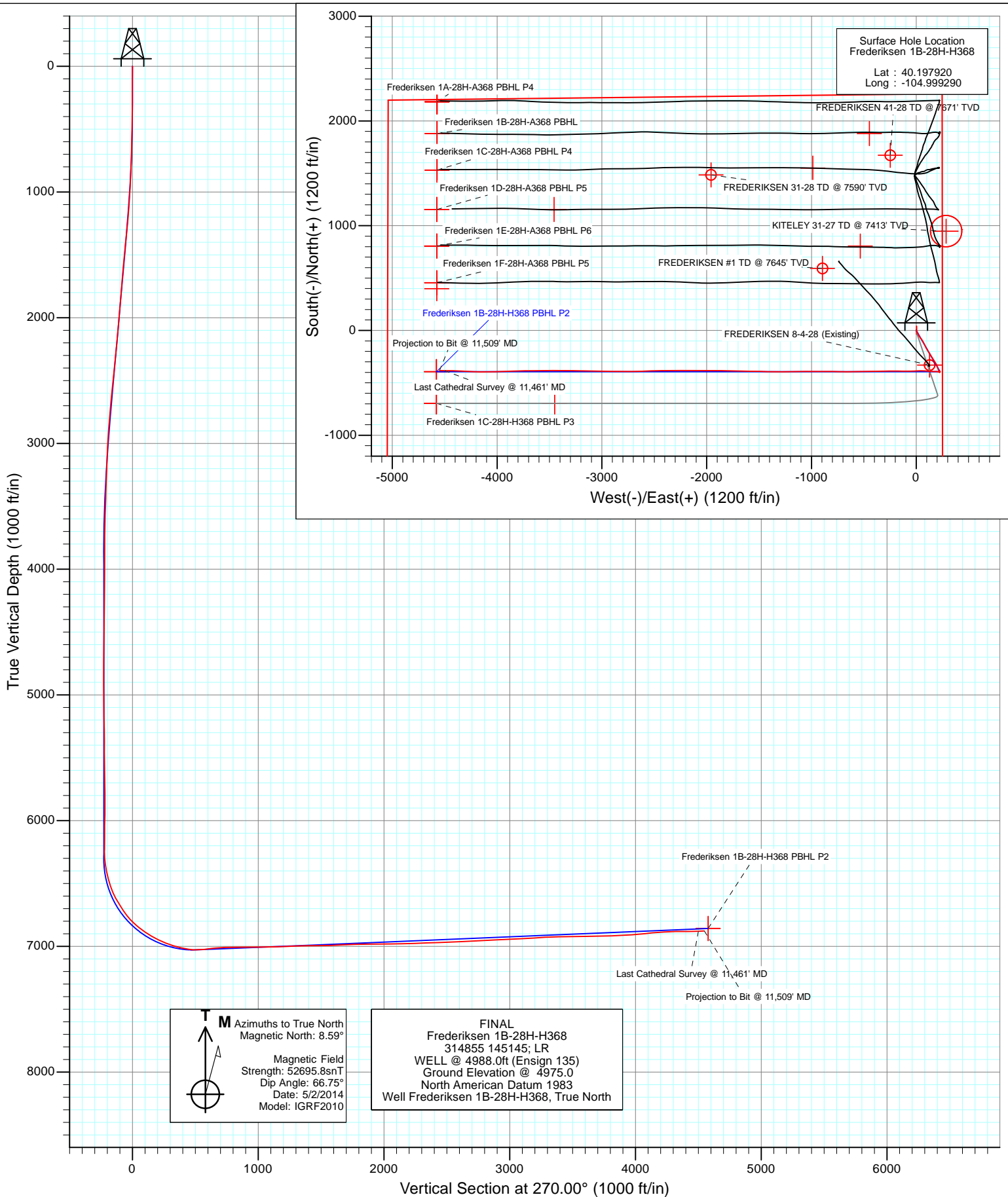


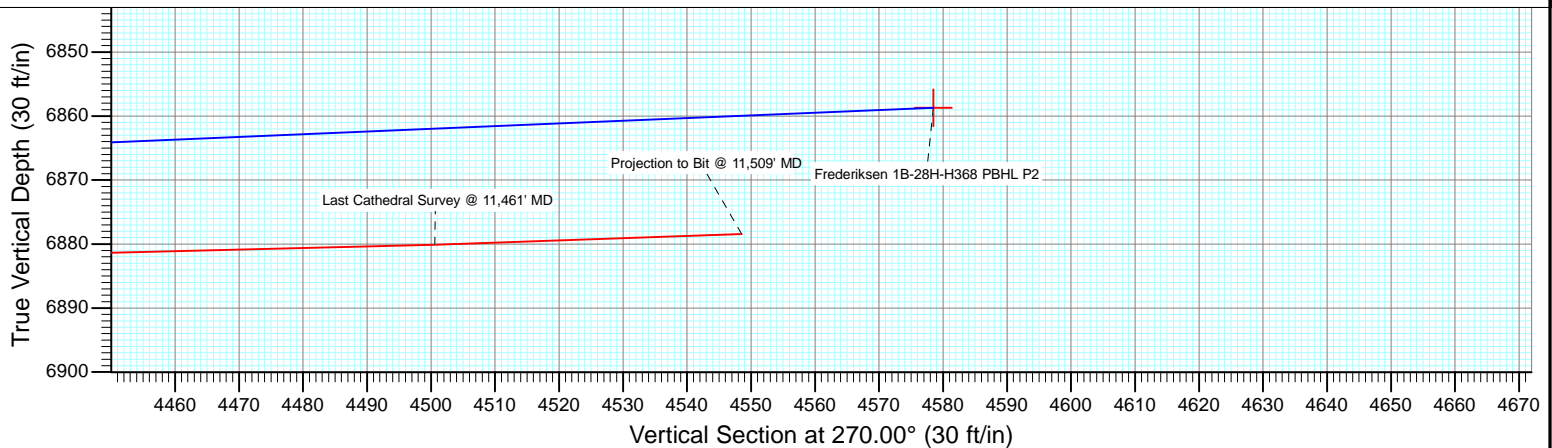
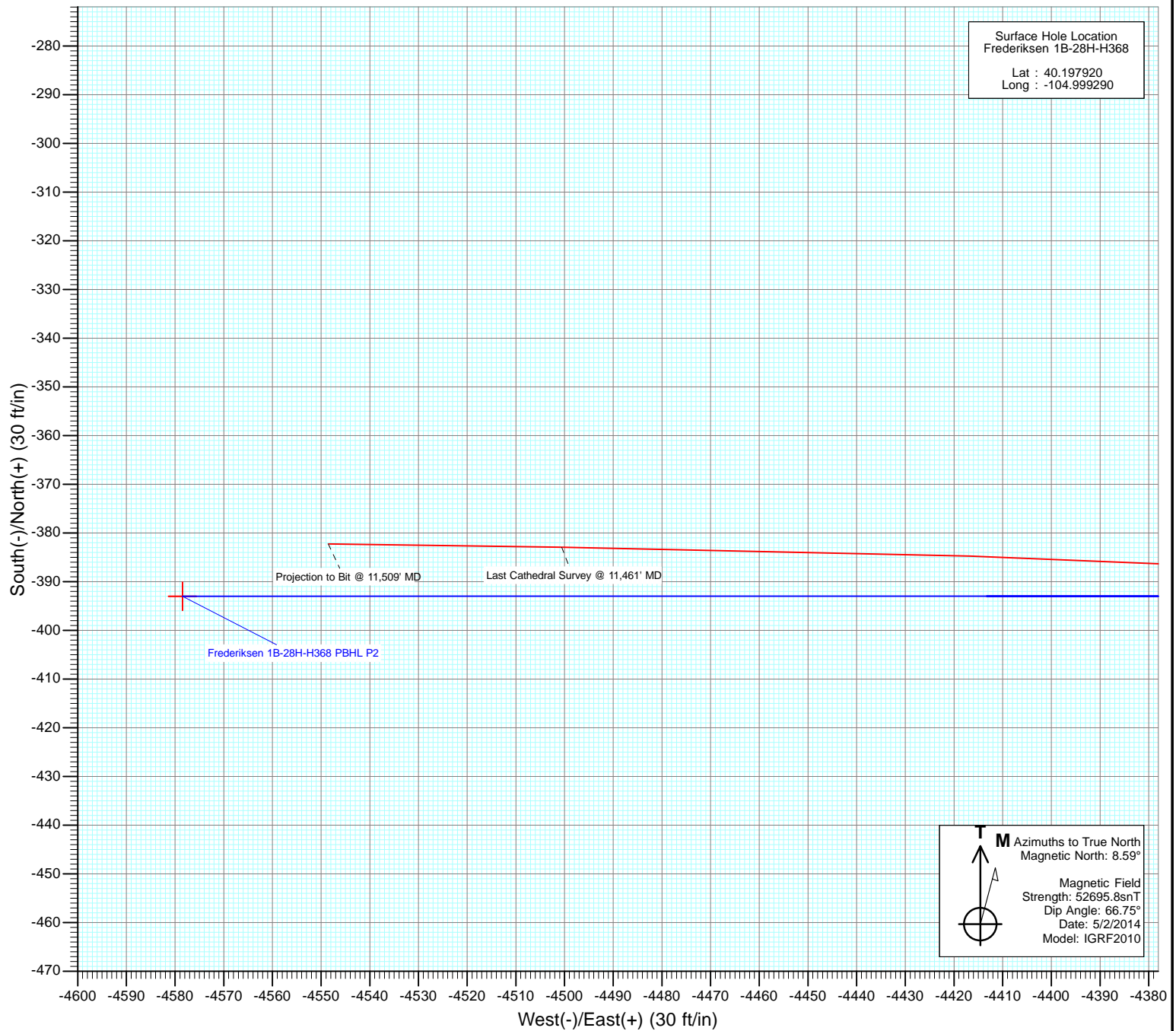


Project: DJ Wattenberg
Site: S28-T3N-R68W (Frederiksen)
Well: Frederiksen 1B-28H-H368
Wellbore: Hz
Design: FINAL





Project: DJ Wattenberg
Site: S28-T3N-R68W (Frederiksen)
Well: Frederiksen 1B-28H-H368
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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 1B-28H-H368					
Well Position	+N/-S	0.0 ft	Northing:	1,315,342.26 ft	Latitude:	40.197920
	+E/-W	0.0 ft	Easting:	3,139,874.13 ft	Longitude:	-104.999290
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,975.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/2/2014	8.58	66.75	52,696

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	6/2/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
168.0	11,509.0	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		
168.0	0.50	144.90	168.0	-0.6	0.4	-0.4	0.30	0.30		
259.0	0.10	119.60	259.0	-1.0	0.7	-0.7	0.45	-0.44		
351.0	1.30	169.90	351.0	-2.0	1.0	-1.0	1.35	1.30		
443.0	1.90	147.20	443.0	-4.3	2.0	-2.0	0.94	0.65		
534.0	2.70	151.50	533.9	-7.5	3.8	-3.8	0.90	0.88		
626.0	2.70	156.10	625.8	-11.4	5.7	-5.7	0.24	0.00		
718.0	4.00	154.70	717.6	-16.3	8.0	-8.0	1.42	1.41		
816.0	5.10	154.00	815.3	-23.3	11.4	-11.4	1.12	1.12		
915.0	5.20	152.10	913.9	-31.2	15.4	-15.4	0.20	0.10		
1,007.0	7.10	153.00	1,005.4	-39.9	19.9	-19.9	2.07	2.07		
1,098.0	8.40	150.20	1,095.5	-50.7	25.8	-25.8	1.49	1.43		
1,190.0	9.50	146.00	1,186.4	-62.8	33.4	-33.4	1.39	1.20		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
1,282.0	8.00	138.80	1,277.4	-74.0	41.8	-41.8	2.02	-1.63	
1,374.0	9.20	141.00	1,368.3	-84.5	50.7	-50.7	1.35	1.30	
1,465.0	10.50	150.00	1,458.0	-97.3	59.4	-59.4	2.21	1.43	
1,557.0	11.10	152.20	1,548.3	-112.4	67.7	-67.7	0.79	0.65	
1,649.0	10.50	151.10	1,638.7	-127.6	75.9	-75.9	0.69	-0.65	
1,740.0	10.40	156.10	1,728.2	-142.4	83.2	-83.2	1.00	-0.11	
1,832.0	10.30	154.10	1,818.7	-157.3	90.2	-90.2	0.41	-0.11	
1,924.0	10.20	153.60	1,909.2	-172.0	97.4	-97.4	0.15	-0.11	
2,016.0	9.80	146.10	1,999.9	-185.8	105.4	-105.4	1.48	-0.43	
2,107.0	9.50	153.10	2,089.6	-199.0	113.1	-113.1	1.33	-0.33	
2,199.0	9.80	143.30	2,180.3	-212.0	121.2	-121.2	1.81	0.33	
2,291.0	10.30	146.70	2,270.9	-225.2	130.4	-130.4	0.84	0.54	
2,382.0	11.00	150.30	2,360.3	-239.5	139.2	-139.2	1.06	0.77	
2,477.0	10.70	147.30	2,453.6	-254.8	148.4	-148.4	0.67	-0.32	
2,572.0	9.70	143.60	2,547.1	-268.7	158.0	-158.0	1.26	-1.05	
2,666.0	10.20	145.20	2,639.7	-281.9	167.4	-167.4	0.61	0.53	
2,761.0	10.00	151.80	2,733.2	-296.1	176.1	-176.1	1.24	-0.21	
2,856.0	9.00	150.10	2,826.9	-309.8	183.7	-183.7	1.09	-1.05	
2,951.0	7.50	148.40	2,920.9	-321.5	190.7	-190.7	1.60	-1.58	
3,045.0	7.10	157.20	3,014.2	-332.1	196.1	-196.1	1.26	-0.43	
3,140.0	7.30	159.20	3,108.4	-343.1	200.5	-200.5	0.34	0.21	
3,234.0	5.80	159.40	3,201.8	-353.1	204.3	-204.3	1.60	-1.60	
3,329.0	6.50	162.70	3,296.2	-362.8	207.6	-207.6	0.83	0.74	
3,423.0	5.60	162.50	3,389.7	-372.2	210.6	-210.6	0.96	-0.96	
3,518.0	4.50	162.50	3,484.4	-380.2	213.1	-213.1	1.16	-1.16	
3,612.0	4.10	136.80	3,578.1	-386.2	216.5	-216.5	2.07	-0.43	
3,706.0	2.40	154.50	3,671.9	-390.4	219.7	-219.7	2.08	-1.81	
3,801.0	0.80	221.50	3,766.9	-392.7	220.1	-220.1	2.33	-1.68	
3,895.0	0.70	184.10	3,860.9	-393.8	219.6	-219.6	0.52	-0.11	
3,990.0	1.40	42.80	3,955.9	-393.5	220.3	-220.3	2.10	0.74	
4,084.0	1.00	25.10	4,049.9	-391.9	221.5	-221.5	0.58	-0.43	
4,179.0	0.90	3.50	4,144.9	-390.4	221.9	-221.9	0.39	-0.11	
4,273.0	1.10	70.60	4,238.9	-389.4	222.8	-222.8	1.19	0.21	
4,368.0	0.60	48.30	4,333.8	-388.7	224.0	-224.0	0.62	-0.53	
4,462.0	0.20	7.10	4,427.8	-388.2	224.4	-224.4	0.50	-0.43	
4,557.0	1.40	133.60	4,522.8	-388.9	225.2	-225.2	1.61	1.26	
4,651.0	1.30	138.20	4,616.8	-390.5	226.8	-226.8	0.16	-0.11	
4,746.0	1.00	150.00	4,711.8	-392.0	227.9	-227.9	0.40	-0.32	
4,841.0	0.80	171.20	4,806.8	-393.4	228.4	-228.4	0.41	-0.21	
4,936.0	0.90	187.30	4,901.8	-394.8	228.4	-228.4	0.27	0.11	
5,030.0	1.10	210.10	4,995.8	-396.3	227.9	-227.9	0.47	0.21	
5,125.0	1.00	230.80	5,090.7	-397.6	226.8	-226.8	0.41	-0.11	
5,220.0	1.20	241.30	5,185.7	-398.6	225.3	-225.3	0.30	0.21	
5,314.0	1.50	247.40	5,279.7	-399.5	223.3	-223.3	0.35	0.32	
5,409.0	0.40	171.70	5,374.7	-400.3	222.2	-222.2	1.53	-1.16	
5,504.0	0.90	347.00	5,469.7	-399.9	222.1	-222.1	1.37	0.53	
5,598.0	1.00	336.10	5,563.7	-398.5	221.6	-221.6	0.22	0.11	
5,693.0	1.50	311.90	5,658.6	-396.9	220.3	-220.3	0.75	0.53	
5,787.0	1.20	235.20	5,752.6	-396.6	218.6	-218.6	1.80	-0.32	
5,882.0	0.70	176.30	5,847.6	-397.8	217.8	-217.8	1.08	-0.53	
5,977.0	1.30	79.20	5,942.6	-398.1	218.9	-218.9	1.63	0.63	
6,071.0	0.30	62.80	6,036.6	-397.8	220.2	-220.2	1.08	-1.06	
6,166.0	1.10	33.40	6,131.6	-397.0	220.9	-220.9	0.90	0.84	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
6,260.0	1.10	12.60	6,225.6	-395.3	221.6	-221.6	0.42	0.00	
6,307.0	0.90	328.60	6,272.6	-394.6	221.5	-221.5	1.64	-0.43	
6,355.0	5.20	270.10	6,320.5	-394.2	219.1	-219.1	9.98	8.96	
6,402.0	11.20	273.00	6,367.0	-394.0	212.4	-212.4	12.79	12.77	
6,450.0	13.50	275.90	6,413.9	-393.2	202.2	-202.2	4.96	4.79	
6,497.0	14.00	274.00	6,459.5	-392.2	191.1	-191.1	1.43	1.06	
6,544.0	15.20	270.40	6,505.0	-391.8	179.2	-179.2	3.20	2.55	
6,591.0	20.40	269.10	6,549.7	-391.9	164.9	-164.9	11.10	11.06	
6,639.0	27.60	273.60	6,593.6	-391.3	145.4	-145.4	15.47	15.00	
6,686.0	30.90	276.90	6,634.6	-389.2	122.5	-122.5	7.81	7.02	
6,734.0	31.80	275.10	6,675.6	-386.6	97.7	-97.7	2.71	1.87	
6,781.0	32.70	271.90	6,715.3	-385.0	72.7	-72.7	4.11	1.91	
6,829.0	37.80	269.30	6,754.5	-384.8	45.0	-45.0	11.07	10.62	
6,876.0	43.80	267.90	6,790.1	-385.6	14.3	-14.3	12.91	12.77	
6,923.0	48.70	267.60	6,822.6	-386.9	-19.6	19.6	10.44	10.43	
6,970.0	51.70	268.60	6,852.6	-388.1	-55.7	55.7	6.59	6.38	
7,018.0	53.50	270.40	6,881.8	-388.4	-93.8	93.8	4.79	3.75	
7,065.0	57.30	271.20	6,908.5	-387.9	-132.5	132.5	8.21	8.09	
7,112.0	62.80	270.50	6,931.9	-387.3	-173.2	173.2	11.77	11.70	
7,159.0	65.50	269.80	6,952.4	-387.2	-215.5	215.5	5.90	5.74	
7,207.0	68.00	269.30	6,971.4	-387.5	-259.6	259.6	5.30	5.21	
7,254.0	71.00	268.30	6,987.8	-388.4	-303.6	303.6	6.69	6.38	
7,301.0	73.10	268.10	7,002.3	-389.8	-348.3	348.3	4.49	4.47	
7,348.0	76.70	269.70	7,014.6	-390.7	-393.7	393.7	8.33	7.66	
7,396.0	80.80	270.30	7,023.9	-390.7	-440.7	440.7	8.63	8.54	
7,449.0	89.40	268.50	7,028.4	-391.3	-493.5	493.5	16.57	16.23	
7,530.0	96.70	268.80	7,024.1	-393.2	-574.3	574.3	9.02	9.01	
7,593.0	96.20	270.00	7,017.1	-393.8	-636.9	636.9	2.05	-0.79	
7,625.0	95.40	270.10	7,013.8	-393.8	-668.7	668.7	2.52	-2.50	
7,656.0	94.40	270.80	7,011.2	-393.5	-699.6	699.6	3.93	-3.23	
7,687.0	92.90	270.80	7,009.2	-393.1	-730.5	730.5	4.84	-4.84	
7,751.0	89.90	270.70	7,007.6	-392.3	-794.5	794.5	4.69	-4.69	
7,782.0	90.10	270.30	7,007.6	-392.0	-825.5	825.5	1.44	0.65	
7,877.0	90.20	269.90	7,007.4	-391.8	-920.5	920.5	0.43	0.11	
7,971.0	91.00	270.30	7,006.4	-391.7	-1,014.5	1,014.5	0.95	0.85	
8,066.0	91.50	269.20	7,004.3	-392.1	-1,109.5	1,109.5	1.27	0.53	
8,161.0	91.20	268.50	7,002.1	-394.0	-1,204.4	1,204.4	0.80	-0.32	
8,256.0	92.90	270.80	6,998.7	-394.6	-1,299.4	1,299.4	3.01	1.79	
8,350.0	90.90	271.10	6,995.6	-393.0	-1,393.3	1,393.3	2.15	-2.13	
8,445.0	90.00	271.20	6,994.8	-391.1	-1,488.3	1,488.3	0.95	-0.95	
8,540.0	92.10	271.20	6,993.1	-389.1	-1,583.2	1,583.2	2.21	2.21	
8,634.0	93.60	270.80	6,988.4	-387.5	-1,677.1	1,677.1	1.65	1.60	
8,729.0	91.10	271.70	6,984.5	-385.4	-1,772.0	1,772.0	2.80	-2.63	
8,824.0	90.50	270.70	6,983.2	-383.4	-1,866.9	1,866.9	1.23	-0.63	
8,918.0	90.60	270.80	6,982.3	-382.2	-1,960.9	1,960.9	0.15	0.11	
9,013.0	90.90	269.90	6,981.1	-381.6	-2,055.9	2,055.9	1.00	0.32	
9,107.0	91.20	269.90	6,979.3	-381.8	-2,149.9	2,149.9	0.32	0.32	
9,202.0	91.60	270.10	6,977.0	-381.8	-2,244.9	2,244.9	0.47	0.42	
9,296.0	92.40	269.40	6,973.7	-382.2	-2,338.8	2,338.8	1.13	0.85	
9,390.0	92.00	268.90	6,970.1	-383.6	-2,432.8	2,432.8	0.68	-0.43	
9,485.0	92.00	268.30	6,966.8	-385.9	-2,527.7	2,527.7	0.63	0.00	
9,579.0	92.40	267.90	6,963.2	-389.0	-2,621.5	2,621.5	0.60	0.43	
9,674.0	93.50	269.30	6,958.3	-391.3	-2,716.4	2,716.4	1.87	1.16	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
9,768.0	92.80	270.50	6,953.1	-391.5	-2,810.2	2,810.2	1.48	-0.74	
9,863.0	92.30	271.00	6,948.9	-390.3	-2,905.1	2,905.1	0.74	-0.53	
9,957.0	93.50	270.90	6,944.2	-388.7	-2,999.0	2,999.0	1.28	1.28	
10,052.0	92.20	271.10	6,939.4	-387.0	-3,093.9	3,093.9	1.38	-1.37	
10,146.0	94.40	270.90	6,934.0	-385.4	-3,187.7	3,187.7	2.35	2.34	
10,241.0	92.40	270.80	6,928.4	-384.0	-3,282.5	3,282.5	2.11	-2.11	
10,335.0	92.00	270.60	6,924.8	-382.9	-3,376.4	3,376.4	0.48	-0.43	
10,430.0	90.30	269.60	6,922.9	-382.7	-3,471.4	3,471.4	2.08	-1.79	
10,525.0	90.60	269.20	6,922.1	-383.7	-3,566.4	3,566.4	0.53	0.32	
10,620.0	91.00	269.30	6,920.8	-384.9	-3,661.4	3,661.4	0.43	0.42	
10,714.0	91.20	269.10	6,919.0	-386.2	-3,755.4	3,755.4	0.30	0.21	
10,809.0	92.50	268.60	6,915.9	-388.1	-3,850.3	3,850.3	1.47	1.37	
10,903.0	93.90	268.10	6,910.7	-390.8	-3,944.1	3,944.1	1.58	1.49	
10,998.0	95.80	267.80	6,902.7	-394.2	-4,038.7	4,038.7	2.02	2.00	
11,093.0	94.90	270.70	6,893.8	-395.5	-4,133.2	4,133.2	3.18	-0.95	
11,188.0	94.50	272.40	6,886.0	-392.9	-4,227.9	4,227.9	1.83	-0.42	
11,282.0	89.70	272.90	6,882.6	-388.6	-4,321.7	4,321.7	5.13	-5.11	
11,377.0	90.80	271.70	6,882.2	-384.7	-4,416.6	4,416.6	1.71	1.16	
11,461.0	92.00	270.80	6,880.1	-382.9	-4,500.6	4,500.6	1.79	1.43	Last Cathedral Survey @ 11,461' MD
11,509.0	92.00	270.80	6,878.4	-382.2	-4,548.5	4,548.5	0.00	0.00	Projection to Bit @ 11,509' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Frederiksen 1B-28H-H368	0.00	0.00	7,033.0	-393.0	-4,578.5	1,314,923.42	3,135,297.95	40.196840	-105.015680
- actual wellpath misses target center by 157.8ft at 11509.0ft MD (6878.4 TVD, -382.2 N, -4548.5 E)									
- Point									
Frederiksen 1B-28H-H368	0.00	0.00	6,858.7	-393.0	-4,578.5	1,314,923.42	3,135,297.95	40.196840	-105.015680
- actual wellpath misses target center by 37.4ft at 11509.0ft MD (6878.4 TVD, -382.2 N, -4548.5 E)									
- Point									

Design Annotations

	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
			+N/-S (ft)	+E/-W (ft)	
	11,461.0	6,880.1	-382.9	-4,500.6	Last Cathedral Survey @ 11,461' MD Projection to Bit @ 11,509' MD
	11,509.0	6,878.4	-382.2	-4,548.5	

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S28-T3N-R68W (Frederiksen)

Frederiksen 1B-28H-H368

Hz

Design: FINAL

Survey Report - Geographic

02 June, 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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 1B-28H-H368					
Well Position	+N/-S	0.0 ft	Northing:	1,315,342.26 ft	Latitude:	40.197920
	+E/-W	0.0 ft	Easting:	3,139,874.13 ft	Longitude:	-104.999290
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,975.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/2/2014	8.58	66.75	52,696

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	6/2/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
168.0	11,509.0	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	1,315,342.26	3,139,874.13	40.197920	-104.999290
168.0	0.50	144.90	168.0	-0.6	0.4	1,315,341.66	3,139,874.56	40.197918	-104.999289
259.0	0.10	119.60	259.0	-1.0	0.7	1,315,341.30	3,139,874.86	40.197917	-104.999288
351.0	1.30	169.90	351.0	-2.0	1.0	1,315,340.23	3,139,875.12	40.197914	-104.999287
443.0	1.90	147.20	443.0	-4.3	2.0	1,315,337.93	3,139,876.14	40.197908	-104.999283
534.0	2.70	151.50	533.9	-7.5	3.8	1,315,334.79	3,139,878.00	40.197899	-104.999277
626.0	2.70	156.10	625.8	-11.4	5.7	1,315,330.91	3,139,879.93	40.197889	-104.999270
718.0	4.00	154.70	717.6	-16.3	8.0	1,315,326.04	3,139,882.21	40.197875	-104.999262
816.0	5.10	154.00	815.3	-23.3	11.4	1,315,319.06	3,139,885.62	40.197856	-104.999250
915.0	5.20	152.10	913.9	-31.2	15.4	1,315,311.16	3,139,889.69	40.197834	-104.999235
1,007.0	7.10	153.00	1,005.4	-39.9	19.9	1,315,302.44	3,139,894.27	40.197810	-104.999219
1,098.0	8.40	150.20	1,095.5	-50.7	25.8	1,315,291.69	3,139,900.19	40.197781	-104.999198

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
1,190.0	9.50	146.00	1,186.4	-62.8	33.4	1,315,279.61	3,139,907.84	40.197748	-104.999171
1,282.0	8.00	138.80	1,277.3	-74.0	41.8	1,315,268.54	3,139,916.37	40.197717	-104.999141
1,374.0	9.20	141.00	1,368.3	-84.5	50.7	1,315,258.06	3,139,925.27	40.197688	-104.999109
1,465.0	10.50	150.00	1,458.0	-97.3	59.4	1,315,245.27	3,139,934.07	40.197653	-104.999078
1,557.0	11.10	152.20	1,548.3	-112.4	67.7	1,315,230.23	3,139,942.48	40.197611	-104.999048
1,649.0	10.50	151.10	1,638.7	-127.6	75.9	1,315,215.10	3,139,950.75	40.197570	-104.999019
1,740.0	10.40	156.10	1,728.2	-142.4	83.2	1,315,200.37	3,139,958.16	40.197529	-104.998992
1,832.0	10.30	154.10	1,818.7	-157.3	90.2	1,315,185.42	3,139,965.21	40.197488	-104.998967
1,924.0	10.20	153.60	1,909.2	-172.0	97.4	1,315,170.77	3,139,972.50	40.197448	-104.998942
2,016.0	9.80	146.10	1,999.9	-185.8	105.4	1,315,157.02	3,139,980.57	40.197410	-104.998913
2,107.0	9.50	153.10	2,089.6	-199.0	113.1	1,315,143.94	3,139,988.36	40.197374	-104.998885
2,199.0	9.80	143.30	2,180.3	-212.0	121.2	1,315,130.93	3,139,996.55	40.197338	-104.998856
2,291.0	10.30	146.70	2,270.9	-225.2	130.4	1,315,117.83	3,140,005.82	40.197302	-104.998823
2,382.0	11.00	150.30	2,360.3	-239.5	139.2	1,315,103.54	3,140,014.67	40.197263	-104.998792
2,477.0	10.70	147.30	2,453.6	-254.8	148.4	1,315,088.30	3,140,024.01	40.197221	-104.998759
2,572.0	9.70	143.60	2,547.1	-268.7	158.0	1,315,074.49	3,140,033.60	40.197183	-104.998725
2,666.0	10.20	145.20	2,639.7	-281.9	167.4	1,315,061.33	3,140,043.13	40.197146	-104.998691
2,761.0	10.00	151.80	2,733.2	-296.1	176.1	1,315,047.21	3,140,051.90	40.197107	-104.998660
2,856.0	9.00	150.10	2,826.9	-309.8	183.7	1,315,033.54	3,140,059.58	40.197070	-104.998633
2,951.0	7.50	148.40	2,920.9	-321.5	190.7	1,315,021.85	3,140,066.60	40.197038	-104.998608
3,045.0	7.10	157.20	3,014.2	-332.1	196.1	1,315,011.31	3,140,072.13	40.197008	-104.998588
3,140.0	7.30	159.20	3,108.4	-343.1	200.5	1,315,000.28	3,140,076.61	40.196978	-104.998572
3,234.0	5.80	159.40	3,201.8	-353.1	204.3	1,314,990.27	3,140,080.46	40.196951	-104.998559
3,329.0	6.50	162.70	3,296.2	-362.8	207.6	1,314,980.66	3,140,083.80	40.196924	-104.998547
3,423.0	5.60	162.50	3,389.7	-372.2	210.6	1,314,971.22	3,140,086.81	40.196898	-104.998536
3,518.0	4.50	162.50	3,484.4	-380.2	213.1	1,314,963.26	3,140,089.37	40.196876	-104.998527
3,612.0	4.10	136.80	3,578.1	-386.2	216.5	1,314,957.31	3,140,092.82	40.196860	-104.998515
3,706.0	2.40	154.50	3,671.9	-390.4	219.7	1,314,953.10	3,140,095.99	40.196848	-104.998504
3,801.0	0.80	221.50	3,766.9	-392.7	220.1	1,314,950.81	3,140,096.42	40.196842	-104.998502
3,895.0	0.70	184.10	3,860.9	-393.8	219.6	1,314,949.75	3,140,095.95	40.196839	-104.998504
3,990.0	1.40	42.80	3,955.9	-393.5	220.3	1,314,950.02	3,140,096.69	40.196840	-104.998501
4,084.0	1.00	25.10	4,049.9	-391.9	221.5	1,314,951.62	3,140,097.81	40.196844	-104.998497
4,179.0	0.90	3.50	4,144.9	-390.4	221.9	1,314,953.11	3,140,098.20	40.196848	-104.998496
4,273.0	1.10	70.60	4,238.9	-389.4	222.8	1,314,954.16	3,140,099.09	40.196851	-104.998493
4,368.0	0.60	48.30	4,333.8	-388.7	224.0	1,314,954.80	3,140,100.32	40.196853	-104.998488
4,462.0	0.20	7.10	4,427.8	-388.2	224.4	1,314,955.29	3,140,100.71	40.196854	-104.998487
4,557.0	1.40	133.60	4,522.8	-388.9	225.2	1,314,954.66	3,140,101.57	40.196853	-104.998484
4,651.0	1.30	138.20	4,616.8	-390.5	226.8	1,314,953.08	3,140,103.12	40.196848	-104.998478
4,746.0	1.00	150.00	4,711.8	-392.0	227.9	1,314,951.57	3,140,104.26	40.196844	-104.998474
4,841.0	0.80	171.20	4,806.8	-393.4	228.4	1,314,950.19	3,140,104.79	40.196840	-104.998473
4,936.0	0.90	187.30	4,901.8	-394.8	228.4	1,314,948.80	3,140,104.80	40.196836	-104.998472
5,030.0	1.10	210.10	4,995.8	-396.3	227.9	1,314,947.28	3,140,104.26	40.196832	-104.998474
5,125.0	1.00	230.80	5,090.7	-397.6	226.8	1,314,945.96	3,140,103.17	40.196829	-104.998478
5,220.0	1.20	241.30	5,185.7	-398.6	225.3	1,314,944.95	3,140,101.66	40.196826	-104.998484
5,314.0	1.50	247.40	5,279.7	-399.5	223.3	1,314,944.00	3,140,099.67	40.196823	-104.998491
5,409.0	0.40	171.70	5,374.7	-400.3	222.2	1,314,943.19	3,140,098.57	40.196821	-104.998495
5,504.0	0.90	347.00	5,469.7	-399.9	222.1	1,314,943.58	3,140,098.45	40.196822	-104.998495
5,598.0	1.00	336.10	5,563.7	-398.5	221.6	1,314,945.05	3,140,097.94	40.196826	-104.998497
5,693.0	1.50	311.90	5,658.6	-396.9	220.3	1,314,946.63	3,140,096.67	40.196831	-104.998502
5,787.0	1.20	235.20	5,752.6	-396.6	218.6	1,314,946.88	3,140,094.95	40.196831	-104.998508
5,882.0	0.70	176.30	5,847.6	-397.8	217.8	1,314,945.73	3,140,094.18	40.196828	-104.998511
5,977.0	1.30	79.20	5,942.6	-398.1	218.9	1,314,945.36	3,140,095.27	40.196827	-104.998507
6,071.0	0.30	62.80	6,036.6	-397.8	220.2	1,314,945.68	3,140,096.54	40.196828	-104.998502
6,166.0	1.10	33.40	6,131.6	-397.0	220.9	1,314,946.56	3,140,097.26	40.196830	-104.998500
6,260.0	1.10	12.60	6,225.6	-395.3	221.6	1,314,948.20	3,140,097.94	40.196835	-104.998497

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
6,307.0	0.90	328.60	6,272.6	-394.6	221.5	1,314,948.95	3,140,097.84	40.196837	-104.998497
6,355.0	5.20	270.10	6,320.5	-394.2	219.1	1,314,949.26	3,140,095.47	40.196838	-104.998506
6,402.0	11.20	273.00	6,367.0	-394.0	212.4	1,314,949.47	3,140,088.77	40.196838	-104.998530
6,450.0	13.50	275.90	6,413.9	-393.2	202.2	1,314,950.23	3,140,078.54	40.196841	-104.998566
6,497.0	14.00	274.00	6,459.5	-392.2	191.1	1,314,951.13	3,140,067.40	40.196843	-104.998606
6,544.0	15.20	270.40	6,505.0	-391.8	179.2	1,314,951.50	3,140,055.57	40.196845	-104.998649
6,591.0	20.40	269.10	6,549.7	-391.9	164.9	1,314,951.33	3,140,041.21	40.196844	-104.998700
6,639.0	27.60	273.60	6,593.6	-391.3	145.4	1,314,951.79	3,140,021.72	40.196846	-104.998770
6,686.0	30.90	276.90	6,634.6	-389.2	122.5	1,314,953.80	3,139,998.85	40.196852	-104.998852
6,734.0	31.80	275.10	6,675.6	-386.6	97.7	1,314,956.26	3,139,974.00	40.196859	-104.998941
6,781.0	32.70	271.90	6,715.3	-385.0	72.7	1,314,957.64	3,139,948.97	40.196863	-104.999030
6,829.0	37.80	269.30	6,754.5	-384.8	45.0	1,314,957.73	3,139,921.28	40.196864	-104.999129
6,876.0	43.80	267.90	6,790.1	-385.6	14.3	1,314,956.79	3,139,890.60	40.196862	-104.999239
6,923.0	48.70	267.60	6,822.6	-386.9	-19.6	1,314,955.26	3,139,856.69	40.196858	-104.999361
6,970.0	51.70	268.60	6,852.6	-388.1	-55.7	1,314,953.87	3,139,820.62	40.196855	-104.999490
7,018.0	53.50	270.40	6,881.8	-388.4	-93.8	1,314,953.33	3,139,782.49	40.196854	-104.999626
7,065.0	57.30	271.20	6,908.5	-387.9	-132.5	1,314,953.65	3,139,743.81	40.196855	-104.999765
7,112.0	62.80	270.50	6,931.9	-387.3	-173.2	1,314,954.02	3,139,703.11	40.196857	-104.999910
7,159.0	65.50	269.80	6,952.4	-387.2	-215.5	1,314,953.89	3,139,660.81	40.196857	-105.000062
7,207.0	68.00	269.30	6,971.4	-387.5	-259.6	1,314,953.29	3,139,616.72	40.196856	-105.000220
7,254.0	71.00	268.30	6,987.8	-388.4	-303.6	1,314,952.12	3,139,572.72	40.196854	-105.000377
7,301.0	73.10	268.10	7,002.3	-389.8	-348.3	1,314,950.46	3,139,528.04	40.196850	-105.000537
7,348.0	76.70	269.70	7,014.6	-390.7	-393.7	1,314,949.34	3,139,482.67	40.196848	-105.000700
7,396.0	80.80	270.30	7,023.9	-390.7	-440.7	1,314,949.08	3,139,435.60	40.196848	-105.000868
7,449.0	89.40	268.50	7,028.4	-391.3	-493.5	1,314,948.22	3,139,382.86	40.196846	-105.001057
7,530.0	96.70	268.80	7,024.1	-393.2	-574.3	1,314,945.86	3,139,302.07	40.196841	-105.001346
7,593.0	96.20	270.00	7,017.1	-393.8	-636.9	1,314,944.85	3,139,239.48	40.196839	-105.001570
7,625.0	95.40	270.10	7,013.8	-393.8	-668.7	1,314,944.70	3,139,207.65	40.196839	-105.001684
7,656.0	94.40	270.80	7,011.2	-393.5	-699.6	1,314,944.77	3,139,176.76	40.196840	-105.001795
7,687.0	92.90	270.80	7,009.2	-393.1	-730.5	1,314,945.02	3,139,145.83	40.196841	-105.001905
7,751.0	89.90	270.70	7,007.6	-392.3	-794.5	1,314,945.50	3,139,081.85	40.196843	-105.002134
7,782.0	90.10	270.30	7,007.6	-392.0	-825.5	1,314,945.60	3,139,050.85	40.196844	-105.002245
7,877.0	90.20	269.90	7,007.4	-391.8	-920.5	1,314,945.23	3,138,955.86	40.196844	-105.002585
7,971.0	91.00	270.30	7,006.4	-391.7	-1,014.5	1,314,944.86	3,138,861.86	40.196845	-105.002922
8,066.0	91.50	269.20	7,004.3	-392.1	-1,109.5	1,314,943.91	3,138,766.89	40.196844	-105.003262
8,161.0	91.20	268.50	7,002.1	-394.0	-1,204.4	1,314,941.47	3,138,671.95	40.196838	-105.003602
8,256.0	92.90	270.80	6,998.7	-394.6	-1,299.4	1,314,940.35	3,138,577.03	40.196837	-105.003942
8,350.0	90.90	271.10	6,995.6	-393.0	-1,393.3	1,314,941.38	3,138,483.09	40.196841	-105.004278
8,445.0	90.00	271.20	6,994.8	-391.1	-1,488.3	1,314,942.75	3,138,388.10	40.196846	-105.004618
8,540.0	92.10	271.20	6,993.1	-389.1	-1,583.2	1,314,944.20	3,138,293.14	40.196852	-105.004958
8,634.0	93.60	270.80	6,988.4	-387.5	-1,677.1	1,314,945.31	3,138,199.26	40.196856	-105.005294
8,729.0	91.10	271.70	6,984.5	-385.4	-1,772.0	1,314,946.84	3,138,104.36	40.196862	-105.005634
8,824.0	90.50	270.70	6,983.2	-383.4	-1,866.9	1,314,948.30	3,138,009.38	40.196867	-105.005974
8,918.0	90.60	270.80	6,982.3	-382.2	-1,960.9	1,314,949.00	3,137,915.39	40.196871	-105.006310
9,013.0	90.90	269.90	6,981.1	-381.6	-2,055.9	1,314,949.04	3,137,820.38	40.196872	-105.006650
9,107.0	91.20	269.90	6,979.3	-381.8	-2,149.9	1,314,948.35	3,137,726.40	40.196872	-105.006987
9,202.0	91.60	270.10	6,977.0	-381.8	-2,244.9	1,314,947.81	3,137,631.43	40.196872	-105.007327
9,296.0	92.40	269.40	6,973.7	-382.2	-2,338.8	1,314,946.87	3,137,537.49	40.196871	-105.007663
9,390.0	92.00	268.90	6,970.1	-383.6	-2,432.8	1,314,944.95	3,137,443.58	40.196867	-105.007999
9,485.0	92.00	268.30	6,966.8	-385.9	-2,527.7	1,314,942.09	3,137,348.68	40.196860	-105.008339
9,579.0	92.40	267.90	6,963.2	-389.0	-2,621.5	1,314,938.45	3,137,254.82	40.196852	-105.008675
9,674.0	93.50	269.30	6,958.3	-391.3	-2,716.4	1,314,935.59	3,137,160.00	40.196845	-105.009014
9,768.0	92.80	270.50	6,953.1	-391.5	-2,810.2	1,314,934.90	3,137,066.14	40.196845	-105.009350
9,863.0	92.30	271.00	6,948.9	-390.3	-2,905.1	1,314,935.60	3,136,971.24	40.196848	-105.009690
9,957.0	93.50	270.90	6,944.2	-388.7	-2,999.0	1,314,936.63	3,136,877.37	40.196853	-105.010026

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Frederiksen 1B-28H-H368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 4988.0ft (Ensign 135)
Site:	S28-T3N-R68W (Frederiksen)	MD Reference:	WELL @ 4988.0ft (Ensign 135)
Well:	Frederiksen 1B-28H-H368	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
10,052.0	92.20	271.10	6,939.4	-387.0	-3,093.9	1,314,937.75	3,136,782.49	40.196857	-105.010366
10,146.0	94.40	270.90	6,934.0	-385.4	-3,187.7	1,314,938.86	3,136,688.66	40.196862	-105.010702
10,241.0	92.40	270.80	6,928.4	-384.0	-3,282.5	1,314,939.73	3,136,593.84	40.196865	-105.011041
10,335.0	92.00	270.60	6,924.8	-382.9	-3,376.4	1,314,940.35	3,136,499.91	40.196868	-105.011377
10,430.0	90.30	269.60	6,922.9	-382.7	-3,471.4	1,314,939.98	3,136,404.93	40.196869	-105.011717
10,525.0	90.60	269.20	6,922.1	-383.7	-3,566.4	1,314,938.45	3,136,309.95	40.196866	-105.012057
10,620.0	91.00	269.30	6,920.8	-384.9	-3,661.4	1,314,936.67	3,136,214.98	40.196863	-105.012397
10,714.0	91.20	269.10	6,919.0	-386.2	-3,755.4	1,314,934.82	3,136,121.01	40.196859	-105.012734
10,809.0	92.50	268.60	6,915.9	-388.1	-3,850.3	1,314,932.38	3,136,026.09	40.196854	-105.013074
10,903.0	93.90	268.10	6,910.7	-390.8	-3,944.1	1,314,929.15	3,135,932.30	40.196846	-105.013409
10,998.0	95.80	267.80	6,902.7	-394.2	-4,038.7	1,314,925.23	3,135,837.72	40.196837	-105.013748
11,093.0	94.90	270.70	6,893.8	-395.5	-4,133.2	1,314,923.46	3,135,743.19	40.196834	-105.014086
11,188.0	94.50	272.40	6,886.0	-392.9	-4,227.9	1,314,925.49	3,135,648.53	40.196840	-105.014425
11,282.0	89.70	272.90	6,882.6	-388.6	-4,321.7	1,314,929.30	3,135,554.70	40.196852	-105.014761
11,377.0	90.80	271.70	6,882.2	-384.7	-4,416.6	1,314,932.58	3,135,459.76	40.196863	-105.015101
11,461.0	92.00	270.80	6,880.1	-382.9	-4,500.6	1,314,933.93	3,135,375.80	40.196868	-105.015401
Last Cathedral Survey @ 11,461' MD									
11,509.0	92.00	270.80	6,878.4	-382.2	-4,548.5	1,314,934.33	3,135,327.83	40.196870	-105.015573
Projection to Bit @ 11,509' MD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Frederiksen 1B-28H-H368	0.00	0.00	6,858.7	-393.0	-4,578.5	1,314,923.42	3,135,297.95	40.196840	-105.015680
- actual wellpath misses target center by 37.4ft at 11509.0ft MD (6878.4 TVD, -382.2 N, -4548.5 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,461.0	6,880.1	-382.9	-4,500.6	Last Cathedral Survey @ 11,461' MD	
11,509.0	6,878.4	-382.2	-4,548.5	Projection to Bit @ 11,509' MD	

Checked By: _____ Approved By: _____ Date: _____