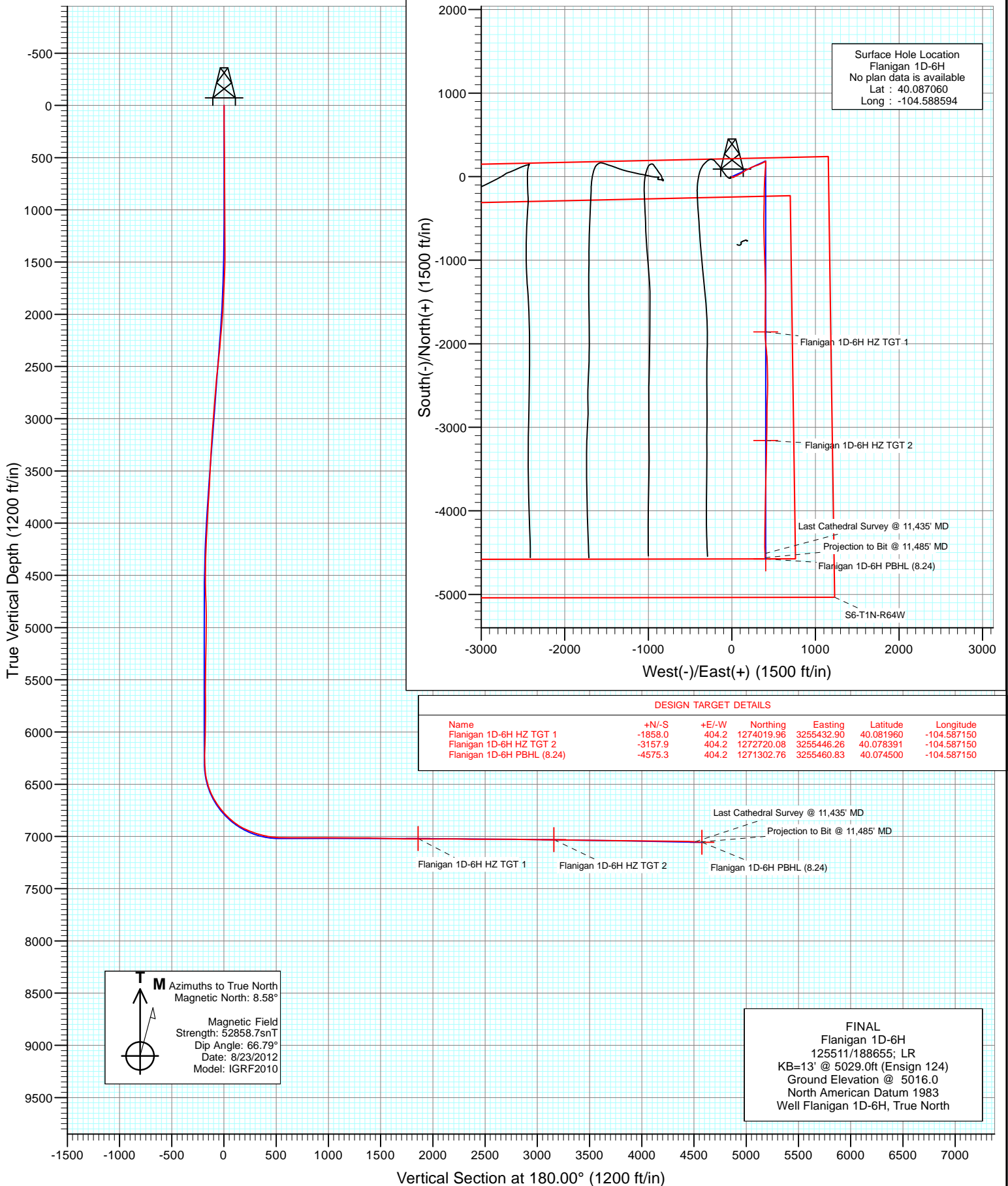


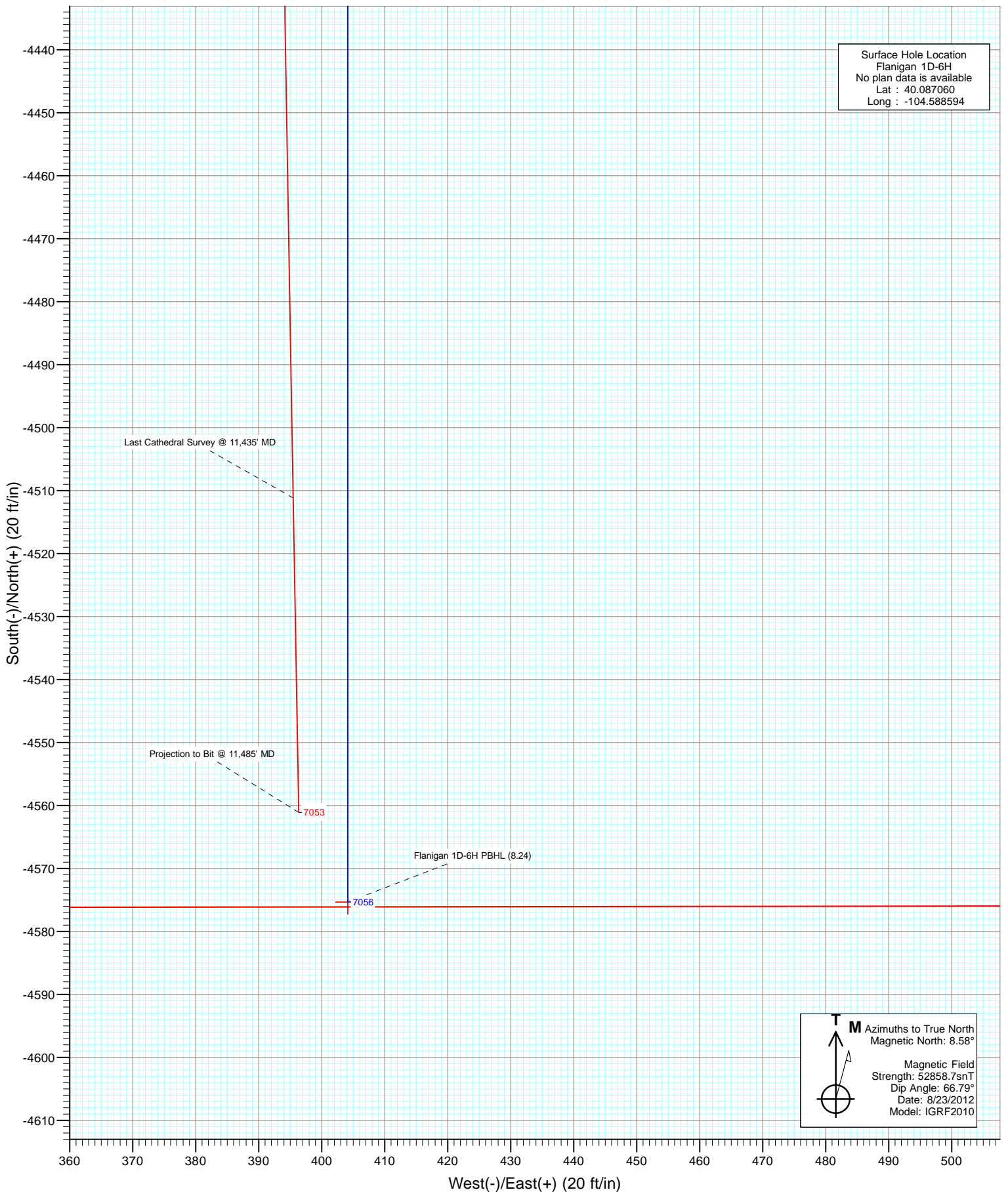


Project: DJ Wattenberg  
 Site: NWNE S6-T1N-R64W (Flanigan)  
 Well: Flanigan 1D-6H  
 Wellbore: HZ  
 Design: FINAL





Project: DJ Wattenberg  
Site: NWN S6-T1N-R64W (Flanigan)  
Well: Flanigan 1D-6H  
Wellbore: HZ  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1D-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1D-6H	<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		NWNE S6-T1N-R64W (Flanigan)			
Site Position:		Northing:	1,275,832.11 ft	Latitude:	40.086970
From:	Lat/Long	Easting:	3,254,152.25 ft	Longitude:	-104.591660
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.59 °

Well	Flanigan 1D-6H					
Well Position	+N/-S	0.0 ft	Northing:	1,275,873.69 ft	Latitude:	40.087060
	+E/-W	0.0 ft	Easting:	3,255,009.67 ft	Longitude:	-104.588594
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,016.0 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	8/23/2012	8.58	66.79	52,859

<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>	9/18/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
110.0	11,485.0	Survey #1 (HZ)	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		
110.0	0.40	162.20	110.0	-0.4	0.1	0.4	0.36	0.36		
172.0	0.70	141.10	172.0	-0.9	0.4	0.9	0.58	0.48		
265.0	1.00	135.40	265.0	-1.9	1.3	1.9	0.33	0.32		
358.0	1.00	126.80	358.0	-3.0	2.6	3.0	0.16	0.00		
451.0	0.70	124.90	451.0	-3.8	3.7	3.8	0.32	-0.32		
544.0	1.00	123.50	544.0	-4.5	4.8	4.5	0.32	0.32		
637.0	0.70	114.00	636.9	-5.2	6.0	5.2	0.36	-0.32		
730.0	0.70	106.80	729.9	-5.6	7.1	5.6	0.09	0.00		
823.0	0.90	114.90	822.9	-6.1	8.3	6.1	0.25	0.22		
916.0	0.80	110.30	915.9	-6.6	9.6	6.6	0.13	-0.11		
1,009.0	0.80	107.60	1,008.9	-7.0	10.8	7.0	0.04	0.00		
1,102.0	0.70	121.50	1,101.9	-7.5	11.9	7.5	0.22	-0.11		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1D-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1D-6H	<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
1,195.0	0.70	116.60	1,194.9	-8.1	12.9	8.1	0.06	0.00	
1,284.0	0.50	132.10	1,283.9	-8.6	13.7	8.6	0.29	-0.22	
1,379.0	0.20	163.10	1,378.9	-9.0	14.0	9.0	0.36	-0.32	
1,472.0	2.00	65.20	1,471.9	-8.5	15.5	8.5	2.19	1.94	
1,567.0	4.10	68.50	1,566.7	-6.6	20.2	6.6	2.22	2.21	
1,663.0	4.90	63.00	1,662.4	-3.4	27.0	3.4	0.95	0.83	
1,758.0	5.40	63.00	1,757.0	0.4	34.6	-0.4	0.53	0.53	
1,853.0	6.90	65.00	1,851.5	4.9	43.8	-4.9	1.59	1.58	
1,948.0	8.70	62.30	1,945.6	10.6	55.3	-10.6	1.93	1.89	
2,043.0	9.70	62.70	2,039.4	17.6	68.8	-17.6	1.05	1.05	
2,138.0	9.40	61.60	2,133.1	25.0	82.7	-25.0	0.37	-0.32	
2,233.0	10.50	64.00	2,226.6	32.5	97.4	-32.5	1.24	1.16	
2,328.0	10.50	60.60	2,320.1	40.5	112.7	-40.5	0.65	0.00	
2,423.0	11.20	57.30	2,413.4	49.8	128.0	-49.8	0.98	0.74	
2,518.0	10.20	53.00	2,506.7	59.8	142.5	-59.8	1.35	-1.05	
2,613.0	10.10	52.40	2,600.2	70.0	155.8	-70.0	0.15	-0.11	
2,708.0	9.50	58.50	2,693.8	79.1	169.1	-79.1	1.26	-0.63	
2,803.0	9.30	67.00	2,787.6	86.2	182.8	-86.2	1.48	-0.21	
2,898.0	10.10	66.60	2,881.2	92.5	197.5	-92.5	0.85	0.84	
2,993.0	10.90	66.20	2,974.6	99.5	213.4	-99.5	0.85	0.84	
3,089.0	10.20	63.30	3,069.0	107.0	229.3	-107.0	0.91	-0.73	
3,184.0	10.00	64.50	3,162.5	114.3	244.2	-114.3	0.31	-0.21	
3,279.0	8.50	64.90	3,256.3	120.8	258.0	-120.8	1.58	-1.58	
3,374.0	8.40	71.90	3,350.3	125.9	271.0	-125.9	1.09	-0.11	
3,469.0	8.40	71.10	3,444.2	130.4	284.2	-130.4	0.12	0.00	
3,564.0	8.80	74.40	3,538.2	134.6	297.7	-134.6	0.67	0.42	
3,659.0	8.70	72.70	3,632.1	138.6	311.6	-138.6	0.29	-0.11	
3,754.0	9.50	65.30	3,725.9	144.1	325.6	-144.1	1.49	0.84	
3,849.0	8.40	64.00	3,819.7	150.4	338.9	-150.4	1.18	-1.16	
3,945.0	7.90	63.10	3,914.7	156.4	351.1	-156.4	0.54	-0.52	
4,039.0	6.40	61.80	4,008.0	161.8	361.5	-161.8	1.60	-1.60	
4,135.0	5.80	65.70	4,103.5	166.4	370.6	-166.4	0.76	-0.62	
4,230.0	5.80	65.20	4,198.0	170.3	379.4	-170.3	0.05	0.00	
4,325.0	5.60	68.00	4,292.5	174.1	388.0	-174.1	0.36	-0.21	
4,420.0	4.40	78.00	4,387.1	176.6	395.9	-176.6	1.56	-1.26	
4,515.0	2.50	78.50	4,482.0	177.8	401.5	-177.8	2.00	-2.00	
4,610.0	1.30	110.60	4,576.9	177.8	404.5	-177.8	1.64	-1.26	
4,705.0	2.20	169.30	4,671.9	175.6	405.9	-175.6	1.99	0.95	
4,800.0	1.30	181.10	4,766.8	172.8	406.2	-172.8	1.02	-0.95	
4,895.0	0.90	202.40	4,861.8	171.0	405.9	-171.0	0.60	-0.42	
4,990.0	0.80	273.70	4,956.8	170.3	404.9	-170.3	1.05	-0.11	
5,086.0	1.10	298.70	5,052.8	170.8	403.5	-170.8	0.53	0.31	
5,181.0	1.40	312.70	5,147.8	172.1	401.8	-172.1	0.45	0.32	
5,276.0	1.30	19.40	5,242.7	173.9	401.3	-173.9	1.56	-0.11	
5,371.0	1.20	20.30	5,337.7	175.8	402.0	-175.8	0.11	-0.11	
5,466.0	0.70	28.70	5,432.7	177.2	402.6	-177.2	0.54	-0.53	
5,561.0	0.40	298.00	5,527.7	177.9	402.6	-177.9	0.85	-0.32	
5,656.0	0.60	229.40	5,622.7	177.7	401.9	-177.7	0.62	0.21	
5,752.0	1.00	221.10	5,718.7	176.8	401.0	-176.8	0.43	0.42	
5,846.0	1.10	317.80	5,812.7	176.8	399.9	-176.8	1.67	0.11	
5,941.0	1.20	335.00	5,907.7	178.4	398.8	-178.4	0.38	0.11	
6,036.0	1.30	349.50	6,002.6	180.4	398.2	-180.4	0.35	0.11	
6,132.0	1.00	341.00	6,098.6	182.2	397.7	-182.2	0.36	-0.31	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1D-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1D-6H	<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
6,227.0	1.00	335.40	6,193.6	183.8	397.1	-183.8	0.10	0.00	
6,258.0	1.10	339.70	6,224.6	184.3	396.9	-184.3	0.41	0.32	
6,290.0	1.10	341.20	6,256.6	184.9	396.7	-184.9	0.09	0.00	
6,322.0	0.50	71.90	6,288.6	185.2	396.7	-185.2	3.79	-1.87	
6,354.0	2.70	139.60	6,320.6	184.7	397.4	-184.7	7.98	6.87	
6,385.0	5.30	152.50	6,351.5	182.9	398.5	-182.9	8.82	8.39	
6,417.0	7.70	158.20	6,383.3	179.6	400.0	-179.6	7.76	7.50	
6,449.0	10.30	162.80	6,414.9	174.8	401.6	-174.8	8.42	8.12	
6,481.0	12.50	167.70	6,446.3	168.7	403.2	-168.7	7.51	6.87	
6,512.0	14.50	172.90	6,476.4	161.6	404.4	-161.6	7.54	6.45	
6,544.0	16.50	179.90	6,507.3	153.1	404.9	-153.1	8.55	6.25	
6,576.0	19.00	183.00	6,537.7	143.3	404.6	-143.3	8.35	7.81	
6,607.0	21.70	183.90	6,566.8	132.6	404.0	-132.6	8.77	8.71	
6,639.0	24.70	184.60	6,596.2	120.0	403.0	-120.0	9.41	9.37	
6,670.0	27.70	184.20	6,624.0	106.3	402.0	-106.3	9.69	9.68	
6,702.0	30.40	183.50	6,652.0	90.8	401.0	-90.8	8.50	8.44	
6,733.0	33.80	182.90	6,678.2	74.4	400.0	-74.4	11.02	10.97	
6,765.0	36.60	183.90	6,704.4	56.0	398.9	-56.0	8.93	8.75	
6,796.0	37.60	185.20	6,729.1	37.3	397.5	-37.3	4.10	3.23	
6,828.0	39.90	185.10	6,754.1	17.4	395.7	-17.4	7.19	7.19	
6,860.0	42.50	184.30	6,778.1	-3.6	393.9	3.6	8.29	8.12	
6,892.0	45.00	183.90	6,801.3	-25.7	392.4	25.7	7.86	7.81	
6,923.0	46.90	183.50	6,822.8	-47.9	390.9	47.9	6.20	6.13	
6,955.0	49.10	183.30	6,844.2	-71.7	389.5	71.7	6.89	6.87	
6,986.0	51.90	181.50	6,863.9	-95.5	388.5	95.5	10.08	9.03	
7,018.0	54.90	180.40	6,883.0	-121.2	388.1	121.2	9.77	9.37	
7,050.0	58.20	180.30	6,900.6	-147.9	387.9	147.9	10.32	10.31	
7,081.0	61.80	180.90	6,916.1	-174.8	387.7	174.8	11.73	11.61	
7,113.0	64.90	181.20	6,930.5	-203.4	387.1	203.4	9.72	9.69	
7,145.0	67.50	181.00	6,943.4	-232.6	386.6	232.6	8.15	8.12	
7,176.0	69.40	181.00	6,954.8	-261.5	386.1	261.5	6.13	6.13	
7,208.0	70.90	180.10	6,965.7	-291.6	385.8	291.6	5.38	4.69	
7,240.0	72.80	180.30	6,975.6	-322.0	385.7	322.0	5.97	5.94	
7,272.0	75.10	181.00	6,984.5	-352.7	385.3	352.7	7.49	7.19	
7,303.0	77.10	181.80	6,991.9	-382.8	384.6	382.8	6.92	6.45	
7,335.0	79.60	181.40	6,998.4	-414.1	383.7	414.1	7.91	7.81	
7,367.0	81.90	181.30	7,003.5	-445.7	383.0	445.7	7.19	7.19	
7,398.0	84.30	180.80	7,007.3	-476.5	382.4	476.5	7.91	7.74	
7,430.0	86.00	180.20	7,010.0	-508.3	382.1	508.3	5.63	5.31	
7,462.0	88.20	180.20	7,011.6	-540.3	382.0	540.3	6.87	6.87	
7,478.0	88.90	179.90	7,012.0	-556.3	382.0	556.3	4.76	4.37	
7,558.0	89.80	178.80	7,012.9	-636.3	382.9	636.3	1.78	1.12	
7,621.0	89.70	179.30	7,013.2	-699.3	383.9	699.3	0.81	-0.16	
7,684.0	89.80	178.20	7,013.4	-762.3	385.3	762.3	1.75	0.16	
7,748.0	91.70	178.40	7,012.6	-826.2	387.2	826.2	2.99	2.97	
7,811.0	89.50	177.40	7,011.9	-889.2	389.5	889.2	3.84	-3.49	
7,874.0	89.40	177.80	7,012.5	-952.1	392.2	952.1	0.65	-0.16	
7,938.0	89.20	178.30	7,013.3	-1,016.1	394.3	1,016.1	0.84	-0.31	
8,001.0	90.00	179.20	7,013.8	-1,079.0	395.7	1,079.0	1.91	1.27	
8,064.0	90.00	179.00	7,013.8	-1,142.0	396.7	1,142.0	0.32	0.00	
8,127.0	88.90	178.00	7,014.4	-1,205.0	398.4	1,205.0	2.36	-1.75	
8,190.0	89.80	178.40	7,015.1	-1,268.0	400.3	1,268.0	1.56	1.43	
8,254.0	90.20	179.80	7,015.1	-1,332.0	401.3	1,332.0	2.28	0.62	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1D-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1D-6H	<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
8,317.0	89.50	180.30	7,015.3	-1,395.0	401.3	1,395.0	1.37	-1.11	
8,380.0	88.10	180.30	7,016.6	-1,458.0	401.0	1,458.0	2.22	-2.22	
8,444.0	87.70	180.70	7,018.9	-1,521.9	400.4	1,521.9	0.88	-0.62	
8,507.0	88.00	180.40	7,021.3	-1,584.9	399.8	1,584.9	0.67	0.48	
8,570.0	89.70	180.70	7,022.5	-1,647.8	399.2	1,647.8	2.74	2.70	
8,634.0	89.90	180.10	7,022.8	-1,711.8	398.7	1,711.8	0.99	0.31	
8,697.0	89.20	180.70	7,023.3	-1,774.8	398.3	1,774.8	1.46	-1.11	
8,760.0	89.50	180.20	7,024.0	-1,837.8	397.8	1,837.8	0.93	0.48	
8,780.2	89.75	179.73	7,024.1	-1,858.0	397.8	1,858.0	2.66	1.25	Flanigan 1D-6H HZ TGT 1
8,824.0	90.30	178.70	7,024.1	-1,901.8	398.4	1,901.8	2.66	1.25	
8,887.0	89.70	175.30	7,024.1	-1,964.7	401.7	1,964.7	5.48	-0.95	
8,950.0	90.30	173.60	7,024.1	-2,027.4	407.8	2,027.4	2.86	0.95	
9,014.0	90.30	174.80	7,023.8	-2,091.1	414.3	2,091.1	1.87	0.00	
9,077.0	89.80	176.10	7,023.7	-2,153.9	419.3	2,153.9	2.21	-0.79	
9,141.0	90.20	178.00	7,023.7	-2,217.8	422.6	2,217.8	3.03	0.62	
9,204.0	88.50	179.20	7,024.4	-2,280.8	424.1	2,280.8	3.30	-2.70	
9,267.0	88.70	178.20	7,026.0	-2,343.7	425.5	2,343.7	1.62	0.32	
9,331.0	89.60	179.40	7,026.9	-2,407.7	426.9	2,407.7	2.34	1.41	
9,394.0	89.80	180.50	7,027.2	-2,470.7	426.9	2,470.7	1.77	0.32	
9,458.0	90.20	180.50	7,027.2	-2,534.7	426.4	2,534.7	0.62	0.62	
9,521.0	89.90	181.30	7,027.2	-2,597.7	425.4	2,597.7	1.36	-0.48	
9,584.0	90.10	182.00	7,027.2	-2,660.7	423.6	2,660.7	1.16	0.32	
9,648.0	90.10	181.90	7,027.1	-2,724.6	421.4	2,724.6	0.16	0.00	
9,711.0	89.10	181.20	7,027.5	-2,787.6	419.7	2,787.6	1.94	-1.59	
9,775.0	88.70	180.20	7,028.7	-2,851.6	418.9	2,851.6	1.68	-0.62	
9,838.0	89.50	180.30	7,029.7	-2,914.6	418.6	2,914.6	1.28	1.27	
9,901.0	88.90	180.60	7,030.6	-2,977.6	418.1	2,977.6	1.06	-0.95	
9,965.0	89.30	180.60	7,031.6	-3,041.6	417.5	3,041.6	0.62	0.62	
10,028.0	89.00	181.00	7,032.5	-3,104.6	416.6	3,104.6	0.79	-0.48	
10,081.6	89.17	181.00	7,033.4	-3,158.1	415.7	3,158.1	0.31	0.31	Flanigan 1D-6H HZ TGT 2
10,092.0	89.20	181.00	7,033.5	-3,168.5	415.5	3,168.5	0.31	0.31	
10,155.0	90.10	181.40	7,033.9	-3,231.5	414.2	3,231.5	1.56	1.43	
10,218.0	90.10	181.10	7,033.8	-3,294.5	412.8	3,294.5	0.48	0.00	
10,282.0	89.70	181.50	7,033.9	-3,358.5	411.3	3,358.5	0.88	-0.62	
10,345.0	89.10	180.50	7,034.6	-3,421.5	410.2	3,421.5	1.85	-0.95	
10,408.0	89.00	180.70	7,035.6	-3,484.5	409.6	3,484.5	0.35	-0.16	
10,472.0	88.50	180.80	7,037.0	-3,548.5	408.7	3,548.5	0.80	-0.78	
10,535.0	89.50	181.30	7,038.1	-3,611.4	407.6	3,611.4	1.77	1.59	
10,599.0	89.40	181.50	7,038.7	-3,675.4	406.0	3,675.4	0.35	-0.16	
10,662.0	88.80	181.40	7,039.7	-3,738.4	404.4	3,738.4	0.97	-0.95	
10,726.0	88.70	181.20	7,041.1	-3,802.3	403.0	3,802.3	0.35	-0.16	
10,789.0	89.70	181.40	7,042.0	-3,865.3	401.5	3,865.3	1.62	1.59	
10,852.0	89.90	181.90	7,042.2	-3,928.3	399.7	3,928.3	0.85	0.32	
10,915.0	89.40	180.70	7,042.6	-3,991.3	398.3	3,991.3	2.06	-0.79	
10,979.0	88.70	180.80	7,043.7	-4,055.3	397.5	4,055.3	1.10	-1.09	
11,042.0	89.20	181.10	7,044.8	-4,118.2	396.4	4,118.2	0.93	0.79	
11,105.0	90.00	181.00	7,045.3	-4,181.2	395.3	4,181.2	1.28	1.27	
11,169.0	89.80	180.50	7,045.4	-4,245.2	394.4	4,245.2	0.84	-0.31	
11,232.0	89.50	180.20	7,045.8	-4,308.2	394.0	4,308.2	0.67	-0.48	
11,296.0	89.20	180.10	7,046.5	-4,372.2	393.9	4,372.2	0.49	-0.47	
11,359.0	88.40	179.30	7,047.8	-4,435.2	394.2	4,435.2	1.80	-1.27	
11,422.0	87.70	178.80	7,050.0	-4,498.2	395.2	4,498.2	1.37	-1.11	
11,435.0	87.40	179.00	7,050.5	-4,511.1	395.5	4,511.1	2.77	-2.31	Last Cathedral Survey @ 11,435' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1D-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5029.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1D-6H	<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
11,485.0	87.40	179.00	7,052.8	-4,561.1	396.4	4,561.1	0.00	0.00	Projection to Bit @ 11,485' MD - Flanigan 1D-6H

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Flanigan 1D-6H PBHL (ξ - hit/miss target - Shape	0.00	0.00	7,055.6	-4,575.3	404.2	1,271,302.76	3,255,460.83	40.074500	-104.587150
- actual wellpath misses target center by 16.5ft at 11485.0ft MD (7052.8 TVD, -4561.1 N, 396.4 E)									
- Point									
Flanigan 1D-6H HZ TGT	0.00	0.00	7,020.0	-1,858.0	404.2	1,274,019.96	3,255,432.90	40.081960	-104.587150
- actual wellpath misses target center by 7.6ft at 8780.1ft MD (7024.1 TVD, -1858.0 N, 397.8 E)									
- Point									
Flanigan 1D-6H PBHL (c	0.00	0.00	7,005.0	-4,575.3	404.2	1,271,302.76	3,255,460.83	40.074500	-104.587150
- actual wellpath misses target center by 50.5ft at 11485.0ft MD (7052.8 TVD, -4561.1 N, 396.4 E)									
- Point									
Flanigan 1D-6H LP	0.00	0.00	6,990.0	-365.3	404.2	1,275,512.56	3,255,417.56	40.086057	-104.587150
- actual wellpath misses target center by 19.2ft at 7285.1ft MD (6987.8 TVD, -365.4 N, 385.1 E)									
- Point									
Flanigan 1D-6H PBHL	0.00	0.00	7,005.0	-4,575.3	404.2	1,271,302.76	3,255,460.83	40.074500	-104.587150
- actual wellpath misses target center by 50.5ft at 11485.0ft MD (7052.8 TVD, -4561.1 N, 396.4 E)									
- Point									
Flanigan 1D-6H PBHL (€	0.00	0.00	7,026.7	-4,575.3	404.2	1,271,302.76	3,255,460.83	40.074500	-104.587150
- actual wellpath misses target center by 30.7ft at 11485.0ft MD (7052.8 TVD, -4561.1 N, 396.4 E)									
- Point									
Flanigan 1D-6H LP (cop	0.00	0.00	6,990.0	-365.3	404.2	1,275,512.56	3,255,417.56	40.086057	-104.587150
- actual wellpath misses target center by 19.2ft at 7285.1ft MD (6987.8 TVD, -365.4 N, 385.1 E)									
- Point									
Flanigan 1D-6H HZ TGT	0.00	0.00	7,031.1	-3,157.9	404.2	1,272,720.08	3,255,446.26	40.078391	-104.587150
- actual wellpath misses target center by 11.7ft at 10081.6ft MD (7033.4 TVD, -3158.1 N, 415.7 E)									
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,435.0	7,050.5	-4,511.1	395.5	Last Cathedral Survey @ 11,435' MD
11,485.0	7,052.8	-4,561.1	396.4	Projection to Bit @ 11,485' MD

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