

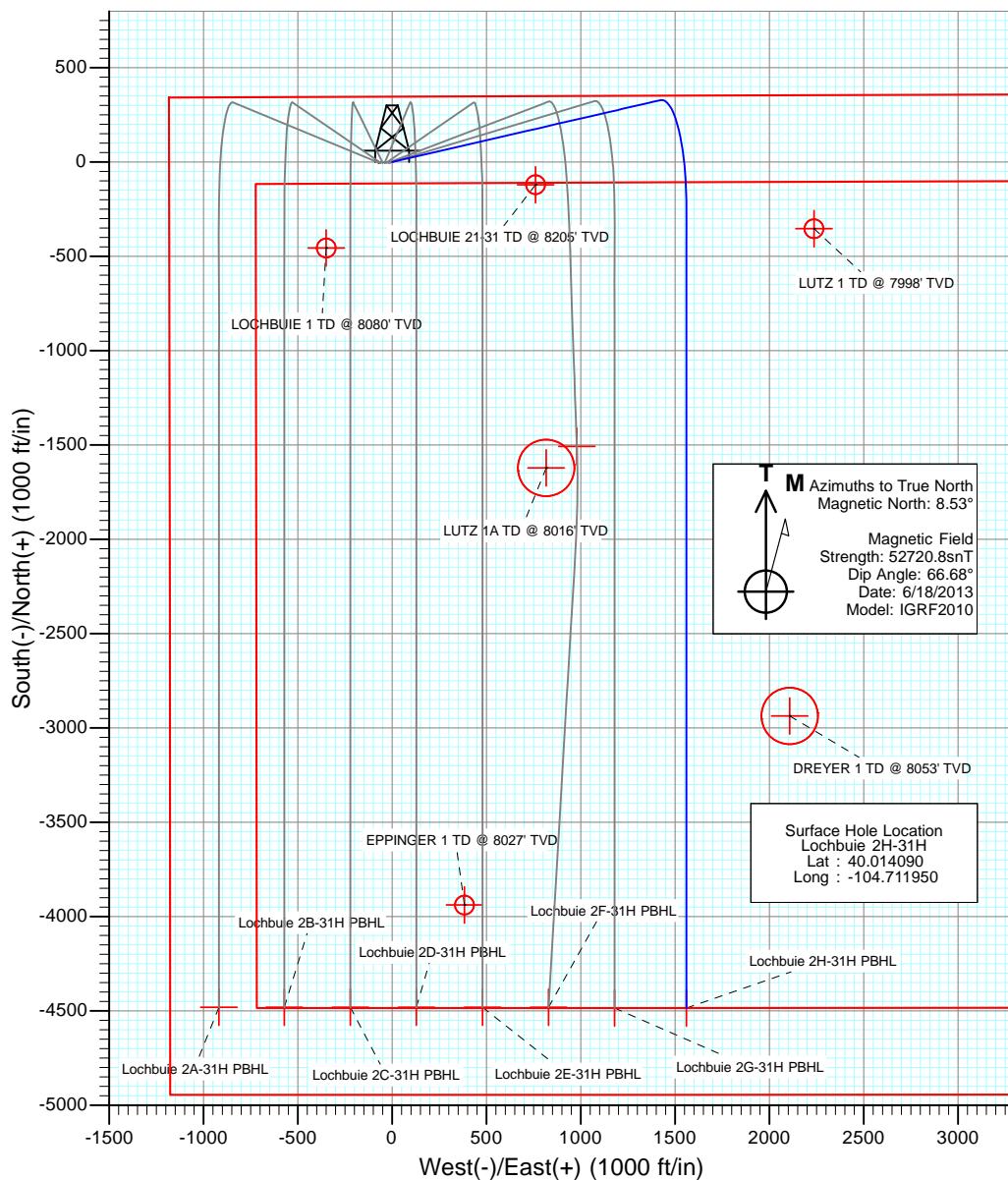
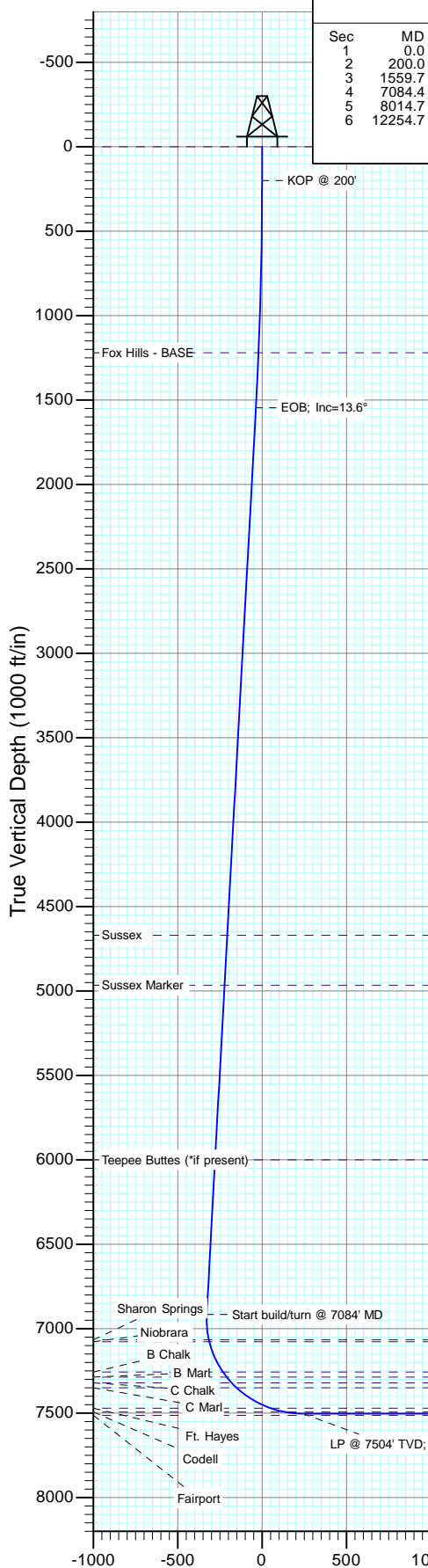


Project: DJ Wattenberg
Site: S31-T1N-R65W (Lochbuie)
Well: Lochbuie 2H-31H
Wellbore: Hz
Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		KOP @ 200'
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0		EOB; Inc=13.6°
3	1559.7	13.60	77.01	1547.0	36.1	156.5	1.00	77.01	-36.1		Start build/turn @ 7084' MD
4	7084.4	13.60	77.01	6916.9	328.0	1422.0	0.00	0.00	-328.0		LP @ 7504' TVD; 90°
5	8014.7	90.00	180.00	7504.0	-244.2	1560.4	10.00	102.64	244.2	Lochbuie 2H-31H PBHL	TD at 12254.7
6	12254.7	90.00	180.00	7504.0	-4484.2	1560.4	0.00	0.00	4484.2		



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lochbuie 2H-31H PBHL	-4484.2	1560.4	1244492.62	3222333.17	40.001780	-104.706380

TD at 12254.7
Lochbuie 2H-31H PBHL

Vertical Section at 180.00° (1000 ft/in)

Plan #1
Lochbuie 2H-31H
13xxx; LR
WELL @ 5020.0ft (Original Well Elev)
Ground Elevation @ 5007.0
North American Datum 1983
Well Lochbuie 2H-31H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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 2H-31H					
Well Position	+N/-S	0.0 ft	Northing:	1,248,962.74 ft	Latitude:	40.014090
	+E/-W	0.0 ft	Easting:	3,220,732.96 ft	Longitude:	-104.711950
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	6/18/2013	8.53	66.68	52,721

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	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	
1,559.7	13.60	77.01	1,547.0	36.1	156.5	1.00	1.00	0.00	77.01	
7,084.4	13.60	77.01	6,916.9	328.0	1,422.0	0.00	0.00	0.00	0.00	
8,014.7	90.00	180.00	7,504.0	-244.2	1,560.4	10.00	8.21	11.07	102.64	
12,254.7	90.00	180.00	7,504.0	-4,484.2	1,560.4	0.00	0.00	0.00	0.00	Lochbuie 2H-31H PBI

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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	KOP @ 200'
300.0	1.00	77.01	300.0	0.2	0.9	-0.2	1.00	1.00	
400.0	2.00	77.01	400.0	0.8	3.4	-0.8	1.00	1.00	
500.0	3.00	77.01	499.9	1.8	7.7	-1.8	1.00	1.00	
600.0	4.00	77.01	599.7	3.1	13.6	-3.1	1.00	1.00	
700.0	5.00	77.01	699.4	4.9	21.2	-4.9	1.00	1.00	
800.0	6.00	77.01	798.9	7.1	30.6	-7.1	1.00	1.00	
900.0	7.00	77.01	898.3	9.6	41.6	-9.6	1.00	1.00	
1,000.0	8.00	77.01	997.4	12.5	54.3	-12.5	1.00	1.00	
1,100.0	9.00	77.01	1,096.3	15.9	68.7	-15.9	1.00	1.00	
1,200.0	10.00	77.01	1,194.9	19.6	84.8	-19.6	1.00	1.00	
1,225.5	10.25	77.01	1,220.0	20.6	89.2	-20.6	1.00	1.00	Fox Hills - BASE
1,300.0	11.00	77.01	1,293.3	23.7	102.6	-23.7	1.00	1.00	
1,400.0	12.00	77.01	1,391.2	28.1	122.0	-28.1	1.00	1.00	
1,500.0	13.00	77.01	1,488.9	33.0	143.1	-33.0	1.00	1.00	
1,559.7	13.60	77.01	1,547.0	36.1	156.5	-36.1	1.00	1.00	EOB; Inc=13.6°
1,600.0	13.60	77.01	1,586.1	38.2	165.7	-38.2	0.00	0.00	
1,700.0	13.60	77.01	1,683.3	43.5	188.6	-43.5	0.00	0.00	
1,800.0	13.60	77.01	1,780.5	48.8	211.5	-48.8	0.00	0.00	
1,900.0	13.60	77.01	1,877.7	54.1	234.4	-54.1	0.00	0.00	
2,000.0	13.60	77.01	1,974.9	59.4	257.3	-59.4	0.00	0.00	
2,100.0	13.60	77.01	2,072.1	64.6	280.2	-64.6	0.00	0.00	
2,200.0	13.60	77.01	2,169.3	69.9	303.1	-69.9	0.00	0.00	
2,300.0	13.60	77.01	2,266.5	75.2	326.1	-75.2	0.00	0.00	
2,400.0	13.60	77.01	2,363.7	80.5	349.0	-80.5	0.00	0.00	
2,500.0	13.60	77.01	2,460.9	85.8	371.9	-85.8	0.00	0.00	
2,600.0	13.60	77.01	2,558.1	91.1	394.8	-91.1	0.00	0.00	
2,700.0	13.60	77.01	2,655.3	96.3	417.7	-96.3	0.00	0.00	
2,800.0	13.60	77.01	2,752.5	101.6	440.6	-101.6	0.00	0.00	
2,900.0	13.60	77.01	2,849.7	106.9	463.5	-106.9	0.00	0.00	
3,000.0	13.60	77.01	2,946.9	112.2	486.4	-112.2	0.00	0.00	
3,100.0	13.60	77.01	3,044.1	117.5	509.3	-117.5	0.00	0.00	
3,200.0	13.60	77.01	3,141.3	122.8	532.2	-122.8	0.00	0.00	
3,300.0	13.60	77.01	3,238.5	128.0	555.1	-128.0	0.00	0.00	
3,400.0	13.60	77.01	3,335.7	133.3	578.0	-133.3	0.00	0.00	
3,500.0	13.60	77.01	3,432.9	138.6	600.9	-138.6	0.00	0.00	
3,600.0	13.60	77.01	3,530.1	143.9	623.9	-143.9	0.00	0.00	
3,700.0	13.60	77.01	3,627.3	149.2	646.8	-149.2	0.00	0.00	
3,800.0	13.60	77.01	3,724.5	154.5	669.7	-154.5	0.00	0.00	
3,900.0	13.60	77.01	3,821.7	159.7	692.6	-159.7	0.00	0.00	
4,000.0	13.60	77.01	3,918.9	165.0	715.5	-165.0	0.00	0.00	
4,100.0	13.60	77.01	4,016.1	170.3	738.4	-170.3	0.00	0.00	
4,200.0	13.60	77.01	4,113.3	175.6	761.3	-175.6	0.00	0.00	
4,300.0	13.60	77.01	4,210.5	180.9	784.2	-180.9	0.00	0.00	
4,400.0	13.60	77.01	4,307.7	186.2	807.1	-186.2	0.00	0.00	
4,500.0	13.60	77.01	4,404.9	191.4	830.0	-191.4	0.00	0.00	
4,600.0	13.60	77.01	4,502.1	196.7	852.9	-196.7	0.00	0.00	
4,700.0	13.60	77.01	4,599.3	202.0	875.8	-202.0	0.00	0.00	
4,772.8	13.60	77.01	4,670.0	205.9	892.5	-205.9	0.00	0.00	Sussex
4,800.0	13.60	77.01	4,696.5	207.3	898.7	-207.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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	13.60	77.01	4,793.7	212.6	921.6	-212.6	0.00	0.00	
5,000.0	13.60	77.01	4,890.9	217.9	944.6	-217.9	0.00	0.00	
5,077.3	13.60	77.01	4,966.0	221.9	962.3	-221.9	0.00	0.00	Sussex Marker
5,100.0	13.60	77.01	4,988.1	223.1	967.5	-223.1	0.00	0.00	
5,200.0	13.60	77.01	5,085.3	228.4	990.4	-228.4	0.00	0.00	
5,300.0	13.60	77.01	5,182.4	233.7	1,013.3	-233.7	0.00	0.00	
5,400.0	13.60	77.01	5,279.6	239.0	1,036.2	-239.0	0.00	0.00	
5,500.0	13.60	77.01	5,376.8	244.3	1,059.1	-244.3	0.00	0.00	
5,600.0	13.60	77.01	5,474.0	249.6	1,082.0	-249.6	0.00	0.00	
5,700.0	13.60	77.01	5,571.2	254.8	1,104.9	-254.8	0.00	0.00	
5,800.0	13.60	77.01	5,668.4	260.1	1,127.8	-260.1	0.00	0.00	
5,900.0	13.60	77.01	5,765.6	265.4	1,150.7	-265.4	0.00	0.00	
6,000.0	13.60	77.01	5,862.8	270.7	1,173.6	-270.7	0.00	0.00	
6,100.0	13.60	77.01	5,960.0	276.0	1,196.5	-276.0	0.00	0.00	
6,141.1	13.60	77.01	6,000.0	278.2	1,206.0	-278.2	0.00	0.00	Teepee Buttes (*if present)
6,200.0	13.60	77.01	6,057.2	281.3	1,219.4	-281.3	0.00	0.00	
6,300.0	13.60	77.01	6,154.4	286.5	1,242.4	-286.5	0.00	0.00	
6,400.0	13.60	77.01	6,251.6	291.8	1,265.3	-291.8	0.00	0.00	
6,500.0	13.60	77.01	6,348.8	297.1	1,288.2	-297.1	0.00	0.00	
6,600.0	13.60	77.01	6,446.0	302.4	1,311.1	-302.4	0.00	0.00	
6,700.0	13.60	77.01	6,543.2	307.7	1,334.0	-307.7	0.00	0.00	
6,800.0	13.60	77.01	6,640.4	313.0	1,356.9	-313.0	0.00	0.00	
6,900.0	13.60	77.01	6,737.6	318.2	1,379.8	-318.2	0.00	0.00	
7,000.0	13.60	77.01	6,834.8	323.5	1,402.7	-323.5	0.00	0.00	
7,084.4	13.60	77.01	6,916.9	328.0	1,422.0	-328.0	0.00	0.00	Start build/turn @ 7084' MD
7,100.0	13.34	83.62	6,932.0	328.6	1,425.6	-328.6	10.00	-1.64	
7,200.0	15.73	123.18	7,029.0	322.5	1,448.5	-322.5	10.00	2.38	
7,238.6	18.07	133.77	7,066.0	315.4	1,457.2	-315.4	10.00	6.08	Sharon Springs
7,251.3	18.95	136.65	7,078.0	312.6	1,460.0	-312.6	10.00	6.91	Niobrara
7,300.0	22.65	145.61	7,123.5	299.1	1,470.8	-299.1	10.00	7.60	
7,400.0	31.22	157.12	7,212.7	259.2	1,491.8	-259.2	10.00	8.57	
7,453.3	36.07	161.12	7,257.0	231.6	1,502.2	-231.6	10.00	9.10	B Chalk
7,491.2	39.59	163.44	7,287.0	209.5	1,509.3	-209.5	10.00	9.27	B Marl
7,500.0	40.41	163.93	7,293.7	204.1	1,510.9	-204.1	10.00	9.34	
7,536.8	43.87	165.81	7,321.0	180.2	1,517.3	-180.2	10.00	9.40	C Chalk
7,578.4	47.81	167.67	7,350.0	151.1	1,524.1	-151.1	10.00	9.47	C Marl
7,600.0	49.87	168.54	7,364.2	135.3	1,527.5	-135.3	10.00	9.52	
7,700.0	59.46	172.01	7,422.0	55.0	1,541.1	-55.0	10.00	9.59	
7,800.0	69.13	174.84	7,465.3	-34.5	1,551.3	34.5	10.00	9.67	
7,816.6	70.74	175.28	7,471.0	-50.0	1,552.6	50.0	10.00	9.70	Ft. Hayes
7,900.0	78.84	177.33	7,492.9	-130.2	1,557.8	130.2	10.00	9.71	
7,906.0	79.43	177.48	7,494.0	-136.1	1,558.1	136.1	10.00	9.72	Codell
8,000.0	88.57	179.66	7,503.8	-229.5	1,560.4	229.5	10.00	9.73	
8,014.7	90.00	180.00	7,504.0	-244.2	1,560.4	244.2	10.00	9.73	LP @ 7504' TVD; 90°
8,100.0	90.00	180.00	7,504.0	-329.5	1,560.4	329.5	0.00	0.00	
8,200.0	90.00	180.00	7,504.0	-429.5	1,560.4	429.5	0.00	0.00	
8,300.0	90.00	180.00	7,504.0	-529.5	1,560.4	529.5	0.00	0.00	
8,400.0	90.00	180.00	7,504.0	-629.5	1,560.4	629.5	0.00	0.00	
8,500.0	90.00	180.00	7,504.0	-729.5	1,560.4	729.5	0.00	0.00	
8,600.0	90.00	180.00	7,504.0	-829.5	1,560.4	829.5	0.00	0.00	
8,700.0	90.00	180.00	7,504.0	-929.5	1,560.4	929.5	0.00	0.00	
8,800.0	90.00	180.00	7,504.0	-1,029.5	1,560.4	1,029.5	0.00	0.00	

Planning Report

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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 2H-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	-1,129.5	1,560.4	1,129.5	0.00	0.00	
9,000.0	90.00	180.00	7,504.0	-1,229.5	1,560.4	1,229.5	0.00	0.00	
9,100.0	90.00	180.00	7,504.0	-1,329.5	1,560.4	1,329.5	0.00	0.00	
9,200.0	90.00	180.00	7,504.0	-1,429.5	1,560.4	1,429.5	0.00	0.00	
9,300.0	90.00	180.00	7,504.0	-1,529.5	1,560.4	1,529.5	0.00	0.00	
9,400.0	90.00	180.00	7,504.0	-1,629.5	1,560.4	1,629.5	0.00	0.00	
9,500.0	90.00	180.00	7,504.0	-1,729.5	1,560.4	1,729.5	0.00	0.00	
9,600.0	90.00	180.00	7,504.0	-1,829.5	1,560.4	1,829.5	0.00	0.00	
9,700.0	90.00	180.00	7,504.0	-1,929.5	1,560.4	1,929.5	0.00	0.00	
9,800.0	90.00	180.00	7,504.0	-2,029.5	1,560.4	2,029.5	0.00	0.00	
9,900.0	90.00	180.00	7,504.0	-2,129.5	1,560.4	2,129.5	0.00	0.00	
10,000.0	90.00	180.00	7,504.0	-2,229.5	1,560.4	2,229.5	0.00	0.00	
10,100.0	90.00	180.00	7,504.0	-2,329.5	1,560.4	2,329.5	0.00	0.00	
10,200.0	90.00	180.00	7,504.0	-2,429.5	1,560.4	2,429.5	0.00	0.00	
10,300.0	90.00	180.00	7,504.0	-2,529.5	1,560.4	2,529.5	0.00	0.00	
10,400.0	90.00	180.00	7,504.0	-2,629.5	1,560.4	2,629.5	0.00	0.00	
10,500.0	90.00	180.00	7,504.0	-2,729.5	1,560.4	2,729.5	0.00	0.00	
10,600.0	90.00	180.00	7,504.0	-2,829.5	1,560.4	2,829.5	0.00	0.00	
10,700.0	90.00	180.00	7,504.0	-2,929.5	1,560.4	2,929.5	0.00	0.00	
10,800.0	90.00	180.00	7,504.0	-3,029.5	1,560.4	3,029.5	0.00	0.00	
10,900.0	90.00	180.00	7,504.0	-3,129.5	1,560.4	3,129.5	0.00	0.00	
11,000.0	90.00	180.00	7,504.0	-3,229.5	1,560.4	3,229.5	0.00	0.00	
11,100.0	90.00	180.00	7,504.0	-3,329.5	1,560.4	3,329.5	0.00	0.00	
11,200.0	90.00	180.00	7,504.0	-3,429.5	1,560.4	3,429.5	0.00	0.00	
11,300.0	90.00	180.00	7,504.0	-3,529.5	1,560.4	3,529.5	0.00	0.00	
11,400.0	90.00	180.00	7,504.0	-3,629.5	1,560.4	3,629.5	0.00	0.00	
11,500.0	90.00	180.00	7,504.0	-3,729.5	1,560.4	3,729.5	0.00	0.00	
11,600.0	90.00	180.00	7,504.0	-3,829.5	1,560.4	3,829.5	0.00	0.00	
11,700.0	90.00	180.00	7,504.0	-3,929.5	1,560.4	3,929.5	0.00	0.00	
11,800.0	90.00	180.00	7,504.0	-4,029.5	1,560.4	4,029.5	0.00	0.00	
11,900.0	90.00	180.00	7,504.0	-4,129.5	1,560.4	4,129.5	0.00	0.00	
12,000.0	90.00	180.00	7,504.0	-4,229.5	1,560.4	4,229.5	0.00	0.00	
12,100.0	90.00	180.00	7,504.0	-4,329.5	1,560.4	4,329.5	0.00	0.00	
12,200.0	90.00	180.00	7,504.0	-4,429.5	1,560.4	4,429.5	0.00	0.00	
12,254.7	90.00	180.00	7,504.0	-4,484.2	1,560.4	4,484.2	0.00	0.00	TD at 12254.7

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lochbuie 2H-31H PBHL	0.00	0.00	7,504.0	-4,484.2	1,560.4	1,244,492.62	3,222,333.17	40.001780	-104.706380
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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				
1,225.5	1,220.0	Fox Hills - BASE				
4,772.8	4,670.0	Sussex				
5,077.3	4,966.0	Sussex Marker				
6,141.1	6,000.0	Teepee Buttes (*if present)				
7,238.6	7,066.0	Sharon Springs				
7,251.3	7,078.0	Niobrara				
7,453.3	7,257.0	B Chalk				
7,491.2	7,287.0	B Marl				
7,536.8	7,321.0	C Chalk				
7,578.4	7,350.0	C Marl				
7,816.6	7,471.0	Ft. Hayes				
7,906.0	7,494.0	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP @ 200'	
1,559.7	1,547.0	36.1	156.5	EOB; Inc=13.6°	
7,084.4	6,916.9	328.0	1,422.0	Start build/turn @ 7084' MD	
8,014.7	7,504.0	-244.2	1,560.4	LP @ 7504' TVD; 90°	
12,254.7	7,504.0	-4,484.2	1,560.4	TD at 12254.7	

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S31-T1N-R65W (Lochbuie)

Lochbuie 2H-31H

Hz

Plan #1

Anticollision Report

18 June, 2013

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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	6/18/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,254.7	Plan #1 (Hz)	Geolink 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
S31-T1N-R65W (Lochbuie)						
DREYER 1 (EXISTING) - VESSELS WELL - NO SURVE						Out of range
EPPINGER 1 (EXISTING) - ENCANA WELL - NO SURV						Out of range
LOCHBUIE 1 (EXISTING) - ENCANA WELL - NO SURV						Out of range
LOCHBUIE 21-31 (EXISTING) - ENCANA WELL - NO SU	3,913.8	3,810.1	288.0	266.8	13.538	CC, ES
LOCHBUIE 21-31 (EXISTING) - ENCANA WELL - NO SU	4,200.0	4,088.3	295.8	273.0	13.005	SF
Lochbuie 2A-31H - Hz - Plan #1	166.3	167.3	70.1	69.6	130.582	CC
Lochbuie 2A-31H - Hz - Plan #1	200.0	201.0	70.1	69.5	107.135	ES
Lochbuie 2A-31H - Hz - Plan #1	700.0	692.2	111.1	108.7	46.404	SF
Lochbuie 2B-31H - Hz - Plan #1	200.0	200.0	61.7	61.1	94.567	CC, ES
Lochbuie 2B-31H - Hz - Plan #1	700.0	694.4	94.2	91.8	39.263	SF
Lochbuie 2C-31H - Hz - Plan #1	200.0	200.0	50.5	49.9	77.441	CC, ES
Lochbuie 2C-31H - Hz - Plan #1	700.0	697.9	75.1	72.7	31.222	SF
Lochbuie 2D-31H - Hz - Plan #1	200.0	200.0	39.4	38.7	60.336	CC, ES
Lochbuie 2D-31H - Hz - Plan #1	700.0	699.4	61.1	58.7	25.512	SF
Lochbuie 2E-31H - Hz - Plan #1	200.0	200.0	31.0	30.4	47.535	CC, ES
Lochbuie 2E-31H - Hz - Plan #1	1,100.0	1,103.3	73.9	70.1	19.272	SF
Lochbuie 2F-31H - Hz - Plan #1	200.0	200.0	19.9	19.3	30.562	CC, ES
Lochbuie 2F-31H - Hz - Plan #1	1,400.0	1,406.0	76.0	71.2	15.596	SF
Lochbuie 2G-31H - Hz - Plan #1	625.1	626.0	11.7	9.6	5.498	CC
Lochbuie 2G-31H - Hz - Plan #1	1,200.0	1,202.0	12.7	8.3	2.910	ES
Lochbuie 2G-31H - Hz - Plan #1	1,300.0	1,302.2	13.2	8.3	2.706	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 2H-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 2H-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 21-31 (EXISTING) - ENCANA WELL - NO SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 8205-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		
2,200.0	2,169.3	2,144.3	2,144.3	6.9	3.7	36.34	-120.2	760.5	495.3	486.5	8.81	56.238		
2,300.0	2,266.5	2,241.5	2,241.5	7.3	3.9	37.99	-120.2	760.5	476.3	467.0	9.37	50.835		
2,400.0	2,363.7	2,338.7	2,338.7	7.8	4.1	39.78	-120.2	760.5	457.8	447.9	9.96	45.973		
2,500.0	2,460.9	2,435.9	2,435.9	8.2	4.3	41.72	-120.2	760.5	439.8	429.2	10.57	41.594		
2,600.0	2,558.1	2,533.1	2,533.1	8.7	4.4	43.82	-120.2	760.5	422.3	411.1	11.22	37.649		
2,700.0	2,655.3	2,630.3	2,630.3	9.1	4.6	46.08	-120.2	760.5	405.4	393.6	11.89	34.097		
2,800.0	2,752.5	2,727.5	2,727.5	9.6	4.8	48.54	-120.2	760.5	389.3	376.7	12.60	30.906		
2,900.0	2,849.7	2,824.7	2,824.7	10.0	4.9	51.19	-120.2	760.5	373.9	360.5	13.33	28.046		
3,000.0	2,946.9	2,921.9	2,921.9	10.5	5.1	54.06	-120.2	760.5	359.3	345.2	14.09	25.494		
3,100.0	3,044.1	3,019.1	3,019.1	10.9	5.3	57.16	-120.2	760.5	345.8	330.9	14.89	23.228		
3,200.0	3,141.3	3,116.3	3,116.3	11.4	5.4	60.48	-120.2	760.5	333.3	317.6	15.70	21.231		
3,300.0	3,238.5	3,213.5	3,213.5	11.8	5.6	64.04	-120.2	760.5	322.2	305.6	16.53	19.488		
3,400.0	3,335.7	3,310.7	3,310.7	12.3	5.8	67.83	-120.2	760.5	312.3	295.0	17.37	17.983		
3,500.0	3,432.9	3,407.9	3,407.9	12.8	5.9	71.83	-120.2	760.5	304.0	285.8	18.20	16.704		
3,600.0	3,530.1	3,505.1	3,505.1	13.2	6.1	76.02	-120.2	760.5	297.3	278.3	19.01	15.638		
3,700.0	3,627.3	3,602.3	3,602.3	13.7	6.3	80.37	-120.2	760.5	292.4	272.6	19.79	14.773		
3,800.0	3,724.5	3,699.5	3,699.5	14.1	6.5	84.84	-120.2	760.5	289.3	268.8	20.52	14.096		
3,900.0	3,821.7	3,796.7	3,796.7	14.6	6.6	89.37	-120.2	760.5	288.1	266.9	21.19	13.594		
3,913.8	3,835.1	3,810.1	3,810.1	14.6	6.6	90.00	-120.2	760.5	288.0	266.8	21.28	13.538 CC, ES		
4,000.0	3,918.9	3,893.9	3,893.9	15.0	6.8	93.91	-120.2	760.5	288.7	267.0	21.79	13.254		
4,100.0	4,016.1	3,991.1	3,991.1	15.5	7.0	98.40	-120.2	760.5	291.3	269.0	22.30	13.062		
4,200.0	4,113.3	4,088.3	4,088.3	15.9	7.1	102.79	-120.2	760.5	295.8	273.0	22.74	13.005 SF		
4,300.0	4,210.5	4,185.5	4,185.5	16.4	7.3	107.03	-120.2	760.5	302.0	278.9	23.11	13.069		
4,400.0	4,307.7	4,282.7	4,282.7	16.8	7.5	111.09	-120.2	760.5	309.9	286.5	23.40	13.241		
4,500.0	4,404.9	4,379.9	4,379.9	17.3	7.6	114.94	-120.2	760.5	319.3	295.7	23.64	13.506		
4,600.0	4,502.1	4,477.1	4,477.1	17.7	7.8	118.56	-120.2	760.5	330.1	306.3	23.83	13.853		
4,700.0	4,599.3	4,574.3	4,574.3	18.2	8.0	121.95	-120.2	760.5	342.2	318.3	23.98	14.271		
4,800.0	4,696.5	4,671.5	4,671.5	18.7	8.2	125.11	-120.2	760.5	355.5	331.4	24.11	14.747		
4,900.0	4,793.7	4,768.7	4,768.7	19.1	8.3	128.04	-120.2	760.5	369.8	345.5	24.21	15.273		
5,000.0	4,890.9	4,865.9	4,865.9	19.6	8.5	130.75	-120.2	760.5	384.9	360.6	24.30	15.838		
5,100.0	4,988.1	4,963.1	4,963.1	20.0	8.7	133.26	-120.2	760.5	400.9	376.5	24.39	16.437		
5,200.0	5,085.3	5,060.3	5,060.3	20.5	8.8	135.58	-120.2	760.5	417.6	393.1	24.48	17.060		
5,300.0	5,182.4	5,157.4	5,157.4	20.9	9.0	137.72	-120.2	760.5	434.9	410.4	24.57	17.703		
5,400.0	5,279.6	5,254.6	5,254.6	21.4	9.2	139.70	-120.2	760.5	452.8	428.2	24.66	18.360		
5,500.0	5,376.8	5,351.8	5,351.8	21.8	9.3	141.53	-120.2	760.5	471.2	446.4	24.77	19.026		
5,600.0	5,474.0	5,449.0	5,449.0	22.3	9.5	143.22	-120.2	760.5	490.0	465.1	24.88	19.697		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-92.97	-3.6	-70.0	70.1					
100.0	100.0	101.0	101.0	0.2	0.2	-92.97	-3.6	-70.0	70.1	69.8	0.31	229.571		
166.3	166.3	167.3	167.3	0.3	0.3	-92.97	-3.6	-70.0	70.1	69.6	0.54	130.582	CC	
200.0	200.0	201.0	201.0	0.3	0.3	-92.97	-3.6	-70.0	70.1	69.5	0.65	107.135	ES	
300.0	300.0	300.0	300.0	0.5	0.5	-169.80	-3.3	-70.8	71.8	70.8	1.00	71.636		
400.0	400.0	398.6	398.5	0.7	0.7	-169.32	-2.3	-73.2	76.7	75.4	1.35	56.854		
500.0	499.9	497.0	496.8	0.9	0.9	-168.63	-0.7	-77.1	84.9	83.2	1.70	50.035		
600.0	599.7	594.9	594.6	1.1	1.1	-167.87	1.6	-82.6	96.4	94.4	2.05	47.122		
700.0	699.4	692.2	691.6	1.3	1.3	-167.12	4.4	-89.5	111.1	108.7	2.40	46.404	SF	
800.0	798.9	788.7	787.6	1.5	1.5	-166.43	7.9	-97.9	129.1	126.4	2.75	47.032		
900.0	898.3	884.2	882.6	1.8	1.7	-165.82	11.9	-107.7	150.3	147.2	3.10	48.537		
1,000.0	997.4	978.7	976.3	2.0	2.0	-165.29	16.5	-118.9	174.6	171.2	3.45	50.643		
1,100.0	1,096.3	1,074.9	1,071.6	2.3	2.2	-164.90	21.5	-131.0	201.4	197.6	3.81	52.936		
1,200.0	1,194.9	1,170.8	1,166.6	2.7	2.5	-164.70	26.5	-143.1	229.9	225.7	4.16	55.214		
1,300.0	1,293.3	1,266.2	1,261.1	3.0	2.8	-164.63	31.5	-155.1	259.9	255.4	4.52	57.480		
1,400.0	1,391.2	1,361.0	1,355.1	3.4	3.1	-164.64	36.4	-167.0	291.5	286.6	4.88	59.736		
1,500.0	1,488.9	1,455.3	1,448.5	3.8	3.3	-164.72	41.3	-178.9	324.8	319.5	5.24	61.983		
1,600.0	1,586.1	1,549.1	1,541.4	4.2	3.6	-164.87	46.2	-190.7	359.4	353.8	5.60	64.149		
1,700.0	1,683.3	1,642.8	1,634.2	4.7	3.9	-165.05	51.1	-202.5	394.4	388.4	5.98	66.008		
1,800.0	1,780.5	1,736.5	1,727.0	5.1	4.2	-165.21	56.0	-214.3	429.4	423.0	6.35	67.643		
1,900.0	1,877.7	1,830.2	1,819.8	5.6	4.4	-165.34	60.9	-226.1	464.4	457.6	6.72	69.093		
2,000.0	1,974.9	1,923.8	1,912.6	6.0	4.7	-165.45	65.7	-237.9	499.3	492.2	7.09	70.386		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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						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	-93.39	-3.6	-61.6	61.7					
100.0	100.0	100.0	100.0	0.2	0.2	-93.39	-3.6	-61.6	61.7	61.4	0.30	203.265		
200.0	200.0	200.0	200.0	0.3	0.3	-93.39	-3.6	-61.6	61.7	61.1	0.65	94.567 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-170.53	-3.6	-61.6	62.6	61.6	1.00	62.480		
400.0	400.0	399.1	399.1	0.7	0.7	-170.44	-3.2	-62.3	65.9	64.5	1.35	48.807		
500.0	499.9	497.9	497.9	0.9	0.9	-169.75	-1.7	-64.4	72.2	70.5	1.70	42.536		
600.0	599.7	596.4	596.3	1.1	1.0	-168.67	0.7	-67.9	81.7	79.6	2.05	39.883		
700.0	699.4	694.4	694.1	1.3	1.2	-167.44	4.0	-72.8	94.2	91.8	2.40	39.263 SF		
800.0	798.9	791.7	791.1	1.5	1.4	-166.20	8.3	-79.0	109.9	107.1	2.76	39.883		
900.0	898.3	889.7	888.7	1.8	1.6	-165.17	13.2	-86.2	128.2	125.1	3.11	41.160		
1,000.0	997.4	987.7	986.3	2.0	1.9	-164.56	18.1	-93.3	148.2	144.7	3.48	42.638		
1,100.0	1,096.3	1,085.3	1,083.5	2.3	2.1	-164.24	23.0	-100.4	169.8	166.0	3.84	44.253		
1,200.0	1,194.9	1,182.5	1,180.4	2.7	2.3	-164.11	27.8	-107.6	193.1	188.9	4.20	45.969		
1,300.0	1,293.3	1,279.4	1,276.9	3.0	2.5	-164.13	32.7	-114.6	218.0	213.4	4.56	47.760		
1,400.0	1,391.2	1,375.8	1,372.9	3.4	2.7	-164.24	37.5	-121.7	244.5	239.6	4.93	49.612		
1,500.0	1,488.9	1,471.7	1,468.5	3.8	3.0	-164.41	42.3	-128.7	272.7	267.4	5.29	51.512		
1,600.0	1,586.1	1,567.2	1,563.6	4.2	3.2	-164.64	47.1	-135.7	302.3	296.7	5.66	53.392		
1,700.0	1,683.3	1,662.6	1,658.6	4.7	3.4	-164.89	51.9	-142.6	332.3	326.2	6.04	55.026		
1,800.0	1,780.5	1,758.0	1,753.6	5.1	3.6	-165.10	56.7	-149.6	362.2	355.8	6.41	56.465		
1,900.0	1,877.7	1,853.5	1,848.7	5.6	3.8	-165.28	61.4	-156.6	392.2	385.4	6.79	57.742		
2,000.0	1,974.9	1,948.9	1,943.7	6.0	4.1	-165.43	66.2	-163.6	422.1	414.9	7.17	58.883		
2,100.0	2,072.1	2,044.3	2,038.7	6.4	4.3	-165.57	71.0	-170.5	452.0	444.5	7.55	59.909		
2,200.0	2,169.3	2,139.7	2,133.8	6.9	4.5	-165.68	75.8	-177.5	482.0	474.1	7.92	60.835		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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	-94.15	-3.7	-50.4	50.5					
100.0	100.0	100.0	100.0	0.2	0.2	-94.15	-3.7	-50.4	50.5	50.2	0.30	166.453		
200.0	200.0	200.0	200.0	0.3	0.3	-94.15	-3.7	-50.4	50.5	49.9	0.65	77.441	CC, ES	
300.0	300.0	300.0	300.0	0.5	0.5	-171.31	-3.7	-50.4	51.4	50.4	1.00	51.323		
400.0	400.0	400.0	400.0	0.7	0.7	-171.72	-3.7	-50.4	54.0	52.7	1.35	39.986		
500.0	499.9	499.5	499.5	0.9	0.8	-171.54	-2.9	-50.8	58.6	56.9	1.70	34.513		
600.0	599.7	598.8	598.8	1.1	1.0	-170.20	-0.6	-51.9	65.6	63.6	2.05	32.029		
700.0	699.4	697.9	697.7	1.3	1.2	-168.16	3.3	-53.8	75.1	72.7	2.40	31.222	SF	
800.0	798.9	796.9	796.6	1.5	1.4	-166.02	8.4	-56.3	86.9	84.1	2.77	31.419		
900.0	898.3	896.0	895.5	1.8	1.6	-164.59	13.6	-58.8	100.5	97.4	3.13	32.110		
1,000.0	997.4	994.8	994.1	2.0	1.8	-163.73	18.7	-61.3	115.9	112.4	3.50	33.119		
1,100.0	1,096.3	1,093.3	1,092.5	2.3	2.0	-163.28	23.9	-63.8	132.9	129.0	3.87	34.349		
1,200.0	1,194.9	1,191.5	1,190.6	2.7	2.2	-163.11	29.0	-66.3	151.5	147.3	4.24	35.739		
1,300.0	1,293.3	1,289.5	1,288.3	3.0	2.4	-163.13	34.1	-68.8	171.8	167.2	4.61	37.253		
1,400.0	1,391.2	1,387.0	1,385.7	3.4	2.6	-163.29	39.2	-71.3	193.7	188.7	4.98	38.864		
1,500.0	1,488.9	1,484.2	1,482.8	3.8	2.7	-163.52	44.3	-73.8	217.3	211.9	5.36	40.556		
1,600.0	1,586.1	1,581.0	1,579.4	4.2	2.9	-163.84	49.4	-76.2	242.3	236.6	5.73	42.265		
1,700.0	1,683.3	1,677.7	1,676.0	4.7	3.1	-164.15	54.4	-78.7	267.6	261.5	6.12	43.767		
1,800.0	1,780.5	1,774.5	1,772.5	5.1	3.3	-164.40	59.5	-81.2	293.0	286.5	6.50	45.091		
1,900.0	1,877.7	1,871.2	1,869.1	5.6	3.5	-164.62	64.5	-83.6	318.4	311.5	6.88	46.266		
2,000.0	1,974.9	1,967.9	1,965.6	6.0	3.7	-164.80	69.6	-86.1	343.7	336.4	7.26	47.316		
2,100.0	2,072.1	2,064.6	2,062.2	6.4	3.9	-164.96	74.6	-88.6	369.1	361.4	7.65	48.260		
2,200.0	2,169.3	2,161.4	2,158.8	6.9	4.1	-165.10	79.7	-91.0	394.4	386.4	8.03	49.113		
2,300.0	2,266.5	2,258.1	2,255.3	7.3	4.3	-165.22	84.8	-93.5	419.8	411.4	8.42	49.887		
2,400.0	2,363.7	2,354.8	2,351.9	7.8	4.5	-165.33	89.8	-95.9	445.2	436.4	8.80	50.593		
2,500.0	2,460.9	2,451.5	2,448.4	8.2	4.7	-165.42	94.9	-98.4	470.5	461.4	9.18	51.240		
2,600.0	2,558.1	2,548.3	2,545.0	8.7	4.9	-165.51	99.9	-100.9	495.9	486.3	9.57	51.834		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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 2D-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		
0.0	0.0	0.0	0.0	0.0	0.0	-95.34	-3.7	-39.2	39.4					
100.0	100.0	100.0	100.0	0.2	0.2	-95.34	-3.7	-39.2	39.4	39.1	0.30	129.687		
200.0	200.0	200.0	200.0	0.3	0.3	-95.34	-3.7	-39.2	39.4	38.7	0.65	60.336 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-172.51	-3.7	-39.2	40.2	39.2	1.00	40.180		
400.0	400.0	400.0	400.0	0.7	0.7	-172.97	-3.7	-39.2	42.8	41.5	1.35	31.727		
500.0	499.9	499.9	499.9	0.9	0.8	-173.61	-3.7	-39.2	47.2	45.5	1.70	27.771		
600.0	599.7	599.7	599.7	1.1	1.0	-174.34	-3.7	-39.2	53.2	51.2	2.05	26.019		
700.0	699.4	699.4	699.4	1.3	1.2	-175.06	-3.7	-39.2	61.1	58.7	2.39	25.512 SF		
800.0	798.9	798.9	798.9	1.5	1.4	-175.72	-3.7	-39.2	70.6	67.9	2.74	25.779		
900.0	898.3	898.3	898.3	1.8	1.5	-176.30	-3.7	-39.2	81.9	78.8	3.08	26.560		
1,000.0	997.4	997.4	997.4	2.0	1.7	-176.80	-3.7	-39.2	94.9	91.5	3.43	27.701		
1,100.0	1,096.3	1,096.3	1,096.3	2.3	1.9	-177.23	-3.7	-39.2	109.7	105.9	3.77	29.106		
1,200.0	1,194.9	1,194.9	1,194.9	2.7	2.1	-177.58	-3.7	-39.2	126.2	122.1	4.11	30.710		
1,300.0	1,293.3	1,293.3	1,293.3	3.0	2.2	-177.88	-3.7	-39.2	144.4	140.0	4.45	32.470		
1,400.0	1,391.2	1,391.2	1,391.2	3.4	2.4	-178.13	-3.7	-39.2	164.3	159.5	4.78	34.354		
1,500.0	1,488.9	1,488.9	1,488.9	3.8	2.6	-178.34	-3.7	-39.2	186.0	180.8	5.12	36.340		
1,600.0	1,586.1	1,586.1	1,586.1	4.2	2.7	-178.52	-3.7	-39.2	209.2	203.7	5.45	38.352		
1,700.0	1,683.3	1,683.3	1,683.3	4.7	2.9	-178.67	-3.7	-39.2	232.7	226.9	5.80	40.138		
1,800.0	1,780.5	1,780.5	1,780.5	5.1	3.1	-178.79	-3.7	-39.2	256.2	250.0	6.14	41.726		
1,900.0	1,877.7	1,877.7	1,877.7	5.6	3.3	-178.89	-3.7	-39.2	279.7	273.2	6.48	43.146		
2,000.0	1,974.9	1,974.9	1,974.9	6.0	3.4	-178.98	-3.7	-39.2	303.2	296.3	6.82	44.424		
2,100.0	2,072.1	2,072.1	2,072.1	6.4	3.6	-179.05	-3.7	-39.2	326.7	319.5	7.17	45.580		
2,200.0	2,169.3	2,169.3	2,169.3	6.9	3.8	-179.12	-3.7	-39.2	350.2	342.7	7.51	46.631		
2,300.0	2,266.5	2,266.5	2,266.5	7.3	3.9	-179.17	-3.7	-39.2	373.7	365.8	7.85	47.591		
2,400.0	2,363.7	2,363.7	2,363.7	7.8	4.1	-179.22	-3.7	-39.2	397.2	389.0	8.19	48.470		
2,500.0	2,460.9	2,460.9	2,460.9	8.2	4.3	-179.27	-3.7	-39.2	420.7	412.2	8.54	49.279		
2,600.0	2,558.1	2,558.1	2,558.1	8.7	4.4	-179.30	-3.7	-39.2	444.2	435.3	8.88	50.026		
2,700.0	2,655.3	2,655.3	2,655.3	9.1	4.6	-179.34	-3.7	-39.2	467.7	458.5	9.22	50.718		
2,800.0	2,752.5	2,752.5	2,752.5	9.6	4.8	-179.37	-3.7	-39.2	491.2	481.7	9.56	51.360		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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		
0.0	0.0	0.0	0.0	0.0	0.0	-96.80	-3.7	-30.8	31.0					
100.0	100.0	100.0	100.0	0.2	0.2	-96.80	-3.7	-30.8	31.0	30.7	0.30	102.173		
200.0	200.0	200.0	200.0	0.3	0.3	-96.80	-3.7	-30.8	31.0	30.4	0.65	47.535 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-173.98	-3.7	-30.8	31.9	30.9	1.00	31.841		
400.0	400.0	400.0	400.0	0.7	0.7	-174.43	-3.7	-30.8	34.5	33.2	1.35	25.548		
500.0	499.9	499.9	499.9	0.9	0.8	-175.05	-3.7	-30.8	38.8	37.1	1.70	22.867		
600.0	599.7	600.4	600.4	1.1	1.0	-175.22	-3.2	-30.1	44.1	42.1	2.05	21.558		
700.0	699.4	701.0	700.9	1.3	1.2	-174.62	-1.7	-27.9	49.6	47.2	2.40	20.697		
800.0	798.9	801.6	801.5	1.5	1.4	-173.48	0.8	-24.3	55.3	52.5	2.75	20.109		
900.0	898.3	902.3	902.0	1.8	1.6	-171.95	4.3	-19.2	61.1	58.0	3.10	19.700		
1,000.0	997.4	1,003.1	1,002.4	2.0	1.8	-170.15	8.9	-12.6	67.3	63.8	3.47	19.408		
1,100.0	1,096.3	1,103.3	1,102.2	2.3	2.0	-168.32	14.2	-4.9	73.9	70.1	3.84	19.272 SF		
1,200.0	1,194.9	1,202.9	1,201.4	2.7	2.2	-167.00	19.6	2.8	82.2	78.0	4.21	19.525		
1,300.0	1,293.3	1,302.4	1,300.4	3.0	2.4	-166.19	24.9	10.6	92.2	87.6	4.59	20.096		
1,400.0	1,391.2	1,401.7	1,399.3	3.4	2.7	-165.76	30.3	18.4	103.9	99.0	4.97	20.914		
1,500.0	1,488.9	1,500.8	1,497.9	3.8	2.9	-165.62	35.6	26.1	117.3	112.0	5.35	21.931		
1,600.0	1,586.1	1,599.7	1,596.3	4.2	3.1	-165.70	41.0	33.9	132.3	126.5	5.73	23.074		
1,700.0	1,683.3	1,698.5	1,694.7	4.7	3.4	-165.80	46.3	41.6	147.5	141.4	6.12	24.100		
1,800.0	1,780.5	1,797.3	1,793.1	5.1	3.6	-165.89	51.6	49.3	162.7	156.2	6.51	25.001		
1,900.0	1,877.7	1,896.2	1,891.5	5.6	3.8	-165.96	56.9	57.0	178.0	171.1	6.90	25.797		
2,000.0	1,974.9	1,995.0	1,989.9	6.0	4.1	-166.02	62.3	64.8	193.2	185.9	7.29	26.506		
2,100.0	2,072.1	2,093.8	2,088.3	6.4	4.3	-166.07	67.6	72.5	208.4	200.7	7.68	27.142		
2,200.0	2,169.3	2,192.7	2,186.7	6.9	4.5	-166.11	72.9	80.2	223.6	215.6	8.07	27.714		
2,300.0	2,266.5	2,291.5	2,285.1	7.3	4.8	-166.15	78.3	87.9	238.9	230.4	8.46	28.232		
2,400.0	2,363.7	2,390.3	2,383.4	7.8	5.0	-166.19	83.6	95.7	254.1	245.2	8.85	28.703		
2,500.0	2,460.9	2,489.2	2,481.8	8.2	5.2	-166.22	88.9	103.4	269.3	260.1	9.24	29.133		
2,600.0	2,558.1	2,588.0	2,580.2	8.7	5.5	-166.24	94.3	111.1	284.6	274.9	9.64	29.528		
2,700.0	2,655.3	2,686.8	2,678.6	9.1	5.7	-166.27	99.6	118.8	299.8	289.8	10.03	29.891		
2,800.0	2,752.5	2,785.7	2,777.0	9.6	5.9	-166.29	104.9	126.5	315.0	304.6	10.42	30.226		
2,900.0	2,849.7	2,884.5	2,875.4	10.0	6.2	-166.31	110.2	134.3	330.2	319.4	10.81	30.536		
3,000.0	2,946.9	2,983.3	2,973.8	10.5	6.4	-166.33	115.6	142.0	345.5	334.3	11.21	30.824		
3,100.0	3,044.1	3,082.2	3,072.2	10.9	6.6	-166.34	120.9	149.7	360.7	349.1	11.60	31.092		
3,200.0	3,141.3	3,181.0	3,170.5	11.4	6.9	-166.36	126.2	157.4	375.9	363.9	11.99	31.343		
3,300.0	3,238.5	3,279.8	3,268.9	11.8	7.1	-166.37	131.6	165.2	391.2	378.8	12.39	31.577		
3,400.0	3,335.7	3,378.7	3,367.3	12.3	7.3	-166.39	136.9	172.9	406.4	393.6	12.78	31.796		
3,500.0	3,432.9	3,477.5	3,465.7	12.8	7.6	-166.40	142.2	180.6	421.6	408.4	13.17	32.002		
3,600.0	3,530.1	3,576.3	3,564.1	13.2	7.8	-166.41	147.6	188.3	436.8	423.3	13.57	32.196		
3,700.0	3,627.3	3,675.2	3,662.5	13.7	8.1	-166.42	152.9	196.1	452.1	438.1	13.96	32.379		
3,800.0	3,724.5	3,774.0	3,760.9	14.1	8.3	-166.43	158.2	203.8	467.3	453.0	14.36	32.551		
3,900.0	3,821.7	3,872.8	3,859.2	14.6	8.5	-166.44	163.5	211.5	482.5	467.8	14.75	32.714		
4,000.0	3,918.9	3,971.7	3,957.6	15.0	8.8	-166.45	168.9	219.2	497.8	482.6	15.14	32.869		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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		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	-100.63	-3.7	-19.6	19.9					
100.0	100.0	100.0	100.0	0.2	0.2	-100.63	-3.7	-19.6	19.9	19.6	0.30	65.690		
200.0	200.0	200.0	200.0	0.3	0.3	-100.63	-3.7	-19.6	19.9	19.3	0.65	30.562 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-177.74	-3.7	-19.6	20.8	19.8	1.00	20.785		
400.0	400.0	400.0	400.0	0.7	0.7	-177.99	-3.7	-19.6	23.4	22.1	1.35	17.356		
500.0	499.9	499.9	499.9	0.9	0.8	-178.31	-3.7	-19.6	27.8	26.1	1.70	16.365		
600.0	599.7	600.3	600.2	1.1	1.0	-178.37	-3.4	-18.8	33.0	31.0	2.05	16.139		
700.0	699.4	700.7	700.7	1.3	1.2	-178.05	-2.4	-16.3	38.3	35.9	2.40	15.987		
800.0	798.9	801.3	801.2	1.5	1.4	-177.49	-0.9	-12.2	43.6	40.8	2.74	15.879		
900.0	898.3	902.0	901.6	1.8	1.6	-176.76	1.3	-6.4	48.9	45.8	3.09	15.801		
1,000.0	997.4	1,002.7	1,002.0	2.0	1.8	-175.92	4.2	1.0	54.2	50.8	3.44	15.743		
1,100.0	1,096.3	1,103.5	1,102.4	2.3	2.0	-175.00	7.6	10.1	59.6	55.8	3.79	15.695		
1,200.0	1,194.9	1,204.4	1,202.7	2.7	2.3	-174.01	11.7	20.8	65.0	60.8	4.15	15.653		
1,300.0	1,293.3	1,305.4	1,302.8	3.0	2.5	-172.98	16.5	33.2	70.4	65.9	4.51	15.610		
1,400.0	1,391.2	1,406.0	1,402.2	3.4	2.8	-171.95	21.8	47.0	76.0	71.2	4.88	15.596 SF		
1,500.0	1,488.9	1,505.7	1,500.9	3.8	3.1	-171.19	27.1	61.1	83.1	77.9	5.24	15.854		
1,600.0	1,586.1	1,605.4	1,599.3	4.2	3.4	-170.72	32.4	75.1	91.8	86.2	5.61	16.349		
1,700.0	1,683.3	1,705.0	1,697.8	4.7	3.7	-170.36	37.8	89.0	100.8	94.8	5.99	16.813		
1,800.0	1,780.5	1,804.5	1,796.3	5.1	4.0	-170.06	43.1	103.0	109.8	103.4	6.38	17.216		
1,900.0	1,877.7	1,904.1	1,894.7	5.6	4.3	-169.81	48.5	117.0	118.7	112.0	6.76	17.570		
2,000.0	1,974.9	2,003.7	1,993.2	6.0	4.6	-169.59	53.8	131.0	127.7	120.6	7.14	17.883		
2,100.0	2,072.1	2,103.3	2,091.6	6.4	4.9	-169.40	59.1	145.0	136.7	129.2	7.53	18.160		
2,200.0	2,169.3	2,202.9	2,190.1	6.9	5.2	-169.24	64.5	159.0	145.7	137.8	7.92	18.408		
2,300.0	2,266.5	2,302.5	2,288.6	7.3	5.5	-169.09	69.8	173.0	154.7	146.4	8.30	18.631		
2,400.0	2,363.7	2,402.1	2,387.0	7.8	5.8	-168.96	75.2	187.0	163.7	155.0	8.69	18.832		
2,500.0	2,460.9	2,501.7	2,485.5	8.2	6.1	-168.85	80.5	201.0	172.7	163.6	9.08	19.014		
2,600.0	2,558.1	2,601.3	2,584.0	8.7	6.4	-168.74	85.8	215.0	181.7	172.2	9.47	19.180		
2,700.0	2,655.3	2,700.9	2,682.4	9.1	6.7	-168.65	91.2	229.0	190.7	180.8	9.86	19.332		
2,800.0	2,752.5	2,800.5	2,780.9	9.6	7.0	-168.56	96.5	243.0	199.7	189.5	10.26	19.472		
2,900.0	2,849.7	2,900.1	2,879.3	10.0	7.3	-168.48	101.9	257.0	208.7	198.1	10.65	19.600		
3,000.0	2,946.9	2,999.7	2,977.8	10.5	7.7	-168.41	107.2	271.0	217.7	206.7	11.04	19.718		
3,100.0	3,044.1	3,099.3	3,076.3	10.9	8.0	-168.34	112.5	285.0	226.7	215.3	11.43	19.828		
3,200.0	3,141.3	3,198.9	3,174.7	11.4	8.3	-168.28	117.9	298.9	235.7	223.9	11.83	19.929		
3,300.0	3,238.5	3,298.5	3,273.2	11.8	8.6	-168.22	123.2	312.9	244.7	232.5	12.22	20.024		
3,400.0	3,335.7	3,398.0	3,371.6	12.3	8.9	-168.17	128.6	326.9	253.7	241.1	12.61	20.113		
3,500.0	3,432.9	3,497.6	3,470.1	12.8	9.2	-168.12	133.9	340.9	262.7	249.7	13.01	20.195		
3,600.0	3,530.1	3,597.2	3,568.6	13.2	9.5	-168.07	139.2	354.9	271.7	258.3	13.40	20.273		
3,700.0	3,627.3	3,696.8	3,667.0	13.7	9.8	-168.03	144.6	368.9	280.7	266.9	13.80	20.345		
3,800.0	3,724.5	3,796.4	3,765.5	14.1	10.2	-167.99	149.9	382.9	289.7	275.5	14.19	20.414		
3,900.0	3,821.7	3,896.0	3,863.9	14.6	10.5	-167.95	155.3	396.9	298.7	284.1	14.59	20.478		
4,000.0	3,918.9	3,995.6	3,962.4	15.0	10.8	-167.92	160.6	410.9	307.7	292.7	14.98	20.539		
4,100.0	4,016.1	4,095.2	4,060.9	15.5	11.1	-167.88	165.9	424.9	316.7	301.3	15.38	20.596		
4,200.0	4,113.3	4,194.8	4,159.3	15.9	11.4	-167.85	171.3	438.9	325.7	309.9	15.77	20.651		
4,300.0	4,210.5	4,294.4	4,257.8	16.4	11.7	-167.82	176.6	452.9	334.7	318.6	16.17	20.702		
4,400.0	4,307.7	4,394.0	4,356.3	16.8	12.0	-167.79	182.0	466.9	343.7	327.2	16.56	20.751		
4,500.0	4,404.9	4,493.6	4,454.7	17.3	12.4	-167.77	187.3	480.9	352.7	335.8	16.96	20.798		
4,600.0	4,502.1	4,593.2	4,553.2	17.7	12.7	-167.74	192.6	494.9	361.7	344.4	17.36	20.842		
4,700.0	4,599.3	4,692.8	4,651.6	18.2	13.0	-167.71	198.0	508.8	370.7	353.0	17.75	20.884		
4,800.0	4,696.5	4,792.4	4,750.1	18.7	13.3	-167.69	203.3	522.8	379.7	361.6	18.15	20.924		
4,900.0	4,793.7	4,892.0	4,848.6	19.1	13.6	-167.67	208.7	536.8	388.7	370.2	18.54	20.963		
5,000.0	4,890.9	4,991.5	4,947.0	19.6	13.9	-167.65	214.0	550.8	397.7	378.8	18.94	21.000		
5,100.0	4,988.1	5,091.1	5,045.5	20.0	14.2	-167.63	219.4	564.8	406.7	387.4	19.34	21.035		

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 2H-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 2H-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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)								
5,200.0	5,085.3	5,190.7	5,143.9	20.5	14.6	-167.61	224.7	578.8	415.7	396.0	19.73	21.068						
5,300.0	5,182.4	5,290.3	5,242.4	20.9	14.9	-167.59	230.0	592.8	424.7	404.6	20.13	21.101						
5,400.0	5,279.6	5,389.9	5,340.9	21.4	15.2	-167.57	235.4	606.8	433.7	413.2	20.53	21.132						
5,500.0	5,376.8	5,489.5	5,439.3	21.8	15.5	-167.55	240.7	620.8	442.7	421.8	20.92	21.161						
5,600.0	5,474.0	5,589.1	5,537.8	22.3	15.8	-167.54	246.1	634.8	451.7	430.4	21.32	21.190						
5,700.0	5,571.2	5,688.7	5,636.3	22.7	16.1	-167.52	251.4	648.8	460.7	439.0	21.72	21.217						
5,800.0	5,668.4	5,788.3	5,734.7	23.2	16.4	-167.51	256.7	662.8	469.8	447.6	22.11	21.244						
5,900.0	5,765.6	5,887.9	5,833.2	23.7	16.8	-167.49	262.1	676.8	478.8	456.2	22.51	21.269						
6,000.0	5,862.8	5,987.5	5,931.6	24.1	17.1	-167.48	267.4	690.8	487.8	464.9	22.91	21.294						
6,100.0	5,960.0	6,087.1	6,030.1	24.6	17.4	-167.46	272.8	704.8	496.8	473.5	23.30	21.317						

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-108.23	-3.7	-11.2	11.8					
100.0	100.0	100.0	100.0	0.2	0.2	-108.23	-3.7	-11.2	11.8	11.5	0.30	38.841		
200.0	200.0	200.0	200.0	0.3	0.3	-108.23	-3.7	-11.2	11.8	11.1	0.65	18.071		
300.0	300.0	300.2	300.2	0.5	0.5	175.04	-3.4	-10.4	11.8	10.8	1.00	11.766		
400.0	400.0	400.4	400.4	0.7	0.7	175.89	-2.7	-7.8	11.8	10.4	1.35	8.715		
500.0	499.9	500.6	500.5	0.9	0.9	177.30	-1.4	-3.7	11.8	10.1	1.70	6.917		
600.0	599.7	600.8	600.5	1.1	1.1	179.29	0.4	2.2	11.7	9.7	2.05	5.734		
625.1	624.7	626.0	625.6	1.1	1.1	179.87	0.9	3.9	11.7	9.6	2.14	5.498 CC		
700.0	699.4	701.0	700.4	1.3	1.3	-178.16	2.6	9.8	11.8	9.4	2.40	4.901		
800.0	798.9	801.2	800.1	1.5	1.5	-175.06	5.4	19.0	11.8	9.0	2.75	4.288		
900.0	898.3	901.4	899.7	1.8	1.8	-171.44	8.7	29.8	11.9	8.8	3.11	3.822		
1,000.0	997.4	1,001.6	999.0	2.0	2.0	-167.34	12.5	42.4	12.0	8.6	3.49	3.455		
1,100.0	1,096.3	1,101.8	1,098.1	2.3	2.3	-162.86	16.8	56.6	12.3	8.4	3.89	3.158		
1,200.0	1,194.9	1,202.0	1,196.9	2.7	2.7	-158.11	21.6	72.5	12.7	8.3	4.35	2.910 ES		
1,300.0	1,293.3	1,302.2	1,295.4	3.0	3.0	-153.31	26.8	89.9	13.2	8.3	4.88	2.706 SF		
1,400.0	1,391.2	1,402.1	1,393.6	3.4	3.4	-151.25	32.2	107.8	14.9	9.5	5.40	2.764		
1,500.0	1,488.9	1,502.1	1,491.8	3.8	3.7	-152.39	37.6	125.8	18.2	12.3	5.83	3.117		
1,600.0	1,586.1	1,602.0	1,589.9	4.2	4.1	-154.99	43.0	143.7	22.9	16.7	6.19	3.694		
1,700.0	1,683.3	1,701.8	1,688.0	4.7	4.5	-156.96	48.5	161.6	27.9	21.3	6.56	4.252		
1,800.0	1,780.5	1,801.7	1,786.1	5.1	4.8	-158.34	53.9	179.5	32.9	26.0	6.94	4.746		
1,900.0	1,877.7	1,901.6	1,884.2	5.6	5.2	-159.34	59.3	197.4	38.0	30.7	7.32	5.186		
2,000.0	1,974.9	2,001.5	1,982.3	6.0	5.6	-160.11	64.7	215.3	43.1	35.3	7.71	5.580		
2,100.0	2,072.1	2,101.3	2,080.4	6.4	5.9	-160.72	70.1	233.2	48.1	40.0	8.11	5.935		
2,200.0	2,169.3	2,201.2	2,178.5	6.9	6.3	-161.21	75.5	251.1	53.2	44.7	8.50	6.256		
2,300.0	2,266.5	2,301.1	2,276.6	7.3	6.7	-161.62	80.9	269.0	58.3	49.4	8.90	6.547		
2,400.0	2,363.7	2,400.9	2,374.7	7.8	7.0	-161.96	86.3	286.8	63.3	54.0	9.30	6.813		
2,500.0	2,460.9	2,500.8	2,472.8	8.2	7.4	-162.25	91.7	304.7	68.4	58.7	9.70	7.057		
2,600.0	2,558.1	2,600.7	2,570.9	8.7	7.8	-162.50	97.1	322.6	73.5	63.4	10.10	7.281		
2,700.0	2,655.3	2,700.5	2,669.1	9.1	8.1	-162.72	102.5	340.5	78.6	68.1	10.50	7.487		
2,800.0	2,752.5	2,800.4	2,767.2	9.6	8.5	-162.91	107.9	358.4	83.7	72.8	10.90	7.678		
2,900.0	2,849.7	2,900.3	2,865.3	10.0	8.9	-163.08	113.3	376.3	88.8	77.5	11.30	7.855		
3,000.0	2,946.9	3,000.2	2,963.4	10.5	9.3	-163.24	118.7	394.2	93.8	82.1	11.70	8.020		
3,100.0	3,044.1	3,100.0	3,061.5	10.9	9.6	-163.37	124.1	412.1	98.9	86.8	12.10	8.173		
3,200.0	3,141.3	3,199.9	3,159.6	11.4	10.0	-163.49	129.5	430.0	104.0	91.5	12.51	8.317		
3,300.0	3,238.5	3,299.8	3,257.7	11.8	10.4	-163.60	134.9	447.9	109.1	96.2	12.91	8.452		
3,400.0	3,335.7	3,399.6	3,355.8	12.3	10.8	-163.71	140.3	465.8	114.2	100.9	13.31	8.578		
3,500.0	3,432.9	3,499.5	3,453.9	12.8	11.1	-163.80	145.7	483.7	119.3	105.6	13.72	8.696		
3,600.0	3,530.1	3,599.4	3,552.0	13.2	11.5	-163.88	151.1	501.6	124.4	110.3	14.12	8.808		
3,700.0	3,627.3	3,699.3	3,650.1	13.7	11.9	-163.96	156.5	519.5	129.5	114.9	14.52	8.914		
3,800.0	3,724.5	3,799.1	3,748.2	14.1	12.2	-164.03	161.9	537.4	134.6	119.6	14.93	9.014		
3,900.0	3,821.7	3,899.0	3,846.3	14.6	12.6	-164.10	167.3	555.3	139.6	124.3	15.33	9.108		
4,000.0	3,918.9	3,998.9	3,944.4	15.0	13.0	-164.16	172.7	573.2	144.7	129.0	15.74	9.198		
4,100.0	4,016.1	4,098.7	4,042.5	15.5	13.4	-164.22	178.1	591.1	149.8	133.7	16.14	9.283		
4,200.0	4,113.3	4,198.6	4,140.6	15.9	13.7	-164.28	183.5	609.0	154.9	138.4	16.54	9.364		
4,300.0	4,210.5	4,298.5	4,238.7	16.4	14.1	-164.33	188.9	626.9	160.0	143.0	16.95	9.441		
4,400.0	4,307.7	4,398.3	4,336.8	16.8	14.5	-164.37	194.3	644.8	165.1	147.7	17.35	9.514		
4,500.0	4,404.9	4,498.2	4,434.9	17.3	14.9	-164.42	199.7	662.7	170.2	152.4	17.76	9.584		
4,600.0	4,502.1	4,598.1	4,533.0	17.7	15.2	-164.46	205.1	680.6	175.3	157.1	18.16	9.651		
4,700.0	4,599.3	4,698.0	4,631.1	18.2	15.6	-164.50	210.5	698.5	180.4	161.8	18.57	9.715		
4,800.0	4,696.5	4,797.8	4,729.3	18.7	16.0	-164.54	215.9	716.4	185.4	166.5	18.97	9.776		
4,900.0	4,793.7	4,897.7	4,827.4	19.1	16.4	-164.57	221.3	734.3	190.5	171.2	19.37	9.834		
5,000.0	4,890.9	4,997.6	4,925.5	19.6	16.7	-164.61	226.7	752.2	195.6	175.8	19.78	9.890		

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 2H-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 2H-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			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	4,988.1	5,097.4	5,023.6	20.0	17.1	-164.64	232.1	770.1	200.7	180.5	20.18	9.944		
5,200.0	5,085.3	5,197.3	5,121.7	20.5	17.5	-164.67	237.5	788.0	205.8	185.2	20.59	9.996		
5,300.0	5,182.4	5,297.2	5,219.8	20.9	17.8	-164.70	242.9	805.9	210.9	189.9	20.99	10.046		
5,400.0	5,279.6	5,397.0	5,317.9	21.4	18.2	-164.73	248.3	823.8	216.0	194.6	21.40	10.093		
5,500.0	5,376.8	5,496.9	5,416.0	21.8	18.6	-164.75	253.7	841.7	221.1	199.3	21.80	10.139		
5,600.0	5,474.0	5,596.8	5,514.1	22.3	19.0	-164.78	259.1	859.6	226.2	204.0	22.21	10.184		
5,700.0	5,571.2	5,696.7	5,612.2	22.7	19.3	-164.80	264.5	877.5	231.3	208.6	22.61	10.227		
5,800.0	5,668.4	5,796.5	5,710.3	23.2	19.7	-164.83	269.9	895.4	236.4	213.3	23.02	10.268		
5,900.0	5,765.6	5,896.4	5,808.4	23.7	20.1	-164.85	275.3	913.3	241.4	218.0	23.42	10.308		
6,000.0	5,862.8	5,996.3	5,906.5	24.1	20.5	-164.87	280.7	931.2	246.5	222.7	23.83	10.346		
6,100.0	5,960.0	6,096.1	6,004.6	24.6	20.8	-164.89	286.1	949.1	251.6	227.4	24.23	10.383		
6,200.0	6,057.2	6,196.0	6,102.7	25.0	21.2	-164.91	291.5	967.0	256.7	232.1	24.64	10.419		
6,300.0	6,154.4	6,295.9	6,200.8	25.5	21.6	-164.93	296.9	984.9	261.8	236.8	25.04	10.454		
6,400.0	6,251.6	6,395.8	6,298.9	25.9	22.0	-164.95	302.3	1,002.8	266.9	241.4	25.45	10.487		
6,500.0	6,348.8	6,495.6	6,397.0	26.4	22.3	-164.96	307.7	1,020.7	272.0	246.1	25.85	10.520		
6,600.0	6,446.0	6,595.5	6,495.1	26.8	22.7	-164.98	313.1	1,038.6	277.1	250.8	26.26	10.552		
6,700.0	6,543.2	6,695.4	6,593.2	27.3	23.1	-165.00	318.5	1,056.5	282.2	255.5	26.66	10.582		
6,800.0	6,640.4	6,795.6	6,691.7	27.7	23.5	-165.08	323.6	1,074.5	287.2	260.2	27.04	10.623		
6,900.0	6,737.6	6,895.7	6,789.8	28.2	23.8	-167.46	317.0	1,092.4	292.1	265.6	26.50	11.024		
7,000.0	6,834.8	6,989.0	6,879.0	28.7	24.0	-172.56	295.2	1,108.6	298.7	273.4	25.32	11.798		
7,100.0	6,932.0	7,072.0	6,954.5	29.1	24.1	174.25	263.7	1,122.4	310.9	286.1	24.79	12.543		
7,200.0	7,029.0	7,150.0	7,020.6	29.5	24.2	128.09	224.4	1,134.5	329.1	303.1	25.97	12.671		
7,300.0	7,123.5	7,221.9	7,076.4	29.8	24.3	100.34	180.3	1,144.7	350.2	322.1	28.12	12.455		
7,400.0	7,212.7	7,292.9	7,125.8	30.1	24.4	84.58	130.1	1,153.7	372.2	342.2	30.01	12.402		
7,500.0	7,293.7	7,362.1	7,167.7	30.3	24.5	74.65	75.6	1,161.3	393.2	362.2	30.95	12.704		
7,600.0	7,364.2	7,430.0	7,202.2	30.6	24.7	67.98	17.5	1,167.6	411.8	381.1	30.75	13.391		
7,700.0	7,422.0	7,500.0	7,230.5	30.8	24.8	63.38	-46.3	1,172.8	427.3	397.7	29.60	14.436		
7,800.0	7,465.3	7,563.2	7,249.2	31.0	25.0	60.45	-106.4	1,176.2	438.8	411.0	27.84	15.762		
7,900.0	7,492.9	7,628.9	7,261.7	31.3	25.2	58.73	-171.0	1,178.5	446.1	420.0	26.05	17.124		
8,000.0	7,503.8	7,700.0	7,267.0	31.5	25.5	58.11	-241.8	1,179.4	448.8	424.0	24.74	18.138		
8,039.0	7,504.6	7,726.7	7,267.0	31.7	25.6	58.07	-268.5	1,179.4	449.1	424.0	25.10	17.893		
8,100.0	7,504.0	7,787.7	7,267.0	31.9	25.8	58.12	-329.5	1,179.4	448.7	422.9	25.80	17.389		
8,200.0	7,504.0	7,887.7	7,267.0	32.3	26.4	58.12	-429.5	1,179.4	448.7	421.2	27.49	16.325		
8,300.0	7,504.0	7,987.7	7,267.0	32.9	27.0	58.12	-529.5	1,179.4	448.7	419.3	29.37	15.275		
8,400.0	7,504.0	8,087.7	7,267.0	33.5	27.8	58.12	-629.5	1,179.4	448.7	417.3	31.43	14.274		
8,500.0	7,504.0	8,187.7	7,267.0	34.2	28.6	58.12	-729.5	1,179.4	448.7	415.1	33.63	13.341		
8,600.0	7,504.0	8,287.7	7,267.0	34.9	29.5	58.12	-829.5	1,179.4	448.7	412.8	35.94	12.483		
8,700.0	7,504.0	8,387.7	7,267.0	35.8	30.5	58.12	-929.5	1,179.4	448.7	410.3	38.35	11.700		
8,800.0	7,504.0	8,487.7	7,267.0	36.7	31.6	58.12	-1,029.5	1,179.4	448.7	407.9	40.83	10.989		
8,900.0	7,504.0	8,587.7	7,267.0	37.6	32.7	58.12	-1,129.5	1,179.4	448.7	405.3	43.38	10.344		
9,000.0	7,504.0	8,687.7	7,267.0	38.6	33.8	58.12	-1,229.5	1,179.4	448.7	402.7	45.98	9.759		
9,100.0	7,504.0	8,787.7	7,267.0	39.7	35.1	58.12	-1,329.5	1,179.4	448.7	400.1	48.62	9.228		
9,200.0	7,504.0	8,887.7	7,267.0	40.8	36.3	58.12	-1,429.5	1,179.4	448.7	397.4	51.30	8.746		
9,300.0	7,504.0	8,987.7	7,267.0	42.0	37.6	58.12	-1,529.5	1,179.4	448.7	394.7	54.02	8.307		
9,400.0	7,504.0	9,087.7	7,267.0	43.2	39.0	58.12	-1,629.5	1,179.4	448.7	391.9	56.76	7.906		
9,500.0	7,504.0	9,187.7	7,267.0	44.4	40.3	58.12	-1,729.5	1,179.4	448.7	389.2	59.52	7.539		
9,600.0	7,504.0	9,287.7	7,267.0	45.7	41.7	58.12	-1,829.5	1,179.4	448.7	386.4	62.30	7.202		
9,700.0	7,504.0	9,387.7	7,267.0	47.0	43.2	58.12	-1,929.5	1,179.4	448.7	383.6	65.11	6.892		
9,800.0	7,504.0	9,487.7	7,267.0	48.3	44.6	58.12	-2,029.5	1,179.4	448.7	380.8	67.93	6.606		
9,900.0	7,504.0	9,587.7	7,267.0	49.7	46.1	58.12	-2,129.5	1,179.4	448.7	377.9	70.76	6.341		
10,000.0	7,504.0	9,687.7	7,267.0	51.1	47.6	58.12	-2,229.5	1,179.4	448.7	375.1	73.60	6.096		
10,100.0	7,504.0	9,787.7	7,267.0	52.5	49.1	58.12	-2,329.5	1,179.4	448.7	372.2	76.46	5.869		

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 2H-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 2H-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		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,200.0	7,504.0	9,887.7	7,267.0	53.9	50.6	58.12	-2,429.5	1,179.4	448.7	369.4	79.32	5.657	
10,300.0	7,504.0	9,987.7	7,267.0	55.4	52.1	58.12	-2,529.5	1,179.4	448.7	366.5	82.19	5.459	
10,400.0	7,504.0	10,087.7	7,267.0	56.8	53.7	58.12	-2,629.5	1,179.4	448.7	363.6	85.07	5.274	
10,500.0	7,504.0	10,187.7	7,267.0	58.3	55.3	58.12	-2,729.5	1,179.4	448.7	360.7	87.96	5.101	
10,600.0	7,504.0	10,287.7	7,267.0	59.8	56.8	58.12	-2,829.5	1,179.4	448.7	357.8	90.86	4.938	
10,700.0	7,504.0	10,387.7	7,267.0	61.3	58.4	58.12	-2,929.5	1,179.4	448.7	354.9	93.76	4.786	
10,800.0	7,504.0	10,487.7	7,267.0	62.8	60.0	58.12	-3,029.5	1,179.4	448.7	352.0	96.66	4.642	
10,900.0	7,504.0	10,587.7	7,267.0	64.4	61.6	58.12	-3,129.5	1,179.4	448.7	349.1	99.57	4.506	
11,000.0	7,504.0	10,687.7	7,267.0	65.9	63.2	58.12	-3,229.5	1,179.4	448.7	346.2	102.49	4.378	
11,100.0	7,504.0	10,787.7	7,267.0	67.5	64.9	58.12	-3,329.5	1,179.4	448.7	343.3	105.41	4.257	
11,200.0	7,504.0	10,887.7	7,267.0	69.0	66.5	58.12	-3,429.5	1,179.4	448.7	340.4	108.33	4.142	
11,300.0	7,504.0	10,987.7	7,267.0	70.6	68.1	58.12	-3,529.5	1,179.4	448.7	337.4	111.25	4.033	
11,400.0	7,504.0	11,087.7	7,267.0	72.2	69.8	58.12	-3,629.5	1,179.4	448.7	334.5	114.18	3.930	
11,500.0	7,504.0	11,187.7	7,267.0	73.8	71.4	58.12	-3,729.5	1,179.4	448.7	331.6	117.11	3.831	
11,600.0	7,504.0	11,287.7	7,267.0	75.4	73.0	58.12	-3,829.5	1,179.4	448.7	328.7	120.05	3.738	
11,700.0	7,504.0	11,387.7	7,267.0	77.0	74.7	58.12	-3,929.5	1,179.4	448.7	325.7	122.98	3.648	
11,800.0	7,504.0	11,487.7	7,267.0	78.6	76.4	58.12	-4,029.5	1,179.4	448.7	322.8	125.92	3.563	
11,900.0	7,504.0	11,587.7	7,267.0	80.2	78.0	58.12	-4,129.5	1,179.4	448.7	319.8	128.86	3.482	
12,000.0	7,504.0	11,687.7	7,267.0	81.8	79.7	58.12	-4,229.5	1,179.4	448.7	316.9	131.81	3.404	
12,100.0	7,504.0	11,787.7	7,267.0	83.5	81.4	58.12	-4,329.5	1,179.4	448.7	313.9	134.75	3.330	
12,200.0	7,504.0	11,887.7	7,267.0	85.1	83.0	58.12	-4,429.5	1,179.4	448.7	311.0	137.70	3.259	
12,254.7	7,504.0	11,942.4	7,267.0	86.0	83.9	58.12	-4,484.2	1,179.4	448.7	309.4	139.31	3.221	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lochbuie 2H-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 2H-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 Depths are relative to WELL @ 5020.0ft (Original Well Elev)

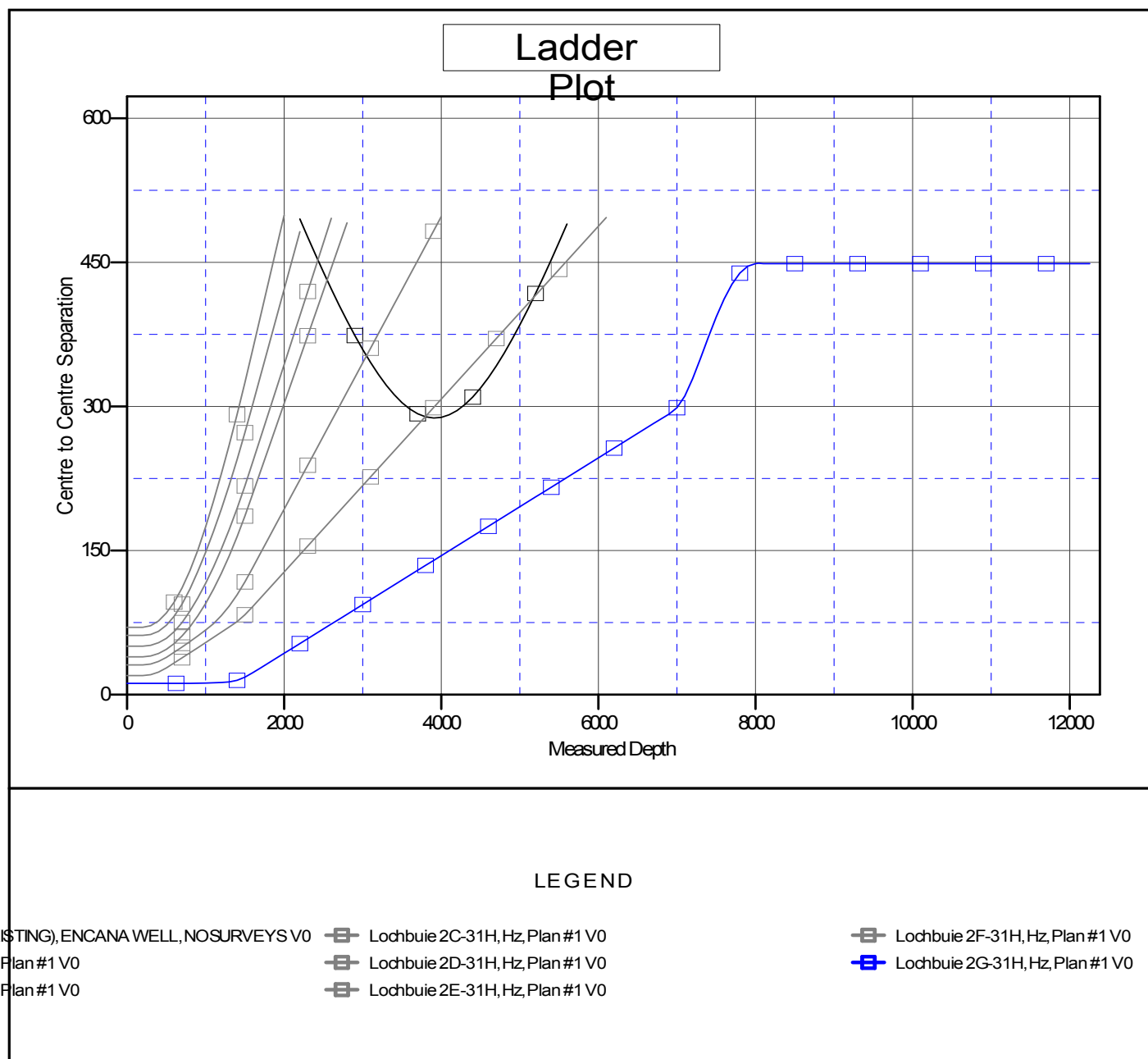
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Lochbuie 2H-31H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.51°



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