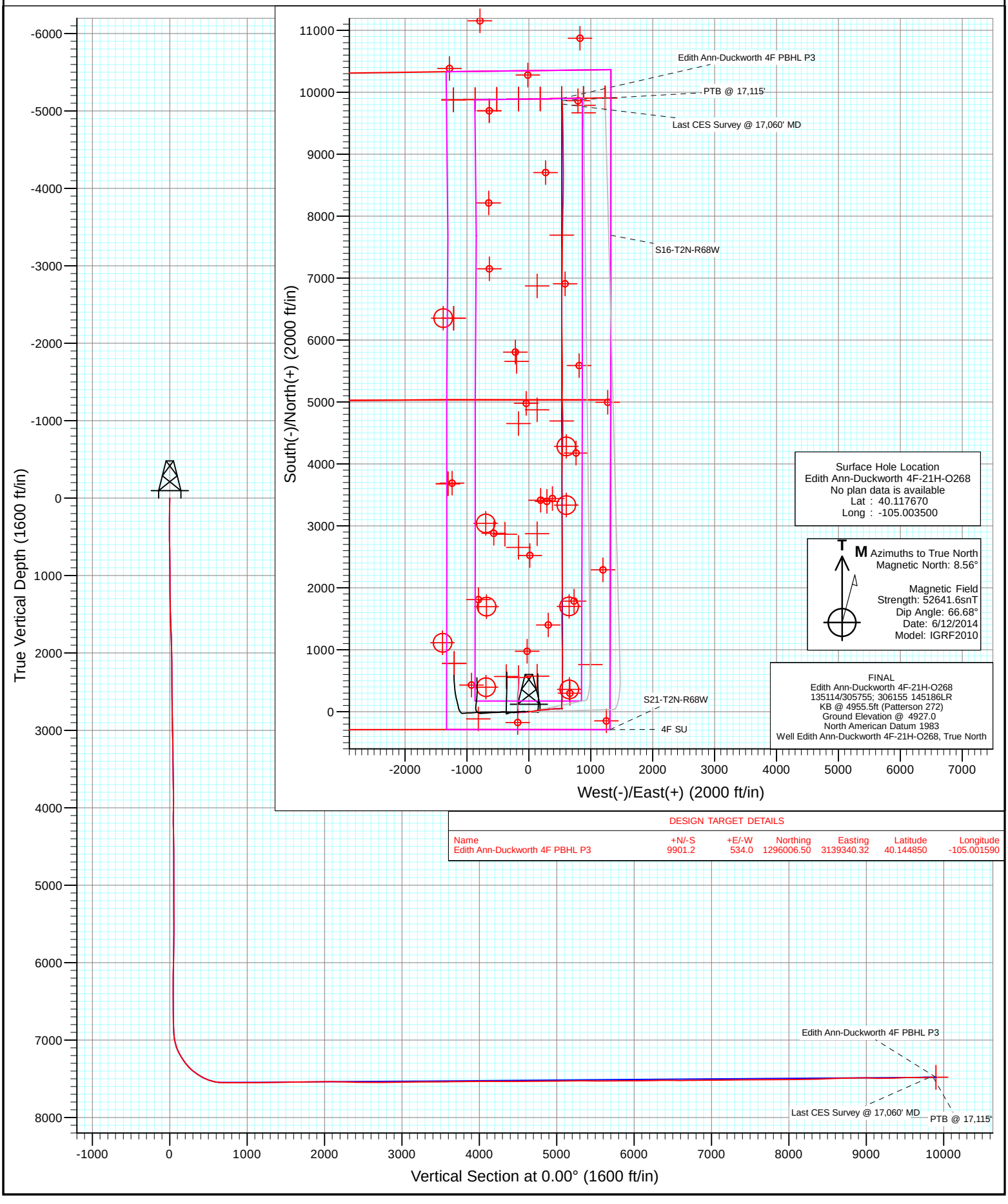
Project: DJ Wattenberg
Site: S21-T2N-R68W (Edith Ann-Duckworth)
Well: Edith Ann-Duckworth 4F-21H-O268
Wellbore: Hz
Design: FINAL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Edith Ann-Duckworth 4F PBHL P3	9901.2	534.0	1296006.50	3139340.32	40.144850	-105.001590

Project: DJ Wattenberg
Site: S21-T2N-R68W (Edith Ann-Duckworth)
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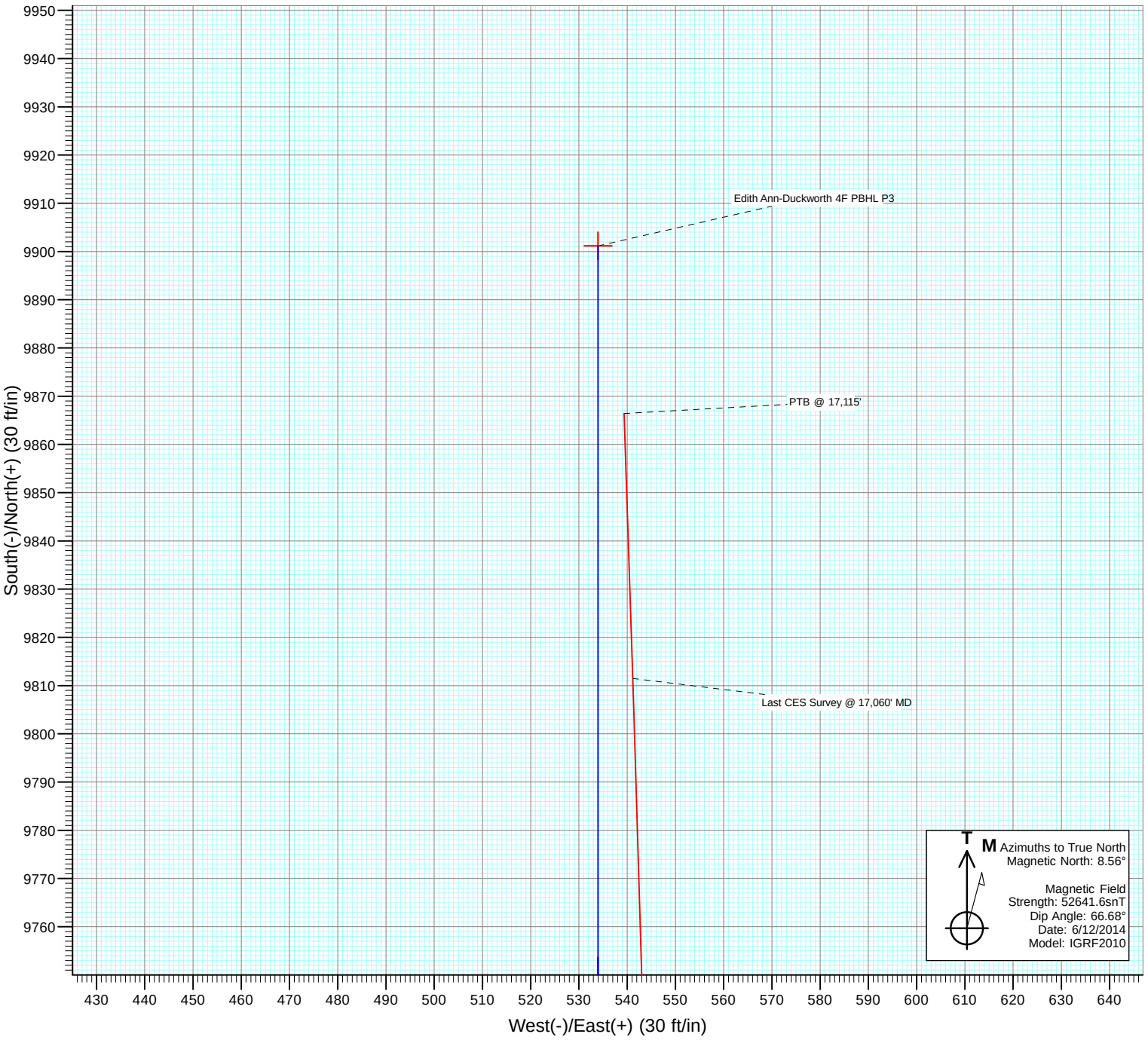
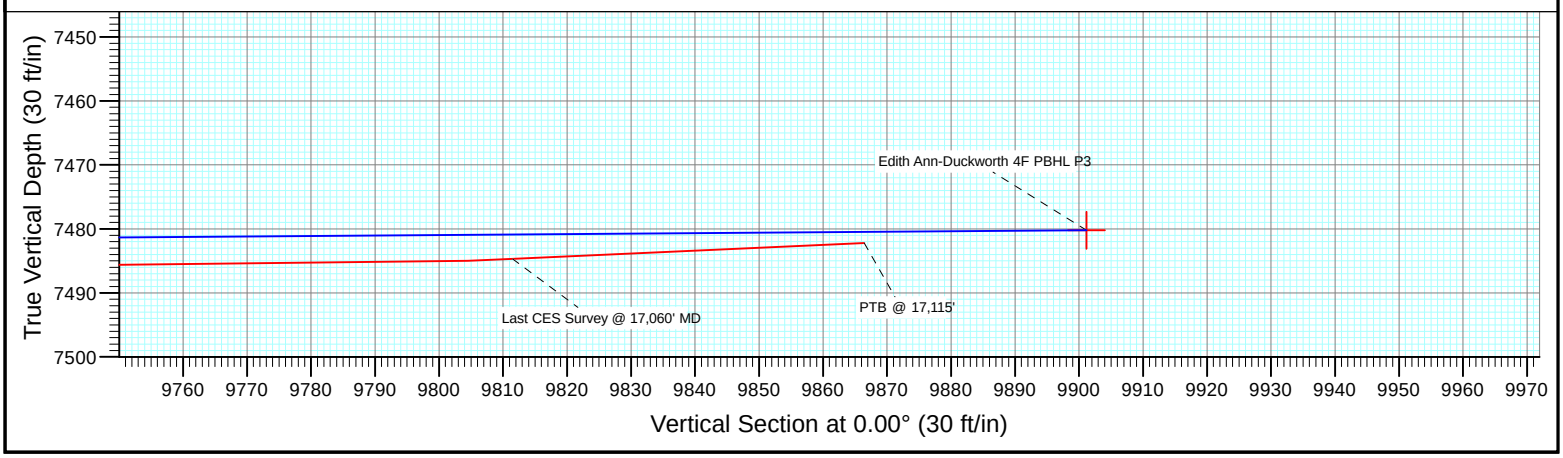
Design: FINAL





Survey Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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 S21-T2N-R68W (Edith Ann-Duckworth)

Site Position:		**Northing:**	1,290,455.50 ft	**Latitude:**	40.129630
From:	Lat/Long	**Easting:**	3,138,171.93 ft	**Longitude:**	-105.005880
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.32 °

Well Edith Ann-Duckworth 4F-21H-O268

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,286,102.51 ft	**Latitude:**	40.117670
	+E/-W	0.0 ft	**Easting:**	3,138,861.81 ft	**Longitude:**	-105.003500
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,927.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/12/2014	8.56	66.68	52,642

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	0.00

Survey Program **Date** 6/23/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
166.0	17,115.0	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	
166.0	0.70	216.40	166.0	-0.8	-0.6	-0.8	0.42	0.42	
260.0	0.90	195.20	260.0	-2.0	-1.1	-2.0	0.38	0.21	
354.0	0.30	231.60	354.0	-2.9	-1.5	-2.9	0.73	-0.64	
448.0	0.40	49.70	448.0	-2.8	-1.5	-2.8	0.74	0.11	
541.0	1.80	77.80	541.0	-2.3	0.2	-2.3	1.57	1.51	
635.0	3.10	70.30	634.9	-1.1	4.0	-1.1	1.42	1.38	
728.0	2.90	72.30	727.7	0.5	8.7	0.5	0.24	-0.22	
822.0	3.40	74.90	821.6	1.9	13.6	1.9	0.55	0.53	
919.0	4.10	83.90	918.4	3.0	19.8	3.0	0.94	0.72	
1,018.0	4.10	86.70	1,017.1	3.6	26.9	3.6	0.20	0.00	
1,111.0	5.80	91.00	1,109.8	3.7	34.9	3.7	1.87	1.83	
1,205.0	7.70	86.80	1,203.1	4.0	45.9	4.0	2.09	2.02	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
1,298.0	7.00	87.00	1,295.4	4.6	57.8	4.6	0.75	-0.75	
1,392.0	7.60	81.00	1,388.6	5.9	69.7	5.9	1.03	0.64	
1,485.0	8.60	79.60	1,480.7	8.1	82.6	8.1	1.10	1.08	
1,580.0	6.90	70.90	1,574.8	11.3	95.0	11.3	2.17	-1.79	
1,676.0	8.60	77.30	1,669.9	14.7	107.4	14.7	1.98	1.77	
1,771.0	9.90	80.50	1,763.7	17.6	122.4	17.6	1.47	1.37	
1,866.0	9.10	73.60	1,857.4	21.1	137.7	21.1	1.46	-0.84	
1,961.0	10.00	79.30	1,951.1	24.8	153.0	24.8	1.37	0.95	
2,056.0	9.90	83.10	2,044.7	27.3	169.2	27.3	0.70	-0.11	
2,151.0	9.60	90.50	2,138.3	28.2	185.2	28.2	1.36	-0.32	
2,247.0	9.10	90.00	2,233.0	28.1	200.8	28.1	0.53	-0.52	
2,342.0	8.70	87.10	2,326.9	28.5	215.5	28.5	0.63	-0.42	
2,437.0	7.90	85.90	2,420.9	29.3	229.2	29.3	0.86	-0.84	
2,532.0	8.80	88.10	2,514.9	30.0	243.0	30.0	1.01	0.95	
2,627.0	8.50	85.90	2,608.8	30.8	257.2	30.8	0.47	-0.32	
2,722.0	7.60	86.50	2,702.9	31.6	270.5	31.6	0.95	-0.95	
2,817.0	7.70	81.70	2,797.0	32.9	283.1	32.9	0.68	0.11	
2,913.0	7.10	80.50	2,892.2	34.9	295.3	34.9	0.65	-0.62	
3,008.0	8.00	83.20	2,986.4	36.6	307.7	36.6	1.02	0.95	
3,103.0	7.20	80.20	3,080.6	38.4	320.1	38.4	0.94	-0.84	
3,198.0	8.10	83.70	3,174.7	40.1	332.6	40.1	1.07	0.95	
3,293.0	7.50	80.40	3,268.8	41.9	345.4	41.9	0.79	-0.63	
3,389.0	8.00	90.10	3,364.0	43.0	358.2	43.0	1.46	0.52	
3,484.0	6.80	84.40	3,458.2	43.5	370.4	43.5	1.48	-1.26	
3,579.0	8.10	83.30	3,552.4	44.8	382.7	44.8	1.38	1.37	
3,674.0	9.00	84.50	3,646.3	46.3	396.7	46.3	0.97	0.95	
3,770.0	7.90	82.60	3,741.3	47.9	410.7	47.9	1.18	-1.15	
3,865.0	8.40	87.30	3,835.3	49.0	424.2	49.0	0.88	0.53	
3,960.0	7.70	85.40	3,929.4	49.9	437.4	49.9	0.79	-0.74	
4,055.0	8.60	98.20	4,023.4	49.4	450.8	49.4	2.13	0.95	
4,151.0	8.10	93.60	4,118.4	47.9	464.7	47.9	0.87	-0.52	
4,246.0	7.50	89.00	4,212.5	47.6	477.5	47.6	0.91	-0.63	
4,341.0	7.10	83.30	4,306.7	48.4	489.6	48.4	0.87	-0.42	
4,436.0	6.30	81.50	4,401.1	49.9	500.6	49.9	0.87	-0.84	
4,531.0	6.00	79.80	4,495.6	51.5	510.6	51.5	0.37	-0.32	
4,627.0	5.30	83.10	4,591.1	52.9	519.9	52.9	0.80	-0.73	
4,722.0	3.70	89.00	4,685.8	53.5	527.4	53.5	1.75	-1.68	
4,817.0	3.50	88.60	4,780.6	53.6	533.3	53.6	0.21	-0.21	
4,912.0	2.10	102.10	4,875.5	53.4	537.9	53.4	1.62	-1.47	
5,007.0	1.50	121.50	4,970.4	52.3	540.7	52.3	0.89	-0.63	
5,102.0	0.60	328.40	5,065.4	52.1	541.5	52.1	2.16	-0.95	
5,197.0	0.50	332.10	5,160.4	52.9	541.0	52.9	0.11	-0.11	
5,292.0	1.00	338.80	5,255.4	54.0	540.5	54.0	0.53	0.53	
5,387.0	0.50	268.80	5,350.4	54.8	539.8	54.8	1.00	-0.53	
5,483.0	0.70	268.90	5,446.4	54.8	538.8	54.8	0.21	0.21	
5,578.0	0.50	280.90	5,541.4	54.9	537.8	54.9	0.25	-0.21	
5,673.0	0.60	273.00	5,636.4	55.0	536.9	55.0	0.13	0.11	
5,768.0	1.50	206.00	5,731.4	53.9	535.9	53.9	1.45	0.95	
5,863.0	1.10	191.20	5,826.4	51.9	535.2	51.9	0.55	-0.42	
5,958.0	1.20	173.30	5,921.3	50.0	535.1	50.0	0.39	0.11	
6,053.0	1.00	178.00	6,016.3	48.2	535.2	48.2	0.23	-0.21	
6,148.0	0.80	150.50	6,111.3	46.7	535.6	46.7	0.49	-0.21	
6,243.0	0.70	151.30	6,206.3	45.7	536.2	45.7	0.11	-0.11	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
6,338.0	0.60	310.30	6,301.3	45.5	536.1	45.5	1.35	-0.11	
6,434.0	0.30	303.20	6,397.3	45.9	535.5	45.9	0.32	-0.31	
6,529.0	0.20	314.00	6,492.3	46.2	535.2	46.2	0.12	-0.11	
6,624.0	0.20	25.40	6,587.3	46.5	535.1	46.5	0.25	0.00	
6,719.0	0.20	22.70	6,682.3	46.8	535.3	46.8	0.01	0.00	
6,814.0	2.10	350.30	6,777.3	48.6	535.0	48.6	2.04	2.00	
6,909.0	1.70	343.10	6,872.2	51.7	534.3	51.7	0.49	-0.42	
7,004.0	7.10	357.10	6,966.9	58.9	533.6	58.9	5.75	5.68	
7,051.0	12.20	353.10	7,013.2	66.7	532.9	66.7	10.94	10.85	
7,099.0	15.60	353.90	7,059.8	78.2	531.6	78.2	7.09	7.08	
7,146.0	20.50	359.10	7,104.5	92.7	530.8	92.7	10.96	10.43	
7,194.0	25.60	6.00	7,148.7	111.5	531.7	111.5	12.01	10.62	
7,241.0	29.50	3.40	7,190.3	133.1	533.5	133.1	8.68	8.30	
7,290.0	32.50	1.30	7,232.3	158.3	534.5	158.3	6.51	6.12	
7,337.0	34.50	2.40	7,271.5	184.2	535.3	184.2	4.45	4.26	
7,385.0	38.30	2.20	7,310.1	212.7	536.5	212.7	7.92	7.92	
7,432.0	43.00	1.10	7,345.8	243.3	537.4	243.3	10.12	10.00	
7,480.0	48.50	1.70	7,379.3	277.7	538.2	277.7	11.49	11.46	
7,527.0	53.30	1.30	7,408.9	314.1	539.2	314.1	10.23	10.21	
7,575.0	55.10	0.90	7,437.0	353.0	539.9	353.0	3.81	3.75	
7,622.0	58.40	1.70	7,462.7	392.3	540.8	392.3	7.16	7.02	
7,671.0	62.50	0.50	7,486.9	434.9	541.6	434.9	8.63	8.37	
7,718.0	67.40	0.50	7,506.8	477.5	542.0	477.5	10.43	10.43	
7,766.0	72.80	1.00	7,523.1	522.6	542.6	522.6	11.29	11.25	
7,813.0	77.30	1.00	7,535.3	568.0	543.4	568.0	9.57	9.57	
7,861.0	81.70	0.90	7,544.0	615.2	544.1	615.2	9.17	9.17	
7,893.0	86.30	0.30	7,547.3	647.0	544.5	647.0	14.50	14.37	
8,004.0	90.30	359.90	7,550.6	757.9	544.7	757.9	3.62	3.60	
8,097.0	89.80	359.30	7,550.6	850.9	544.0	850.9	0.84	-0.54	
8,191.0	89.70	359.20	7,551.0	944.9	542.8	944.9	0.15	-0.11	
8,284.0	89.80	359.80	7,551.4	1,037.9	542.0	1,037.9	0.65	0.11	
8,378.0	91.00	359.10	7,550.7	1,131.9	541.1	1,131.9	1.48	1.28	
8,471.0	91.10	358.50	7,549.0	1,224.9	539.1	1,224.9	0.65	0.11	
8,565.0	91.20	358.70	7,547.1	1,318.8	536.8	1,318.8	0.24	0.11	
8,658.0	90.50	359.40	7,545.7	1,411.8	535.3	1,411.8	1.06	-0.75	
8,752.0	91.90	0.60	7,543.8	1,505.8	535.3	1,505.8	1.96	1.49	
8,846.0	90.00	0.40	7,542.2	1,599.7	536.1	1,599.7	2.03	-2.02	
8,940.0	90.20	0.10	7,542.1	1,693.7	536.5	1,693.7	0.38	0.21	
9,033.0	90.20	0.00	7,541.7	1,786.7	536.6	1,786.7	0.11	0.00	
9,127.0	91.80	1.10	7,540.1	1,880.7	537.5	1,880.7	2.07	1.70	
9,220.0	91.10	1.40	7,537.7	1,973.7	539.5	1,973.7	0.82	-0.75	
9,314.0	89.90	1.20	7,536.9	2,067.6	541.7	2,067.6	1.29	-1.28	
9,407.0	88.80	359.90	7,538.0	2,160.6	542.6	2,160.6	1.83	-1.18	
9,501.0	88.60	359.90	7,540.1	2,254.6	542.4	2,254.6	0.21	-0.21	
9,603.0	88.60	0.00	7,542.6	2,356.6	542.3	2,356.6	0.10	0.00	
9,697.0	87.90	359.70	7,545.5	2,450.5	542.1	2,450.5	0.81	-0.74	
9,791.0	89.50	359.10	7,547.6	2,544.5	541.1	2,544.5	1.82	1.70	
9,884.0	90.60	359.40	7,547.5	2,637.5	539.9	2,637.5	1.23	1.18	
9,978.0	90.80	359.40	7,546.4	2,731.5	538.9	2,731.5	0.21	0.21	
10,071.0	90.50	0.40	7,545.3	2,824.5	538.7	2,824.5	1.12	-0.32	
10,165.0	90.40	0.10	7,544.6	2,918.5	539.1	2,918.5	0.34	-0.11	
10,258.0	90.10	359.20	7,544.2	3,011.5	538.6	3,011.5	1.02	-0.32	
10,352.0	90.70	359.10	7,543.5	3,105.4	537.2	3,105.4	0.65	0.64	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
10,445.0	91.20	359.90	7,542.0	3,198.4	536.3	3,198.4	1.01	0.54	
10,539.0	90.80	0.50	7,540.3	3,292.4	536.7	3,292.4	0.77	-0.43	
10,632.0	90.40	359.90	7,539.4	3,385.4	537.0	3,385.4	0.78	-0.43	
10,726.0	90.60	359.20	7,538.5	3,479.4	536.3	3,479.4	0.77	0.21	
10,819.0	90.40	0.20	7,537.7	3,572.4	535.8	3,572.4	1.10	-0.22	
10,913.0	90.30	0.00	7,537.2	3,666.4	535.9	3,666.4	0.24	-0.11	
11,006.0	90.60	0.00	7,536.4	3,759.4	535.9	3,759.4	0.32	0.32	
11,100.0	90.50	359.50	7,535.5	3,853.4	535.5	3,853.4	0.54	-0.11	
11,194.0	90.30	1.10	7,534.9	3,947.4	536.0	3,947.4	1.72	-0.21	
11,287.0	90.70	1.60	7,534.1	4,040.3	538.2	4,040.3	0.69	0.43	
11,381.0	90.00	1.90	7,533.5	4,134.3	541.1	4,134.3	0.81	-0.74	
11,475.0	90.10	1.70	7,533.4	4,228.3	544.0	4,228.3	0.24	0.11	
11,569.0	89.90	0.90	7,533.4	4,322.2	546.2	4,322.2	0.88	-0.21	
11,664.0	89.80	0.80	7,533.6	4,417.2	547.6	4,417.2	0.15	-0.11	
11,758.0	89.60	0.40	7,534.1	4,511.2	548.6	4,511.2	0.48	-0.21	
11,853.0	90.70	359.80	7,533.9	4,606.2	548.7	4,606.2	1.32	1.16	
11,947.0	90.50	359.40	7,532.9	4,700.2	548.1	4,700.2	0.48	-0.21	
12,042.0	90.80	359.20	7,531.8	4,795.2	546.9	4,795.2	0.38	0.32	
12,136.0	90.50	358.50	7,530.8	4,889.2	545.0	4,889.2	0.81	-0.32	
12,231.0	90.50	357.70	7,529.9	4,984.1	541.9	4,984.1	0.84	0.00	
12,325.0	91.80	359.20	7,528.0	5,078.0	539.3	5,078.0	2.11	1.38	
12,420.0	91.50	0.60	7,525.3	5,173.0	539.2	5,173.0	1.51	-0.32	
12,514.0	90.00	1.70	7,524.1	5,267.0	541.1	5,267.0	1.98	-1.60	
12,609.0	88.00	1.20	7,525.7	5,361.9	543.5	5,361.9	2.17	-2.11	
12,703.0	89.50	359.30	7,527.8	5,455.9	543.9	5,455.9	2.57	1.60	
12,799.0	90.00	359.00	7,528.2	5,551.9	542.4	5,551.9	0.61	0.52	
12,893.0	90.20	358.60	7,528.0	5,645.9	540.5	5,645.9	0.48	0.21	
12,987.0	90.90	359.70	7,527.1	5,739.8	539.1	5,739.8	1.39	0.74	
13,081.0	90.20	359.90	7,526.2	5,833.8	538.8	5,833.8	0.77	-0.74	
13,176.0	90.10	359.30	7,526.0	5,928.8	538.1	5,928.8	0.64	-0.11	
13,271.0	90.60	359.10	7,525.4	6,023.8	536.8	6,023.8	0.57	0.53	
13,366.0	90.40	358.10	7,524.6	6,118.8	534.4	6,118.8	1.07	-0.21	
13,461.0	91.20	359.90	7,523.3	6,213.7	532.8	6,213.7	2.07	0.84	
13,556.0	91.10	359.60	7,521.3	6,308.7	532.4	6,308.7	0.33	-0.11	
13,651.0	89.50	359.80	7,520.8	6,403.7	531.9	6,403.7	1.70	-1.68	
13,745.0	89.70	359.40	7,521.5	6,497.7	531.2	6,497.7	0.48	0.21	
13,839.0	90.10	0.80	7,521.7	6,591.7	531.4	6,591.7	1.55	0.43	
13,934.0	90.40	0.80	7,521.3	6,686.7	532.7	6,686.7	0.32	0.32	
14,028.0	90.70	0.70	7,520.3	6,780.7	533.9	6,780.7	0.34	0.32	
14,122.0	90.90	0.40	7,519.0	6,874.7	534.8	6,874.7	0.38	0.21	
14,217.0	90.00	1.10	7,518.3	6,969.7	536.1	6,969.7	1.20	-0.95	
14,312.0	90.40	0.60	7,518.0	7,064.6	537.5	7,064.6	0.67	0.42	
14,406.0	90.60	0.60	7,517.1	7,158.6	538.5	7,158.6	0.21	0.21	
14,501.0	91.10	0.30	7,515.7	7,253.6	539.2	7,253.6	0.61	0.53	
14,595.0	90.80	0.50	7,514.2	7,347.6	539.9	7,347.6	0.38	-0.32	
14,690.0	90.50	1.20	7,513.1	7,442.6	541.3	7,442.6	0.80	-0.32	
14,784.0	90.70	0.60	7,512.1	7,536.6	542.8	7,536.6	0.67	0.21	
14,879.0	89.70	0.90	7,511.8	7,631.6	544.0	7,631.6	1.10	-1.05	
14,973.0	89.80	0.10	7,512.2	7,725.6	544.8	7,725.6	0.86	0.11	
15,068.0	90.40	0.50	7,512.0	7,820.6	545.3	7,820.6	0.76	0.63	
15,163.0	90.90	0.60	7,510.9	7,915.5	546.2	7,915.5	0.54	0.53	
15,257.0	90.00	0.80	7,510.2	8,009.5	547.4	8,009.5	0.98	-0.96	
15,352.0	92.00	2.10	7,508.5	8,104.5	549.8	8,104.5	2.51	2.11	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
15,446.0	89.90	1.30	7,507.0	8,198.4	552.6	8,198.4	2.39	-2.23	
15,540.0	90.20	1.00	7,506.9	8,292.4	554.5	8,292.4	0.45	0.32	
15,635.0	92.60	0.90	7,504.6	8,387.4	556.0	8,387.4	2.53	2.53	
15,729.0	92.60	359.30	7,500.3	8,481.3	556.2	8,481.3	1.70	0.00	
15,825.0	92.00	0.60	7,496.5	8,577.2	556.1	8,577.2	1.49	-0.62	
15,920.0	91.20	1.80	7,493.8	8,672.1	558.1	8,672.1	1.52	-0.84	
16,014.0	91.40	0.40	7,491.7	8,766.1	559.9	8,766.1	1.50	0.21	
16,109.0	90.80	359.70	7,489.9	8,861.1	560.0	8,861.1	0.97	-0.63	
16,203.0	90.70	358.80	7,488.6	8,955.0	558.8	8,955.0	0.96	-0.11	
16,250.0	88.77	359.00	7,488.8	9,002.0	557.9	9,002.0	4.13	-4.11	
16,298.0	86.80	359.20	7,490.7	9,050.0	557.1	9,050.0	4.13	-4.10	
16,392.0	89.50	358.80	7,493.7	9,143.9	555.5	9,143.9	2.90	2.87	
16,487.0	90.40	358.60	7,493.8	9,238.9	553.3	9,238.9	0.97	0.95	
16,581.0	91.60	359.20	7,492.2	9,332.8	551.5	9,332.8	1.43	1.28	
16,675.0	92.90	358.70	7,488.5	9,426.8	549.8	9,426.8	1.48	1.38	
16,769.0	92.10	359.20	7,484.4	9,520.7	548.1	9,520.7	1.00	-0.85	
16,864.0	88.40	358.80	7,484.0	9,615.6	546.4	9,615.6	3.92	-3.89	
16,959.0	89.10	358.50	7,486.0	9,710.6	544.2	9,710.6	0.80	0.74	
17,053.0	92.20	358.10	7,485.0	9,804.5	541.4	9,804.5	3.33	3.30	
17,060.0	92.60	358.10	7,484.7	9,811.5	541.2	9,811.5	5.71	5.71	**Last CES Survey @ 17,060' MD**
17,115.0	92.60	358.10	7,482.2	9,866.4	539.3	9,866.4	0.00	0.00	**PTB @ 17,115'**

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
Edith Ann-Duckworth 4F	0.00	0.00	7,569.5	9,901.2	534.0	1,296,006.50	3,139,340.32	40.144850	-105.001590
- actual wellpath misses target center by 94.1ft at 17115.0ft MD (7482.2 TVD, 9866.4 N, 539.3 E)									
- Point									
Edith Ann-Duckworth 4F	0.00	0.00	7,496.7	7,694.8	534.0	1,293,800.22	3,139,352.68	40.138793	-105.001590
- actual wellpath misses target center by 18.7ft at 14942.1ft MD (7512.1 TVD, 7694.7 N, 544.7 E)									
- Point									
Edith Ann-Duckworth 4F	0.00	0.00	7,519.2	4,694.8	534.0	1,290,800.27	3,139,369.49	40.130558	-105.001590
- actual wellpath misses target center by 19.7ft at 11941.9ft MD (7532.9 TVD, 4695.1 N, 548.1 E)									
- Point									
Edith Ann-Duckworth 4F	0.00	0.00	7,480.2	9,901.2	534.0	1,296,006.50	3,139,340.32	40.144850	-105.001590
- actual wellpath misses target center by 35.2ft at 17115.0ft MD (7482.2 TVD, 9866.4 N, 539.3 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
17,060.0	7,484.7	9,811.5	541.2	Last CES Survey @ 17,060' MD
17,115.0	7,482.2	9,866.4	539.3	PTB @ 17,115'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S21-T2N-R68W (Edith Ann-Duckworth)
Edith Ann-Duckworth 4F-21H-O268

Hz

Design: FINAL

Survey Report - Geographic

23 June, 2014

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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 S21-T2N-R68W (Edith Ann-Duckworth)

Site Position:		**Northing:**	1,290,455.49 ft	**Latitude:**	40.129630
From:	Lat/Long	**Easting:**	3,138,171.93 ft	**Longitude:**	-105.005880
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.32 °

Well Edith Ann-Duckworth 4F-21H-O268

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,286,102.51 ft	**Latitude:**	40.117670
	+E/-W	0.0 ft	**Easting:**	3,138,861.81 ft	**Longitude:**	-105.003500
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,927.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/12/2014	8.56	66.68	52,642

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	0.00

Survey Program **Date** 6/23/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
166.0	17,115.0	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	1,286,102.51	3,138,861.81	40.117670	-105.003500
166.0	0.70	216.40	166.0	-0.8	-0.6	1,286,101.69	3,138,861.21	40.117668	-105.003502
260.0	0.90	195.20	260.0	-2.0	-1.1	1,286,100.51	3,138,860.68	40.117665	-105.003504
354.0	0.30	231.60	354.0	-2.9	-1.5	1,286,099.64	3,138,860.30	40.117662	-105.003506
448.0	0.40	49.70	448.0	-2.8	-1.5	1,286,099.70	3,138,860.36	40.117662	-105.003506
541.0	1.80	77.80	541.0	-2.3	0.2	1,286,100.23	3,138,862.03	40.117664	-105.003500
635.0	3.10	70.30	634.9	-1.1	4.0	1,286,101.42	3,138,865.86	40.117667	-105.003486
728.0	2.90	72.30	727.7	0.5	8.7	1,286,103.01	3,138,870.46	40.117671	-105.003469
822.0	3.40	74.90	821.6	1.9	13.6	1,286,104.48	3,138,875.41	40.117675	-105.003452
919.0	4.10	83.90	918.4	3.0	19.8	1,286,105.64	3,138,881.63	40.117678	-105.003429
1,018.0	4.10	86.70	1,017.1	3.6	26.9	1,286,106.26	3,138,888.68	40.117680	-105.003404
1,111.0	5.80	91.00	1,109.8	3.7	34.9	1,286,106.41	3,138,896.69	40.117680	-105.003375

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
1,205.0	7.70	86.80	1,203.1	4.0	45.9	1,286,106.74	3,138,907.73	40.117681	-105.003336
1,298.0	7.00	87.00	1,295.4	4.6	57.8	1,286,107.45	3,138,919.61	40.117683	-105.003294
1,392.0	7.60	81.00	1,388.6	5.9	69.7	1,286,108.79	3,138,931.46	40.117686	-105.003251
1,485.0	8.60	79.60	1,480.7	8.1	82.6	1,286,111.08	3,138,944.36	40.117692	-105.003205
1,580.0	6.90	70.90	1,574.8	11.3	95.0	1,286,114.30	3,138,956.72	40.117701	-105.003161
1,676.0	8.60	77.30	1,669.9	14.7	107.4	1,286,117.83	3,138,969.15	40.117710	-105.003116
1,771.0	9.90	80.50	1,763.7	17.6	122.4	1,286,120.83	3,138,984.12	40.117718	-105.003063
1,866.0	9.10	73.60	1,857.4	21.1	137.7	1,286,124.38	3,138,999.37	40.117728	-105.003008
1,961.0	10.00	79.30	1,951.1	24.8	153.0	1,286,128.12	3,139,014.66	40.117738	-105.002953
2,056.0	9.90	83.10	2,044.7	27.3	169.2	1,286,130.72	3,139,030.86	40.117745	-105.002895
2,151.0	9.60	90.50	2,138.3	28.2	185.2	1,286,131.73	3,139,046.88	40.117747	-105.002838
2,247.0	9.10	90.00	2,233.0	28.1	200.8	1,286,131.74	3,139,062.48	40.117747	-105.002782
2,342.0	8.70	87.10	2,326.9	28.5	215.5	1,286,132.19	3,139,077.16	40.117748	-105.002730
2,437.0	7.90	85.90	2,420.9	29.3	229.2	1,286,133.10	3,139,090.85	40.117751	-105.002681
2,532.0	8.80	88.10	2,514.9	30.0	243.0	1,286,133.88	3,139,104.62	40.117752	-105.002631
2,627.0	8.50	85.90	2,608.8	30.8	257.2	1,286,134.70	3,139,118.88	40.117754	-105.002580
2,722.0	7.60	86.50	2,702.9	31.6	270.5	1,286,135.66	3,139,132.15	40.117757	-105.002533
2,817.0	7.70	81.70	2,797.0	32.9	283.1	1,286,137.04	3,139,144.71	40.117760	-105.002488
2,913.0	7.10	80.50	2,892.2	34.9	295.3	1,286,139.01	3,139,156.91	40.117766	-105.002444
3,008.0	8.00	83.20	2,986.4	36.6	307.7	1,286,140.83	3,139,169.26	40.117771	-105.002400
3,103.0	7.20	80.20	3,080.6	38.4	320.1	1,286,142.70	3,139,181.68	40.117775	-105.002356
3,198.0	8.10	83.70	3,174.7	40.1	332.6	1,286,144.52	3,139,194.19	40.117780	-105.002311
3,293.0	7.50	80.40	3,268.8	41.9	345.4	1,286,146.36	3,139,206.94	40.117785	-105.002265
3,389.0	8.00	90.10	3,364.0	43.0	358.2	1,286,147.46	3,139,219.79	40.117788	-105.002219
3,484.0	6.80	84.40	3,458.2	43.5	370.4	1,286,148.07	3,139,232.00	40.117789	-105.002176
3,579.0	8.10	83.30	3,552.4	44.8	382.7	1,286,149.47	3,139,244.24	40.117793	-105.002132
3,674.0	9.00	84.50	3,646.3	46.3	396.7	1,286,151.04	3,139,258.27	40.117797	-105.002082
3,770.0	7.90	82.60	3,741.3	47.9	410.7	1,286,152.69	3,139,272.28	40.117801	-105.002032
3,865.0	8.40	87.30	3,835.3	49.0	424.2	1,286,153.93	3,139,285.68	40.117805	-105.001984
3,960.0	7.70	85.40	3,929.4	49.9	437.4	1,286,154.84	3,139,298.95	40.117807	-105.001936
4,055.0	8.60	98.20	4,023.4	49.4	450.8	1,286,154.41	3,139,312.33	40.117806	-105.001888
4,151.0	8.10	93.60	4,118.4	47.9	464.7	1,286,153.04	3,139,326.19	40.117802	-105.001839
4,246.0	7.50	89.00	4,212.5	47.6	477.5	1,286,152.80	3,139,339.07	40.117801	-105.001793
4,341.0	7.10	83.30	4,306.7	48.4	489.6	1,286,153.66	3,139,351.10	40.117803	-105.001750
4,436.0	6.30	81.50	4,401.1	49.9	500.6	1,286,155.18	3,139,362.08	40.117807	-105.001710
4,531.0	6.00	79.80	4,495.6	51.5	510.6	1,286,156.88	3,139,372.11	40.117811	-105.001675
4,627.0	5.30	83.10	4,591.1	52.9	519.9	1,286,158.36	3,139,381.44	40.117815	-105.001641
4,722.0	3.70	89.00	4,685.8	53.5	527.4	1,286,158.98	3,139,388.86	40.117817	-105.001615
4,817.0	3.50	88.60	4,780.6	53.6	533.3	1,286,159.14	3,139,394.82	40.117817	-105.001593
4,912.0	2.10	102.10	4,875.5	53.4	537.9	1,286,158.87	3,139,399.42	40.117817	-105.001577
5,007.0	1.50	121.50	4,970.4	52.3	540.7	1,286,157.87	3,139,402.19	40.117814	-105.001567
5,102.0	0.60	328.40	5,065.4	52.1	541.5	1,286,157.65	3,139,402.99	40.117813	-105.001564
5,197.0	0.50	332.10	5,160.4	52.9	541.0	1,286,158.44	3,139,402.53	40.117815	-105.001566
5,292.0	1.00	338.80	5,255.4	54.0	540.5	1,286,159.57	3,139,402.03	40.117818	-105.001568
5,387.0	0.50	268.80	5,350.4	54.8	539.8	1,286,160.33	3,139,401.31	40.117820	-105.001570
5,483.0	0.70	268.90	5,446.4	54.8	538.8	1,286,160.31	3,139,400.31	40.117820	-105.001574
5,578.0	0.50	280.90	5,541.4	54.9	537.8	1,286,160.37	3,139,399.32	40.117821	-105.001577
5,673.0	0.60	273.00	5,636.4	55.0	536.9	1,286,160.47	3,139,398.42	40.117821	-105.001580
5,768.0	1.50	206.00	5,731.4	53.9	535.9	1,286,159.37	3,139,397.38	40.117818	-105.001584
5,863.0	1.10	191.20	5,826.4	51.9	535.2	1,286,157.35	3,139,396.67	40.117812	-105.001587
5,958.0	1.20	173.30	5,921.3	50.0	535.1	1,286,155.47	3,139,396.62	40.117807	-105.001587
6,053.0	1.00	178.00	6,016.3	48.2	535.2	1,286,153.66	3,139,396.78	40.117802	-105.001586
6,148.0	0.80	150.50	6,111.3	46.7	535.6	1,286,152.25	3,139,397.14	40.117798	-105.001585
6,243.0	0.70	151.30	6,206.3	45.7	536.2	1,286,151.17	3,139,397.75	40.117795	-105.001583
6,338.0	0.60	310.30	6,301.3	45.5	536.1	1,286,150.98	3,139,397.65	40.117795	-105.001583

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
6,434.0	0.30	303.20	6,397.3	45.9	535.5	1,286,151.44	3,139,397.05	40.117796	-105.001585
6,529.0	0.20	314.00	6,492.3	46.2	535.2	1,286,151.69	3,139,396.73	40.117797	-105.001587
6,624.0	0.20	25.40	6,587.3	46.5	535.1	1,286,151.96	3,139,396.68	40.117798	-105.001587
6,719.0	0.20	22.70	6,682.3	46.8	535.3	1,286,152.26	3,139,396.81	40.117798	-105.001586
6,814.0	2.10	350.30	6,777.3	48.6	535.0	1,286,154.13	3,139,396.57	40.117804	-105.001587
6,909.0	1.70	343.10	6,872.2	51.7	534.3	1,286,157.19	3,139,395.85	40.117812	-105.001590
7,004.0	7.10	357.10	6,966.9	58.9	533.6	1,286,164.40	3,139,395.10	40.117832	-105.001592
7,051.0	12.20	353.10	7,013.2	66.7	532.9	1,286,172.23	3,139,394.31	40.117853	-105.001595
7,099.0	15.60	353.90	7,059.8	78.2	531.6	1,286,183.68	3,139,392.95	40.117885	-105.001599
7,146.0	20.50	359.10	7,104.5	92.7	530.8	1,286,198.20	3,139,392.07	40.117925	-105.001602
7,194.0	25.60	6.00	7,148.7	111.5	531.7	1,286,216.94	3,139,392.92	40.117976	-105.001599
7,241.0	29.50	3.40	7,190.3	133.1	533.5	1,286,238.60	3,139,394.55	40.118035	-105.001593
7,290.0	32.50	1.30	7,232.3	158.3	534.5	1,286,263.82	3,139,395.42	40.118105	-105.001589
7,337.0	34.50	2.40	7,271.5	184.2	535.3	1,286,289.75	3,139,396.12	40.118176	-105.001586
7,385.0	38.30	2.20	7,310.1	212.7	536.5	1,286,318.21	3,139,397.10	40.118254	-105.001582
7,432.0	43.00	1.10	7,345.8	243.3	537.4	1,286,348.81	3,139,397.80	40.118338	-105.001579
7,480.0	48.50	1.70	7,379.3	277.7	538.2	1,286,383.17	3,139,398.45	40.118432	-105.001576
7,527.0	53.30	1.30	7,408.9	314.1	539.2	1,286,419.63	3,139,399.20	40.118532	-105.001572
7,575.0	55.10	0.90	7,437.0	353.0	539.9	1,286,458.56	3,139,399.73	40.118639	-105.001570
7,622.0	58.40	1.70	7,462.7	392.3	540.8	1,286,497.85	3,139,400.40	40.118747	-105.001567
7,671.0	62.50	0.50	7,486.9	434.9	541.6	1,286,540.46	3,139,400.97	40.118864	-105.001564
7,718.0	67.40	0.50	7,506.8	477.5	542.0	1,286,583.03	3,139,401.11	40.118981	-105.001562
7,766.0	72.80	1.00	7,523.1	522.6	542.6	1,286,628.14	3,139,401.45	40.119105	-105.001560
7,813.0	77.30	1.00	7,535.3	568.0	543.4	1,286,673.54	3,139,401.98	40.119229	-105.001557
7,861.0	81.70	0.90	7,544.0	615.2	544.1	1,286,720.72	3,139,402.50	40.119359	-105.001555
7,893.0	86.30	0.30	7,547.3	647.0	544.5	1,286,752.54	3,139,402.66	40.119446	-105.001553
8,004.0	90.30	359.90	7,550.6	757.9	544.7	1,286,863.46	3,139,402.23	40.119751	-105.001553
8,097.0	89.80	359.30	7,550.6	850.9	544.0	1,286,956.46	3,139,401.06	40.120006	-105.001555
8,191.0	89.70	359.20	7,551.0	944.9	542.8	1,287,050.44	3,139,399.30	40.120264	-105.001559
8,284.0	89.80	359.80	7,551.4	1,037.9	542.0	1,287,143.43	3,139,397.97	40.120519	-105.001562
8,378.0	91.00	359.10	7,550.7	1,131.9	541.1	1,287,237.41	3,139,396.54	40.120777	-105.001565
8,471.0	91.10	358.50	7,549.0	1,224.9	539.1	1,287,330.36	3,139,394.07	40.121032	-105.001572
8,565.0	91.20	358.70	7,547.1	1,318.8	536.8	1,287,424.30	3,139,391.25	40.121290	-105.001581
8,658.0	90.50	359.40	7,545.7	1,411.8	535.3	1,287,517.27	3,139,389.19	40.121546	-105.001586
8,752.0	91.90	0.60	7,543.8	1,505.8	535.3	1,287,611.24	3,139,388.66	40.121804	-105.001586
8,846.0	90.00	0.40	7,542.2	1,599.7	536.1	1,287,705.23	3,139,388.96	40.122062	-105.001583
8,940.0	90.20	0.10	7,542.1	1,693.7	536.5	1,287,799.23	3,139,388.84	40.122320	-105.001582
9,033.0	90.20	0.00	7,541.7	1,786.7	536.6	1,287,892.22	3,139,388.40	40.122575	-105.001581
9,127.0	91.80	1.10	7,540.1	1,880.7	537.5	1,287,986.20	3,139,388.78	40.122833	-105.001578
9,220.0	91.10	1.40	7,537.7	1,973.7	539.5	1,288,079.16	3,139,390.28	40.123088	-105.001571
9,314.0	89.90	1.20	7,536.9	2,067.6	541.7	1,288,173.14	3,139,391.89	40.123346	-105.001563
9,407.0	88.80	359.90	7,538.0	2,160.6	542.6	1,288,266.13	3,139,392.26	40.123601	-105.001560
9,501.0	88.60	359.90	7,540.1	2,254.6	542.4	1,288,360.11	3,139,391.57	40.123859	-105.001561
9,603.0	88.60	0.00	7,542.6	2,356.6	542.3	1,288,462.07	3,139,390.91	40.124139	-105.001561
9,697.0	87.90	359.70	7,545.5	2,450.5	542.1	1,288,556.03	3,139,390.14	40.124397	-105.001562
9,791.0	89.50	359.10	7,547.6	2,544.5	541.1	1,288,649.99	3,139,388.63	40.124655	-105.001565
9,884.0	90.60	359.40	7,547.5	2,637.5	539.9	1,288,742.97	3,139,386.89	40.124910	-105.001570
9,978.0	90.80	359.40	7,546.4	2,731.5	538.9	1,288,836.95	3,139,385.38	40.125168	-105.001573
10,071.0	90.50	0.40	7,545.3	2,824.5	538.7	1,288,929.94	3,139,384.70	40.125424	-105.001574
10,165.0	90.40	0.10	7,544.6	2,918.5	539.1	1,289,023.94	3,139,384.58	40.125682	-105.001572
10,258.0	90.10	359.20	7,544.2	3,011.5	538.6	1,289,116.93	3,139,383.49	40.125937	-105.001574
10,352.0	90.70	359.10	7,543.5	3,105.4	537.2	1,289,210.91	3,139,381.57	40.126195	-105.001579
10,445.0	91.20	359.90	7,542.0	3,198.4	536.3	1,289,303.88	3,139,380.24	40.126450	-105.001582
10,539.0	90.80	0.50	7,540.3	3,292.4	536.7	1,289,397.87	3,139,380.04	40.126708	-105.001581
10,632.0	90.40	359.90	7,539.4	3,385.4	537.0	1,289,490.86	3,139,379.85	40.126963	-105.001580

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
10,726.0	90.60	359.20	7,538.5	3,479.4	536.3	1,289,584.85	3,139,378.58	40.127221	-105.001583
10,819.0	90.40	0.20	7,537.7	3,572.4	535.8	1,289,677.84	3,139,377.58	40.127477	-105.001584
10,913.0	90.30	0.00	7,537.2	3,666.4	535.9	1,289,771.84	3,139,377.21	40.127735	-105.001584
11,006.0	90.60	0.00	7,536.4	3,759.4	535.9	1,289,864.83	3,139,376.69	40.127990	-105.001584
11,100.0	90.50	359.50	7,535.5	3,853.4	535.5	1,289,958.83	3,139,375.76	40.128248	-105.001585
11,194.0	90.30	1.10	7,534.9	3,947.4	536.0	1,290,052.82	3,139,375.72	40.128506	-105.001583
11,287.0	90.70	1.60	7,534.1	4,040.3	538.2	1,290,145.80	3,139,377.39	40.128761	-105.001575
11,381.0	90.00	1.90	7,533.5	4,134.3	541.1	1,290,239.77	3,139,379.74	40.129019	-105.001565
11,475.0	90.10	1.70	7,533.4	4,228.3	544.0	1,290,333.74	3,139,382.16	40.129277	-105.001555
11,569.0	89.90	0.90	7,533.4	4,322.2	546.2	1,290,427.72	3,139,383.77	40.129535	-105.001547
11,664.0	89.80	0.80	7,533.6	4,417.2	547.6	1,290,522.72	3,139,384.65	40.129796	-105.001542
11,758.0	89.60	0.40	7,534.1	4,511.2	548.6	1,290,616.72	3,139,385.11	40.130054	-105.001538
11,853.0	90.70	359.80	7,533.9	4,606.2	548.7	1,290,711.71	3,139,384.74	40.130315	-105.001538
11,947.0	90.50	359.40	7,532.9	4,700.2	548.1	1,290,805.70	3,139,383.56	40.130573	-105.001540
12,042.0	90.80	359.20	7,531.8	4,795.2	546.9	1,290,900.68	3,139,381.86	40.130834	-105.001544
12,136.0	90.50	358.50	7,530.8	4,889.2	545.0	1,290,994.64	3,139,379.45	40.131091	-105.001551
12,231.0	90.50	357.70	7,529.9	4,984.1	541.9	1,291,089.57	3,139,375.77	40.131352	-105.001562
12,325.0	91.80	359.20	7,528.0	5,078.0	539.3	1,291,183.49	3,139,372.70	40.131610	-105.001571
12,420.0	91.50	0.60	7,525.3	5,173.0	539.2	1,291,278.45	3,139,372.00	40.131871	-105.001572
12,514.0	90.00	1.70	7,524.1	5,267.0	541.1	1,291,372.43	3,139,373.37	40.132129	-105.001565
12,609.0	88.00	1.20	7,525.7	5,361.9	543.5	1,291,467.39	3,139,375.24	40.132389	-105.001557
12,703.0	89.50	359.30	7,527.8	5,455.9	543.9	1,291,561.36	3,139,375.12	40.132647	-105.001555
12,799.0	90.00	359.00	7,528.2	5,551.9	542.4	1,291,657.34	3,139,373.16	40.132911	-105.001560
12,893.0	90.20	358.60	7,528.0	5,645.9	540.5	1,291,751.31	3,139,370.66	40.133169	-105.001567
12,987.0	90.90	359.70	7,527.1	5,739.8	539.1	1,291,845.28	3,139,368.74	40.133427	-105.001572
13,081.0	90.20	359.90	7,526.2	5,833.8	538.8	1,291,939.27	3,139,367.89	40.133685	-105.001573
13,176.0	90.10	359.30	7,526.0	5,928.8	538.1	1,292,034.26	3,139,366.69	40.133946	-105.001576
13,271.0	90.60	359.10	7,525.4	6,023.8	536.8	1,292,129.24	3,139,364.84	40.134206	-105.001581
13,366.0	90.40	358.10	7,524.6	6,118.8	534.4	1,292,224.17	3,139,361.98	40.134467	-105.001589
13,461.0	91.20	359.90	7,523.3	6,213.7	532.8	1,292,319.13	3,139,359.79	40.134728	-105.001595
13,556.0	91.10	359.60	7,521.3	6,308.7	532.4	1,292,414.11	3,139,358.85	40.134988	-105.001596
13,651.0	89.50	359.80	7,520.8	6,403.7	531.9	1,292,509.10	3,139,357.82	40.135249	-105.001598
13,745.0	89.70	359.40	7,521.5	6,497.7	531.2	1,292,603.09	3,139,356.64	40.135507	-105.001600
13,839.0	90.10	0.80	7,521.7	6,591.7	531.4	1,292,697.08	3,139,356.27	40.135765	-105.001600
13,934.0	90.40	0.80	7,521.3	6,686.7	532.7	1,292,792.08	3,139,357.07	40.136026	-105.001595
14,028.0	90.70	0.70	7,520.3	6,780.7	533.9	1,292,886.07	3,139,357.77	40.136284	-105.001591
14,122.0	90.90	0.40	7,519.0	6,874.7	534.8	1,292,980.06	3,139,358.15	40.136542	-105.001587
14,217.0	90.00	1.10	7,518.3	6,969.7	536.1	1,293,075.05	3,139,358.86	40.136803	-105.001583
14,312.0	90.40	0.60	7,518.0	7,064.6	537.5	1,293,170.05	3,139,359.74	40.137063	-105.001578
14,406.0	90.60	0.60	7,517.1	7,158.6	538.5	1,293,264.05	3,139,360.20	40.137322	-105.001574
14,501.0	91.10	0.30	7,515.7	7,253.6	539.2	1,293,359.03	3,139,360.41	40.137582	-105.001572
14,595.0	90.80	0.50	7,514.2	7,347.6	539.9	1,293,453.02	3,139,360.54	40.137840	-105.001569
14,690.0	90.50	1.20	7,513.1	7,442.6	541.3	1,293,548.01	3,139,361.42	40.138101	-105.001564
14,784.0	90.70	0.60	7,512.1	7,536.6	542.8	1,293,642.00	3,139,362.37	40.138359	-105.001559
14,879.0	89.70	0.90	7,511.8	7,631.6	544.0	1,293,736.99	3,139,363.08	40.138620	-105.001554
14,973.0	89.80	0.10	7,512.2	7,725.6	544.8	1,293,830.99	3,139,363.37	40.138878	-105.001552
15,068.0	90.40	0.50	7,512.0	7,820.6	545.3	1,293,925.99	3,139,363.34	40.139139	-105.001550
15,163.0	90.90	0.60	7,510.9	7,915.5	546.2	1,294,020.98	3,139,363.72	40.139399	-105.001546
15,257.0	90.00	0.80	7,510.2	8,009.5	547.4	1,294,114.98	3,139,364.34	40.139657	-105.001542
15,352.0	92.00	2.10	7,508.5	8,104.5	549.8	1,294,209.94	3,139,366.21	40.139918	-105.001534
15,446.0	89.90	1.30	7,507.0	8,198.4	552.6	1,294,303.89	3,139,368.47	40.140176	-105.001524
15,540.0	90.20	1.00	7,506.9	8,292.4	554.5	1,294,397.91	3,139,369.83	40.140434	-105.001517
15,635.0	92.60	0.90	7,504.6	8,387.4	556.0	1,294,492.87	3,139,370.88	40.140695	-105.001511
15,729.0	92.60	359.30	7,500.3	8,481.3	556.2	1,294,586.77	3,139,370.52	40.140952	-105.001511
15,825.0	92.00	0.60	7,496.5	8,577.2	556.1	1,294,682.69	3,139,369.90	40.141216	-105.001511

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Edith Ann-Duckworth 4F-21H-O268
Project:	DJ Wattenberg	**TVD Reference:**	KB @ 4955.5ft (Patterson 272)
Site:	S21-T2N-R68W (Edith Ann-Duckworth)	**MD Reference:**	KB @ 4955.5ft (Patterson 272)
Well:	Edith Ann-Duckworth 4F-21H-O268	**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
15,920.0	91.20	1.80	7,493.8	8,672.1	558.1	1,294,777.64	3,139,371.35	40.141476	-105.001504
16,014.0	91.40	0.40	7,491.7	8,766.1	559.9	1,294,871.61	3,139,372.63	40.141734	-105.001498
16,109.0	90.80	359.70	7,489.9	8,861.1	560.0	1,294,966.59	3,139,372.18	40.141995	-105.001497
16,203.0	90.70	358.80	7,488.6	8,955.0	558.8	1,295,060.53	3,139,370.43	40.142253	-105.001502
16,250.0	88.77	359.00	7,488.8	9,002.0	557.9	1,295,107.51	3,139,369.26	40.142382	-105.001505
16,298.0	86.80	359.20	7,490.7	9,050.0	557.1	1,295,155.46	3,139,368.24	40.142513	-105.001508
16,392.0	89.50	358.80	7,493.7	9,143.9	555.5	1,295,249.38	3,139,366.07	40.142771	-105.001513
16,487.0	90.40	358.60	7,493.8	9,238.9	553.3	1,295,344.34	3,139,363.39	40.143032	-105.001521
16,581.0	91.60	359.20	7,492.2	9,332.8	551.5	1,295,438.29	3,139,361.06	40.143290	-105.001528
16,675.0	92.90	358.70	7,488.5	9,426.8	549.8	1,295,532.19	3,139,358.81	40.143548	-105.001534
16,769.0	92.10	359.20	7,484.4	9,520.7	548.1	1,295,626.08	3,139,356.56	40.143806	-105.001540
16,864.0	88.40	358.80	7,484.0	9,615.6	546.4	1,295,721.03	3,139,354.37	40.144066	-105.001546
16,959.0	89.10	358.50	7,486.0	9,710.6	544.2	1,295,815.97	3,139,351.60	40.144327	-105.001554
17,053.0	92.20	358.10	7,485.0	9,804.5	541.4	1,295,909.89	3,139,348.29	40.144585	-105.001564
17,060.0	92.60	358.10	7,484.7	9,811.5	541.2	1,295,916.88	3,139,348.02	40.144604	-105.001565
Last CES Survey @ 17,060' MD									
17,115.0	92.60	358.10	7,482.2	9,866.4	539.3	1,295,971.78	3,139,345.89	40.144755	-105.001571
PTB @ 17,115'									

Design 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
Edith Ann-Duckworth 4F	0.00	0.00	7,480.2	9,901.2	534.0	1,296,006.49	3,139,340.32	40.144850	-105.001590
- actual wellpath misses target center by 35.2ft at 17115.0ft MD (7482.2 TVD, 9866.4 N, 539.3 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
17,060.0	7,484.7	9,811.5	541.2	Last CES Survey @ 17,060' MD
17,115.0	7,482.2	9,866.4	539.3	PTB @ 17,115'

Checked By: _____ Approved By: _____ Date: _____