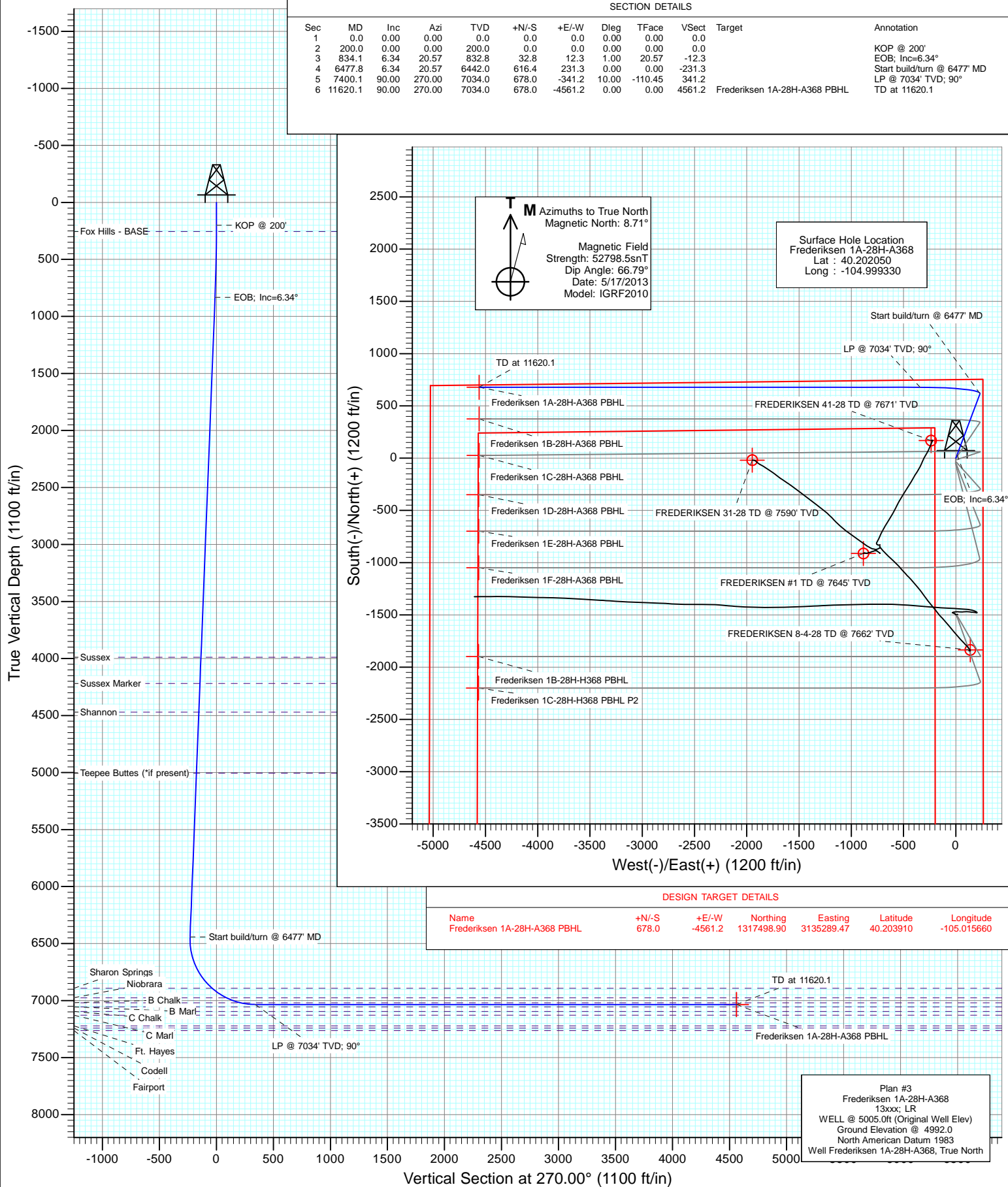




Project: DJ Wattenberg
Site: S28-T3N-R68W (Frederiksen)
Well: Frederiksen 1A-28H-A368
Wellbore: Hz
Design: Plan #3



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	North Reference:	True
Well:	Frederiksen 1A-28H-A368	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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		S28-T3N-R68W (Frederiksen)			
Site Position:		Northing:	1,315,349.57 ft	Latitude:	40.197940
From:	Lat/Long	Easting:	3,139,876.89 ft	Longitude:	-104.999280
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.32 °

Well	Frederiksen 1A-28H-A368					
Well Position	+N/-S	0.0 ft	Northing:	1,316,846.67 ft	Latitude:	40.202050
	+E/-W	0.0 ft	Easting:	3,139,854.47 ft	Longitude:	-104.999330
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,992.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/17/2013	8.71	66.79	52,799

Design	Plan #3				
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	270.00	

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	
834.1	6.34	20.57	832.8	32.8	12.3	1.00	1.00	0.00	20.57	
6,477.8	6.34	20.57	6,442.0	616.4	231.3	0.00	0.00	0.00	0.00	
7,400.1	90.00	270.00	7,034.0	678.0	-341.2	10.00	9.07	-11.99	-110.45	
11,620.1	90.00	270.00	7,034.0	678.0	-4,561.2	0.00	0.00	0.00	0.00	Frederiksen 1A-28H-#

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	North Reference:	True
Well:	Frederiksen 1A-28H-A368	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
255.0	0.55	20.57	255.0	0.2	0.1	-0.1	1.00	1.00	Fox Hills - BASE
300.0	1.00	20.57	300.0	0.8	0.3	-0.3	1.00	1.00	
400.0	2.00	20.57	400.0	3.3	1.2	-1.2	1.00	1.00	
500.0	3.00	20.57	499.9	7.4	2.8	-2.8	1.00	1.00	
600.0	4.00	20.57	599.7	13.1	4.9	-4.9	1.00	1.00	
700.0	5.00	20.57	699.4	20.4	7.7	-7.7	1.00	1.00	
800.0	6.00	20.57	798.9	29.4	11.0	-11.0	1.00	1.00	
834.1	6.34	20.57	832.8	32.8	12.3	-12.3	1.00	1.00	EOB; Inc=6.34°
900.0	6.34	20.57	898.3	39.6	14.9	-14.9	0.00	0.00	
1,000.0	6.34	20.57	997.7	50.0	18.8	-18.8	0.00	0.00	
1,100.0	6.34	20.57	1,097.1	60.3	22.6	-22.6	0.00	0.00	
1,200.0	6.34	20.57	1,196.5	70.7	26.5	-26.5	0.00	0.00	
1,300.0	6.34	20.57	1,295.9	81.0	30.4	-30.4	0.00	0.00	
1,400.0	6.34	20.57	1,395.2	91.3	34.3	-34.3	0.00	0.00	
1,500.0	6.34	20.57	1,494.6	101.7	38.2	-38.2	0.00	0.00	
1,600.0	6.34	20.57	1,594.0	112.0	42.0	-42.0	0.00	0.00	
1,700.0	6.34	20.57	1,693.4	122.4	45.9	-45.9	0.00	0.00	
1,800.0	6.34	20.57	1,792.8	132.7	49.8	-49.8	0.00	0.00	
1,900.0	6.34	20.57	1,892.2	143.0	53.7	-53.7	0.00	0.00	
2,000.0	6.34	20.57	1,991.6	153.4	57.6	-57.6	0.00	0.00	
2,100.0	6.34	20.57	2,091.0	163.7	61.4	-61.4	0.00	0.00	
2,200.0	6.34	20.57	2,190.4	174.1	65.3	-65.3	0.00	0.00	
2,300.0	6.34	20.57	2,289.7	184.4	69.2	-69.2	0.00	0.00	
2,400.0	6.34	20.57	2,389.1	194.7	73.1	-73.1	0.00	0.00	
2,500.0	6.34	20.57	2,488.5	205.1	77.0	-77.0	0.00	0.00	
2,600.0	6.34	20.57	2,587.9	215.4	80.8	-80.8	0.00	0.00	
2,700.0	6.34	20.57	2,687.3	225.8	84.7	-84.7	0.00	0.00	
2,800.0	6.34	20.57	2,786.7	236.1	88.6	-88.6	0.00	0.00	
2,900.0	6.34	20.57	2,886.1	246.4	92.5	-92.5	0.00	0.00	
3,000.0	6.34	20.57	2,985.5	256.8	96.4	-96.4	0.00	0.00	
3,100.0	6.34	20.57	3,084.8	267.1	100.2	-100.2	0.00	0.00	
3,200.0	6.34	20.57	3,184.2	277.5	104.1	-104.1	0.00	0.00	
3,300.0	6.34	20.57	3,283.6	287.8	108.0	-108.0	0.00	0.00	
3,400.0	6.34	20.57	3,383.0	298.1	111.9	-111.9	0.00	0.00	
3,500.0	6.34	20.57	3,482.4	308.5	115.7	-115.7	0.00	0.00	
3,600.0	6.34	20.57	3,581.8	318.8	119.6	-119.6	0.00	0.00	
3,700.0	6.34	20.57	3,681.2	329.2	123.5	-123.5	0.00	0.00	
3,800.0	6.34	20.57	3,780.6	339.5	127.4	-127.4	0.00	0.00	
3,900.0	6.34	20.57	3,880.0	349.8	131.3	-131.3	0.00	0.00	
4,000.0	6.34	20.57	3,979.3	360.2	135.1	-135.1	0.00	0.00	
4,009.7	6.34	20.57	3,989.0	361.2	135.5	-135.5	0.00	0.00	Sussex
4,100.0	6.34	20.57	4,078.7	370.5	139.0	-139.0	0.00	0.00	
4,200.0	6.34	20.57	4,178.1	380.9	142.9	-142.9	0.00	0.00	
4,241.1	6.34	20.57	4,219.0	385.1	144.5	-144.5	0.00	0.00	Sussex Marker
4,300.0	6.34	20.57	4,277.5	391.2	146.8	-146.8	0.00	0.00	
4,400.0	6.34	20.57	4,376.9	401.5	150.7	-150.7	0.00	0.00	
4,493.7	6.34	20.57	4,470.0	411.2	154.3	-154.3	0.00	0.00	Shannon
4,500.0	6.34	20.57	4,476.3	411.9	154.5	-154.5	0.00	0.00	
4,600.0	6.34	20.57	4,575.7	422.2	158.4	-158.4	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	North Reference:	True
Well:	Frederiksen 1A-28H-A368	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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
4,700.0	6.34	20.57	4,675.1	432.6	162.3	-162.3	0.00	0.00	
4,800.0	6.34	20.57	4,774.4	442.9	166.2	-166.2	0.00	0.00	
4,900.0	6.34	20.57	4,873.8	453.3	170.1	-170.1	0.00	0.00	
5,000.0	6.34	20.57	4,973.2	463.6	173.9	-173.9	0.00	0.00	
5,032.0	6.34	20.57	5,005.0	466.9	175.2	-175.2	0.00	0.00	Teepee Buttes (*if present)
5,100.0	6.34	20.57	5,072.6	473.9	177.8	-177.8	0.00	0.00	
5,200.0	6.34	20.57	5,172.0	484.3	181.7	-181.7	0.00	0.00	
5,300.0	6.34	20.57	5,271.4	494.6	185.6	-185.6	0.00	0.00	
5,400.0	6.34	20.57	5,370.8	505.0	189.5	-189.5	0.00	0.00	
5,500.0	6.34	20.57	5,470.2	515.3	193.3	-193.3	0.00	0.00	
5,600.0	6.34	20.57	5,569.6	525.6	197.2	-197.2	0.00	0.00	
5,700.0	6.34	20.57	5,668.9	536.0	201.1	-201.1	0.00	0.00	
5,800.0	6.34	20.57	5,768.3	546.3	205.0	-205.0	0.00	0.00	
5,900.0	6.34	20.57	5,867.7	556.7	208.9	-208.9	0.00	0.00	
6,000.0	6.34	20.57	5,967.1	567.0	212.7	-212.7	0.00	0.00	
6,100.0	6.34	20.57	6,066.5	577.3	216.6	-216.6	0.00	0.00	
6,200.0	6.34	20.57	6,165.9	587.7	220.5	-220.5	0.00	0.00	
6,300.0	6.34	20.57	6,265.3	598.0	224.4	-224.4	0.00	0.00	
6,400.0	6.34	20.57	6,364.7	608.4	228.3	-228.3	0.00	0.00	
6,477.8	6.34	20.57	6,442.0	616.4	231.3	-231.3	0.00	0.00	Start build/turn @ 6477' MD
6,500.0	5.94	0.06	6,464.1	618.7	231.7	-231.7	10.00	-1.81	
6,600.0	11.61	300.42	6,563.0	629.0	223.0	-223.0	10.00	5.67	
6,700.0	20.82	285.88	6,659.0	639.0	197.2	-197.2	10.00	9.21	
6,800.0	30.52	280.16	6,749.0	648.3	155.0	-155.0	10.00	9.70	
6,900.0	40.36	277.03	6,830.4	656.8	97.7	-97.7	10.00	9.84	
6,986.7	48.93	275.20	6,892.0	663.2	37.2	-37.2	10.00	9.89	Sharon Springs
7,000.0	50.25	274.96	6,900.6	664.1	27.1	-27.1	10.00	9.91	
7,100.0	60.17	273.42	6,957.6	670.0	-54.7	54.7	10.00	9.92	
7,137.0	63.85	272.93	6,975.0	671.9	-87.4	87.4	10.00	9.93	Niobrara
7,200.0	70.11	272.16	6,999.6	674.4	-145.2	145.2	10.00	9.94	
7,268.3	76.90	271.39	7,019.0	676.4	-210.6	210.6	10.00	9.94	B Chalk
7,300.0	80.05	271.05	7,025.3	677.1	-241.7	241.7	10.00	9.94	
7,400.0	89.99	270.00	7,034.0	678.0	-341.2	341.2	10.00	9.95	
7,400.1	90.00	270.00	7,034.0	678.0	-341.2	341.2	10.00	9.95	LP @ 7034' TVD; 90°
7,500.0	90.00	270.00	7,034.0	678.0	-441.2	441.2	0.00	0.00	
7,600.0	90.00	270.00	7,034.0	678.0	-541.2	541.2	0.00	0.00	
7,700.0	90.00	270.00	7,034.0	678.0	-641.2	641.2	0.00	0.00	
7,800.0	90.00	270.00	7,034.0	678.0	-741.2	741.2	0.00	0.00	
7,900.0	90.00	270.00	7,034.0	678.0	-841.2	841.2	0.00	0.00	
8,000.0	90.00	270.00	7,034.0	678.0	-941.2	941.2	0.00	0.00	
8,100.0	90.00	270.00	7,034.0	678.0	-1,041.2	1,041.2	0.00	0.00	
8,200.0	90.00	270.00	7,034.0	678.0	-1,141.2	1,141.2	0.00	0.00	
8,300.0	90.00	270.00	7,034.0	678.0	-1,241.2	1,241.2	0.00	0.00	
8,400.0	90.00	270.00	7,034.0	678.0	-1,341.2	1,341.2	0.00	0.00	
8,500.0	90.00	270.00	7,034.0	678.0	-1,441.2	1,441.2	0.00	0.00	
8,600.0	90.00	270.00	7,034.0	678.0	-1,541.2	1,541.2	0.00	0.00	
8,700.0	90.00	270.00	7,034.0	678.0	-1,641.2	1,641.2	0.00	0.00	
8,800.0	90.00	270.00	7,034.0	678.0	-1,741.2	1,741.2	0.00	0.00	
8,900.0	90.00	270.00	7,034.0	678.0	-1,841.2	1,841.2	0.00	0.00	
9,000.0	90.00	270.00	7,034.0	678.0	-1,941.2	1,941.2	0.00	0.00	
9,100.0	90.00	270.00	7,034.0	678.0	-2,041.2	2,041.2	0.00	0.00	
9,200.0	90.00	270.00	7,034.0	678.0	-2,141.2	2,141.2	0.00	0.00	

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	North Reference:	True
Well:	Frederiksen 1A-28H-A368	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	90.00	270.00	7,034.0	678.0	-2,241.2	2,241.2	0.00	0.00	
9,400.0	90.00	270.00	7,034.0	678.0	-2,341.2	2,341.2	0.00	0.00	
9,500.0	90.00	270.00	7,034.0	678.0	-2,441.2	2,441.2	0.00	0.00	
9,600.0	90.00	270.00	7,034.0	678.0	-2,541.2	2,541.2	0.00	0.00	
9,700.0	90.00	270.00	7,034.0	678.0	-2,641.2	2,641.2	0.00	0.00	
9,800.0	90.00	270.00	7,034.0	678.0	-2,741.2	2,741.2	0.00	0.00	
9,900.0	90.00	270.00	7,034.0	678.0	-2,841.2	2,841.2	0.00	0.00	
10,000.0	90.00	270.00	7,034.0	678.0	-2,941.2	2,941.2	0.00	0.00	
10,100.0	90.00	270.00	7,034.0	678.0	-3,041.2	3,041.2	0.00	0.00	
10,200.0	90.00	270.00	7,034.0	678.0	-3,141.2	3,141.2	0.00	0.00	
10,300.0	90.00	270.00	7,034.0	678.0	-3,241.2	3,241.2	0.00	0.00	
10,400.0	90.00	270.00	7,034.0	678.0	-3,341.2	3,341.2	0.00	0.00	
10,500.0	90.00	270.00	7,034.0	678.0	-3,441.2	3,441.2	0.00	0.00	
10,600.0	90.00	270.00	7,034.0	678.0	-3,541.2	3,541.2	0.00	0.00	
10,700.0	90.00	270.00	7,034.0	678.0	-3,641.2	3,641.2	0.00	0.00	
10,800.0	90.00	270.00	7,034.0	678.0	-3,741.2	3,741.2	0.00	0.00	
10,900.0	90.00	270.00	7,034.0	678.0	-3,841.2	3,841.2	0.00	0.00	
11,000.0	90.00	270.00	7,034.0	678.0	-3,941.2	3,941.2	0.00	0.00	
11,100.0	90.00	270.00	7,034.0	678.0	-4,041.2	4,041.2	0.00	0.00	
11,200.0	90.00	270.00	7,034.0	678.0	-4,141.2	4,141.2	0.00	0.00	
11,300.0	90.00	270.00	7,034.0	678.0	-4,241.2	4,241.2	0.00	0.00	
11,400.0	90.00	270.00	7,034.0	678.0	-4,341.2	4,341.2	0.00	0.00	
11,500.0	90.00	270.00	7,034.0	678.0	-4,441.2	4,441.2	0.00	0.00	
11,600.0	90.00	270.00	7,034.0	678.0	-4,541.2	4,541.2	0.00	0.00	
11,620.1	90.00	270.00	7,034.0	678.0	-4,561.2	4,561.2	0.00	0.00	TD at 11620.1

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Frederiksen 1A-28H-A368	0.00	0.00	7,034.0	678.0	-4,561.2	1,317,498.90	3,135,289.47	40.203910	-105.015660
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
255.0	255.0	Fox Hills - BASE			
4,009.7	3,989.0	Sussex			
4,241.1	4,219.0	Sussex Marker			
4,493.7	4,470.0	Shannon			
5,032.0	5,005.0	Teepee Buttes (*if present)			
6,986.7	6,892.0	Sharon Springs			
7,137.0	6,975.0	Niobrara			
7,268.3	7,019.0	B Chalk			

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	North Reference:	True
Well:	Frederiksen 1A-28H-A368	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
834.1	832.8	32.8	12.3	EOB; Inc=6.34°
6,477.8	6,442.0	616.4	231.3	Start build/turn @ 6477' MD
7,400.1	7,034.0	678.0	-341.2	LP @ 7034' TVD; 90°
11,620.1	7,034.0	678.0	-4,561.2	TD at 11620.1

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S28-T3N-R68W (Frederiksen)

Frederiksen 1A-28H-A368

Hz

Plan #3

Anticollision Report

16 September, 2013

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	9/16/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,620.1	Plan #3 (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						
S28-T3N-R68W (Frederiksen)						
FREDERIKSEN #1 (Existing) - DD - GYRO						Out of range
FREDERIKSEN 1A-28H (Existing) - Hz - Hz						Out of range
Frederiksen 1B-28H-A368 - Hz - Plan #3	200.0	200.0	7.8	7.2	11.954	CC, ES
Frederiksen 1B-28H-A368 - Hz - Plan #3	11,620.1	11,813.1	372.2	182.1	1.958	SF
Frederiksen 1B-28H-H368 - Hz - Plan #1						Out of range
Frederiksen 1C-28H-A368 - Hz - Plan #3	200.0	200.0	18.4	17.8	28.230	CC, ES
Frederiksen 1C-28H-A368 - Hz - Plan #3	600.0	600.2	30.5	28.5	14.861	SF
Frederiksen 1C-28H-H368 - Hz - Plan #2						Out of range
Frederiksen 1D-28H-A368 - Hz - Plan #3	200.0	200.0	29.3	28.6	44.850	CC, ES
Frederiksen 1D-28H-A368 - Hz - Plan #3	600.0	599.7	42.9	40.9	20.954	SF
Frederiksen 1E-28H-A368 - Hz - Plan #3	200.0	200.0	40.2	39.5	61.537	CC, ES
Frederiksen 1E-28H-A368 - Hz - Plan #3	600.0	598.0	56.7	54.7	27.710	SF
Frederiksen 1F-28H-A368 - Hz - Plan #3	200.0	199.0	47.4	46.8	72.870	CC, ES
Frederiksen 1F-28H-A368 - Hz - Plan #3	600.0	594.1	73.8	71.8	36.136	SF
FREDERIKSEN 31-28 (Existing) - DD - GYRO						Out of range
FREDERIKSEN 41-28 (Existing) - DD - GYRO						Out of range
FREDERIKSEN 8-4-28 (Existing) - DD - GYRO						Out of range

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1B-28H-A368 - Hz - Plan #3														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-159.02	-7.3	-2.8	7.8						
100.0	100.0	100.0	100.0	0.2	0.2	-159.02	-7.3	-2.8	7.8	7.5	0.30	25.693			
200.0	200.0	200.0	200.0	0.3	0.3	-159.02	-7.3	-2.8	7.8	7.2	0.65	11.954 CC, ES			
300.0	300.0	300.0	300.0	0.5	0.5	-179.63	-7.3	-2.8	8.7	7.7	1.00	8.661			
400.0	400.0	400.1	400.1	0.7	0.7	179.20	-6.6	-2.3	10.4	9.1	1.35	7.732			
500.0	499.9	500.3	500.3	0.9	0.9	176.51	-4.4	-0.8	12.3	10.6	1.70	7.221			
600.0	599.7	600.5	600.4	1.1	1.0	172.92	-0.7	1.6	14.2	12.2	2.05	6.932			
700.0	699.4	700.7	700.4	1.3	1.2	168.85	4.3	5.0	16.3	13.9	2.41	6.783			
800.0	798.9	800.6	800.1	1.5	1.4	166.04	10.0	8.8	19.6	16.8	2.77	7.071			
834.1	832.8	834.7	834.1	1.6	1.5	165.56	11.9	10.1	21.1	18.2	2.89	7.288			
900.0	898.3	900.5	899.8	1.8	1.6	164.92	15.6	12.6	24.1	21.0	3.13	7.717			
1,000.0	997.7	1,000.4	999.4	2.0	1.8	164.22	21.3	16.4	28.8	25.3	3.49	8.253			
1,100.0	1,097.1	1,100.3	1,099.1	2.3	2.1	163.71	26.9	20.1	33.5	29.7	3.86	8.686			
1,200.0	1,196.5	1,200.2	1,198.7	2.5	2.3	163.33	32.6	23.9	38.2	34.0	4.23	9.042			
1,300.0	1,295.9	1,300.1	1,298.4	2.8	2.5	163.03	38.2	27.7	42.9	38.3	4.59	9.340			
1,400.0	1,395.2	1,400.0	1,398.0	3.0	2.7	162.79	43.9	31.5	47.6	42.6	4.96	9.593			
1,500.0	1,494.6	1,499.9	1,497.7	3.3	2.9	162.59	49.5	35.3	52.3	47.0	5.33	9.810			
1,600.0	1,594.0	1,599.8	1,597.4	3.5	3.1	162.43	55.2	39.1	57.0	51.3	5.70	9.999			
1,700.0	1,693.4	1,699.7	1,697.0	3.8	3.3	162.29	60.8	42.9	61.7	55.6	6.07	10.164			
1,800.0	1,792.8	1,799.5	1,796.7	4.0	3.5	162.17	66.5	46.6	66.4	60.0	6.44	10.310			
1,900.0	1,892.2	1,899.4	1,896.3	4.3	3.7	162.07	72.1	50.4	71.1	64.3	6.81	10.439			
2,000.0	1,991.6	1,999.3	1,996.0	4.6	3.9	161.98	77.8	54.2	75.8	68.6	7.18	10.556			
2,100.0	2,091.0	2,099.2	2,095.6	4.8	4.1	161.90	83.4	58.0	80.5	72.9	7.55	10.660			
2,200.0	2,190.4	2,199.1	2,195.3	5.1	4.3	161.82	89.1	61.8	85.2	77.3	7.92	10.755			
2,300.0	2,289.7	2,299.0	2,295.0	5.3	4.6	161.76	94.7	65.6	89.9	81.6	8.29	10.841			
2,400.0	2,389.1	2,398.9	2,394.6	5.6	4.8	161.70	100.4	69.3	94.6	85.9	8.66	10.919			
2,500.0	2,488.5	2,498.8	2,494.3	5.8	5.0	161.65	106.0	73.1	99.3	90.3	9.03	10.991			
2,600.0	2,587.9	2,598.7	2,593.9	6.1	5.2	161.60	111.7	76.9	104.0	94.6	9.41	11.058			
2,700.0	2,687.3	2,698.6	2,693.6	6.4	5.4	161.56	117.3	80.7	108.7	98.9	9.78	11.119			
2,800.0	2,786.7	2,798.4	2,793.2	6.6	5.6	161.52	123.0	84.5	113.4	103.3	10.15	11.175			
2,900.0	2,886.1	2,898.3	2,892.9	6.9	5.8	161.48	128.6	88.3	118.1	107.6	10.52	11.228			
3,000.0	2,985.5	2,998.2	2,992.6	7.1	6.0	161.45	134.3	92.1	122.8	111.9	10.89	11.277			
3,100.0	3,084.8	3,098.1	3,092.2	7.4	6.2	161.42	139.9	95.8	127.5	116.2	11.26	11.323			
3,200.0	3,184.2	3,198.0	3,191.9	7.7	6.5	161.39	145.6	99.6	132.2	120.6	11.63	11.365			
3,300.0	3,283.6	3,297.9	3,291.5	7.9	6.7	161.36	151.2	103.4	136.9	124.9	12.00	11.405			
3,400.0	3,383.0	3,397.8	3,391.2	8.2	6.9	161.34	156.9	107.2	141.6	129.2	12.37	11.443			
3,500.0	3,482.4	3,497.7	3,490.9	8.4	7.1	161.31	162.5	111.0	146.3	133.6	12.75	11.478			
3,600.0	3,581.8	3,597.6	3,590.5	8.7	7.3	161.29	168.2	114.8	151.0	137.9	13.12	11.512			
3,700.0	3,681.2	3,697.4	3,690.2	9.0	7.5	161.27	173.8	118.6	155.7	142.2	13.49	11.543			
3,800.0	3,780.6	3,797.3	3,789.8	9.2	7.7	161.25	179.5	122.3	160.4	146.5	13.86	11.573			
3,900.0	3,880.0	3,897.2	3,889.5	9.5	7.9	161.23	185.1	126.1	165.1	150.9	14.23	11.601			
4,000.0	3,979.3	3,997.1	3,989.1	9.7	8.1	161.21	190.8	129.9	169.8	155.2	14.60	11.628			
4,100.0	4,078.7	4,097.0	4,088.8	10.0	8.3	161.20	196.4	133.7	174.5	159.5	14.97	11.654			
4,200.0	4,178.1	4,196.9	4,188.5	10.3	8.6	161.18	202.1	137.5	179.2	163.9	15.35	11.678			
4,300.0	4,277.5	4,296.8	4,288.1	10.5	8.8	161.17	207.7	141.3	183.9	168.2	15.72	11.701			
4,400.0	4,376.9	4,396.7	4,387.8	10.8	9.0	161.15	213.3	145.1	188.6	172.5	16.09	11.723			
4,500.0	4,476.3	4,496.6	4,487.4	11.0	9.2	161.14	219.0	148.8	193.3	176.8	16.46	11.744			
4,600.0	4,575.7	4,596.5	4,587.1	11.3	9.4	161.13	224.6	152.6	198.0	181.2	16.83	11.764			
4,700.0	4,675.1	4,696.3	4,686.7	11.6	9.6	161.11	230.3	156.4	202.7	185.5	17.20	11.783			
4,800.0	4,774.4	4,796.2	4,786.4	11.8	9.8	161.10	235.9	160.2	207.4	189.8	17.57	11.801			
4,900.0	4,873.8	4,896.1	4,886.1	12.1	10.0	161.09	241.6	164.0	212.1	194.2	17.95	11.819			
5,000.0	4,973.2	4,996.0	4,985.7	12.3	10.2	161.08	247.2	167.8	216.8	198.5	18.32	11.836			

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 Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1B-28H-A368 - Hz - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,100.0	5,072.6	5,095.9	5,085.4	12.6	10.5	161.07	252.9	171.5	221.5	202.8	18.69	11.852		
5,200.0	5,172.0	5,195.8	5,185.0	12.9	10.7	161.06	258.5	175.3	226.2	207.1	19.06	11.868		
5,300.0	5,271.4	5,295.7	5,284.7	13.1	10.9	161.05	264.2	179.1	230.9	211.5	19.43	11.882		
5,400.0	5,370.8	5,395.6	5,384.3	13.4	11.1	161.04	269.8	182.9	235.6	215.8	19.80	11.897		
5,500.0	5,470.2	5,495.5	5,484.0	13.6	11.3	161.03	275.5	186.7	240.3	220.1	20.18	11.911		
5,600.0	5,569.6	5,595.3	5,583.7	13.9	11.5	161.03	281.1	190.5	245.0	224.5	20.55	11.924		
5,700.0	5,668.9	5,695.2	5,683.3	14.2	11.7	161.02	286.8	194.3	249.7	228.8	20.92	11.937		
5,800.0	5,768.3	5,795.1	5,783.0	14.4	11.9	161.01	292.4	198.0	254.4	233.1	21.29	11.949		
5,900.0	5,867.7	5,895.0	5,882.6	14.7	12.1	161.00	298.1	201.8	259.1	237.4	21.66	11.961		
6,000.0	5,967.1	5,994.9	5,982.3	14.9	12.3	161.00	303.7	205.6	263.8	241.8	22.03	11.973		
6,100.0	6,066.5	6,094.8	6,082.0	15.2	12.6	160.99	309.4	209.4	268.5	246.1	22.40	11.984		
6,200.0	6,165.9	6,194.7	6,181.6	15.5	12.8	160.98	315.0	213.2	273.2	250.4	22.78	11.995		
6,300.0	6,265.3	6,294.6	6,281.3	15.7	13.0	160.98	320.7	217.0	277.9	254.8	23.15	12.005		
6,400.0	6,364.7	6,394.5	6,380.9	16.0	13.2	160.97	326.3	220.8	282.6	259.1	23.52	12.016		
6,477.8	6,442.0	6,472.2	6,458.5	16.2	13.4	160.96	330.7	223.7	286.3	262.5	23.81	12.023		
6,500.0	6,464.1	6,494.3	6,480.6	16.2	13.4	-178.63	332.0	224.5	287.3	263.4	23.89	12.028		
6,550.0	6,513.7	6,544.1	6,530.2	16.3	13.5	-139.23	334.8	226.4	289.6	265.5	24.09	12.019		
6,600.0	6,563.0	6,593.3	6,579.3	16.4	13.6	-121.49	337.6	228.3	291.9	267.6	24.35	11.989		
6,650.0	6,611.6	6,641.6	6,627.5	16.5	13.7	-114.55	340.3	230.1	294.7	270.1	24.64	11.962		
6,700.0	6,659.0	6,689.7	6,675.5	16.5	13.8	-112.24	343.0	231.7	298.4	273.5	24.93	11.969		
6,750.0	6,704.9	6,740.4	6,726.1	16.6	13.9	-111.97	345.9	229.7	303.1	277.9	25.15	12.050		
6,800.0	6,749.0	6,792.8	6,778.0	16.6	13.9	-112.63	348.8	223.0	308.5	283.3	25.26	12.215		
6,850.0	6,790.9	6,847.2	6,830.9	16.7	14.0	-113.79	351.8	211.1	314.7	289.4	25.25	12.463		
6,900.0	6,830.4	6,903.6	6,884.4	16.7	14.0	-115.21	354.9	193.4	321.3	296.2	25.13	12.789		
6,950.0	6,867.0	6,962.3	6,937.9	16.8	14.0	-116.74	357.9	169.6	328.4	303.5	24.92	13.179		
7,000.0	6,900.6	7,023.4	6,990.7	16.9	14.0	-118.29	360.9	139.1	335.6	310.9	24.65	13.611		
7,050.0	6,930.9	7,087.0	7,041.9	17.0	14.0	-119.80	363.8	101.6	342.7	318.3	24.40	14.047		
7,100.0	6,957.6	7,153.1	7,090.4	17.2	14.1	-121.21	366.5	56.8	349.5	325.3	24.21	14.438		
7,150.0	6,980.6	7,221.7	7,134.9	17.4	14.2	-122.49	369.1	4.7	355.8	331.6	24.22	14.693		
7,200.0	6,999.6	7,292.6	7,174.1	17.6	14.4	-123.58	371.3	-54.3	361.4	336.9	24.44	14.785		
7,250.0	7,014.6	7,365.7	7,206.5	17.9	14.8	-124.47	373.1	-119.7	365.9	340.9	25.03	14.621		
7,300.0	7,025.3	7,440.4	7,230.8	18.3	15.5	-125.13	374.5	-190.3	369.3	343.3	26.00	14.203		
7,350.0	7,031.8	7,516.4	7,245.9	18.8	16.4	-125.53	375.3	-264.7	371.5	344.1	27.39	13.559		
7,400.1	7,034.0	7,593.1	7,251.0	19.4	17.5	-125.67	375.6	-341.2	372.2	343.0	29.16	12.762		
7,500.0	7,034.0	7,693.1	7,251.0	20.7	19.2	-125.67	375.6	-441.2	372.2	340.2	31.92	11.660		
7,600.0	7,034.0	7,793.1	7,251.0	22.3	21.0	-125.67	375.6	-541.2	372.2	337.3	34.92	10.659		
7,700.0	7,034.0	7,893.1	7,251.0	24.1	22.9	-125.67	375.6	-641.2	372.2	334.1	38.11	9.767		
7,800.0	7,034.0	7,993.1	7,251.0	26.0	25.0	-125.67	375.6	-741.2	372.2	330.7	41.44	8.981		
7,900.0	7,034.0	8,093.1	7,251.0	28.0	27.1	-125.67	375.6	-841.2	372.2	327.3	44.89	8.291		
8,000.0	7,034.0	8,193.1	7,251.0	30.1	29.3	-125.67	375.6	-941.2	372.2	323.7	48.43	7.685		
8,100.0	7,034.0	8,293.1	7,251.0	32.3	31.5	-125.67	375.6	-1,041.2	372.2	320.1	52.04	7.152		
8,200.0	7,034.0	8,393.1	7,251.0	34.5	33.7	-125.67	375.6	-1,141.2	372.2	316.5	55.71	6.681		
8,300.0	7,034.0	8,493.1	7,251.0	36.7	36.0	-125.67	375.6	-1,241.2	372.2	312.7	59.42	6.263		
8,400.0	7,034.0	8,593.1	7,251.0	38.9	38.3	-125.67	375.6	-1,341.2	372.2	309.0	63.17	5.891		
8,500.0	7,034.0	8,693.1	7,251.0	41.2	40.6	-125.67	375.6	-1,441.2	372.2	305.2	66.95	5.559		
8,600.0	7,034.0	8,793.1	7,251.0	43.5	43.0	-125.67	375.6	-1,541.2	372.2	301.4	70.77	5.259		
8,700.0	7,034.0	8,893.1	7,251.0	45.9	45.3	-125.67	375.6	-1,641.2	372.2	297.6	74.60	4.989		
8,800.0	7,034.0	8,993.1	7,251.0	48.2	47.7	-125.67	375.6	-1,741.2	372.2	293.7	78.45	4.744		
8,900.0	7,034.0	9,093.1	7,251.0	50.6	50.1	-125.67	375.6	-1,841.2	372.2	289.8	82.32	4.521		
9,000.0	7,034.0	9,193.1	7,251.0	52.9	52.5	-125.67	375.6	-1,941.2	372.2	286.0	86.21	4.317		
9,100.0	7,034.0	9,293.1	7,251.0	55.3	54.9	-125.67	375.6	-2,041.2	372.2	282.1	90.10	4.131		
9,200.0	7,034.0	9,393.1	7,251.0	57.7	57.3	-125.67	375.6	-2,141.2	372.2	278.2	94.01	3.959		

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 Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1B-28H-A368 - Hz - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
9,300.0	7,034.0	9,493.1	7,251.0	60.1	59.7	-125.67	375.6	-2,241.2	372.2	274.2	97.93	3.800		
9,400.0	7,034.0	9,593.1	7,251.0	62.5	62.1	-125.67	375.6	-2,341.2	372.2	270.3	101.85	3.654		
9,500.0	7,034.0	9,693.1	7,251.0	64.9	64.5	-125.67	375.6	-2,441.2	372.2	266.4	105.79	3.518		
9,600.0	7,034.0	9,793.1	7,251.0	67.3	66.9	-125.67	375.6	-2,541.2	372.2	262.4	109.73	3.392		
9,700.0	7,034.0	9,893.1	7,251.0	69.7	69.4	-125.67	375.6	-2,641.2	372.2	258.5	113.67	3.274		
9,800.0	7,034.0	9,993.1	7,251.0	72.1	71.8	-125.67	375.6	-2,741.2	372.2	254.5	117.62	3.164		
9,900.0	7,034.0	10,093.1	7,251.0	74.5	74.2	-125.67	375.6	-2,841.2	372.2	250.6	121.58	3.061		
10,000.0	7,034.0	10,193.1	7,251.0	77.0	76.7	-125.67	375.6	-2,941.2	372.2	246.6	125.54	2.964		
10,100.0	7,034.0	10,293.1	7,251.0	79.4	79.1	-125.67	375.6	-3,041.2	372.2	242.7	129.51	2.874		
10,200.0	7,034.0	10,393.1	7,251.0	81.8	81.5	-125.67	375.6	-3,141.2	372.2	238.7	133.48	2.788		
10,300.0	7,034.0	10,493.1	7,251.0	84.3	84.0	-125.67	375.6	-3,241.2	372.2	234.7	137.45	2.708		
10,400.0	7,034.0	10,593.1	7,251.0	86.7	86.4	-125.67	375.6	-3,341.2	372.2	230.7	141.42	2.632		
10,500.0	7,034.0	10,693.1	7,251.0	89.1	88.9	-125.67	375.6	-3,441.2	372.2	226.8	145.40	2.560		
10,600.0	7,034.0	10,793.1	7,251.0	91.6	91.3	-125.67	375.6	-3,541.2	372.2	222.8	149.38	2.491		
10,700.0	7,034.0	10,893.1	7,251.0	94.0	93.8	-125.67	375.6	-3,641.2	372.2	218.8	153.37	2.427		
10,800.0	7,034.0	10,993.1	7,251.0	96.5	96.2	-125.67	375.6	-3,741.2	372.2	214.8	157.35	2.365		
10,900.0	7,034.0	11,093.1	7,251.0	98.9	98.7	-125.67	375.6	-3,841.2	372.2	210.8	161.34	2.307		
11,000.0	7,034.0	11,193.1	7,251.0	101.4	101.1	-125.67	375.6	-3,941.2	372.2	206.8	165.33	2.251		
11,100.0	7,034.0	11,293.1	7,251.0	103.8	103.6	-125.67	375.6	-4,041.2	372.2	202.8	169.32	2.198		
11,200.0	7,034.0	11,393.1	7,251.0	106.2	106.0	-125.67	375.6	-4,141.2	372.2	198.9	173.31	2.147		
11,300.0	7,034.0	11,493.1	7,251.0	108.7	108.5	-125.67	375.6	-4,241.2	372.2	194.9	177.31	2.099		
11,400.0	7,034.0	11,593.1	7,251.0	111.1	110.9	-125.67	375.6	-4,341.2	372.2	190.9	181.30	2.053		
11,500.0	7,034.0	11,693.1	7,251.0	113.6	113.4	-125.67	375.6	-4,441.2	372.2	186.9	185.30	2.008		
11,600.0	7,034.0	11,793.1	7,251.0	116.1	115.8	-125.67	375.6	-4,541.2	372.2	182.9	189.30	1.966		
11,620.1	7,034.0	11,813.1	7,251.0	116.5	116.3	-125.67	375.6	-4,561.2	372.2	182.1	190.10	1.958 SF		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1C-28H-A368 - Hz - Plan #3													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	-171.28	-18.2	-2.8	18.4					
100.0	100.0	100.0	100.0	0.2	0.2	-171.28	-18.2	-2.8	18.4	18.1	0.30	60.678		
200.0	200.0	200.0	200.0	0.3	0.3	-171.28	-18.2	-2.8	18.4	17.8	0.65	28.230 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	168.68	-18.2	-2.8	19.3	18.3	1.00	19.248		
400.0	400.0	400.0	400.0	0.7	0.7	170.02	-18.2	-2.8	21.9	20.5	1.35	16.182		
500.0	499.9	500.1	500.1	0.9	0.9	170.00	-17.9	-2.0	25.7	24.0	1.70	15.135		
600.0	599.7	600.2	600.2	1.1	1.0	167.67	-17.1	0.5	30.5	28.5	2.05	14.861 SF		
700.0	699.4	700.1	700.0	1.3	1.2	164.57	-15.8	4.4	36.4	34.0	2.41	15.106		
800.0	798.9	799.8	799.6	1.5	1.4	162.84	-14.5	8.4	44.0	41.2	2.77	15.874		
834.1	832.8	833.8	833.5	1.6	1.5	162.52	-14.1	9.7	47.0	44.1	2.90	16.222		
900.0	898.3	899.4	899.1	1.8	1.6	162.09	-13.2	12.4	52.9	49.8	3.14	16.867		
1,000.0	997.7	999.0	998.6	2.0	1.8	161.60	-11.9	16.3	61.9	58.4	3.50	17.670		
1,100.0	1,097.1	1,098.6	1,098.1	2.3	1.9	161.23	-10.6	20.3	70.9	67.1	3.87	18.314		
1,200.0	1,196.5	1,198.2	1,197.6	2.5	2.1	160.94	-9.3	24.3	79.9	75.7	4.24	18.842		
1,300.0	1,295.9	1,297.8	1,297.1	2.8	2.3	160.71	-7.9	28.3	89.0	84.4	4.61	19.282		
1,400.0	1,395.2	1,397.4	1,396.6	3.0	2.5	160.53	-6.6	32.3	98.0	93.0	4.99	19.655		
1,500.0	1,494.6	1,497.0	1,496.1	3.3	2.7	160.37	-5.3	36.2	107.0	101.7	5.36	19.974		
1,600.0	1,594.0	1,596.5	1,595.6	3.5	2.9	160.24	-4.0	40.2	116.0	110.3	5.73	20.251		
1,700.0	1,693.4	1,696.1	1,695.1	3.8	3.1	160.13	-2.7	44.2	125.1	118.9	6.10	20.492		
1,800.0	1,792.8	1,795.7	1,794.6	4.0	3.3	160.03	-1.4	48.2	134.1	127.6	6.48	20.706		
1,900.0	1,892.2	1,895.3	1,894.1	4.3	3.4	159.95	0.0	52.2	143.1	136.2	6.85	20.895		
2,000.0	1,991.6	1,994.9	1,993.6	4.6	3.6	159.88	1.3	56.2	152.1	144.9	7.22	21.064		
2,100.0	2,091.0	2,094.5	2,093.1	4.8	3.8	159.81	2.6	60.1	161.1	153.5	7.60	21.216		
2,200.0	2,190.4	2,194.1	2,192.6	5.1	4.0	159.75	3.9	64.1	170.2	162.2	7.97	21.354		
2,300.0	2,289.7	2,293.7	2,292.2	5.3	4.2	159.70	5.2	68.1	179.2	170.8	8.34	21.478		
2,400.0	2,389.1	2,393.3	2,391.7	5.6	4.4	159.65	6.5	72.1	188.2	179.5	8.72	21.592		
2,500.0	2,488.5	2,492.9	2,491.2	5.8	4.6	159.61	7.9	76.1	197.2	188.1	9.09	21.697		
2,600.0	2,587.9	2,592.5	2,590.7	6.1	4.8	159.57	9.2	80.0	206.3	196.8	9.46	21.793		
2,700.0	2,687.3	2,692.1	2,690.2	6.4	5.0	159.53	10.5	84.0	215.3	205.4	9.84	21.881		
2,800.0	2,786.7	2,791.7	2,789.7	6.6	5.1	159.50	11.8	88.0	224.3	214.1	10.21	21.963		
2,900.0	2,886.1	2,891.2	2,889.2	6.9	5.3	159.46	13.1	92.0	233.3	222.7	10.59	22.039		
3,000.0	2,985.5	2,990.8	2,988.7	7.1	5.5	159.44	14.4	96.0	242.4	231.4	10.96	22.109		
3,100.0	3,084.8	3,090.4	3,088.2	7.4	5.7	159.41	15.8	100.0	251.4	240.0	11.34	22.175		
3,200.0	3,184.2	3,190.0	3,187.7	7.7	5.9	159.38	17.1	103.9	260.4	248.7	11.71	22.237		
3,300.0	3,283.6	3,289.6	3,287.2	7.9	6.1	159.36	18.4	107.9	269.4	257.3	12.09	22.295		
3,400.0	3,383.0	3,389.2	3,386.7	8.2	6.3	159.34	19.7	111.9	278.5	266.0	12.46	22.349		
3,500.0	3,482.4	3,488.8	3,486.2	8.4	6.5	159.32	21.0	115.9	287.5	274.6	12.83	22.400		
3,600.0	3,581.8	3,588.4	3,585.7	8.7	6.6	159.30	22.3	119.9	296.5	283.3	13.21	22.448		
3,700.0	3,681.2	3,688.0	3,685.2	9.0	6.8	159.28	23.7	123.9	305.5	291.9	13.58	22.493		
3,800.0	3,780.6	3,787.6	3,784.7	9.2	7.0	159.27	25.0	127.8	314.6	300.6	13.96	22.536		
3,900.0	3,880.0	3,887.2	3,884.2	9.5	7.2	159.25	26.3	131.8	323.6	309.2	14.33	22.576		
4,000.0	3,979.3	3,986.8	3,983.7	9.7	7.4	159.23	27.6	135.8	332.6	317.9	14.71	22.615		
4,100.0	4,078.7	4,086.3	4,083.2	10.0	7.6	159.22	28.9	139.8	341.6	326.5	15.08	22.652		
4,200.0	4,178.1	4,185.9	4,182.7	10.3	7.8	159.21	30.2	143.8	350.7	335.2	15.46	22.686		
4,300.0	4,277.5	4,285.5	4,282.2	10.5	8.0	159.19	31.6	147.7	359.7	343.8	15.83	22.719		
4,400.0	4,376.9	4,385.1	4,381.7	10.8	8.2	159.18	32.9	151.7	368.7	352.5	16.21	22.751		
4,500.0	4,476.3	4,484.7	4,481.2	11.0	8.3	159.17	34.2	155.7	377.7	361.1	16.58	22.781		
4,600.0	4,575.7	4,584.3	4,580.7	11.3	8.5	159.16	35.5	159.7	386.7	369.8	16.96	22.810		
4,700.0	4,675.1	4,683.9	4,680.2	11.6	8.7	159.15	36.8	163.7	395.8	378.4	17.33	22.837		
4,800.0	4,774.4	4,783.5	4,779.7	11.8	8.9	159.14	38.1	167.7	404.8	387.1	17.71	22.863		
4,900.0	4,873.8	4,883.1	4,879.2	12.1	9.1	159.13	39.5	171.6	413.8	395.7	18.08	22.889		
5,000.0	4,973.2	4,982.7	4,978.7	12.3	9.3	159.12	40.8	175.6	422.8	404.4	18.45	22.913		

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 Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design													S28-T3N-R68W (Frederiksen) - Frederiksen 1C-28H-A368 - Hz - Plan #3		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		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor						
							+N/-S (ft)	+E/-W (ft)										
5,100.0	5,072.6	5,082.3	5,078.3	12.6	9.5	159.11	42.1	179.6	431.9	413.0	18.83	22.936						
5,200.0	5,172.0	5,181.9	5,177.8	12.9	9.7	159.10	43.4	183.6	440.9	421.7	19.20	22.958						
5,300.0	5,271.4	5,281.4	5,277.3	13.1	9.9	159.09	44.7	187.6	449.9	430.3	19.58	22.980						
5,400.0	5,370.8	5,381.0	5,376.8	13.4	10.0	159.09	46.0	191.5	458.9	439.0	19.95	23.000						
5,500.0	5,470.2	5,480.6	5,476.3	13.6	10.2	159.08	47.4	195.5	468.0	447.6	20.33	23.020						
5,600.0	5,569.6	5,580.2	5,575.8	13.9	10.4	159.07	48.7	199.5	477.0	456.3	20.70	23.039						
5,700.0	5,668.9	5,679.8	5,675.3	14.2	10.6	159.06	50.0	203.5	486.0	464.9	21.08	23.058						
5,800.0	5,768.3	5,779.4	5,774.8	14.4	10.8	159.06	51.3	207.5	495.0	473.6	21.45	23.075						

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1D-28H-A368 - Hz - Plan #3													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	-174.53	-29.1	-2.8	29.3					
100.0	100.0	100.0	100.0	0.2	0.2	-174.53	-29.1	-2.8	29.3	29.0	0.30	96.403		
200.0	200.0	200.0	200.0	0.3	0.3	-174.53	-29.1	-2.8	29.3	28.6	0.65	44.850 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	165.34	-29.1	-2.8	30.1	29.1	1.00	30.066		
400.0	400.0	400.0	400.0	0.7	0.7	166.49	-29.1	-2.8	32.7	31.3	1.35	24.179		
500.0	499.9	499.9	499.9	0.9	0.8	168.07	-29.1	-2.8	36.9	35.2	1.70	21.721		
600.0	599.7	599.7	599.7	1.1	1.0	169.74	-29.1	-2.8	42.9	40.9	2.05	20.954 SF		
700.0	699.4	699.4	699.4	1.3	1.2	171.31	-29.1	-2.8	50.6	48.3	2.39	21.148		
800.0	798.9	798.9	798.9	1.5	1.4	172.68	-29.1	-2.8	60.1	57.4	2.74	21.941		
834.1	832.8	832.8	832.8	1.6	1.4	173.09	-29.1	-2.8	63.8	60.9	2.86	22.310		
900.0	898.3	898.3	898.3	1.8	1.5	173.80	-29.1	-2.8	71.0	67.9	3.09	22.995		
1,000.0	997.7	997.7	997.7	2.0	1.7	174.63	-29.1	-2.8	82.0	78.6	3.44	23.866		
1,100.0	1,097.1	1,097.1	1,097.1	2.3	1.9	175.27	-29.1	-2.8	93.0	89.2	3.78	24.581		
1,200.0	1,196.5	1,196.5	1,196.5	2.5	2.1	175.77	-29.1	-2.8	104.0	99.9	4.13	25.178		
1,300.0	1,295.9	1,295.9	1,295.9	2.8	2.2	176.18	-29.1	-2.8	115.0	110.5	4.48	25.684		
1,400.0	1,395.2	1,395.2	1,395.2	3.0	2.4	176.51	-29.1	-2.8	126.1	121.2	4.83	26.119		
1,500.0	1,494.6	1,494.6	1,494.6	3.3	2.6	176.79	-29.1	-2.8	137.1	131.9	5.17	26.495		
1,600.0	1,594.0	1,594.0	1,594.0	3.5	2.8	177.03	-29.1	-2.8	148.1	142.6	5.52	26.825		
1,700.0	1,693.4	1,693.4	1,693.4	3.8	2.9	177.24	-29.1	-2.8	159.1	153.3	5.87	27.116		
1,800.0	1,792.8	1,792.8	1,792.8	4.0	3.1	177.42	-29.1	-2.8	170.2	164.0	6.22	27.375		
1,900.0	1,892.2	1,892.2	1,892.2	4.3	3.3	177.57	-29.1	-2.8	181.2	174.6	6.56	27.607		
2,000.0	1,991.6	1,991.6	1,991.6	4.6	3.5	177.71	-29.1	-2.8	192.2	185.3	6.91	27.815		
2,100.0	2,091.0	2,091.0	2,091.0	4.8	3.6	177.84	-29.1	-2.8	203.3	196.0	7.26	28.004		
2,200.0	2,190.4	2,190.4	2,190.4	5.1	3.8	177.95	-29.1	-2.8	214.3	206.7	7.61	28.176		
2,300.0	2,289.7	2,289.7	2,289.7	5.3	4.0	178.05	-29.1	-2.8	225.3	217.4	7.95	28.332		
2,400.0	2,389.1	2,389.1	2,389.1	5.6	4.1	178.14	-29.1	-2.8	236.4	228.1	8.30	28.476		
2,500.0	2,488.5	2,488.5	2,488.5	5.8	4.3	178.22	-29.1	-2.8	247.4	238.8	8.65	28.608		
2,600.0	2,587.9	2,587.9	2,587.9	6.1	4.5	178.30	-29.1	-2.8	258.5	249.5	9.00	28.730		
2,700.0	2,687.3	2,687.3	2,687.3	6.4	4.7	178.37	-29.1	-2.8	269.5	260.2	9.34	28.843		
2,800.0	2,786.7	2,786.7	2,786.7	6.6	4.8	178.43	-29.1	-2.8	280.5	270.9	9.69	28.948		
2,900.0	2,886.1	2,886.1	2,886.1	6.9	5.0	178.49	-29.1	-2.8	291.6	281.5	10.04	29.045		
3,000.0	2,985.5	2,985.5	2,985.5	7.1	5.2	178.55	-29.1	-2.8	302.6	292.2	10.39	29.137		
3,100.0	3,084.8	3,084.8	3,084.8	7.4	5.4	178.60	-29.1	-2.8	313.7	302.9	10.73	29.222		
3,200.0	3,184.2	3,184.2	3,184.2	7.7	5.5	178.65	-29.1	-2.8	324.7	313.6	11.08	29.302		
3,300.0	3,283.6	3,283.6	3,283.6	7.9	5.7	178.69	-29.1	-2.8	335.7	324.3	11.43	29.377		
3,400.0	3,383.0	3,383.0	3,383.0	8.2	5.9	178.73	-29.1	-2.8	346.8	335.0	11.78	29.448		
3,500.0	3,482.4	3,482.4	3,482.4	8.4	6.1	178.77	-29.1	-2.8	357.8	345.7	12.12	29.514		
3,600.0	3,581.8	3,579.3	3,579.3	8.7	6.2	178.73	-29.6	-2.4	369.1	356.7	12.47	29.609		
3,700.0	3,681.2	3,675.5	3,675.5	9.0	6.4	178.48	-31.1	-1.0	381.3	368.4	12.81	29.761		
3,800.0	3,780.6	3,771.5	3,771.4	9.2	6.6	178.04	-33.9	1.5	394.2	381.0	13.15	29.966		
3,900.0	3,880.0	3,867.1	3,866.9	9.5	6.7	177.44	-37.9	5.1	408.0	394.5	13.50	30.218		
4,000.0	3,979.3	3,962.4	3,961.9	9.7	6.9	176.68	-43.0	9.7	422.6	408.8	13.85	30.515		
4,100.0	4,078.7	4,057.2	4,056.4	10.0	7.1	175.80	-49.3	15.3	438.2	424.0	14.20	30.852		
4,200.0	4,178.1	4,151.6	4,150.2	10.3	7.3	174.82	-56.7	22.0	454.8	440.2	14.56	31.227		
4,300.0	4,277.5	4,246.4	4,244.3	10.5	7.5	173.74	-65.2	29.7	472.4	457.4	14.93	31.635		
4,400.0	4,376.9	4,344.4	4,341.5	10.8	7.7	172.66	-74.4	37.9	490.4	475.1	15.31	32.026		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1E-28H-A368 - Hz - Plan #3													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	-176.01	-40.1	-2.8	40.2					
100.0	100.0	100.0	100.0	0.2	0.2	-176.01	-40.1	-2.8	40.2	39.9	0.30	132.269		
200.0	200.0	200.0	200.0	0.3	0.3	-176.01	-40.1	-2.8	40.2	39.5	0.65	61.537 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	163.77	-40.1	-2.8	41.0	40.0	1.00	40.932		
400.0	400.0	400.0	400.0	0.7	0.7	164.72	-40.1	-2.8	43.5	42.2	1.35	32.221		
500.0	499.9	499.1	499.1	0.9	0.8	165.60	-40.9	-2.5	48.5	46.8	1.70	28.558		
600.0	599.7	598.0	597.9	1.1	1.0	165.89	-43.3	-1.5	56.7	54.7	2.05	27.710 SF		
700.0	699.4	696.4	696.3	1.3	1.2	165.77	-47.2	0.0	68.1	65.7	2.40	28.434		
800.0	798.9	794.2	793.9	1.5	1.4	165.41	-52.7	2.2	82.7	79.9	2.75	30.117		
834.1	832.8	827.4	827.0	1.6	1.5	165.26	-54.9	3.1	88.4	85.5	2.87	30.843		
900.0	898.3	891.3	890.7	1.8	1.6	164.93	-59.6	4.9	100.1	97.0	3.10	32.284		
1,000.0	997.7	987.8	986.8	2.0	1.8	164.25	-68.1	8.3	119.0	115.6	3.46	34.428		
1,100.0	1,097.1	1,084.7	1,083.1	2.3	2.0	163.49	-77.9	12.2	139.3	135.5	3.82	36.489		
1,200.0	1,196.5	1,182.5	1,180.3	2.5	2.3	162.87	-88.1	16.2	159.9	155.7	4.18	38.222		
1,300.0	1,295.9	1,280.4	1,277.6	2.8	2.5	162.40	-98.2	20.2	180.4	175.9	4.55	39.673		
1,400.0	1,395.2	1,378.3	1,374.8	3.0	2.8	162.02	-108.4	24.2	201.0	196.1	4.91	40.904		
1,500.0	1,494.6	1,476.1	1,472.1	3.3	3.0	161.71	-118.5	28.2	221.6	216.3	5.28	41.961		
1,600.0	1,594.0	1,574.0	1,569.3	3.5	3.2	161.45	-128.7	32.2	242.1	236.5	5.65	42.879		
1,700.0	1,693.4	1,671.8	1,666.6	3.8	3.5	161.24	-138.8	36.2	262.7	256.7	6.01	43.683		
1,800.0	1,792.8	1,769.7	1,763.8	4.0	3.7	161.05	-149.0	40.2	283.3	276.9	6.38	44.392		
1,900.0	1,892.2	1,867.5	1,861.0	4.3	4.0	160.90	-159.1	44.3	303.9	297.1	6.75	45.023		
2,000.0	1,991.6	1,965.4	1,958.3	4.6	4.2	160.76	-169.3	48.3	324.5	317.4	7.12	45.588		
2,100.0	2,091.0	2,063.2	2,055.5	4.8	4.5	160.63	-179.4	52.3	345.1	337.6	7.49	46.097		
2,200.0	2,190.4	2,161.1	2,152.8	5.1	4.7	160.52	-189.6	56.3	365.7	357.8	7.85	46.557		
2,300.0	2,289.7	2,259.0	2,250.0	5.3	5.0	160.43	-199.7	60.3	386.3	378.0	8.22	46.975		
2,400.0	2,389.1	2,356.8	2,347.3	5.6	5.2	160.34	-209.9	64.3	406.8	398.3	8.59	47.357		
2,500.0	2,488.5	2,454.7	2,444.5	5.8	5.5	160.26	-220.0	68.3	427.4	418.5	8.96	47.707		
2,600.0	2,587.9	2,552.5	2,541.7	6.1	5.8	160.19	-230.2	72.3	448.0	438.7	9.33	48.029		
2,700.0	2,687.3	2,650.4	2,639.0	6.4	6.0	160.13	-240.3	76.4	468.6	458.9	9.70	48.326		
2,800.0	2,786.7	2,748.2	2,736.2	6.6	6.3	160.07	-250.5	80.4	489.2	479.2	10.07	48.602		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1F-28H-A368 - Hz - Plan #3													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	-176.62	-47.4	-2.8	47.4					
100.0	100.0	99.0	99.0	0.2	0.2	-176.62	-47.4	-2.8	47.4	47.1	0.30	156.996		
200.0	200.0	199.0	199.0	0.3	0.3	-176.62	-47.4	-2.8	47.4	46.8	0.65	72.870	CC, ES	
300.0	300.0	298.2	298.2	0.5	0.5	162.81	-48.2	-2.6	49.1	48.1	1.00	49.143		
400.0	400.0	397.2	397.2	0.7	0.7	162.79	-50.6	-2.0	54.0	52.7	1.35	40.128		
500.0	499.9	495.9	495.8	0.9	0.9	162.75	-54.8	-0.9	62.3	60.6	1.69	36.757		
600.0	599.7	594.1	593.8	1.1	1.1	162.71	-60.5	0.5	73.8	71.8	2.04	36.136	SF	
700.0	699.4	691.7	691.1	1.3	1.3	162.67	-67.8	2.4	88.7	86.3	2.39	37.051		
800.0	798.9	788.5	787.5	1.5	1.5	162.63	-76.6	4.6	106.7	104.0	2.74	38.902		
834.1	832.8	821.3	820.1	1.6	1.6	162.61	-80.0	5.5	113.6	110.7	2.86	39.685		
900.0	898.3	884.4	882.8	1.8	1.7	162.57	-86.9	7.2	127.6	124.5	3.10	41.221		
1,000.0	997.7	979.6	977.2	2.0	2.0	162.37	-98.7	10.2	150.2	146.7	3.45	43.516		
1,100.0	1,097.1	1,074.1	1,070.8	2.3	2.3	162.06	-111.9	13.5	174.3	170.5	3.81	45.777		
1,200.0	1,196.5	1,170.5	1,166.0	2.5	2.5	161.74	-126.3	17.2	199.4	195.2	4.17	47.838		
1,300.0	1,295.9	1,267.3	1,261.6	2.8	2.8	161.49	-140.8	20.9	224.5	219.9	4.53	49.562		
1,400.0	1,395.2	1,364.1	1,357.2	3.0	3.1	161.28	-155.3	24.5	249.6	244.7	4.89	51.026		
1,500.0	1,494.6	1,460.9	1,452.9	3.3	3.4	161.12	-169.8	28.2	274.7	269.4	5.25	52.284		
1,600.0	1,594.0	1,557.7	1,548.5	3.5	3.7	160.98	-184.3	31.9	299.8	294.2	5.62	53.378		
1,700.0	1,693.4	1,654.5	1,644.1	3.8	4.0	160.86	-198.8	35.5	324.9	318.9	5.98	54.336		
1,800.0	1,792.8	1,751.3	1,739.8	4.0	4.4	160.76	-213.3	39.2	350.0	343.7	6.34	55.184		
1,900.0	1,892.2	1,848.1	1,835.4	4.3	4.7	160.67	-227.8	42.9	375.1	368.4	6.71	55.938		
2,000.0	1,991.6	1,944.9	1,931.0	4.6	5.0	160.60	-242.3	46.6	400.2	393.2	7.07	56.613		
2,100.0	2,091.0	2,041.7	2,026.7	4.8	5.3	160.53	-256.8	50.2	425.4	417.9	7.43	57.222		
2,200.0	2,190.4	2,138.4	2,122.3	5.1	5.6	160.47	-271.3	53.9	450.5	442.7	7.80	57.773		
2,300.0	2,289.7	2,235.2	2,217.9	5.3	5.9	160.42	-285.8	57.6	475.6	467.4	8.16	58.274		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1A-28H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5005.0ft (Original Well Elev)
Reference Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 5005.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frederiksen 1A-28H-A368	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 #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5005.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Frederiksen 1A-28H-A368

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.32°

