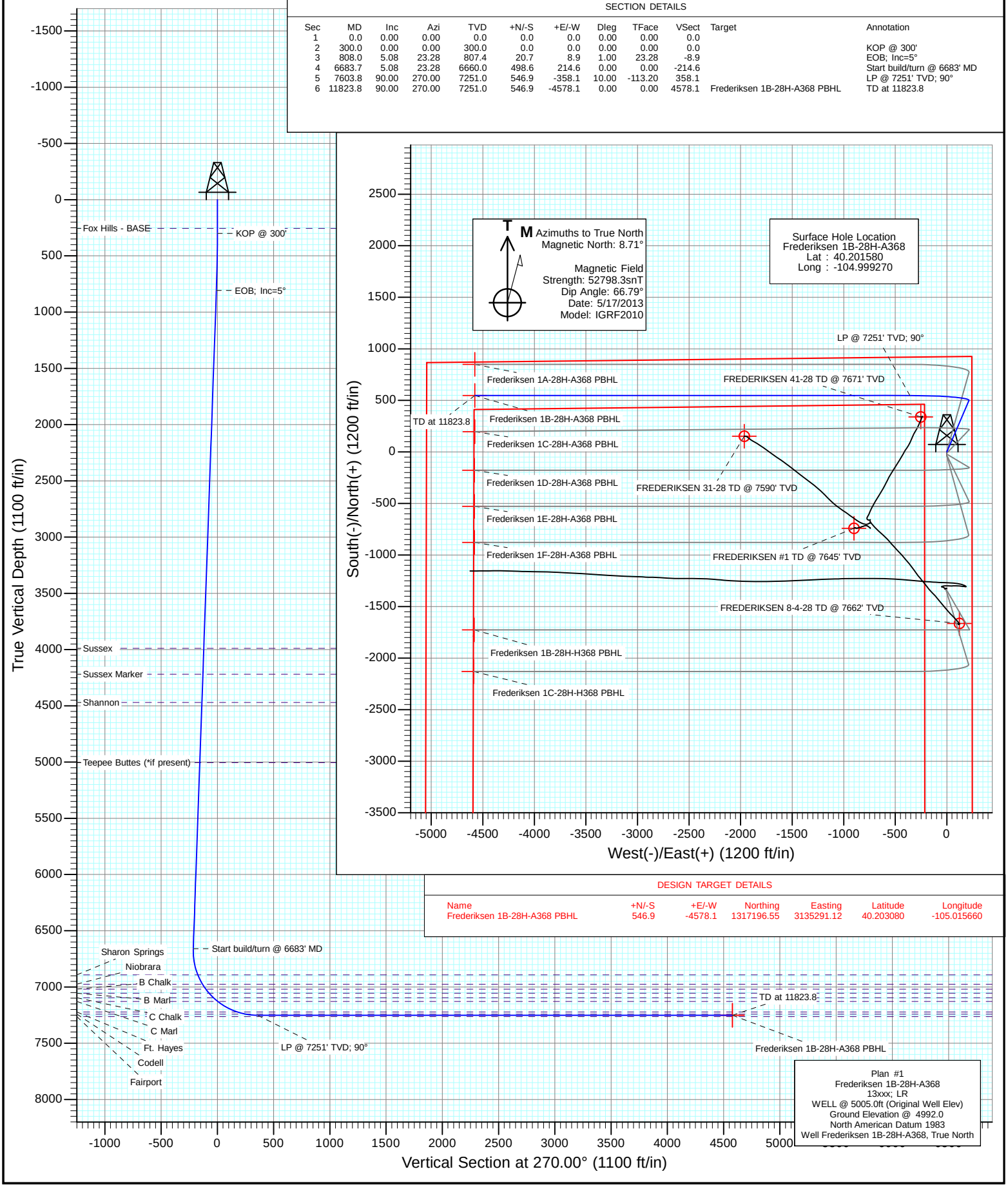
Project: DJ Wattenberg
Site: S28-T3N-R68W (Frederiksen)
Well: Frederiksen 1B-28H-A368
Wellbore: Hz
Design: Plan #1

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0		KOP @ 300'
3	808.0	5.08	23.28	807.4	20.7	8.9	1.00	23.28	-8.9		EOB; Inc=5°
4	6683.7	5.08	23.28	6660.0	498.6	214.6	0.00	0.00	-214.6		Start build/turn @ 6683' MD
5	7603.8	90.00	270.00	7251.0	546.9	-358.1	10.00	-113.20	358.1		LP @ 7251' TVD; 90°
6	11823.8	90.00	270.00	7251.0	546.9	-4578.1	0.00	0.00	4578.1	Frederiksen 1B-28H-A368 PBHL	TD at 11823.8



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Frederiksen 1B-28H-A368 PBHL	546.9	-4578.1	1317196.55	3135291.12	40.203080	-105.015660

Plan #1
Frederiksen 1B-28H-A368
13xxx; LR
WELL @ 5005.0ft (Original Well Elev)
Ground Elevation @ 4992.0
North American Datum 1983
Well Frederiksen 1B-28H-A368, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-28H-A368	**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 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 1B-28H-A368

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,316,675.55 ft	**Latitude:**	40.201580
	+E/-W	0.0 ft	**Easting:**	3,139,872.19 ft	**Longitude:**	-104.999270
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	52,798

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
808.0	5.08	23.28	807.4	20.7	8.9	1.00	1.00	0.00	23.28	
6,683.7	5.08	23.28	6,660.0	498.6	214.6	0.00	0.00	0.00	0.00	
7,603.8	90.00	270.00	7,251.0	546.9	-358.1	10.00	9.23	-12.31	-113.20	
11,823.8	90.00	270.00	7,251.0	546.9	-4,578.1	0.00	0.00	0.00	0.00	Frederiksen 1B-28H-A

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-28H-A368	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
255.0	0.00	0.00	255.0	0.0	0.0	0.0	0.00	0.00	Fox Hills - BASE
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	KOP @ 300'
400.0	1.00	23.28	400.0	0.8	0.3	-0.3	1.00	1.00	
500.0	2.00	23.28	500.0	3.2	1.4	-1.4	1.00	1.00	
600.0	3.00	23.28	599.9	7.2	3.1	-3.1	1.00	1.00	
700.0	4.00	23.28	699.7	12.8	5.5	-5.5	1.00	1.00	
800.0	5.00	23.28	799.4	20.0	8.6	-8.6	1.00	1.00	
808.0	5.08	23.28	807.4	20.7	8.9	-8.9	1.00	1.00	EOB; Inc=5°
900.0	5.08	23.28	899.0	28.2	12.1	-12.1	0.00	0.00	
1,000.0	5.08	23.28	998.6	36.3	15.6	-15.6	0.00	0.00	
1,100.0	5.08	23.28	1,098.2	44.4	19.1	-19.1	0.00	0.00	
1,200.0	5.08	23.28	1,197.8	52.6	22.6	-22.6	0.00	0.00	
1,300.0	5.08	23.28	1,297.4	60.7	26.1	-26.1	0.00	0.00	
1,400.0	5.08	23.28	1,397.0	68.8	29.6	-29.6	0.00	0.00	
1,500.0	5.08	23.28	1,496.6	77.0	33.1	-33.1	0.00	0.00	
1,600.0	5.08	23.28	1,596.2	85.1	36.6	-36.6	0.00	0.00	
1,700.0	5.08	23.28	1,695.8	93.2	40.1	-40.1	0.00	0.00	
1,800.0	5.08	23.28	1,795.4	101.4	43.6	-43.6	0.00	0.00	
1,900.0	5.08	23.28	1,895.0	109.5	47.1	-47.1	0.00	0.00	
2,000.0	5.08	23.28	1,994.7	117.6	50.6	-50.6	0.00	0.00	
2,100.0	5.08	23.28	2,094.3	125.8	54.1	-54.1	0.00	0.00	
2,200.0	5.08	23.28	2,193.9	133.9	57.6	-57.6	0.00	0.00	
2,300.0	5.08	23.28	2,293.5	142.0	61.1	-61.1	0.00	0.00	
2,400.0	5.08	23.28	2,393.1	150.2	64.6	-64.6	0.00	0.00	
2,500.0	5.08	23.28	2,492.7	158.3	68.1	-68.1	0.00	0.00	
2,600.0	5.08	23.28	2,592.3	166.4	71.6	-71.6	0.00	0.00	
2,700.0	5.08	23.28	2,691.9	174.6	75.1	-75.1	0.00	0.00	
2,800.0	5.08	23.28	2,791.5	182.7	78.6	-78.6	0.00	0.00	
2,900.0	5.08	23.28	2,891.1	190.8	82.1	-82.1	0.00	0.00	
3,000.0	5.08	23.28	2,990.7	199.0	85.6	-85.6	0.00	0.00	
3,100.0	5.08	23.28	3,090.3	207.1	89.1	-89.1	0.00	0.00	
3,200.0	5.08	23.28	3,189.9	215.2	92.6	-92.6	0.00	0.00	
3,300.0	5.08	23.28	3,289.5	223.4	96.1	-96.1	0.00	0.00	
3,400.0	5.08	23.28	3,389.2	231.5	99.6	-99.6	0.00	0.00	
3,500.0	5.08	23.28	3,488.8	239.6	103.1	-103.1	0.00	0.00	
3,600.0	5.08	23.28	3,588.4	247.8	106.6	-106.6	0.00	0.00	
3,700.0	5.08	23.28	3,688.0	255.9	110.1	-110.1	0.00	0.00	
3,800.0	5.08	23.28	3,787.6	264.0	113.6	-113.6	0.00	0.00	
3,900.0	5.08	23.28	3,887.2	272.2	117.1	-117.1	0.00	0.00	
4,000.0	5.08	23.28	3,986.8	280.3	120.6	-120.6	0.00	0.00	
4,002.2	5.08	23.28	3,989.0	280.5	120.7	-120.7	0.00	0.00	Sussex
4,100.0	5.08	23.28	4,086.4	288.4	124.1	-124.1	0.00	0.00	
4,200.0	5.08	23.28	4,186.0	296.6	127.6	-127.6	0.00	0.00	
4,233.1	5.08	23.28	4,219.0	299.3	128.8	-128.8	0.00	0.00	Sussex Marker
4,300.0	5.08	23.28	4,285.6	304.7	131.1	-131.1	0.00	0.00	
4,400.0	5.08	23.28	4,385.2	312.8	134.6	-134.6	0.00	0.00	
4,485.1	5.08	23.28	4,470.0	319.8	137.6	-137.6	0.00	0.00	Shannon
4,500.0	5.08	23.28	4,484.8	321.0	138.1	-138.1	0.00	0.00	
4,600.0	5.08	23.28	4,584.4	329.1	141.6	-141.6	0.00	0.00	

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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5005.0ft (Original Well Elev)
Site:	S28-T3N-R68W (Frederiksen)	**North Reference:**	True
Well:	Frederiksen 1B-28H-A368	**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
4,700.0	5.08	23.28	4,684.0	337.2	145.1	-145.1	0.00	0.00	
4,800.0	5.08	23.28	4,783.7	345.4	148.6	-148.6	0.00	0.00	
4,900.0	5.08	23.28	4,883.3	353.5	152.1	-152.1	0.00	0.00	
5,000.0	5.08	23.28	4,982.9	361.6	155.6	-155.6	0.00	0.00	
5,022.2	5.08	23.28	5,005.0	363.5	156.4	-156.4	0.00	0.00	Teepee Buttes (*if present)
5,100.0	5.08	23.28	5,082.5	369.8	159.1	-159.1	0.00	0.00	
5,200.0	5.08	23.28	5,182.1	377.9	162.6	-162.6	0.00	0.00	
5,300.0	5.08	23.28	5,281.7	386.0	166.1	-166.1	0.00	0.00	
5,400.0	5.08	23.28	5,381.3	394.2	169.6	-169.6	0.00	0.00	
5,500.0	5.08	23.28	5,480.9	402.3	173.1	-173.1	0.00	0.00	
5,600.0	5.08	23.28	5,580.5	410.4	176.6	-176.6	0.00	0.00	
5,700.0	5.08	23.28	5,680.1	418.6	180.1	-180.1	0.00	0.00	
5,800.0	5.08	23.28	5,779.7	426.7	183.6	-183.6	0.00	0.00	
5,900.0	5.08	23.28	5,879.3	434.8	187.1	-187.1	0.00	0.00	
6,000.0	5.08	23.28	5,978.9	443.0	190.6	-190.6	0.00	0.00	
6,100.0	5.08	23.28	6,078.5	451.1	194.1	-194.1	0.00	0.00	
6,200.0	5.08	23.28	6,178.2	459.2	197.6	-197.6	0.00	0.00	
6,300.0	5.08	23.28	6,277.8	467.4	201.1	-201.1	0.00	0.00	
6,400.0	5.08	23.28	6,377.4	475.5	204.6	-204.6	0.00	0.00	
6,500.0	5.08	23.28	6,477.0	483.7	208.1	-208.1	0.00	0.00	
6,600.0	5.08	23.28	6,576.6	491.8	211.6	-211.6	0.00	0.00	
6,683.7	5.08	23.28	6,660.0	498.6	214.6	-214.6	0.00	0.00	Start build/turn @ 6683' MD
6,700.0	4.68	4.61	6,676.2	499.9	214.9	-214.9	10.00	-2.43	
6,800.0	10.69	295.64	6,775.4	508.0	206.8	-206.8	10.00	6.00	
6,900.0	20.15	282.86	6,871.7	515.9	181.6	-181.6	10.00	9.46	
6,921.7	22.27	281.50	6,892.0	517.5	173.9	-173.9	10.00	9.74	Sharon Springs
7,000.0	29.96	278.15	6,962.2	523.3	140.0	-140.0	10.00	9.82	
7,014.9	31.42	277.68	6,975.0	524.3	132.5	-132.5	10.00	9.87	Niobrara
7,068.0	36.68	276.29	7,019.0	527.9	103.0	-103.0	10.00	9.89	B Chalk
7,100.0	39.85	275.61	7,044.1	530.0	83.3	-83.3	10.00	9.91	
7,114.3	41.27	275.34	7,055.0	530.9	74.0	-74.0	10.00	9.92	B Marl
7,170.0	46.80	274.40	7,095.0	534.1	35.5	-35.5	10.00	9.93	C Chalk
7,200.0	49.79	273.96	7,115.0	535.8	13.1	-13.1	10.00	9.94	
7,220.6	51.83	273.68	7,128.0	536.8	-2.8	2.8	10.00	9.94	C Marl
7,300.0	59.74	272.73	7,172.6	540.5	-68.3	68.3	10.00	9.95	
7,400.0	69.69	271.73	7,215.3	543.9	-158.6	158.6	10.00	9.96	
7,420.4	71.72	271.55	7,222.0	544.5	-177.8	177.8	10.00	9.96	Ft. Hayes
7,496.4	79.30	270.88	7,241.0	546.0	-251.3	251.3	10.00	9.96	Codell
7,500.0	79.66	270.85	7,241.7	546.1	-254.9	254.9	10.00	9.97	
7,600.0	89.63	270.03	7,251.0	546.9	-354.3	354.3	10.00	9.97	
7,603.8	90.00	270.00	7,251.0	546.9	-358.1	358.1	10.00	9.97	LP @ 7251' TVD; 90°
7,700.0	90.00	270.00	7,251.0	546.9	-454.3	454.3	0.00	0.00	
7,800.0	90.00	270.00	7,251.0	546.9	-554.3	554.3	0.00	0.00	
7,900.0	90.00	270.00	7,251.0	546.9	-654.3	654.3	0.00	0.00	
8,000.0	90.00	270.00	7,251.0	546.9	-754.3	754.3	0.00	0.00	
8,100.0	90.00	270.00	7,251.0	546.9	-854.3	854.3	0.00	0.00	
8,200.0	90.00	270.00	7,251.0	546.9	-954.3	954.3	0.00	0.00	
8,300.0	90.00	270.00	7,251.0	546.9	-1,054.3	1,054.3	0.00	0.00	
8,400.0	90.00	270.00	7,251.0	546.9	-1,154.3	1,154.3	0.00	0.00	
8,500.0	90.00	270.00	7,251.0	546.9	-1,254.3	1,254.3	0.00	0.00	
8,600.0	90.00	270.00	7,251.0	546.9	-1,354.3	1,354.3	0.00	0.00	
8,700.0	90.00	270.00	7,251.0	546.9	-1,454.3	1,454.3	0.00	0.00	

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Well:	Frederiksen 1B-28H-A368	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.00	270.00	7,251.0	546.9	-1,554.3	1,554.3	0.00	0.00	
8,900.0	90.00	270.00	7,251.0	546.9	-1,654.3	1,654.3	0.00	0.00	
9,000.0	90.00	270.00	7,251.0	546.9	-1,754.3	1,754.3	0.00	0.00	
9,100.0	90.00	270.00	7,251.0	546.9	-1,854.3	1,854.3	0.00	0.00	
9,200.0	90.00	270.00	7,251.0	546.9	-1,954.3	1,954.3	0.00	0.00	
9,300.0	90.00	270.00	7,251.0	546.9	-2,054.3	2,054.3	0.00	0.00	
9,400.0	90.00	270.00	7,251.0	546.9	-2,154.3	2,154.3	0.00	0.00	
9,500.0	90.00	270.00	7,251.0	546.9	-2,254.3	2,254.3	0.00	0.00	
9,600.0	90.00	270.00	7,251.0	546.9	-2,354.3	2,354.3	0.00	0.00	
9,700.0	90.00	270.00	7,251.0	546.9	-2,454.3	2,454.3	0.00	0.00	
9,800.0	90.00	270.00	7,251.0	546.9	-2,554.3	2,554.3	0.00	0.00	
9,900.0	90.00	270.00	7,251.0	546.9	-2,654.3	2,654.3	0.00	0.00	
10,000.0	90.00	270.00	7,251.0	546.9	-2,754.3	2,754.3	0.00	0.00	
10,100.0	90.00	270.00	7,251.0	546.9	-2,854.3	2,854.3	0.00	0.00	
10,200.0	90.00	270.00	7,251.0	546.9	-2,954.3	2,954.3	0.00	0.00	
10,300.0	90.00	270.00	7,251.0	546.9	-3,054.3	3,054.3	0.00	0.00	
10,400.0	90.00	270.00	7,251.0	546.9	-3,154.3	3,154.3	0.00	0.00	
10,500.0	90.00	270.00	7,251.0	546.9	-3,254.3	3,254.3	0.00	0.00	
10,600.0	90.00	270.00	7,251.0	546.9	-3,354.3	3,354.3	0.00	0.00	
10,700.0	90.00	270.00	7,251.0	546.9	-3,454.3	3,454.3	0.00	0.00	
10,800.0	90.00	270.00	7,251.0	546.9	-3,554.3	3,554.3	0.00	0.00	
10,900.0	90.00	270.00	7,251.0	546.9	-3,654.3	3,654.3	0.00	0.00	
11,000.0	90.00	270.00	7,251.0	546.9	-3,754.3	3,754.3	0.00	0.00	
11,100.0	90.00	270.00	7,251.0	546.9	-3,854.3	3,854.3	0.00	0.00	
11,200.0	90.00	270.00	7,251.0	546.9	-3,954.3	3,954.3	0.00	0.00	
11,300.0	90.00	270.00	7,251.0	546.9	-4,054.3	4,054.3	0.00	0.00	
11,400.0	90.00	270.00	7,251.0	546.9	-4,154.3	4,154.3	0.00	0.00	
11,500.0	90.00	270.00	7,251.0	546.9	-4,254.3	4,254.3	0.00	0.00	
11,600.0	90.00	270.00	7,251.0	546.9	-4,354.3	4,354.3	0.00	0.00	
11,700.0	90.00	270.00	7,251.0	546.9	-4,454.3	4,454.3	0.00	0.00	
11,800.0	90.00	270.00	7,251.0	546.9	-4,554.3	4,554.3	0.00	0.00	
11,823.8	90.00	270.00	7,251.0	546.9	-4,578.1	4,578.1	0.00	0.00	TD at 11823.8 - Frederiksen 1B-28H-A368 PBH

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Frederiksen 1B-28H-A3(- plan hits target center - Point	0.00	0.00	7,251.0	546.9	-4,578.1	1,317,196.55	3,135,291.12	40.203080	-105.015660

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-28H-A368	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
255.0	255.0	Fox Hills - BASE			
4,002.2	3,989.0	Sussex			
4,233.1	4,219.0	Sussex Marker			
4,485.1	4,470.0	Shannon			
5,022.2	5,005.0	Teepee Buttes (*if present)			
6,921.7	6,892.0	Sharon Springs			
7,014.9	6,975.0	Niobrara			
7,068.0	7,019.0	B Chalk			
7,114.3	7,055.0	B Marl			
7,170.0	7,095.0	C Chalk			
7,220.6	7,128.0	C Marl			
7,420.4	7,222.0	Ft. Hayes			
7,496.4	7,241.0	Codell			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
300.0	300.0	0.0	0.0	KOP @ 300'
808.0	807.4	20.7	8.9	EOB; Inc=5°
6,683.7	6,660.0	498.6	214.6	Start build/turn @ 6683' MD
7,603.8	7,251.0	546.9	-358.1	LP @ 7251' TVD; 90°
11,823.8	7,251.0	546.9	-4,578.1	TD at 11823.8

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S28-T3N-R68W (Frederiksen)
Frederiksen 1B-28H-A368
Hz
Plan #1

Anticollision Report

17 May, 2013

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 5/17/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,823.8	Plan #1 (Hz)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S28-T3N-R68W (Frederiksen)						
FREDERIKSEN #1 (Existing) - DD - GYRO						Out of range
FREDERIKSEN 1A-28H (Existing) - Hz - Hz						Out of range
Frederiksen 1A-28H-A368 - Hz - Plan #1	200.0	200.0	7.3	6.6	11.161	CC, ES
Frederiksen 1A-28H-A368 - Hz - Plan #1	11,823.8	11,638.5	372.2	181.6	1.953	SF
Frederiksen 1B-28H-H368 - Hz - Plan #1						Out of range
Frederiksen 1C-28H-A368 - Hz - Plan #1	300.0	300.0	10.9	9.9	10.909	CC, ES
Frederiksen 1C-28H-A368 - Hz - Plan #1	11,823.8	11,589.7	411.6	212.8	2.071	SF
Frederiksen 1C-28H-H368 - Hz - Plan #1						Out of range
Frederiksen 1D-28H-A368 - Hz - Plan #1	300.0	300.0	21.9	20.9	21.817	CC, ES
Frederiksen 1D-28H-A368 - Hz - Plan #1	600.0	599.9	29.2	27.2	14.269	SF
Frederiksen 1E-28H-A368 - Hz - Plan #1	300.0	300.0	32.8	31.8	32.726	CC, ES
Frederiksen 1E-28H-A368 - Hz - Plan #1	600.0	598.6	43.1	41.1	21.067	SF
Frederiksen 1F-28H-A368 - Hz - Plan #1	200.0	200.0	40.1	39.4	61.388	CC, ES
Frederiksen 1F-28H-A368 - Hz - Plan #1	600.0	596.1	60.6	58.6	29.627	SF
FREDERIKSEN 31-28 (Existing) - DD - GYRO	9,193.9	7,439.1	394.8	330.2	6.111	CC
FREDERIKSEN 31-28 (Existing) - DD - GYRO	9,200.0	7,439.3	394.8	330.1	6.098	ES
FREDERIKSEN 31-28 (Existing) - DD - GYRO	9,300.0	7,442.4	408.8	341.6	6.087	SF
FREDERIKSEN 41-28 (Existing) - DD - GYRO	7,489.1	7,363.6	205.4	182.5	8.980	CC, ES
FREDERIKSEN 41-28 (Existing) - DD - GYRO	7,500.0	7,365.7	205.7	182.7	8.934	SF
FREDERIKSEN 8-4-28 (Existing) - DD - GYRO						Out of range

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1A-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	7.3	0.0	7.3				
100.0	100.0	100.0	100.0	0.2	0.2	0.00	7.3	0.0	7.3	7.0	0.30	23.991	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	7.3	0.0	7.3	6.6	0.65	11.161	CC, ES
300.0	300.0	299.9	299.9	0.5	0.5	1.66	8.1	0.2	8.1	7.1	1.00	8.113	
400.0	400.0	399.7	399.7	0.7	0.7	-19.81	10.6	0.9	9.9	8.5	1.35	7.299	
500.0	500.0	499.5	499.4	0.9	0.9	-19.64	14.8	2.1	11.7	10.0	1.70	6.854	
600.0	599.9	599.3	598.9	1.0	1.1	-20.47	20.7	3.8	13.5	11.5	2.05	6.586	
700.0	699.7	699.0	698.4	1.2	1.3	-21.91	28.2	5.9	15.4	13.0	2.41	6.415	
800.0	799.4	798.7	797.6	1.4	1.5	-23.75	37.4	8.4	17.4	14.7	2.77	6.302	
900.0	899.0	898.4	896.6	1.7	1.8	-24.94	48.2	11.5	20.2	17.1	3.13	6.447	
1,000.0	998.6	998.0	995.4	1.9	2.0	-24.62	60.7	15.0	24.6	21.1	3.50	7.022	
1,100.0	1,098.2	1,097.9	1,094.4	2.1	2.3	-24.13	73.6	18.6	29.4	25.5	3.86	7.608	
1,200.0	1,197.8	1,197.8	1,193.4	2.3	2.6	-23.77	86.5	22.2	34.2	30.0	4.23	8.093	
1,300.0	1,297.4	1,297.6	1,292.4	2.6	2.9	-23.50	99.4	25.8	39.1	34.5	4.60	8.500	
1,400.0	1,397.0	1,397.5	1,391.3	2.8	3.1	-23.30	112.4	29.5	43.9	38.9	4.96	8.847	
1,500.0	1,496.6	1,497.4	1,490.3	3.0	3.4	-23.13	125.3	33.1	48.7	43.4	5.33	9.146	
1,600.0	1,596.2	1,597.3	1,589.3	3.2	3.7	-22.99	138.2	36.7	53.6	47.9	5.69	9.407	
1,700.0	1,695.8	1,697.2	1,688.3	3.5	4.0	-22.88	151.1	40.3	58.4	52.3	6.06	9.635	
1,800.0	1,795.4	1,797.1	1,787.2	3.7	4.3	-22.78	164.1	44.0	63.2	56.8	6.43	9.838	
1,900.0	1,895.0	1,896.9	1,886.2	3.9	4.6	-22.70	177.0	47.6	68.1	61.3	6.79	10.018	
2,000.0	1,994.7	1,996.8	1,985.2	4.2	4.9	-22.63	189.9	51.2	72.9	65.7	7.16	10.180	
2,100.0	2,094.3	2,096.7	2,084.2	4.4	5.2	-22.57	202.8	54.8	77.7	70.2	7.53	10.327	
2,200.0	2,193.9	2,196.6	2,183.1	4.6	5.4	-22.51	215.8	58.5	82.6	74.7	7.89	10.459	
2,300.0	2,293.5	2,296.5	2,282.1	4.9	5.7	-22.46	228.7	62.1	87.4	79.1	8.26	10.580	
2,400.0	2,393.1	2,396.4	2,381.1	5.1	6.0	-22.42	241.6	65.7	92.2	83.6	8.63	10.690	
2,500.0	2,492.7	2,496.2	2,480.1	5.3	6.3	-22.38	254.5	69.3	97.1	88.1	8.99	10.792	
2,600.0	2,592.3	2,596.1	2,579.1	5.6	6.6	-22.34	267.5	73.0	101.9	92.5	9.36	10.885	
2,700.0	2,691.9	2,696.0	2,678.0	5.8	6.9	-22.31	280.4	76.6	106.7	97.0	9.73	10.971	
2,800.0	2,791.5	2,795.9	2,777.0	6.0	7.2	-22.28	293.3	80.2	111.6	101.5	10.10	11.051	
2,900.0	2,891.1	2,895.8	2,876.0	6.3	7.5	-22.25	306.2	83.8	116.4	105.9	10.46	11.126	
3,000.0	2,990.7	2,995.7	2,975.0	6.5	7.8	-22.23	319.2	87.5	121.2	110.4	10.83	11.195	
3,100.0	3,090.3	3,095.5	3,073.9	6.7	8.1	-22.20	332.1	91.1	126.1	114.9	11.20	11.260	
3,200.0	3,189.9	3,195.4	3,172.9	7.0	8.4	-22.18	345.0	94.7	130.9	119.3	11.56	11.320	
3,300.0	3,289.5	3,295.3	3,271.9	7.2	8.6	-22.16	357.9	98.4	135.7	123.8	11.93	11.377	
3,400.0	3,389.2	3,395.2	3,370.9	7.4	8.9	-22.14	370.9	102.0	140.6	128.3	12.30	11.431	
3,500.0	3,488.8	3,495.1	3,469.8	7.6	9.2	-22.12	383.8	105.6	145.4	132.7	12.66	11.481	
3,600.0	3,588.4	3,595.0	3,568.8	7.9	9.5	-22.11	396.7	109.2	150.2	137.2	13.03	11.528	
3,700.0	3,688.0	3,694.8	3,667.8	8.1	9.8	-22.09	409.6	112.9	155.1	141.7	13.40	11.573	
3,800.0	3,787.6	3,794.7	3,766.8	8.3	10.1	-22.08	422.6	116.5	159.9	146.1	13.77	11.616	
3,900.0	3,887.2	3,894.6	3,865.8	8.6	10.4	-22.07	435.5	120.1	164.7	150.6	14.13	11.656	
4,000.0	3,986.8	3,994.5	3,964.7	8.8	10.7	-22.05	448.4	123.7	169.6	155.1	14.50	11.694	
4,100.0	4,086.4	4,094.4	4,063.7	9.0	11.0	-22.04	461.3	127.4	174.4	159.5	14.87	11.731	
4,200.0	4,186.0	4,194.3	4,162.7	9.3	11.3	-22.03	474.3	131.0	179.2	164.0	15.23	11.765	
4,300.0	4,285.6	4,294.1	4,261.7	9.5	11.6	-22.02	487.2	134.6	184.1	168.5	15.60	11.798	
4,400.0	4,385.2	4,394.0	4,360.6	9.7	11.9	-22.01	500.1	138.2	188.9	172.9	15.97	11.830	
4,500.0	4,484.8	4,493.9	4,459.6	10.0	12.1	-22.00	513.0	141.9	193.7	177.4	16.34	11.860	
4,600.0	4,584.4	4,593.8	4,558.6	10.2	12.4	-21.99	526.0	145.5	198.6	181.9	16.70	11.888	
4,700.0	4,684.0	4,693.7	4,657.6	10.4	12.7	-21.98	538.9	149.1	203.4	186.3	17.07	11.916	
4,800.0	4,783.7	4,793.5	4,756.5	10.7	13.0	-21.97	551.8	152.7	208.2	190.8	17.44	11.942	
4,900.0	4,883.3	4,893.4	4,855.5	10.9	13.3	-21.96	564.7	156.4	213.1	195.3	17.81	11.967	
5,000.0	4,982.9	4,993.3	4,954.5	11.1	13.6	-21.96	577.7	160.0	217.9	199.7	18.17	11.991	
5,100.0	5,082.5	5,093.2	5,053.5	11.4	13.9	-21.95	590.6	163.6	222.7	204.2	18.54	12.015	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1A-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,182.1	5,193.1	5,152.5	11.6	14.2	-21.94	603.5	167.2	227.6	208.7	18.91	12.037	
5,300.0	5,281.7	5,293.0	5,251.4	11.8	14.5	-21.93	616.4	170.9	232.4	213.1	19.27	12.058	
5,400.0	5,381.3	5,392.8	5,350.4	12.1	14.8	-21.93	629.4	174.5	237.2	217.6	19.64	12.079	
5,500.0	5,480.9	5,492.7	5,449.4	12.3	15.1	-21.92	642.3	178.1	242.1	222.1	20.01	12.099	
5,600.0	5,580.5	5,592.6	5,548.4	12.5	15.4	-21.92	655.2	181.7	246.9	226.5	20.38	12.118	
5,700.0	5,680.1	5,692.5	5,647.3	12.8	15.6	-21.91	668.1	185.4	251.8	231.0	20.74	12.137	
5,800.0	5,779.7	5,792.4	5,746.3	13.0	15.9	-21.91	681.1	189.0	256.6	235.5	21.11	12.155	
5,900.0	5,879.3	5,892.3	5,845.3	13.2	16.2	-21.90	694.0	192.6	261.4	239.9	21.48	12.172	
6,000.0	5,978.9	5,992.1	5,944.3	13.5	16.5	-21.89	706.9	196.2	266.3	244.4	21.84	12.188	
6,100.0	6,078.5	6,092.0	6,043.2	13.7	16.8	-21.89	719.8	199.9	271.1	248.9	22.21	12.205	
6,200.0	6,178.2	6,191.9	6,142.2	13.9	17.1	-21.88	732.8	203.5	275.9	253.3	22.58	12.220	
6,300.0	6,277.8	6,291.8	6,241.2	14.2	17.4	-21.88	745.7	207.1	280.8	257.8	22.95	12.235	
6,400.0	6,377.4	6,391.7	6,340.2	14.4	17.7	-21.88	758.6	210.7	285.6	262.3	23.31	12.250	
6,500.0	6,477.0	6,491.6	6,439.2	14.6	18.0	-21.87	771.5	214.4	290.4	266.7	23.68	12.264	
6,600.0	6,576.6	6,591.6	6,538.2	14.9	18.2	-23.36	784.5	210.3	295.2	271.0	24.16	12.218	
6,700.0	6,676.2	6,686.5	6,630.0	15.1	18.4	-9.22	796.5	190.5	301.1	276.2	24.94	12.075	
6,800.0	6,775.4	6,775.9	6,712.6	15.3	18.6	53.79	807.2	158.1	309.6	283.9	25.70	12.045	
6,900.0	6,871.7	6,862.1	6,786.5	15.4	18.7	61.19	816.9	115.0	319.9	293.8	26.09	12.259	
7,000.0	6,962.2	6,945.5	6,851.2	15.4	18.8	61.18	825.3	63.1	330.9	304.9	26.03	12.714	
7,100.0	7,044.1	7,026.8	6,906.3	15.5	19.0	59.66	832.5	3.9	341.8	316.2	25.67	13.316	
7,200.0	7,115.0	7,106.5	6,951.8	15.7	19.2	57.94	838.5	-61.2	351.8	326.8	25.07	14.036	
7,300.0	7,172.6	7,184.8	6,987.4	16.0	19.5	56.43	843.1	-130.7	360.3	335.5	24.82	14.516	
7,400.0	7,215.3	7,262.3	7,013.0	16.5	20.0	55.29	846.5	-203.7	366.7	341.4	25.30	14.495	
7,500.0	7,241.7	7,339.1	7,028.6	17.4	20.5	54.58	848.5	-278.9	370.7	343.9	26.82	13.821	
7,600.0	7,251.0	7,415.7	7,034.0	18.6	21.2	54.33	849.2	-355.2	372.2	342.7	29.45	12.639	
7,700.0	7,251.0	7,514.8	7,034.0	20.1	22.4	54.33	849.2	-454.3	372.2	339.9	32.23	11.548	
7,800.0	7,251.0	7,614.8	7,034.0	21.8	23.8	54.33	849.2	-554.3	372.2	336.9	35.23	10.564	
7,900.0	7,251.0	7,714.8	7,034.0	23.7	25.4	54.33	849.2	-654.3	372.2	333.7	38.42	9.687	
8,000.0	7,251.0	7,814.8	7,034.0	25.7	27.2	54.33	849.2	-754.3	372.2	330.4	41.76	8.913	
8,100.0	7,251.0	7,914.8	7,034.0	27.7	29.1	54.33	849.2	-854.3	372.2	327.0	45.20	8.233	
8,200.0	7,251.0	8,014.8	7,034.0	29.9	31.1	54.33	849.2	-954.3	372.2	323.4	48.74	7.636	
8,300.0	7,251.0	8,114.8	7,034.0	32.1	33.2	54.33	849.2	-1,054.3	372.2	319.8	52.35	7.109	
8,400.0	7,251.0	8,214.8	7,034.0	34.3	35.3	54.33	849.2	-1,154.3	372.2	316.2	56.01	6.644	
8,500.0	7,251.0	8,314.8	7,034.0	36.5	37.5	54.33	849.2	-1,254.3	372.2	312.4	59.72	6.231	
8,600.0	7,251.0	8,414.8	7,034.0	38.8	39.7	54.33	849.2	-1,354.3	372.2	308.7	63.47	5.863	
8,700.0	7,251.0	8,514.8	7,034.0	41.1	41.9	54.33	849.2	-1,454.3	372.2	304.9	67.26	5.533	
8,800.0	7,251.0	8,614.8	7,034.0	43.5	44.2	54.33	849.2	-1,554.3	372.2	301.1	71.07	5.237	
8,900.0	7,251.0	8,714.8	7,034.0	45.8	46.5	54.33	849.2	-1,654.3	372.2	297.3	74.90	4.969	
9,000.0	7,251.0	8,814.8	7,034.0	48.2	48.8	54.33	849.2	-1,754.3	372.2	293.4	78.75	4.726	
9,100.0	7,251.0	8,914.8	7,034.0	50.5	51.2	54.33	849.2	-1,854.3	372.2	289.5	82.62	4.505	
9,200.0	7,251.0	9,014.8	7,034.0	52.9	53.5	54.33	849.2	-1,954.3	372.2	285.7	86.50	4.302	
9,300.0	7,251.0	9,114.8	7,034.0	55.3	55.9	54.33	849.2	-2,054.3	372.2	281.8	90.40	4.117	
9,400.0	7,251.0	9,214.8	7,034.0	57.7	58.2	54.33	849.2	-2,154.3	372.2	277.9	94.30	3.947	
9,500.0	7,251.0	9,314.8	7,034.0	60.1	60.6	54.33	849.2	-2,254.3	372.2	273.9	98.22	3.789	
9,600.0	7,251.0	9,414.8	7,034.0	62.5	63.0	54.33	849.2	-2,354.3	372.2	270.0	102.14	3.644	
9,700.0	7,251.0	9,514.8	7,034.0	64.9	65.4	54.33	849.2	-2,454.3	372.2	266.1	106.08	3.509	
9,800.0	7,251.0	9,614.8	7,034.0	67.3	67.8	54.33	849.2	-2,554.3	372.2	262.2	110.01	3.383	
9,900.0	7,251.0	9,714.8	7,034.0	69.7	70.2	54.33	849.2	-2,654.3	372.2	258.2	113.96	3.266	
10,000.0	7,251.0	9,814.8	7,034.0	72.1	72.6	54.33	849.2	-2,754.3	372.2	254.3	117.91	3.156	
10,100.0	7,251.0	9,914.8	7,034.0	74.6	75.0	54.33	849.2	-2,854.3	372.2	250.3	121.87	3.054	
10,200.0	7,251.0	10,014.8	7,034.0	77.0	77.4	54.33	849.2	-2,954.3	372.2	246.3	125.83	2.958	
10,300.0	7,251.0	10,114.8	7,034.0	79.4	79.8	54.33	849.2	-3,054.3	372.2	242.4	129.79	2.867	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1A-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,251.0	10,214.8	7,034.0	81.9	82.2	54.33	849.2	-3,154.3	372.2	238.4	133.76	2.782	
10,500.0	7,251.0	10,314.8	7,034.0	84.3	84.7	54.33	849.2	-3,254.3	372.2	234.4	137.73	2.702	
10,600.0	7,251.0	10,414.8	7,034.0	86.7	87.1	54.33	849.2	-3,354.3	372.2	230.5	141.71	2.626	
10,700.0	7,251.0	10,514.8	7,034.0	89.2	89.5	54.33	849.2	-3,454.3	372.2	226.5	145.68	2.555	
10,800.0	7,251.0	10,614.8	7,034.0	91.6	92.0	54.33	849.2	-3,554.3	372.2	222.5	149.66	2.487	
10,900.0	7,251.0	10,714.8	7,034.0	94.1	94.4	54.33	849.2	-3,654.3	372.2	218.5	153.65	2.422	
11,000.0	7,251.0	10,814.8	7,034.0	96.5	96.8	54.33	849.2	-3,754.3	372.2	214.5	157.63	2.361	
11,100.0	7,251.0	10,914.8	7,034.0	99.0	99.3	54.33	849.2	-3,854.3	372.2	210.5	161.62	2.303	
11,200.0	7,251.0	11,014.8	7,034.0	101.4	101.7	54.33	849.2	-3,954.3	372.2	206.6	165.61	2.247	
11,300.0	7,251.0	11,114.8	7,034.0	103.9	104.1	54.33	849.2	-4,054.3	372.2	202.6	169.60	2.194	
11,400.0	7,251.0	11,214.8	7,034.0	106.3	106.6	54.33	849.2	-4,154.3	372.2	198.6	173.59	2.144	
11,500.0	7,251.0	11,314.8	7,034.0	108.8	109.0	54.33	849.2	-4,254.3	372.2	194.6	177.59	2.096	
11,600.0	7,251.0	11,414.8	7,034.0	111.2	111.5	54.33	849.2	-4,354.3	372.2	190.6	181.58	2.050	
11,700.0	7,251.0	11,514.8	7,034.0	113.7	113.9	54.33	849.2	-4,454.3	372.2	186.6	185.58	2.005	
11,800.0	7,251.0	11,614.8	7,034.0	116.1	116.4	54.33	849.2	-4,554.3	372.2	182.6	189.58	1.963	
11,810.3	7,251.0	11,625.1	7,034.0	116.4	116.6	54.33	849.2	-4,564.6	372.2	182.2	189.99	1.959	
11,823.8	7,251.0	11,638.5	7,034.0	116.7	117.0	54.33	849.2	-4,578.0	372.2	181.6	190.52	1.953	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1C-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-10.9	0.0	10.9				
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-10.9	0.0	10.9	10.6	0.30	35.986	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-10.9	0.0	10.9	10.3	0.65	16.742	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-10.9	0.0	10.9	9.9	1.00	10.909	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	158.40	-10.9	0.0	11.7	10.4	1.35	8.687	
500.0	500.0	500.1	500.1	0.9	0.9	160.00	-10.3	0.6	13.5	11.8	1.70	7.954	
600.0	599.9	600.3	600.3	1.0	1.0	159.22	-8.4	2.4	15.6	13.6	2.05	7.617	
700.0	699.7	700.5	700.4	1.2	1.2	156.95	-5.2	5.4	18.1	15.7	2.41	7.500	
800.0	799.4	800.5	800.2	1.4	1.4	155.34	-1.4	9.1	21.4	18.7	2.77	7.733	
900.0	899.0	900.4	899.9	1.7	1.6	155.15	2.5	12.8	25.7	22.6	3.14	8.199	
1,000.0	998.6	1,000.3	999.7	1.9	1.8	155.02	6.3	16.5	30.0	26.5	3.50	8.564	
1,100.0	1,098.2	1,100.2	1,099.5	2.1	2.0	154.92	10.2	20.2	34.3	30.4	3.87	8.857	
1,200.0	1,197.8	1,200.1	1,199.2	2.3	2.2	154.84	14.0	23.9	38.6	34.3	4.24	9.097	
1,300.0	1,297.4	1,300.0	1,299.0	2.6	2.4	154.78	17.9	27.6	42.9	38.3	4.61	9.297	
1,400.0	1,397.0	1,399.9	1,398.8	2.8	2.6	154.73	21.7	31.2	47.2	42.2	4.98	9.467	
1,500.0	1,496.6	1,499.8	1,498.5	3.0	2.8	154.69	25.6	34.9	51.5	46.1	5.35	9.612	
1,600.0	1,596.2	1,599.7	1,598.3	3.2	3.0	154.66	29.4	38.6	55.8	50.0	5.73	9.738	
1,700.0	1,695.8	1,699.6	1,698.1	3.5	3.1	154.63	33.3	42.3	60.0	53.9	6.10	9.848	
1,800.0	1,795.4	1,799.5	1,797.8	3.7	3.3	154.60	37.1	46.0	64.3	57.9	6.47	9.944	
1,900.0	1,895.0	1,899.4	1,897.6	3.9	3.5	154.58	41.0	49.7	68.6	61.8	6.84	10.031	
2,000.0	1,994.7	1,999.3	1,997.4	4.2	3.7	154.56	44.8	53.4	72.9	65.7	7.21	10.107	
2,100.0	2,094.3	2,099.3	2,097.1	4.4	3.9	154.54	48.7	57.0	77.2	69.6	7.59	10.177	
2,200.0	2,193.9	2,199.2	2,196.9	4.6	4.1	154.52	52.5	60.7	81.5	73.5	7.96	10.239	
2,300.0	2,293.5	2,299.1	2,296.7	4.9	4.3	154.51	56.4	64.4	85.8	77.5	8.33	10.296	
2,400.0	2,393.1	2,399.0	2,396.4	5.1	4.5	154.50	60.2	68.1	90.1	81.4	8.70	10.348	
2,500.0	2,492.7	2,498.9	2,496.2	5.3	4.7	154.49	64.1	71.8	94.4	85.3	9.08	10.395	
2,600.0	2,592.3	2,598.8	2,596.0	5.6	4.9	154.48	67.9	75.5	98.7	89.2	9.45	10.439	
2,700.0	2,691.9	2,698.7	2,695.7	5.8	5.1	154.47	71.8	79.1	102.9	93.1	9.82	10.479	
2,800.0	2,791.5	2,798.6	2,795.5	6.0	5.3	154.46	75.6	82.8	107.2	97.0	10.20	10.517	
2,900.0	2,891.1	2,898.5	2,895.3	6.3	5.5	154.45	79.5	86.5	111.5	101.0	10.57	10.551	
3,000.0	2,990.7	2,998.4	2,995.0	6.5	5.7	154.44	83.3	90.2	115.8	104.9	10.94	10.583	
3,100.0	3,090.3	3,098.3	3,094.8	6.7	5.9	154.43	87.2	93.9	120.1	108.8	11.32	10.613	
3,200.0	3,189.9	3,198.2	3,194.5	7.0	6.1	154.43	91.0	97.6	124.4	112.7	11.69	10.641	
3,300.0	3,289.5	3,298.2	3,294.3	7.2	6.3	154.42	94.9	101.3	128.7	116.6	12.06	10.668	
3,400.0	3,389.2	3,398.1	3,394.1	7.4	6.5	154.41	98.7	104.9	133.0	120.5	12.44	10.692	
3,500.0	3,488.8	3,498.0	3,493.8	7.6	6.7	154.41	102.6	108.6	137.3	124.5	12.81	10.716	
3,600.0	3,588.4	3,597.9	3,593.6	7.9	6.9	154.40	106.4	112.3	141.6	128.4	13.18	10.738	
3,700.0	3,688.0	3,697.8	3,693.4	8.1	7.1	154.40	110.3	116.0	145.9	132.3	13.56	10.758	
3,800.0	3,787.6	3,797.7	3,793.1	8.3	7.3	154.39	114.1	119.7	150.1	136.2	13.93	10.778	
3,900.0	3,887.2	3,897.6	3,892.9	8.6	7.5	154.39	118.0	123.4	154.4	140.1	14.30	10.796	
4,000.0	3,986.8	3,997.5	3,992.7	8.8	7.7	154.39	121.8	127.1	158.7	144.0	14.68	10.814	
4,100.0	4,086.4	4,097.4	4,092.4	9.0	7.9	154.38	125.7	130.7	163.0	148.0	15.05	10.830	
4,200.0	4,186.0	4,197.3	4,192.2	9.3	8.1	154.38	129.5	134.4	167.3	151.9	15.43	10.846	
4,300.0	4,285.6	4,297.2	4,292.0	9.5	8.3	154.37	133.4	138.1	171.6	155.8	15.80	10.861	
4,400.0	4,385.2	4,397.1	4,391.7	9.7	8.5	154.37	137.2	141.8	175.9	159.7	16.17	10.876	
4,500.0	4,484.8	4,497.0	4,491.5	10.0	8.7	154.37	141.1	145.5	180.2	163.6	16.55	10.889	
4,600.0	4,584.4	4,597.0	4,591.3	10.2	8.9	154.36	144.9	149.2	184.5	167.6	16.92	10.903	
4,700.0	4,684.0	4,696.9	4,691.0	10.4	9.1	154.36	148.8	152.9	188.8	171.5	17.29	10.915	
4,800.0	4,783.7	4,796.8	4,790.8	10.7	9.3	154.36	152.6	156.5	193.1	175.4	17.67	10.927	
4,900.0	4,883.3	4,896.7	4,890.6	10.9	9.5	154.36	156.5	160.2	197.3	179.3	18.04	10.939	
5,000.0	4,982.9	4,996.6	4,990.3	11.1	9.7	154.35	160.3	163.9	201.6	183.2	18.41	10.950	
5,100.0	5,082.5	5,096.5	5,090.1	11.4	9.9	154.35	164.2	167.6	205.9	187.1	18.79	10.960	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1C-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,182.1	5,196.4	5,189.9	11.6	10.0	154.35	168.0	171.3	210.2	191.1	19.16	10.970	
5,300.0	5,281.7	5,296.3	5,289.6	11.8	10.2	154.35	171.9	175.0	214.5	195.0	19.54	10.980	
5,400.0	5,381.3	5,396.2	5,389.4	12.1	10.4	154.34	175.7	178.6	218.8	198.9	19.91	10.990	
5,500.0	5,480.9	5,496.1	5,489.2	12.3	10.6	154.34	179.6	182.3	223.1	202.8	20.28	10.999	
5,600.0	5,580.5	5,596.0	5,588.9	12.5	10.8	154.34	183.4	186.0	227.4	206.7	20.66	11.007	
5,700.0	5,680.1	5,695.9	5,688.7	12.8	11.0	154.34	187.3	189.7	231.7	210.6	21.03	11.016	
5,800.0	5,779.7	5,795.8	5,788.5	13.0	11.2	154.34	191.1	193.4	236.0	214.6	21.40	11.024	
5,900.0	5,879.3	5,895.8	5,888.2	13.2	11.4	154.34	195.0	197.1	240.2	218.5	21.78	11.032	
6,000.0	5,978.9	5,995.7	5,988.0	13.5	11.6	154.33	198.8	200.8	244.5	222.4	22.15	11.039	
6,100.0	6,078.5	6,095.6	6,087.8	13.7	11.8	154.33	202.7	204.4	248.8	226.3	22.53	11.046	
6,200.0	6,178.2	6,195.5	6,187.5	13.9	12.0	154.33	206.5	208.1	253.1	230.2	22.90	11.054	
6,300.0	6,277.8	6,295.4	6,287.3	14.2	12.2	154.33	210.4	211.8	257.4	234.1	23.27	11.060	
6,400.0	6,377.4	6,395.3	6,387.1	14.4	12.4	154.33	214.2	215.5	261.7	238.1	23.65	11.067	
6,500.0	6,477.0	6,495.8	6,487.5	14.6	12.6	154.75	218.1	217.2	265.9	242.0	23.97	11.095	
6,600.0	6,576.6	6,594.2	6,584.8	14.9	12.7	158.24	221.7	204.4	270.3	246.3	23.99	11.268	
6,700.0	6,676.2	6,684.7	6,671.2	15.1	12.7	-176.95	224.8	177.9	277.7	253.8	23.84	11.648	
6,800.0	6,775.4	6,769.0	6,747.0	15.3	12.7	-101.28	227.3	141.4	289.6	265.8	23.77	12.184	
6,900.0	6,871.7	6,850.0	6,814.1	15.4	12.7	-82.69	229.5	96.2	304.4	280.4	23.92	12.725	
7,000.0	6,962.2	6,927.9	6,872.0	15.4	12.8	-73.19	231.3	44.1	320.3	296.1	24.22	13.223	
7,100.0	7,044.1	7,000.0	6,918.8	15.5	12.9	-66.97	232.6	-10.6	336.1	311.5	24.53	13.702	
7,200.0	7,115.0	7,078.3	6,961.5	15.7	13.3	-62.33	233.7	-76.2	350.4	325.5	24.93	14.055	
7,300.0	7,172.6	7,150.0	6,992.4	16.0	13.9	-59.14	234.3	-140.8	362.6	337.2	25.39	14.279	
7,400.0	7,215.3	7,223.9	7,015.5	16.5	14.7	-56.95	234.5	-210.9	372.0	345.8	26.12	14.243	
7,500.0	7,241.7	7,300.0	7,029.8	17.4	15.8	-55.67	234.4	-285.6	378.1	350.9	27.20	13.903	
7,600.0	7,251.0	7,369.8	7,034.0	18.6	16.9	-55.26	234.0	-355.3	380.7	352.1	28.63	13.300	
7,700.0	7,251.0	7,466.1	7,034.0	20.1	18.6	-55.33	233.2	-451.6	381.5	350.0	31.47	12.122	
7,800.0	7,251.0	7,566.1	7,034.0	21.8	20.5	-55.40	232.3	-551.5	382.2	347.6	34.62	11.040	
7,900.0	7,251.0	7,666.1	7,034.0	23.7	22.5	-55.48	231.4	-651.5	382.9	344.9	37.95	10.089	
8,000.0	7,251.0	7,766.1	7,034.0	25.7	24.5	-55.55	230.5	-751.5	383.6	342.2	41.43	9.259	
8,100.0	7,251.0	7,866.1	7,034.0	27.7	26.7	-55.62	229.7	-851.5	384.3	339.3	45.02	8.536	
8,200.0	7,251.0	7,966.1	7,034.0	29.9	28.9	-55.70	228.8	-951.5	385.0	336.3	48.71	7.905	
8,300.0	7,251.0	8,066.1	7,034.0	32.1	31.2	-55.77	227.9	-1,051.5	385.8	333.3	52.46	7.353	
8,400.0	7,251.0	8,166.1	7,034.0	34.3	33.4	-55.84	227.0	-1,151.5	386.5	330.2	56.27	6.868	
8,500.0	7,251.0	8,266.1	7,034.0	36.5	35.7	-55.91	226.2	-1,251.5	387.2	327.1	60.14	6.439	
8,600.0	7,251.0	8,366.0	7,034.0	38.8	38.1	-55.99	225.3	-1,351.5	387.9	323.9	64.04	6.057	
8,700.0	7,251.0	8,466.0	7,034.0	41.1	40.4	-56.06	224.4	-1,451.5	388.7	320.7	67.98	5.717	
8,800.0	7,251.0	8,566.0	7,034.0	43.5	42.8	-56.13	223.6	-1,551.5	389.4	317.4	71.95	5.412	
8,900.0	7,251.0	8,666.0	7,034.0	45.8	45.1	-56.20	222.7	-1,651.5	390.1	314.2	75.95	5.136	
9,000.0	7,251.0	8,766.0	7,034.0	48.2	47.5	-56.27	221.8	-1,751.5	390.8	310.9	79.97	4.887	
9,100.0	7,251.0	8,866.0	7,034.0	50.5	49.9	-56.34	220.9	-1,851.4	391.6	307.5	84.02	4.660	
9,200.0	7,251.0	8,966.0	7,034.0	52.9	52.3	-56.41	220.1	-1,951.4	392.3	304.2	88.08	4.454	
9,300.0	7,251.0	9,066.0	7,034.0	55.3	54.7	-56.48	219.2	-2,051.4	393.0	300.9	92.16	4.264	
9,400.0	7,251.0	9,166.0	7,034.0	57.7	57.1	-56.55	218.3	-2,151.4	393.7	297.5	96.26	4.090	
9,500.0	7,251.0	9,266.0	7,034.0	60.1	59.6	-56.62	217.4	-2,251.4	394.5	294.1	100.37	3.930	
9,600.0	7,251.0	9,366.0	7,034.0	62.5	62.0	-56.69	216.6	-2,351.4	395.2	290.7	104.50	3.782	
9,700.0	7,251.0	9,466.0	7,034.0	64.9	64.4	-56.76	215.7	-2,451.4	395.9	287.3	108.63	3.645	
9,800.0	7,251.0	9,566.0	7,034.0	67.3	66.8	-56.83	214.8	-2,551.4	396.7	283.9	112.78	3.517	
9,900.0	7,251.0	9,666.0	7,034.0	69.7	69.3	-56.90	214.0	-2,651.4	397.4	280.4	116.95	3.398	
10,000.0	7,251.0	9,766.0	7,034.0	72.1	71.7	-56.97	213.1	-2,751.4	398.1	277.0	121.12	3.287	
10,100.0	7,251.0	9,866.0	7,034.0	74.6	74.1	-57.04	212.2	-2,851.4	398.9	273.6	125.30	3.183	
10,200.0	7,251.0	9,966.0	7,034.0	77.0	76.6	-57.11	211.3	-2,951.4	399.6	270.1	129.50	3.086	
10,300.0	7,251.0	10,066.0	7,034.0	79.4	79.0	-57.17	210.5	-3,051.4	400.3	266.6	133.70	2.994	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1C-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,251.0	10,166.0	7,034.0	81.9	81.5	-57.24	209.6	-3,151.3	401.1	263.1	137.91	2.908	
10,500.0	7,251.0	10,266.0	7,034.0	84.3	83.9	-57.31	208.7	-3,251.3	401.8	259.7	142.13	2.827	
10,600.0	7,251.0	10,366.0	7,034.0	86.7	86.3	-57.38	207.9	-3,351.3	402.5	256.2	146.36	2.750	
10,700.0	7,251.0	10,466.0	7,034.0	89.2	88.8	-57.44	207.0	-3,451.3	403.3	252.7	150.60	2.678	
10,800.0	7,251.0	10,566.0	7,034.0	91.6	91.2	-57.51	206.1	-3,551.3	404.0	249.2	154.84	2.609	
10,900.0	7,251.0	10,666.0	7,034.0	94.1	93.7	-57.58	205.2	-3,651.3	404.7	245.6	159.09	2.544	
11,000.0	7,251.0	10,766.0	7,034.0	96.5	96.2	-57.64	204.4	-3,751.3	405.5	242.1	163.35	2.482	
11,100.0	7,251.0	10,866.0	7,034.0	99.0	98.6	-57.71	203.5	-3,851.3	406.2	238.6	167.62	2.423	
11,200.0	7,251.0	10,966.0	7,034.0	101.4	101.1	-57.77	202.6	-3,951.3	406.9	235.0	171.89	2.367	
11,300.0	7,251.0	11,065.9	7,034.0	103.9	103.5	-57.84	201.7	-4,051.3	407.7	231.5	176.18	2.314	
11,400.0	7,251.0	11,165.9	7,034.0	106.3	106.0	-57.90	200.9	-4,151.3	408.4	228.0	180.46	2.263	
11,500.0	7,251.0	11,265.9	7,034.0	108.8	108.4	-57.97	200.0	-4,251.3	409.2	224.4	184.76	2.215	
11,600.0	7,251.0	11,365.9	7,034.0	111.2	110.9	-58.03	199.1	-4,351.3	409.9	220.8	189.06	2.168	
11,700.0	7,251.0	11,465.9	7,034.0	113.7	113.3	-58.10	198.3	-4,451.3	410.6	217.3	193.37	2.124	
11,800.0	7,251.0	11,565.9	7,034.0	116.1	115.8	-58.16	197.4	-4,551.2	411.4	213.7	197.68	2.081	
11,823.8	7,251.0	11,589.7	7,034.0	116.7	116.4	-58.18	197.2	-4,575.0	411.6	212.8	198.71	2.071	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1D-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-21.9	0.0	21.9				
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-21.9	0.0	21.9	21.6	0.30	71.972	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-21.9	0.0	21.9	21.2	0.65	33.484	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-21.9	0.0	21.9	20.9	1.00	21.817	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	157.59	-21.9	0.0	22.7	21.3	1.35	16.775	
500.0	500.0	500.0	500.0	0.9	0.8	159.86	-21.9	0.0	25.1	23.4	1.70	14.766	
600.0	599.9	599.9	599.9	1.0	1.0	162.79	-21.9	0.0	29.2	27.2	2.05	14.269	SF
700.0	699.7	699.7	699.7	1.2	1.2	165.72	-21.9	0.0	35.1	32.7	2.40	14.648	
800.0	799.4	799.4	799.4	1.4	1.4	168.30	-21.9	0.0	42.8	40.0	2.74	15.582	
900.0	899.0	899.0	899.0	1.7	1.5	170.30	-21.9	0.0	51.5	48.4	3.09	16.640	
1,000.0	998.6	998.6	998.6	1.9	1.7	171.72	-21.9	0.0	60.2	56.8	3.44	17.498	
1,100.0	1,098.2	1,098.2	1,098.2	2.1	1.9	172.78	-21.9	0.0	69.0	65.2	3.79	18.206	
1,200.0	1,197.8	1,197.8	1,197.8	2.3	2.1	173.60	-21.9	0.0	77.8	73.6	4.14	18.799	
1,300.0	1,297.4	1,297.4	1,297.4	2.6	2.2	174.25	-21.9	0.0	86.6	82.1	4.49	19.304	
1,400.0	1,397.0	1,397.0	1,397.0	2.8	2.4	174.78	-21.9	0.0	95.4	90.6	4.83	19.738	
1,500.0	1,496.6	1,496.6	1,496.6	3.0	2.6	175.23	-21.9	0.0	104.2	99.0	5.18	20.114	
1,600.0	1,596.2	1,596.2	1,596.2	3.2	2.8	175.60	-21.9	0.0	113.0	107.5	5.53	20.445	
1,700.0	1,695.8	1,695.8	1,695.8	3.5	2.9	175.92	-21.9	0.0	121.9	116.0	5.88	20.737	
1,800.0	1,795.4	1,795.4	1,795.4	3.7	3.1	176.20	-21.9	0.0	130.7	124.5	6.23	20.997	
1,900.0	1,895.0	1,895.0	1,895.0	3.9	3.3	176.44	-21.9	0.0	139.5	133.0	6.57	21.229	
2,000.0	1,994.7	1,994.7	1,994.7	4.2	3.5	176.65	-21.9	0.0	148.4	141.5	6.92	21.439	
2,100.0	2,094.3	2,094.3	2,094.3	4.4	3.6	176.84	-21.9	0.0	157.2	150.0	7.27	21.629	
2,200.0	2,193.9	2,193.9	2,193.9	4.6	3.8	177.01	-21.9	0.0	166.1	158.5	7.62	21.801	
2,300.0	2,293.5	2,293.5	2,293.5	4.9	4.0	177.16	-21.9	0.0	174.9	166.9	7.97	21.959	
2,400.0	2,393.1	2,393.1	2,393.1	5.1	4.2	177.29	-21.9	0.0	183.8	175.4	8.31	22.104	
2,500.0	2,492.7	2,492.7	2,492.7	5.3	4.3	177.42	-21.9	0.0	192.6	183.9	8.66	22.237	
2,600.0	2,592.3	2,592.3	2,592.3	5.6	4.5	177.53	-21.9	0.0	201.4	192.4	9.01	22.360	
2,700.0	2,691.9	2,691.9	2,691.9	5.8	4.7	177.64	-21.9	0.0	210.3	200.9	9.36	22.473	
2,800.0	2,791.5	2,791.5	2,791.5	6.0	4.8	177.73	-21.9	0.0	219.1	209.4	9.71	22.579	
2,900.0	2,891.1	2,891.1	2,891.1	6.3	5.0	177.82	-21.9	0.0	228.0	217.9	10.05	22.678	
3,000.0	2,990.7	2,990.7	2,990.7	6.5	5.2	177.90	-21.9	0.0	236.8	226.4	10.40	22.769	
3,100.0	3,090.3	3,090.3	3,090.3	6.7	5.4	177.98	-21.9	0.0	245.7	234.9	10.75	22.855	
3,200.0	3,189.9	3,189.9	3,189.9	7.0	5.5	178.05	-21.9	0.0	254.5	243.4	11.10	22.936	
3,300.0	3,289.5	3,289.5	3,289.5	7.2	5.7	178.11	-21.9	0.0	263.4	251.9	11.45	23.012	
3,400.0	3,389.2	3,389.2	3,389.2	7.4	5.9	178.17	-21.9	0.0	272.2	260.4	11.79	23.083	
3,500.0	3,488.8	3,488.8	3,488.8	7.6	6.1	178.23	-21.9	0.0	281.1	268.9	12.14	23.150	
3,600.0	3,588.4	3,587.7	3,587.6	7.9	6.2	178.15	-22.2	0.6	290.1	277.6	12.49	23.224	
3,700.0	3,688.0	3,686.4	3,686.3	8.1	6.4	177.76	-23.4	2.6	299.3	286.5	12.84	23.315	
3,800.0	3,787.6	3,784.9	3,784.8	8.3	6.6	177.08	-25.5	6.1	308.9	295.7	13.19	23.421	
3,900.0	3,887.2	3,883.3	3,883.0	8.6	6.8	176.14	-28.4	11.0	318.8	305.2	13.54	23.543	
4,000.0	3,986.8	3,981.4	3,980.8	8.8	6.9	174.97	-32.2	17.4	329.2	315.3	13.90	23.681	
4,100.0	4,086.4	4,080.3	4,079.4	9.0	7.1	173.68	-36.6	24.7	339.9	325.7	14.27	23.829	
4,200.0	4,186.0	4,179.4	4,178.1	9.3	7.3	172.47	-41.0	32.1	350.9	336.3	14.64	23.972	
4,300.0	4,285.6	4,278.6	4,276.9	9.5	7.5	171.32	-45.4	39.5	362.0	347.0	15.01	24.113	
4,400.0	4,385.2	4,377.7	4,375.6	9.7	7.7	170.25	-49.8	46.9	373.2	357.8	15.39	24.250	
4,500.0	4,484.8	4,476.8	4,474.4	10.0	7.9	169.24	-54.2	54.3	384.6	368.8	15.77	24.384	
4,600.0	4,584.4	4,575.9	4,573.1	10.2	8.1	168.28	-58.6	61.7	396.0	379.9	16.15	24.515	
4,700.0	4,684.0	4,675.1	4,671.9	10.4	8.3	167.38	-63.0	69.2	407.6	391.0	16.54	24.643	
4,800.0	4,783.7	4,774.2	4,770.6	10.7	8.5	166.53	-67.4	76.6	419.2	402.3	16.93	24.767	
4,900.0	4,883.3	4,873.3	4,869.4	10.9	8.7	165.73	-71.8	84.0	431.0	413.7	17.32	24.888	
5,000.0	4,982.9	4,972.5	4,968.2	11.1	8.9	164.97	-76.2	91.4	442.8	425.1	17.71	25.007	
5,100.0	5,082.5	5,071.6	5,066.9	11.4	9.1	164.24	-80.6	98.8	454.7	436.6	18.10	25.122	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1D-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,182.1	5,170.7	5,165.7	11.6	9.3	163.56	-85.0	106.2	466.7	448.2	18.49	25.235	
5,300.0	5,281.7	5,269.9	5,264.4	11.8	9.5	162.91	-89.4	113.6	478.7	459.8	18.89	25.344	
5,400.0	5,381.3	5,369.0	5,363.2	12.1	9.7	162.29	-93.8	121.0	490.8	471.5	19.28	25.451	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1E-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-32.8	0.0	32.8				
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-32.8	0.0	32.8	32.5	0.30	107.958	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-32.8	0.0	32.8	32.1	0.65	50.227	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-32.8	0.0	32.8	31.8	1.00	32.726	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	157.30	-32.8	0.0	33.6	32.2	1.35	24.865	
500.0	500.0	499.4	499.4	0.9	0.8	158.26	-33.6	0.4	36.8	35.1	1.70	21.650	
600.0	599.9	598.6	598.5	1.0	1.0	158.80	-35.9	1.5	43.1	41.1	2.05	21.067	SF
700.0	699.7	697.4	697.3	1.2	1.2	158.96	-39.7	3.4	52.7	50.3	2.40	21.954	
800.0	799.4	795.7	795.4	1.4	1.4	158.90	-45.1	5.9	65.3	62.5	2.75	23.732	
900.0	899.0	893.5	892.9	1.7	1.6	158.57	-51.9	9.2	80.4	77.2	3.11	25.853	
1,000.0	998.6	992.2	991.3	1.9	1.8	158.12	-59.5	12.9	96.1	92.7	3.47	27.715	
1,100.0	1,098.2	1,091.0	1,089.6	2.1	2.0	157.80	-67.2	16.6	111.9	108.1	3.83	29.218	
1,200.0	1,197.8	1,189.7	1,188.0	2.3	2.2	157.55	-74.8	20.2	127.7	123.5	4.19	30.455	
1,300.0	1,297.4	1,288.5	1,286.4	2.6	2.5	157.36	-82.4	23.9	143.5	139.0	4.56	31.490	
1,400.0	1,397.0	1,387.2	1,384.8	2.8	2.7	157.21	-90.0	27.6	159.3	154.4	4.92	32.369	
1,500.0	1,496.6	1,485.9	1,483.2	3.0	2.9	157.09	-97.7	31.3	175.1	169.9	5.29	33.124	
1,600.0	1,596.2	1,584.7	1,581.5	3.2	3.1	156.98	-105.3	35.0	190.9	185.3	5.65	33.779	
1,700.0	1,695.8	1,683.4	1,679.9	3.5	3.3	156.90	-112.9	38.6	206.7	200.7	6.02	34.353	
1,800.0	1,795.4	1,782.2	1,778.3	3.7	3.6	156.82	-120.5	42.3	222.6	216.2	6.38	34.861	
1,900.0	1,895.0	1,880.9	1,876.7	3.9	3.8	156.76	-128.1	46.0	238.4	231.6	6.75	35.312	
2,000.0	1,994.7	1,979.7	1,975.1	4.2	4.0	156.70	-135.8	49.7	254.2	247.0	7.12	35.716	
2,100.0	2,094.3	2,078.4	2,073.4	4.4	4.2	156.65	-143.4	53.3	270.0	262.5	7.48	36.080	
2,200.0	2,193.9	2,177.1	2,171.8	4.6	4.5	156.60	-151.0	57.0	285.8	277.9	7.85	36.409	
2,300.0	2,293.5	2,275.9	2,270.2	4.9	4.7	156.56	-158.6	60.7	301.6	293.4	8.22	36.709	
2,400.0	2,393.1	2,374.6	2,368.6	5.1	4.9	156.53	-166.3	64.4	317.4	308.8	8.58	36.982	
2,500.0	2,492.7	2,473.4	2,467.0	5.3	5.1	156.49	-173.9	68.0	333.2	324.2	8.95	37.233	
2,600.0	2,592.3	2,572.1	2,565.3	5.6	5.4	156.46	-181.5	71.7	349.0	339.7	9.32	37.464	
2,700.0	2,691.9	2,670.9	2,663.7	5.8	5.6	156.44	-189.1	75.4	364.8	355.1	9.68	37.677	
2,800.0	2,791.5	2,769.6	2,762.1	6.0	5.8	156.41	-196.8	79.1	380.6	370.5	10.05	37.874	
2,900.0	2,891.1	2,868.3	2,860.5	6.3	6.0	156.39	-204.4	82.7	396.4	386.0	10.42	38.057	
3,000.0	2,990.7	2,967.1	2,958.8	6.5	6.3	156.37	-212.0	86.4	412.2	401.4	10.78	38.228	
3,100.0	3,090.3	3,065.8	3,057.2	6.7	6.5	156.35	-219.6	90.1	428.0	416.9	11.15	38.387	
3,200.0	3,189.9	3,164.6	3,155.6	7.0	6.7	156.33	-227.3	93.8	443.8	432.3	11.52	38.536	
3,300.0	3,289.5	3,263.3	3,254.0	7.2	6.9	156.31	-234.9	97.4	459.6	447.7	11.88	38.675	
3,400.0	3,389.2	3,362.1	3,352.4	7.4	7.2	156.30	-242.5	101.1	475.4	463.2	12.25	38.807	
3,500.0	3,488.8	3,460.8	3,450.7	7.6	7.4	156.28	-250.1	104.8	491.2	478.6	12.62	38.930	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - Frederiksen 1F-28H-A368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-40.1	0.0	40.1				
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-40.1	0.0	40.1	39.8	0.30	131.949	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-40.1	0.0	40.1	39.4	0.65	61.388	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	179.68	-40.9	0.2	40.9	39.9	1.00	40.880	
400.0	400.0	398.6	398.5	0.7	0.7	155.96	-43.4	0.9	44.2	42.9	1.35	32.784	
500.0	500.0	497.5	497.4	0.9	0.9	155.89	-47.5	2.1	50.8	49.1	1.70	29.929	
600.0	599.9	596.1	595.8	1.0	1.1	156.09	-53.3	3.7	60.6	58.6	2.05	29.627	SF
700.0	699.7	694.2	693.6	1.2	1.3	156.40	-60.6	5.7	73.7	71.3	2.40	30.750	
800.0	799.4	791.5	790.4	1.4	1.5	156.75	-69.5	8.1	89.9	87.2	2.75	32.738	
900.0	899.0	888.1	886.4	1.7	1.7	156.99	-79.8	11.0	108.7	105.6	3.10	35.055	
1,000.0	998.6	985.1	982.7	1.9	2.0	156.99	-91.6	14.3	128.9	125.4	3.46	37.272	
1,100.0	1,098.2	1,083.0	1,079.8	2.1	2.3	156.97	-103.7	17.6	149.3	145.5	3.82	39.099	
1,200.0	1,197.8	1,180.9	1,176.9	2.3	2.5	156.95	-115.8	21.0	169.6	165.5	4.18	40.604	
1,300.0	1,297.4	1,278.9	1,274.0	2.6	2.8	156.94	-127.9	24.3	190.0	185.5	4.54	41.866	
1,400.0	1,397.0	1,376.8	1,371.1	2.8	3.1	156.93	-139.9	27.6	210.4	205.5	4.90	42.938	
1,500.0	1,496.6	1,474.7	1,468.2	3.0	3.3	156.92	-152.0	31.0	230.7	225.5	5.26	43.860	
1,600.0	1,596.2	1,572.6	1,565.3	3.2	3.6	156.92	-164.1	34.3	251.1	245.5	5.62	44.661	
1,700.0	1,695.8	1,670.5	1,662.4	3.5	3.9	156.91	-176.2	37.7	271.5	265.5	5.98	45.364	
1,800.0	1,795.4	1,768.4	1,759.5	3.7	4.1	156.90	-188.3	41.0	291.9	285.5	6.35	45.985	
1,900.0	1,895.0	1,866.3	1,856.6	3.9	4.4	156.90	-200.3	44.4	312.2	305.5	6.71	46.538	
2,000.0	1,994.7	1,964.2	1,953.7	4.2	4.7	156.90	-212.4	47.7	332.6	325.5	7.07	47.033	
2,100.0	2,094.3	2,062.1	2,050.8	4.4	5.0	156.89	-224.5	51.0	353.0	345.5	7.43	47.480	
2,200.0	2,193.9	2,160.0	2,147.9	4.6	5.2	156.89	-236.6	54.4	373.3	365.5	7.80	47.884	
2,300.0	2,293.5	2,257.9	2,245.0	4.9	5.5	156.89	-248.7	57.7	393.7	385.5	8.16	48.252	
2,400.0	2,393.1	2,355.8	2,342.1	5.1	5.8	156.88	-260.7	61.1	414.1	405.5	8.52	48.588	
2,500.0	2,492.7	2,453.7	2,439.2	5.3	6.1	156.88	-272.8	64.4	434.4	425.5	8.88	48.896	
2,600.0	2,592.3	2,551.6	2,536.3	5.6	6.3	156.88	-284.9	67.8	454.8	445.6	9.25	49.180	
2,700.0	2,691.9	2,649.5	2,633.4	5.8	6.6	156.88	-297.0	71.1	475.2	465.6	9.61	49.442	
2,800.0	2,791.5	2,747.4	2,730.5	6.0	6.9	156.87	-309.1	74.4	495.5	485.6	9.97	49.685	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - FREDERIKSEN 31-28 (Existing) - DD - GYRO

Offset Site Error: 0.0 ft

Survey Program: 200-Gyro

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
8,900.0	7,251.0	7,430.5	7,221.7	45.8	14.3	-88.79	152.1	-1,947.9	492.1	434.5	57.55	8.550	
9,000.0	7,251.0	7,433.3	7,224.5	48.2	14.3	-89.20	152.1	-1,948.0	439.8	379.8	59.94	7.337	
9,100.0	7,251.0	7,436.2	7,227.4	50.5	14.3	-89.63	152.1	-1,948.1	405.8	343.4	62.34	6.509	
9,193.9	7,251.0	7,439.1	7,230.3	52.7	14.3	-90.04	152.1	-1,948.2	394.8	330.2	64.60	6.111	CC
9,200.0	7,251.0	7,439.3	7,230.5	52.9	14.3	-90.07	152.1	-1,948.2	394.8	330.1	64.75	6.098	ES
9,300.0	7,251.0	7,442.4	7,233.6	55.3	14.3	-90.52	152.1	-1,948.3	408.8	341.6	67.15	6.087	SF
9,400.0	7,251.0	7,445.7	7,236.9	57.7	14.3	-91.00	152.1	-1,948.4	445.3	375.7	69.56	6.402	
9,500.0	7,251.0	7,449.0	7,240.2	60.1	14.3	-91.48	152.1	-1,948.5	499.5	427.5	71.97	6.940	

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design S28-T3N-R68W (Frederiksen) - FREDERIKSEN 41-28 (Existing) - DD - GYRO

Offset Site Error: 0.0 ft

Survey Program: 200-Gyro

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,883.3	5,100.0	4,971.9	10.9	9.6	-132.59	199.8	-305.7	495.2	478.0	17.26	28.698	
5,000.0	4,982.9	5,187.9	5,056.3	11.1	9.8	-131.32	221.0	-293.5	480.0	462.2	17.78	26.990	
5,100.0	5,082.5	5,279.4	5,144.6	11.4	10.0	-130.00	242.2	-282.3	467.0	448.6	18.33	25.477	
5,200.0	5,182.1	5,372.0	5,234.3	11.6	10.2	-128.63	263.0	-272.1	455.5	436.7	18.89	24.119	
5,300.0	5,281.7	5,462.4	5,322.1	11.8	10.4	-127.28	282.6	-263.3	445.9	426.5	19.43	22.947	
5,400.0	5,381.3	5,552.4	5,410.0	12.1	10.6	-126.13	299.9	-255.9	438.6	418.7	19.94	21.996	
5,500.0	5,480.9	5,642.5	5,498.7	12.3	10.7	-125.25	314.8	-249.8	433.6	413.2	20.40	21.257	
5,600.0	5,580.5	5,732.6	5,587.9	12.5	10.9	-124.78	326.0	-245.0	430.9	410.1	20.78	20.739	
5,666.2	5,646.4	5,792.1	5,647.1	12.7	10.9	-124.72	331.4	-242.5	430.4	409.4	20.98	20.510	
5,700.0	5,680.1	5,823.2	5,678.2	12.8	10.9	-124.77	333.5	-241.5	430.5	409.4	21.08	20.426	
5,800.0	5,779.7	5,916.8	5,771.6	13.0	11.0	-125.11	338.4	-239.0	431.9	410.6	21.31	20.265	
5,900.0	5,879.3	6,013.7	5,868.4	13.2	11.1	-125.66	341.7	-237.0	434.3	412.8	21.52	20.185	
6,000.0	5,978.9	6,106.3	5,961.1	13.5	11.1	-126.40	343.0	-235.9	438.1	416.4	21.68	20.207	
6,100.0	6,078.5	6,200.3	6,055.0	13.7	11.2	-127.28	342.9	-235.8	443.3	421.5	21.82	20.320	
6,200.0	6,178.2	6,300.0	6,154.7	13.9	11.2	-128.20	342.7	-236.2	449.2	427.2	21.95	20.463	
6,300.0	6,277.8	6,396.3	6,251.1	14.2	11.2	-129.05	342.4	-236.9	455.5	433.4	22.09	20.620	
6,400.0	6,377.4	6,494.0	6,348.7	14.4	11.3	-129.89	342.0	-238.2	462.6	440.4	22.23	20.807	
6,500.0	6,477.0	6,590.4	6,445.1	14.6	11.3	-130.68	341.5	-240.1	470.3	448.0	22.38	21.015	
6,600.0	6,576.6	6,696.6	6,551.3	14.9	11.3	-131.52	341.1	-241.8	477.9	455.3	22.53	21.213	
6,700.0	6,676.2	6,795.9	6,650.6	15.1	11.4	-113.62	341.2	-242.8	484.5	461.8	22.69	21.353	
6,800.0	6,775.4	6,895.3	6,750.0	15.3	11.4	-46.36	341.4	-243.9	480.6	458.1	22.51	21.348	
6,900.0	6,871.7	6,991.8	6,846.5	15.4	11.5	-36.75	341.2	-244.8	460.8	439.0	21.78	21.153	
7,000.0	6,962.2	7,083.6	6,938.3	15.4	11.5	-37.21	340.9	-245.4	426.4	405.8	20.64	20.661	
7,100.0	7,044.1	7,165.3	7,019.9	15.5	11.5	-42.68	340.6	-246.0	379.8	360.4	19.44	19.542	
7,200.0	7,115.0	7,236.9	7,091.6	15.7	11.6	-52.95	340.6	-246.7	324.9	306.0	18.89	17.200	
7,300.0	7,172.6	7,295.6	7,150.3	16.0	11.6	-67.46	340.6	-247.2	268.2	248.4	19.77	13.565	
7,400.0	7,215.3	7,338.7	7,193.4	16.5	11.6	-81.85	340.6	-247.5	222.0	200.5	21.47	10.336	
7,489.1	7,239.6	7,363.6	7,218.2	17.3	11.6	-89.90	340.5	-247.6	205.4	182.5	22.88	8.980	CC, ES
7,500.0	7,241.7	7,365.7	7,220.4	17.4	11.6	-90.44	340.5	-247.6	205.7	182.7	23.02	8.934	SF
7,600.0	7,251.0	7,375.7	7,230.4	18.6	11.6	-90.30	340.5	-247.7	232.2	207.7	24.59	9.444	
7,700.0	7,251.0	7,376.4	7,231.1	20.1	11.6	-90.30	340.5	-247.7	292.0	265.6	26.34	11.085	
7,800.0	7,251.0	7,377.1	7,231.8	21.8	11.6	-90.50	340.5	-247.7	369.5	341.3	28.24	13.086	
7,900.0	7,251.0	7,377.8	7,232.5	23.7	11.6	-90.69	340.5	-247.7	455.9	425.7	30.25	15.072	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Frederiksen 1B-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 1B-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 #1	**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 1B-28H-A368
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.32°