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THE NOISE CONTROL ACT: LEGISLATIVE AND ADMINISTRATIVE PROBLEMS OF IMPLEMENTATION

By
DAVID MEDINE*

INTRODUCTION

Noise, unwanted sound, is not a new problem. At the turn of the century, Nobel laureate Robert Koch predicted an increasing concern with noise when he said, "[t]he day will come when men will have to fight noise as inexorably as cholera and plague." Yet problems of noise have not received the attention and concern water and air pollution have attracted. Unlike water and air pollution, noise does not accumulate over time but, rather, dissipates

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1. The most commonly used measure of sound, and therefore of noise, is the decibel (dB), which is based on sound intensity and pressure. Because the greatest pressure the ear registers is five million times the threshold pressure, scientists have adopted a logarithmic ratio between measured sound pressure and a standard reference pressure, which means an arithmetic increase in the dB level actually represents a geometric increase in sound pressure. A measure of zero decibels is the threshold of human hearing. To understand how this measure operates, an increase in 3-dB doubles pressure though it takes a 10-dB difference for intensity to double. It is intensity which corresponds to human perception of the difference in sound levels.

Defining the decibel does not yet produce a figure which corresponds to human annoyance. Sound may occur at different frequencies, some of which are inaudible. To include them in this measure would distort the real effect a particular sound creates. Sound measurement may be corrected by use of the A-weighting scale which emphasizes audible frequencies and cuts down on inaudible frequencies. A-weighted measurements are noted as dBA. The following are examples of typical noise levels: a library, 35-dBA; birds singing, 45-dBA; dishwasher, 60-dBA; vacuum cleaner, 80-dBA; shouting in an ear, 100-dBA; turbofan aircraft and rock music, 120-dBA; threshold of pain, 140-dBA. See Note, The Noise Control Act of 1972—Congress Acts to Fill the Gap in Environmental Legislation, 58 MINN. L. REV. 273, 275 (1973) [hereinafter cited as NCA Note].

quickly. Because its effects are so subtle, noise is not widely recognized as a cause of psychological and physiological damage.\textsuperscript{3} Furthermore, noise imposes both economic and social costs on American society. Annual noise pollution costs from increased absenteeism, accidents, and decreased efficiency are estimated at four billion dollars.\textsuperscript{4} This cost does not even include the escalating number of claims for hearing loss compensation.\textsuperscript{5} Excessive noise also causes a marked decline in property values, especially near airports.\textsuperscript{6} Finally, noise harms the quality of life in a way which is difficult to measure.

Perhaps even more than other forms of pollution, noise is considered a necessary and integral part of industrialized civilization. The clatter of machines and the pounding of jackhammers have been symbols of progress and growth. As with other forms of pollution, however, it is possible to realize economic growth while reducing noise levels and improving the quality of the environment.

Despite the national economic and health implications, it has been possible for noise control to take place at the local or state level. By 1972, however, it was clear that for effective controls, the federal government had to provide leadership and coordination. States had shown little willingness to devote attention and funds to the problem.\textsuperscript{7} States were also faced with the problem of obtaining technical information which they could not get themselves and which was not being provided by an existing federal agency. On October 18, 1972, the Noise Control Act (NCA)\textsuperscript{8} was passed, di-

\begin{itemize}
\item[8.] 42 U.S.C. §§ 4901-4918 (1976). Throughout the text references to sections of the Act will be to Pub. L. No. 92-574, 86 Stat. 1234 (1972). As the environmental movement began to accelerate in the late 1960s, Congress reacted by passing an aircraft noise abatement bill, 49 U.S.C. § 1431 (1970), and including in the Clean Air Act Amendments of 1970, 42 U.S.C. § 1858(a) (1970) (amended 1977), Title IV, which established an Office of Noise Abatement and Control within EPA. The Office was to conduct a comprehensive study on noise problems with the objective of submitting to Congress and the President recommendations for needed action. On January 26, 1972 a report was submitted. The only other piece of noise control legislation before 1972 was the Federal Aid to Highway Act of 1970, 23 U.S.C. §
\end{itemize}
rectly involving the federal government in the quest for a quieter environment.

The purpose of this Comment is to evaluate the choices made by Congress in drafting the Act and the administrative implementation of those choices. The NCA gives the Environmental Protection Agency (EPA) authority to regulate the noise characteristics of new products, motor carriers, and railroads, leaving to the states responsibility for overall noise levels. Standards are to be based on the health and welfare of those exposed to new products and the cost and technology factors of reducing the noise of motor carriers and railroads. In determining whether Congress has provided workable standards for regulating products and whether EPA has been successful in implementing those standards, this Comment will examine one particular product — old and new trucks — as a representative example. Congress' failure to provide civil penalties as part of EPA's enforcement authority will also be examined. Finally, this Comment will propose a revision of the NCA.

I. THE NOISE CONTROL ACT

The stated goal of the NCA is "an environment for all Americans free from noise that jeopardizes their health and welfare." The primary approach of the NCA is to regulate noise characteristics of new products. The challenge of this approach is in choosing statutory language which will provide sufficient guidance to the EPA in setting standards for each regulated product. There is a tension between the view that standards should be set which are protective of public health and welfare, regardless of cost, and the view that considerations of cost and technology should be limiting factors in a regulatory program. Faced with this choice in drafting the NCA, Congress included elements of both types of standards in a combination which, not surprisingly, has left EPA somewhat

109(h)(1) (1976), which banned federal aid to highways that did not include plans and specifications to meet certain highway noise levels compatible with different land uses.

Noise emissions from new products are to be set at a level "requisite to protect public health and welfare, taking into account the magnitude and conditions of use of such product (alone or in combination with other noise sources), the degree of noise reduction achievable through the application of the best available technology, and the cost of compliance." The appropriateness of this statutory standard must be judged by EPA's ability to translate this language into actions consistent with the purpose of the Act.

A. The Regulatory Scheme

Superficially, the NCA resembles the air quality standards provisions in the Clean Air Act Amendments of 1970. The NCA requires that EPA first publish a criteria document which is to be a collection of scientific knowledge, not a set of standards, which will be available for use by EPA as well as states and municipalities in setting their own noise standards. Following this, EPA must publish an environmental noise levels document which establishes noise levels that are protective of health and welfare, including an adequate margin of safety. These levels are comparable to a combination of the primary and secondary ambient air quality standards under the Clean Air Act since they are based neither on cost nor technological concerns.

Under the Clean Air Act the states must then design and submit for EPA approval a plan for implementing, maintaining and enforcing ambient air quality standards. Thus while the federal government insures that certain levels of pollutants protective of public health and welfare are reached, states are given the freedom to draft a plan which takes into account particularly local concerns. However, the legislative history of the NCA indicates

23. Of course, if the state does not submit a plan which EPA believes will
that, "States and local governments have the primary responsibility . . . for setting and enforcing limits on environmental noise which in their view are necessary to protect public health and welfare." It is somewhat ironic that passage of the NCA was inspired by the failure of the states to adequately regulate noise levels, yet the Act leaves to the states the primary responsibility for establishing noise levels in the future.

Under the NCA, the Administrator of EPA is required to set standards for major sources of noise in the categories of construction and transportation equipment, any motor or engine and electrical or electronic equipment, if they are "feasible." New products not in these categories may be regulated if standards are "feasible and requisite to protect the public health and welfare." If "feasibility" means technological feasibility, then the absence of technology would seem to prevent EPA action regardless of the threat posed to public health and welfare.

Ideally, the primary beneficial effect of the NCA is the regulation of noise characteristics of new products. If new products are made quieter, aside from overall noise reductions, states will be greatly assisted in only having to regulate the use of quieter products in order to achieve desired ambient noise levels. Two prob-

achieve primary and secondary ambient air quality standards, the Administrator must propose his own plan. Id. § 7409(c)(1)(C).


29. The question of whether federal regulations should pre-empt state and local efforts was one of the most controversial issues in passage of the Act. See Cerar, Federal Preemption of Railroad Noise Control: A Case Study and Comment, 3 COLUM. J. ENV'TL L., 1 (1976). States and environmentalists wanted the states to have the option of adopting more stringent noise levels. In reaction to this possibility, Representative Staggers in House debate on the Act commented: "We have evidence that across America some cities and states are trying to pass noise regulations. Certainly we do not want that to happen. It would harass industry and progress in America. That is the reason why I want to get this bill passed during this session." 118 CONG. REC. H37083 (1972) (remarks of Rep. Staggers). Under the NCA, performance levels for products are pre-empted by federal regulations but states and municipalities are free to impose nonconflicting restrictions including
lems are raised by this approach, however. The first problem is determining how product standards can be translated into sound levels which are protective of health and welfare. The difficulty stems from the fact that products may be used in combination with each other at varying distances from a listener. For example, an air compressor can be built which is harmless if used by itself at 100 yards, but when used with three others at five feet could have a potential of causing hearing loss to people exposed. Thus, without being able to regulate the use of a product it may be impossible to determine proper levels of control. The second problem is created by focusing on new products. Leaving unregulated products in use means there will only be a gradual reduction in noise, in some cases taking years, as old products are replaced. An increased number of products in use may even offset this reduction.30

Aside from regulating new products, the NCA isolates three sources of noise pollution produced by equipment currently in use for separate and different treatment. Airplanes are covered under section 7 with primary responsibility assigned to the Federal Avia-

speed limits, bans on vehicles from certain streets and other similar restrictions. 42 U.S.C. § 4905(e) (1976). Theoretically federal pre-emption frees manufacturers from the necessity of meeting a variety of different standards and allows them to focus their efforts on attaining a national standard. However, based on the history of federal preemption, especially for national automobile emissions standards, efforts were directed at undermining rather than complying with standards. Senator Muskie noted that “substitution of Federal Law for state law without assurance that public health will be protected is poor public policy.” S. REP. No. 92-1160, 92d Cong., 2d Sess., Minority Views, reprinted in [1972] U.S. CODE CONG. & AD. NEWS 4655, 4671.

30. Consistent with the approach of essentially regulating manufacturers, the NCA imposes additional duties besides producing products which comply with noise emission standards. Regulated products must be warranted to the ultimate and subsequent purchasers that at the time of sale it was designed, built and equipped to comply with the regulation. 42 U.S.C. § 4905(d) (1976). EPA may specify a useful life over which the product must be warranted. This is to be strictly a manufacturer’s warranty; thus, if a dealer incurs any costs in fulfilling the warranty, the costs may be recovered from the manufacturer.

In conjunction with new product regulations, Section 8 of the NCA 42 U.S.C. § 4907 (1976), requires the Administrator to designate products which are capable of either producing injurious noise or effectively reducing noise. Regulations must then be issued requiring manufacturers to include a label with such products containing either their noise emission levels or their noise reduction effectiveness. See Notice of Proposed Rulemaking - Noise Labeling Standards - General Provisions, 42 Fed. Reg. 31722 (June 22, 1977); Notice of Proposed Rulemaking - Noise Labeling Requirement - Hearing Protectors, 42 Fed. Reg. 31730 (June 22, 1977).
Railroads and motor carriers are each covered by special sections requiring EPA to issue regulations within a specified period of time. Since transportation is generally considered the principal source of noise in American urban areas, it is a reasonable inference that Congress, in providing EPA with special regulatory authority in this area, was clearly dissatisfied with the status quo. Hence, regulations under these sections may be judged by the degree to which, in the short term, they improve the situation which existed at the time of the Act's passage.

Several methods for the enforcement of product regulations are provided in section 11 of the Act. A substantial criminal penalty of up to $25,000 per day of violation and a jail term of up to one year may be imposed on violators. In addition, two less onerous alternatives are provided: an injunction may be sought in district court to restrain any violations, or the Administrator of EPA, after notice and an opportunity for a hearing, may issue orders specifying appropriate relief. However, no civil penalties are provided.

Rather than centralize all noise control functions of the federal government in EPA, Congress saw EPA as a coordinator, conscience and jawboner. Decentralization was most likely retained because noise is not a distinct concern but one enmeshed in unrelated matters handled by government agencies or departments with special expertise in different fields, such as housing (Housing and Urban Development), highways (Department of Transportation), airplanes (Federal Aviation Administration) and employee health and safety (Occupational Safety and Health Administra-

37. The Secretary of Transportation has the responsibility for enforcing motor carrier and railroad regulations. 42 U.S.C. §§ 4916(b), 4917(b) (1976).
The Act provides several methods for EPA and the federal government to jointly reduce levels of noise. 39

B. Legislative Process

The legislative history of the Noise Control Act is somewhat sparse. Different versions were passed by each house 40 at the end of a congressional session; 41 consequently there was no time for the bill to go to a House-Senate conference and be reported before adjournment. Instead, the House amended the Senate bill in a manner acceptable to the Senate, leaving the legislative history devoid of a conference report.

Congress was aware of the difficulty of drafting a standard which was consistent with the Act's goals, yet capable of administration by EPA. Senator Tunney, author and floor manager of the bill, admitted that:

The difficulty of relating noise emissions from a given source to effects on public health and welfare in an enforceable way led the [Senate Public Works] committee to conclude that implementation of a technologically based standard was preferable in terms of uniformity and enforceability to one calling for protection of the public health and welfare. While the intention of the whole bill is to protect public health and welfare from environmental noise, the

39. First, any time a federal agency proposes to prescribe a standard or regulation respecting noise, Section 4 of the NCA, 42 U.S.C. § 4903(c) (1976), requires that EPA be consulted. EPA may require the proposing agency to explain why a more restrictive standard should not be adopted but has no additional power. Comments on federal actions may also be made during review of environmental impact statements prepared pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(c) (1976), and during the procedures under the Clean Air Act for review and comment on legislation, regulations, and construction projects of other federal departments and agencies. 42 U.S.C.A. § 7609 (West Supp. 1977) (transferred from 42 U.S.C. § 1857(h)(7) (1970) by Pub. L. No. 95-95, 91 Stat. 685 (1977)). In addition to requiring federal facilities to comply with federal, state and local noise standards, 42 U.S.C. § 4903(b)(2) (1976), EPA may also certify products as "low noise emission products" which would allow federal agencies to spend 25% above the retail price to purchase such goods. 42 U.S.C. § 4914 (1976).


committee expects that the application of best available technology will just begin to realize that goal in the foreseeable future.\textsuperscript{42}

Thus, although the Senate had opted for a cost/technology rather than health/welfare standard, under the final version, as amended by the House, the two standards were combined.\textsuperscript{43} Senator Tunney offered his view of the final version:

Under the House amendment, the application of the best available technology remains the minimum standard, by providing for the establishment of standards based on both public health and welfare and the technology available for noise reduction. The Administrator will have an opportunity to assure that the best which can be done is done, while at the same time pushing the limits of technology to achieve greater noise emission control results protective of public health and welfare.\textsuperscript{44}

This explanation indicates that even a sponsor of the bill had a difficult time understanding the relationship between the cost/technology and health/welfare standards. Congress avoided the crucial decision of which standard to apply, deferring instead to the administrative agency. It was left unclear whether existing technology is to serve as a limiting factor or whether product regulations are to force technological advance. It is also unclear whether or not the standard is to be viewed as basically requiring levels protective of health and welfare except where technology and cost are overwhelming obstacles.

The following section of this Comment will examine how EPA has handled this ambiguous and indecisive set of directions, using as an example regulations establishing noise limits for new and existing trucks, major contributors to environmental noise. The process used to select specific noise levels will first be considered. Then, EPA's behavior will be examined in light of the Act's health/welfare and cost/technology standards to determine whether the statutory approach for setting levels was followed or could have been followed.

\textsuperscript{42} 118 CONG. REC. S35387 (1972) (remarks of Sen. Tunney). "Environmental noise" is defined by the NCA as "the intensity, duration and the character of sounds from all sources." 42 U.S.C. § 4902(11) (1976).
\textsuperscript{44} 118 CONG. REC. S37319 (1972) (remarks of Sen. Tunney).
II. Trucks

The best method of evaluating statutory language that is the basis of a regulatory scheme is to examine how well it has been understood by the implementing administrative agency and then determine whether the desired results have been achieved. The regulation of trucks has been chosen as a case study because, aside from airplanes, trucks have an impact on the largest number of people.\(^4^5\) Congress itself devoted special attention to trucks. Section 6 of the Act identifies transportation equipment as a preliminary focus in regulating new products,\(^4^6\) and section 18 specifically isolates motor carriers currently in operation for regulatory action.\(^4^7\) The following sections will consider whether EPA has been able to meaningfully interpret and apply the ambiguous standards provided by the Noise Control Act.

To date, EPA has chosen to regulate only those trucks in use which weigh over 10,000 pounds gross vehicle weight rating (GVWR) because they are most likely to have the highest noise levels and contribute proportionately more to the noise problem because of their generally high annual mileage.\(^4^8\)

The Act provides different standards for new and old trucks. Sound levels for old trucks are to "reflect the degree of noise reduction achievable through the application of the best available technology, taking into account the cost of compliance"\(^4^9\) and may be issued only after consultation with the Secretary of Transporta-

\(^{45}\) Truck noise is not caused by a single component or function but is comprised of five major sources: first is engine noise, a problem caused by internal combustion and resulting mechanical vibration; second is cooling fan noise, a problem typically found in high-horsepower engines which results from air flow irregularities; third is engine exhaust noise, the most commonly recognized noise source, which is partially radiated combustion noise and partially exhaust outlet pressure variation; fourth is air intake noise which varies greatly with the type of truck: diesel trucks, for example, are special culprits in noise pollution largely because of their need for air induction (though their use also corresponds with the increasing size of the truck); fifth is tire noise, which varies with the type of tire used and can become the predominant source of noise at speeds over 35 mph. Proposed EPA Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce, 38 Fed. Reg. 20102, 20103 (1973) (introductory notice by Robert Fri, Acting Administrator) [hereinafter cited as Proposed Standards - Old Trucks].


\(^{48}\) EPA, Background Document for Interstate Motor Carrier Noise Emission Regulations 1, 4 (1974) [hereinafter cited as Background Document - Old Trucks].

tion. This is a purely technology-based standard in contrast to the previously noted standard for new products, which requires consideration of public health and welfare.

Under the standards for both old and new trucks, EPA has chosen to establish regulations for the truck as a whole, leaving to the operator the choice of controls, rather than setting maximum levels for each sound-producing component. This is sensible for new trucks where the standard requires that EPA consider public health and welfare and thus overall noise levels. The standard for old trucks, however, does not permit consideration of this factor but, rather, requires the application of best available technology, which should mean that each component is controlled to the greatest extent possible.

A. Standard Setting

1. Old trucks

The absence of a health-related standard for old trucks is proper because, in general, the retrofitting of products in use is much more costly than the introduction of new technology at the design stage of a product. Therefore, considerations of both cost and technology should insure that any improvement in noise reduction does not require an expenditure which is excessive.

Administratively, the best way to implement such a provision would be to develop a series of cost estimates based on a range of noise levels, considering information on the availability of technology and the cost required to retrofit the trucks. The appropriate standard would be the point just before the chosen control technology could be considered unavailable or before the cost became too

51. The permissible sound levels for all motor carriers, including old trucks, are

<table>
<thead>
<tr>
<th>Speed</th>
<th>Sound Level (at 50 feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than or equal to 35 mph</td>
<td>86 dBA</td>
</tr>
<tr>
<td>greater than 35 mph</td>
<td>90 dBA</td>
</tr>
<tr>
<td>stationary (full throttle)</td>
<td>88 dBA</td>
</tr>
</tbody>
</table>

52. For comparable considerations under the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1376 (1976), see CPC Intern, Inc. v. Train, 540 F.2d 1329, 1341 (8th Cir. 1976).
much for industry to pass on and remain in business. While it is possible that EPA took this approach, none of the regulations or background documents suggests it.

Instead, it appears that EPA worked backwards, by first picking a standard and then developing cost and technology data to buttress its choice. The criterion for choosing a standard appears to have been the minimization of disruption of the trucking industry rather than cost, technology, health, or welfare considerations. One indication that the industry has been pleased with the regulations is that no suits have been brought challenging the noise levels set.

When these regulations were first proposed in July, 1973, EPA noted that several statistical studies of highway noise were used in their development. This was a valid first step in determining the number of vehicles that would require retrofitting and, from that estimate, the cost to the industry of compliance. The regulation of motor carriers is comparable to effluent limitations established under section 301 of the Federal Water Pollution Control Act Amendments of 1972 which the Supreme Court has interpreted as requiring uniform standards. To consider cost factors for individual operators would place an “impossible burden” on EPA. There is no indication, however, that EPA used the statistical studies to consider various cost factors for the industry. Indeed, the number of trucks which would have been in violation of the chosen standard was extremely small. EPA anticipated a violation rate of 23% if no alterations were made on then-operating trucks. But since the noisiest trucks are those which log the most miles, only 7% of the number of trucks operating would actually have to be retrofitted.

53. The NCA does not contain any provisions requiring that quantifiable cost be roughly equal to benefit.
54. Proposed Standards - Old Trucks, supra note 45, at 20103-04.
57. Id. at 132.
58. Background Document - Old Trucks, supra note 48, at 51.
59. Id. EPA also seeks to buttress the 90-dBA level by pointing to a study which indicates it would, on a typical highway, cause a 3.6-dBA decrease in $L_{dn}$ which they said would be a 50% reduction in sound energy. As discussed in note 1, this represents a significantly less perceptible difference.

$L_{dn}$ is a measure of sound adopted by EPA related to the decibel. Instead of looking at intensity at a given moment, it measures the exposure an individual receives over a given period of time. The general measure is $L_{eq}$ (level equiva-
In choosing a 90-dBA level for all trucks over 10,000 pounds, EPA made only passing mention of the fact that only 2% of two-axle trucks will violate the standard, without noting that 71.7% of all trucks are two-axle. EPA felt that these trucks, if classified separately, could meet an 88-dBA standard but rejected that approach because it would not result in a significant reduction in overall truck noise. This is a sensible approach for a regulatory scheme designed to attain given ambient levels of noise. Unfortunately, the Act did not adopt that method. Therefore, levels for two-axle trucks do not represent best available technology. The choice of a 10,000 pound lower limit is probably justified by the fact that most states had chosen it as a dividing line, and the intent of the Act is to encourage cooperation in federal and state efforts. Since almost half of all motor vehicle noise comes from trucks over this limit, EPA properly focused on them first.

EPA next adopted an 86-dBA limit on trucks traveling below 35 mph. It is possible that this limit was chosen first, and 4-dBA added to establish the level for all trucks to account for the contribution of tires and other noises related to high speeds. If so, this would only serve to further impeach the 90-dBA level because the background document for the regulations implied that an 86-dBA level could be met by a mandated change in the type of tires used at speeds over 35 mph.

\[L_{\text{Dn}}\] (day-night level) is the constant sound level (in dBA) that a given emission and time period would convey as referenced to the same emission for a 24-hour period. In living situations, \(L_{\text{Dn}}\) (day-night level) is used. It is the same as \(L_{\text{Eq}}\) except a 10-dBA penalty is added to sound which occurs between the hours of 10:00 P.M. and 7:00 A.M. See A. Taylor & D. Lipscomb, The Use and Measurement of Equivalent Sound Level, in NOISE CONTROL HANDBOOK OF PRINCIPLES AND PRACTICES 61 (A. Taylor & D. Lipscomb eds. 1978).

60. Final Standards - Old Trucks, supra note 33, at 38209.

61. Background Document - Old Trucks, supra note 48, at 51. EPA did, however, note this fact in a later document. See, e.g., Final Standards - Old Trucks, supra note 33, at 38209.

62. Final Standards - Old Trucks, supra note 33, at 38209. It also appeared that diesel trucks are typically 5-dBA noisier than gasoline-powered trucks though the regulations make no effort to distinguish them. Proposed Standards - Old Trucks, supra note 45, at 20103.

63. Final Standards - Old Trucks, supra note 33, at 38210.


66. Id. at 25. A stationary test has also been devised so that the Department of Transportation could enforce the regulation at their weighing stations. It correlates well with mobile enforcement levels. Id. at 59.
The proposed regulations also suggested a standard for level streets (the other standards assuming the truck to be negotiating an incline) which would produce lower levels in cities where large numbers of people might be affected.\textsuperscript{46} This was based on the assumption that the standard could be met merely by adjusting driving habits. When this was questioned, the standard was dropped,\textsuperscript{48} although it is arguable that exposure on city streets merits special attention, assuming sufficient technology is available.

After picking a standard, EPA proceeded to apply the cost and technology requirements of the Act.

2. New trucks

Not surprisingly, trucks have been identified under section 6 as a new product which is a major source of noise.\textsuperscript{49} The Act mandates that final regulations for such products be published within eighteen months\textsuperscript{70} after identification as such, using the criteria for noise levels noted earlier.\textsuperscript{71}

It would not be unreasonable to give owners of trucks one year to purchase new mufflers and possibly a small amount of additional noise suppression equipment. It would be unreasonable, however, to have truck manufacturers re-tool their assembly lines and convert existing technology into a form that can be applied in the production of 300,000 new trucks each year. EPA has therefore imposed a series of noise reduction levels of increasing stringency over several years (just as auto manufacturers have had to reduce emissions and increase gasoline mileage over a certain number of years).\textsuperscript{72} The series is three-tiered. The first tier is an 83-dBA level imposed largely because several states, including California, Maryland and Oregon,\textsuperscript{73} had already adopted it, with the result

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\textsuperscript{46} Proposed Standards - Old Trucks, supra note 45, at 20104.
\textsuperscript{48} Final Standards - Old Trucks, supra note 33, at 38213.
\textsuperscript{49} The procedure was required by Section 6(b)(1), 42 U.S.C. § 4904(b)(1) (1976).
\textsuperscript{70} They were issued approximately eighteen months late, partially due to extended hearings.
\textsuperscript{71} See Part II of this Comment.
that a number of trucks currently in use are already in compliance. Hence, the technology is both available and proven. The second tier is an 80-dBA level, which will not require major advances in technology. The final tier is a 75-dBA level which will require extensive modifications and will reduce new truck noise levels to those of automobiles on the road today, representing a noise reduction of nearly 50%.

In reaching these particular levels, EPA had to determine the limits of the best available technology, which is defined in the Act as “that noise abatement technology available which produces the greatest meaningful reduction in the noise produced by medium and heavy trucks.” “Available technology” is further defined as

1. technology applications that have been demonstrated to be feasible, as a prototype product upon which production manufacturing may be based.
2. technology for which there will be a production capacity to produce the estimated number of parts required in reasonable time to allow for production, installation on, or manufacture of new products prior to the effective date of the regulation.
3. technology that is compatible with all safety regulations and takes into account operational considerations, including maintenance and other pollution control equipment.

It is difficult to see why the concern expressed in paragraph three (i.e., the concern for potential conflict with other safety and pollution factors) applies to “availability” rather than “quality” of technology.

The definition of “available technology” is much more conservative than the language of the Act suggests. The 1983 standard for effluent limitations under the Federal Water Pollution Control Act requires use of “best available technology economically achievable.” Courts have held that technology may be “available” even if it has “not been applied as long as the record demonstrates that there is a reasonable basis to believe that the technology will be available” by the effective date of the regulations. This interpretation of the word “available,” together with

76. Id.
78. Tanner’s Council v. Train, 540 F.2d 1188, 1195 (4th Cir. 1976); see also
the legislative history, support the conclusion that EPA should engage in technology forcing to achieve lower noise levels from new products.

There has even been some retreat from EPA's own definition of technology demonstrated to be feasible. A prototype truck was built for the Department of Transportation which could meet a level of 72-dBA, but it adopted a cooling system which could not be used on all trucks. When challenged during rulemaking proceedings on the failure to have a broadly applicable prototype for its proposed regulations, EPA re-defined its standard by saying that any analysis demonstrating that a given technology is feasible is a sufficient basis for regulations based on that technology. Accordingly, EPA felt that at least 75-dBA could be met using best available technology, though it did not address the possibility that 72-dBA might also be achievable in a certain number of years.

Any single criterion may act as a weak link in the regulatory chain and serve to limit the stringency of any regulation. One such link is the lead time required by a manufacturer to implement technology. An 83-dBA truck could be produced with two years' lead time, but a 75-dBA truck takes up to eight years of planning, research and tooling. The target years initially proposed for the three tiers were 1977, 1981, and 1983, but the first two were delayed by a year and the 75-dBA limit was dropped altogether. EPA claimed that the 75-dBA level was not dropped for lack of available technology but because it might impose "unreasonable" costs, although EPA has never repudiated its own cost estimates which it deemed "reasonable." Furthermore, no test of reasonableness has been suggested.


79. See text accompanying note 44.
81. EPA Noise Emission Standards for Medium and Heavy Duty Trucks, 40 C.F.R. §§ 205.50-59 (1977) [hereinafter cited as Final Standards - New Trucks].
82. Proposed Standards - New Trucks, supra note 75, at 38341.
84. Proposed Standards - New Trucks, supra note 75, at 38343.
85. Final Standards - New Trucks, supra note 81, at 15543. The delay was apparently caused by a lengthening of the period for public comment.
86. Final Standards - New Trucks, supra note 81, at 15541.
With the advent of new truck regulations, EPA has suddenly "developed" concern for the urban noise problem, maintaining that the regulations have been set to meet this problem. The real reason for this new concern, however, appears to be a reluctance to set noise levels for truck tires. Thus, at speeds over 35 mph, at which tire noise predominates, new trucks will be no quieter than old ones. The result is that highway noise will show very little decrease; consequently EPA must now look to the urban dweller if its regulations are to have any raison d'etre. EPA does indicate that it is gathering data on tires so that possibly in the future it might act.\textsuperscript{87} The bottom line, however, is that until then the impact of these regulations will be greatly reduced.

\textbf{B. Cost and Technology Factors}

1. \textit{Old trucks}

Standards established pursuant to section 18 for old trucks are to be based on best available technology considering cost of compliance. EPA's definition of "best available technology," as applied to old trucks, is "noise abatement technology available for retrofit application to motor carriers which produces meaningful reduction in the noise produced by interstate motor carriers."

This definition differs from the definition EPA used with regard to new trucks.\textsuperscript{88} "Best available technology" for new trucks requires the "greatest meaningful reduction" of noise as opposed to merely "meaningful reduction," and is more consistent with Congress' desire for the use of \textit{best} available technology. "Available" is separately defined by EPA to include technology for which there is ample production capacity and which has been demonstrated to be amenable to retrofitting on existing trucks, implying that technology cannot be forced. Furthermore, it must be compatible with other safety regulations.\textsuperscript{89}

"Cost of compliance" is defined as "the cost of identifying what action must be taken to meet the specified noise emission level, and the additional cost of operation and maintenance. The cost for future replacement parts was also considered."\textsuperscript{90}

\textsuperscript{87} Proposed Standards - New Trucks, \textit{supra} note 75, at 38340.
\textsuperscript{88} Proposed Standards - Old Trucks, \textit{supra} note 45, at 20103.
\textsuperscript{89} See text accompanying notes 52-68 \textit{supra}.
\textsuperscript{90} Proposed Standards - Old Trucks, \textit{supra} note 45, at 20103.
\textsuperscript{91} \textit{Id}. 
In proposing motor carrier noise regulations, EPA solicited data on new or existing demonstrable technology and reported noise abatement technology applicable to diesel engines, fans, air induction systems and mufflers. To meet the established standards, EPA concedes most trucks would need only a change in the type of muffler used. However, because noise at higher speeds may be primarily due to the type of tire used, a change in tire type might also be required.

Assuming that these are the only required changes and that the requisite technology exists to meet and even surpass the proposed regulations, it seems clear then that considerations of cost should determine the appropriate standard. On its face, the cost of compliance should equal the difference between expenses before compliance and expenses after compliance. When applied to a muffler, the appropriate factor EPA should consider, therefore, is not the cost of the muffler, which a truck would already have, but instead only the additional cost required to buy a quieter muffler. Unfortunately, this basic arithmetic eluded EPA. Throughout the background document for the regulations, the full cost of a muffler is used. Only casually, and once, is it admitted that "the cost incurred will be the difference between that for the required muffler and that for the one that would have been installed anyway, and the difference is within the range of a few dollars." Yet throughout EPA's considerations, the "cost" is estimated at between $35 and $100. This estimate is further unjustified because mufflers are usually replaced at one-and-one-half year intervals, thus leaving ample time for industrial muffler shopping prior to the effective date of the regulations. The muffler industry also assured EPA that it was capable of expanding production to meet increased demand and more stringent standards.

93. Proposed Standards - Old Trucks, supra note 45, at 20104. There would be a small percentage of trucks which would need additional retrofitting. Final Standards - Old Trucks, supra note 33, at 38211.
94. Background Document - Old Trucks, supra note 48, at 66; see also Hearings, supra note 33, at 54-55.
95. Id.
96. The final standards were promulgated on October 21, 1974, but the regulations did not go into effect until October 15, 1975. Final Standards - Old Trucks, supra note 33; 40 C.F.R. § 200.11 (1977).
97. Proposed Standards - Old Trucks, supra note 45, at 20104; Final Standards
The same situation exists regarding the required change in types of tires which normally must also be replaced within a period of about one year. Furthermore, changing tire types may not even involve a cost differential but only a need to shift buying habits.

This consideration was not emphasized by EPA in determining cost of compliance partly because it claimed some ignorance of possible costs, though without explaining why. In fact, the regulations merely presume the use of noncomplying tires which presumption may be rebutted at the testing station by showing that the truck nevertheless meets the standards for speeds over 35 mph.

Accepting arguendo EPA's cost figures for the purpose of examining their supposed burden on the trucking industry, it is difficult to discern the test being applied. It is estimated that the regulatory authority extends to one million of the five million trucks engaged in interstate commerce. Based on this estimate, an assumed average compliance cost of $135 (the cost of a new muffler) and the additional fact that only 7% of all trucks would require retrofit to meet the 90-dBA standard, a net cost of $9.5 million would result. Not only is this cost deemed acceptable, but EPA suggests that even the $150 million industry estimate would not be an unreasonable burden. Considering that the $9.5 million figure itself is inflated, it seems apparent that more stringent standards could have been imposed without producing an unreasonable cost.

A somewhat closer case might be presented, again assuming inflated cost figures, by the impact on the individual operator whose cost of compliance is estimated to be $0.003 per mile with an average revenue of $1.24 and an average cost of $1.20. If this is not considered an undue profit reduction, the actual cost of

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98. Background Document - Old Trucks, supra note 48, at 66.
99. Proposed Standards - Old Trucks, supra note 45, at 20104. There is some suggestion, though, that it might be $0.23 per thousand miles. Background Document - Old Trucks, supra note 48, at 26.
100. Background Document - Old Trucks, supra note 48, at 25.
102. Final Standards - Old Trucks, supra note 33, at 38210.
103. Id.
104. Id.
compliance would seemingly not be unreasonable if applied to a larger number of trucks. Unfortunately, nowhere are we told the cost of alternative levels and at what point those costs might be considered an undue burden. Some suggestion is made that lower levels might be attainable, but nowhere is the basis for the judgment given.

2. New trucks

EPA has defined the cost of compliance for new trucks as

the cost of identifying what action must be taken to meet the specified noise emission level, the cost of taking that action, potential decrease in sales as a result of higher product cost, as well as any additional cost of operation and maintenance. The cost for future replacement parts and possible decrease in useful life of vehicle was also considered.

EPA has apparently rejected any suggestion that this definition requires a cost/benefit analysis and instead prefers to emphasize the small percentage increase in cost. Such an interpretation is consistent with the Act which does not suggest that costs must be comparable to the benefits received.

The cost implication of this standard is very strange — it will save truck owners money. Under traditional economic theory, if a certain action is more efficient or economical than another, it should be taken without the need for government regulation. For example; one problem truck manufacturers will have to face in meeting the new levels is reducing the noise from truck fans. Apparently the best solution is to install a fan clutch, a cut-off device which only activates the fan when actually needed (about one percent of the time). In terms of annual operating costs, the device would save approximately $460 million each year in gasoline and engine wear. This saving alone — not the regulation — should therefore be sufficient inducement for the installation of the device. However, this has not been the case. The 1973 fuel shortage caused little increase in the use of fan clutches, so it is fair to credit the regulation with providing the impetus for their use.

106. Proposed Standards - Old Trucks, supra note 45, at 20104.
108. Final Standards - New Trucks, supra note 81, at 15542.
111. Id.
Using worst case estimates (assuming zero cost savings from the mass implementation of technology and also assuming no technological improvements) the greatest cost increases for new heavy-duty diesel trucks will be 0.8% for compliance with an 83-dBA level, 1.9% for an 80-dBA level, and 4.5% for a 75-dBA level. It is not clear whether these cost estimates reflect the same methodological error as did the estimates for old trucks (i.e., total cost as opposed to added cost of complying with the regulation). In any event, EPA is convinced, except for the 75-dBA level, that since trucking is a stable industry, there should be only a small decline in truck sales and the increase in capital and operating expenses, even when savings from fan clutches are ignored, are reasonable and not a basis for rejecting the new regulations.

These worst case estimates may be expressed in another way. The projected cost of the regulations for the years 1978 through 1991 is $225 million. This represents 0.25% of the $89.1 billion annual revenue of the trucking industry. The use of a percentage of annual revenue in determining the cost impact on an industry has previously been employed in reviewing effluent limitations established under the Federal Water Pollution Control Act. Although not an abbreviated cost/benefit analysis, it does enable EPA to determine whether an industry can successfully absorb the cost of compliance and remain in business. Since cost is only to be a secondary consideration in setting standards, this is an appropriate degree of inquiry.

112. Proposed Standards - New Trucks, supra note 75, at 38342. Industry estimates are higher for 75 dBA by a factor of four. General Motors Corporation, Comments of General Motors Corporation with Respect to Transportation Equipment Noise Emission Controls, VII-13, December 20, 1974. In its final regulations, EPA revised the percentage increase for 80 dBA to 2.8% and, based on comments received during the notice and comment period, dropped its estimate for 75 dBA due to a need for further study. Final Standards - New Trucks, supra note 81, at 15542.


114. Pollution Control Guide Newsletter (CCH), April 19, 1976, at 197.

115. Id.

116. American Iron & Steel Inst. v. EPA, 526 F.2d at 1052-53. A minor cost that will be imposed involves having manufacturers perform testing on trucks to insure compliance. This should entail an initial expenditure of only $50,000 for a test facility and an estimated cost per truck of only $0.60. Proposed Standards - New Trucks, supra note 75, at 38346; Final Standards - New Trucks, supra note 81, at 15542.
The regulations also impose a labelling requirement and require that each truck be warranted. This will help insure that the truck meets the required levels throughout its useful life, although at the moment EPA feels it does not have sufficient information to set a useful life requirement, thus leaving a gap in the whole scheme. Unless care is taken to insure that trucks maintain their noise characteristics, assuming proper maintenance, these regulations will be of little value. EPA hopes to gather enough data to impose such a requirement.

C. Health and Welfare Factors

Under Section 18, EPA is not to consider, nor has it considered, health and welfare in setting sound levels for old trucks. Such factors are only to be considered in promulgating new truck regulations.

The addition of public health and welfare to the criteria for regulation ought to have some effect on the resulting noise emission levels for new trucks. Yet EPA candidly admits that "these noise levels are not sufficiently protective of public health and welfare," without indicating that cost or technology were prohibitive. There is no indication that these factors played any part in setting the levels. In the background document accompanying the final regulations, EPA devoted a great deal of space to studying the impact the regulations would have on the number of people exposed to noise levels in excess of the 55 $\text{L}_{\text{dn}}$ considered protective of public health and welfare. It also examined the degree of interference various levels would have at given distances in different situations on activities such as conversation, thought and sleep. Despite all this, when the final regulations were issued, the level ultimately most protective of health and welfare, 75-dBA, was dropped, at least temporarily.

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118. Final Standards - New Trucks, supra note 81, at 15543.
120. Final Standards - New Trucks, supra note 81, at 15538.
121. For a definition of $\text{L}_{\text{dn}}$, see note 59, supra.
124. Final Standards - New Trucks, supra note 81, at 15541.
D. Enforcement

Congress, in choosing to devote special attention to the problem of noise from trucks, could be said to be stating its disenchantment with things as they were. If so, it would be reasonable to expect that in enforcing the standards set under the Act, a fairly high violation rate might initially appear. Despite this expectation, the figures tell a different story.

EPA's regulations for old and new trucks became effective October 15, 1975.\textsuperscript{125} It is the responsibility of the Secretary of Transportation to implement and enforce these regulations through his enforcement authority and the enforcement provisions of the Act. Pursuant to that authority, the Department of Transportation, Bureau of Motor Carrier Safety, issued compliance regulations which were essentially testing procedures,\textsuperscript{127} effective the same day as EPA's regulations. An employee of the Chicago office of the Bureau of Motor Carrier Safety reported few violations and, based on experience, opined that most trucks on the road, including diesel trucks, could meet an 83-dBA level where a 90-dBA level is in effect, recognizing that some older trucks might not be able to comply.\textsuperscript{128} The City of Chicago adopted the federal standards but after a brief attempt at enforcement at speeds exceeding 35 mph found too low a rate of violation to warrant the effort.\textsuperscript{129} The Bureau of Motor Carrier Safety in Washington, D.C. has compiled a more extensive record covering enforcement for the period between the effective date of the regulation and December 1, 1976, or a little over one year.\textsuperscript{130} Of 13,964 trucks measured, only 3.12% were in violation of the 90-dBA standards.\textsuperscript{131} Violation rates at other levels were:

\begin{tabular}{|c|c|}
\hline
Level in dBA & Percent above level \\
\hline
88 & 6.68 \\
86 & 18.98 \\
83 & 57.89 \\
\hline
\end{tabular}

\textsuperscript{125} 40 C.F.R. § 202.11 (1977).
\textsuperscript{126} 42 U.S.C. § 4917(b) (1976).
\textsuperscript{127} 49 C.F.R. § 325 (1977).
\textsuperscript{128} Phone conversation with Mr. Dennis Martini, Federal Highway Administration, Bureau of Motor Carrier Safety, Chicago, Illinois, January 31, 1977.
\textsuperscript{129} Phone conversation with Mr. Poston, Department of Environmental Control, City of Chicago, Chicago, Illinois, January 31, 1977.
\textsuperscript{130} Unpublished report of the Federal Highway Administration.
\textsuperscript{131} Id.
It is clear from these figures that the noise pollution caused by trucks has been relatively unaffected by passage of section 18. The penalty provision of the Act further detracts, although indirectly, from its effectiveness. The provision, which parallels certain penalty provisions of the Clean Air Act, calls for fines of up to $25,000 per day of violation or imprisonment of up to one year, or both. The magnitude of these penalties has dissuaded the Federal Highway Administration from seeking their imposition for fear of being thrown out of court by a judge who finds violent crime more troublesome than a noisy muffler.

As noted earlier, the Act contains a comparable section for railroads under which regulations have been issued setting maximum noise emission levels for locomotives and rail cars. A comparison of American and Japanese motor carrier and railroad standards demonstrates for many of the reasons stated above that American standards are extremely lax. The American truck standard allows a 96-dBA level at twenty-five feet. Compared with the Japanese level of 89-dBA, the American level permits the operation of trucks one-and-one-half times as loud. Similarly, the railroad standards which EPA has promulgated will allow four times the noise intensity of the most protective Japanese standard as well as allowing exemptions which will delay attainment of even that level.

Unfortunately, the noise control of existing trucks and railroads has been purely cosmetic with no real benefit to the public. It has not been without expense, however, which absent any real improvement is a waste. No regulation at all would be preferable to the existing scheme.

134. Phone conversation with Mr. Arthur McAndrew, Chief, Compliance Division, Bureau of Motor Carrier Safety, Federal Highway Administration, Washington, D.C., February 1, 1977.
138. Bennett, supra note 137, at 559-60.
139. Cooke, supra note 137, at 556-57.
E. Conclusions

The truck experience has provided the opportunity to evaluate the use of both a cost/technology and a health/welfare standard for old and new trucks respectively. Both have been failures. Less stringent regulations than called for by the Noise Control Act were issued, thus delaying attainment of the legislative goal of "an environment for all Americans free from noise that jeopardizes their health and welfare." The failures, motivated by different factors, suggest the appropriateness of a legislative remedy and the form it should take.

The failure of EPA in implementing the health/welfare standard is not surprising. The congressional directive was so obscure that even if it were the proper type of standard, application would have been extremely difficult. EPA made an effort to consider the impact reductions would have on the number of people exposed to excessive sound but, understandably, found no way of relating that to a product standard. Thus, EPA was using, without so admitting, a cost/technology approach despite the arguable intent of the Act that these be only secondary factors with primary focus placed on health/welfare concerns.

EPA failed in applying a cost/technology standard as well. The reason was not as fundamental as the inapplicability of the standard to product regulation. Part of the failure was a conceptual mistake in the meaning of "cost." Once alerted to this error, the agency is not likely to err again. The remainder of the failed effort seems attributable to an unwillingness, though not a lack of ability, to apply the cost/technology methodology to determine the proper level of control. In the absence of proof, at least an inference of industry pressure is raised. There is no reason to doubt that the standard itself is both appropriate and capable of successful application.

The absence of judicial interpretation and enforcement of these provisions is regrettable and may be explained by the fact that the regulations have been so favorable to the regulated industry. The following section proposes a legislative remedy that addresses the dual failures of EPA through a revision of the Act's standard. The absence of a civil penalty for enforcement is also discussed.
III. PROPOSED REVISION OF THE NOISE CONTROL ACT

The NCA is a perfect example of congressional avoidance of major policy decisions through the use of ambiguous language and the establishment of a regulatory program ill-suited to achieve the stated goal of the legislation. The result is an abdication of policymaking power to an administrative agency and, oftentimes, ultimately to a judge. The failings of the Act have unavoidably resulted in poor implementation which has not been aided by judicial interpretation. Thus, the burden now rests with Congress in its role as overseer of federal programs and funds to correct the Act and clarify the depth of its commitment to noise control.

The NCA has served as a first step in focusing attention on the problem of noise and demonstrating that it is possible to control the ever-increasing levels of noise without threatening industrial and technological growth. However, EPA's experience with regulating the noise characteristics of trucks has shown that for the Act to be effective, clearer guidance and a revised standard are necessary. The following language is suggested:

$$\text{§ 6(c)(1). Any regulation prescribed under subsection (a) or (b) of this section (and any revision thereof) respecting a product shall include a noise emission standard which shall set limits on noise emissions from such product and shall be a standard which in the}$$

141. The current provision is:

Any regulation prescribed under subsection (a) or (b) of this section (and any revision thereof) respecting a product shall include a noise emission standard which shall set limits on noise emission from such product and shall be a standard which in the Administrator's judgment, based on criteria published under section 4904 of this title, is requisite to protect the public health and welfare, taking into account the magnitude and conditions of use of such product (alone or in combination with other noise sources), the degree of noise reduction achievable through the application of the best available technology, and the cost of compliance. In establishing such a standard for any product, the Administrator shall give appropriate consideration to standards under other laws designed to safeguard the health and welfare of persons, including any standards under the National Traffic and Motor Vehicle Safety Act of 1966, the Clean Air Act, and the Federal Water Pollution Control Act. Any such noise emission standards shall be a performance standard. In addition, any regulation under subsection (a) or (b) of this section (and any revision thereof) may contain testing procedures necessary to assure compliance with the emission standard in such regulation, and may contain provisions respecting instructions of the manufacturer for the maintenance, use or repair of the product.

Administrator's judgment, based on criteria published under section 5, reflects the degree of noise reduction achievable through the application of the best available technology taking into account the cost of compliance. In addition, any regulation under subsection (a) or (b) (and any revision thereof) may contain testing procedures necessary to insure compliance with the emission standard in such regulation, and instructions of the manufacturer for the maintenance, use or repair of the product.

§ 6(f). For purposes of this section:

1. The term "best available technology" means technology providing the greatest meaningful reduction in noise which exists and is in use, or has been adequately demonstrated, or which there is a reasonable basis to believe will be available for use to permit compliance by the effective date of regulations under this section. It does not include technology which will substantially impair compliance with other federal safety, health or environmental legislation.

2. The term "cost of compliance" means costs solely attributable to compliance with regulations under this section and which allows an industry to comply and still remain economically viable.

A. Proposed New Standard

The major goal of environmental legislation has been the protection of public health and the environment from the effects of pollution. When the federal government assumes responsibility for achieving this goal, it is proper for Congress to phrase its mandates in terms of public health and welfare. The Noise Control Act departs from the model of air and water pollution legislation in that it does not place responsibility on the federal government to limit environmental noise. This responsibility has been left with the states. The federal government, instead, has the limited role of regulating only new products, airplanes, railroads and motor carriers. Since it is impossible to devise regulations which take into account every possible use or combination of uses of products, the best approach is to regulate individual products at the production stage, leaving, as the Act has done, product use regulation to the states. Therefore, this Comment suggests that regulations be based solely on cost and technology factors. A health and welfare standard without accompanying control over ambient levels is simply unworkable, as has been demonstrated by EPA's inability to apply it to new truck regulation.

A cost/technology approach is especially useful for noise regulation. Unlike many sources of air and water pollution, most noise sources are mobile, making modeling of combined effects of several
sources difficult. This problem is compounded by the lack of persistence of noise. The net contribution of various low intensity sources over time is often less relevant than brief but high intensity exposure, which is capable of causing harm or disturbance. It is up to the states through noise ordinances, traffic controls and other measures to insure against excessive exposure.

A single cost/technology standard is fully applicable to all new products plus old trucks and rail carriers. As has been stated, cost and technology are the only realistic factors useful in product regulation. This standard was the one chosen by Congress in sections 17 and 18 of the Act for regulating old trucks and railroads.\textsuperscript{142} EPA's problem has simply been an incorrect application. In part, this is the reason for adding the definitions of cost and technology to the statute. They should provide better guidance to EPA in implementing the Act. Furthermore, there has been extensive litigation over the meaning of these or similar terms as used in the Clean Air Act\textsuperscript{143} and Federal Water Pollution Control Act.\textsuperscript{144} If Congress codifies the definitions which have been found in these cases, the amount of litigation, and hence delay, in implementation will be reduced.

\textbf{B. Best Available Technology}

There are at least four possible technological standards for environmental legislation.\textsuperscript{145} The first is to require adoption of practices currently in use. This, of course, provides no incentives for improving control technology and may provide an inadequate level of control. The second is to place the burden of exhausting technological possibilities on the regulated parties. Such an approach lacks efficiency and may not produce uniform results. The third possibility is to impose prescribed emission levels regardless of the state of the art of the appropriate technology. This is certainly a bold approach. It was tried with automobile emissions but it failed.

The legislated reductions in automobile emissions provide a demonstration that the courts and Congress will not allow environmental concerns to cause massive economic dislocation. The 1970

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Clean Air Act provided for suspensions of the standards if certain conditions were met.\textsuperscript{146} Shortly after applications were authorized, most of the automakers applied for a one-year delay. The requests were denied by EPA because some of the conditions were not met. In \textit{International Harvester Co. v. Ruckelshaus}, however, the D.C. Circuit interpreted the conditions as independent in order to allow the suspensions to be given.\textsuperscript{147} In 1976 the automakers informed Congress they could not meet 1978 model year emission standards and if the law were not changed they would be forced to shut down. While amendments to the Clean Air Act failed in 1976, they were finally passed before the summer recess in 1977, allowing new car production to take place.\textsuperscript{148} One commentator's view of \textit{International Harvester}, equally true of the Clean Air Act amendments, was that by lessening "the pressure on the manufacturers, it [the court] invalidated the largest experiment in the possibilities of technology forcing contained in the environmental laws."\textsuperscript{149} While the automobile industry might be viewed as an exceptional case, there has been a general reluctance to shut down whole industries, as opposed to fringe plants, as a result of enforcement of environmental laws.\textsuperscript{150} Until the health risk posed by pollutants can be shown to have greater economic consequences than the continued operation of the polluter, it is fruitless to continue playing this game of bluffs.

The fourth possibility, adopted in this proposed revision, is a limited form of technology forcing. It need only be shown that technology will reasonably appear to be available by the time it is to be applied in achieving the emissions limitation. It is proper that industries be given a chance to rebut decisions made by the Administrator. In reviewing the resulting standards, insofar as EPA articulates the basis of its decision,\textsuperscript{151} the appropriate standard of review then is whether the actions were "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with

\textsuperscript{147} 478 F.2d 615 (D.C. Cir. 1973).
\textsuperscript{148} 1977 8 ENVIR. REP. (BNA) 570.
\textsuperscript{151} See Environmental Defense Fund, Inc. v. Ruckelshaus, 439 F.2d 584 (D.C. Cir. 1971).
Industry thus essentially bears the burden of proof that the methods used were incorrect or the wrong result was reached in setting standards based on anticipated technology. It is true that a technology-based standard can provide some disincentive for the development of new technologies, but by setting levels which can be reasonably obtained in the future by technological innovation or progress, industry will be obliged to explain why these advances could not be achieved. To prevent shutdowns, industry will have an opportunity to make this showing before the effective date of the regulations.

This approach of setting standards somewhere beyond the technological status quo has been adopted by Congress in other legislation. The Clean Air Act, in setting performance standards for new sources, an analogous situation to new product regulation under the Noise Act, takes into account the most efficient approach of incorporating developing technology at the design stage, requiring the "application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated." "Adequately demonstrated" has even been taken to mean "what may fairly be projected for the regulated future, rather than the state of the art at present, since it is addressed to standards for new plants." A standard of "best available technology economically achievable" is employed by the 1972 Federal Water Pollution Control Act Amendments (FWPCA) for setting effluent limitations effective in 1983. Industrial polluters would

152. Administrative Procedure Act, 5 U.S.C. § 706(2) (1976); Cf. Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971) ("To make this finding the court must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.").


155. American Iron & Steel Inst. v. EPA, 526 F.2d at 1062. In discussing the 1983 effluent standards, the court said that the FWPCA "contemplates a period of a few years after which the accuracy of the Administrator's evaluations and projections can be reviewed in light of actual experience."


therefore have six years to meet this after having adopted "best practicable control technology" by 1977. Basically, FWPCA provides a sufficient lead time for upgrading technology. The Fourth Circuit has interpreted this standard as allowing EPA to "assess technologies that have not been applied as long as the record demonstrates that there is a reasonable basis to believe that the technology will be available by 1983." New source guidelines under FWPCA are to be based on "best available demonstrated control technology," which only requires that technology be demonstrated in pilot projects.

Thus, standards which take into account technology not immediately available but based on reasonable projections have been workable. Where there is sufficient lead time to adapt existing sources, or where new sources or products are built, it makes sense that the outer limits of technology be applied. We will have to live with these sources for a while and they cannot be more than minimally polluting if the goal of a safe environment is to be met.

Reference to other environmental legislation has been dropped in the proposed new standard and Congress' apparent intent that regulations under the Act not hinder compliance with other environmental legislation has been spelled out.

C. Considering the Cost of Compliance

The availability of technology will often not be the limiting factor in the control of noise. As seen with the new truck standards, the Administrator felt a 75-dBA limit was technologically feasible, but the decision to drop the limit was attributed to cost factors. The existing standard offers little guidance on how economic factors are to be considered.

If all costs and benefits could be quantified, EPA could be directed to weigh the value of any marginal increase in noise control with resulting benefits. But as the court in *Portland Cement Ass'n v. Ruckelshaus* stated in the context of air pollution, "[t]he difficulty, if not impossibility, of quantifying the benefit to ambient air conditions [of emission reductions] further militates

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160. Tanner's Council v. Train, 540 F.2d at 1195; see also E.I. duPont de Nemours & Co. v. Train, 541 F.2d at 1032.
against the imposition of such an imperative [cost/benefit analysis] on the agency.'\textsuperscript{163} This is also applicable to noise reductions.

Since noise does pose a risk to human health and, according to the World Health Organization, costs $4 billion annually in the United States in accidents, absenteeism, inefficiency and compensation claims,\textsuperscript{164} a substantial expenditure is justified in eliminating these effects.

The proposed definition, consistent with the 1983 effluent limitation standards under the FWPCA, focuses primarily on an industry's ability to absorb the required costs. Thus, in drafting regulations, EPA will be primarily concerned with the availability of technology, and cost will only be a limiting factor in the extreme. This approach was emphasized in Senator Muskie's somewhat inconsistent language in discussing economic considerations in setting the 1983 limits under FWPCA:

\textit{While cost should be a factor in the Administrator's judgment, no balancing test will be required. The Administrator will be bound by a test of reasonableness. In this case, the reasonableness of what is "economically achievable" should reflect an evaluation of what needs to be done to move toward the elimination of the discharge of pollutants and what is achievable through the application of available technology - without regard to cost.}\textsuperscript{165}

It is unlikely, however, that Congress or the public is willing to accept the "Draconian possibility"\textsuperscript{166} of shutting down an industry. Therefore, the appropriate considerations of cost will center on whether "an industry can afford the technology, has access to market powers to pass the costs along, and that technology is not demonstrably exorbitant."\textsuperscript{167} This still leaves the possibility that some marginal firms within an industry will be forced to close.

\textsuperscript{163} Portland Cement Ass'n v. Ruckelshaus, 486 F.2d at 387. Statutory language requiring the Administrator to "consider cost" has been interpreted as not requiring a cost/benefit analysis. American Iron & Steel Inst. v. EPA, 526 F.2d at 1059.


\textsuperscript{167} W. Rodgers, supra note 153, at 466. See also Portland Cement Ass'n v. Train, 513 F.2d 506, 508 (D.C. Cir. 1975); CPC Intern, Inc. v. Train, 540 F.2d at 1341-42.
something Congress has been willing to accept as a consequence of eradicating pollution. 168

D. Danger of Unnecessarily Stringent Limits

The major drawback of a cost/technology regulatory standard is that it may require levels significantly below those required to protect public health and welfare. Unfortunately, as has been seen, the standard which produces a solution with a perfect fit to the problem, a health/welfare standard, is inapplicable.

This problem is mitigated in two ways. First, the Act only permits regulation of products which are either a major source of noise within certain categories or alternatively threaten public health and welfare. 169 This will at least limit the number of products which will be regulated at all. Second, it ought to be within the Administrator's discretion not to impose costs which bear no relation to the degree of noise reduction achieved.

E. Enforcement

The following statutory revisions are proposed:

§ 11(a) Whenever the Administrator believes any person is in violation of section 10(a) of this Act, he may with reasonable promptness issue a citation to that person. Each citation shall be in writing and shall describe with particularity the nature of the violation, including a reference to the provision of the Act, standard, rule, regulation, or order alleged to have been violated. The Administrator, in the citation or by registered mail within a reasonable time after issuance, shall propose a penalty to be assessed under subsection (c).

(b) If any person receiving a citation notifies the Administrator that he intends to contest the citation or any notification issued under subsection (a) of this section the Administrator shall afford an opportunity for a hearing (in accordance with section 554 of Title 5, United States Code, but without regard to subsection (a)(3) of such section). The Administrator shall thereafter issue an order, based on findings of fact, affirming, modifying, or vacating the citation or proposed penalty, or directing other appropriate relief, and such order shall become final thirty days after its issuance.

(c) Any person who has received a citation for violation of section 10(a) of this Act may be assessed a civil penalty up to $10,000 for each such violation.

Civil penalties owed under this Act shall be paid to the Administrator for deposit into the Treasury of the United States and shall accrue to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court for the district where the violation is alleged to have occurred or where the person has his principal office or residence.

The hesitance of EPA and the Department of Transportation to make use of criminal sanctions against violators of the Noise Control Act provisions creates a pressing need for the addition of administrative penalties to the Act's enforcement provisions. The criminal penalties should neither be removed nor lessened, however, because a punishment "by a fine of not more than $25,000 per day of violation, or by imprisonment of not more than one year, or both"170 ought to remain available for widespread violations by a manufacturer. Penalties less stringent would not be a sufficient deterrent on such a large scale.

Now that the Supreme Court in Atlas Roofing Co. v. OSHA171 has at least upheld the use of administrative penalties against a seventh amendment lack of jury trial challenge,172 the penalty provisions might generally be modeled after those in the Occupational Safety and Health Act.173 Based on inspection or other investigation, citations would be given out for violations, such as for non-complying trucks.174 The violator would then be notified of any penalty and given the opportunity to request an administrative hearing.175 Penalties would be based on the number of violations and the degree of knowledge.176 OSHA has been interpreted as not identifying each day as a separate violation.177 This is contrary to the criminal penalties under the Noise Control Act and so under any revision each day ought to be considered a separate violation for purposes of administrative penalties. As with criminal penalties, administrative penalties would be flexible up to a maximum amount. This should even allow effective on-the-highway enforce-

172. "Congress is not required by the Seventh Amendment to choke the already crowded federal courts with new types of litigation or prevented from committing some new types of litigation to administrative agencies with special competence in the relevant field." 430 U.S. at 455.
ment of truck standards once they have been revised under the criteria suggested by this Comment.

F. Conclusions

The problems environmental legislation addresses are so varied that particular solutions are often not interchangeable. What must be realized is that each statute is only an experiment in dealing with those problems. Experience under the Noise Control Act illustrates that Congress' responsibility only begins with passage of legislation. Standards such as cost/technology and health/welfare are blunt instruments which need adjustment and fine tuning if they are to be effective in reducing pollution. Only through vigorous and continuous oversight can Congress determine whether a legislative experiment has been successful. When success is not forthcoming, as here, Congress has an obligation to try a different approach, based on the results of past efforts. Admittedly, the most promising approach is often the victim of political compromise. The history of implementation may be sufficiently convincing that a firmer position, or perhaps no further action at all, would be preferable. What is most important is that a reassessment take place and a renewed or revised commitment be made to legislative goals.