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21 July 2008

Chris Padfield, Director
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Natural Resources Canada
Ottawa, Ontario K1A 0E4

Dear Mr. Padfield:

This letter is in reference to your letter of 1 August 2007, written to Mr. Charles Demond of the Pubnico Point Wind Farm in Lower West Pubnico, Nova Scotia, and the ensuing report entitled NOISE ASSESSMENT OF IMPLEMENTED MITIGATION - PUBNICO POINT WIND FARM, NOVA SCOTIA. This report, dated 15 November 2007, was authored by HGC Engineering of Mississauga, Ontario. Your letter relates to mitigation measures at the Wind Farm, to control noise emanating from the turbines. I agree completely with the content of your letter, and especially with your statement "Natural Resources Canada (NRCan) does not accept your contention that no monitoring of the mitigation measure is necessary. Without monitoring it will be impossible to verify the effectiveness of the mitigation." The contents of this letter will verify that statement.

I have invested a significant amount of time in reviewing the above-noted HGC report, especially the 25 pages of data in Appendix B: Wind Speed and Sound Level Data Recorded (West Pubnico). This review involved assessing about 6,732 figures representing the dates, times, intensity in Leq, and wind speed at an elevation of 10 metres. Each intensity measurement (Leq) in the HGC report reflects a ten-minute period, resulting in a period of about 11,220 minutes or 187 hours or 7.8 days. I have analyzed the data utilizing four different maximum sound level guidelines:

1. 40dBA for quiet nighttime hours (19:00 to 07:00) and 45dBA for quiet daytime hours (07:00 to 19:00), according to the Ontario Ministry of the Environment's publications NPC-232 Sound Level Limits for Stationary Sources in Class 3 Areas (Rural); see pages 6 and 7 in the HGC report.
2. Maximum dBA as determined by windspeed measured at 10 metres elevation, based on Interpretation of Applying MOE NPC Technical Publications to Wind Turbine Generators; see page 7, Table 1 - MOE Criteria for Wind Turbines, in the HGC report. This modification of NPC-232 allows more intense noise, in favor of the noise producer.
3. 46dBA. This is the determined noise limit that HGC "indicated in the original Environmental Impact Statement."
4. Maximum dBA as determined by windspeed measured at 10 metres elevation, based on Interpretation of Applying MOE NPC Technical Publications to Wind Turbine Generators combined with the determined 46dBA noted in #2, above; see page 7, Table 2 in the HGC report.

The measurement work completed by HGC appears to be accurately and professionally done, however, I must take exception to some of their interpretations. For example, on page 2, paragraph 3 of their report they state "Under certain wind and atmospheric conditions the sound level impact of the wind turbine generators is above the criterion 1 to 2dBA, a minor amount, which may be considered acceptable." In my opinion, this statement is untrue! For example, the statistics show that when the sound level measurements taken by HGC are analyzed using the criterion in #1, above,

- A. the maximum limit was exceeded 39.9% of the time. This represents excessive values in:
 - i. 448 of the readings, over
 - ii. a period of 74.7 hours,
 - iii. or, a period of 3.11 days.

When the sound level measurements taken by HGC are analyzed using the criterion in #2, above,

- B. the maximum limit was exceeded 36.2% of the time. This represents excessive values in:
 - iv. 406 of the readings, over
 - v. a period of 67.7 hours,
 - vi. or, a period of 2.82 days.

When the sound level measurements taken by HGC are analyzed using the criterion in #3, above,

- C. the maximum limit was exceeded 11.8% of the time. This represents excessive values in:
 - vii. 132 of the readings,
 - viii. a period of 22 hours,
 - ix. or, a period of .92 days.

When the sound level measurements taken by HGC are analyzed using the criterion in #4, above,

- D. the maximum limit was exceeded 8.0% of the time. This represents excessive values in:
 - x. 90 of the readings,
 - xi. a period of 15 hours,
 - xii. or, a period of .63 days.

Further, HGC refers to measurements that are unacceptable according to the guidelines, as "above the criterion 1 to 2dBA, a minor amount, which may be considered acceptable." However, under closer scrutiny the noise level was more than double the allowable amount during its excessive periods by:

- E. 7.4% in criterion #1, above, and
- F. 8.1% in criterion #2, above, and
- G. 25.0% in criterion #3, above, and
- H. 36.7% in criterion #4, above.

It should be noted that science has universally and unquestionably accepted, for more than

half a century, that when noise increases by just 3dB, the amount of sound striking the eardrum has doubled! This concept is enshrined in the threshold limit values (TLVs) that virtually all Canadian Provinces have developed to protect workers from hearing damage from excessive noise in the workplace. When 3dB is double, 1dB or 2dB becomes significant!

The HGC report states, on page 2, paragraph 3 "In conclusion, the sound of the wind turbine generators generally meets the established criteria derived from the guidelines of the Ontario Ministry of the Environment and the limit of 46dBA indicated in the original Environmental Impact Statement for this project." In my opinion, this statement is completely untrue! Using the 46dBA guideline (#3 on page 1 of this letter, and section "c" on this page) the noise produced by the wind turbines exceed an acceptable level 11.8% of the time! How can the HGC statement quoted above possibly be true?

There simply is no possible way one can logically conclude that the Pubnico Point Wind Farm is within acceptable noise guidelines. Utilizing any of the 4 guidelines noted on page 1 of this letter shows that the noise levels unquestionably exceed the guideline by 39.9% of the time, or 36.2% of the time, or 11.8% of the time, or 8.0% of the time, depending upon which of the four guidelines one chooses to employ.

An additional caveat is in order, unrelated to noise, but of safety considerations. The home of Mr. Daniel d'Entremont and his family is located 330 metres (about 1,100 feet) from the nearest wind turbine. Numerous reputable sources have documented that large wind turbines have thrown ice, snow, or turbine blade parts which may weigh hundreds to thousands of pounds, in excess of 1,750 feet. The d'Entremont house, and any occupants in it, are potentially at risk of harm, or even death.

This writer firmly supports the expansion of wind generation of electricity. But it must be done in an intelligent manner if it is to avoid complaints or harm, and become widely accepted by the public. I would ask the reader of this letter to give its contents serious consideration. You are sincerely encouraged to contact me if this letter raises any questions or comments. Thank you.

Respectfully yours,

Gordon Whitehead