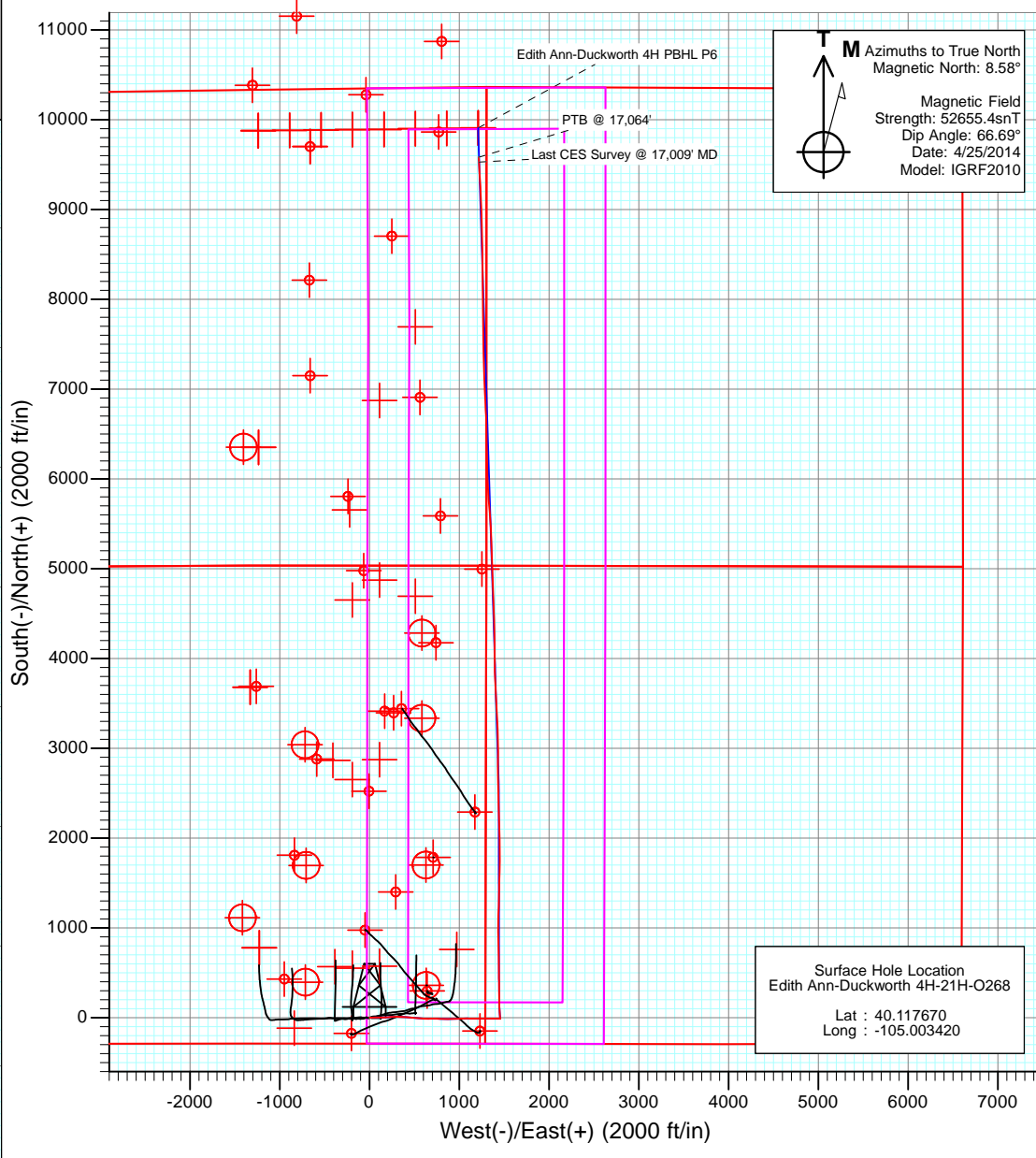
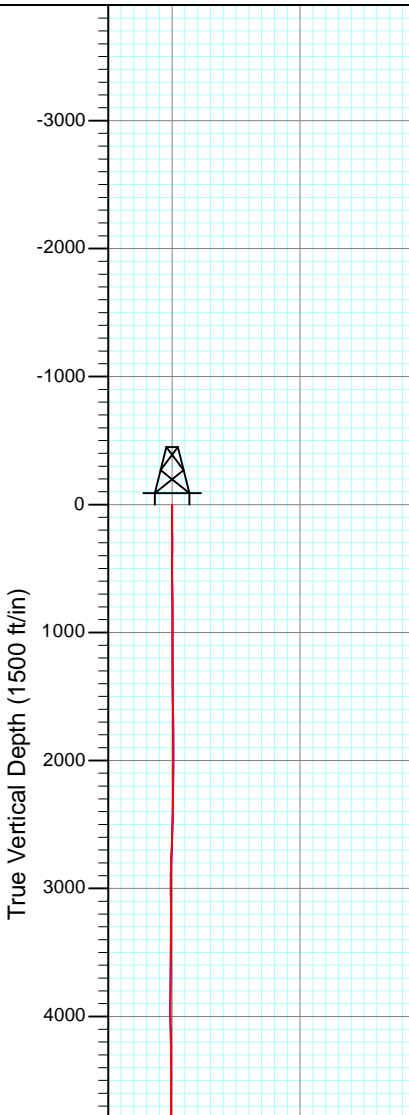




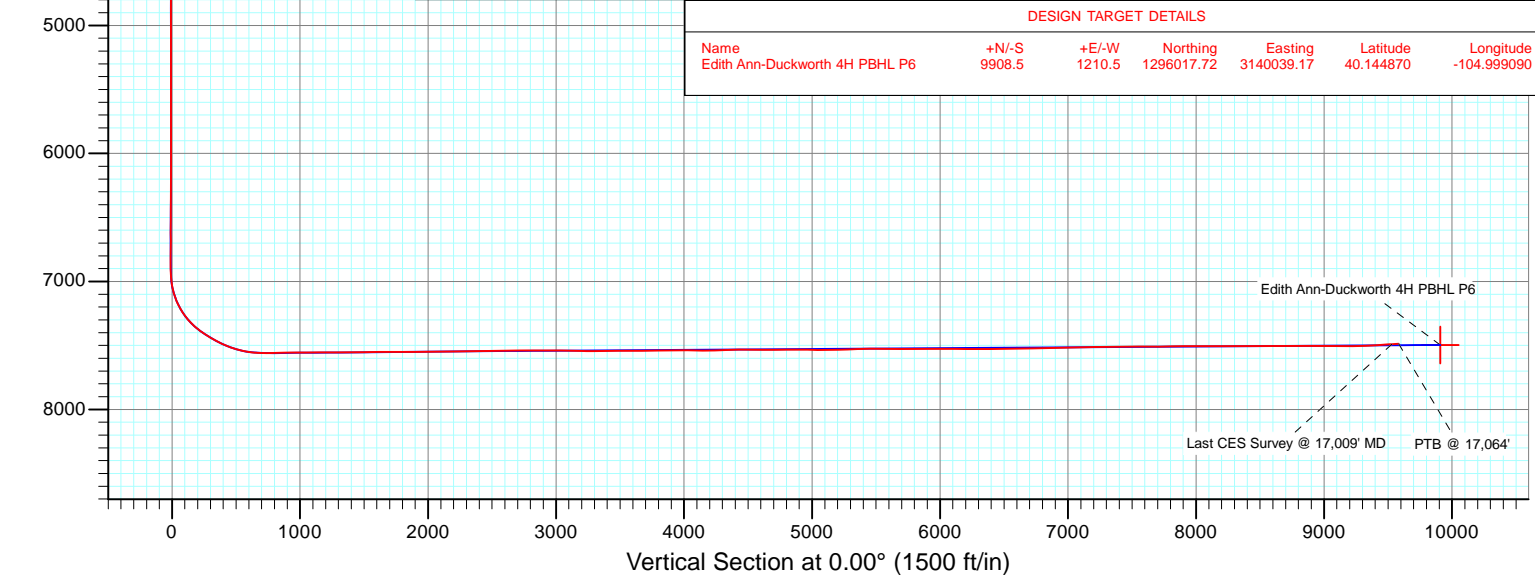
Project: DJ Wattenberg  
 Site: S21-T2N-R68W (Edith Ann-Duckworth)  
 Well: Edith Ann-Duckworth 4H-21H-O268  
 Vellbore: Hz  
 Design: FINAL



FINAL  
 Edith Ann-Duckworth 4H-21H-O268  
 145130 305955; LR  
 KB @ 4955.5ft (Patterson 272)  
 Ground Elevation @ 4927.0  
 North American Datum 1983  
 Well Edith Ann-Duckworth 4H-21H-O268, True North

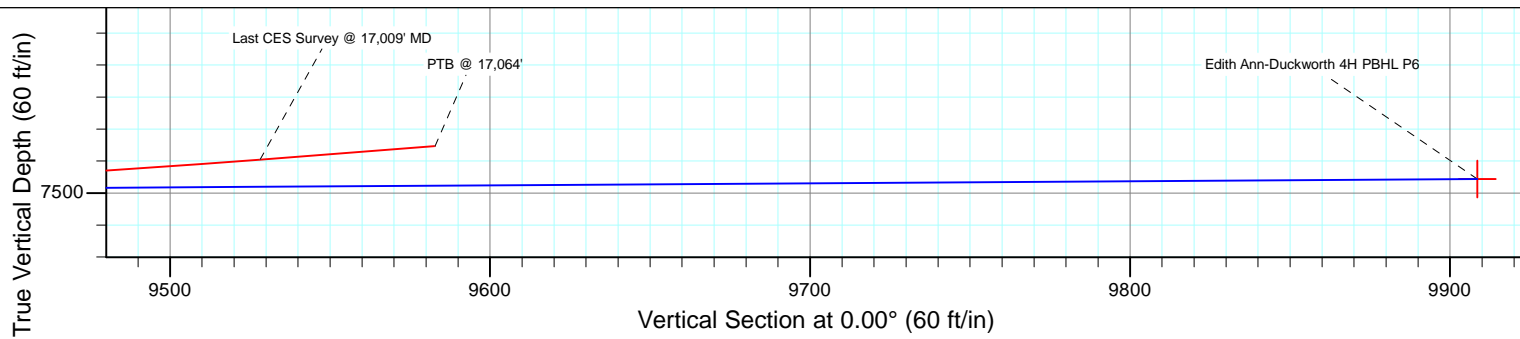
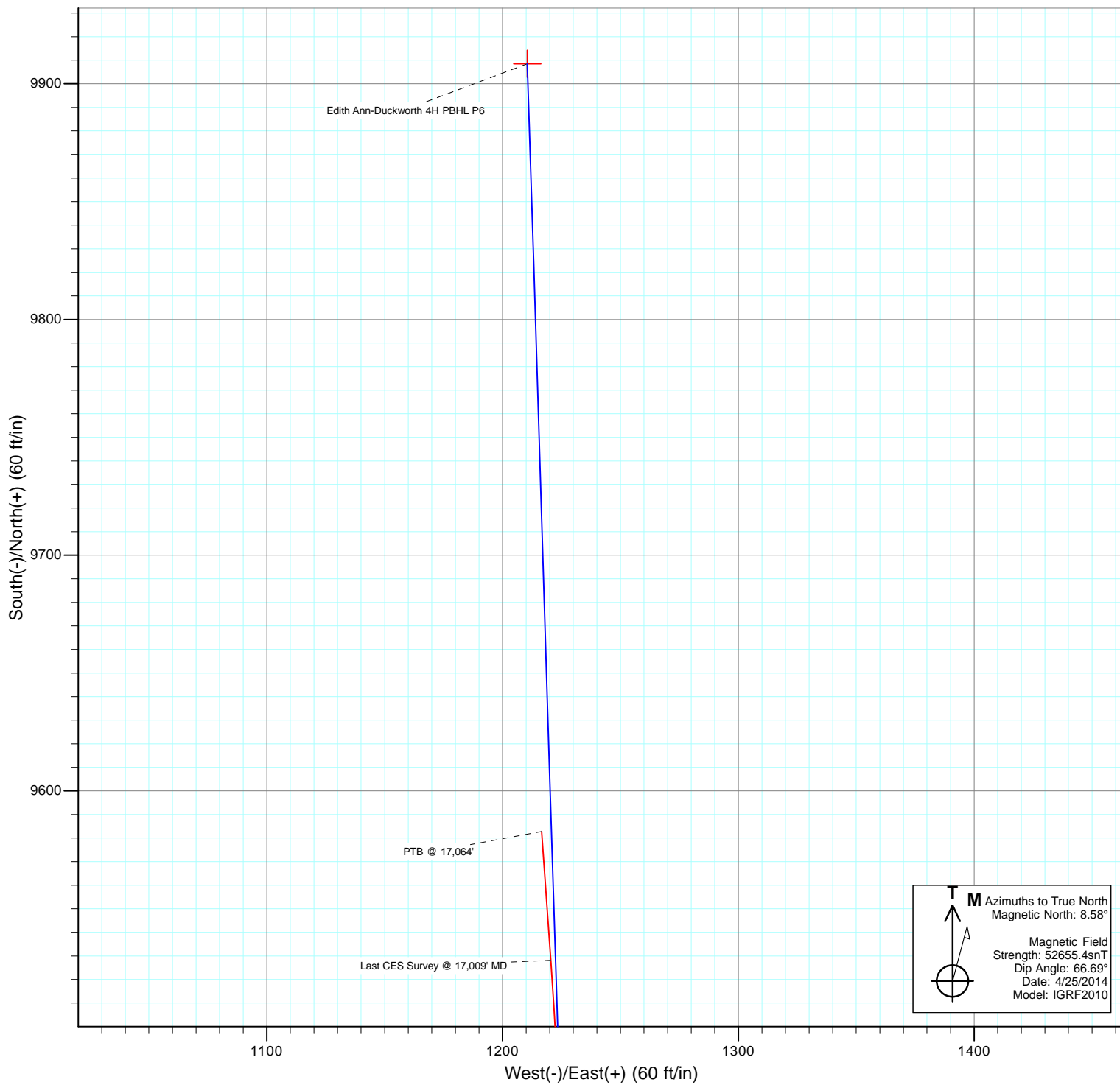


DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Edith Ann-Duckworth 4H PBHL P6	9908.5	1210.5	1296017.72	3140039.17	40.144870	-104.999090





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



# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Edith Ann-Duckworth 4H-21H-O268
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4955.5ft (Patterson 272)
<b>Site:</b> S21-T2N-R68W (Edith Ann-Duckworth)	<b>MD Reference:</b> KB @ 4955.5ft (Patterson 272)
<b>Well:</b> Edith Ann-Duckworth 4H-21H-O268	<b>North Reference:</b> True
<b>Wellbore:</b> Hz	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

<b>Project</b> DJ Wattenberg		
<b>Map System:</b> US State Plane 1983	<b>System Datum:</b> Mean Sea Level	
<b>Geo Datum:</b> North American Datum 1983		
<b>Map Zone:</b> Colorado Northern Zone		

<b>Site</b> S21-T2N-R68W (Edith Ann-Duckworth)				
<b>Site Position:</b>	<b>Northing:</b> 1,290,455.50 ft	<b>Latitude:</b> 40.129630		
<b>From:</b> Lat/Long	<b>Easting:</b> 3,138,171.93 ft	<b>Longitude:</b> -105.005880		
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> 0.32 °		

<b>Well</b> Edith Ann-Duckworth 4H-21H-O268				
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 1,286,102.63 ft	<b>Latitude:</b> 40.117670	
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 3,138,884.18 ft	<b>Longitude:</b> -105.003420	
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 4,927.0 ft	

<b>Wellbore</b> Hz					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/25/2014	8.58	66.69	52,655

<b>Design</b> FINAL				
<b>Audit Notes:</b>				
<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	0.00

<b>Survey Program</b>		<b>Date</b> 5/28/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
166.0	17,064.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD

<b>Survey</b>									
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	0.60	3.10	166.0	0.9	0.0	0.9	0.36	0.36	
260.0	0.40	99.30	260.0	1.3	0.4	1.3	0.80	-0.21	
354.0	1.60	95.90	354.0	1.1	2.0	1.1	1.28	1.28	
448.0	2.90	93.10	447.9	0.9	5.7	0.9	1.39	1.38	
541.0	4.20	89.80	540.7	0.7	11.5	0.7	1.41	1.40	
635.0	5.90	84.30	634.4	1.2	19.7	1.2	1.88	1.81	
728.0	6.50	86.00	726.8	2.1	29.7	2.1	0.67	0.65	
822.0	7.10	85.10	820.2	2.9	40.8	2.9	0.65	0.64	
916.0	8.10	86.60	913.3	3.8	53.2	3.8	1.08	1.06	
1,017.0	9.90	92.00	1,013.1	3.9	69.0	3.9	1.97	1.78	
1,111.0	11.80	92.40	1,105.4	3.3	86.7	3.3	2.02	2.02	
1,204.0	13.80	88.90	1,196.1	3.1	107.3	3.1	2.31	2.15	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Edith Ann-Duckworth 4H-21H-O268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Site:</b>	S21-T2N-R68W (Edith Ann-Duckworth)	<b>MD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Well:</b>	Edith Ann-Duckworth 4H-21H-O268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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	14.60	90.50	1,287.2	3.2	130.3	3.2	0.95	0.85	
1,391.0	15.50	89.40	1,377.0	3.2	154.5	3.2	1.02	0.97	
1,485.0	16.10	87.10	1,467.5	4.0	180.0	4.0	0.92	0.64	
1,580.0	13.50	82.90	1,559.3	6.0	204.2	6.0	2.96	-2.74	
1,675.0	14.40	85.10	1,651.5	8.4	227.0	8.4	1.10	0.95	
1,770.0	17.00	91.20	1,743.0	9.1	252.6	9.1	3.24	2.74	
1,865.0	16.40	89.30	1,834.0	9.0	279.9	9.0	0.85	-0.63	
1,960.0	17.20	87.70	1,924.9	9.7	307.4	9.7	0.97	0.84	
2,056.0	17.30	89.80	2,016.6	10.4	335.8	10.4	0.66	0.10	
2,151.0	17.00	93.00	2,107.4	9.7	363.8	9.7	1.04	-0.32	
2,246.0	15.30	91.60	2,198.6	8.6	390.2	8.6	1.84	-1.79	
2,341.0	15.50	94.40	2,290.2	7.3	415.4	7.3	0.81	0.21	
2,437.0	16.70	94.10	2,382.4	5.3	442.0	5.3	1.25	1.25	
2,532.0	15.80	93.20	2,473.6	3.6	468.5	3.6	0.98	-0.95	
2,627.0	16.80	95.00	2,564.8	1.7	495.1	1.7	1.18	1.05	
2,722.0	16.40	98.30	2,655.9	-1.4	522.0	-1.4	1.08	-0.42	
2,817.0	17.40	97.30	2,746.8	-5.2	549.4	-5.2	1.10	1.05	
2,912.0	17.80	95.20	2,837.3	-8.3	578.0	-8.3	0.79	0.42	
3,008.0	16.00	93.90	2,929.2	-10.5	605.8	-10.5	1.92	-1.87	
3,103.0	17.00	90.10	3,020.3	-11.4	632.7	-11.4	1.55	1.05	
3,198.0	17.50	85.70	3,111.0	-10.4	660.9	-10.4	1.47	0.53	
3,293.0	14.80	89.50	3,202.2	-9.2	687.2	-9.2	3.05	-2.84	
3,388.0	15.60	88.20	3,293.9	-8.7	712.1	-8.7	0.92	0.84	
3,483.0	16.20	92.60	3,385.3	-8.9	738.1	-8.9	1.42	0.63	
3,579.0	16.30	94.40	3,477.4	-10.5	765.0	-10.5	0.53	0.10	
3,674.0	15.50	90.90	3,568.8	-11.8	790.9	-11.8	1.31	-0.84	
3,769.0	16.10	89.10	3,660.2	-11.8	816.8	-11.8	0.82	0.63	
3,864.0	15.90	93.90	3,751.5	-12.4	843.0	-12.4	1.41	-0.21	
3,960.0	17.00	92.50	3,843.6	-13.9	870.1	-13.9	1.22	1.15	
4,055.0	18.20	90.30	3,934.2	-14.6	898.8	-14.6	1.44	1.26	
4,150.0	18.90	86.80	4,024.2	-13.9	929.0	-13.9	1.38	0.74	
4,245.0	18.30	86.90	4,114.3	-12.2	959.3	-12.2	0.63	-0.63	
4,340.0	15.60	84.40	4,205.1	-10.1	986.9	-10.1	2.94	-2.84	
4,436.0	15.90	85.50	4,297.5	-7.8	1,012.8	-7.8	0.44	0.31	
4,531.0	15.70	89.50	4,388.9	-6.7	1,038.7	-6.7	1.17	-0.21	
4,626.0	16.80	91.20	4,480.1	-6.9	1,065.2	-6.9	1.26	1.16	
4,721.0	18.00	92.10	4,570.8	-7.7	1,093.6	-7.7	1.29	1.26	
4,817.0	16.80	90.90	4,662.4	-8.5	1,122.3	-8.5	1.30	-1.25	
4,912.0	17.10	91.50	4,753.3	-9.1	1,150.0	-9.1	0.37	0.32	
5,007.0	16.60	90.10	4,844.2	-9.4	1,177.6	-9.4	0.68	-0.53	
5,102.0	16.20	90.20	4,935.3	-9.5	1,204.4	-9.5	0.42	-0.42	
5,197.0	15.90	89.70	5,026.6	-9.5	1,230.6	-9.5	0.35	-0.32	
5,292.0	14.30	89.40	5,118.4	-9.3	1,255.4	-9.3	1.69	-1.68	
5,387.0	13.50	90.10	5,210.6	-9.2	1,278.2	-9.2	0.86	-0.84	
5,482.0	14.30	88.50	5,302.8	-8.9	1,301.0	-8.9	0.93	0.84	
5,577.0	15.50	88.70	5,394.6	-8.3	1,325.4	-8.3	1.26	1.26	
5,672.0	15.70	90.10	5,486.1	-8.0	1,351.0	-8.0	0.45	0.21	
5,768.0	13.30	90.30	5,579.0	-8.1	1,375.0	-8.1	2.50	-2.50	
5,862.0	11.70	89.10	5,670.8	-8.0	1,395.4	-8.0	1.72	-1.70	
5,958.0	9.40	90.20	5,765.2	-7.9	1,412.9	-7.9	2.40	-2.40	
6,053.0	7.90	94.50	5,859.1	-8.4	1,427.2	-8.4	1.72	-1.58	
6,148.0	5.10	91.10	5,953.5	-9.0	1,437.9	-9.0	2.97	-2.95	
6,243.0	3.80	93.80	6,048.2	-9.3	1,445.3	-9.3	1.39	-1.37	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Edith Ann-Duckworth 4H-21H-O268
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Site:</b>	S21-T2N-R68W (Edith Ann-Duckworth)	<b>MD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Well:</b>	Edith Ann-Duckworth 4H-21H-O268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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	2.70	79.60	6,143.0	-9.1	1,450.6	-9.1	1.43	-1.16	
6,433.0	1.80	88.60	6,238.0	-8.7	1,454.3	-8.7	1.01	-0.95	
6,528.0	0.70	201.30	6,332.9	-9.2	1,455.6	-9.2	2.28	-1.16	
6,623.0	0.50	213.30	6,427.9	-10.1	1,455.2	-10.1	0.25	-0.21	
6,718.0	0.40	220.70	6,522.9	-10.7	1,454.7	-10.7	0.12	-0.11	
6,814.0	0.20	239.40	6,618.9	-11.0	1,454.4	-11.0	0.23	-0.21	
6,909.0	0.10	247.50	6,713.9	-11.1	1,454.2	-11.1	0.11	-0.11	
7,004.0	0.10	36.20	6,808.9	-11.1	1,454.1	-11.1	0.20	0.00	
7,099.0	0.20	29.40	6,903.9	-10.9	1,454.3	-10.9	0.11	0.11	
7,194.0	6.10	359.60	6,998.7	-5.7	1,454.3	-5.7	6.24	6.21	
7,241.0	11.90	2.10	7,045.1	1.7	1,454.5	1.7	12.37	12.34	
7,289.0	16.90	357.70	7,091.6	13.6	1,454.4	13.6	10.66	10.42	
7,336.0	21.00	356.50	7,136.1	28.8	1,453.6	28.8	8.76	8.72	
7,385.0	25.60	355.10	7,181.1	48.1	1,452.1	48.1	9.45	9.39	
7,432.0	30.90	354.60	7,222.4	70.3	1,450.1	70.3	11.29	11.28	
7,480.0	35.60	356.10	7,262.6	96.5	1,448.0	96.5	9.94	9.79	
7,527.0	40.70	358.40	7,299.5	125.5	1,446.7	125.5	11.26	10.85	
7,575.0	45.90	359.30	7,334.4	158.4	1,446.0	158.4	10.91	10.83	
7,622.0	50.50	0.20	7,365.8	193.4	1,445.9	193.4	9.89	9.79	
7,670.0	55.10	0.60	7,394.8	231.6	1,446.1	231.6	9.61	9.58	
7,717.0	57.90	0.10	7,420.7	270.8	1,446.4	270.8	6.02	5.96	
7,766.0	59.70	358.80	7,446.1	312.7	1,446.0	312.7	4.32	3.67	
7,813.0	61.90	358.80	7,469.0	353.8	1,445.1	353.8	4.68	4.68	
7,861.0	65.80	359.10	7,490.2	396.8	1,444.3	396.8	8.14	8.12	
7,908.0	69.50	359.00	7,508.0	440.3	1,443.6	440.3	7.87	7.87	
7,956.0	72.50	359.10	7,523.7	485.7	1,442.9	485.7	6.25	6.25	
8,003.0	75.60	0.10	7,536.6	530.8	1,442.5	530.8	6.91	6.60	
8,051.0	79.50	359.80	7,546.9	577.7	1,442.5	577.7	8.15	8.12	
8,064.0	80.70	0.10	7,549.2	590.5	1,442.5	590.5	9.51	9.23	
8,152.0	87.40	357.90	7,558.3	678.0	1,440.9	678.0	8.01	7.61	
8,246.0	91.60	357.70	7,559.1	771.9	1,437.3	771.9	4.47	4.47	
8,339.0	91.20	359.40	7,556.8	864.8	1,435.0	864.8	1.88	-0.43	
8,433.0	90.60	0.10	7,555.4	958.8	1,434.6	958.8	0.98	-0.64	
8,526.0	90.70	1.10	7,554.3	1,051.8	1,435.6	1,051.8	1.08	0.11	
8,620.0	89.90	1.80	7,553.8	1,145.8	1,437.9	1,145.8	1.13	-0.85	
8,713.0	90.30	1.70	7,553.7	1,238.7	1,440.8	1,238.7	0.44	0.43	
8,807.0	90.20	1.50	7,553.2	1,332.7	1,443.4	1,332.7	0.24	-0.11	
8,900.0	90.50	1.20	7,552.7	1,425.6	1,445.6	1,425.6	0.46	0.32	
8,994.0	90.90	1.00	7,551.5	1,519.6	1,447.4	1,519.6	0.48	0.43	
9,087.0	89.90	0.90	7,550.9	1,612.6	1,448.9	1,612.6	1.08	-1.08	
9,181.0	90.00	0.50	7,551.0	1,706.6	1,450.1	1,706.6	0.44	0.11	
9,275.0	90.10	0.20	7,550.9	1,800.6	1,450.7	1,800.6	0.34	0.11	
9,369.0	90.30	359.60	7,550.5	1,894.6	1,450.5	1,894.6	0.67	0.21	
9,462.0	90.60	359.30	7,549.8	1,987.6	1,449.6	1,987.6	0.46	0.32	
9,556.0	90.70	358.90	7,548.7	2,081.6	1,448.1	2,081.6	0.44	0.11	
9,650.0	91.00	358.30	7,547.4	2,175.5	1,445.8	2,175.5	0.71	0.32	
9,743.0	91.50	358.10	7,545.3	2,268.5	1,442.9	2,268.5	0.58	0.54	
9,837.0	90.50	358.30	7,543.7	2,362.4	1,440.0	2,362.4	1.08	-1.06	
9,930.0	91.60	358.00	7,542.0	2,455.3	1,437.0	2,455.3	1.23	1.18	
10,024.0	90.90	358.60	7,539.9	2,549.3	1,434.2	2,549.3	0.98	-0.74	
10,117.0	90.50	359.30	7,538.8	2,642.2	1,432.5	2,642.2	0.87	-0.43	
10,211.0	90.70	359.40	7,537.8	2,736.2	1,431.4	2,736.2	0.24	0.21	
10,304.0	89.10	0.20	7,538.0	2,829.2	1,431.1	2,829.2	1.92	-1.72	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Edith Ann-Duckworth 4H-21H-O268
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Site:</b>	S21-T2N-R68W (Edith Ann-Duckworth)	<b>MD Reference:</b>	KB @ 4955.5ft (Patterson 272)
<b>Well:</b>	Edith Ann-Duckworth 4H-21H-O268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
10,398.0	89.80	0.60	7,538.9	2,923.2	1,431.7	2,923.2	0.86	0.74	
10,491.0	89.00	359.40	7,539.8	3,016.2	1,431.7	3,016.2	1.55	-0.86	
10,585.0	89.10	359.10	7,541.4	3,110.2	1,430.5	3,110.2	0.34	0.11	
10,678.0	88.40	358.30	7,543.4	3,203.1	1,428.4	3,203.1	1.14	-0.75	
10,772.0	90.50	357.60	7,544.3	3,297.1	1,425.0	3,297.1	2.35	2.23	
10,865.0	91.00	356.70	7,543.1	3,390.0	1,420.4	3,390.0	1.11	0.54	
10,959.0	91.60	356.50	7,541.0	3,483.8	1,414.8	3,483.8	0.67	0.64	
11,053.0	88.80	356.20	7,540.7	3,577.6	1,408.8	3,577.6	3.00	-2.98	
11,148.0	90.20	357.50	7,541.5	3,672.4	1,403.6	3,672.4	2.01	1.47	
11,242.0	91.10	358.10	7,540.4	3,766.3	1,400.0	3,766.3	1.15	0.96	
11,337.0	91.90	359.00	7,537.9	3,861.3	1,397.6	3,861.3	1.27	0.84	
11,431.0	89.20	0.10	7,537.0	3,955.3	1,396.9	3,955.3	3.10	-2.87	
11,525.0	88.80	358.70	7,538.7	4,049.2	1,395.9	4,049.2	1.55	-0.43	
11,620.0	89.80	359.20	7,539.8	4,144.2	1,394.2	4,144.2	1.18	1.05	
11,714.0	91.60	359.30	7,538.7	4,238.2	1,392.9	4,238.2	1.92	1.91	
11,809.0	92.70	359.20	7,535.1	4,333.1	1,391.7	4,333.1	1.16	1.16	
11,903.0	90.80	358.60	7,532.3	4,427.0	1,389.9	4,427.0	2.12	-2.02	
11,998.0	88.90	357.10	7,532.5	4,522.0	1,386.3	4,522.0	2.55	-2.00	
12,092.0	89.50	358.20	7,533.8	4,615.9	1,382.5	4,615.9	1.33	0.64	
12,187.0	90.60	357.70	7,533.7	4,710.8	1,379.1	4,710.8	1.27	1.16	
12,281.0	91.10	358.50	7,532.3	4,804.8	1,375.9	4,804.8	1.00	0.53	
12,376.0	89.90	358.00	7,531.5	4,899.7	1,373.0	4,899.7	1.37	-1.26	
12,470.0	87.90	357.00	7,533.3	4,993.6	1,368.9	4,993.6	2.38	-2.13	
12,565.0	89.70	357.00	7,535.3	5,088.4	1,364.0	5,088.4	1.89	1.89	
12,659.0	91.30	359.30	7,534.5	5,182.4	1,360.9	5,182.4	2.98	1.70	
12,754.0	92.80	358.70	7,531.1	5,277.3	1,359.3	5,277.3	1.70	1.58	
12,833.0	93.10	358.80	7,527.0	5,356.2	1,357.6	5,356.2	0.40	0.38	
12,928.0	89.60	356.30	7,524.8	5,451.0	1,353.5	5,451.0	4.53	-3.68	
13,022.0	89.40	355.60	7,525.6	5,544.8	1,346.9	5,544.8	0.77	-0.21	
13,117.0	89.40	355.00	7,526.6	5,639.5	1,339.1	5,639.5	0.63	0.00	
13,211.0	89.90	356.10	7,527.2	5,733.2	1,331.8	5,733.2	1.29	0.53	
13,305.0	90.60	355.70	7,526.8	5,826.9	1,325.1	5,826.9	0.86	0.74	
13,400.0	89.80	356.50	7,526.4	5,921.7	1,318.6	5,921.7	1.19	-0.84	
13,494.0	90.10	358.10	7,526.5	6,015.6	1,314.2	6,015.6	1.73	0.32	
13,589.0	89.40	358.80	7,526.9	6,110.6	1,311.6	6,110.6	1.04	-0.74	
13,683.0	89.40	358.20	7,527.9	6,204.5	1,309.1	6,204.5	0.64	0.00	
13,778.0	90.40	359.70	7,528.1	6,299.5	1,307.4	6,299.5	1.90	1.05	
13,872.0	90.40	359.30	7,527.4	6,393.5	1,306.6	6,393.5	0.43	0.00	
13,967.0	90.70	358.80	7,526.5	6,488.5	1,305.0	6,488.5	0.61	0.32	
14,061.0	90.80	358.60	7,525.3	6,582.4	1,302.9	6,582.4	0.24	0.11	
14,155.0	91.10	357.90	7,523.7	6,676.4	1,300.0	6,676.4	0.81	0.32	
14,250.0	91.10	356.80	7,521.9	6,771.3	1,295.6	6,771.3	1.16	0.00	
14,344.0	91.50	357.30	7,519.8	6,865.1	1,290.8	6,865.1	0.68	0.43	
14,438.0	91.50	357.50	7,517.3	6,959.0	1,286.5	6,959.0	0.21	0.00	
14,533.0	91.60	357.40	7,514.7	7,053.9	1,282.3	7,053.9	0.15	0.11	
14,628.0	91.50	357.30	7,512.2	7,148.7	1,277.9	7,148.7	0.15	-0.11	
14,723.0	90.70	358.60	7,510.3	7,243.6	1,274.5	7,243.6	1.61	-0.84	
14,818.0	90.10	358.80	7,509.7	7,338.6	1,272.3	7,338.6	0.67	-0.63	
14,912.0	90.30	358.60	7,509.3	7,432.6	1,270.2	7,432.6	0.30	0.21	
15,007.0	90.80	359.40	7,508.4	7,527.6	1,268.6	7,527.6	0.99	0.53	
15,101.0	89.70	359.30	7,508.0	7,621.6	1,267.5	7,621.6	1.18	-1.17	
15,195.0	90.40	359.10	7,507.9	7,715.6	1,266.2	7,715.6	0.77	0.74	
15,289.0	90.80	359.60	7,507.0	7,809.6	1,265.1	7,809.6	0.68	0.43	

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Edith Ann-Duckworth 4H-21H-O268
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4955.5ft (Patterson 272)
<b>Site:</b> S21-T2N-R68W (Edith Ann-Duckworth)	<b>MD Reference:</b> KB @ 4955.5ft (Patterson 272)
<b>Well:</b> Edith Ann-Duckworth 4H-21H-O268	<b>North Reference:</b> True
<b>Wellbore:</b> Hz	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> 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
15,383.0	90.90	359.50	7,505.6	7,903.6	1,264.4	7,903.6	0.15	0.11	
15,478.0	89.70	359.90	7,505.1	7,998.6	1,263.9	7,998.6	1.33	-1.26	
15,573.0	90.00	0.10	7,505.3	8,093.6	1,263.9	8,093.6	0.38	0.32	
15,667.0	90.50	359.80	7,504.9	8,187.6	1,263.8	8,187.6	0.62	0.53	
15,761.0	90.90	359.90	7,503.8	8,281.5	1,263.5	8,281.5	0.44	0.43	
15,856.0	89.20	358.40	7,503.7	8,376.5	1,262.1	8,376.5	2.39	-1.79	
15,950.0	89.40	358.40	7,504.8	8,470.5	1,259.5	8,470.5	0.21	0.21	
16,045.0	90.20	358.60	7,505.2	8,565.4	1,257.0	8,565.4	0.87	0.84	
16,139.0	90.70	359.30	7,504.4	8,659.4	1,255.3	8,659.4	0.92	0.53	
16,234.0	90.40	358.90	7,503.5	8,754.4	1,253.8	8,754.4	0.53	-0.32	
16,328.0	90.20	358.30	7,503.0	8,848.4	1,251.5	8,848.4	0.67	-0.21	
16,424.0	90.10	358.10	7,502.8	8,944.3	1,248.5	8,944.3	0.23	-0.10	
16,518.0	88.70	356.80	7,503.7	9,038.2	1,244.3	9,038.2	2.03	-1.49	
16,612.0	88.70	356.60	7,505.9	9,132.1	1,238.9	9,132.1	0.21	0.00	
16,706.0	91.30	357.90	7,505.9	9,225.9	1,234.4	9,225.9	3.09	2.77	
16,801.0	92.70	357.90	7,502.6	9,320.8	1,230.9	9,320.8	1.47	1.47	
16,896.0	93.60	357.30	7,497.3	9,415.6	1,226.9	9,415.6	1.14	0.95	
16,990.0	94.20	356.30	7,490.9	9,509.2	1,221.7	9,509.2	1.24	0.64	
17,009.0	94.40	355.90	7,489.5	9,528.1	1,220.4	9,528.1	2.35	1.05	Last CES Survey @ 17,009' MD
17,064.0	94.40	355.90	7,485.3	9,582.8	1,216.5	9,582.8	0.00	0.00	PTB @ 17,064'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Edith Ann-Duckworth 4H - hit/miss target - Shape	0.00	0.00	7,485.6	9,908.5	1,210.5	1,296,017.72	3,140,039.17	40.144870	-104.999090
- actual wellpath misses target center by 325.7ft at 17064.0ft MD (7485.3 TVD, 9582.8 N, 1216.5 E)									
- Point									
Edith Ann-Duckworth 4H - actual wellpath misses target center by 336.4ft at 17064.0ft MD (7485.3 TVD, 9582.8 N, 1216.5 E)	0.00	0.00	7,569.5	9,908.5	1,210.5	1,296,017.72	3,140,039.17	40.144870	-104.999090
- Point									
Edith Ann-Duckworth 4H - actual wellpath misses target center by 325.9ft at 17064.0ft MD (7485.3 TVD, 9582.8 N, 1216.5 E)	0.00	0.00	7,495.6	9,908.5	1,210.5	1,296,017.72	3,140,039.17	40.144870	-104.999090
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
17,009.0	7,489.5	9,528.1	1,220.4	Last CES Survey @ 17,009' MD
17,064.0	7,485.3	9,582.8	1,216.5	PTB @ 17,064'

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_