	-28.88	173.9	-95.9	199.0	185.2	13.72	14.505		
4,000.0	4,000.0	3,993.8	3,988.1	7.0	7.8	-28.79	179.1	-98.5	204.8	190.7	14.07	14.553		
4,100.0	4,100.0	4,093.7	4,087.8	7.1	8.0	-51.76	184.4	-101.0	210.0	195.8	14.26	14.733		
4,200.0	4,200.0	4,193.6	4,187.5	7.3	8.2	-52.20	189.6	-103.6	214.2	199.6	14.61	14.666		
4,300.0	4,299.9	4,293.5	4,287.3	7.5	8.4	-52.99	194.8	-106.1	217.4	202.4	14.96	14.532		
4,400.0	4,399.7	4,393.3	4,387.0	7.7	8.6	-54.13	200.0	-108.6	219.6	204.2	15.31	14.338		
4,500.0	4,499.4	4,493.2	4,486.6	7.8	8.8	-55.63	205.2	-111.2	220.8	205.2	15.67	14.091		
4,600.0	4,598.9	4,592.9	4,586.2	8.0	9.0	-57.50	210.5	-113.7	221.3	205.3	16.04	13.800		
4,700.0	4,698.3	4,692.5	4,685.6	8.2	9.2	-59.74	215.7	-116.3	221.1	204.7	16.41	13.473		
4,800.0	4,797.4	4,792.0	4,784.9	8.4	9.4	-62.37	220.9	-118.8	220.5	203.7	16.81	13.120		
4,900.0	4,896.5	4,891.4	4,884.2	8.6	9.6	-65.19	226.1	-121.3	220.0	202.8	17.22	12.780		
4,938.2	4,934.3	4,929.4	4,922.1	8.7	9.7	-66.26	228.1	-122.3	220.0	202.6	17.38	12.660		
5,000.0	4,995.5	4,990.8	4,983.4	8.8	9.8	-68.00	231.3	-123.9	220.1	202.5	17.64	12.478		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2C-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				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)				
5,100.0	5,094.5	5,090.2	5,082.7	9.1	10.0	-70.81	236.5	-126.4	220.7	202.6	18.07	12.212		
5,200.0	5,193.6	5,189.6	5,181.9	9.3	10.2	-73.59	241.7	-128.9	221.8	203.3	18.52	11.980		
5,300.0	5,292.6	5,289.0	5,281.1	9.5	10.4	-76.35	246.8	-131.4	223.5	204.5	18.97	11.781		
5,400.0	5,391.7	5,388.4	5,380.4	9.7	10.6	-79.05	252.0	-134.0	225.7	206.2	19.43	11.612		
5,500.0	5,490.7	5,487.8	5,479.6	10.0	10.8	-81.70	257.2	-136.5	228.3	208.4	19.90	11.472		
5,600.0	5,589.8	5,587.3	5,578.9	10.2	11.0	-84.28	262.4	-139.0	231.5	211.1	20.38	11.359		
5,700.0	5,688.8	5,686.7	5,678.1	10.4	11.2	-86.79	267.6	-141.6	235.1	214.2	20.86	11.271		
5,800.0	5,787.9	5,786.1	5,777.3	10.7	11.4	-89.22	272.8	-144.1	239.1	217.8	21.34	11.206		
5,900.0	5,886.9	5,885.5	5,876.6	10.9	11.6	-91.57	278.0	-146.6	243.6	221.8	21.82	11.162		
6,000.0	5,986.0	5,984.9	5,975.8	11.2	11.8	-93.82	283.2	-149.2	248.5	226.2	22.31	11.138		
6,100.0	6,085.0	6,084.3	6,075.0	11.4	12.0	-95.99	288.4	-151.7	253.7	230.9	22.79	11.132		
6,200.0	6,184.1	6,183.7	6,174.3	11.7	12.2	-98.07	293.6	-154.2	259.3	236.0	23.27	11.142		
6,300.0	6,283.1	6,283.1	6,273.5	11.9	12.4	-100.06	298.8	-156.8	265.2	241.5	23.75	11.167		
6,400.0	6,382.2	6,382.5	6,372.8	12.2	12.6	-101.96	304.0	-159.3	271.4	247.2	24.23	11.204		
6,500.0	6,481.2	6,481.9	6,472.0	12.5	12.8	-103.78	309.2	-161.8	278.0	253.3	24.70	11.253		
6,600.0	6,580.3	6,581.3	6,571.2	12.7	13.0	-105.51	314.4	-164.3	284.7	259.6	25.17	11.312		
6,700.0	6,679.3	6,681.0	6,670.8	13.0	13.2	-107.17	319.6	-166.9	291.8	266.1	25.64	11.381		
6,800.0	6,778.4	6,782.6	6,772.1	13.2	13.3	-110.70	314.7	-169.5	298.5	272.5	26.01	11.477		
6,900.0	6,877.4	6,875.5	6,862.6	13.5	13.3	-123.30	294.7	-171.8	307.2	280.9	26.24	11.707		
7,000.0	6,977.2	6,961.6	6,942.7	13.6	13.2	113.64	263.3	-173.8	320.1	293.8	26.26	12.190		
7,100.0	7,075.5	7,043.9	7,014.0	13.7	13.1	85.22	222.5	-175.6	335.9	309.8	26.10	12.871		
7,200.0	7,169.5	7,123.1	7,076.5	13.6	13.0	75.13	173.8	-177.2	353.1	327.3	25.79	13.691		
7,300.0	7,256.3	7,200.0	7,130.1	13.5	13.0	68.71	118.8	-178.6	370.2	344.8	25.37	14.593		
7,400.0	7,333.2	7,275.1	7,174.9	13.4	13.0	64.10	58.6	-179.7	386.1	361.2	24.90	15.505		
7,500.0	7,397.9	7,350.0	7,211.4	13.4	13.2	60.70	-6.7	-180.7	399.8	375.3	24.49	16.324		
7,600.0	7,448.4	7,421.7	7,238.1	13.6	13.4	58.33	-73.2	-181.4	410.7	386.4	24.29	16.911		
7,700.0	7,483.3	7,500.0	7,257.5	13.9	13.7	56.74	-149.0	-181.9	418.4	394.0	24.42	17.131		
7,800.0	7,501.4	7,565.4	7,265.7	14.4	14.1	56.02	-213.9	-182.1	422.3	397.3	24.97	16.914		
7,900.0	7,504.0	7,649.9	7,267.0	15.1	14.8	55.91	-298.3	-182.1	422.8	396.8	26.09	16.208		
8,000.0	7,504.0	7,749.9	7,267.0	16.0	15.7	55.91	-398.3	-182.1	422.8	395.2	27.60	15.322		
8,100.0	7,504.0	7,849.9	7,267.0	17.0	16.7	55.91	-498.3	-182.1	422.8	393.5	29.32	14.423		
8,200.0	7,504.0	7,949.9	7,267.0	18.2	17.9	55.91	-598.3	-182.1	422.8	391.6	31.22	13.545		
8,300.0	7,504.0	8,049.9	7,267.0	19.4	19.1	55.91	-698.3	-182.1	422.8	389.6	33.26	12.712		
8,400.0	7,504.0	8,149.9	7,267.0	20.7	20.4	55.91	-798.3	-182.1	422.8	387.4	35.43	11.935		
8,500.0	7,504.0	8,249.9	7,267.0	22.0	21.8	55.91	-898.3	-182.1	422.8	385.1	37.70	11.217		
8,600.0	7,504.0	8,349.9	7,267.0	23.4	23.2	55.91	-998.3	-182.1	422.8	382.8	40.05	10.558		
8,700.0	7,504.0	8,449.9	7,267.0	24.9	24.7	55.91	-1,098.3	-182.1	422.8	380.4	42.47	9.956		
8,800.0	7,504.0	8,549.9	7,267.0	26.4	26.2	55.91	-1,198.3	-182.1	422.8	377.9	44.95	9.407		
8,900.0	7,504.0	8,649.9	7,267.0	27.9	27.7	55.91	-1,298.3	-182.1	422.8	375.4	47.48	8.905		
9,000.0	7,504.0	8,749.9	7,267.0	29.5	29.3	55.91	-1,398.3	-182.1	422.8	372.8	50.05	8.448		
9,100.0	7,504.0	8,849.9	7,267.0	31.0	30.9	55.91	-1,498.3	-182.1	422.8	370.2	52.66	8.030		
9,200.0	7,504.0	8,949.9	7,267.0	32.6	32.5	55.91	-1,598.3	-182.1	422.8	367.5	55.30	7.647		
9,300.0	7,504.0	9,049.9	7,267.0	34.2	34.1	55.91	-1,698.3	-182.1	422.8	364.9	57.96	7.295		
9,400.0	7,504.0	9,149.9	7,267.0	35.9	35.7	55.91	-1,798.3	-182.1	422.8	362.2	60.65	6.972		
9,500.0	7,504.0	9,249.9	7,267.0	37.5	37.3	55.91	-1,898.3	-182.1	422.8	359.5	63.36	6.674		
9,600.0	7,504.0	9,349.9	7,267.0	39.1	39.0	55.91	-1,998.3	-182.1	422.8	356.8	66.08	6.399		
9,700.0	7,504.0	9,449.9	7,267.0	40.8	40.6	55.91	-2,098.3	-182.1	422.8	354.0	68.82	6.144		
9,800.0	7,504.0	9,549.9	7,267.0	42.4	42.3	55.91	-2,198.3	-182.1	422.8	351.3	71.57	5.908		
9,900.0	7,504.0	9,649.9	7,267.0	44.1	44.0	55.91	-2,298.3	-182.1	422.8	348.5	74.34	5.688		
10,000.0	7,504.0	9,749.9	7,267.0	45.8	45.6	55.91	-2,398.3	-182.1	422.8	345.7	77.12	5.483		
10,100.0	7,504.0	9,849.9	7,267.0	47.5	47.3	55.91	-2,498.3	-182.1	422.8	342.9	79.90	5.292		
10,200.0	7,504.0	9,949.9	7,267.0	49.1	49.0	55.91	-2,598.3	-182.1	422.8	340.1	82.70	5.113		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2C-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,300.0	7,504.0	10,049.9	7,267.0	50.8	50.7	55.91	-2,698.3	-182.1	422.8	337.3	85.50	4.945		
10,400.0	7,504.0	10,149.9	7,267.0	52.5	52.4	55.91	-2,798.3	-182.1	422.8	334.5	88.31	4.788		
10,500.0	7,504.0	10,249.9	7,267.0	54.2	54.1	55.91	-2,898.3	-182.1	422.8	331.7	91.13	4.640		
10,600.0	7,504.0	10,349.9	7,267.0	55.9	55.8	55.91	-2,998.3	-182.1	422.8	328.9	93.95	4.501		
10,700.0	7,504.0	10,449.9	7,267.0	57.6	57.5	55.91	-3,098.3	-182.1	422.8	326.1	96.78	4.369		
10,800.0	7,504.0	10,549.9	7,267.0	59.3	59.2	55.91	-3,198.3	-182.1	422.8	323.2	99.61	4.245		
10,900.0	7,504.0	10,649.9	7,267.0	61.0	60.9	55.91	-3,298.3	-182.1	422.8	320.4	102.45	4.127		
11,000.0	7,504.0	10,749.9	7,267.0	62.8	62.7	55.91	-3,398.3	-182.1	422.8	317.6	105.29	4.016		
11,100.0	7,504.0	10,849.9	7,267.0	64.5	64.4	55.91	-3,498.3	-182.1	422.8	314.7	108.14	3.910		
11,200.0	7,504.0	10,949.9	7,267.0	66.2	66.1	55.91	-3,598.3	-182.1	422.8	311.9	110.99	3.810		
11,300.0	7,504.0	11,049.9	7,267.0	67.9	67.8	55.91	-3,698.3	-182.1	422.8	309.0	113.84	3.714		
11,400.0	7,504.0	11,149.9	7,267.0	69.6	69.5	55.91	-3,798.3	-182.1	422.8	306.1	116.69	3.624		
11,500.0	7,504.0	11,249.9	7,267.0	71.3	71.3	55.91	-3,898.3	-182.1	422.8	303.3	119.55	3.537		
11,600.0	7,504.0	11,349.9	7,267.0	73.1	73.0	55.91	-3,998.3	-182.1	422.8	300.4	122.41	3.454		
11,700.0	7,504.0	11,449.9	7,267.0	74.8	74.7	55.91	-4,098.3	-182.1	422.8	297.6	125.28	3.375		
11,800.0	7,504.0	11,549.9	7,267.0	76.5	76.4	55.91	-4,198.3	-182.1	422.8	294.7	128.14	3.300		
11,900.0	7,504.0	11,649.9	7,267.0	78.2	78.2	55.91	-4,298.3	-182.1	422.8	291.8	131.01	3.228		
12,000.0	7,504.0	11,749.9	7,267.0	80.0	79.9	55.91	-4,398.3	-182.1	422.8	289.0	133.88	3.158		
12,078.6	7,504.0	11,828.5	7,267.0	81.3	81.3	55.91	-4,476.9	-182.1	422.8	286.7	136.14	3.106 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2E-31H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor			
0.0	0.0	0.0	0.0	0.0	0.0	90.06	0.0	8.4	8.4						
100.0	100.0	100.0	100.0	0.2	0.2	90.06	0.0	8.4	8.4	8.1	0.30	27.670			
200.0	200.0	200.0	200.0	0.3	0.3	90.06	0.0	8.4	8.4	7.8	0.65	12.873			
300.0	300.0	300.0	300.0	0.5	0.5	90.06	0.0	8.4	8.4	7.4	1.00	8.388			
400.0	400.0	400.0	400.0	0.7	0.7	90.06	0.0	8.4	8.4	7.1	1.35	6.220			
500.0	500.0	500.0	500.0	0.8	0.8	90.06	0.0	8.4	8.4	6.7	1.70	4.943	CC, ES		
600.0	600.0	599.9	599.9	1.0	1.0	86.95	0.5	9.1	9.1	7.1	2.05	4.458			
700.0	700.0	699.7	699.6	1.2	1.2	80.09	2.0	11.3	11.4	9.0	2.40	4.773			
800.0	800.0	799.4	799.2	1.4	1.4	73.37	4.4	14.8	15.5	12.8	2.75	5.646			
900.0	900.0	898.9	898.6	1.5	1.6	68.34	7.9	19.8	21.4	18.3	3.10	6.908			
1,000.0	1,000.0	998.1	997.5	1.7	1.8	64.89	12.3	26.2	29.1	25.6	3.45	8.434			
1,100.0	1,100.0	1,097.5	1,096.4	1.9	2.0	62.60	17.5	33.8	38.3	34.5	3.80	10.077			
1,200.0	1,200.0	1,197.0	1,195.5	2.1	2.2	61.17	22.9	41.6	47.7	43.5	4.15	11.492			
1,300.0	1,300.0	1,296.5	1,294.6	2.2	2.4	60.21	28.3	49.4	57.2	52.7	4.51	12.686			
1,400.0	1,400.0	1,396.1	1,393.7	2.4	2.7	59.52	33.6	57.2	66.6	61.8	4.86	13.707			
1,500.0	1,500.0	1,495.6	1,492.8	2.6	2.9	59.01	39.0	64.9	76.1	70.9	5.22	14.588			
1,600.0	1,600.0	1,595.2	1,591.9	2.8	3.1	58.61	44.4	72.7	85.6	80.0	5.57	15.356			
1,700.0	1,700.0	1,694.7	1,691.0	2.9	3.3	58.29	49.7	80.5	95.1	89.1	5.93	16.031			
1,800.0	1,800.0	1,794.3	1,790.1	3.1	3.6	58.02	55.1	88.3	104.5	98.3	6.29	16.629			
1,900.0	1,900.0	1,893.8	1,889.2	3.3	3.8	57.80	60.5	96.1	114.0	107.4	6.64	17.163			
2,000.0	2,000.0	1,993.4	1,988.3	3.5	4.0	57.62	65.9	103.8	123.5	116.5	7.00	17.641			
2,100.0	2,100.0	2,092.9	2,087.4	3.6	4.3	57.46	71.2	111.6	133.0	125.6	7.36	18.073			
2,200.0	2,200.0	2,192.5	2,186.5	3.8	4.5	57.32	76.6	119.4	142.5	134.8	7.72	18.464			
2,300.0	2,300.0	2,292.0	2,285.6	4.0	4.8	57.20	82.0	127.2	152.0	143.9	8.08	18.821			
2,400.0	2,400.0	2,391.6	2,384.7	4.2	5.0	57.10	87.3	135.0	161.5	153.0	8.43	19.147			
2,500.0	2,500.0	2,491.1	2,483.8	4.3	5.2	57.00	92.7	142.7	171.0	162.2	8.79	19.446			
2,600.0	2,600.0	2,590.7	2,582.9	4.5	5.5	56.92	98.1	150.5	180.5	171.3	9.15	19.722			
2,700.0	2,700.0	2,690.2	2,682.0	4.7	5.7	56.84	103.4	158.3	190.0	180.4	9.51	19.976			
2,800.0	2,800.0	2,789.8	2,781.1	4.9	5.9	56.77	108.8	166.1	199.4	189.6	9.87	20.212			
2,900.0	2,900.0	2,889.3	2,880.2	5.0	6.2	56.71	114.2	173.9	208.9	198.7	10.23	20.432			
3,000.0	3,000.0	2,988.9	2,979.3	5.2	6.4	56.65	119.5	181.6	218.4	207.8	10.59	20.636			
3,100.0	3,100.0	3,088.4	3,078.4	5.4	6.7	56.60	124.9	189.4	227.9	217.0	10.94	20.827			
3,200.0	3,200.0	3,188.0	3,177.5	5.6	6.9	56.55	130.3	197.2	237.4	226.1	11.30	21.006			
3,300.0	3,300.0	3,287.5	3,276.6	5.7	7.1	56.51	135.6	205.0	246.9	235.3	11.66	21.174			
3,400.0	3,400.0	3,387.1	3,375.7	5.9	7.4	56.46	141.0	212.8	256.4	244.4	12.02	21.331			
3,500.0	3,500.0	3,486.6	3,474.8	6.1	7.6	56.43	146.4	220.5	265.9	253.5	12.38	21.480			
3,600.0	3,600.0	3,586.2	3,573.9	6.3	7.8	56.39	151.8	228.3	275.4	262.7	12.74	21.620			
3,700.0	3,700.0	3,685.7	3,673.0	6.4	8.1	56.36	157.1	236.1	284.9	271.8	13.10	21.752			
3,800.0	3,800.0	3,785.3	3,772.0	6.6	8.3	56.33	162.5	243.9	294.4	280.9	13.46	21.877			
3,900.0	3,900.0	3,884.8	3,871.1	6.8	8.6	56.30	167.9	251.7	303.9	290.1	13.82	21.996			
4,000.0	4,000.0	3,984.3	3,970.2	7.0	8.8	56.27	173.2	259.4	313.4	299.2	14.17	22.108			
4,100.0	4,100.0	4,084.0	4,069.4	7.1	9.0	33.38	178.6	267.2	322.1	307.9	14.23	22.631			
4,200.0	4,200.0	4,183.7	4,168.7	7.3	9.3	33.57	184.0	275.0	329.5	314.9	14.59	22.588			
4,300.0	4,299.9	4,283.5	4,268.0	7.5	9.5	33.92	189.4	282.8	335.3	320.4	14.94	22.451			
4,400.0	4,399.7	4,383.3	4,367.4	7.7	9.8	34.42	194.7	290.6	339.8	324.5	15.29	22.229			
4,500.0	4,499.4	4,483.2	4,466.8	7.8	10.0	35.09	200.1	298.4	342.8	327.2	15.64	21.925			
4,600.0	4,598.9	4,583.1	4,566.3	8.0	10.2	35.93	205.5	306.2	344.5	328.5	15.99	21.547			
4,700.0	4,698.3	4,682.9	4,665.6	8.2	10.5	36.93	210.9	314.0	344.9	328.6	16.35	21.099			
4,800.0	4,797.4	4,782.6	4,764.9	8.4	10.7	38.12	216.3	321.8	344.0	327.3	16.71	20.585			
4,900.0	4,896.5	4,882.3	4,864.2	8.6	11.0	39.38	221.7	329.6	342.7	325.6	17.09	20.050			
5,000.0	4,995.5	4,982.0	4,963.4	8.8	11.2	40.65	227.0	337.4	341.5	324.1	17.48	19.541			
5,100.0	5,094.5	5,081.7	5,062.7	9.1	11.4	41.93	232.4	345.2	340.6	322.7	17.87	19.055			

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2E-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		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			
5,200.0	5,193.6	5,181.4	5,161.9	9.3	11.7	43.22	237.8	353.0	339.8	321.5	18.28	18.591		
5,300.0	5,292.6	5,281.1	5,261.2	9.5	11.9	44.51	243.2	360.8	339.1	320.4	18.69	18.149		
5,400.0	5,391.7	5,380.8	5,360.4	9.7	12.2	45.81	248.5	368.6	338.7	319.6	19.11	17.726		
5,500.0	5,490.7	5,480.5	5,459.7	10.0	12.4	47.11	253.9	376.4	338.4	318.9	19.53	17.323		
5,600.0	5,589.8	5,580.2	5,558.9	10.2	12.6	48.41	259.3	384.2	338.3	318.3	19.97	16.939		
5,610.2	5,599.8	5,590.4	5,569.0	10.2	12.7	48.54	259.8	385.0	338.3	318.3	20.02	16.901		
5,700.0	5,688.8	5,679.9	5,658.2	10.4	12.9	49.71	264.7	392.0	338.4	317.9	20.42	16.572		
5,800.0	5,787.9	5,779.6	5,757.4	10.7	13.1	51.01	270.1	399.8	338.6	317.7	20.87	16.222		
5,900.0	5,886.9	5,879.3	5,856.7	10.9	13.4	52.31	275.4	407.5	339.0	317.7	21.34	15.889		
6,000.0	5,986.0	5,979.0	5,955.9	11.2	13.6	53.60	280.8	415.3	339.6	317.8	21.81	15.572		
6,100.0	6,085.0	6,078.8	6,055.2	11.4	13.8	54.89	286.2	423.1	340.4	318.1	22.29	15.269		
6,200.0	6,184.1	6,178.5	6,154.4	11.7	14.1	56.17	291.6	430.9	341.3	318.5	22.78	14.982		
6,300.0	6,283.1	6,278.2	6,253.7	11.9	14.3	57.45	296.9	438.7	342.4	319.2	23.28	14.709		
6,400.0	6,382.2	6,377.9	6,352.9	12.2	14.6	58.71	302.3	446.5	343.7	319.9	23.79	14.449		
6,500.0	6,481.2	6,477.6	6,452.2	12.5	14.8	59.97	307.7	454.3	345.2	320.9	24.30	14.203		
6,600.0	6,580.3	6,577.3	6,551.4	12.7	15.0	61.21	313.1	462.1	346.8	322.0	24.82	13.970		
6,700.0	6,679.3	6,677.0	6,650.7	13.0	15.3	62.44	318.4	469.9	348.6	323.2	25.35	13.748		
6,800.0	6,778.4	6,778.9	6,752.2	13.2	15.4	64.77	317.3	477.9	350.2	324.3	25.90	13.520		
6,900.0	6,877.4	6,873.8	6,845.2	13.5	15.5	62.99	300.1	485.2	352.9	326.3	26.51	13.309		
7,000.0	6,977.2	6,962.3	6,928.2	13.6	15.5	47.62	270.5	491.7	358.7	331.7	26.94	13.315		
7,100.0	7,075.5	7,050.0	7,005.0	13.7	15.5	64.66	228.8	497.7	367.1	340.0	27.04	13.574		
7,200.0	7,169.5	7,128.4	7,067.6	13.6	15.4	65.07	182.0	502.6	377.0	350.2	26.81	14.062		
7,300.0	7,256.3	7,207.4	7,123.7	13.5	15.4	63.19	126.6	507.0	387.6	361.3	26.30	14.740		
7,400.0	7,333.2	7,284.6	7,170.6	13.4	15.5	61.03	65.6	510.7	397.9	372.3	25.61	15.538		
7,500.0	7,397.9	7,360.3	7,208.3	13.4	15.6	59.09	0.0	513.7	407.0	382.1	24.94	16.317		
7,600.0	7,448.4	7,434.9	7,236.7	13.6	15.8	57.57	68.9	515.9	414.4	389.9	24.50	16.913		
7,700.0	7,483.3	7,508.8	7,255.8	13.9	16.1	56.53	-140.2	517.4	419.7	395.1	24.54	17.103		
7,800.0	7,501.4	7,582.2	7,265.6	14.4	16.5	55.99	-212.9	518.2	422.4	397.2	25.22	16.752		
7,900.0	7,504.0	7,667.6	7,267.0	15.1	17.0	55.91	-298.3	518.3	422.8	396.4	26.48	15.970		
8,000.0	7,504.0	7,767.6	7,267.0	16.0	17.8	55.91	-398.3	518.3	422.8	394.9	27.97	15.117		
8,100.0	7,504.0	7,867.6	7,267.0	17.0	18.7	55.91	-498.3	518.3	422.8	393.2	29.67	14.250		
8,200.0	7,504.0	7,967.6	7,267.0	18.2	19.8	55.91	-598.3	518.3	422.8	391.3	31.55	13.401		
8,300.0	7,504.0	8,067.6	7,267.0	19.4	20.9	55.91	-698.3	518.3	422.8	389.3	33.58	12.592		
8,400.0	7,504.0	8,167.6	7,267.0	20.7	22.1	55.91	-798.3	518.3	422.8	387.1	35.73	11.835		
8,500.0	7,504.0	8,267.6	7,267.0	22.0	23.4	55.91	-898.3	518.3	422.8	384.9	37.98	11.133		
8,600.0	7,504.0	8,367.6	7,267.0	23.4	24.7	55.91	-998.3	518.3	422.8	382.5	40.32	10.487		
8,700.0	7,504.0	8,467.6	7,267.0	24.9	26.1	55.91	-1,098.3	518.3	422.8	380.1	42.73	9.896		
8,800.0	7,504.0	8,567.6	7,267.0	26.4	27.5	55.91	-1,198.3	518.3	422.8	377.6	45.19	9.356		
8,900.0	7,504.0	8,667.6	7,267.0	27.9	29.0	55.91	-1,298.3	518.3	422.8	375.1	47.71	8.862		
9,000.0	7,504.0	8,767.6	7,267.0	29.5	30.5	55.91	-1,398.3	518.3	422.8	372.6	50.27	8.411		
9,100.0	7,504.0	8,867.6	7,267.0	31.0	32.0	55.91	-1,498.3	518.3	422.8	370.0	52.87	7.998		
9,200.0	7,504.0	8,967.6	7,267.0	32.6	33.5	55.91	-1,598.3	518.3	422.8	367.3	55.50	7.619		
9,300.0	7,504.0	9,067.6	7,267.0	34.2	35.1	55.91	-1,698.3	518.3	422.8	364.7	58.16	7.271		
9,400.0	7,504.0	9,167.6	7,267.0	35.9	36.7	55.91	-1,798.3	518.3	422.8	362.0	60.83	6.951		
9,500.0	7,504.0	9,267.6	7,267.0	37.5	38.3	55.91	-1,898.3	518.3	422.8	359.3	63.53	6.655		
9,600.0	7,504.0	9,367.6	7,267.0	39.1	39.9	55.91	-1,998.3	518.3	422.8	356.6	66.25	6.382		
9,700.0	7,504.0	9,467.6	7,267.0	40.8	41.5	55.91	-2,098.3	518.3	422.8	353.9	68.99	6.129		
9,800.0	7,504.0	9,567.6	7,267.0	42.4	43.1	55.91	-2,198.3	518.3	422.8	351.1	71.74	5.894		
9,900.0	7,504.0	9,667.6	7,267.0	44.1	44.8	55.91	-2,298.3	518.3	422.8	348.3	74.50	5.676		
10,000.0	7,504.0	9,767.6	7,267.0	45.8	46.4	55.91	-2,398.3	518.3	422.8	345.6	77.27	5.472		
10,100.0	7,504.0	9,867.6	7,267.0	47.5	48.1	55.91	-2,498.3	518.3	422.8	342.8	80.05	5.282		
10,200.0	7,504.0	9,967.6	7,267.0	49.1	49.8	55.91	-2,598.3	518.3	422.8	340.0	82.84	5.104		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2E-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,300.0	7,504.0	10,067.6	7,267.0	50.8	51.4	-55.91	-2,698.3	518.3	422.8	337.2	85.64	4.937		
10,400.0	7,504.0	10,167.6	7,267.0	52.5	53.1	-55.91	-2,798.3	518.3	422.8	334.4	88.45	4.781		
10,500.0	7,504.0	10,267.6	7,267.0	54.2	54.8	-55.91	-2,898.3	518.3	422.8	331.6	91.26	4.633		
10,600.0	7,504.0	10,367.6	7,267.0	55.9	56.5	-55.91	-2,998.3	518.3	422.8	328.8	94.08	4.494		
10,700.0	7,504.0	10,467.6	7,267.0	57.6	58.1	-55.91	-3,098.3	518.3	422.8	325.9	96.91	4.363		
10,800.0	7,504.0	10,567.6	7,267.0	59.3	59.8	-55.91	-3,198.3	518.3	422.8	323.1	99.74	4.240		
10,900.0	7,504.0	10,667.6	7,267.0	61.0	61.5	-55.91	-3,298.3	518.3	422.8	320.3	102.57	4.122		
11,000.0	7,504.0	10,767.6	7,267.0	62.8	63.2	-55.91	-3,398.3	518.3	422.8	317.4	105.41	4.011		
11,100.0	7,504.0	10,867.6	7,267.0	64.5	64.9	-55.91	-3,498.3	518.3	422.8	314.6	108.25	3.906		
11,200.0	7,504.0	10,967.6	7,267.0	66.2	66.6	-55.91	-3,598.3	518.3	422.8	311.7	111.10	3.806		
11,300.0	7,504.0	11,067.6	7,267.0	67.9	68.3	-55.91	-3,698.3	518.3	422.8	308.9	113.95	3.711		
11,400.0	7,504.0	11,167.6	7,267.0	69.6	70.1	-55.91	-3,798.3	518.3	422.8	306.0	116.80	3.620		
11,500.0	7,504.0	11,267.6	7,267.0	71.3	71.8	-55.91	-3,898.3	518.3	422.8	303.2	119.66	3.534		
11,600.0	7,504.0	11,367.6	7,267.0	73.1	73.5	-55.91	-3,998.3	518.3	422.8	300.3	122.52	3.451		
11,700.0	7,504.0	11,467.6	7,267.0	74.8	75.2	-55.91	-4,098.3	518.3	422.8	297.5	125.38	3.373		
11,800.0	7,504.0	11,567.6	7,267.0	76.5	76.9	-55.91	-4,198.3	518.3	422.8	294.6	128.24	3.297		
11,900.0	7,504.0	11,667.6	7,267.0	78.2	78.6	-55.91	-4,298.3	518.3	422.8	291.7	131.11	3.225		
12,000.0	7,504.0	11,767.6	7,267.0	80.0	80.3	-55.91	-4,398.3	518.3	422.8	288.9	133.98	3.156		
12,045.8	7,504.0	11,813.5	7,267.0	80.8	81.1	-55.91	-4,444.1	518.3	422.8	287.6	135.29	3.125		
12,078.6	7,504.0	11,846.2	7,267.0	81.3	81.7	-55.91	-4,476.9	518.3	422.8	286.6	136.23	3.104 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2F-31H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	19.6	19.6						
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	19.6	19.6	19.3	0.30	64.562			
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	19.6	19.6	19.0	0.65	30.037			
300.0	300.0	300.0	300.0	0.5	0.5	90.05	0.0	19.6	19.6	18.6	1.00	19.571			
400.0	400.0	400.0	400.0	0.7	0.7	90.05	0.0	19.6	19.6	18.3	1.35	14.514			
500.0	500.0	500.0	500.0	0.8	0.8	90.05	0.0	19.6	19.6	17.9	1.70	11.534 CC, ES			
600.0	600.0	599.7	599.7	1.0	1.0	89.18	0.3	20.4	20.4	18.4	2.05	9.969			
700.0	700.0	699.3	699.2	1.2	1.2	86.95	1.2	22.8	22.9	20.5	2.40	9.550 SF			
800.0	800.0	798.8	798.6	1.4	1.4	84.14	2.8	26.9	27.1	24.3	2.75	9.857			
900.0	900.0	898.1	897.8	1.5	1.6	81.41	4.9	32.5	33.0	29.9	3.09	10.655			
1,000.0	1,000.0	997.2	996.5	1.7	1.8	79.08	7.7	39.7	40.6	37.2	3.44	11.799			
1,100.0	1,100.0	1,095.9	1,094.9	1.9	2.0	77.20	11.0	48.5	50.0	46.2	3.79	13.188			
1,200.0	1,200.0	1,194.4	1,192.7	2.1	2.2	75.74	15.0	58.9	61.2	57.0	4.15	14.754			
1,300.0	1,300.0	1,292.4	1,289.8	2.2	2.5	74.59	19.5	70.7	74.0	69.5	4.50	16.448			
1,400.0	1,400.0	1,390.3	1,386.7	2.4	2.8	73.70	24.6	84.0	88.6	83.7	4.86	18.223			
1,500.0	1,500.0	1,489.2	1,484.5	2.6	3.0	73.04	29.9	97.9	103.6	98.3	5.22	19.830			
1,600.0	1,600.0	1,588.0	1,582.2	2.8	3.3	72.54	35.2	111.8	118.6	113.0	5.59	21.225			
1,700.0	1,700.0	1,686.9	1,679.9	2.9	3.6	72.15	40.5	125.7	133.6	127.6	5.95	22.446			
1,800.0	1,800.0	1,785.7	1,777.7	3.1	3.9	71.85	45.8	139.6	148.6	142.3	6.32	23.522			
1,900.0	1,900.0	1,884.6	1,875.4	3.3	4.2	71.59	51.1	153.5	163.6	156.9	6.69	24.477			
2,000.0	2,000.0	1,983.5	1,973.2	3.5	4.5	71.39	56.4	167.4	178.7	171.6	7.05	25.331			
2,100.0	2,100.0	2,082.3	2,070.9	3.6	4.8	71.21	61.7	181.3	193.7	186.3	7.42	26.097			
2,200.0	2,200.0	2,181.2	2,168.6	3.8	5.1	71.06	67.0	195.2	208.7	200.9	7.79	26.790			
2,300.0	2,300.0	2,280.1	2,266.4	4.0	5.4	70.93	72.3	209.1	223.7	215.6	8.16	27.418			
2,400.0	2,400.0	2,378.9	2,364.1	4.2	5.7	70.81	77.6	223.0	238.8	230.3	8.53	27.990			
2,500.0	2,500.0	2,477.8	2,461.8	4.3	6.0	70.71	82.9	236.8	253.8	244.9	8.90	28.514			
2,600.0	2,600.0	2,576.6	2,559.6	4.5	6.3	70.62	88.2	250.7	268.8	259.6	9.27	28.995			
2,700.0	2,700.0	2,675.5	2,657.3	4.7	6.6	70.54	93.5	264.6	283.9	274.2	9.64	29.439			
2,800.0	2,800.0	2,774.4	2,755.1	4.9	6.9	70.47	98.8	278.5	298.9	288.9	10.01	29.848			
2,900.0	2,900.0	2,873.2	2,852.8	5.0	7.3	70.41	104.1	292.4	314.0	303.6	10.39	30.228			
3,000.0	3,000.0	2,972.1	2,950.5	5.2	7.6	70.35	109.4	306.3	329.0	318.2	10.76	30.581			
3,100.0	3,100.0	3,071.0	3,048.3	5.4	7.9	70.29	114.7	320.2	344.0	332.9	11.13	30.910			
3,200.0	3,200.0	3,169.8	3,146.0	5.6	8.2	70.24	120.0	334.1	359.1	347.6	11.50	31.217			
3,300.0	3,300.0	3,268.7	3,243.8	5.7	8.5	70.20	125.3	348.0	374.1	362.2	11.87	31.505			
3,400.0	3,400.0	3,367.5	3,341.5	5.9	8.8	70.16	130.6	361.9	389.1	376.9	12.25	31.775			
3,500.0	3,500.0	3,466.4	3,439.2	6.1	9.1	70.12	135.9	375.8	404.2	391.5	12.62	32.029			
3,600.0	3,600.0	3,565.3	3,537.0	6.3	9.4	70.08	141.2	389.6	419.2	406.2	12.99	32.267			
3,700.0	3,700.0	3,664.1	3,634.7	6.4	9.7	70.05	146.5	403.5	434.2	420.9	13.36	32.493			
3,800.0	3,800.0	3,763.0	3,732.4	6.6	10.0	70.02	151.8	417.4	449.3	435.5	13.74	32.706			
3,900.0	3,900.0	3,861.9	3,830.2	6.8	10.4	69.99	157.1	431.3	464.3	450.2	14.11	32.907			
4,000.0	4,000.0	3,960.7	3,927.9	7.0	10.7	69.96	162.4	445.2	479.4	464.9	14.48	33.098			
4,100.0	4,100.0	4,059.7	4,025.7	7.1	11.0	47.00	167.7	459.1	493.8	479.6	14.18	34.816			

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2D-31H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5020.0ft (Original Well Elev)
Reference Site:	S31-T1N-R65W (Lochbuie)	MD Reference:	WELL @ 5020.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lochbuie 2D-31H	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 S31-T1N-R65W (Lochbuie) - Lochbuie 2G-31H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	28.0	28.0					
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	28.0	28.0	27.7	0.30	92.232		
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	28.0	28.0	27.4	0.65	42.910 CC, ES		
300.0	300.0	299.5	299.5	0.5	0.5	89.55	0.2	28.8	28.8	27.8	1.00	28.813		
400.0	400.0	399.0	398.9	0.7	0.7	88.22	1.0	31.3	31.4	30.0	1.35	23.235		
500.0	500.0	498.3	498.2	0.8	0.9	86.42	2.2	35.4	35.6	33.9	1.70	20.946		
600.0	600.0	597.5	597.2	1.0	1.1	84.51	4.0	41.2	41.5	39.4	2.05	20.274 SF		
700.0	700.0	696.4	695.8	1.2	1.3	82.75	6.2	48.6	49.2	46.8	2.40	20.513		
800.0	800.0	795.1	794.0	1.4	1.5	81.22	8.9	57.6	58.6	55.8	2.75	21.310		
900.0	900.0	893.3	891.6	1.5	1.8	79.94	12.1	68.1	69.7	66.6	3.10	22.465		
1,000.0	1,000.0	991.2	988.7	1.7	2.0	78.90	15.7	80.2	82.5	79.1	3.46	23.861		
1,100.0	1,100.0	1,088.6	1,085.1	1.9	2.3	78.06	19.8	93.8	97.1	93.3	3.82	25.418		
1,200.0	1,200.0	1,185.5	1,180.7	2.1	2.6	77.38	24.4	109.0	113.3	109.1	4.18	27.086		
1,300.0	1,300.0	1,281.9	1,275.5	2.2	3.0	76.82	29.4	125.5	131.2	126.7	4.55	28.832		
1,400.0	1,400.0	1,380.1	1,372.0	2.4	3.3	76.37	34.7	143.1	149.9	145.0	4.93	30.434		
1,500.0	1,500.0	1,478.4	1,468.5	2.6	3.7	76.01	40.0	160.7	168.6	163.3	5.30	31.802		
1,600.0	1,600.0	1,576.6	1,565.0	2.8	4.0	75.73	45.3	178.3	187.3	181.6	5.68	32.980		
1,700.0	1,700.0	1,674.8	1,661.5	2.9	4.4	75.50	50.7	195.9	206.0	199.9	6.06	34.005		
1,800.0	1,800.0	1,773.1	1,758.0	3.1	4.7	75.31	56.0	213.5	224.7	218.3	6.44	34.904		
1,900.0	1,900.0	1,871.3	1,854.5	3.3	5.1	75.15	61.3	231.1	243.4	236.6	6.82	35.699		
2,000.0	2,000.0	1,969.5	1,951.0	3.5	5.4	75.01	66.6	248.7	262.1	254.9	7.20	36.407		
2,100.0	2,100.0	2,067.8	2,047.4	3.6	5.8	74.89	71.9	266.3	280.8	273.3	7.58	37.041		
2,200.0	2,200.0	2,166.0	2,143.9	3.8	6.2	74.79	77.2	284.0	299.6	291.6	7.96	37.611		
2,300.0	2,300.0	2,264.2	2,240.4	4.0	6.5	74.69	82.5	301.6	318.3	309.9	8.35	38.128		
2,400.0	2,400.0	2,362.5	2,336.9	4.2	6.9	74.61	87.8	319.2	337.0	328.3	8.73	38.598		
2,500.0	2,500.0	2,460.7	2,433.4	4.3	7.3	74.54	93.2	336.8	355.7	346.6	9.11	39.027		
2,600.0	2,600.0	2,558.9	2,529.9	4.5	7.6	74.47	98.5	354.4	374.4	364.9	9.50	39.420		
2,700.0	2,700.0	2,657.1	2,626.4	4.7	8.0	74.41	103.8	372.0	393.1	383.3	9.88	39.782		
2,800.0	2,800.0	2,755.4	2,722.9	4.9	8.4	74.36	109.1	389.6	411.9	401.6	10.27	40.115		
2,900.0	2,900.0	2,853.6	2,819.4	5.0	8.7	74.31	114.4	407.2	430.6	419.9	10.65	40.424		
3,000.0	3,000.0	2,951.8	2,915.9	5.2	9.1	74.26	119.7	424.8	449.3	438.3	11.04	40.711		
3,100.0	3,100.0	3,050.1	3,012.4	5.4	9.4	74.22	125.0	442.4	468.0	456.6	11.42	40.978		
3,200.0	3,200.0	3,148.3	3,108.9	5.6	9.8	74.18	130.4	460.0	486.7	474.9	11.81	41.227		

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Reference Depths are relative to WELL @ 5020.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Lochbuie 2D-31H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.51°

