



May 21, 2020

**VIA ELECTRONIC MAIL**

Ms. Pamela Monroe  
Site Evaluation Committee  
21 South Fruit Street, Suite 10  
Concord, NH 03301

**RE: ACENTECH WINTER 2020 SOUND MONITORING REPORT ANTRIM WIND**

Dear Ms. Monroe:

I am writing in response to Acentech's *Antrim Wind Farm – Post Construction Sound Monitoring Winter 2020* report dated May 12, 2020. My review identified a number of issues with the protocol followed by Acentech that make it impossible to validate whether the project is operating in compliance with NH Site Rule 301.14(f)(2)a.

The following are some of the key failings of Acentech's study:

**Executive Summary:** Acentech states the “project is in compliance with the **1-hour** Leq 40 dBA nighttime project limit.”

**Comment:** There is no reference in NH Site Rule 301.14(f)(2)a that supports a 1-hour Leq timeframe. By NH SEC Rules, all sound measurements during post-construction monitoring shall be taken at 0.125-second intervals measuring both fast response and Leq metrics. Acentech did not provide or report 0.125-second Leq data.

**Section 5.2:** Acentech states it stored 128kbps mp3 files using a portable Zoom H1n audio recording device.

**Comment:** The intent in the ANSI standards and the NH Site rule is to require high quality recording when conducting unattended surveys. The 128kbps mp3 format strips out most of the audio signal resulting in poor quality unsuitable for regulatory assessment. Whereas the Rion NL-52 meters used during the survey are capable of 12kHz 16-bit WAV file recording for the survey duration. Acentech did not qualify an exception to ANSI to justify degrading audio recording quality.

**Section 5.2:** Acentech states it used Rion NL-52 meters at each of the five monitoring sites.

**Comment:** By NH SEC Rules, all sound measurements during post-construction monitoring shall be taken at 0.125-second intervals measuring both fast response and Leq metrics. The standard Rion NL-52 meter does not have the ability to record Leq in less than 1-second intervals.

**Section 6.2:** Acentech excluded data when “the LA10 and LA90 sound levels differed by more than 3 dBA.” In some instances, Acentech allowed a difference of 4 or 6 dBA if too much data was otherwise excluded. Acentech relies on Section 6.5 of ANSI S12.9 2013 (Part 3) for steady sound sources (“Simplified procedure 1 for the accelerated measurement of equivalent-continuous sound pressure level”) as justification for eliminating data at 5 monitoring sites.

**Comment:** The purpose of ANSI S12.9 2013 (Part 3) Section 6.5 is to provide guidance for attended measurement periods where the sound source meets certain criteria. Acentech improperly applied Section 6.5 at Antrim where unattended, long-term monitoring was conducted. Acentech also inaccurately treated wind turbine sound emissions as ‘steady.’ It is well documented by investigator acousticians (including Acentech report author Mr. Bahtarian e.g. measurements of O'Donnell wind turbines in Kingston, MA 2013) that turbines do not produce a steady sound as defined in ANSI S12.9 2013 Section 6.5. Rather, turbines emit quasi-impulsive sounds that can vary some 6 - 9 dBA with each blade pass.

There is no information in the report denoting which hours of data were eliminated under Acentech’s novel ‘3 decibel rule.’ Acentech’s ‘3 decibel rule’ assured that many hours of wind turbine noise were deliberately, and incorrectly eliminated from the sound data collected.

**Section 3.2:** On the night of March 8, 2020 all 9 turbines were shut down for a period of 30 minutes to acquire site background levels.

**Comment:** The data reporting interval (1-hour) is longer than the shutdown (1/2-hour). There is no way to evaluate the changes in noise level during shutdown from the data reported by Acentech.

**Appendix B:** There were over 130 occurrences where the Leq 1-hour sound levels exceeded the L10 for the 5 locations. Forty-five percent of these events occurred at Locations 3, 4 and 5 which are not near Route 9 traffic.

**Comment:** Acentech provides only general, non-specific information about noise sources at sites 3, 4, and 5 and makes no attempt to match notable noise events to the source of the noise.

**Sections 6.3.2 and 6.4.2:** Acentech applied inconsistent methods for determining background levels and inconsistent time periods.

**Comment:** Acentech used a different method for determining background level at Location 1 from the other locations. Acentech used inconsistent time periods in its ‘turbine sound compliance evaluation’ at Location 2.

In addition to the above, Acentech averaged *all data* in the survey in hourly increments including turbine sound levels, turbine power generation, hub-height wind speed and direction, and local (at-microphone) wind speed. Hourly averaging is not supported by the SEC rules and renders any legitimate analysis and validation of Acentech’s conclusions and regulatory compliance impossible.

In order to independently assess whether the Acentech data are of any utility for determining if Antrim Wind is operating in compliance with NH Site Rule 301.14(f)(2)a, I respectfully ask that the following data be made available to me in electronic form as soon as possible:

- 1) All original, unprocessed acoustic and met data collected at each of the 5 locations;
- 2) All original SCADA data (e.g. historian sample archived, "fast log", etc) for the 9 turbines in 1-second increments, including as a minimum: rotor speed; temperature, humidity, wind speed and direction at nacelle; yaw; pitch angle; generator speed, active power, reactive power;
- 3) All original audio recordings, recording settings notes and calibration, and field notes taken at each of the 5 locations.

Thank you in advance for your prompt response to this letter. The Acentech report is flawed and should be rejected by the SEC.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lisa Linowes', with a long horizontal flourish extending to the right.

Lisa Linowes  
for The Windaction Group

cc: Dianne Martin, Chair NH Site Evaluation Committee  
Barbara Berwick  
Janice Longgood  
Stephen E. Ambrose, ASA, INCE Bd.Cert. Emeritus  
Robert W. Rand, Rand Acoustics Member ASA, INCE (Member Emeritus)  
Richard James, E-Coustic Solutions, LLC