

ILLINOIS POLLUTION CONTROL BOARD
September 12, 1991

VILLAGE OF MATTESON,)
)
 Complainant,)
)
 v.) PCB 90-146
) (Enforcement)
 WORLD MUSIC THEATRE,)
 JAM PRODUCTIONS, LTD.,)
 DISCOVERY SOUTH GROUP, LTD.,)
 and GIERCZYK DEVELOPMENT, INC.,)
)
 Respondents.)

ORDER OF THE BOARD (by B. Forcade):

On September 3, 1991, World Music Theatre ("Theatre") filed a Motion for Reconsideration of the Board's August 22, 1991, Order. That motion asks the Board to: (1) not require time-histories of sound data and narrative notations on ambient conditions, and (2) not take certain future actions regarding sound limitations. In addition, on August 28, 1991, Theatre's consultant filed a letter with the Board requesting clarification or elaboration. On September 3, 1991, Theatre filed additional data collected on July 19, 1991.

The motion for reconsideration is granted.

Theatre's motion raises essentially two arguments. First, Theatre argues that without a motion from the parties or prior notice to Theatre, the Board took improper action. That improper action was to modify data collection techniques to include time-histories and to require narrative notations on whether Theatre's sound is audible at the monitoring location. Theatre asserts these modifications are illegal, vague and technologically infeasible. Theatre asserts that the August 22, 1991 Order amounts to an ad hoc modification of a Board regulation (the one-hour Leq averaging adopted in R83-7) without following the Administrative Procedure Act rulemaking procedures. Second, Theatre asserts that the Board is attempting to craft, in an illegal manner, a future regulatory measurement scheme which when applied to the existing actual sound levels will create the artificial appearance of a violation.

The Board does not believe that the August 22, 1991 Order constitutes a modification of sound measurement techniques contemplated before or during the R83-7 regulatory proceeding that adopted the one-hour Leq averaging time. The data collection techniques contemplated by good engineering practice, the record in R83-7, and prior guidance documents from Illinois Environmental Protection Agency ("Agency"), all dictate more detailed procedures than followed in the final report.

Data collection was discussed frequently in the R83-7 proceeding. In each instance, individual data points were recorded and preserved for subsequent mathematical manipulation to derive the one-hour Leq:

In the absence of significant sources of sound in the community other than the one being monitored, the process of data collection and interpretation would follow this pattern. First, a one-hour tape recording would be obtained of the source at the receiving site. Second, this tape would be processed just as it is now, except that 3,600 one-second sound samples would be averaged. Compliance with Rules 202, 203, 204, 205 and 207 could be determined directly from the computer output in the same manner currently employed.
(R. 341-2)

The record also discussed how the sound collection techniques employed before R83-7 would have to be modified to adapt to the new regulation:

In order to make this instrumentation set-up practical for determining the one-hour Leq of community sounds, the following changes would have to be made:

1. A tape recording of the sounds to be studied must be obtained that includes at least one hour of valid data.
2. The existing program, used in the HP computer to monitor the B&K 2131 must be corrected to use the correct formula...

The third thing that would be necessary would be to use the same process that was originally used to generate the data on page 8 of Exhibit E, except that instead of stopping the test after 157 seconds, the test would continue for a full 3,600 seconds. That would give us one hour of data...
(R. 333-4)

A more detailed evaluation of good sound data collection protocol was provided as background when discussing the pre-regulatory modification to change the averaging time to one-hour:

Tape recordings of the sound at each location were made for five, ten or twenty minutes,

depending on the conditions observed. Voice commentary was recorded in order to document the sounds heard as well as the wind and other conditions that occurred during the recordings. Calibration signals were recorded at the beginning and end of each tape as well as at intermediate times such as when relocating to a new measurement site occurred.

In terms of analysis methods, after the completion of measurements, the recorded data was analyzed in several stages of increasing complexity. In the first stage, strip chart records of the A-weighted sound levels were made from the recordings. Each strip chart record was annotated using the commentary recorded on the cue track concerning conditions under which the magnetic recording was made. These records were used to check plant-emitted sounds against the impulsive sound emission limits, as well as to help identify events such as interference from traffic or aircraft.

The second stage of analysis involved octave band and one-third octave band frequency analyses of the data to compare with the octave band limitations for particular land classes as well as Rule 207. A computer program was developed to control a B&K 2131 one-third octave band real time analyzer, or RTA, and to store the output spectrum of the analyzer for further analysis by the computer.

An editing process helped eliminate the effects of interfering noise sources such as jet planes and traffic, which were obviously not part of the plant-emitted sound. The editing was performed interactively on the computer with the operator, using the strip chart records and annotations as guides.

(R. 189-191) (Emphasis Added)

The Board's previous Orders to collect and preserve the underlying data prior to time-averaging have not been an attempt to modify sound data collection techniques anticipated prior to and during R83-7. Those Orders have been an attempt to secure data that Respondent should have collected. For each Leq value provided by EASI, the underlying 3,600 one-second valid sound values in dB in each octave band would have been adequate. Alternatively, a strip chart recording for each octave band would be appropriate.

Voice or written commentary to describe the sounds heard would be adequate as described in the emphasized text above, but it must be correlated with the data segments in some manner (such as recording on the cue track or time marks on both data and narrative tapes). EASI comments, such as that sound was "totally inaudible" or "clearly audible" (final report, p.9), would certainly be part of such commentary. EASI's own language in the final report at p. 18 underscores the importance of narrative descriptions by a trained technician on the audibility of the music being coupled with data from the monitoring locations.

Even the sound monitoring procedures employed before the R83-7 proceeding contemplate such narrative descriptions. State of Illinois, The Environmental Protection Agency, Measurement Procedures for Enforcement of Noise Pollution Control Regulations (Parts 1 & 2), (February 1980). That document was codified as part of the Illinois Administrative Code by the Agency. These regulations are found at 35 Ill. Adm. Code 951.100, et. seq. (1985). The regulations generally describe good sound data collection techniques, including the use of a magnetic tape recorder. The collection of narrative information is discussed at 35 Ill. Adm. Code 951.105 (c), Data Collection and Operation :

- (7) While measurements are being taken, visual and aural surveillance of extraneous sound sources and varying wind conditions should be made to insure that the conditions of measurements are accurately known. Record any variations in these parameters that may affect data.

Such raw sound data, when correlated with the voice commentary or annotation described above, would allow the Board to understand the sound situation more clearly. Providing the Board with a copy of the underlying tape recording of recorded sounds and cue track might be helpful, but is not necessary. The Board is attempting to discover what portion of the numerically recorded sound values are coming from Theatre. By the reasonable exercise of professional judgement EASI can help the Board acquire such information if it chooses to do so. The Board will not speculate on why such procedures were not followed in prior sound data collection. However, the Board anticipates that all future sound data collection will employ such procedures, including the use of a magnetic tape recorder.

In addition to difficulties with the raw data collection and preservation, the Board must note that the sound data after complete analysis does not fulfill the objectives stated in the Board Order of April 25, 1991. In that Order the Board stated:

The Board will also require meaningful and effective noise monitoring by an independent consultant. That monitoring can be utilized to evaluate compliance with existing numerical regulatory limitations on sound emissions....

The sound limitations of Section 901.102 already apply to the Theatre independent of this proceeding. The Board is simply reiterating those requirements and providing an obligation to monitor and report so that compliance with 35 Ill. Adm. Code 901.102 is clearly demonstrated.

(Opinion and Order, p.37)

The obligation placed on Respondent was to monitor sound impacts from Theatre to evaluate compliance with Section 901.102. That has not been done. First, the information provided to the Board makes no attempt to evaluate what portion of the data is legitimately recorded sound from Theatre. The final report states generally that meaningful measurements are infeasible and that sound averaging times are unrealistically long. However, the Appendix B data frequently lists Leq values of sound emanating from Theatre while also showing asterisks to indicate values that are obscured by ambient or not measurable. The Board cannot determine whether EASI is asserting that all data is invalid or just the data marked by asterisks.

Second, the Board has found very few data sets collected by EASI that contain the minimum regulatory requirement of one-hour of valid data (data sets seem to vary from about 11 minutes to about 55 minutes). The Board anticipates that as many valid one-hour data sets as can be collected during the concerts, will be collected.

Third, the data provided in Appendix B is described as "raw uncorrected Leq values" (Addendum to final report, August 19, 1991). Section 901.102 requires Leq values corrected for ambient pursuant to ANSI S1.13-1971. For each data set and octave band, the Board would need a statement regarding correction for ambient sound. The Board also would appreciate guidance on the method of choosing (and method of identifying in the reports) which ambient data has been used in each data set to correct for ambient conditions.

Fourth, Theatre has failed to identify the SLUCM code and land classification category for Theatre and the receiving locations so that particular identification of the applicable regulations can be made.

Fifth, and most important, Theatre has failed to identify whether the individual results show compliance with Section 901.102, or not. For example, page 3 of the June 4, 1991 letter in Appendix B seems to indicate that between 10:00 p.m. and 11:00 p.m. the sound emanating from Theatre was measurable and not obscured by ambient, and that at an octave frequency band of 1000 Hz it had an Leq of 36. This would appear to be above the Section 901.102 limitation of 35. Was Theatre in violation of the regulatory standard here, or not? For each data set and octave band value the Board would need a statement of whether the data shows that Theatre is in compliance or non-compliance, or a particular explanation for invalidity of the data.

Respondent seems to have chosen a data collection and analysis protocol that ensures no demonstration of compliance or non-compliance with Section 901.102 could be made, regardless of the sound levels. The Board anticipates that all future sound collection, data preservation, and data analysis will be accomplished with a protocol such that the final results will clearly demonstrate, for each piece of final data, compliance or non-compliance with Section 901.102, or a particular reason for data invalidity. Information on compliance with numerical regulatory noise standards is relevant to findings of unreasonable interference with the enjoyment of life. James Kaji v. R. Olsen Manufacturing company, PCB 80-46 (April 16, 1981). Moreover, it is common in Board pollution control schemes to require pollution sources to monitor compliance or non-compliance with regulatory standards.

Regarding the second argument in the Motion for Reconsideration, the Board disagrees with Theatre's characterization. The Board is not attempting to craft a regulatory standard that will apply to Theatre. That standard is now and has been Section 24 of the Environmental Protection Act and the standards of 35 Ill. Adm. Code Subtitle H. In this proceeding, Theatre was found in violation of the narrative nuisance standards of 35 Ill. Adm. Code 900.101 and 900.102 and Section 24 of the Environmental Protection Act and the Board is now attempting to craft a remedy to abate those nuisance violations.

Accordingly, while the Motion to Reconsider is granted the prior Orders of the Board are not modified.

In its Interim Order, the Board stated:

Because of the improvements made to the facility after the close of the last season (See Tr. 3 at pp. 503-504), the Board is unable to determine if additional remediation measures may be necessary. Thus, the Board will require the Theatre to conduct a study of future noise control options... [The final

report] can be used as an effective focal point for evaluating future sound abatement activities which may or may not be necessary. (Opinion and Order, p. 37)

After reviewing the final report the Board is still unable to determine what, if any, specific additional sound abatement measures are necessary to remedy the noise violations and alleviate the noise complaints. Therefore the Board will set this matter for hearing to determine whether additional sound control is needed. The Board notes that the July 22, 1991 filing by Matteson (Petition for Additional Interim Relief) included assertions that may be relevant to this issue.

The Board anticipates that at hearing two matters may be discussed. First, whether unreasonable interference continued this summer such that additional sound control is necessary to abate that sound. Second, if sound control is necessary, the Board anticipates testimony on the nature of the sound reduction needed.

If Matteson does not demonstrate that additional sound control is necessary, the Board anticipates entering a final Order that will mandate continuous long-term monitoring. Such monitoring must be consistent with the previously described protocols, and conducted at one or two locations in the impacted communities. Such Order would include a mandate that Theatre cease and desist from causing future violations of Section 24 of the Illinois Environmental Protection Act and the narrative standards of Sections 900.101 and 900.102. The Order would specifically mandate that Theatre comply with the numerical standards of Section 901.102. Theatre would be free to use the instrumentation described at p. 21 of the final report if it chooses to do so.

If Matteson demonstrates that additional sound control is necessary, the Board anticipates issuing a more detailed cease and desist Order. For example, that Order could set particular measurement times and sound levels that may not be exceeded at the sound monitoring locations. In such circumstances, the Board would anticipate testimony from both Matteson and Theatre on what averaging time would best characterize measured sound from Theatre in the impacted communities, and what specification of maximum and average sound levels for that averaging time would reduce citizen complaints of unreasonable interference. In the absence of testimony to the contrary, the Board might look favorably on averaging times of less than 10-15 minutes based on Theatre's comments on sound fading in and out during that period. In the absence of testimony to the contrary, the Board might be inclined to look favorably at the existing regulatory octave band sound pressure levels since they have remained unchanged since

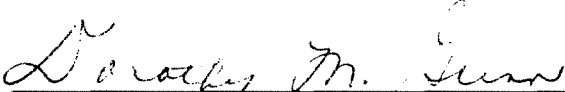
1972. Other approaches to ensuring reduction of sound impact may be advocated by the parties.

Theatre would be free to choose any method, including the instrumentation described at p. 21 of the final report, to comply with the Board's final Order. The Board believes that, under the particular facts of this case, its role in abating the nuisance is best accomplished by setting particular goals for the noise abatement program, i.e., noise levels in the impacted community. Particular mechanisms to achieve those goals are best left to Theatre.'

The Board will reassign a hearing officer to this matter to set and conduct a hearing at the convenience of the parties. Such hearing and post-hearing filings shall be completed not later than March 2, 1992. If Matteson does not wish a hearing, the hearing officer shall inform the Board so that a final Order may be entered.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the 12th day of September, 1991, by a vote of 7-0.



 Dorothy M. Gunn, Clerk
 Illinois Pollution Control Board