A LEGAL OVERVIEW OF THE OSHA NOISE STANDARD

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SINCE AUGUST 27, 1971, when it became effective, the Occupational Safety and Health Administration's (OSHA) regulation concerning noise levels has been the source of considerable controversy and confusion. The noise standard, as it is frequently called, provides:

When employees are subjected to sound levels exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the Table.¹

The law concerning the noise standard is itself far from settled. The multitude of decisions from the Occupational Safety and Health Review Commission (Commission) and administrative law judges have left many questions unanswered and have allowed substantial uncertainty to remain regarding the interpretation and application of the standard.²

A virtually identical regulation also became effective on August 27, 1971. Unlike the Section 1910 regulations which are "general industry" standards, Section 1926 standards are directed to the construction industry.

¹ 29 C.F.R. § 1910.95(b)(1) (1977). The regulation permits the following sound levels:

<table>
<thead>
<tr>
<th>Duration per Day, Hours</th>
<th>Sound Level dBA (adjusted decibels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>95</td>
</tr>
<tr>
<td>3</td>
<td>97</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>1¼</td>
<td>102</td>
</tr>
<tr>
<td>1</td>
<td>105</td>
</tr>
<tr>
<td>½</td>
<td>110</td>
</tr>
<tr>
<td>¼ or less</td>
<td>115</td>
</tr>
</tbody>
</table>

² The decisions of administrative law judges will not be discussed because they do not constitute binding precedent before the Commission. See Secretary of Labor v. Leone Construction Co., OSAHRC Docket No. 4090, 3 OCC. SAF. & HEALTH CAS. (BNA) 1797, [1975-1976] OCC. SAF. & HEALTH DEC. (CCH) ¶ 20,387 (February 10, 1976).
The highest incidence of noise violations has been in a number of industries covered by Section 1910 regulations, as reflected by the statistics issued by OSHA on March 10, 1977. Accordingly, the bulk of the case law on noise violations focuses on 29 C.F.R. Section 1910.95(b)(1). This article focuses on that standard as the most significant concerning noise.

There have been recent changes in the makeup of the Commission which could result in the alteration of some major prior decisions. The Commission is composed of three Commissioners, one of whom also acts as the Chairman. At the time of many of the more important decisions, the Commission was composed of Chairman Barnako and Commissioners Cleary and Moran. In April of 1977, Commissioner Moran’s term expired. On August 31, 1977, President Carter named then Commissioner Cleary as Chairman and former Chairman Barnako remained as a Commissioner. In April of 1978, Bertram R. Cottine, a former assistant for policy to Undersecretary of Labor for OSHA, Eula Bingham, was confirmed as the new Commissioner. These changes may lead to a reconsideration of many of the guidelines that had been established by the previous Commission. Commissioners Cleary and Barnako have generally taken opposing views in interpreting the noise standard. The new Com-

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3 The industries most frequently cited for noise during 1976 are as follows:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawmills and Planing Mills</td>
<td>100</td>
</tr>
<tr>
<td>Rubber Footwear</td>
<td>66</td>
</tr>
<tr>
<td>Gray Iron Foundries</td>
<td>61</td>
</tr>
<tr>
<td>Bottled and Canned Soft Drinks and Carbonated Water</td>
<td>38</td>
</tr>
<tr>
<td>Metal Stampings</td>
<td>37</td>
</tr>
<tr>
<td>Motor Vehicle Parts and Accessories</td>
<td>33</td>
</tr>
<tr>
<td>Fabricated Plate Work</td>
<td>29</td>
</tr>
<tr>
<td>Miscellaneous Plastics</td>
<td>27</td>
</tr>
<tr>
<td>Blast Furnaces</td>
<td>26</td>
</tr>
<tr>
<td>Wood Household Furniture</td>
<td>25</td>
</tr>
<tr>
<td>Footwear, except Rubber</td>
<td>25</td>
</tr>
<tr>
<td>Fabricated Structural Steel</td>
<td>25</td>
</tr>
<tr>
<td>Wood Miscellaneous</td>
<td>23</td>
</tr>
<tr>
<td>Fabricated Rubber Products</td>
<td>20</td>
</tr>
<tr>
<td>Paper Mills</td>
<td>19</td>
</tr>
<tr>
<td>Metal Cans</td>
<td>19</td>
</tr>
<tr>
<td>Millwork, Veneer, Plywood, and Prefabricated Structural Wood Products</td>
<td>18</td>
</tr>
<tr>
<td>Meat Packing Plants</td>
<td>17</td>
</tr>
<tr>
<td>Electroplating, Plating, Polishing</td>
<td>17</td>
</tr>
<tr>
<td>Fabricated Metal Products</td>
<td>17</td>
</tr>
</tbody>
</table>


4 See E.S.H.G. (CCH), numbers 330 and 331, September 6, 1977 and September 13, 1977 for the announcements.

5 The public announcement of Mr. Cottine’s confirmation was made on May 2, 1978.

6 See E.S.H.G. (CCH) numbers 331 and 334, September 13, 1977, and October 4, 1977 for further details regarding Mr. Cottine’s background.
missioner Cottine holds the swing vote if and when disagreement between the two occurs. It is highly probable that many of the more important cases in which Commissioners Cleary and Barnako opposed each other will now be reconsidered with the addition of Mr. Cottine.

Two major difficulties that have arisen in applying the noise standard are: (1) what constitutes adequate proof that a violation has occurred and (2) what meaning is to be attached to the word "feasible." This article will center on these two areas in order to impart a basic understanding of Commission law regarding the noise standard and some insight into the areas in which change is most likely to occur.

I. PROOF OF EXCESSIVE NOISE: WHAT DATA MUST BE ADDUCED TO PROVE A VIOLATION OF THE NOISE STANDARD

An initial problem posed by the noise standard is the type of proof that will suffice to prove a violation of the noise levels allowed by the noise standard in Table G-16. As the Commission noted in Secretary of Labor v. Weyerhaeuser Co., the standard itself provides two ways in which the Secretary of Labor (Labor) may establish a violation. The exposure of an employee for an interval of eight hours at noise levels of more than 90 dBA is one way to establish a violation. The other means of establishing a violation is to prove exposure for any shorter interval set forth within Table G-16 at levels exceeding those specified for the interval. In the latter case, it is not significant that the exposure may have been sporadic or continuous, or that previous or subsequent exposures were at 90 dBA or less. The only question is what the exposure was for the one interval in issue. For example, proof that an employee was exposed to 100 dBA during a three hour interval establishes a violation even though his exposure level may have been less than the permissible 100 dBA level during the first two hours of the interval. Similarly, the exposure of an employee to noise during the various time intervals of an eight hour work shift may not be violative as to any one time interval, yet be violative of the 90 dBA limit for the eight hour day. Violations can be established in these situations because Table G-16 specifically requires the cumulation of exposure levels.


See note 2 supra.
when an employee is exposed to two or more periods of noise at different levels.  

A further difficulty posed by the noise standard is the type of sampling data sufficient to prove a violation of the Table G-16 limits. A practical problem is presented by the prospect of a compliance officer being required to monitor individual employees with a sound level meter for eight hours in order to obtain sufficient proof of the existence of 90 or 92 dBA levels over eight hours. The Commission has consistently held that spot readings or "grab" samples are sufficient to prove the existence of excessive noise when presented along with other evidence showing that employees were exposed to the levels reflected in those samples for periods exceeding the relevant Table G-16 limits. A brief review of pertinent Commission decisions is illuminating in this regard.

In Weyerhaeuser, the citation alleged exposure to 97 dBA for a period exceeding three hours. The evidence consisted of spot readings of

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9 The explanation accompanying Table G-16 instructs as follows:
when the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: \( \frac{C_1}{T_2} + \frac{C_2}{T_2} \), where \( C_n \) indicates the total time of exposure at a specified noise level, and \( T_n \) indicates the total time of exposure permitted at the level.

See 29 C.F.R. § 1910.95(b)(3) (1977), n.1.

The following hypothetical table set forth in Weyerhaeuser illustrates this principle:

<table>
<thead>
<tr>
<th>Hours of Actual Exposure</th>
<th>Sound Level dBA</th>
<th>Slow Response</th>
<th>Permitted Duration of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>110</td>
<td>105</td>
<td>1</td>
</tr>
<tr>
<td>1/2</td>
<td>90</td>
<td>95</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8 hrs. total)</td>
<td>(Exceeds 90 dBA)</td>
<td>(Less than 8 hrs.)</td>
<td></td>
</tr>
</tbody>
</table>

Note that at no interval does the sound level violate the standard. However, using the cumulation procedure set out by the noise standard a violation occurs as to the total eight hour period:

\[
\frac{1/2}{1/2} + \frac{1/2}{1} + \frac{6/8}{1} = 1 + \frac{1}{2} + \frac{3}{4} + \frac{1}{4} = 2\frac{1}{2}
\]

The violation is established by the figure 2\(\frac{1}{2}\) because it is greater than the figure 1, which represents unity.


11 2 Occ. Saf. & Health Cas. (BNA) 1152.
97 and 102 dBA taken by the compliance officer while holding the sound level meter "sometimes close" to the ears of the exposed employee for a period totaling fifteen to twenty minutes. There was testimony from the employee that the machine emitting the noise, a corrugator single facer, was running normally on the day of the inspection. Moreover, the compliance officer testified that plant officials told him during the inspection that the work operation was normal on that day. However, the compliance officer admitted on cross-examination that the company officials never defined what they meant by the term "normal" with respect to noise.\(^2\) When called to testify, the plant manager stated that fluctuations in the noise level were normal. The exposed employee testified that the variety of normal fluctuations was such that the compliance officer might not have been able to record some of the noise levels in his fifteen to twenty minute sampling.\(^3\) In light of this, the Commission held that Labor did not establish by a preponderance of the evidence\(^4\) that the employee was exposed to 97 dBA for more than three hours.\(^5\)

In Secretary of Labor v. Sun Shipbuilding and Drydock Co.,\(^6\) the Commission reviewed a decision of an administrative law judge that vacated in toto a citation alleging four violations of the noise standard. The evidence that there was excessive noise was reconsidered as to items 1, 3, and 4, Labor having conceded in its brief that item 2 was properly vacated below. Items 3 and 4 were affirmed and item 1 reversed. Item 4 will not be considered herein since all three Commissioners (VanNamee,\(^7\) Cleary, and Moran) differed in their view as to how the facts pertaining to that item should have been weighed in determining if a violation had been proven.\(^8\)

Item 3 alleged a violation based upon the exposure of a welder to noise levels of 112 to 133 dBA.\(^9\) The evidence showed that the welder was oper-

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\(^2\) Id. at 1153.
\(^3\) Id. at 1154.
\(^5\) 2 Occ. Saf. & Health Cas. (BNA) at 1154.
\(^6\) 2 Occ. Saf. & Health Cas. (BNA) at 1181.
\(^7\) Commissioner VanNamee was replaced by Commissioner Barnako following the expiration of his term on April 27, 1975.
\(^8\) In order for a Commission rule or principle on an issue to be established with precedential weight, at least two commissioners must be in accord on the points involved. Shaw Construction, Inc. v. Occupational Safety and Health Review Commission, 534 F.2d 1183 (5th Cir. 1976); Secretary of Labor v. Garcia Concrete, Inc., OSAHRC Docket No. 2591, 3 Occ. Saf. & Health Cas. (BNA) 1121, [1974-1975] Occ. Saf. & Health Dec. (CCH) ¶ 19,688 (May 27, 1975).
\(^9\) 2 Occ. Saf. & Health Cas. (BNA) at 1181.
ating a pneumatic chipping tool in the fabrication shop of the respondent's shipyard when the inspector took two grab samples of about thirty seconds each near the ears of the employee to determine the noise level of the chipper. Those readings registered 112 and 113 dBA. The compliance officer also took an unspecified number of spot readings for background noise which showed the background levels to be from 104 to 106 dBA. The welder testified that he did not know how long he had been operating the chipper at the time the compliance officer arrived. However, there was evidence that he had roughed 180 lineal feet of hull plate with the chipper on the day of the inspection; he guessed that it would have taken him five to ten minutes for each forty lineal feet of plate, or a total of twenty-two and one-half to forty-five minutes for that day's chipping operation. Another witness testified that the exposed employee had not spent more than five minutes operating the chipper on the day in question.\(^2\)

In reviewing this evidence, Commissioner VanNamee, who wrote the lead opinion, noted through interpolation\(^2\) that exposure to 112 dBA would be permitted for approximately twenty-two minutes under the standard and exposure to 113 dBA would be permitted for approximately eighteen minutes.\(^2\) However, he considered the most conservative twenty-two and one-half minute exposure period estimated by the welder to be an insufficient basis for inferring overexposure because it was based on guesswork.\(^2\) He thereby concluded, with the concurrence of Commissioner Cleary, that the burden of proof was not carried as to this element and that item 3 should be vacated.

The evidence involving item 1 supported the opposite conclusion, however. That item alleged that an employee operating a pneumatic chipping tool was exposed to 117 dBA for two hours and twenty minutes.\(^2\) The supporting evidence included three thirty second grab samples reading 116, 117, and 120 dBA taken by the compliance officer in the vicinity of the employee's ears while the employee was operating the chipper.\(^2\) There was also evidence, apparently developed through the testimony of the employee in question, that the employee had been almost continually oper-

\(^2\) Id.
\(^2\) Interpolation is the mathematical process used to calculate the allowable exposure period for intermediate sound levels not specifically set out in Table G-16. The Commission has approved of this practice and has allowed violations to be based upon interpolated exposures. Id. at 1185.
\(^2\) Id. at 1183.
\(^2\) Id. at 1184.
\(^2\) Id. at 1185.
\(^2\) Id.
ating his chipper for one and one-half to two hours prior to the arrival of the compliance officer and that a co-worker was engaged in the same operation nearby at the same time. On this basis, Commissioner VanNamee, with the concurrence of Commissioner Cleary, held that it was reasonable to infer that the chipper operator was exposed to 115 dBA for more than fifteen minutes and that the administrative law judge had erred in vacating the item.

The case of Secretary of Labor v. WPR Lumber Corporation, provides another good illustration of the use of indirect proof in establishing employee exposure to excessive noise. In that case, the evidence showed that the compliance officer took sound readings for forty minutes in the vicinity of a planer foreman working in the lumber mill. The readings showed noise levels exceeding 105 dBA. After completing the sampling, the compliance officer left the immediate area where the planer foreman was working and went "across the street" to his car, from which he further observed the employee, thereby increasing his total observations to more than one hour. The compliance officer pointed out in his testimony that the location of the employee at the time he observed him from the automobile continued to be in the mill areas near the planer machine where the noise readings had exceeded 105 dBA. The Commission's decision notes the testimony of only one witness for Respondent who attempted to contradict the compliance officer; that witness testified merely that he would be very surprised if the planer foreman spent one hour in the immediate vicinity of the planer machine during a single work day. After summarizing this evidence, Commissioner Barnako, who wrote the majority opinion over the dissent of former Commissioner Moran, concluded that exposure to noise levels of 105 dBA or more for a period exceeding the one hour allowed under Table G-16 was established by a preponderance of the evidence. Accordingly, the administrative law judge's decision in favor of Labor was affirmed.

In Secretary of Labor v. Louisiana-Pacific Corporation, the Commission considered the propriety of indirect data which included noise readings taken almost four months after the compliance officer's inspection.

*Id.*

The Commission also held, however, that the item was "other" in classification, not "serious" as originally cited. *Id.*

3 Occ. Saf. & Health Cas. (BNA) 1815.

*Id.* at 1816.

*Id.*

*Id.*

*Id.*

In that case a compliance officer conducted an inspection of a lumber mill on September 17, 1974. He took two noise readings of fourteen to sixteen minutes each, showing a range of 114 to 122 dBA, while closely following a chipper operator through the areas in which he worked. The chipper machine, which was the major noise source for its operator, was in operation for more than seven hours of the operator's shift on the day of the inspection. These facts were entered into evidence, primarily through the testimony of the compliance officer, in support of the allegation that noise levels exceeded Table G-16 limits. However, Labor's case also included evidence from a January 15, 1975, noise survey conducted by a consultant retained by Labor to assess the noise conditions in terms of the feasibility of noise controls. The consultant took five noise readings of fifteen to twenty minutes each, one reading being obtained at each of the five locations where the chipper operator worked. His readings varied from 100 to 115 dBA. This evidence was offered not only as it related to the proof of feasibility, but also in support of the allegation that noise levels were excessive.

The administrative law judge held that the consultant's testimony regarding his readings on January 15, 1975, was not relevant to the September 17, 1974, inspection. Labor was therefore required to amend the date of the violation to state September 17, 1974, and January 15, 1975. The testimony was then admitted along with that of the compliance officer. Accordingly the administrative law judge found that a violation had been established. On review, the Commission, consisting only of Commissioners Cleary and Barnako, affirmed the violation finding that on the basis of the compliance officer's testimony alone it could be reasonably inferred that the low readings of 114 dBA taken over fourteen to sixteen minutes were representative of a condition that persisted for the nineteen minute period required for a violation to be found under Table G-16. Moreover, both

34 Id. at 1995.
35 Id. at 2000.
36 Id.
37 Post inspection monitoring visits may be sought by Labor under Fed. R. Civ. P. 34. Such visits will often enable an expert consultant retained by Labor to sample noise and examine noise sources for the purpose of determining which engineering or administrative controls can feasibly be utilized to attenuate the noise. The Commission has held that such post inspection monitoring visits are ordinarily permissible for that purpose even if the information sought could have been obtained at the original inspection. Secretary of Labor v. Pabst Brewing Co., OSAHRC Docket No. 13068, 4 Occ. Saf. & Health Cas. (BNA) 2003, [1976-1977] OCC. SAF. & HEALTH CAS. (CCH) ¶ 21,472 (January 17, 1977).
38 5 OCC. SAF. & HEALTH CAS. (BNA) at 2000.
39 Id. at 1996.
40 Id.
41 Id.
Commissioners held that the administrative law judge erred in granting the amendment which added the date of the consultant's visit to the citation, and pointed out that such an amendment was not necessary for the admission of the consultant's findings into evidence. Commissioner Cleary found that the consultant's findings were admissible to confirm the first sound level readings taken by the compliance officer and to establish the feasibility of controls. Commissioner Barnako found the consultant's findings admissible only on the question of feasibility. No confirmation of the excessive levels found at the time of the original inspection was necessary since Commissioner Barnako thought the compliance officer's readings were fully sufficient in that regard. Thus, *Louisiana-Pacific* not only serves as an illustration of how the Commission will infer excessive noise levels from limited samplings, but it also shows that the Commission may allow consulting surveys, primarily undertaken to establish feasibility, to be used as proof of excessive noise levels.

II. FEASIBLE NOISE CONTROLS: THE COMMISSION STANDARDS

Once it has been established that noise levels exceed Table G-16 limits, two important issues remain: (1) the feasibility of noise reduction by engineering or administrative controls, and (2) the extent and means by which the company must reduce the noise when it is feasible to do so.

The case of *Secretary of Labor v. Continental Can Company* is probably cited more often than any other on what "feasibility" means in the context of the noise standard. It is indeed a most significant and precedent setting decision. The case involved a number of plants of a manufacturer of metal cans, the Continental Can Company. Citations were issued by Labor alleging that Continental Can failed to institute feasible engineering controls to reduce noise levels to Table G-16 limits, in violation of 29 C.F.R. Section 1910.95(b)(1). The parties stipulated that the noise levels were excessive, that the exposed employees wore personal protective equipment which reduced their noise exposure to levels allowed under Table G-16, and that noise reduction could be achieved by engineering means. The parties strongly disputed what was meant by "feasible."

The case was heard by the Commission on the application of Labor, following the vacation of the noise citations by Administrative Law Judge

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42 Id. at 1996, 2002.
43 Id. at 1998, 2002.
45 Id. at 1542.
Robert N. Burchmore. The Commission first considered Continental Can's argument that engineering and administrative noise controls were unfeasible per se unless they would reduce the noise levels to limits allowed by Table G-16 without the supplemental use of personal protective equipment. Continental Can pointed out in support of this argument that its employees were being exposed to noise levels below the Table G-16 limits by virtue of the enforced use of personal protective equipment and that currently available engineering controls would not reduce the levels sufficiently to obviate the need for the personal protective equipment in all locations. Therefore, the argument continued, the controls could not be feasible in that they would require the expenditure of a large sum of money without a material change in the working conditions for many employees.

In his lead opinion, Chairman Barnako, with the concurrence of Commissioner Cleary, rejected Continental Can's argument on two grounds. First, he found that the noise standard contemplates the use of engineering or administrative controls even when they fail to reduce noise to Table G-16 limits without the supplemental use of personal protective equipment. He then pointed out that 29 C.F.R. Section 1910.95(b)(1) first requires that feasible administrative or engineering controls be implemented. Personal protective equipment is only to be used to reduce sound levels if such controls fail.

In support of this holding Chairman Barnako presented a number of rationales: (1) Personal protective equipment by itself presents the shortcomings of frequent nonuse by some recalcitrant employees, improper

46 Judge Burchmore based his decision on a finding that the noise standard was invalid. Continental Can Co., 3 OCC. SAF. & HEALTH CAS. (BNA) at 1592. However, he based that finding on the interpretation of the standard proposed by the Secretary of Labor that economics enter into an assessment of feasibility only when the contemplated controls would "seriously jeopardize the financial condition of the company."

47 It should be noted that the noise standard itself differentiates personal protective equipment (earmuffs, plugs, etc.) from engineering and administrative controls by virtue of its allowance of personal protective equipment when engineering and administrative controls fail to reduce the noise to Table G-16 limits. See Secretary of Labor v. Anchor-Hocking Corp., OSAHRC Docket No. 3783, 3 OCC. SAF. & HEALTH CAS. (BNA) 1389, [1974-1975] OCC. SAF. & HEALTH DEC. (CCH) ¶19,854 (July 22, 1975). The United States Department of Labor, Occupational Safety and Health Administration's "Field Operations Manual," which provides guidelines to OSHA personnel, also specifically rejects personal protective equipment as a form of administrative control. (ch. 1, para. N). See [1977] E.S.H.G. (CCH) ¶ 4483.80.

48 3 OCC. SAF. & HEALTH CAS. (BNA) at 1544.

49 Id. at 1545.

50 Id.

51 Commissioner Moran dissented on this specific issue, while Commissioner Cleary concurred.

52 The Commission held that this was the proper interpretation of the standard in Secretary of Labor v. Anchor-Hocking Corp. 3 OCC. SAF. & HEALTH CAS. (BNA) 1389.

53 3 OCC. SAF. & HEALTH CAS. (BNA) at 1545.
fittings in other cases and that for the nonuser and the improperly fitted user, a real benefit is only provided by a significant noise reduction accomplished through engineering and administrative means; (2) A reduction in noise levels which is not great enough to meet Table G-16 limits without personal protective equipment may still allow employees to set their earmuffs or ear plugs aside for part of the work day by virtue of the longer period of exposure which would be allowed under Table G-16 to the lower noise level; (3) It is often necessary to implement some engineering controls, with only a partial noise reduction, before it can be determined if further controls are feasible. It would be unrealistic to require a determination that a full reduction of noise to permissible limits is feasible before any controls can be required. For these reasons, Continental Can's first argument regarding the interpretation of "feasible" was rejected.

The second, and more significant point of the controversy, concerned the applicability of economic factors to a determination of feasibility. Labor argued that economic factors should be considered only if the cost of implementing otherwise feasible engineering and administrative controls would "seriously jeopardize the financial health of the company." Even then the economic factors should be considered only in fashioning an abatement schedule. Continental Can argued that Labor's burden of proving feasibility extends to economic as well as technical factors, and that a desirable cost-benefit ratio must be shown before controls can be required. Continental Can presented evidence showing that it would cost $33 million to reduce noise at its seventy-nine metal division plants.

54 Commissioner Barnako pointed out in a footnote that he considered a reduction of 3 dBA "clearly significant." Id. at 1544.

55 Id.

56 OSHA's "Field Operations Manual" outlines the approach to be taken by OSHA personnel faced with economic issues bearing on noise reduction as follows:

The employer's economic cost of abatement will not be considered to be a factor in the issuance of a citation. However, if the cost of utilization of effective engineering or administrative controls, or combination, which would bring the employer into compliance with permissible exposure limits would so seriously jeopardize his financial condition as to result in the probable shutdown of his establishment or a substantial part, then only a personal protective equipment program would be required in the interim, and an extended abatement date should be granted to permit the extended implementation of feasible engineering or administrative controls taking into account the employer's financial condition. The burden of proof of economic infeasibility rests upon the employer. Any abatement date based on economic grounds shall be approved by the Regional Administrator.


57 3 OCC. SAF. & HEALTH CAS. (BNA) at 1546.

58 The citations in issue at the original hearing before the administrative law judge pertained to three plants. However, over the objection of Labor, Continental Can was allowed to introduce evidence bearing on the cost of compliance at its metal plants throughout the nation. The Commission deemed such evidence admissible in that it would allow for consideration to be given "economies of scale." Id. at 1548.
through engineering means and that it would cost approximately $175,000 per year to maintain the controls. Continental Can juxtaposed these figures to a $100,000 per year figure for the maintenance of a program utilizing personal protective equipment.

In considering the contentions of the parties, Chairman Barnako noted that the legislative history and background of the noise standard did not provide any insight. He did consider the decision of the United States Court of Appeals for the District of Columbia in Industrial Union Department v. Hodgson to be instructive. On the petition of a number of labor unions, the court in Hodgson reviewed the propriety of certain aspects of the OSHA asbestos standard. The significant aspect of the decision, from the standpoint of the Continental Can ruling, is that the court found that it would be proper for the Secretary of Labor in the process of promulgating standards to consider the economic feasibility of compliance. After citing Hodgson as sound authority on the issue, Chairman Barnako considered the parties' arguments and the evidence on the issue of economics, and held that the noise standard requires "those engineering and administrative controls which are economically, as well as technically, possible." He went on to state that controls which are "expensive and increase production costs" may nonetheless be economically feasible. The ultimate determination depends upon an analysis of "all the relevant cost and benefit factors," including the magnitude of other hazards existing at the work place and the cost of abating them. The burden of proving economic and technical feasibility

59 Id.
60 Id.
61 Id. at 1546.
62 499 F.2d 467 (D.C. Cir. 1974).
63 Id. at 477.
64 Chairman Barnako in his Continental Can decision cited this specific statement from Hodgson:

There can be no question that OSHA represents a decision to require safeguards for the health of employees even if such measures substantially increase production costs. This is not, however, the same thing as saying that Congress intended to require immediate implementation of all protective measures technologically achievable without regard for their economic impact. To the contrary, it would comport with common usage to say that a standard that is prohibitively expensive is not feasible.

65 Id. at 1546, citing Industrial Union Department v. Hodgson, 499 F.2d, at 477.
66 3 OCC. SAF. & HEALTH CAS. (BNA) at 1547.
67 Id.

67 In addition to consideration of the magnitude of other existing hazards and the cost of abating those, Chairman Barnako made general reference to the following as appropriate factors for consideration in the cost-benefit analysis, while emphasizing that the list was not meant to be "all inclusive:"

**BENEFITS**

1. Number of employees exposed to the noise levels which the engineering or administrative controls could reduce;
rests with Labor. Since Labor took the position that economic factors were irrelevant, and presented no evidence pertaining to economic feasibility, the Commission affirmed the administrative law judge's decision vacating the citations. The Commission did, however, emphasize that the decision did not relieve Continental Can of its responsibility to "[implement]... whatever engineering or administrative controls may be feasible to reduce the noise levels...".

Commissioner Cleary's lengthy dissenting opinion strongly opposed the majority on the issue of economic feasibility. He argued that "economic factors are properly considered only in fashioning an appropriate abatement order." The noise standard is a "technology-forcing" standard. In support of his analysis Commissioner Cleary relied on Society of Plastics Industries, Inc. v. OSHA, the Second Circuit Court of Appeals case in which the validity of the vinyl chloride standard at 29 C.F.R. Section 1910.1017 was upheld. In Society of Plastics, the court considered, inter alia, whether the Secretary of Labor exceeded his statutory authority by requiring employers to reduce the exposure levels of their employees to vinyl chloride to one part per million through engineering controls, when the attainment of that level was impossible with existing technology. In finding for Labor the court stated that the Secretary "may raise standards which require improvements in exist-

2. Net reduction in the exposure of the aforesaid employees which the controls could reasonably be expected to produce;

COSTS

1. Costs of installing controls;
2. Costs of maintaining controls;
3. Indirect costs resulting from decreased productivity or efficiency as a result of the noise controls.

Id. at 1547-48.

68 Id. at 1548.
69 Id. at 1549.
70 Id. After this favorable decision, Continental Can moved for summary judgment on the basis of collateral estoppel in the noise standard cases still pending against it. The Commission decided that collateral estoppel was not applicable because Labor had not actively litigated the issue of economic feasibility and was entitled to do so. They found in this manner despite the fact that Continental Can had raised the feasibility issue and that it formed the foundation for the Commission's decision. In the meantime, Labor continued to cite Continental Can for noise violations. The United States District Court for the Southern District of Illinois disagreed with the Commission and found that Labor was collaterally estopped from prosecuting Continental Can. In addition the court found Labor's persistence in citing Continental Can for noise violations to be harassment in violation of the Fifth Amendment Due Process clause. Continental Can Co. v. Marshall, 455 F. Supp. 1015 (S.D.Ill. 1978).

71 3 OCC. SAF. & HEALTH CAS. (BNA) at 1549.
72 Id. at 1550.
74 Id. at 1309.
ing technologies or which require the development of new technology, and he is not limited to issuing standards based solely on devices already fully developed." After noting this language, Commissioner Clearly pointed out that the vinyl chloride standard considered in Society of Plastics sets forth an abatement approach calling for implementation of those engineering and "work practice controls" which can reduce exposure levels and, when the controls are not fully sufficient, supplemental respiratory protection. This, Commissioner Cleary noted, is an abatement approach much like that of the noise standard. Thus any interpretation of the noise standard should reflect cognizance, as in Society of Plastics, of the "technology-forcing characteristics" of the standard. The holding in Hodgson, relied upon in Chairman Barnako’s opinion, was dismissed by Cleary as inapposite since the asbestos standard considered therein set forth various types of controls to be used and was hence not truly technology-forcing in nature. Commissioner Cleary concluded that the consideration of economic factors in the assessment of feasibility, as established by the majority, would "vitiate the technology-forcing process implicit in the noise standard." In his view, economics could be considered in fashioning abatement schedules when an employer affirmatively establishes that compliance would create a hardship. Commissioner Cleary would have affirmed the citations.

Since the August 24, 1976, decision in Continental Can, several Commission decisions and one court of appeals decision have followed the Continental Can interpretation of feasibility. The decisions in Secretary of Labor v. Castle & Cooke Foods, and Secretary of Labor v. Great Falls Tribune Company, provide good examples of how the Commission has applied the Continental Can test of economic feasibility.

The respondent in Castle & Cooke had been cited for failure to implement engineering controls to reduce noise levels at its can plant and in two areas of its cannery. During peak periods up to 350 employees worked in

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75 Id.
76 3 OCC. SAF. & HEALTH CAS. (BNA) at 1550.
77 Id. at 1551.
78 Id. at 1551-52.
79 Id. at 1551.
80 Commissioner Cleary would take cognizance of the need to accomplish costly abatement of other more serious hazards such as carcinogens, by adjusting the pace at which noise abatement would be required. Id. at 1552.
81 The court of appeals decision which followed Continental Can was Turner v. Secretary of Labor, 561 F.2d 82 (7th Cir. 1977).
the can plant while another twelve employees worked in the detached cannery building. The parties stipulated that the employees in the cited areas worked in close proximity to machinery which generated noise well in excess of Table G-16 limits for eight hour shifts. The parties also stipulated that the respondent provided its employees with personal protective equipment that was usually used pursuant to company rules and which would reduce noise to permissible levels when used. The consultants retained by the respective parties agreed that machine enclosures would be the most effective engineering means of attenuating the noise in the cited areas; that the design, development, and installation of prototype controls for each machine would require about two years to complete; and that approximately three more years would be required to manufacture and install the final controls on each machine. Respondent’s noise consultant concluded that the enclosures would successfully reduce noise levels to the Table G-16 limits and obviate the necessity for personal protective equipment.

Labor’s expert believed that substantial noise reductions would be achieved by means of the enclosures, but he would not “guarantee” that permissible limits could be reached. The cost of implementing the controls over a five year period according to the calculations of the respondent’s consultants would be $656,492 for the can plant and $40,886 for the cannery. The total figure of $697,378 included estimated costs for “designing, fabricating, shipping, installing and checking prototypes for each type of machine” as well as “modifying the prototypes, and fabricating, shipping, and installing and checking” the final controls for each machine. Respondent’s consultants further estimated that “annual production losses and increased maintenance costs” resulting from the engineering controls would be $240,328 in the can plant and $1,338 in the cannery.

After receiving the above evidence, the administrative law judge vacated the noise citation on the grounds that it was unenforceably vague and, alternatively, that Labor had failed to prove that “particular engineering controls were available for immediate implementation.” The Commission flatly rejected the judge’s finding that the standard was unenforceably vague

84 5 OCC. SAF. & HEALTH CAS. (BNA) at 1435.
85 The decision reported that the noise levels were 89 to 101 dBA in most locations of the can plant, and 95 to 96 dBA in the cannery. Id. at 1440.
86 Id. at 1436.
87 The cost per employee was also estimated:

<table>
<thead>
<tr>
<th></th>
<th>Implementation Cost</th>
<th>Annual Cost Impact</th>
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<tbody>
<tr>
<td>Can Plant</td>
<td>$3,100</td>
<td>$1,100</td>
</tr>
<tr>
<td>Cannery</td>
<td>3,400</td>
<td>111</td>
</tr>
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</table>

Id. at 1440.
88 Id. at 1437.
and reversed his holding to that effect. The Commission also reversed the judge’s alternative holding that feasible controls were not immediately available and held that it was enough for Labor to show that technologically feasible controls presently existed, even if it would take a number of years for Respondent to adapt to them. The central issue was whether or not Labor had sustained its burden of proving economic feasibility. Respondent’s main argument on the economic issue echoed the cost-benefit analysis of Continental Can. Castle & Cooke argued that the cost of implementing the engineering controls was “grossly disproportionate to any purported benefit,” especially in light of the low cost of effective personal protective equipment. Labor argued that economic factors should be considered on the question of feasibility only:

1. If the cost would so seriously jeopardize Respondent’s condition as to result in the probable shut-down of the establishment or;
2. If the increment of employee protection by the use of engineering controls is insignificant and does not approach permissible limits while the cost of the controls is so great as not to justify the imposition of controls of marginal utility.

The second condition had not been mentioned in Continental Can. It may have been added to Castle & Cooke in an attempt to support Labor’s assertion that its approach did indeed meet the requirements of Hodgson that the Commission so heavily relied on in Continental Can. Labor argued that Respondent would, at most, experience an adverse economic effect from the implementation of controls. The controls would not result in their ceasing operation. Therefore Labor argued that the economic feasibility tests were satisfied.

In the lead opinion, Chairman Barnako criticized the approach of both parties to the economic issue for their failure to focus on the degree and type of hazard which the specified expenditures could eliminate. He stated somewhat paradoxically:

[We do not think that a specific employer’s economic situation is particularly relevant in determining the feasibility of noise controls . . . . Instead, we think that in determining whether controls are feasible, we

89 Id.
90 Id.
91 Id.
92 Id.
93 Id.
94 Id. at 1438-39.
must realistically consider the hazard presented by excessive noise and
determine whether the health benefits to employees from noise re-
duction justify the cost to the employers.  

Chairman Barnako then went on to compare noise hazards to carcinogens,
as he had done in Continental Can, and found that “excessive noise is not
life-threatening nor is it considered to be a serious health hazard within the
meaning of the Act, whereas other types of health hazards which may require
significant expenditures of funds to abate are life-threatening.” Since the
harm likely to result to the Respondent’s employees is not great, Com-
misssioner Barnako concluded that the large expenditure for engineering
controls as opposed to personal protective equipment is not justifiable. Accordingly, the noise citation was vacated.

The lead opinion in Castle & Cooke is particularly illustrative of the
importance of relative hazard as a critical element in a cost-benefit analysis.
This notion was only suggested in Continental Can; the great emphasis
placed on this factor in Castle & Cooke serves to clarify the Continental
Can cost-benefit analysis.

Commissioner Moran’s concurring opinion is significant in so far as it
differs from that of Chairman Barnako on the relevance of personal protective
equipment costs vis-a-vis engineering or administrative controls in a cost-
benefit analysis. Commissioner Moran stated that the proper measure of
economic feasibility should have been the “cost of such controls (engi-
neering) in relation to the benefits they can be expected to produce over the personal protective equipment in use.” The practical result of Chair-
man Barnako’s approach was really no different than that of Commissioner
Moran’s. However, Moran, unlike Barnako, took the position that personal
protective equipment could be used under the circumstances in Castle &
Cooke no less effectively than engineering controls for the protection of
employees. He apparently chose to disregard the factors of employee abuse
and nonuse noted in Continental Can and acknowledged by Chairman
Barnako in Castle & Cooke.

Commissioner Cleary’s dissenting opinion took exception with the
majority’s cost-benefit analysis. Most significantly, he suggested that con-
sideration should have been given to a number of cost-benefit factors, in-
cluding “the tax consequences of a capital expenditure by Respondent;
potential increased work by exposure to permissible noise; possible re-
duction in Respondent's expenditures in maintaining a hearing conservation
and monitoring program; possible reduction in premiums for workmen's
compensation insurance." Commissioner Cleary disagreed with the ma-

majority's assessment of the relative importance of protection against hearing
loss, describing the benefit as "not fully calculable in monetary terms." He also suggested that consideration should be given to a number of adverse
effects other than hearing loss which result from excessive noise, noting
harmful changes in the functions of the endocrine, cardiovascular and
neurological systems. In that regard, his dissent might be seen as a recom-

mendation to Labor to present additional evidence on those medical effects
in future cases.

The decision in Secretary of Labor v. Great Falls Tribune Co., which was rendered on the same day as Castle & Cooke, is instructive on
the issue of what proof is required to establish technological and economic feasability. The Great Falls Tribune Company published a daily newspaper. In printing the newspaper it utilized a press room with five printing presses
and a folder. Four to eight employees worked as pressmen in the printing
room, operating the machinery for daily runs averaging three and one-half
hours but occasionally extending up to six hours. According to the engi-

neering consultants of both parties, at normal operating speed the presses
generated noise levels of about 100 dBA. Respondent provided earmuffs
to the pressmen and required that they use them during printing operation.
The evidence established that the earmuffs were in fact regularly and prop-

erly worn and that they reduced the noise impact on the pressmen to per-
missible levels. As for engineering controls, Respondent presented the

 testimony of a consultant who explained that sound absorbing panels could
be attached to the ends of each press and placed in the gaps between
presses, and that special buffers could also be installed. He also described
an enclosure which would reduce noise emanating from the folder. The
expert pointed out that these specific controls were being utilized in the
press room of the most technologically sophisticated newspaper in the state
and that they could be implemented at Respondent's facility for approxi-

mately $100,000 to $150,000 with a resultant reduction in the noise levels
from 100 dBA to 93.5 dBA. Based upon the effectiveness of the existing
personal protective program and the fact that the costly engineering controls
would not achieve full compliance with the noise standard, Respondent's
consultant concluded that the engineering controls were not feasible.

89 Id. at 1442.
100 Id.
101 Id. at 1443.
102 5 OCC. SAF. & HEALTH CAS. (BNA) 1443.
103 Id. at 1444.
Labor presented two witnesses on the feasibility issue, an industrial hygienist and an acoustical engineer. The hygienist presented a number of "general" methods for noise reduction including the coating of ceilings and walls with sound absorbing material, the use of a "quiet booth," and the construction of barricades around the machines. He did not specifically relate any of the available controls to the printing room in issue. The acoustical engineer, on the other hand, did suggest that the enclosure of the presses, the coating of the walls and the ceiling in the printing room with acoustical material, and the use of a "quiet booth" (at which employees would be stationed when it was not necessary for them to be in close proximity to a press) were all controls which could feasibly reduce the noise in the printing room in question. However, this witness admitted that his recommendations were based upon general knowledge of noise abatement techniques and not upon consideration of the specific conditions existing in the printing room. Labor argued that proof of the availability of administrative or engineering controls to reduce noise is sufficient to establish a prima facie case and to shift the burden to the respondent to prove that the general techniques described are not feasible under the particular circumstances. Labor's rationale was that since specific abatement methodologies are discretionary with employers, it is sufficient to show that general noise controls exist. Labor should not be required to prove the feasibility of any specific abatement program in order to establish a violation before the Commission.\textsuperscript{104}

This argument was rejected by the Commission. They held that the "burden is not satisfied simply by a showing that general noise controls exist. The standard is only violated if an employer fails to utilize those controls which are feasible in its operations. Thus, the fact that general noise control techniques exist does not establish that an employer violated the standard."\textsuperscript{105} Chairman Barnako, who wrote the lead opinion, was careful to point out that this holding did not mean that Labor was required to prove the feasibility of a detailed abatement program, but only that "some controls are feasible in an employer's plant." Accordingly, the Commission rejected the testimony of Labor as to feasibility and considered whether or not the testimony of Respondent's expert established that it was feasible, technologically and economically, to reduce the noise through engineering means. The Commission concluded that the predicted noise reduction of 100 dBA to 93.5 dBA established technological feasibility but that the benefits to be gained would be slight in comparison to the

\textsuperscript{104} Id. at 1445.

\textsuperscript{105} Id.
The decision specifically noted that the average daily overexposure of the pressmen was only one and one-half hours as they worked in an atmosphere of 100 dBA for an average of three and one-half hours per day, and that even with the implementation of engineering controls, employees would be required to wear their earmuffs during some of the longer press runs. The Commission thus affirmed the administrative law judge’s decision vacating the noise citation.

Commissioner Cleary’s dissent reiterated his position in Continental Can. He concurred with the conclusion of the lead opinion that the proof established noise levels at the pressroom that exceeded the Table G-16 limits and that technologically feasible controls existed to reduce the noise by 6.5 dBA. This, Commissioner Cleary argued, was a fully sufficient showing to establish a violation; he urged the majority to abandon the additional economic factor applied pursuant to the Continental Can decision and to consider economics only with respect to the abatement date.

In a footnote, Commissioner Cleary made one more point which may have great significance. In Continental Can the majority had accepted a three dBA reduction as “clearly significant.” Herein, the majority agreed that the evidence showed a reduction of 6.5 dBA, yet considered it to be “relatively slight.” Commissioner Cleary found this holding to be “anomalous.” This conclusion is particularly noteworthy because the evidence in Continental Can established that Continental Can employees were exposed to excessive noise (95 to 100 dBA) for eight hours per day, whereas in Great Falls Tribune the employees were exposed to 100 dBA for an average of three and one-half hours per day. Apparently Commissioner Cleary, unlike Chairman Barnako, does not consider the period of overexposure under Table G-16 to be particularly important in assessing the significance of the noise reduction to be accomplished by the engineering controls in question. His footnote suggests that he would focus on the amount of noise reduction alone in determining the significance of the noise reduction in the process of assessing technological feasibility. Whether or not a reduction of less than three dBA would be significant to Commissioner Cleary is not evident, however.

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106 Id. at 1441.
107 Under Table G-16, employees may work in environments with dBA levels of 100 for up to two hours per day without violating the standards.
108 3 OCC. SAF. & HEALTH CAS. (BNA) at 1446.
109 Id. at 1447.
110 Id.
111 Id. at 1448, n.10.
112 Id.
The decision in *Great Falls Tribune* does much to amplify and clarify the holding of *Continental Can*. On the specific issue of technological feasibility, the decision makes it clear that simply showing the existence of general controls for the reduction of noise is not sufficient for Labor to establish technological feasibility; it must show that some particular controls will work in the respondent's plant.\(^{113}\) As to the cost-benefit test, the decision established that the duration of the exposure, as well as the level of noise, will be carefully considered. Engineering controls will be assessed not only in terms of the number of decibels by which they reduce noise, but also by the number of hours of overexposure which they eliminate. Despite his strong dicta in *Continental Can* to the effect that personal hearing protection is inherently undesirable for noise control, the attention which Chairman Barnako paid to the use and effectiveness of earmuffs suggests that in his cost-benefit analysis he is very seriously considering the effectiveness of personal hearing protection and whether it will continue to be required following the implementation of engineering controls.

It is clear, upon reviewing *Continental Can*, *Castle & Cooke*, and *Great Falls Tribune*, that Labor's burden of proof for establishing a violation of the noise standard is considerable. *Secretary of Labor v. Louisiana-Pacific Corp.*,\(^{5}\) provides the sole example\(^{115}\) of the type of proof which the Commission\(^{116}\) will find sufficient to establish feasibility, both technologically and economically.

Labor's evidence on feasibility in *Louisiana-Pacific* was presented through the testimony of a noise control consultant that was qualified by the administrative law judge as an expert witness.\(^{117}\) The expert presented a detailed explanation of two methods by which he believed Respondent's lumber mill chipper machine, which was the source of the noise condition in issue, could be decreased from the 144 to 122 dBA level, to 90 dBA.


\(^{114}\) 5 OCC. SAF. & HEALTH CAS. (BNA) 1994.

\(^{115}\) In Secretary v. Wheeling Corrugating Company, OSHAHC Docket No. 13286, 6 OCC. SAF. & HEALTH CAS. (BNA) 1161, [1977-1978] OCC. SAF. & HEALTH CAS. (CCH) ¶ 20,360 (November 28, 1977), the Commissioner affirmed an administrative law judge's ruling on the issue of economic feasibility and the Commission therefore did not consider the issue.

\(^{116}\) At the time of *Louisiana-Pacific* the Commission consisted only of Commissioners Barnako and Cleary. Commissioner Moran's term expired on April 27, 1977.

\(^{117}\) The decision reveals that Respondent's expert did not have any specialized training in noise control and had not received any degrees; his involvement with noise control primarily consisted of some experimentation in the reduction of noise generated by planers. 5 OCC. SAF. & HEALTH CAS. (BNA) at 2000.
for the daily seven hour shifts.\textsuperscript{118} The consultant based his opinion upon an on site examination of the lumber mill in question and upon his knowledge of the use of the abatement controls recommended at other lumber facilities.\textsuperscript{119} He first described a plan for the construction of a barrier which would provide an "acoustical shadow" for the operator.\textsuperscript{120} He explained that the barrier would be fabricated of sound absorbing material and that a special door would be built into the barrier to allow operator access to the equipment and visual examination of the shielded equipment. He then described how an enclosure for the chipper infeed chute, from which much of the noise was transmitted, could also be designed and installed so that the noise would be blocked. Again, he explained how access of lumber to the infeed chute would remain possible through modifications in the enclosure including vision panels and neoprene strips for the infeeding of lumber. The consultant estimated the time for installation of the recommended controls to be eight to twelve weeks at the cost of $3,000 to $5,000.\textsuperscript{121}

Respondent attempted to rebut this evidence through a witness who, unlike Labor's expert, had no special training in noise control but had "experienced" with noise enclosures on the respondent's planer machines on a few occasions while employed as the company's safety director. This witness was unable to present any evidence that conflicted with the cost estimates of Labor's expert and his attack on the feasibility of the proposed controls apparently did little more than suggest possibilities of interference with the production process.\textsuperscript{122} Labor's expert was able to recommend modifications to accommodate the hypothetical problems, thereby diluting Respondent's arguments.\textsuperscript{123} Respondent's witness admitted that he once installed an enclosure on a chipper at a cost of $9,000 with a resultant noise reduction of 22 dBA thereby corroborating Labor's case on technological feasibility to some extent.\textsuperscript{124}

The lead opinion in \textit{Louisiana-Pacific}, written by Chairman Cleary, concluded without much elucidation that Labor's evidence "clearly established a prima facie case of technological and economic feasibility."\textsuperscript{125} It is interesting that Chairman Cleary used the phrase "economic feasibility" at

\begin{itemize}
\item \textsuperscript{118} \textit{Id.}
\item \textsuperscript{119} \textit{Id.}
\item \textsuperscript{120} \textit{Id. at} 1997.
\item \textsuperscript{121} \textit{Id.}
\item \textsuperscript{122} \textit{Id. at} 2000.
\item \textsuperscript{123} \textit{Id. at} 2001.
\item \textsuperscript{124} \textit{Id. at} 2000.
\item \textsuperscript{125} \textit{Id.}
\end{itemize}
all, as he had argued in *Continental Can* and *Great Falls Tribune* that economics are not part of the test for feasibility. The one factor which he emphasized on the proof of feasibility was that Labor's expert witness had a much more impressive background in noise control than Respondent's. He also mentioned in that regard, that qualified experts could establish feasibility based upon opinions stated in terms of their "best professional judgment," even if that judgment were admittedly less than 100% certain.\textsuperscript{126}

In his concurring opinion Commissioner Barnako first agreed, with little elaboration, that the evidence established technological feasibility of noise reduction.\textsuperscript{127} He pointed out that the noise levels in issue, 114 to 122 dBA, are extremely hazardous and even fully effective personal hearing protection might not adequately protect an employee working in the presence of those levels.\textsuperscript{128} Because of the severity of the hazard, the cost of $3,000 to $5,000, or even $9,000 using Respondent's evidence, "would be fully justified to achieve a significant noise reduction."\textsuperscript{129}

It is interesting to note that in this decision Chairman Cleary wrote the leading opinion without attacking or challenging the element of economics as part of feasibility, while Commissioner Barnako analyzed costs and benefits without consideration of many of the factors he addressed in *Continental Can*. Such factors included the costs of maintaining the controls, the indirect costs resulting from any loss in productivity, and the number of workers exposed. The reason he ignored these may simply have been that in this particular case the noise levels were exceptionally high while the installation costs were not likely to significantly strain even a company of moderate size.\textsuperscript{130} The decision in *Louisiana-Pacific* suggests that the Commissioners are willing to relax their approach to the issue of feasibility to some extent when the facts clearly show a serious noise condition which can be corrected for a moderate cost. The decision at least illustrates one set of facts which both commissioners agree establishes a violation of the noise standard by showing that noise levels have exceeded the Table G-16 limits and that engineering controls are available which are feasible, technologically and economically, for the substantial reduction of noise levels.

\textsuperscript{126} Id. at 2001, n.18.
\textsuperscript{127} Id. at 2003.
\textsuperscript{128} Id. n.2. Commissioner Barnako noted that earplugs achieve a maximum attenuation of approximately 27 dBA. Thus a noise level of 122 dBA could be reduced to no lower than 95 dBA which is still excessive for a seven hour period.
\textsuperscript{129} Id.
\textsuperscript{130} There is no discussion in the decision of any specific facts such as annual dollar volume or number of employees, which would indicate the actual size of the Louisiana-Pacific Corporation.
CONCLUSION

It is clear from the Commission decisions that Commissioners Cleary and Barnako essentially agree on the type of evidence which Labor must present in order to prove that Table G-16 limits have been exceeded, and when it is technologically feasible to reduce excessive noise levels. Those decisions which allow for proof of excessive noise by “spot readings” and indirect evidence of employee exposure, and which allow for proof of technological feasibility through evidence that “some controls” exist to reduce noise in the plant in question, are not likely to undergo changes in the near future as to the aforementioned elements of the noise standard. The element which must still be more clearly defined and settled, is that of economic feasibility.

As the decision in *Louisiana-Pacific* illustrates, Commissioners Barnako and Cleary have been able to concur in a case involving the noise standard when the facts reveal that the costs of implementing controls are clearly low and the benefits clearly high. However, their concurrence can be seen as an effort to avoid rendering a split decision which would have no precedential value. Now that a full Commission is sitting once again, the Commissioners will not be so compelled to subordinate the more picayune distinctions in their interpretations of feasibility in order to reach a decision with precedential value. It is highly predictable that in the near future the full Commission will consider a noise case in the manner of *Continental Can* or *Castle & Cooke* and finally settle the Commission law on the role of economics in the application of the noise standard.