

NOISE SOLUTIONS BY GREG ZAK

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P.C. #3

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Illinois Pollution Control Board
J. R. Thompson Center
Suite 11-500
100 West Randolph Street
Chicago, Illinois 60601

RE: NOISE RULE UPDATE: AMENDMENTS TO 35 ILL. ADM. CODE 900 and 903; R03-8

Dear Board Members:

Listed below are my comments to the proposed Noise Rule Amendments:

Section 900.103 Measurement Procedures

b) Procedures Applicable only to 35 Ill. Adm. Code 901

The one-hour L_{eq} is far too long for virtually all situations. The vast majority of noise sources complained about in Illinois when measured by the L_{eq} method produce the same decibel reading whether measured for a minute or two or a full hour. A few examples of noise sources producing the same decibel result whether measured for less than a minute or a full hour are: ventilation fans, air-conditioning chillers, idling heavy trucks, aeration fans at grain handling facilities, fans on nearly all air pollution control devices. Measurements should be made in accordance with American National Standards Institute Quantities and Procedures for Description and Measurement of Environmental Sound, Part 3: Short-term Measurements with an Observer Present. This Standard describes how to measure the noise source of interest and correct for the presence of background sound. We suggest adding S12.9 Part 3 as item E in the list of Standards included with this clause and in 900.105.

The text should read:


- 1) All measurement and all measurement procedures to determine whether emissions of sound comply with 35 Ill. Adm. Code 901 shall with the exception of measurements to determine whether emissions of sound comply with 35 Ill. Adm. Code 901.109, be based on L_{eq} averaging, as defined in 35 Ill. Adm. Code 900.101 using a period of observation that is

commensurate with the variability of the sound in question. If the sound is steady, then a one-minute period of observation is sufficient; if the sound is non-steady, then a longer period of observation may be required until the level measured does not vary by more than plus or minus 0.5 dB. All such measurements and measurements procedures for L_{eq} must correct, or provide for the correction of such emissions, for the presence of ambient or background noise in accordance with the procedures in 35 Ill. Adm. Code 910.

Although not included as amendments, there are other areas that should be reviewed for modification. The measurement procedure currently contained in the Rules for impulsive sound, Section 901.104, require the use of the one-hour L_{eq} . Previous to the Board's adoption of the one hour L_{eq} in 1987, impulsive sound was measured from 1973 to 1987 using fast dynamic characteristic meter response. Fast dynamic characteristic meter response uses an averaging time of 0.125 seconds. Comparing an averaging time of 0.125 seconds (fast dynamic characteristic) to 3600 seconds (one hour L_{eq}) reveals a difference of 28,800 to 1 when comparing the pre-1987 methodology to the post-1987 methodology. The one-hour L_{eq} requirement for impulsive noise has made it impossible to measure due to an extremely long averaging time for a noise event of extremely short duration. The generally accepted way to measure impulsive noise is to utilize sound exposure level (SEL). The averaging time for SEL is one second. Illinois should require the use of SEL just as it used to require fast dynamic characteristic for measuring impulsive sound in Section 901.104.

Another area for consideration is the adjustment for impulsive sound. The Rules currently indicate a 5 dB adjustment for general impulsive sound. Under ANSI S12.9 Part 1, there is a 12 dB adjustment for "highly impulsive" sounds" (which includes gunfire, metal hammering, and wood hammering) and a 5 dB adjustment for "regular impulsive" sounds. For "high energy impulsive" sounds (which includes quarry and mining), there is a separate procedure. These same impulsive adjustments and procedures are contained in ISO 1996 Part 2, Amendment 1 and in the newly drafted ISO 1996 Part 1 Final Draft International Standard. The Illinois Rules should be consistent and adopt these same types of adjustments and procedures, especially since they reference ANSI S12.9 Part 1.

Sincerely,


Greg Zak, CNCE, MA

cc: Mr. Howard Chinn