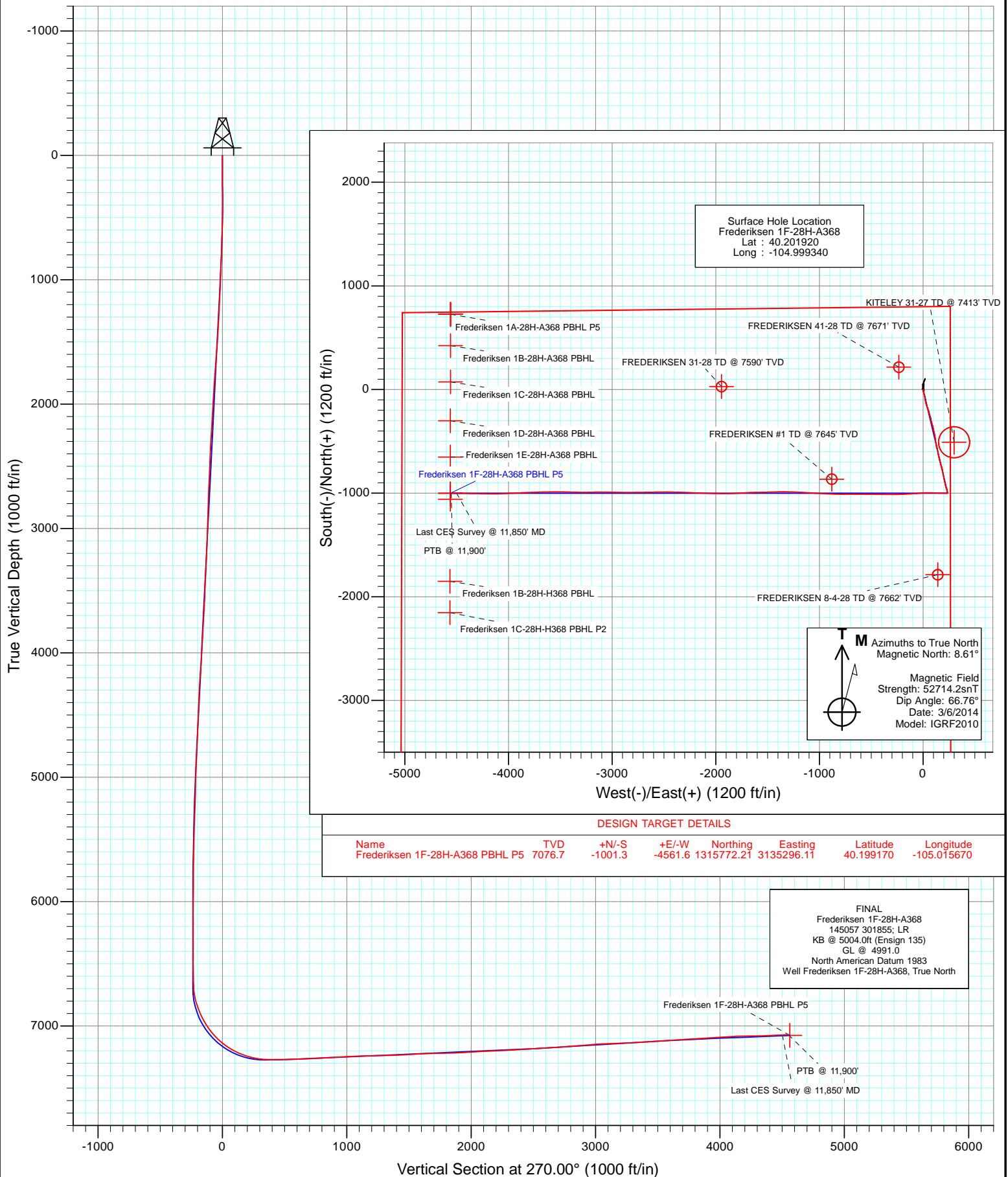


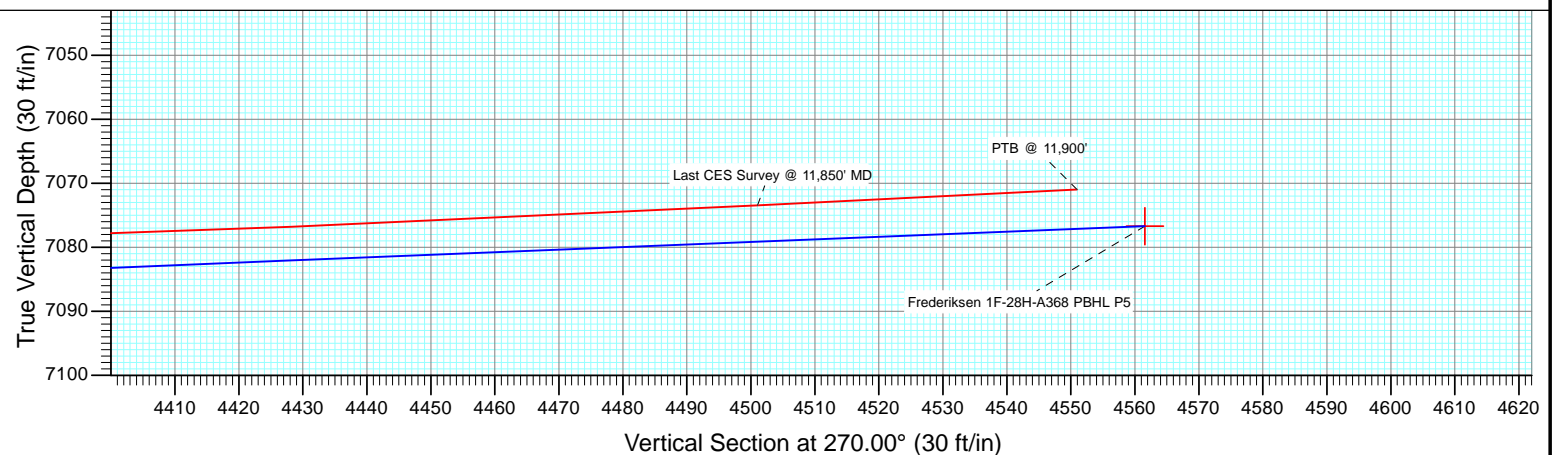
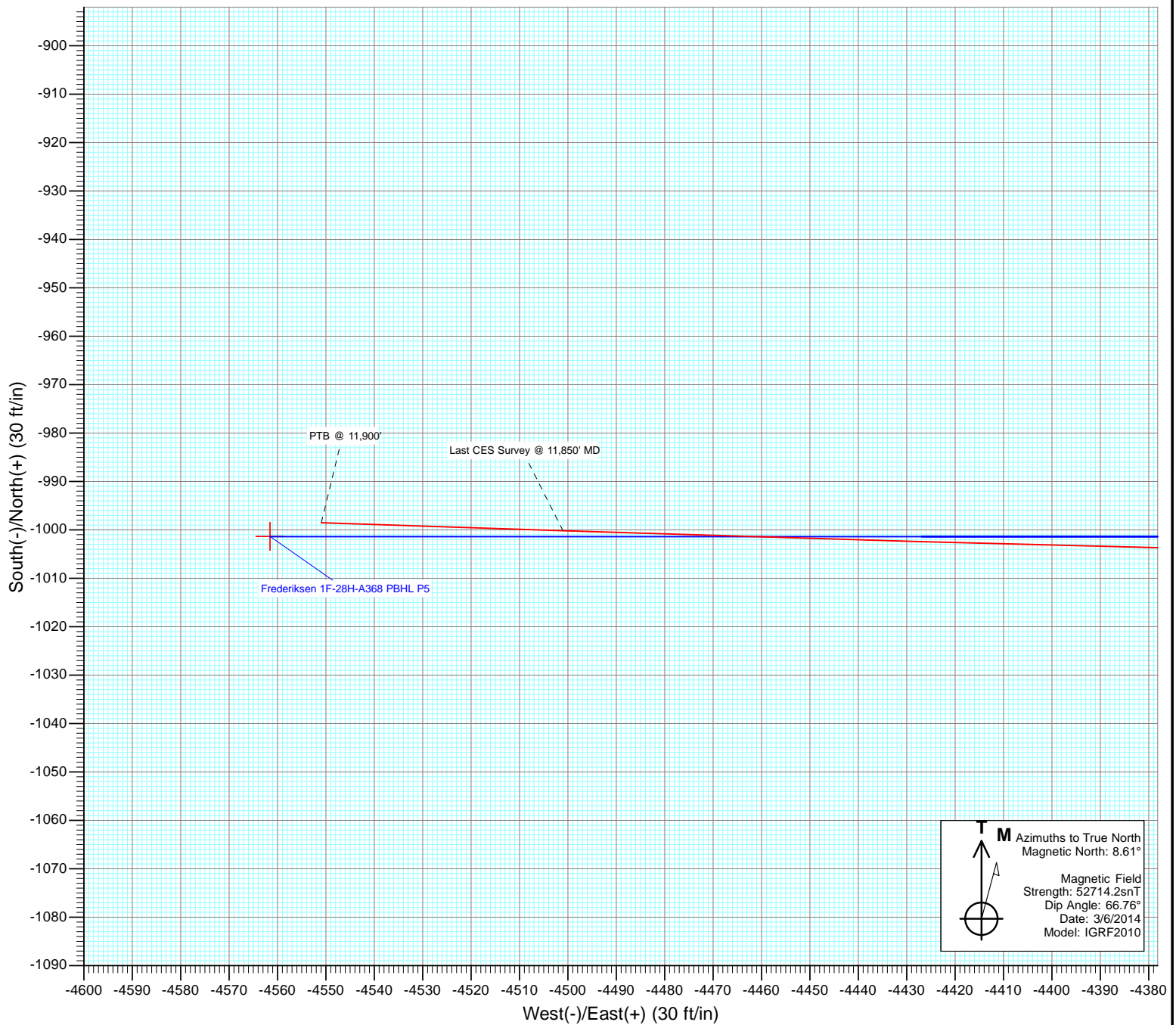


Project: DJ Wattenberg
Site: S28-T3N-R68W (Frederiksen)
Well: Frederiksen 1F-28H-A368
Wellbore: Hz
Design: FINAL





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



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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 1F-28H-A368					
Well Position	+N/-S	0.0 ft	Northing:	1,316,799.29 ft	Latitude:	40.201920
	+E/-W	0.0 ft	Easting:	3,139,851.94 ft	Longitude:	-104.999340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,991.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/6/2014	8.61	66.76	52,714

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	270.00	

Survey Program	Date	3/13/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	11,900.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
143.0	0.10	218.10	143.0	-0.1	-0.1	0.1	0.07	0.07	
235.0	0.50	276.20	235.0	-0.1	-0.5	0.5	0.49	0.43	
326.0	1.20	199.80	326.0	-1.0	-1.2	1.2	1.30	0.77	
418.0	2.00	171.30	418.0	-3.5	-1.3	1.3	1.20	0.87	
510.0	3.50	163.50	509.8	-7.7	-0.3	0.3	1.68	1.63	
602.0	4.60	163.50	601.6	-14.0	1.6	-1.6	1.20	1.20	
694.0	6.60	165.60	693.2	-22.6	3.9	-3.9	2.18	2.17	
786.0	8.80	165.20	784.3	-34.6	7.0	-7.0	2.39	2.39	
818.0	9.50	164.00	815.9	-39.5	8.4	-8.4	2.27	2.19	
913.0	10.60	166.10	909.5	-55.5	12.6	-12.6	1.22	1.16	
1,004.0	11.90	170.10	998.7	-72.9	16.3	-16.3	1.67	1.43	
1,096.0	11.30	171.10	1,088.8	-91.1	19.3	-19.3	0.69	-0.65	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,188.0	12.80	169.30	1,178.8	-110.0	22.6	-22.6	1.68	1.63	
1,279.0	11.20	165.80	1,267.8	-128.5	26.6	-26.6	1.93	-1.76	
1,371.0	11.40	162.30	1,358.0	-145.8	31.6	-31.6	0.78	0.22	
1,463.0	12.00	163.10	1,448.1	-163.6	37.1	-37.1	0.68	0.65	
1,555.0	12.10	157.60	1,538.1	-181.7	43.6	-43.6	1.25	0.11	
1,647.0	12.40	159.40	1,628.0	-199.9	50.7	-50.7	0.53	0.33	
1,739.0	14.20	165.80	1,717.5	-220.0	57.0	-57.0	2.52	1.96	
1,831.0	14.40	164.90	1,806.7	-242.0	62.7	-62.7	0.33	0.22	
1,923.0	14.00	162.70	1,895.9	-263.7	69.0	-69.0	0.73	-0.43	
2,018.0	13.40	168.30	1,988.2	-285.5	74.7	-74.7	1.53	-0.63	
2,113.0	13.30	166.80	2,080.6	-306.9	79.4	-79.4	0.38	-0.11	
2,207.0	12.70	162.70	2,172.2	-327.3	84.9	-84.9	1.17	-0.64	
2,302.0	12.00	163.30	2,265.0	-346.7	90.9	-90.9	0.75	-0.74	
2,397.0	11.30	169.00	2,358.1	-365.3	95.5	-95.5	1.42	-0.74	
2,492.0	11.10	165.70	2,451.3	-383.3	99.5	-99.5	0.71	-0.21	
2,587.0	10.50	168.50	2,544.6	-400.6	103.5	-103.5	0.84	-0.63	
2,682.0	10.10	165.80	2,638.0	-417.2	107.3	-107.3	0.66	-0.42	
2,776.0	11.20	169.40	2,730.4	-434.2	111.0	-111.0	1.37	1.17	
2,871.0	11.60	169.50	2,823.5	-452.6	114.4	-114.4	0.42	0.42	
2,966.0	12.00	172.90	2,916.5	-471.8	117.4	-117.4	0.84	0.42	
3,060.0	11.30	171.70	3,008.6	-490.6	119.9	-119.9	0.79	-0.74	
3,155.0	12.50	171.80	3,101.6	-510.0	122.7	-122.7	1.26	1.26	
3,250.0	11.60	168.20	3,194.5	-529.5	126.1	-126.1	1.23	-0.95	
3,344.0	12.50	167.70	3,286.4	-548.7	130.2	-130.2	0.96	0.96	
3,439.0	11.70	165.20	3,379.3	-568.1	134.9	-134.9	1.01	-0.84	
3,534.0	12.40	169.40	3,472.2	-587.4	139.2	-139.2	1.18	0.74	
3,629.0	12.40	169.40	3,565.0	-607.5	143.0	-143.0	0.00	0.00	
3,724.0	14.40	168.40	3,657.4	-629.1	147.2	-147.2	2.12	2.11	
3,819.0	14.30	167.00	3,749.4	-652.1	152.3	-152.3	0.38	-0.11	
3,913.0	13.70	166.20	3,840.6	-674.2	157.5	-157.5	0.67	-0.64	
4,008.0	12.10	163.60	3,933.2	-694.7	163.0	-163.0	1.79	-1.68	
4,103.0	12.80	165.80	4,026.0	-714.4	168.4	-168.4	0.89	0.74	
4,197.0	11.90	162.20	4,117.8	-733.8	173.9	-173.9	1.26	-0.96	
4,292.0	13.10	161.50	4,210.6	-753.3	180.3	-180.3	1.27	1.26	
4,387.0	14.40	170.00	4,302.9	-775.1	185.8	-185.8	2.53	1.37	
4,482.0	13.40	169.80	4,395.1	-797.6	189.8	-189.8	1.05	-1.05	
4,576.0	12.40	169.20	4,486.7	-818.2	193.6	-193.6	1.07	-1.06	
4,671.0	11.70	168.80	4,579.6	-837.7	197.4	-197.4	0.74	-0.74	
4,766.0	11.60	168.30	4,672.6	-856.5	201.2	-201.2	0.15	-0.11	
4,860.0	10.90	167.20	4,764.8	-874.4	205.1	-205.1	0.78	-0.74	
4,955.0	9.70	166.50	4,858.3	-891.0	209.0	-209.0	1.27	-1.26	
5,050.0	8.70	168.00	4,952.1	-905.8	212.3	-212.3	1.08	-1.05	
5,144.0	7.70	168.40	5,045.1	-918.9	215.1	-215.1	1.07	-1.06	
5,239.0	6.50	168.30	5,139.4	-930.4	217.4	-217.4	1.26	-1.26	
5,334.0	5.80	159.80	5,233.8	-940.2	220.2	-220.2	1.21	-0.74	
5,428.0	5.00	158.70	5,327.4	-948.4	223.3	-223.3	0.86	-0.85	
5,523.0	5.60	154.30	5,422.0	-956.5	226.8	-226.8	0.76	0.63	
5,618.0	5.10	165.10	5,516.6	-964.7	229.9	-229.9	1.18	-0.53	
5,713.0	3.90	170.30	5,611.3	-972.0	231.6	-231.6	1.33	-1.26	
5,807.0	3.90	168.70	5,705.1	-978.3	232.7	-232.7	0.12	0.00	
5,902.0	2.70	178.60	5,799.9	-983.7	233.4	-233.4	1.39	-1.26	
5,996.0	2.30	183.30	5,893.9	-987.8	233.3	-233.3	0.48	-0.43	
6,091.0	2.80	153.90	5,988.8	-991.8	234.3	-234.3	1.45	0.53	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,186.0	1.90	167.50	6,083.7	-995.4	235.6	-235.6	1.11	-0.95	
6,281.0	1.40	178.90	6,178.6	-998.1	236.0	-236.0	0.63	-0.53	
6,376.0	1.40	223.30	6,273.6	-1,000.1	235.2	-235.2	1.11	0.00	
6,470.0	0.20	106.50	6,367.6	-1,001.0	234.6	-234.6	1.60	-1.28	
6,564.0	0.90	329.10	6,461.6	-1,000.4	234.4	-234.4	1.12	0.74	
6,659.0	0.10	68.10	6,556.6	-999.7	234.1	-234.1	0.97	-0.84	
6,722.0	0.50	267.70	6,619.6	-999.7	233.8	-233.8	0.94	0.63	
6,754.0	1.00	268.10	6,651.6	-999.7	233.4	-233.4	1.56	1.56	
6,785.0	3.30	268.80	6,682.6	-999.8	232.2	-232.2	7.42	7.42	
6,817.0	5.90	266.90	6,714.5	-999.9	229.7	-229.7	8.14	8.12	
6,849.0	8.90	276.90	6,746.2	-999.7	225.6	-225.6	10.17	9.37	
6,880.0	12.40	275.40	6,776.7	-999.1	219.9	-219.9	11.32	11.29	
6,912.0	16.20	273.50	6,807.7	-998.5	212.0	-212.0	11.96	11.87	
6,943.0	19.30	271.10	6,837.2	-998.1	202.6	-202.6	10.27	10.00	
6,975.0	21.60	267.90	6,867.2	-998.2	191.4	-191.4	7.99	7.19	
7,007.0	23.40	266.90	6,896.7	-998.8	179.2	-179.2	5.75	5.62	
7,038.0	25.10	268.00	6,925.0	-999.3	166.4	-166.4	5.67	5.48	
7,070.0	27.60	269.30	6,953.7	-999.7	152.2	-152.2	8.02	7.81	
7,101.0	30.50	272.30	6,980.8	-999.4	137.2	-137.2	10.47	9.35	
7,133.0	35.10	274.00	7,007.7	-998.5	119.9	-119.9	14.66	14.37	
7,165.0	37.90	274.10	7,033.4	-997.1	100.9	-100.9	8.75	8.75	
7,196.0	40.80	272.90	7,057.3	-995.9	81.3	-81.3	9.67	9.35	
7,228.0	43.10	269.90	7,081.1	-995.4	59.9	-59.9	9.53	7.19	
7,259.0	46.40	268.80	7,103.2	-995.7	38.1	-38.1	10.93	10.65	
7,291.0	48.70	267.10	7,124.8	-996.5	14.5	-14.5	8.19	7.19	
7,322.0	51.10	265.30	7,144.7	-998.1	-9.2	9.2	8.92	7.74	
7,354.0	53.80	264.90	7,164.2	-1,000.3	-34.4	34.4	8.50	8.44	
7,385.0	57.90	265.20	7,181.6	-1,002.5	-60.0	60.0	13.25	13.23	
7,417.0	62.90	265.90	7,197.4	-1,004.6	-87.7	87.7	15.74	15.62	
7,448.0	65.60	266.70	7,210.9	-1,006.4	-115.6	115.6	9.01	8.71	
7,480.0	67.60	267.80	7,223.6	-1,007.8	-144.9	144.9	7.00	6.25	
7,512.0	69.80	267.40	7,235.2	-1,009.1	-174.7	174.7	6.97	6.87	
7,543.0	72.80	267.60	7,245.2	-1,010.4	-204.0	204.0	9.70	9.68	
7,575.0	76.40	267.80	7,253.7	-1,011.6	-234.8	234.8	11.27	11.25	
7,606.0	78.90	269.30	7,260.3	-1,012.4	-265.1	265.1	9.35	8.06	
7,638.0	81.70	270.10	7,265.7	-1,012.5	-296.7	296.7	9.09	8.75	
7,653.0	84.00	271.50	7,267.5	-1,012.3	-311.5	311.5	17.91	15.33	
7,705.0	88.40	269.00	7,271.0	-1,012.1	-363.4	363.4	9.73	8.46	
7,799.0	91.30	271.10	7,271.2	-1,012.0	-457.4	457.4	3.81	3.09	
7,894.0	91.90	271.10	7,268.6	-1,010.2	-552.3	552.3	0.63	0.63	
7,989.0	91.00	269.90	7,266.2	-1,009.4	-647.3	647.3	1.58	-0.95	
8,084.0	93.10	269.70	7,262.8	-1,009.7	-742.2	742.2	2.22	2.21	
8,179.0	94.00	270.60	7,256.9	-1,009.5	-837.0	837.0	1.34	0.95	
8,273.0	93.20	272.50	7,251.0	-1,006.9	-930.8	930.8	2.19	-0.85	
8,368.0	92.30	273.90	7,246.4	-1,001.6	-1,025.6	1,025.6	1.75	-0.95	
8,463.0	92.80	273.40	7,242.2	-995.6	-1,120.3	1,120.3	0.74	0.53	
8,558.0	90.20	273.00	7,239.7	-990.3	-1,215.1	1,215.1	2.77	-2.74	
8,652.0	91.50	271.20	7,238.3	-986.8	-1,309.0	1,309.0	2.36	1.38	
8,747.0	92.00	267.80	7,235.4	-987.7	-1,403.9	1,403.9	3.62	0.53	
8,842.0	94.10	268.50	7,230.4	-990.7	-1,498.8	1,498.8	2.33	2.21	
8,936.0	93.00	269.30	7,224.6	-992.5	-1,592.6	1,592.6	1.45	-1.17	
9,031.0	91.00	267.20	7,221.2	-995.4	-1,687.4	1,687.4	3.05	-2.11	
9,126.0	90.50	266.90	7,220.0	-1,000.3	-1,782.3	1,782.3	0.61	-0.53	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,220.0	92.50	268.60	7,217.5	-1,004.0	-1,876.2	1,876.2	2.79	2.13	
9,315.0	93.40	270.30	7,212.6	-1,004.9	-1,971.1	1,971.1	2.02	0.95	
9,410.0	93.60	272.40	7,206.8	-1,002.7	-2,065.9	2,065.9	2.22	0.21	
9,504.0	92.30	273.10	7,202.0	-998.2	-2,159.6	2,159.6	1.57	-1.38	
9,599.0	92.40	272.30	7,198.1	-993.7	-2,254.4	2,254.4	0.85	0.11	
9,694.0	93.50	270.70	7,193.2	-991.2	-2,349.3	2,349.3	2.04	1.16	
9,788.0	93.70	270.50	7,187.3	-990.2	-2,443.1	2,443.1	0.30	0.21	
9,883.0	93.50	269.50	7,181.4	-990.2	-2,537.9	2,537.9	1.07	-0.21	
9,978.0	93.80	269.30	7,175.3	-991.2	-2,632.7	2,632.7	0.38	0.32	
10,073.0	93.80	269.20	7,169.0	-992.5	-2,727.5	2,727.5	0.11	0.00	
10,167.0	94.20	269.80	7,162.5	-993.3	-2,821.2	2,821.2	0.77	0.43	
10,262.0	94.70	271.10	7,155.1	-992.5	-2,915.9	2,915.9	1.46	0.53	
10,356.0	94.00	270.80	7,148.0	-991.0	-3,009.7	3,009.7	0.81	-0.74	
10,451.0	91.60	270.00	7,143.3	-990.3	-3,104.5	3,104.5	2.66	-2.53	
10,546.0	92.80	268.80	7,139.7	-991.3	-3,199.5	3,199.5	1.79	1.26	
10,641.0	92.70	269.60	7,135.1	-992.7	-3,294.3	3,294.3	0.85	-0.11	
10,735.0	93.50	272.90	7,130.0	-990.6	-3,388.2	3,388.2	3.61	0.85	
10,830.0	94.20	270.20	7,123.6	-988.0	-3,482.9	3,482.9	2.93	0.74	
10,925.0	92.70	269.70	7,117.9	-988.1	-3,577.7	3,577.7	1.66	-1.58	
11,019.0	93.60	268.50	7,112.8	-989.6	-3,671.6	3,671.6	1.59	0.96	
11,114.0	93.80	268.20	7,106.6	-992.3	-3,766.3	3,766.3	0.38	0.21	
11,209.0	93.80	267.60	7,100.3	-995.8	-3,861.1	3,861.1	0.63	0.00	
11,304.0	93.80	267.10	7,094.0	-1,000.2	-3,955.8	3,955.8	0.53	0.00	
11,398.0	93.30	267.30	7,088.2	-1,004.8	-4,049.5	4,049.5	0.57	-0.53	
11,493.0	91.90	269.30	7,083.9	-1,007.6	-4,144.3	4,144.3	2.57	-1.47	
11,588.0	90.70	271.40	7,081.8	-1,007.0	-4,239.3	4,239.3	2.55	-1.26	
11,682.0	91.40	271.30	7,080.0	-1,004.8	-4,333.2	4,333.2	0.75	0.74	
11,777.0	92.50	271.60	7,076.8	-1,002.4	-4,428.2	4,428.2	1.20	1.16	
11,850.0	92.80	271.90	7,073.4	-1,000.2	-4,501.0	4,501.0	0.58	0.41	Last CES Survey @ 11,850' MD
11,900.0	92.80	271.90	7,071.0	-998.5	-4,550.9	4,550.9	0.00	0.00	PTB @ 11,900'

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Frederiksen 1F-28H-A368	0.00	0.00	6,930.0	-1,058.0	-4,561.6	1,315,715.55	3,135,296.43	40.199014	-105.015670
- actual wellpath misses target center by 153.4ft at 11900.0ft MD (7071.0 TVD, -998.5 N, -4550.9 E)									
- Point									
Frederiksen 1F-28H-A368	0.00	0.00	7,076.7	-1,001.3	-4,561.6	1,315,772.21	3,135,296.11	40.199170	-105.015670
- actual wellpath misses target center by 12.4ft at 11900.0ft MD (7071.0 TVD, -998.5 N, -4550.9 E)									
- Point									
Frederiksen 1F-28H-A368	0.00	0.00	7,251.0	-1,001.3	-4,561.6	1,315,772.21	3,135,296.11	40.199170	-105.015670
- actual wellpath misses target center by 180.4ft at 11900.0ft MD (7071.0 TVD, -998.5 N, -4550.9 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
11,850.0	7,073.4	-1,000.2	-4,501.0	Last CES Survey @ 11,850' MD
11,900.0	7,071.0	-998.5	-4,550.9	PTB @ 11,900'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S28-T3N-R68W (Frederiksen)

Frederiksen 1F-28H-A368

Hz

Design: FINAL

Survey Report - Geographic

13 March, 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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 1F-28H-A368					
Well Position	+N/-S	0.0 ft	Northing:	1,316,799.29 ft	Latitude:	40.201920
	+E/-W	0.0 ft	Easting:	3,139,851.94 ft	Longitude:	-104.999340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,991.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/6/2014	8.61	66.76	52,714

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	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	

Survey Program	Date	3/13/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	11,900.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	0.0	0.0	1,316,799.29	3,139,851.94	40.201920	-104.999340	
143.0	0.10	218.10	143.0	-0.1	-0.1	1,316,799.19	3,139,851.86	40.201920	-104.999341	
235.0	0.50	276.20	235.0	-0.1	-0.5	1,316,799.17	3,139,851.42	40.201920	-104.999342	
326.0	1.20	199.80	326.0	-1.0	-1.2	1,316,798.31	3,139,850.70	40.201917	-104.999345	
418.0	2.00	171.30	418.0	-3.5	-1.3	1,316,795.82	3,139,850.63	40.201911	-104.999345	
510.0	3.50	163.50	509.8	-7.7	-0.3	1,316,791.55	3,139,851.70	40.201899	-104.999341	
602.0	4.60	163.50	601.6	-14.0	1.6	1,316,785.33	3,139,853.58	40.201882	-104.999335	
694.0	6.60	165.60	693.2	-22.6	3.9	1,316,776.68	3,139,855.99	40.201858	-104.999326	
786.0	8.80	165.20	784.3	-34.6	7.0	1,316,764.77	3,139,859.17	40.201825	-104.999315	
818.0	9.50	164.00	815.9	-39.5	8.4	1,316,759.87	3,139,860.55	40.201812	-104.999310	
913.0	10.60	166.10	909.5	-55.5	12.6	1,316,743.88	3,139,864.90	40.201768	-104.999295	
1,004.0	11.90	170.10	998.7	-72.9	16.3	1,316,726.53	3,139,868.62	40.201720	-104.999282	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
1,096.0	11.30	171.10	1,088.8	-91.1	19.3	1,316,708.30	3,139,871.75	40.201670	-104.999271
1,188.0	12.80	169.30	1,178.8	-110.0	22.6	1,316,689.40	3,139,875.15	40.201618	-104.999259
1,279.0	11.20	165.80	1,267.8	-128.5	26.6	1,316,670.95	3,139,879.29	40.201567	-104.999245
1,371.0	11.40	162.30	1,358.0	-145.8	31.6	1,316,653.65	3,139,884.34	40.201520	-104.999227
1,463.0	12.00	163.10	1,448.1	-163.6	37.1	1,316,635.87	3,139,889.99	40.201471	-104.999207
1,555.0	12.10	157.60	1,538.1	-181.7	43.6	1,316,617.84	3,139,896.55	40.201421	-104.999184
1,647.0	12.40	159.40	1,628.0	-199.9	50.7	1,316,599.72	3,139,903.80	40.201371	-104.999159
1,739.0	14.20	165.80	1,717.5	-220.0	57.0	1,316,579.57	3,139,910.16	40.201316	-104.999136
1,831.0	14.40	164.90	1,806.7	-242.0	62.7	1,316,557.62	3,139,916.03	40.201256	-104.999116
1,923.0	14.00	162.70	1,895.9	-263.7	69.0	1,316,535.98	3,139,922.44	40.201196	-104.999093
2,018.0	13.40	168.30	1,988.2	-285.5	74.7	1,316,514.26	3,139,928.21	40.201136	-104.999073
2,113.0	13.30	166.80	2,080.6	-306.9	79.4	1,316,492.87	3,139,933.06	40.201078	-104.999056
2,207.0	12.70	162.70	2,172.2	-327.3	84.9	1,316,472.51	3,139,938.72	40.201022	-104.999036
2,302.0	12.00	163.30	2,265.0	-346.7	90.9	1,316,453.11	3,139,944.77	40.200968	-104.999015
2,397.0	11.30	169.00	2,358.1	-365.3	95.5	1,316,434.54	3,139,949.49	40.200917	-104.998998
2,492.0	11.10	165.70	2,451.3	-383.3	99.5	1,316,416.57	3,139,953.63	40.200868	-104.998984
2,587.0	10.50	168.50	2,544.6	-400.6	103.5	1,316,399.25	3,139,957.71	40.200820	-104.998970
2,682.0	10.10	165.80	2,638.0	-417.2	107.3	1,316,382.71	3,139,961.57	40.200775	-104.998956
2,776.0	11.20	169.40	2,730.4	-434.2	111.0	1,316,365.77	3,139,965.37	40.200728	-104.998943
2,871.0	11.60	169.50	2,823.5	-452.6	114.4	1,316,347.33	3,139,968.91	40.200678	-104.998931
2,966.0	12.00	172.90	2,916.5	-471.8	117.4	1,316,328.15	3,139,971.98	40.200625	-104.998920
3,060.0	11.30	171.70	3,008.6	-490.6	119.9	1,316,309.36	3,139,974.62	40.200573	-104.998911
3,155.0	12.50	171.80	3,101.6	-510.0	122.7	1,316,289.99	3,139,977.54	40.200520	-104.998901
3,250.0	11.60	168.20	3,194.5	-529.5	126.1	1,316,270.48	3,139,981.07	40.200466	-104.998889
3,344.0	12.50	167.70	3,286.4	-548.7	130.2	1,316,251.31	3,139,985.28	40.200414	-104.998874
3,439.0	11.70	165.20	3,379.3	-568.1	134.9	1,316,231.98	3,139,990.04	40.200361	-104.998857
3,534.0	12.40	169.40	3,472.2	-587.4	139.2	1,316,212.67	3,139,994.49	40.200308	-104.998842
3,629.0	12.40	169.40	3,565.0	-607.5	143.0	1,316,192.64	3,139,998.35	40.200252	-104.998828
3,724.0	14.40	168.40	3,657.4	-629.1	147.2	1,316,171.06	3,140,002.73	40.200193	-104.998813
3,819.0	14.30	167.00	3,749.4	-652.1	152.3	1,316,148.09	3,140,007.87	40.200130	-104.998795
3,913.0	13.70	166.20	3,840.6	-674.2	157.5	1,316,126.00	3,140,013.26	40.200069	-104.998776
4,008.0	12.10	163.60	3,933.2	-694.7	163.0	1,316,105.55	3,140,018.87	40.200013	-104.998757
4,103.0	12.80	165.80	4,026.0	-714.4	168.4	1,316,085.83	3,140,024.38	40.199959	-104.998737
4,197.0	11.90	162.20	4,117.8	-733.8	173.9	1,316,066.53	3,140,030.00	40.199906	-104.998718
4,292.0	13.10	161.50	4,210.6	-753.3	180.3	1,316,047.03	3,140,036.53	40.199852	-104.998695
4,387.0	14.40	170.00	4,302.9	-775.1	185.8	1,316,025.22	3,140,042.12	40.199792	-104.998675
4,482.0	13.40	169.80	4,395.1	-797.6	189.8	1,316,002.77	3,140,046.24	40.199731	-104.998661
4,576.0	12.40	169.20	4,486.7	-818.2	193.6	1,315,982.16	3,140,050.18	40.199674	-104.998647
4,671.0	11.70	168.80	4,579.6	-837.7	197.4	1,315,962.71	3,140,054.07	40.199620	-104.998634
4,766.0	11.60	168.30	4,672.6	-856.5	201.2	1,315,943.93	3,140,057.99	40.199569	-104.998620
4,860.0	10.90	167.20	4,764.8	-874.4	205.1	1,315,926.04	3,140,061.97	40.199520	-104.998606
4,955.0	9.70	166.50	4,858.3	-891.0	209.0	1,315,909.52	3,140,065.93	40.199474	-104.998592
5,050.0	8.70	168.00	4,952.1	-905.8	212.3	1,315,894.73	3,140,069.37	40.199434	-104.998580
5,144.0	7.70	168.40	5,045.1	-918.9	215.1	1,315,881.62	3,140,072.19	40.199398	-104.998570
5,239.0	6.50	168.30	5,139.4	-930.4	217.4	1,315,870.13	3,140,074.62	40.199366	-104.998562
5,334.0	5.80	159.80	5,233.8	-940.2	220.2	1,315,860.38	3,140,077.43	40.199339	-104.998552
5,428.0	5.00	158.70	5,327.4	-948.4	223.3	1,315,852.12	3,140,080.60	40.199316	-104.998541
5,523.0	5.60	154.30	5,422.0	-956.5	226.8	1,315,844.11	3,140,084.16	40.199294	-104.998528
5,618.0	5.10	165.10	5,516.6	-964.7	229.9	1,315,835.87	3,140,087.30	40.199272	-104.998517
5,713.0	3.90	170.30	5,611.3	-972.0	231.6	1,315,828.61	3,140,088.98	40.199252	-104.998511
5,807.0	3.90	168.70	5,705.1	-978.3	232.7	1,315,822.33	3,140,090.18	40.199235	-104.998507
5,902.0	2.70	178.60	5,799.9	-983.7	233.4	1,315,816.93	3,140,090.89	40.199220	-104.998505
5,996.0	2.30	183.30	5,893.9	-987.8	233.3	1,315,812.83	3,140,090.86	40.199208	-104.998505
6,091.0	2.80	153.90	5,988.8	-991.8	234.3	1,315,808.85	3,140,091.80	40.199198	-104.998502
6,186.0	1.90	167.50	6,083.7	-995.4	235.6	1,315,805.24	3,140,093.18	40.199188	-104.998497

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
6,281.0	1.40	178.90	6,178.6	-998.1	236.0	1,315,802.54	3,140,093.56	40.199180	-104.998495
6,376.0	1.40	223.30	6,273.6	-1,000.1	235.2	1,315,800.53	3,140,092.79	40.199175	-104.998498
6,470.0	0.20	106.50	6,367.6	-1,001.0	234.6	1,315,799.65	3,140,092.17	40.199172	-104.998500
6,564.0	0.90	329.10	6,461.6	-1,000.4	234.4	1,315,800.23	3,140,091.94	40.199174	-104.998501
6,659.0	0.10	68.10	6,556.6	-999.7	234.1	1,315,800.90	3,140,091.63	40.199176	-104.998502
6,722.0	0.50	267.70	6,619.6	-999.7	233.8	1,315,800.91	3,140,091.41	40.199176	-104.998503
6,754.0	1.00	268.10	6,651.6	-999.7	233.4	1,315,800.89	3,140,090.99	40.199176	-104.998505
6,785.0	3.30	268.80	6,682.6	-999.8	232.2	1,315,800.86	3,140,089.83	40.199176	-104.998509
6,817.0	5.90	266.90	6,714.5	-999.9	229.7	1,315,800.74	3,140,087.27	40.199175	-104.998518
6,849.0	8.90	276.90	6,746.2	-999.7	225.6	1,315,800.92	3,140,083.16	40.199176	-104.998533
6,880.0	12.40	275.40	6,776.7	-999.1	219.9	1,315,801.49	3,140,077.47	40.199178	-104.998553
6,912.0	16.20	273.50	6,807.7	-998.5	212.0	1,315,802.04	3,140,069.58	40.199179	-104.998581
6,943.0	19.30	271.10	6,837.2	-998.1	202.6	1,315,802.35	3,140,060.14	40.199180	-104.998615
6,975.0	21.60	267.90	6,867.2	-998.2	191.4	1,315,802.17	3,140,048.97	40.199180	-104.998655
7,007.0	23.40	266.90	6,896.7	-998.8	179.2	1,315,801.54	3,140,036.74	40.199178	-104.998699
7,038.0	25.10	268.00	6,925.0	-999.3	166.4	1,315,800.91	3,140,024.02	40.199177	-104.998744
7,070.0	27.60	269.30	6,953.7	-999.7	152.2	1,315,800.50	3,140,009.83	40.199176	-104.998795
7,101.0	30.50	272.30	6,980.8	-999.4	137.2	1,315,800.65	3,139,994.78	40.199176	-104.998849
7,133.0	35.10	274.00	7,007.7	-998.5	119.9	1,315,801.52	3,139,977.47	40.199179	-104.998911
7,165.0	37.90	274.10	7,033.4	-997.1	100.9	1,315,802.75	3,139,958.48	40.199183	-104.998979
7,196.0	40.80	272.90	7,057.3	-995.9	81.3	1,315,803.84	3,139,938.86	40.199186	-104.999049
7,228.0	43.10	269.90	7,081.1	-995.4	59.9	1,315,804.23	3,139,917.48	40.199188	-104.999126
7,259.0	46.40	268.80	7,103.2	-995.7	38.1	1,315,803.85	3,139,895.66	40.199187	-104.999204
7,291.0	48.70	267.10	7,124.8	-996.5	14.5	1,315,802.87	3,139,872.07	40.199184	-104.999288
7,322.0	51.10	265.30	7,144.7	-998.1	-9.2	1,315,801.15	3,139,848.42	40.199180	-104.999373
7,354.0	53.80	264.90	7,164.2	-1,000.3	-34.4	1,315,798.84	3,139,823.16	40.199174	-104.999464
7,385.0	57.90	265.20	7,181.6	-1,002.5	-60.0	1,315,796.49	3,139,797.62	40.199168	-104.999555
7,417.0	62.90	265.90	7,197.4	-1,004.6	-87.7	1,315,794.18	3,139,769.90	40.199162	-104.999654
7,448.0	65.60	266.70	7,210.9	-1,006.4	-115.6	1,315,792.22	3,139,742.05	40.199157	-104.999754
7,480.0	67.60	267.80	7,223.6	-1,007.8	-144.9	1,315,790.65	3,139,712.73	40.199153	-104.999859
7,512.0	69.80	267.40	7,235.2	-1,009.1	-174.7	1,315,789.23	3,139,682.95	40.199150	-104.999966
7,543.0	72.80	267.60	7,245.2	-1,010.4	-204.0	1,315,787.78	3,139,653.62	40.199146	-105.000071
7,575.0	76.40	267.80	7,253.7	-1,011.6	-234.8	1,315,786.37	3,139,622.81	40.199143	-105.000181
7,606.0	78.90	269.30	7,260.3	-1,012.4	-265.1	1,315,785.44	3,139,592.55	40.199141	-105.000289
7,638.0	81.70	270.10	7,265.7	-1,012.5	-296.7	1,315,785.10	3,139,561.01	40.199141	-105.000402
7,653.0	84.00	271.50	7,267.5	-1,012.3	-311.5	1,315,785.22	3,139,546.13	40.199141	-105.000456
7,705.0	88.40	269.00	7,271.0	-1,012.1	-363.4	1,315,785.15	3,139,494.26	40.199142	-105.000641
7,799.0	91.30	271.10	7,271.2	-1,012.0	-457.4	1,315,784.70	3,139,400.27	40.199142	-105.000978
7,894.0	91.90	271.10	7,268.6	-1,010.2	-552.3	1,315,785.99	3,139,305.32	40.199147	-105.001318
7,989.0	91.00	269.90	7,266.2	-1,009.4	-647.3	1,315,786.28	3,139,210.35	40.199149	-105.001658
8,084.0	93.10	269.70	7,262.8	-1,009.7	-742.2	1,315,785.41	3,139,115.42	40.199148	-105.001997
8,179.0	94.00	270.60	7,256.9	-1,009.5	-837.0	1,315,785.13	3,139,020.61	40.199149	-105.002337
8,273.0	93.20	272.50	7,251.0	-1,006.9	-930.8	1,315,787.13	3,138,926.82	40.199156	-105.002673
8,368.0	92.30	273.90	7,246.4	-1,001.6	-1,025.6	1,315,791.90	3,138,832.05	40.199170	-105.003012
8,463.0	92.80	273.40	7,242.2	-995.6	-1,120.3	1,315,797.40	3,138,737.31	40.199187	-105.003351
8,558.0	90.20	273.00	7,239.7	-990.3	-1,215.1	1,315,802.17	3,138,642.47	40.199202	-105.003690
8,652.0	91.50	271.20	7,238.3	-986.8	-1,309.0	1,315,805.08	3,138,548.53	40.199211	-105.004026
8,747.0	92.00	267.80	7,235.4	-987.7	-1,403.9	1,315,803.72	3,138,453.60	40.199209	-105.004366
8,842.0	94.10	268.50	7,230.4	-990.7	-1,498.8	1,315,800.12	3,138,358.81	40.199200	-105.004706
8,936.0	93.00	269.30	7,224.6	-992.5	-1,592.6	1,315,797.79	3,138,265.02	40.199195	-105.005041
9,031.0	91.00	267.20	7,221.2	-995.4	-1,687.4	1,315,794.35	3,138,170.15	40.199187	-105.005381
9,126.0	90.50	266.90	7,220.0	-1,000.3	-1,782.3	1,315,788.93	3,138,075.31	40.199174	-105.005721
9,220.0	92.50	268.60	7,217.5	-1,004.0	-1,876.2	1,315,784.71	3,137,981.45	40.199164	-105.006057
9,315.0	93.40	270.30	7,212.6	-1,004.9	-1,971.1	1,315,783.26	3,137,886.59	40.199161	-105.006396
9,410.0	93.60	272.40	7,206.8	-1,002.7	-2,065.9	1,315,784.96	3,137,791.78	40.199167	-105.006736

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1F-28H-A368
Project:	DJ Wattenberg	TVD Reference:	KB @ 5004.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	KB @ 5004.0ft (Ensign 135)
Well:	Frederiksen 1F-28H-A368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
9,504.0	92.30	273.10	7,202.0	-998.2	-2,159.6	1,315,788.94	3,137,698.00	40.199180	-105.007072
9,599.0	92.40	272.30	7,198.1	-993.7	-2,254.4	1,315,792.87	3,137,603.16	40.199192	-105.007411
9,694.0	93.50	270.70	7,193.2	-991.2	-2,349.3	1,315,794.82	3,137,508.31	40.199199	-105.007750
9,788.0	93.70	270.50	7,187.3	-990.2	-2,443.1	1,315,795.27	3,137,414.49	40.199201	-105.008086
9,883.0	93.50	269.50	7,181.4	-990.2	-2,537.9	1,315,794.74	3,137,319.68	40.199201	-105.008426
9,978.0	93.80	269.30	7,175.3	-991.2	-2,632.7	1,315,793.21	3,137,224.89	40.199199	-105.008765
10,073.0	93.80	269.20	7,169.0	-992.5	-2,727.5	1,315,791.44	3,137,130.11	40.199195	-105.009104
10,167.0	94.20	269.80	7,162.5	-993.3	-2,821.2	1,315,790.09	3,137,036.35	40.199193	-105.009440
10,262.0	94.70	271.10	7,155.1	-992.5	-2,915.9	1,315,790.30	3,136,941.64	40.199195	-105.009779
10,356.0	94.00	270.80	7,148.0	-991.0	-3,009.7	1,315,791.32	3,136,847.92	40.199199	-105.010115
10,451.0	91.60	270.00	7,143.3	-990.3	-3,104.5	1,315,791.45	3,136,753.04	40.199201	-105.010454
10,546.0	92.80	268.80	7,139.7	-991.3	-3,199.5	1,315,789.92	3,136,658.13	40.199198	-105.010794
10,641.0	92.70	269.60	7,135.1	-992.7	-3,294.3	1,315,788.06	3,136,563.25	40.199195	-105.011134
10,735.0	93.50	272.90	7,130.0	-990.6	-3,388.2	1,315,789.57	3,136,469.42	40.199200	-105.011470
10,830.0	94.20	270.20	7,123.6	-988.0	-3,482.9	1,315,791.60	3,136,374.66	40.199207	-105.011809
10,925.0	92.70	269.70	7,117.9	-988.1	-3,577.7	1,315,790.98	3,136,279.84	40.199207	-105.012148
11,019.0	93.60	268.50	7,112.8	-989.6	-3,671.6	1,315,788.98	3,136,186.01	40.199203	-105.012484
11,114.0	93.80	268.20	7,106.6	-992.3	-3,766.3	1,315,785.72	3,136,091.26	40.199195	-105.012823
11,209.0	93.80	267.60	7,100.3	-995.8	-3,861.1	1,315,781.71	3,135,996.55	40.199186	-105.013163
11,304.0	93.80	267.10	7,094.0	-1,000.2	-3,955.8	1,315,776.79	3,135,901.89	40.199174	-105.013502
11,398.0	93.30	267.30	7,088.2	-1,004.8	-4,049.5	1,315,771.68	3,135,808.21	40.199161	-105.013837
11,493.0	91.90	269.30	7,083.9	-1,007.6	-4,144.3	1,315,768.33	3,135,713.37	40.199153	-105.014177
11,588.0	90.70	271.40	7,081.8	-1,007.0	-4,239.3	1,315,768.37	3,135,618.41	40.199155	-105.014517
11,682.0	91.40	271.30	7,080.0	-1,004.8	-4,333.2	1,315,770.06	3,135,524.44	40.199161	-105.014853
11,777.0	92.50	271.60	7,076.8	-1,002.4	-4,428.2	1,315,771.92	3,135,429.51	40.199167	-105.015193
11,850.0	92.80	271.90	7,073.4	-1,000.2	-4,501.0	1,315,773.74	3,135,356.64	40.199173	-105.015454
Last CES Survey @ 11,850' MD									
11,900.0	92.80	271.90	7,071.0	-998.5	-4,550.9	1,315,775.11	3,135,306.71	40.199178	-105.015632
PTB @ 11,900'									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Frederiksen 1F-28H-A368	0.00	0.00	7,076.7	-1,001.3	-4,561.6	1,315,772.20	3,135,296.11	40.199170	-105.015670
- hit/miss target									
- Shape									
- actual wellpath misses target center by 12.4ft at 11900.0ft MD (7071.0 TVD, -998.5 N, -4550.9 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,850.0	7,073.4	-1,000.2	-4,501.0	Last CES Survey @ 11,850' MD	
11,900.0	7,071.0	-998.5	-4,550.9	PTB @ 11,900'	

Checked By: _____	Approved By: _____	Date: _____
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