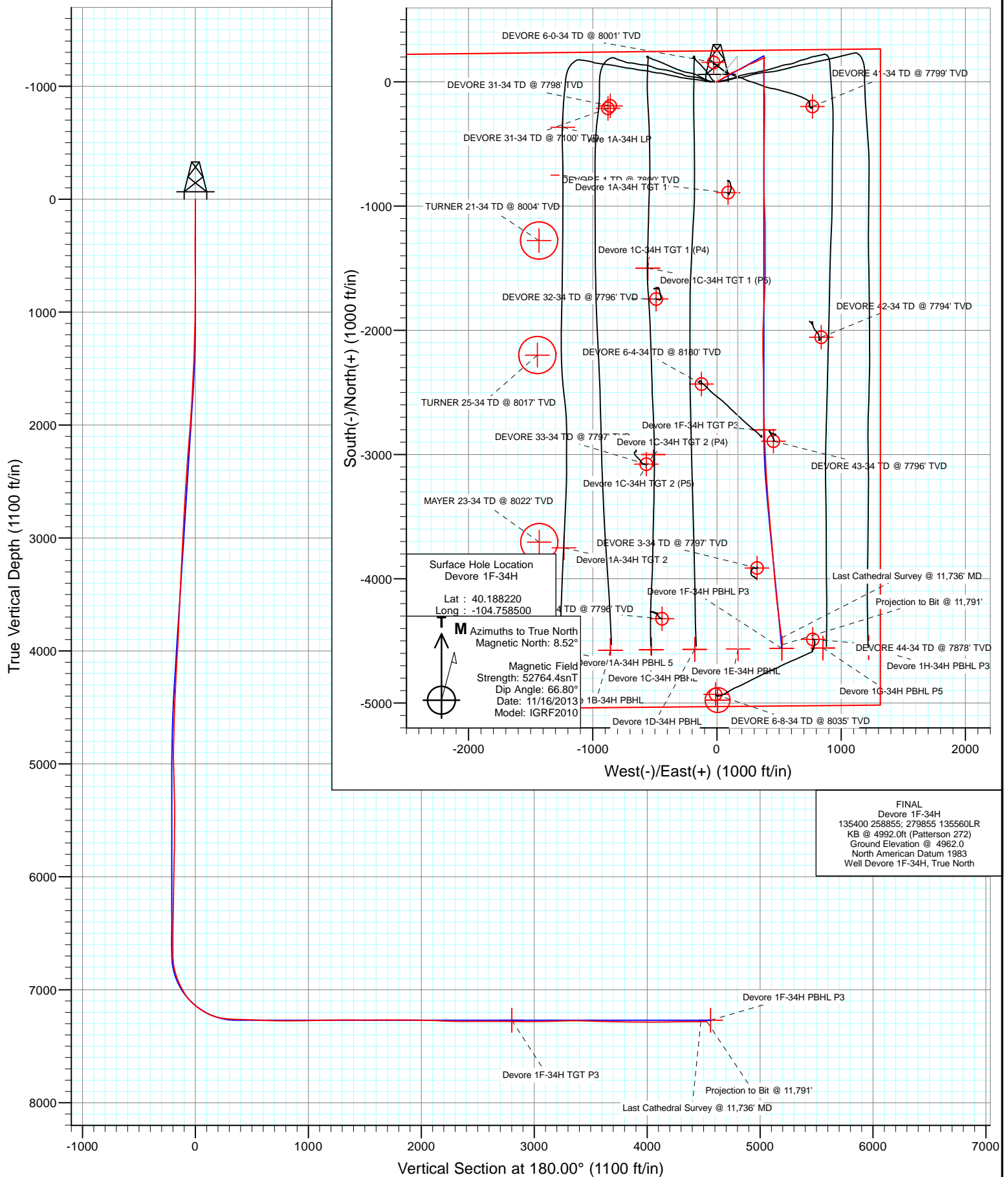




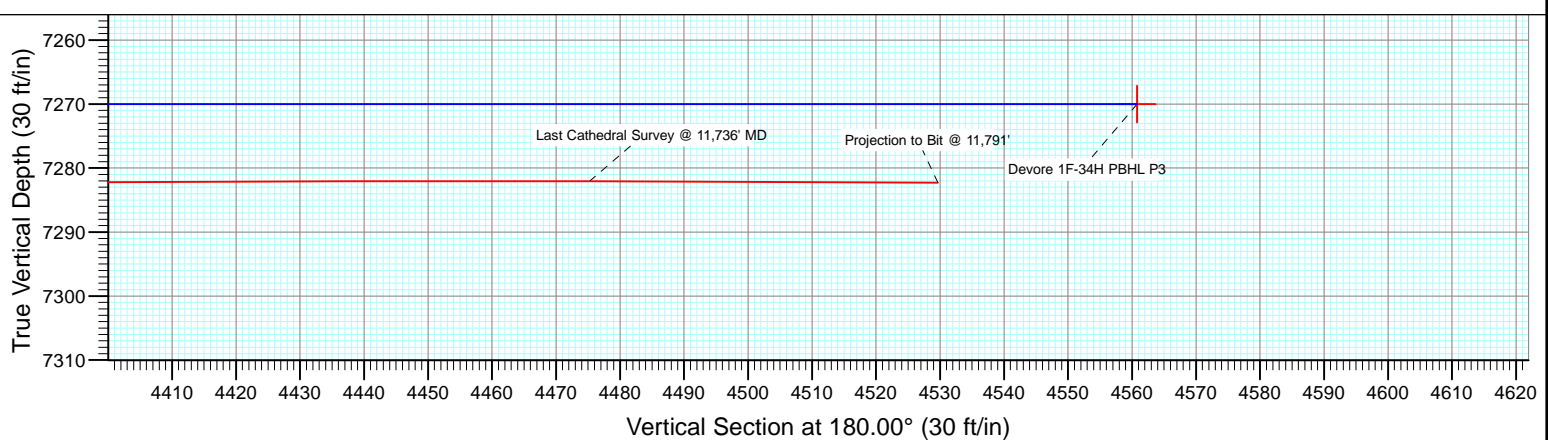
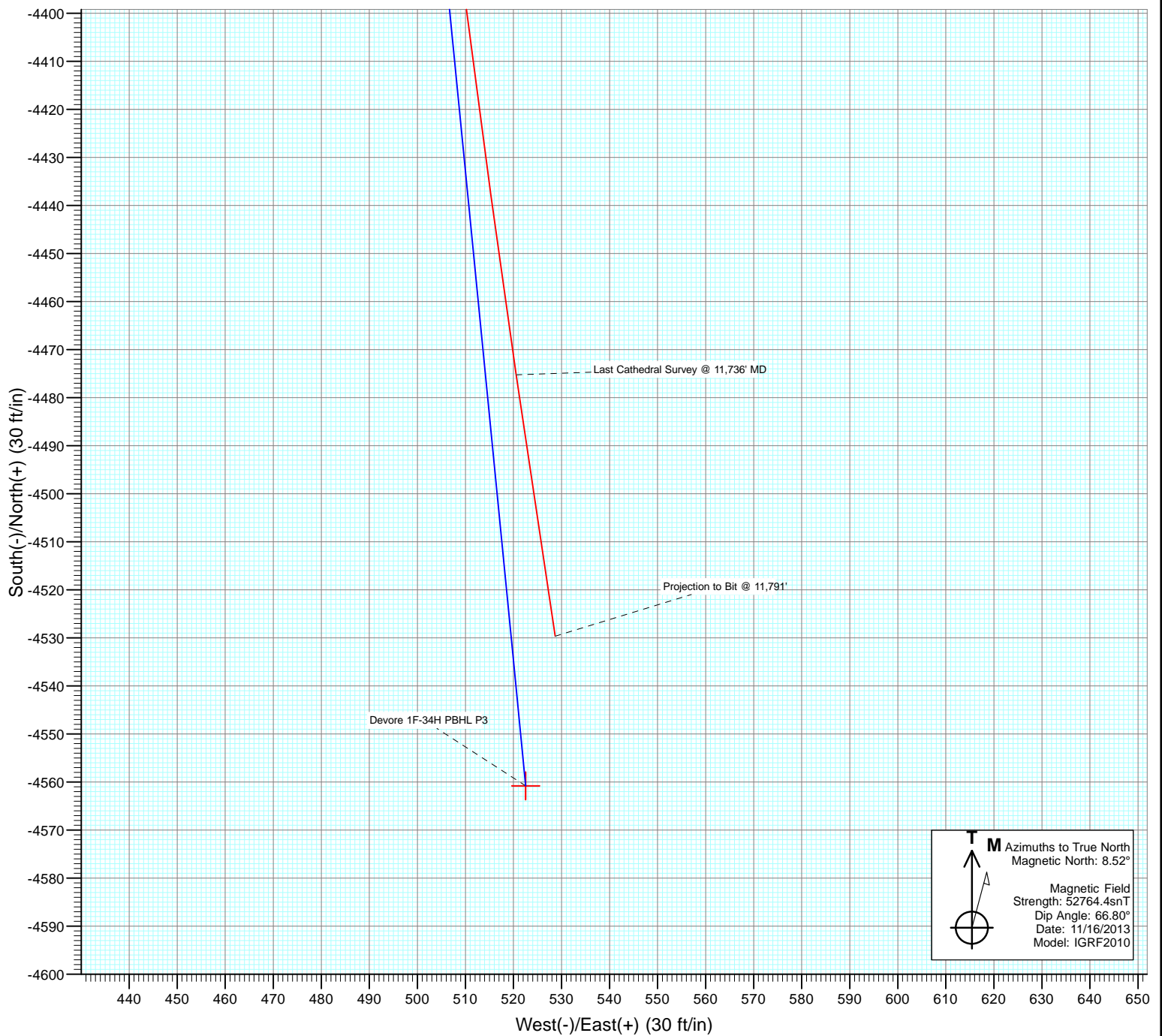
Project: DJ Wattenberg  
Site: S34-T3N-R66W (Devore)  
Well: Devore 1F-34H  
Wellbore: Hz  
Design: FINAL



FINAL  
Devore 1F-34H  
135400 258855; 279855 135560LR  
KB @ 4992.0ft (Patterson 272)  
Ground Elevation @ 4962.0  
North American Datum 1983  
Well Devore 1F-34H, True North



Project: DJ Wattenberg  
Site: S34-T3N-R66W (Devore)  
Well: Devore 1F-34H  
Wellbore: Hz  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Devore 1F-34H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Site:</b>	S34-T3N-R66W (Devore)	<b>MD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Well:</b>	Devore 1F-34H	<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		

Site		S34-T3N-R66W (Devore)			
Site Position:		Northing:	1,307,711.17 ft	Latitude:	40.175660
From:	Lat/Long	Easting:	3,207,971.22 ft	Longitude:	-104.755750
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.48 °

Well	Devore 1F-34H					
Well Position	+N/-S	0.0 ft	Northing:	1,312,279.95 ft	Latitude:	40.188220
	+E/-W	0.0 ft	Easting:	3,207,164.55 ft	Longitude:	-104.758500
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,962.0 ft

<b>Wellbore</b>	Hz				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/16/2013	8.52	66.80	52,764

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.00	

<b>Survey Program</b>	<b>Date</b>	11/23/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
261.0	11,791.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
261.0	0.60	1.60	261.0	1.4	0.0	-1.4	0.23	0.23		
355.0	0.90	356.60	355.0	2.6	0.0	-2.6	0.33	0.32		
448.0	0.60	264.10	448.0	3.3	-0.5	-3.3	1.19	-0.32		
542.0	1.10	245.10	542.0	2.8	-1.8	-2.8	0.60	0.53		
635.0	0.70	212.70	635.0	2.0	-2.9	-2.0	0.68	-0.43		
729.0	1.40	93.10	729.0	1.4	-2.1	-1.4	1.97	0.74		
823.0	1.00	64.50	822.9	1.7	-0.2	-1.7	0.75	-0.43		
916.0	0.90	54.50	915.9	2.5	1.1	-2.5	0.21	-0.11		
987.0	1.30	53.20	986.9	3.3	2.2	-3.3	0.56	0.56		
1,110.0	1.10	66.50	1,109.9	4.6	4.4	-4.6	0.28	-0.16		
1,204.0	3.60	66.90	1,203.8	6.1	7.9	-6.1	2.66	2.66		
1,298.0	3.40	65.00	1,297.6	8.5	13.2	-8.5	0.25	-0.21		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Devore 1F-34H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Site:</b>	S34-T3N-R66W (Devore)	<b>MD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Well:</b>	Devore 1F-34H	<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
1,391.0	5.90	60.40	1,390.3	12.0	19.8	-12.0	2.72	2.69	
1,485.0	5.70	58.50	1,483.8	16.8	28.0	-16.8	0.29	-0.21	
1,579.0	5.40	55.20	1,577.4	21.8	35.6	-21.8	0.47	-0.32	
1,672.0	6.30	64.10	1,669.9	26.5	43.8	-26.5	1.37	0.97	
1,766.0	6.30	59.50	1,763.3	31.4	52.9	-31.4	0.54	0.00	
1,859.0	5.80	54.80	1,855.8	36.7	61.1	-36.7	0.76	-0.54	
1,953.0	8.20	61.50	1,949.1	42.6	70.9	-42.6	2.69	2.55	
2,047.0	8.20	57.40	2,042.1	49.4	82.5	-49.4	0.62	0.00	
2,142.0	7.90	54.20	2,136.2	56.9	93.5	-56.9	0.57	-0.32	
2,236.0	9.10	61.40	2,229.2	64.2	105.2	-64.2	1.70	1.28	
2,330.0	8.90	59.30	2,322.0	71.5	118.0	-71.5	0.41	-0.21	
2,425.0	9.50	71.30	2,415.8	77.8	131.7	-77.8	2.11	0.63	
2,519.0	9.00	66.00	2,508.6	83.3	145.8	-83.3	1.05	-0.53	
2,614.0	8.60	63.40	2,602.5	89.5	159.0	-89.5	0.59	-0.42	
2,708.0	7.70	70.90	2,695.5	94.7	171.2	-94.7	1.48	-0.96	
2,803.0	7.30	64.40	2,789.7	99.4	182.6	-99.4	0.99	-0.42	
2,897.0	7.30	64.00	2,882.9	104.6	193.4	-104.6	0.05	0.00	
2,992.0	5.90	61.90	2,977.3	109.5	203.1	-109.5	1.50	-1.47	
3,086.0	6.90	63.10	3,070.7	114.3	212.4	-114.3	1.07	1.06	
3,181.0	6.50	61.80	3,165.1	119.5	222.3	-119.5	0.45	-0.42	
3,275.0	6.70	59.20	3,258.5	124.8	231.7	-124.8	0.38	0.21	
3,369.0	5.80	57.50	3,351.9	130.1	240.4	-130.1	0.98	-0.96	
3,464.0	4.80	56.60	3,446.5	134.9	247.7	-134.9	1.06	-1.05	
3,558.0	5.10	65.00	3,540.1	138.8	254.8	-138.8	0.83	0.32	
3,653.0	6.40	66.20	3,634.7	142.8	263.5	-142.8	1.37	1.37	
3,747.0	7.70	70.90	3,728.0	146.9	274.2	-146.9	1.51	1.38	
3,842.0	6.50	72.70	3,822.2	150.6	285.4	-150.6	1.28	-1.26	
3,936.0	8.40	68.20	3,915.4	154.7	296.8	-154.7	2.11	2.02	
4,031.0	7.90	63.90	4,009.5	160.2	309.1	-160.2	0.83	-0.53	
4,125.0	7.40	64.10	4,102.6	165.7	320.4	-165.7	0.53	-0.53	
4,220.0	7.30	64.10	4,196.8	171.0	331.3	-171.0	0.11	-0.11	
4,314.0	6.40	66.00	4,290.2	175.7	341.5	-175.7	0.99	-0.96	
4,409.0	5.50	62.60	4,384.7	180.0	350.4	-180.0	1.02	-0.95	
4,504.0	4.70	61.50	4,479.3	183.9	357.8	-183.9	0.85	-0.84	
4,598.0	3.90	61.60	4,573.0	187.3	364.0	-187.3	0.85	-0.85	
4,693.0	3.30	61.90	4,667.8	190.1	369.3	-190.1	0.63	-0.63	
4,787.0	3.00	63.90	4,761.7	192.5	373.9	-192.5	0.34	-0.32	
4,879.0	2.50	67.50	4,853.6	194.3	377.9	-194.3	0.57	-0.54	
4,974.0	2.40	93.40	4,948.5	195.0	381.8	-195.0	1.16	-0.11	
5,068.0	1.90	190.90	5,042.5	193.3	383.4	-193.3	3.46	-0.53	
5,162.0	2.10	178.60	5,136.4	190.1	383.2	-190.1	0.50	0.21	
5,257.0	1.40	211.90	5,231.4	187.3	382.6	-187.3	1.27	-0.74	
5,351.0	1.70	210.20	5,325.3	185.2	381.3	-185.2	0.32	0.32	
5,445.0	0.70	267.80	5,419.3	183.9	380.0	-183.9	1.54	-1.06	
5,540.0	1.70	310.90	5,514.3	184.8	378.4	-184.8	1.35	1.05	
5,634.0	0.50	52.70	5,608.3	186.0	377.7	-186.0	1.99	-1.28	
5,729.0	0.20	67.30	5,703.3	186.3	378.2	-186.3	0.33	-0.32	
5,823.0	1.80	30.80	5,797.3	187.6	379.1	-187.6	1.75	1.70	
5,918.0	1.50	30.40	5,892.2	190.0	380.5	-190.0	0.32	-0.32	
6,012.0	0.90	14.00	5,986.2	191.8	381.3	-191.8	0.73	-0.64	
6,106.0	1.10	14.20	6,080.2	193.4	381.7	-193.4	0.21	0.21	
6,201.0	0.90	351.30	6,175.2	195.0	381.8	-195.0	0.47	-0.21	
6,296.0	0.80	357.20	6,270.2	196.4	381.6	-196.4	0.14	-0.11	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Devore 1F-34H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Site:</b>	S34-T3N-R66W (Devore)	<b>MD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Well:</b>	Devore 1F-34H	<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
6,390.0	1.00	3.40	6,364.1	197.9	381.6	-197.9	0.24	0.21	
6,485.0	1.10	355.60	6,459.1	199.6	381.6	-199.6	0.18	0.11	
6,579.0	0.70	258.00	6,553.1	200.4	381.0	-200.4	1.47	-0.43	
6,674.0	0.70	253.80	6,648.1	200.1	379.9	-200.1	0.05	0.00	
6,737.0	1.30	184.00	6,711.1	199.3	379.4	-199.3	1.98	0.95	
6,768.0	4.10	183.00	6,742.1	197.8	379.4	-197.8	9.03	9.03	
6,799.0	8.70	181.60	6,772.9	194.4	379.2	-194.4	14.85	14.84	
6,831.0	10.90	179.20	6,804.4	188.9	379.2	-188.9	6.99	6.87	
6,862.0	14.20	178.00	6,834.6	182.2	379.4	-182.2	10.68	10.65	
6,894.0	17.20	177.80	6,865.5	173.5	379.7	-173.5	9.38	9.37	
6,925.0	20.50	175.00	6,894.8	163.5	380.3	-163.5	11.03	10.65	
6,957.0	22.50	176.90	6,924.6	151.9	381.2	-151.9	6.62	6.25	
6,988.0	25.60	178.90	6,952.9	139.2	381.6	-139.2	10.34	10.00	
7,020.0	28.60	182.00	6,981.3	124.7	381.5	-124.7	10.36	9.37	
7,051.0	28.70	183.20	7,008.6	109.8	380.8	-109.8	1.88	0.32	
7,083.0	31.80	184.30	7,036.2	93.7	379.7	-93.7	9.84	9.69	
7,114.0	36.30	184.30	7,061.9	76.4	378.4	-76.4	14.52	14.52	
7,145.0	40.80	182.30	7,086.1	57.1	377.4	-57.1	15.06	14.52	
7,177.0	46.00	180.20	7,109.4	35.2	376.9	-35.2	16.86	16.25	
7,208.0	49.70	178.50	7,130.2	12.2	377.2	-12.2	12.61	11.94	
7,240.0	51.80	176.60	7,150.4	-12.6	378.2	12.6	8.01	6.56	
7,271.0	55.30	176.40	7,168.8	-37.4	379.8	37.4	11.30	11.29	
7,303.0	57.90	176.40	7,186.4	-64.1	381.4	64.1	8.12	8.12	
7,334.0	61.50	177.30	7,202.1	-90.8	382.9	90.8	11.88	11.61	
7,366.0	64.70	178.70	7,216.5	-119.3	383.9	119.3	10.73	10.00	
7,397.0	68.90	179.30	7,228.8	-147.8	384.4	147.8	13.66	13.55	
7,428.0	73.10	179.40	7,238.8	-177.1	384.7	177.1	13.55	13.55	
7,460.0	78.20	179.60	7,246.8	-208.1	385.0	208.1	15.95	15.94	
7,491.0	81.60	180.50	7,252.2	-238.6	385.0	238.6	11.33	10.97	
7,523.0	83.70	181.10	7,256.3	-270.4	384.5	270.4	6.82	6.56	
7,554.0	86.00	181.60	7,259.1	-301.2	383.8	301.2	7.59	7.42	
7,637.0	88.20	181.20	7,263.3	-384.1	381.8	384.1	2.69	2.65	
7,731.0	88.40	181.00	7,266.1	-478.0	380.0	478.0	0.30	0.21	
7,826.0	87.40	180.80	7,269.6	-573.0	378.5	573.0	1.07	-1.05	
7,920.0	88.40	179.80	7,273.0	-666.9	378.0	666.9	1.50	1.06	
8,015.0	89.80	179.70	7,274.5	-761.9	378.4	761.9	1.48	1.47	
8,109.0	90.00	179.00	7,274.7	-855.9	379.5	855.9	0.77	0.21	
8,204.0	90.00	178.10	7,274.7	-950.8	381.9	950.8	0.95	0.00	
8,298.0	91.60	178.50	7,273.3	-1,044.8	384.6	1,044.8	1.75	1.70	
8,393.0	92.00	178.60	7,270.4	-1,139.7	387.0	1,139.7	0.43	0.42	
8,487.0	91.00	180.80	7,267.9	-1,233.7	387.5	1,233.7	2.57	-1.06	
8,582.0	89.80	179.80	7,267.2	-1,328.7	387.0	1,328.7	1.64	-1.26	
8,676.0	89.10	179.20	7,268.1	-1,422.6	387.9	1,422.6	0.98	-0.74	
8,770.0	90.30	179.80	7,268.6	-1,516.6	388.7	1,516.6	1.43	1.28	
8,865.0	90.60	181.50	7,267.9	-1,611.6	387.6	1,611.6	1.82	0.32	
8,960.0	90.20	183.00	7,267.2	-1,706.5	383.9	1,706.5	1.63	-0.42	
9,055.0	89.80	182.70	7,267.2	-1,801.4	379.2	1,801.4	0.53	-0.42	
9,149.0	89.80	182.70	7,267.5	-1,895.3	374.7	1,895.3	0.00	0.00	
9,243.0	88.00	180.90	7,269.4	-1,989.3	371.8	1,989.3	2.71	-1.91	
9,338.0	88.20	180.30	7,272.5	-2,084.2	370.8	2,084.2	0.67	0.21	
9,432.0	87.60	179.90	7,275.9	-2,178.1	370.6	2,178.1	0.77	-0.64	
9,526.0	88.50	178.30	7,279.1	-2,272.1	372.1	2,272.1	1.95	0.96	
9,621.0	89.80	179.00	7,280.6	-2,367.0	374.3	2,367.0	1.55	1.37	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Devore 1F-34H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Site:</b>	S34-T3N-R66W (Devore)	<b>MD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Well:</b>	Devore 1F-34H	<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
9,715.0	90.60	179.20	7,280.2	-2,461.0	375.8	2,461.0	0.88	0.85	
9,809.0	91.40	180.50	7,278.6	-2,555.0	376.0	2,555.0	1.62	0.85	
9,904.0	88.60	178.50	7,278.6	-2,650.0	376.9	2,650.0	3.62	-2.95	
9,998.0	88.70	178.00	7,280.8	-2,743.9	379.7	2,743.9	0.54	0.11	
10,093.0	89.40	177.70	7,282.4	-2,838.8	383.3	2,838.8	0.80	0.74	
10,187.0	91.00	178.00	7,282.0	-2,932.8	386.8	2,932.8	1.73	1.70	
10,282.0	91.30	177.60	7,280.1	-3,027.7	390.5	3,027.7	0.53	0.32	
10,376.0	90.80	176.90	7,278.4	-3,121.5	395.0	3,121.5	0.92	-0.53	
10,470.0	91.30	176.10	7,276.7	-3,215.3	400.7	3,215.3	1.00	0.53	
10,565.0	91.20	175.70	7,274.6	-3,310.1	407.5	3,310.1	0.43	-0.11	
10,659.0	88.70	175.40	7,274.7	-3,403.8	414.8	3,403.8	2.68	-2.66	
10,754.0	88.60	175.00	7,276.9	-3,498.4	422.8	3,498.4	0.43	-0.11	
10,849.0	88.50	175.20	7,279.3	-3,593.1	430.9	3,593.1	0.24	-0.11	
10,943.0	88.20	174.60	7,282.1	-3,686.6	439.2	3,686.6	0.71	-0.32	
11,038.0	89.30	175.90	7,284.1	-3,781.3	447.1	3,781.3	1.79	1.16	
11,132.0	89.50	175.40	7,285.1	-3,875.0	454.2	3,875.0	0.57	0.21	
11,226.0	89.40	174.90	7,286.0	-3,968.7	462.2	3,968.7	0.54	-0.11	
11,321.0	90.30	174.30	7,286.3	-4,063.2	471.1	4,063.2	1.14	0.95	
11,415.0	91.30	173.70	7,284.9	-4,156.7	480.9	4,156.7	1.24	1.06	
11,509.0	90.80	173.40	7,283.2	-4,250.1	491.5	4,250.1	0.62	-0.53	
11,604.0	90.20	172.60	7,282.4	-4,344.4	503.1	4,344.4	1.05	-0.63	
11,698.0	90.20	172.50	7,282.1	-4,437.6	515.3	4,437.6	0.11	0.00	
11,736.0	89.80	171.50	7,282.1	-4,475.2	520.5	4,475.2	2.83	-1.05	Last Cathedral Survey @ 11,736' MD
11,791.0	89.80	171.50	7,282.3	-4,529.6	528.7	4,529.6	0.00	0.00	Projection to Bit @ 11,791'

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Devore 1F-34H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Site:</b>	S34-T3N-R66W (Devore)	<b>MD Reference:</b>	KB @ 4992.0ft (Patterson 272)
<b>Well:</b>	Devore 1F-34H	<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

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									
Devore 1F-34H TGT P3	0.00	0.00	7,270.0	-2,801.4	377.4	1,309,481.80	3,207,565.33	40.180530	-104.757149
- actual wellpath misses target center by 12.7ft at 10055.2ft MD (7281.9 TVD, -2801.0 N, 381.8 E)									
- Point									
Devore 1F-34H PBHL	0.00	0.00	7,192.0	-4,560.8	522.5	1,307,723.68	3,207,725.21	40.175700	-104.756630
- actual wellpath misses target center by 95.7ft at 11791.0ft MD (7282.3 TVD, -4529.6 N, 528.7 E)									
- Point									
Devore 1F-34H TGT	0.00	0.00	7,192.0	-2,801.4	377.4	1,309,481.80	3,207,565.33	40.180530	-104.757149
- actual wellpath misses target center by 90.0ft at 10053.9ft MD (7281.9 TVD, -2799.7 N, 381.8 E)									
- Point									
Devore 1F-34H PBHL P:	0.00	0.00	7,270.0	-4,560.8	522.5	1,307,723.68	3,207,725.21	40.175700	-104.756630
- actual wellpath misses target center by 34.0ft at 11791.0ft MD (7282.3 TVD, -4529.6 N, 528.7 E)									
- Point									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)	Comment	
11,736.0	7,282.1	-4,475.2	520.5	Last Cathedral Survey @ 11,736' MD	
11,791.0	7,282.3	-4,529.6	528.7	Projection to Bit @ 11,791'	

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