

ILLINOIS POLLUTION CONTROL BOARD
December 5, 1986

IN THE MATTER OF:)
)
GENERAL MOTORS CORP.)
PROPOSED AMENDMENTS) R83-7
TO 35 ILL. ADM. CODE)
900.103 AND 901.104)

PROPOSED RULE. SECOND NOTICE.

OPINION AND ORDER OF THE BOARD (by J. Anderson):

By action on November 7, 1985, the Board proposed for first notice certain amendments to the Board's rules and regulations governing noise; publication of the proposed amendments occurred in the Illinois Register, Volume 10, Issue 10, page 4175 et seq, dated March 7, 1986. The proposed amendments were occasioned by a petition filed by General Motors Corporation ("GM") on February 24, 1983, and the record established by the Board through hearings and submitted comments, as specified in the First Notice Proposed Opinion, which is incorporated by reference herein.

Subsequent to publication of the proposed amendments, the Board received three Public Comments ("PC"): PC #3 filed May 7, 1986, by the Midwest Environmental Assistance Center; PC #4 filed May 12, 1986, by Commonwealth Edison; and PC #5 filed June 30, 1986, by GM.

Based on a review of the record, as augmented by these public comments, the Board herein adopts for second notice amendments only to Sections 900.103(b) and 901.104. The proposed First Notice amendments which would have established an alternative measurement procedure are not being adopted for second notices publication for the reasons expressed in detail below.

RATIONALE FOR THE PROPOSED AMENDMENTS

When the Board originally promulgated regulations in 1973 to control noise pollution (In The Matter Of: Noise Pollution Control Regulations, R72-2, 8 PCB 653 and 8 PCB 703), it did so under the premise that community response constituted the principal test against which a noise was to be judged as polluting or non-polluting. The Board believes today, as it did in 1973, that community response is indeed the appropriate test.

Several factors are involved in the level of community response to a given noise. An obvious factor is the loudness of the noise. The Board gave recognition to this factor when it established the current regulations by promulgating the maximum

loudness limits found at 35 Ill. Adm. Code 901.102 and 901.103; these are unaltered under the current proposed amendments.

A second factor is the frequency of sounds, or pitch, with certain frequencies having greater negative community response at given loudness levels than others. This factor is also recognized in 901.102 and 901.103 and remains unaltered under the current proposed amendments. It is also recognized in restrictions on prominent discrete tones (901.106), which likewise are not altered under the current proposal.

A third factor is the duration of the noise. For example, some noises have little negative community response even when the noise is moderately loud if the noise occurs only rarely and for short intervals. Examples which have been cited are a dog bark, a slammed car door, and a noon-hour factory whistle. However, the same noises may become highly objectionable if repeated too often. Therefore, regulations based on community response should correctly include provisions limiting the duration of noises.

Current Board noise regulations do recognize some aspects of time-variation of sounds. These include limitations on impulsive sound (901.104), including, by separate amendments in 1982 and 1983 respectively, special considerations for blasting noise (901.109); and impact forging operations (901.105); these provisions remain unaltered under the current proposed amendments.

However, current Board regulations fail to give consideration to the general issue of fluctuating, time-variant noises. The reason is historical. At the time of the 1973 rulemaking the state of acoustical science and technology was such that the ability to identify and quantify certain types of noises to accurately reflect community response, specifically steady-state noises, was generally agreed upon. This state of conditions was reflected in the standards as then recommended by the American National Standards Institute, Inc. ("ANSI") for noise control. In promulgating its noise regulations, the Board relied upon ANSI and adopted its then current recommendations, and these remain the basis of the Board's current noise regulations. At that time the Board, as did ANSI, also recognized that the instrumentation had not yet been fully developed and available to properly reflect community response to fluctuating noise.

However, in ensuing years acoustical science and technology has advanced such that a new and more broadly encompassing method of identifying and quantifying noise that better reflects community response has evolved. Specifically, the ANSI measurement procedure now reflects community response not only for steady-state noise, but also for fluctuating, time-variant noise, after correcting for ambient, or background, noise. It is updating of the existing regulations to reflect this new methodology which is the principal impetus for GM's proposal and

the Board's proposed amendments. In so doing, the Board believes that compliance expectations and enforcement are enhanced by utilizing current ANSI based methodology and instrumentation for fluctuating noise.

THE LEQ MEASUREMENT

The major proposed amendment to existing regulations consists of identification of the Leq (as defined at 35 Ill. Adm. Code 900.101), with a one-hour reference time, as the measurement which shall be utilized to determine compliance with the sound emission standards of Part 901*. The rationale for this amendment is the determination that Leq is the most comprehensive measurement of community response to noise because it best combines consideration of both steady-state and time-variant noise. This determination was detailed in the the First Notice Proposed Opinion and Order, p. 9-12, and therefore will not be repeated here.

It is significant to note that the loudness standards of Part 901, including both broad spectrum noises and noise of limited frequency range, are not altered by the proposed amendments. Moreover, for steady-state noises, measurement via either present procedures or Leq will produce the same results. It is only for fluctuating noises that the Leq measurement provides a deviation from the present rule. This is done by giving weight to both loudness and duration of the noise, commensurate with considerations of community response.

CIRCUMSTANCES AT GM'S DANVILLE FACILITY

It is not disputed that the impetus, in part, for GM having acted to propose amendments to the Board's noise regulations stems from difficulties it has experienced in complying with the existing regulations at its Danville, Illinois, facility. GM contends that it wishes to respond to these difficulties. However, it also contends that, given the fluctuating character of its noise, it does not know how to comply with regulations where compliance is measured as if the noise were steady-state. GM further allows that promulgation of the proposed rule would not necessarily bring facilities, its own or others, into compliance. Rather, GM believes that the proposed rule would allow investment, where needed, in control measures which would assure compliance.

GM, in essence, has asserted that its problem is not due to its own special site specific circumstances, but, rather, is due to a flaw in the regulation itself. GM is asserting that all emitters of fluctuating noise are similarly situated, in that the

* An exception is made for the sound emission standards of 901.109 due to the special characteristics of noises considered there.

current Board regulations do not articulate the community response related methodology for determining compliance.

CHANGES FROM THE FIRST NOTICE PROPOSAL

In its First Notice Opinion, the Board specifically requested comments on the alternative justification procedure embodied in proposed Sections 900.101, 900.103(b)(2) and 901.130. GM responded at length. The Board is persuaded, based on GM's response and its own further reflection, to remove the alternative justification procedure from the proposed rule.

The proposed procedure reflected the Board's concern as to whether there might be value in creating a separate procedural mechanism, utilizing the adjusted standard mechanism embodied in Section 28.1 of the Act. The mechanism was potentially useful for possible special noise situations, where a person might wish to show that a different measurement procedure better correlates to human response, notwithstanding the ANSI approach of correlating sound emission to community response.

GM asserted that the alternative measurement procedure may have hidden pitfalls. It pointed out that any procedure should reflect community response; to do otherwise is "likely to do what the single-exceedence rule now does: measure emissions for compliance with an arbitrary standard not based on community response". (P.C. #5, p. 10)

GM pointed out that a correlation with human response will always be inferior to the collective human testimony which forms the basis of community response, which in turn the Leq measures numerically. GM further asked the question: "in the presence of a one-hour Leq, what will Rule 901.130 [the alternative procedure] do for citizens that cannot be achieved in a nuisance case under Rule 900.102?" (P.C. #5, p. 10)

The Board acknowledges that utilizing "human response" would impart an inconsistent overlay on the Board's regulations, regulations which have always defined compliance in terms of community response. And, if the Board were to change the alternate demonstration so as to be based on community response, rather than human response, there would be an even greater question as to whether the procedure is a useful tool. Leq is the generally accepted best measurement of community response at present. If future developments and/or circumstances change this situation, such a change would require a full rulemaking proceeding, since the change would be of general applicability.

On reflection, the Board believes that the procedure would not be a useful tool, especially as measured against the Board's existing procedural mechanisms already available to any person seeking a remedy, e.g. by way of an enforcement action (based on nuisance or otherwise), a regulatory amendment, or a variance.

Therefore, the Board has deleted the proposed First Notice language in Sections 900.101, 900.103(b)(2), and 901.130.

ECONOMIC CONSIDERATIONS

Two economically-based arguments in opposition to the proposed amendments have been reasserted in the public comments. These relate to the cost of replacing and/or adapting existing noise meters such that these can measure Leq, and added manpower needed to make noise measurements.

The noise meters presently owned by the Illinois Environmental Protection Agency ("Agency"), and presumably at least some of those owned by other entities who measure noise, are not equipped to measure Leq. Some confusion has existed throughout the record in this matter as to the costs which would be involved in adapting these meters to Leq measurement. The latest estimate is that the cost per meter would be approximately \$610 (PC #5, p. 14). The Board does not believe that this cost is prohibitive. Moreover, as existing meters require replacement, they would be expected to be replaced by Leq-capable meters anyway since these are the current standard of the industry. The Board also notes that the updated meters need be used only for enforcement, not for routine assessment.

The gathering of one-hour Leq data suitable for enforcement actions will, under some circumstances, require longer measurement times than required under the present rule. Thus, manpower needs will be larger. However, the Board believes that this is a small price to pay relative to the gains to be made with respect to strengthening the noise regulations both as to enforceability and compliance expectations.

ORDER

The Board directs that second notice of the following proposed rule be submitted to the Joint Committee on Administrative Rules:

Title 35: Environmental Protection
Subtitle H: Noise
Chapter I: Pollution Control Board

Section 900.103 Measurement Procedures

- (a) No change
- (b) Procedures Applicable Only to 35 Ill. Adm. Code 901

All measurements and all measurement procedures to determine whether emissions of sound comply with 35 Ill. Adm. Code 901 shall be in substantial conformity with ANSI S1.6-1967, ANSI S1.4-1971 -- Type I Precision, ANSI S1.11-1966 and ANSI S1.13-1971 Field Method, and shall,

with the exception of measurements to determine whether emissions of sound comply with 35 Ill. Adm. Code 901.109, be based on Leq averaging, as defined in 35 Ill. Adm. Code 900.101, using a reference time of one hour. All such measurements and measurement procedures shall correct or provide for the correction of such emissions for the presence of ambient noise as defined in ANSI S1.13-1971.

(c-e) No change

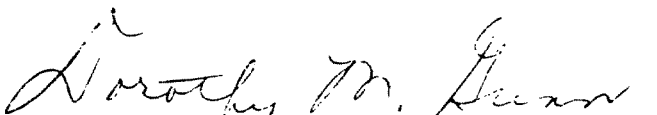
Section 901.104 IMPULSIVE SOUND

Except as elsewhere in this Part provided, no person shall cause or allow the emission of impulsive sound from any property-line-noise-source located on any Class A, B, or C land to any receiving Class A or B land which exceeds the allowable A-weighted sound levels, measured with fast dynamic characteristic, specified in the following table when measured at any point within such receiving Class A or B land, provided, however, that no measurement of sound levels shall be made less than 25 feet such from property-line-noise-source.

IT IS SO ORDERED.

J. D. Dumelle and B. Forcade dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 5th day of December, 1986 by a vote of 4-2.


Dorothy M. Gunn, Clerk
Illinois Pollution Control Board