ILLINOIS POLLUTION CONTROL BOARD
March 6, 1980

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | |
| | ) | |
| PROPOSED AMENDMENT of RULES 101, 205, 206 and 209 of the NOISE REGULATIONS | ) | R76-14 and R76-19 |
| | ) | |

PROPOSED OPINION OF THE BOARD (by Mr. Goodman):

The Forging Industry Association (FIA) and thirty individual forging companies on July 2, 1976 petitioned the Board to adopt, by amending Rules 101 and 206 of the Board's Noise Pollution Control Regulations (Noise Regulations), certain emission limitations and other requirements with respect to new and existing impact forging operations (Industry Proposal). Proponents alleged an inability to comply within three years of the effective date of Rule 206 as allowed by Rule 209(h) of the Noise Regulations.

The Illinois Environmental Protection Agency (Agency) on August 23, 1976 also petitioned the Board to amend Rules 101, 206 and 209 with respect to new and existing impact forging operations and to delete Rule 205 regulating sound emissions to Class C land receivers. On October 14, 1976 the Board ordered the Agency proposal to be treated as a separate proposal, docketed R76-19, but consolidated with R76-14 for purposes of hearing and decision. The following public hearings were held:

| | |
|---|---|
| September 22, 1976 | Chicago |
| November 4,1976 | Springfield |
| December 13, 1976 | Chicago |
| December 14, 1976 | Chicago |
| February 15, 1977 | Chicago |
| February 16, 1977 | Rockford |
| May 2, 1977 | Chicago |
| May 3, 1977 | Chicago |
| December 18, 1978 | Rockford |
| December 19, 1978 | Rockford |
| February 21, 1979 | Chicago |
| September 12, 1979 | Chicago |

The Board acknowledges the assistance of Carolyn S. Hesse, Technical Assistant, in the drafting of this Opinion, and the assistance of Roberta Levinson in serving as Hearing Officer.

The latter four hearings were economic impact hearings. Prior to those hearings, the Illinois Institute of Natural Resources filed economic impact studies regarding the proposed rule changes, Document No. 78/03, The Economic Impact of Proposed Forging Noise Regulations (R76-14,-19), and Document No. 78/36, Econonic Impact of Removing Numerical Limits on Sound Emissions to Class C Land (R76-19). These studies were filed in accordance with Section 6 of the Environmental Protection Act.

## HISTORY OF THE REGULATIONS

On July 26, 1973, the Board adopted Chapter 8: Noise Regulations. Included in those regulations are Rule 205, Sound Emitted to Class C Land, and Rule 206, Impulsive Sound, which are the subject of these proceedings. Both the Agency and Industry Proposals suggest changes to Rule 206 which would allow higher sound levels to be emitted to Class A (primarily residential use) and Class B (primarily certain types of business use) receiving lands. Regarding emission levels from existing forging operations to Class A land, industry seeks a 66-dB(A) limitation while the Agency seeks a 61-dB(A) limitation. Both Proposals agreed on emission levels to Class B land and on emission levels from new operations to Class A lands. The Agency proposed deleting Rule 205 entirely; at hearing, industry witnesses concurred with this deletion.

The Proposed Order adopted on February 7, 1980 amends Rules 101, 205, 206 and 209 as follows. To the definitions in Rule 101 have been added definitions for A-weighted sound level and fast dynamic characteristic. Definitions for dB(A) and sound level are deleted. These definition changes clarify those rule changes which were proposed for adoption. Rule 205 is deleted. Rule 206, Impulsive Sound, (1) deletes the limitations on impulsive noise emitted to Class C land; (2) increases the allowable impulsive noise levels emitted from forging operations to Class A and Class B lands; and (3) adds a provision grandfathering the existing use classifications of land located within 1000 feet of the property line of a forge plant, thus establishing which classification is to be used for purposes of enforcing this regulation, unless a subsequent land use classification at the time of new forge plant construction would allow a less restrictive limitation to apply. Rule 209 specifies the dates by which sources are to comply with Rule 206.

## ANALYSIS OF THE REVISED REGULATIONS

### Class C Receiving Lands (R76-19)

Virtually none of the evidence produced at the merit hearings supported maintaining Rule 205. The primary reason for having a Class C sound limitation is to protect Class C property receivers from levels which interfere with conversations held at one- to three-foot distances or with using a telephone (R.420). The Board agrees that Class C lands require less protection than either Class A or Class B lands require because the types of activity conducted on Class C lands are less noise sensitive (R.1083). Since Class C lands are typically used for manufacturing operations (R.1084), they usually contain sources which emit higher sound levels within their own property than they receive from other property (R.1082). Class C land operations emit within their property lines sound levels far in excess of the limitations permitted in Rule 205 (R.1082).

Unoccupied farm land is also classified as Class C land. However, over the years the Agency has received very few complaints from Class C farm land receivers. Only up to 3% of Class C receivers are bothered to any degree by noise from any source. It is clear from the economic impact study concerning these rule changes and from the evidence in the record that removing limitations affecting Class C receivers would not regulate the major sources of disturbance to these receivers, which are nonstationary sources. The Board's current Rule 102 is adequate to enforce noise pollution violations in these situations (R.1085-1086).

### Sound Levels Emitted From Forge Plants (R76-14)

During hearing, there was much testimony from representatives of the forging industry that meeting original Rule 206, adopted in 1973, is not technologically feasible. Noncompliance is primarily due to the absence of known methods of controlling the impact, or impulsive, sound emission levels from forge hammers at their sources.

The Noise Control Task Force (NCTF) through the Forging Industry Education and Research Foundation (FIERF) performed an extensive, three-volume study of existing forge plants to determine the sources of sound emissions and ways of controlling them (Exhibits 16, 17 and 18). Based on this study, it appears that the noise is being caused by two effects. The first and primary contributor to the peak sound level is the sound generated when the ram, driven downward, hits the metal work piece (billet) and the die on the anvil. The second source of sound is caused by the vibration of the ram and the columns which guide it downward

due to the sideways movement of the ram between the columns after it hits the die.

Since peak sound pressure levels are generally proportional to blow strengths, reducing the blow strength would reduce the peak sound level; however, it would also derate the hammer (R.310). There may be some operations in which the hammer blow is stronger than necessary and could be derated (R.319), but in the majority of forge shops derating may not be feasible.

In the FIERF study, shrouding the hammer was studied, but this may cause several problems:

1. If blow strength is reduced, the hammer would not be able to produce the part.

2. Since the columns maintain the die alignment, to reduce the columns' vibrations by isolating them from the ram before the ram strikes the work piece may cause malalignment (R.322).

3. The openings in retrofitting any shroud or enclosure will need to be minimized in order to reduce the amount of noise radiating past the treatment (R.323). Openings are necessary for access to the work piece.

4. Dynamic stresses in the shroud would have to be minimized for safety (R.323).

5. In some cases a ram shroud could never be used due to the given relationship between the ram and the columns.

The buildings in which forge shops are operated are generally open structures which were not designed to reduce the amount of sound radiating to the neighborhood. A forge plant must have adequate ventilation because of the amount of heat generated inside the plant. Consequently, the structures were designed with roof and side openings to provide natural ventilation to dissipate the heat (R.103). All of the forge plants discussed in the record are hot forge plants. The work material, typically steel, is heated to around 2200°F so that the material is plastic enough to forge, since it cannot be forged while cold (R.105-106). After forging, the hot material is put onto skids, and when the skid is filled, it is usually moved outside to cool (R.1043). In addition to the skids loaded with hot material (R.1044), the furnaces used to heat the material are major sources of heat inside the plant (R.106).

The level of sound emissions radiated from some forge shops can be reduced by 15 dB(A) by closing the open windows and doors or by covering them with silencers (R.517). Additional noise reductions can be obtained by making structural changes in the

building, such as replacing a plain metal roof deck with one made with asbestos-containing material, replacing sheet metal walls with brick or concrete blocks, and replacing plain glass windows with double glass windows.

However, in a typical, existing, unimproved forge shop, only about 4% of the acoustical energy which radiates to the outside does so through the structure itself; the remaining 96% radiates through the openings (R.523). Hence, it appears that covering the open doors with silencers or other material would be an effective way of reducing the energy radiating from the shop (R.523). As the openings are reduced, or covered, however, the need for mechanical ventilation increases as the natural ventilation is reduced or eliminated. In addition, there is a need for openings so that vehicular and other traffic is not prevented (R.502-503).

An additional method of reducing the amount of noise radiated to the neighborhood would be to use barriers such as walls or berms. Barriers placed 10-15 feet outside the perimeter of a building can achieve a 10- to 15-dB(A) reduction in sound emission levels (R.499-501). Barriers must reach higher than the openings in the plant wall to be effective (R.1119). Barriers, however, can interfere with necessary vehicular and other traffic (R.499-501), may reduce ventilation (R.1064-1066), and may be prohibited by nonownership of the requisite property (R.499-501).

There was evidence that technological improvements in controlling sound emissions are "moving" (R.1054-1055). The Danville Wyman-Gordon plant, which owns and operates the largest forge and hammer shop in the country (R.1028-1030), operates an entirely different technological approach to the manufacture of crank shaft forgings and alleges it experiences no noise problems (R.1037). There was also evidence that a 6,000-pound hammer equipped with a hydraulic Lasco head was quieter than other 6,000-pound hammers (R.972-976).

Determination of Allowable Sound Emission Levels

Impulsive noise affects people who hear it by interfering with speech and hearing and with degree of relaxation; when it exists at night it can interfere with sleep. One witness testified that impulsive noise interferes more with the ability to relax than does steady state, or background, noise, but that steady state noise interferes more with speech than does impulsive noise (R.1219). There is no evidence in the record of the relative importance to human health or welfare of relaxation, speech, hearing, sleeping, or other activities.

Existing impulsive sound emission levels of drop forge hammers are estimated to range as high as 121 dB(A) for a 1000-2,000 pound hammer (R.240-241). The typical hammer operates at

500-20,000 blows per shift (R.245). The average time between hammer strikes is one to three seconds (R.439).

According to the record, present daytime sound emission levels result in the situation that roughly 60% of the 45 forge plants are not complying with present Rule 206 (R.486). The present daytime limitation of 56 dB(A) is exceeded by 62% of all plants; the limitation of 61 dB(A) by 53% of all plants; the limitation of 66 dB(A) by 44% of all plants, the limitation of 72-76 dB(A) by 9% of all plants, and the limitation of 82 dB(A) and higher by 9% of all plants (R.1000). There was also testimony that 58% of the plants could meet a limitation of 66 dB(A), and 48% could meet 61 dB(A), at the present time (R.579-580, 583).

There was evidence that 95% of all plants could meet a limitation of 66 dB(A) with an emission improvement of between 5 and 20 dB(A), and 1% of the plants would have to improve their emission levels by 35 dB(A) to reach this limit (R.542-544).

The Agency presented data of sound emission levels from all 45 forge plants in Illinois (Ex.56). At one of the shops it tape recorded the sound level of a 2,000-pound drop hammer (R.1013). This tape was played back through a sound level meter into a strip chart recorder to determine which measurement mode would be the most appropriate for measuring the impulsive noise (R.1013-1014). It concluded that the A fast measurement mode was the most nearly accurate (R.1021), both because the A-weighted network most closely approximates the way the human ear perceives sound and because the A fast measurement mode was able to detect from 140 hammer impulses all impulses, whereas the A slow measurement mode detected only 76 of them (R.1015).

There was considerable testimony which tried to relate maximum A-weighted fast response sound levels to the energy equivalent sound level, or $L_{eq}$ level, a time-weighted average which can be expressed in dB(A)'s. Sound levels expressed in terms of $L_{eq}$ are useful in estimating effects on the health and welfare of persons exposed to them. However, for purposes of enforcing a regulation limiting impulsive sound emissions, the Board finds that the most appropriate method is the use of A-weighted sound levels, measured with the fast dynamic characteristic.

Rule 206(d) provides that for purposes of enforcing Rule 206 only certain land use classifications in effect shall be the applicable land use classifications unless subsequent changes would result in applicability of less restrictive limitations on the impact forging operation. This rule is included so that forge plants will not be penalized if a new use classification would require reductions in sound emission

levels. The Industry Proposal specified a distance of one mile from the property line. However, the Board believes that one mile would be an excessive distance; the distance of 1000 feet was selected because the Board believes that, since sound levels are attenuated by 20 dB(A) at 1000 feet, this distance is sufficient (Ex.27).

## ECONOMIC EVIDENCE

R76-19 (Illinois Institute of Natural Resources' economic impact study (Study-19), Doc. No. 78/36, June, 1979.)

Study-19 concludes that the benefits of removing the limitations are approximately three times as much as the costs which would be entailed. Benefits are comprised primarily of industry's avoided costs of sound abatement and of the state's avoided costs of enforcement of the limitations. Specific costs and benefits of control technologies are the same as those set forth in its study concerning R76-14 (Study-14) to the extent they concern forge plants. Since 14 forge plants were out of compliance with only the regulation regarding emissions to Class C receiving land, repealing that regulation would save those sources compliance costs (R.162).

No evidence was produced at hearing of the costs to owners or operators of farm land to control their sound emissions to other Class C lands.

R76-14 (Illinois Institute of Natural Resources' economic impact study (Study-14), Doc. No. 78/03, October, 1978.)

The author of Study-14 chose three measures of cost. One measure was "base case" estimates of cost to the entire forging industry. These costs, however, could be twice as high as true costs would be. The second measure was estimates of cost to all plants of reducing emissions by 6 dB(A). These figures are similarly subject to error. The third measure was estimates of cost to 10 particular plants, both individually and in the aggregate (Ex.70, p.iv.).

The author relied on data derived by Bolt, Beranek and Newman, Inc. (BBN) to develop adjusted statewide cost estimates and, from these estimates, the base case estimates. Although there is considerable diversity among plants, BBN statistics were not derived on a plant-by-plant basis but rather from a model (Ex.70, pp.11-13).[1]

---

[1] Six architecturally representative plants, including complying plants and multiple shop plants, were used to identify fourteen distinct elevations which were examined as representative of all shop elevations. From this examination a reference struc-

Benefits of sound emission reduction were calculated by analyzing the distribution of homes around plants and studies regarding the contribution of sound emission levels to differential property values (Ex.70, pp.iv-v). Although benefits can be measured by monetarizing physical effects of sound on human life and human activities, and have been covered extensively in literature, the author did not include these physical effects in his assessment of benefits. He instead measured benefits in terms of damage to transactions engaged in "in which, implicitly, we place a value on [reduced noise]"; buying a house was singled out as one of these transactions. (Ex.70, p.58).

The author then provides discussion of various mathematical equations expressing the relationship among characteristics determining the value of a house to the desirability of these characteristics--that is, that the value of a house is a function of these characteristics. One of these equations was utilized by John P. Nelson and derived from data of the Washington, D. C. SMSA; another was utilized by Roger J. Vaughn and Larry Huckins and derived from Chicago area traffic noise data (Ex.70, pp.58-60). Although these authors used different values for the noise index variable in the equation, the regression coefficient derived by both, used in conjunction with the variable's contribution to the equation, was the same (Ex.70, pp.61-64). However, the Study-14 author used a second BBN report to adjust the equation to account for the frequency of forge hammer strikes in the noise index as represented by the relationship $L_{eq}$ = A-weighted fast - 5 dB(A). This may have contributed to an underestimation of benefits (Ex.70, p.64-65).

The author gathered data for the benefits equation by studying data developed by ETA Engineering, Inc. on 10 plants and developing a statewide model. From noise contour zones drawn according to the emission levels of these 10 plants, extrapolation to the 26 noncomplying (at 56 dB(A)) plants was made, e.g., the number of houses within each contour was increased by 26/10. This new number of houses within each contour was divided by the number of plants emitting at levels equal to or greater than the levels given for each contour. For each plant was then derived how many houses were affected by

---

ture (typical shop) was developed and control costs derived from those control methodologies judged to be applicable at each 5-dB increase. Costs of the applicable methodologies were "estimated with the aid of ... data supplied by ... Holabird and Root. [The] frequency of applicability of each method [was] determined by reference to the actual characteristics of-[the 14 distinct elevations]." Finally BBN costs were estimated based on the incidence and degree of noncompliance among shops as determined by an incomplete ETA, Inc.-Michigan Technological University survey although the author utilized the completed data when it became available (Ex.70, pp.13-14).

that plant. The objective was to measure how much sound reduction would accrue to the houses for given noise reductions by the plants (Ex.70, pp.66-67).

Finally, the author weighed the cost-benefit ratio achieved (1) by designing a variant case where costs were assumed to be 50% lower than was calculated and benefits to be 70% higher than was calculated; and (2) by comparing data applicable to the 10 plants used to derive cost estimates. In both analyses the author found costs generally to exceed benefits (Ex.70, p.v).

In determining the percentage of noncomplying shops, all shops of a given plant were treated as if they emitted the same level of sound (Ex.70, p.8). Thus estimates of how many Illinois shops are not presently complying with the limitation, as well as how many could not comply with various proposed limitations, may be inaccurate.

An accurate evaluation of the economic reasonableness of any proposed reduction from the present 56 dB(A) level is difficult based on Study-14 and the entire hearing record. Essentially, the author states that costs exceed benefits at any level (including the present one) (R.1319-1320), and the Agency states that benefits exceed costs at any level (R.1619). Even though cost-benefit comparisons are factors in determining the reasonableness of an economic impact, they are not the only factors which should be considered. The disparity between the author's and the Agency's conclusions, supported in part by witnesses Croke and DeGraff, is illustrated below.

Costs. The Agency states that the author's costs should be revised downward because (1) the least-complying plant in a group was used as the compliance cost model for each plant within the group (groupings were made according to actual emissions) (R.1678) (see post); (2) lighting costs are 75% lower than the costs used by the author (R.1569); (3) the method of amortization of control costs, the estimate of the number of new or modified pieces of ventilation equipment needed, and the estimate of fuel consumed to maintain inplant temperatures all overestimate operating costs (R.1572-1575); (4) silencers coupled with natural ventilation systems were not considered (R.1562-1565, 1682, 1697); (5) reduction in ventilation sizings will reduce mechanical ventilation system costs (R.1565); and (6) costs of barriers are two times too high (R.1560-1562, 1644). The Agency, however, does state that the author properly considered engineering and consultant fees (R.1686-1689).

Conversely, the author states that the Agency's costs should be revised upward because (1) costs of nighttime operations are excluded; (2) the increased closing of ventilation openings will raise inplant noise and necessitate additional costs; and (3) costs of stopping production to effectuate control technology are excluded (R.1769-1770). The author, however, does say that

the Agency's costs should be revised downward because of the data used in arriving at natural and mechanical ventilation equipment and lighting (R.1763-1767).

Benefits. The Agency states that the author's benefits should be revised upward because (1) property values were underestimated by a factor of 2.63 (R.1613, 1635); (2) home buyers are unaware of sound emission effects in the environment until they have lived in the home for a period of time (R.1580-1584); (3) airport noise studies raise questions as to effects on fetuses (R.1715); (4) the traffic noise index used underestimated damages (R.1587-1592); (5) the Vaughn and Huckins study and model produced statistically nonsignificant results, including an underestimation of benefits by one-half of what other models have yielded (R.1594-1598); and (6) personal health effects benefits are not considered (R.1788).

Conversely, the author states that the Agency's benefits should be revised downward because (1) homes which are mobile should not reap full benefits and (2) if plants could not meet a 50-dB(A) level, benefits would be illusory (R.1771). The author, however, states that in some areas the Agency's benefits would exceed costs by a factor of 2 (R.1786).

In trying to summarize the disparity between the cost and benefit estimates made by the author and the Agency, the Board looks to testimony of these participants themselves regarding the merits of their own studies. First, the Agency nowhere in the record states that its benefit figures are overstated. The Agency admits its cost figures are understated to the extent that data supplied to it specifying the percentage of wall surface areas which openings comprise were based on a plant's having one wall with openings and not two, three, or four walls with openings (R.1700, 1827-1828). However, this does not mean that the figures are inaccurate by some factor of 2, 3, or 4, but rather that the per wall percentage of openings figure used may not be as representative as if a percentage had been derived from measurements taken from all four walls. This does not appear to be a significant error statistically when the Agency's study is taken as a whole. In addition, however, the Agency's cost figures for barriers may not have included costs of labor (R.1648); this error would make the barrier cost estimates too low but not statistically unreliable except in isolated cases.

The second point the Board notes from the record is that the author's cost figures may be overstated for additional reasons: (1) payroll and sales figures are too high because if figures for complying plants had been included, per plant figures would be about 40% less (R.1359-1361); (2) costs of automobiles manufactured by

companies not using only Illinois forgings would be lower (R.1404-1405); (3) the increased price of forgings was based on the assumption that competition among forge plants would not prevent any increases from being passed on to the consumer (R.1533, 1548-1549); (4) the average area of an elevation is too large by at least 35% (R.1314); and (5) the use of silencers will produce lower costs than stated (R.1314). It should be noted that the author himself states that the cost figures should be used for "benchmark purposes" (R.1313).

These reasons, however, are much less significant than the further reason, pointed out by both the Agency and the author, that the measure used to derive costs of sound emission reductions was not the actual decibel decrease necessary but the approximate decrease. The decibel decrease upon which costs were then calculated was overestimated in this manner: plants were grouped into ranges of their actual emission levels, e.g., 87-91 dB(A), and costs calculated for all plants in those ranges based upon the given that all plants actually emitted at the upper level, or 91, rather than at the lower level, or 87, or at any intermediate level (R.1314, 1371-1375, 1678). This error overestimates costs for all plants in the lower range of each grouping. Further, the choice of actual emission levels influences both the degree of emission reduction necessary and the type of control technology which would be feasible and, therefore, the extent of costs to be incurred.

Lastly, the Board finds in the record several questionable assumptions which appear to have been made, and some not to have been made. The author assumed (1) buyers and occupiers of homes differ in their valuation of benefits of sound reduction, e.g., a buyer or occupier of a $50,000 house values sound reduction twice as much as a buyer or occupier of a $25,000 house (R.1415-1423); (2) annoyance occurs primarily from single, defined emissions rather than multiple or repetitious emissions (R.1425-1432, 1557); (3) hearing loss is not a significant enough factor to be taken into account (R.1479); (4) outside research of the effects of noise pollution other than those in the hearing record would not have uncovered additional effects (R.1481-1482). Finally, the author's benefit figures excluded benefits which could accrue to hospitals and physically immobile persons (R.1555-1559), to employment in the noise control abatement industry (R.1534-1536), and to citizens due to the technology-forcing policy of the Illinois Environmental Protection Act (Section 2) (R.1485-1488).

It is clear to the Board from the testimony and documents in the record that cost and benefit figures cannot be relied upon with any reasonable accuracy. Therefore, it may not be true, as the author asserts, that costs will be greater than benefits in every instance. Neither does the Board find, as the Agency asserts, that benefits will be greater than costs in every instance.

This means that the true costs of meeting a 56 dB(A) sound

emission limitation are probably less than $38.1 million (or $1.1 million per 34 noncomplying shops) (R.1313), but more than whatever costs the Agency would calculate;[1] the true costs of meeting a 61-dB(A) limitation are probably less than $28 million (or $0.9 million per 30 noncomplying shops) (R.1313) but more than $10.3 million (or $0.3 million per 30 noncomplying shops); and the true costs of meeting a 66-dB(A) limitation are probably less than $20.9 million (or $0.8 million per 26 noncomplying shops) (R.1313) but more than $7.4 million (or $0.3 million per 26 noncomplying shops). From these wide ranges, it can be estimated that the cost of compliance with limitations of either 56, 61 or 66 dB(A) could range from $300,000-$1,100,000 per shop. As to the benefits of compliance with a 56-, 61-, or 66-dB(A) limitation, the Board estimates from Exhibits 70 and 74 that the total range of benefits is between $2.8 million and $9.3 million.

## CONCLUSION

Although the economic information offered by the Agency and the FIA is conflicting and disparate, there is sufficient data to support some change in the Board's current 56-dB(A) daytime limitation. Both the Agency and the FIA agree that a lessening of the limitation to at least 61 dB(A) is needed. The Agency will not concede that a less restrictive standard is either necessary or wise and the FIA has not convincingly proven that industry compliance with a less restrictive standard is economically infeasible. The Board is unwilling to allow higher than a 66-dB(A) standard when the economic data in support of this limitation is at best only marginally reliable.

The Board, in light of the foregoing Opinion, accepts industry's proposal for a 66-dB(A) Class A daytime noise emission limitation rather than the Agency's proposal for 61 dB(A); however, the 56-dB(A) limitation shall remain in effect during the nighttime. The Board is ever conscious of its responsibility to assure a healthy environment for the citizens of Illinois and to consider the economic impact of Board regulations. At present, about half of the forge plants within the State of Illinois emit sound levels greater than 66 dB(A) to Class A property; therefore, the 66-dB(A) limitation stands as an achievable goal. Adopting the 66-dB(A) level will not seriously compromise a healthy sound environment in the name of reduced industrial costs nor will it dictate that industry spend money in the vain pursuit of yet unachievable goals.

This Proposed Opinion supports the Order of February 7, 1980.

---

[1] Table 5 of Exhibit 74 gives costs for 61 and 66 dB(A) but not for 56 dB(A).

Mr. Jacob Dumelle dissented.
Mrs. Joan Anderson abstained.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion was adopted on the 6th day of March, 1980 by a vote of 3-1.

Christan L. Moffett
Christan L. Moffett, Clerk
Illinois Pollution Control Board