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SOL (MSHA) V. CALLANAN INDUSTRIES
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FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION
1730 K STREET, N.W., 6TH FLOOR
WASHINGTON, D.C. 20006
NOVEMBER 9, 1983

SECRETARY OF LABOR,
MINE SAFETY AND HEALTH
ADMINISTRATION (MSHA) Docket No. YORK 79-99-M

v.

CALLANAN INDUSTRIES, INC.

DECISION

1. Introduction

This civil penalty proceeding arises under the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 801 et seq. (1976 & Supp. V 1981). It involves an alleged violation of 30 C.F.R. 56.5-50, a mandatory standard regulating miners' exposure to noise. 1/ Callanan Industries was issued a citation charging a violation of the noise standard for allegedly failing to implement feasible administrative or engineering controls to reduce a drill operator's exposure to excessive noise levels. The administrative law judge vacated the citation on the ground that

1/ 30 C.F.R. 56.5-50 is the noise standard applicable to "Sand, Gravel and Crushed Stone Operations". It in part provides:

(a) No employee shall be permitted an exposure to "noise in excess of that specified in the table below. Noise level measurements shall be made using a sound level meter meeting specifications for type 2 meters contained in American National Standards Institute (ANSI) Standard SI.4-1971, "General Purpose Sound Level Meters," approved April 27, 1971, which is hereby incorporated by reference and made a part hereof, or by a dosimeter with similar accuracy. This publication may be obtained from the

American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018, or may be examined in any Metal and Nonmetallic Mine Safety and Health District or Subdistrict Office of the Mine Safety and Health Administration.

(Footnote continued)

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the Secretary failed to prove that a proposed engineering control was feasible. 2/

We granted the Secretary of Labor's petition for discretionary review of the judge's decision. 30 U.S.C. 823(d)(2)(A). We also granted the United Steelworkers of America leave to file a brief as amicus curiae and heard oral argument. On review, the broad question before the Commission involves the meaning of the term "feasible" as contained in section 56.5-50(b).

As discussed below, we conclude that economic as well as technological factors must be taken into account in determining whether a noise control is "feasible" under the standard. We expressly reject, however, the assertion that a "cost benefit analysis," as that term is commonly understood and used, is the appropriate analytical method for determining whether a noise control is required.

Fn. 1/ continued

PERMISSIBLE NOISE EXPOSURES

Duration per day hours of exposure	Sound level dBA, slow response
8 -----	90
6 -----	92
4 -----	95
3 -----	97
2 -----	100
1B -----	102
1 -----	105
-----	110
or less -----	115

No exposure shall exceed 115 dBA. Impact or impulsive noises shall not exceed 140 dB, peak sound pressure level. *****

(b) When employees' exposure exceeds that listed in the above table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce exposure to within permissible levels, personal protection equipment shall be provided and used to reduce sound levels to within the levels of the table. [Emphasis added.]

(30 C.F.R. 56.5-50 is identical to 30 C.F.R. 55.5-50, the noise standard applicable to "Metal and Nonmetallic Open Pit Mines", and 30 C.F.R. 57.5-50, the noise standard applicable to "Metal and Nonmetallic Underground Mines.")

2/ The judge's decision is reported at 3 FMSHRC 168 (January 1981).

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II. Factual Background

On September 14, 1978, a Department of Labor, Mine Safety and Health Administration ("MSHA") inspector conducted an 8-hour noise survey on an Ingersoll-Rand CM-2 air track drill at a stone quarry operated by Callanan Industries. 3/ The inspector used a Du Pont dosimeter to measure the drill operator's exposure to noise. At the time of the noise survey, the air track drill was not equipped with a muffler. The drill operator was, however, wearing earmuffs, a form of personal protective equipment. The results of the survey showed that for the 8-hour shift, the operator of the air track drill was exposed to 103.6 dBA, the equivalent of 660 percent of the permissible noise exposure level established by 30 C.F.R. 56.5-50(a) for an 8-hour period. 4/ Thus, on the basis of the 103.6 dBA reading and because Callanan assertedly had not implemented feasible administrative or engineering controls to reduce the driller's exposure to noise, the inspector issued a citation alleging a violation of 30 C.F.R. 56.5-50. 5/

3/ The Ingersoll-Rand air track drill is mounted on caterpillar tracks and is run from an air compressor unit. It was used by Callanan to drill satellite, or auxiliary, holes near the quarry face into which explosives were placed. The MSHA inspector who conducted the survey described the drill as having "a mast which has a drill hammer attached to it and the hammer moves up and down in the drill mast. As you start your drill [steel] and go deeper into the hole, the hammer goes down the drill mast." Tr. 31.

4/ For an 8-hour period the maximum permissible exposure level is 90 dBA. Because the measurement of noise is logarithmic rather than arithmetical, 103.6 dBA equals 660 percent of 90 dBA. The logarithmic scale of noise measurement is explained in the Accident Prevention Manual for Industrial Operations, National Safety Council (7th ed. 1978) at p. 1242 as follows:

To avoid working with unwieldy numbers of evaluating sound intensity,... a logarithmic scale is used with the decibel as the unit of measure. Because decibels are logarithmic units, they cannot be added or subtracted arithmetically. In fact, if the intensity of a sound is doubled, there will be a corresponding increase of only three decibels, not double the number. For example, if one machine caused an exposure of 90 dB, a second identical machine placed adjacent to the first would result in a noise exposure of 93 dB, not 180 dB.

See also Fundamentals of Industrial Hygiene, National Safety Council

(2nd ed. 1979) at pp. 238-239. 5/ Although the inspector cited section 56.5-50, it is clear from both the wording of the citation and the hearing transcript that Callanan was alleged to have violated subsection (b) of the noise standard. In that regard, subsection (a) generally sets forth the maximum permissible "noise exposure levels on a time-weighted average basis. Subsection (b) sets forth the required condition in the event that the exposure levels contained in subsection (a) are exceeded - that is, the requirement that the operator implement feasible controls. The citation charged that excessive noise exposure levels existed and that feasible controls were not implemented by Callanan.

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After the citation was issued, a close-out conference was held between the MSHA inspector and Callanan management personnel. At that conference, the inspector requested that Callanan contact the Ingersoll-Rand Corporation, the manufacturer of the drill for suggestions as to how to reduce the level of noise created by the operation of the drill. Thereafter, Callanan contacted Ingersoll-Rand and received the following response:

After a good deal of research, we find that we are unable to muffle this drill. The CM-2 drill was produced prior to any noise requirements by the Mine Safety and Health Administration. The muffler system on this drifter does not lend itself to be piped away from the operator nor can we change the exhaust system to meet your requirements.

Gov. Exh. 2.

Callanan sent a copy of the Ingersoll-Rand response to the inspector who had issued the citation and requested MSHA's assistance concerning the noise problem. On March 23, 1979, Jerry Antel, the lead noise control engineer with MSHA's Pittsburgh Technical Support Center, conducted a noise survey on the air track drill. 6/ The Tech Support survey was for the purpose of suggesting noise controls only. It had no effect upon the validity of the noise survey results obtained by the inspector at the time the citation was issued. 7/

An MSHA supervisory inspector accompanied Antel on the noise survey' testified that Antel told Callanan management representatives that a muffler designed by MSI's Denver Technical Support Center had achieved a 4 to 5 dBA reduction on drills that were "similar" to the Ingersoll-Rand drill being surveyed. The supervisory. inspector also testified that Antel qualified that statement by adding that unlike the "similar" drills referred to, the Ingersoll-Rand air track drill posed a problem for the attachment of a muffler because it exhausted through the chain in its mast.

6/ In general, Mr. Antel's qualifications in the field of noise control are as follows. Antel has been employed in the area of acoustics for approximately 16 years. He began working for MSHA in 1972. From that time up to the time of the hearing, Antel had directly participated in 200 to 300 noise cases. A substantial portion of Antel's duties with MSHA is to suggest noise control measures. Prior to working for MSHA, Antel was employed by a private concern as a consultant in sales and service of audiological testing equipment for use in hearing conservation programs. Before that,

Antel was employed by the University of Pittsburgh as a technician in the acoustics department. At the hearing, the judge referred to Antel as an "expert". Callanan did not challenge Antel's expertise in the field of noise control.

7/ On the basis of the Tech Support noise survey, the Secretary sought to prove that feasible noise controls did in fact exist which Callanan should have implemented.

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The MSHA supervisor's testimony also indicated that Antel had informed Mr. Callanan of the existence of a company in Joplin, Missouri, that could possibly retrofit (i.e., modify) the shell of the air track drill so that a muffler could be attached. However, at the time of the MS Tech Support survey, Callanan was not provided with any specific details regarding the drill shell modification process.

On April 23, 1979, MSHA Tech Support issued its "Noise Survey Report" containing the results of the noise survey on the Ingersoll-Rand air track drill. Gov. Exh. 6. 8/ A copy of the noise survey report was sent to Callanan. In the report, MSHA proposed two noise controls that it believed together would reduce the drill operator's exposure to noise to 89-90 dBA for an 8-hour period, bringing Callanan within compliance limits. One of the proposals involved an engineering control. In that regard, MSHA suggested that Callanan modify the shell of the air track drill so that it would exhaust through a port in its side, instead of through the chain in its mast, thereby allowing a muffler to be attached. More specifically, the noise survey report stated:

A muffler should be placed on the drill to reduce the noise level of the exhausting air. This can readily be done by making certain modifications to the drill cylinder. Since welding is required, extreme care is necessary to avoid distorting the cylinder. This prosaic undertaking should be left to experienced professionals in this field. The Mid-Western Machinery Company [fn. omitted] (P.O. Box 458, 902 E. Fourth Street, Joplin, Missouri 64901, telephone number (417) 624-2400) will make this modification and have been doing so for many years. The cost for this work [is] as follows:

Cost of cylinder -	3,198.00
Less 25%	799.50
	\$2,398.50

Noise Survey Report at 2. The report added that certain parts needed for the conversion of the drill cylinder would increase the cost of modifying the drill shell to \$2,672.78.

The noise survey report also stated that Callanan could either purchase a muffler commercially or could construct one itself. Attached to the noise survey report was a publication titled Sound and Vibration, listing various companies engaged in the business of noise control. Also attached was a copy of MSHA's Instruction "Manual for the Construction of Cylindrical Mufflers. Gov. Exh. 7. 9/ In the report, MSHA concluded that the attachment of a muffler would

result in a noise reduction of approximately 5 dBA.

8/ The report was prepared by Antel.

9/ The noise survey report did not, however, list the cost of a commercially purchased muffler. Nor did it list the cost involved in the event that Callanan chose to construct a muffler itself. However, at the hearing Ante testified that in 1977, the preceding year, a muffler kit for a slightly smaller drill could be purchased from the EAR Corporation for approximately \$175. Antel also testified that the labor required for construction of a muff(er would probably be an 8-hour day.

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The other control proposed in the noise survey report involved positioning the operator of the air track drill 20 to 25 feet away from the drill after it was put into operation. On the basis of an expected 5 dBA reduction in noise resulting from the drill shell modification and the attachment of a muffler, MSHA concluded that the positioning of the drill operator 20 to 25 feet away from the drill would reduce the driller's exposure to noise to a permissible level of 89 90 dBA for an 8-hour period. 10/

Thereafter, the Secretary filed with the Commission a proposal for assessment of a penalty for the alleged violation of section 56.5-50. 11/ At the hearing, Callanan generally defended on the ground that the proposed drill sheet modification was infeasible because it was too costly to transport the Ingersoll-Rand air track drill from its stone quarry in upstate New York to the Mid-Western Machinery Company in Joplin, Missouri, for retrofitting. 12/ The Secretary generally argued that the proposed engineering control -- the modification of the air track drill shell and the muffler attachment -- was feasible because it was both technologically achievable and reasonable from a cost standpoint.

III. Judge's Decision

In his decision the judge held in Callanan's favor and vacated the noise citation. The judge, in effect, concluded that the determination of feasibility involves a consideration of both technological and economic factors. 3 FMSHRC at 169. He found that with respect to the proposed engineering control, the Secretary's cost estimate was "too imprecise to allow a proper economic analysis" and further, that "[w]ithout more accurate figures, a true cost-benefit analysis cannot be made." 3 FMSHRC at 170. 13/ He also stated that the feasibility of the engineering control is

10/ On review, however, only of the at issue. The Secretary did not seek Commission review of the aspect judge's decision concerning the feasibility of the proposed administrative control.

11/ In June 1979, an MSHA inspector had issued an order of withdrawal under section 104(b) of the Mine Act because Callanan had not abated the citation at issue here by implementing feasible noise controls. After the withdrawal order was issued, Callanan removed the Ingersoll-Rand drill from active service and replaced it with a new Gardner-Denver drill at an approximate cost of \$100,000. The validity of the section 104(b) withdrawal order is not, however, before the Commission in this case.

12/ Callanan's safety director testified that the involved air track

drill was valued under \$2,500.

13/ The judge found the Secretary's cost estimate to be insufficient because it did not include the cost of a muffler, certain labor costs and the cost of

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In any event, regardless of the accuracy of MSHA's cost estimates, I do not find on the facts of this case any reasonable assurance that there would be an appreciable and corresponding improvement in working conditions as a result of the proposed controls.

(3 FMSHRC at 170; emphasis added.) 14/ Accordingly, the judge vacated the citation.

IV. Discussion

As we stated at the outset of our opinion, the broad question presented in this case involves the meaning of the term "feasible" in 30 C.F.R. 56.5 50(b). Subsection (b) of the noise standard provides that in the event that the noise exposure levels set forth in subsection (a) are exceeded, "feasible administrative or engineering controls shall be utilized." Here, it is undisputed that the drill operator's noise exposure level was 103.6 dBA, thus exceeding the maximum permissible level of 90 dBA for an 8-hour period. 15/ The controversy centers on whether the proposed engineering control--modifying the air track drill shell and attaching a muffler--is "feasible" within the meaning of section 56.5-50(b).

The standard at issue was originally promulgated and adopted by the Secretary of Interior under the Federal Metal and Non-Metallic Mine Safety

14/ The judge in part noted that the MSHA noise control engineer did not know the specific degree of noise reduction expected to be achieved as a result of implementing the proposed engineering control, but could only "speculate" that a 5 dBA reduction "might" be obtained. 3 FMSHRC at 170.

15/ While Callanan does not contest the accuracy of the noise survey results obtained by either the inspector or the Technical Support Center noise control engineer, it does argue that the MSHA noise samples were taken from the wrong noise source. In that regard, Callanan contends that the noise samples should have been collected from inside the driller's earmuffs. (Here a subsequent noise survey conducted on the track drill by Callanan showed that under normal operating conditions, the earmuffs reduced the drill operator's exposure to noise to within permissive limits. Tr. 209-210.) Instead, the MSHA noise samples were collected from within the driller's hearing range, but outside of the earmuffs in accordance with MSHA's inspection manual. Tr. 40-41. We reject Callanan's argument that noise levels are to be measured inside earmuffs as being inconsistent with the express language of the noise standard. Measuring noise

exposure in the manner suggested by Callanan would allow operators to proceed directly to the use of personal protective equipment without first attempting to implement feasible engineering controls. This result is contrary to the intent of the noise standard. *Todilto Exploration and Development Corporation*, 5 FMSHRC _____ (CENT 79-91-; 79-310 M, decided November 9, 1983).

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Act of 1966, 30 U.S.C. 725 (1976)(amended 1977). Pursuant to section 301(b)(1) of the Federal Mine Safety and Health Amendments Act of 1977, 30 U.S.C. 961(b)(1), this standard remained in effect as a mandatory standard enforceable under the 1977 Mine Act. No indication is provided in the preamble to the standard published in the Federal Register (39 Fed. Reg. 28433, Aug. 7, 1974), the text of the 1966 Act, or that Act's legislative history as to the intended meaning of the word "feasible" as used in the standard. Furthermore, the preamble to the standard acknowledged that the noise standard being adopted was "essentially the same as the noise standard being enforced by the Secretary of Labor under the Walsh Healey Act", 41 U.S.C. 35-45. 39 Fed. Reg. 28433. An examination of the Walsh-Healey Act and its legislative history, as well as the history of the noise standard adopted under that Act. likewise provides no clue to the intended meaning of the word "feasible" in the noise standard.

In view of the fact that the word "feasible" was not given any special meaning by the promulgators of the standard, or by Congress in the statute authorizing adoption of the standard, we must attribute to the word its ordinary and plain meaning. The Supreme Court has held that the plain meaning of the word "feasible" is "capable of being done, executed, or effected." *American Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 508-509 (1981). Accordingly, we will apply this meaning to "feasible" as used in 30 C.F.R. 56.5-50(b). 16/

We further conclude that the determination of whether use of an engineering control to reduce a miner's exposure to excessive noise is capable of being done involves consideration of both technological and economic achievability. This conclusion also stems from the plain meaning of the word as found by the Supreme Court. whether something is actually, rather than theoretically, capable of being done depends on economic as well as technological achievability. This reality was recognized in *American Textile Mfs.*, supra, where the Supreme Court gave detailed examination to the question of the economic feasibility of an occupational health standard. In fact, the Secretary does not argue otherwise in this case, but concedes that his standard "involves some element of economic impact." Sec. Br. at 16 (emphasis added).

Our conclusion that use of an engineering control must be both technologically and economically capable of being done does not, however, end our inquiry into the general interpretation of the standard. Rather, we must examine more closely what is generally meant by "technologically capable of being done". and "economically capable of being done."

In answering the above questions, the ultimate purpose and the basic structure of the noise standard must be kept foremost in mind. The standard seeks to protect miners from exposure to noise levels in excess of the limits specified in the standard. Where excessive noise

16/ But see *Donovan v. Castle & Cooke Foods, Inc.*, No. 77-2565, 9th Cir. November 19, 1982.

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levels are present. feasible engineering controls are required to be implemented. Quite obviously, the purpose of an engineering control is to reduce excessive noise levels and, therefore, the first component of a feasible engineering control is that it be a control the implementation of which will result in a reduction of the noise level to which a miner is exposed.

The second component of a feasible engineering control is that it be technologically achievable. A technologically achievable control is not necessarily just an "off-the-shelf," prefabricated device that can be applied, as is, to a noise source. Although such a device would be the clearest example of a technologically feasible control, an engineering control also is technologically achievable if through a reasonable application of existing products, devices or work methods with human skills and abilities, a workable engineering control can be applied to the noise source at issue. In other words, a technologically achievable engineering control is not one that exists only in the realm of engineering or scientific theory; it must have a realistic basis in present technical capabilities.

The third component of a feasible engineering control is that it be economically achievable. The Secretary suggests two tests of economic achievability. The Secretary argues that a noise control is economically achievable "if the cost of the control is neither 'prohibitively expensive' nor wholly out of proportion to the expected benefits."

According to the Secretary, the "prohibitively expensive" test of economic achievability, involves consideration of whether a standard makes "'financial viability generally impossible' throughout an entire industry." Sec. Br. at 24. The Secretary suggests that this consideration is "primarily" applicable at the rulemaking stage. He strongly implies that the impact of the cost of implementing a technologically achievable engineering control on a particular operator's profitability, competitiveness, and ability to stay in business is not an appropriate consideration in an enforcement proceeding. The Secretary, however, has not approached this question in any depth. Given this issue's potential importance and the complexity of factors bearing on its resolution, in this case we neither accept nor reject the Secretary's formulation and application of the "prohibitively expensive" rationale. Rather, as discussed *infra*, given the estimated cost of the engineering control at issue here, and the conceded ability of the operator to accommodate this cost without threatening its viability, we find that the cost of the suggested control cannot be considered "prohibitively expensive" under

any reasonable interpretation of that phrase. See *American Textile Manufacturers Institute v. Donovan*, supra 452 U.S. at 530 n.55.

The second test for economic achievability suggested by the Secretary is whether the cost of the engineering control is "wholly out of proportion to the expected benefits." The Secretary states that this test is "basically one of 'rationality'" requiring analysis of "whether the control can be expected to achieve any significant result and where the costs are so great that it would be irrational to require the use of the control to achieve those results." Sec. Br. at 24, 25 (emphasis added). Insofar as "irrational" means unreasonable, impractical or unrealistic, we believe that this interpretation and application of the

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economic achievability component of the term "feasible" as used in the noise standard is reasonable and appropriate. It gives effect to the basic purpose of the standard, i.e., the reduction of noise and the concomitant protection of miners' hearing, but at the same time gives meaning to the standard's use of the term "feasible," which includes economic cost factors. It is important to emphasize that this test of economic achievability does not require, and we do not suggest or approve, application of classic, cost-benefit analysis. 17/

Therefore, because in the present case the question of whether the suggested engineering control is "prohibitively expensive" is not an issue, we hold that the economic feasibility of the control is to be determined by consideration of whether the economic costs of the control are wholly out of proportion to the expected benefits, i.e., whether given the reduction in noise level to which a miner would be exposed after implementation of the control, and the costs of achieving that reduction, it would not be rational to require the implementation of the control. We believe this is as precise a formulation as can be articulated and applied on a case-by-case basis in enforcement proceedings.

Our next consideration is the appropriate burden of proof to be applied. We hold that in order to establish his case the Secretary must provide: (1) sufficient credible evidence of a miner's exposure to noise levels in excess of the limits specified in the standard; (2) sufficient credible evidence of a technologically achievable engineering control that could be applied to the noise source; (3) sufficient credible evidence of the reduction in the noise level that would be obtained through implementation of the engineering control; (4) sufficient credible evidence supporting a reasoned estimate of the expected economic costs of the implementation of the control; and (5) a reasoned demonstration that, in view of elements 1 through 4 above, the costs of the control are not wholly out of proportion to the expected benefits. After the Secretary has established each of the above elements, the operator in rebuttal may refute any of the components of the Secretary's case. The burden borne by the operator is one of production; the burden of proof remains on the Secretary.

Although, as explained below, we conclude that a remand for further proceedings is appropriate in this case, for the guidance of the parties and the judge we will tentatively apply the burdens outlined above to the facts of this case as established by the present record.

We find that the record establishes that the drill operator was in fact exposed to an excessive noise level. The judge stated that it was undisputed that the air track drill operator was overexposed to noise and we agree that the Secretary established that the drill operator was exposed to excessive noise.

17/ To paraphrase the Supreme Court: "Thus cost-benefit analysis ... is not required by the [standard] because feasibility analysis is." *American Textile Mfrs.*, supra 452 U.S. at 509.

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The next consideration is whether the Secretary presented credible evidence as to the availability of a technologically achievable engineering control capable of reducing the drill operator's exposure to excessive noise. In this regard, the judge made no specific finding as to whether the proposed engineering control of modifying the air track drill shell and attaching a muffler was technologically achievable. On the basis of the record, however, we find that the Secretary presented sufficient credible evidence supporting his view that the proposed engineering control was both technologically achievable and capable of reducing noise.

We base this conclusion upon the MSHA Pittsburgh Tech Support's noise survey report and the corresponding testimony of Jerry Antel, the lead noise control engineer who conducted the MSHA noise survey and prepared the report. In the noise survey report (Gov. Exh. 6), MSHA proposed that Callanan modify the air track drill so that a muffler could be attached. MSHA concluded that the modification process could "readily be done" and that the Mid-Western Machinery Company in Joplin, Missouri, "will make this modification and have been doing so for many years." The report added that "[a] muffler may be purchased commercially or constructed according to the enclosed instructions." In addition, at the subsequent hearing, Antel disputed the claim made by the Ingersoll-Rand Corporation in its December 7, 1978, letter to Callanan in which it advised that the air track drill could not be equipped with a muffler. In that regard, Antel stated that it has been "pretty much the rule" that manufacturers of pneumatic drills, the type of drill involved here, have erroneously taken the position that noise controls did not exist for such drills. He added:

We've worked with drill manufacturers in the past and its been our experience that general.v they're speaking of an off the shelf type of this retrofittable noise control, something that can be readily applied which doesn't necessarily mean that nothing can be done. And with this approach in mind, we decided that would explore the possibilities further to see if in fact that this was true, that nothing could be done.

(Tr. 112-113.) Accordingly, Antel contacted the Mid-Western Machinery Company.

With respect to Mid-Western, Antel testified that it had "vast experience" in the Canadian mining industry and further, that it had experience in modifying the Ingersoll-Rand CM-2 air track drill so that a muffler could be attached. The MSHA supervisory inspector who

accompanied Antel on the noise survey stated, without objection, that he was told by Antel that Mid-Western already had an air track drill shell retrofitted so that a muffler could be attached and that the retrofitted shell could be shipped to Callanan. Thus, despite the fact that Antel testified that he was told by Mid-Western personnel that they could not recall the names of the Canadian operators for which the muffler modification work had been done and that the work "had been done in years past", this testimony is sufficient to make a prima facie showing that the proposed engineering control was technologically achievable.

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The third element of the Secretary's prima facie case involves evidence as to the noise level reduction that would be obtained from the proposed control. Here, the judge stated that "even MSHA's expert conceded that he did not know what specific degree of noise reduction could be achieved from his proposed controls and could only speculate that a 5-decibel improvement might be expected based on MSHA's experience with muffling other types of drills." 3 FMSHRC at 170. We find this assessment of the expert's testimony erroneous. In that regard, we note that Antel testified in part as follows:

[Counsel for the

Secretary] Q. You also state that ... you are assuming a reduction of 5 decibels from the muffler.

[Antel]

A. Yes.

Q. What was the source of that particular information?

A. Through past work in drills with Tech Support and work that has been done through contractual work with the Bureau of Mines, it's been determined that exhaust noise is the primary noise source on percussive drills -- pneumatic drills. That besides the fact that we have worked with a number of drills in putting mufflers on them and in all cases a 5 dB reduction has been the minimum amount that we have achieved by putting a muffler on.

Q. Is it your opinion then that a 5 decibel reduction from the muffler is a conservative estimate.

A. Yes, I would say so.

(Tr. 127.)

This testimony regarding the degree of noise reduction expected to be achieved cannot properly be viewed as speculative. Nor does the above testimony constitute some kind of concession as the judge

suggests. Rather, the noise control engineer simply stated that based on past experience, attaching a muffler to the air track drill would result in a noise reduction of at least 5 dBA. The MSHA supervisory inspector likewise testified that the attachment of a muffler in similar drills had resulted in a 5 dBA reduction. Tr. 83. Thus, we find that the Secretary's evidence established a prima facie case as to this element.

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The next element of the Secretary's prima facie case requires sufficient credible evidence supporting a reasonable estimate of the cost of implementing the proposed control. Here, MSHA's noise survey report placed the cost of modifying the drill shell at approximately \$2,672. In addition Antel testified that a muffler kit for a slightly smaller drill cost about \$175 in the preceding year. The noise control engineer also estimated that the time required for constructing the muffler would probably be an 8-hour day. Although the Secretary did not introduce evidence establishing the precise cost of attaching the muffler or the cost of transporting the drill shell from Callanan's quarry in upstate New York to the Mid-Western Machinery Company in Joplin, Missouri for retrofitting, we conclude that the Secretary's cost estimates are sufficiently specific and supported for purposes of establishing a prima facie case.

In summary, we hold that the Secretary has introduced sufficient credible evidence establishing that the operator of the air track drill was exposed to excessive noise, that an engineering control capable of reducing noise was technologically achievable, that the engineering control was expected to obtain a significant noise reduction, and that the cost estimates for implementing the control were sufficiently precise and supported. We further conclude that the Secretary has demonstrated, based on the above, that the costs of the control are not wholly out of proportion to the expected benefits. Therefore, in our view, the Secretary established a prima facie violation of the noise standard.

On the basis of the present record, we would further hold that Callanan failed to rebut the Secretary's prima facie case. In that regard, the Ingersoll-Rand letter stating that the drill could not be equipped with a muffler does not alone overcome the testimony of MSHA's noise control engineer that a muffler could in fact be attached. Also, Callanan's safety director testified that the Ingersoll-Rand sales engineer who had written that letter, upon later reviewing the MSHA Tech Support noise survey report, stated that the proposed engineering control was not feasible from a cost standpoint -- not that the retrofitting could not be done. Tr. 255-256. Furthermore, Callanan's quarry supervisor, although not familiar with the type of drill involved here, testified that the drill probably could be retrofitted, but that it would be an involved process. Tr. 194. Thus, Callanan failed to rebut the Secretary's proof that the suggested modification of the drill shell was technologically achievable.

In addition, Callanan introduced no evidence to the effect that the potential benefits expected to be obtained as a result of

the proposed engineering control were less than the predicted 5 dBA reduction in noise or that the estimated cost of implementing the control was more than MSHA projected. Instead, Callanan principally argued that in view of the age of the involved air track drill and its approximate value of under \$2,500, it was infeasible from a cost perspective to require it to ship the drill to the Mid-Western Machinery Company for the modification of the drill shell. We do not find that argument to be of sufficient specificity or merit to rebut the Secretary's prima facie case. In sum, on the basis of the record as it presently stands, we would conclude that Callanan has not rebutted any of the individual elements of the Secretary's case, nor has it established that, on the whole, the estimated costs of the suggested engineering control are wholly out of proportion to the expected benefits.

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Nevertheless, in the circumstances of this case, and given the extensive and confusing history of litigation under the noise standard, we are not inclined to interpret for the first time at the review level the word "feasible as it appears in 30 C.F.R. 56.5-50(b) and render a final determination against Callanan for failing to anticipate our interpretation and allocation of the burden of proof. We believe that the rights of the parties involved, as well as the spirit of the Mine Act, are best served by remanding this case to allow both parties the opportunity to submit additional evidence, if they choose to do so, and to frame any further arguments in the light of our decision. We note that the violation at issue was abated by removing the involved drill from service. Therefore, the remand has no adverse impact on the health of miners.

Accordingly, the decision of the judge is reversed and the case is remanded for further proceedings consistent with this decision.

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Commissioner Lawson dissenting:

As the majority recognizes in reversing the decision of the judge below, his use of a "cost-benefit" criterion to determine whether there is a violation in this case is inexplicable given the facts of this case and the language of the Act. It is, however, unprecedented that this reversal is accompanied by an invitation to the parties--in actuality, of course, only the operator--to retry this case, since even under my colleagues' view of the law, the Secretary has established a prima facie case which the operator has failed to rebut. Elongation of this proceeding thus fails to comport with even minimal standards of judicial economy, nor does the majority suggest what "additional evidence" (slip op. at 14) should be presented, in view of the Secretary's admittedly having proven a violation of the Act.

Callanan did not challenge the accuracy of the noise survey results submitted by the Secretary's inspector, and it is undisputed that the noise exposure level (103 dba) substantially exceeded the maximum level permissible for an eight-hour period (90 dba); indeed the exposure was, as the majority notes, 660% of the level permitted. 1/ Slip op..at 3.

There is no dispute, either, that the Secretary proved that the proposed engineering control was technologically feasible. 2/ Nor is there any disagreement that a technologically feasible control is not limited to off-the shelf, stock or prefabricated devices, and that the proposed engineering control was expected to achieve a significant noise reduction. The control of noise at its source is obviously critical, in order that miners can detect other mine hazards.

However, the majority has now mandated its own substantively indistinguishable "cost-benefit" analysis in this--and indeed all other-- safety and health cases in which a claim is made that the "cost" of preventing death or illness to miners, outweighs the health or safety "benefits" to be gained.

Even more contradictory is the majority's position that "a classic, scientific "cost-benefit analysis"--is not imposed by either the statute or the standard," (slip op. at 10) but that determination of the feasibility of the control required under the standard is now to be had "by consideration of whether the economic costs of the control are wholly out of proportion to the expected benefits" (slip op. at 10). This test in reality leaves unchanged the rule imposed by

the judge below. A cost-benefit determination is imposed, subject to all the impossibilities of proof and application which have plagued adjudicators for over a decade.

1/ The legislative history of the Act reflects the fact that hearing loss has been found to be "probably the most common condition among metal-nonmetal miners' and notes that up to 25 percent of currently employed miners may suffer from some degree of hearing impairment. H. Conf. Rep. 95-312, 95th Cong., 1st Sess. 12-13 (1977).

2/ Callanan has conceded that there is no element of financial inability on its part to buy any machine on the market, and that it was this operator's choice to purchase a new drill, rather than retrofit the existing unit (oral arg. 22-24).

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The conclusion of the judge below and the majority here, that in determining whether "feasible" ... engineering controls shall be utilized", economic factors are to be taken into account, is not reflected in the language of the Act. Slip op. at 8, 9. Nor does the standard itself, although lengthy and detailed, include even a hint, much less a requirement, that cost-benefit analysis is required or appropriate, nor the possible extent to which economic factors might be relevant.

Economic considerations were not written into the standard when it was initially promulgated under Walsh-Healey, nor upon repromulgation under the Mine Act. How, then, can it be maintained that Congress intended to introduce such a factor into the litigation of cases in which the Secretary seeks to enforce a mine safety and health standard, derived from an already established federal standard? Indeed, reading the standard to include economic as well as technological feasibility, in determining whether a violation of the Act has occurred, relieves employers of their continuing duty to develop and implement engineering controls. Claimed present economic difficulties will therefore be allowed to vitiate the technology forcing process recognized in the standard. See *Society of Plastics Industry, Inc. v. OSHA*, 509 F.2d 1301, 1309, cert denied, 421 US. 992 (1975) and *Secretary of Labor v. Continental Can Company*, 4 BNA OSHC 1541, 1550 (1976).

Strikingly, the majority's claim that the asserted silence of the Act and its legislative history compels the conclusion that economic feasibility is properly to be read into the language of this regulation. departs radically from this same majority's very recent reading of the Act and the regulation involved in *UMWA v. Secretary of Labor*, 5 FMSHRC 807 (May 11, 1983) pet for review filed No. 83-1519 (D.C. Cir. May 13, 1983). In that case they found that silence led to the opposite conclusion, and that one could not properly infer therefrom any right of miners to contest citations. Id at 815.

Even given my colleagues contradictory analytical approaches, however, there is no dispute that the "plain meaning" of feasible is "capable of being done, executed or effected." Slip op. at 8. Nowhere in any dictionary of which I am aware is feasible modified, either explicitly or implicitly, by " provided it's done cheaply enough".

Further, as a matter of English grammar, "feasible", an adjective, must and does modify a noun, in this case "controls". Adding "cheaply", to reach the result propounded by the majority,

is no more defensible or persuasive than would adding "expensive" to the regulation, or "best". Indeed, the latter construction would far more closely comport with the purpose of the Mine Act, "to prevent death and serious physical harm". 30 U.S.C. 801.

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Procedurally, the Mine Act requires immediate abatement of violations, as contrasted with the Occupational Safety and Health Act and its litigate first-abate later structure. *Energy Fuels Co.*, 1 FMSHRC 299, 306, n.9 (1979). Compare also section 6(b) 7 of the Occupational Safety and Health Act and Section 101(a)(7) of the Mine Act; the former mandates standards, "necessary for the protection of employees"; the latter mandates standards which "...assure the maximum protection of miners". 29 U.S.C. 655(b)(7) and 30 U.S.C. 811(a)(7), respectively. See *Ashton v. Pierce*, 716 F.2d 56 at 62-6 D. C. Cir. (1983). To add a cost benefit qualification to the mandatory standards promulgated under our Act clearly lessens the protection furnished miners, subverting thereby the congressional intent that those employed in this most dangerous of industries be provided commensurate safety and health assurances. 1977 Act Legis. Hist. at 595. "Maximum" is nowhere modified by any economic feasibility limitations.

The majority in its only citation of precedent, selectively if obliquely commends the Supreme Court's decision in *The American Textile Manufacturers Institute, Inc. v. Donovan, et al*, 452 U.S. 490 (1981). The operative language in that opinion, affirming the decision of the Court of Appeals, (617 F.2d 636 D.C. Cir. 1980) is:

The plain meaning of the word "feasible" supports respondents' (the Secretary's) interpretation of the statute. According to Webster's Third New International Dictionary of the English Language, "feasible" means "capable of being done, accomplished or carried out"; Funk & Wagnalls New "Standard" Dictionary of the English Language 903 (1957) ("That may be done, performed or effected"). Thus, 6 (b)(5) directs the Secretary to issue the standard that "most adequately assures...that no employee will suffer material impairment of health," limited only by the extent to which this is "capable of being done." In effect then, as the Court of Appeals held, Congress itself defined the basic relationship between cost and benefits, by placing the "benefit" of worker health above all other considerations save those making attainment of this "benefit" unachievable. Any standard based on a balancing of costs and benefits by the Secretary that strikes a different balance than that struck by Congress would be inconsistent with the command set forth in 6 (b)(5). (Citation omitted) (Emphasis added.) (PP. 508, 509).

When Congress has intended that an agency engage in cost-benefit analysis, it has clearly indicated such intent on the face of the statute. One early example is the Flood Control Act of 1936,

33 U.S.C. 710a.

"[T]he Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected." (Emphasis in original.)

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A more recent example is the Outer Continental Shelf Lands Act Amendments of 1978, 43 U.S.C. 1347 (b), providing that offshore drilling operations shall use

"the best available and safest technologies which the Secretary determines to be economically feasible, wherever failure of equipment would have a significant effect on safety, health, or the environment, except where the Secretary determines that the incremental benefits are clearly insufficient to justify the incremental costs of using such technologies." (Emphasis in original.)

These and other statutes demonstrate that Congress uses specific language when intending that an agency engage in cost-benefit analysis. See *Industrial Union Department v. American Petroleum Institute*, para. slip op. at 23, n. 27 (Marshall J., dissenting). Certainly in light of its ordinary meaning, the word "feasible" cannot be construed to articulate such congressional intent. We therefore reject the argument that Congress required cost-benefit analysis in 6 (b)(5). (Emphasis added.)

This precedent thus rejects the analysis approved by the majority here, and indeed reaches a contrary result. The Secretary's position, in which he is perhaps reacting to his perception of what is currently popular, rather than to any statutory imperative, is similarly deficient and contrary to the position he has advanced in prior litigation. *Secretary of Labor v. Castle & Cooke Foods*, 692 F.2d 641, 645, 9th Cir., (1982), *Turner Company v. Secretary of Labor*, 561 F.2d 82, 83, 7th Cir. (1977), *Secretary of Labor v. Sun Ship, Inc.*, 11 BNA OSHC 1028, 1030 (1982), *Secretary of Labor v. Samson Paper Bag*, 8 BNA OSHC 1515, 1520 (1980), and *Continental Can Company*, supra at 1548-1549.

Since the drafters of the Mine Act obviously knew how to deal with business costs, as exemplified by section 110(i) of this Act, 3/ it would appear beyond dispute that there was no intent on their part to apply cost-benefit analysis in the implementation of required engineering controls, contrary to my colleagues' construction of the Act. This specific reference to costs, as they may impact upon an employer's ability to continue in business, as a result of the compliance mandated

3/ In assessing civil monetary penalties, the Commission shall consider I ...the effect on the operator's ability to continue in business...." 30 U.S.C. 820(i).

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by the statute, has no counterpart in the Occupational Safety and Health Act. If one is searching for a quantifying mechanism to determine the possible economic impact of compliance, the penalty provisions of the Mine Act certainly direct us to a more relevant reference point. 4/

The majority is therefore at best disingenuous in requiring that "... the economic feasibility of the control is to be determined by consideration of whether the economic costs of the control are wholly out of proportion to the expected benefits; i.e., whether given the reduction in the noise level to which a miner would be exposed after implementation of the control, and the cost of achieving that reduction, it would not be rational to require the implementation of the control". Slip op. at 10. (Emphasis added.)

Thus, and contrary to Congressional intent. the majority will now require a cost-benefit test to be applied in every case, asserting that this is "reasonable and appropriate." Slip op. at 10. In truth, the criteria now to be imposed is totally subjective, has no foundation in the statutory language, and would encourage this Commission and its judges to undertake economic speculation of a particularly dangerous--to miners--variety.

The conscientious operator who complies with the Act, and utilizes state-of-the-art drills, will now be disadvantaged by comparison with his less scrupulous competitors, who will henceforth be encouraged to neglect their equipment and facilities, rewarded for this neglect, and motivated to plead poverty when their--equal--compliance with the law is sought. Uniform application of a standard can realistically be obtained only at the time that a standard is promulgated, not in individually initiated enforcement proceedings.

4/ At least one view at the Occupational Safety and Health Review Commission is that economic considerations, under that statute, could only be taken into account with respect to setting an appropriate abatement time:

We can fulfill the Act's stated purpose of improving the safety and health of American workers, and at the same time give due consideration to the realities of the marketplace, by requiring all employers to meet the standard's requirements, and then adjusting the abatement period for those financially incapable of proceeding with abatement at a more rapid pace. Samson Paper Bag, 8 BNA OSHC 1515, at 1525. (Commissioner Cottine concurring)(1980).

Whether this interpretation would conform to Congressional intent under the Mine Act has not been determined, but would be in closer conformity to the statute than the majority's proposed treatment of costs and benefits.

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How the "rationality" test is to be distinguished from that of whether a proposed control is "prohibitively expensive" (not here in dispute) is left unexplained, both by the Secretary and the majority. The Secretary appears to be asserting that if the control is, in some undefined manner, too costly, you need not implement engineering controls under either test. No intelligible structural analysis of how one determines whether the cost is so great that it would be "irrational" to require the use of the engineering control to achieve those results is given, by either the majority or the Secretary (the latter apparently keeps these decisions in pectore). 5/

The majority also fails to explain or delineate how one arrives at a determination that the "costs of control are wholly out of proportion to the expected benefits." Slip op. at 9, 10. This is apparently to be left to the unfettered discretion of the judge, whose decision, given that 'standard', will be impossible of review.

Finally, placing the burden of proof on the Secretary to establish the "expected economic cost of the implementation of controls", to use the majority's phrase "would not be rational." Slip op. at 10. No explanation is given as to how the Secretary is to ascertain such cost; in truth, he will be at the mercy of the operator's no doubt generous, and understandably self-serving, figures. 6/

The practical problems presented by the majority's imposition of a cost-benefit test, however described, are also immense. As amicus Steelworkers has noted, citing a recent and commendably thorough Congressional Report, 7/ one needs to know the adverse effects created by the exposure to noise, the inescapable fact that health benefits do not lend themselves to monetary measurement, and that both costs and benefits occur over different periods of time. The quantifying of benefits is thus at the least made extraordinarily difficult, if not impossible.

5/ See oral argument by the Secretary, pp. 10-12 for further "enlightenment".

6/ Inconsistent disclosures of financial information to different federal agencies, depending upon the purpose for which such data is submitted, provides one example of the perils of ascertaining accurate economic data, much less truth, in the area of cost impact in a safety and health case. (House Report, *infra*, n. 7, pp. 11 16.)

7/ Cost-Benefit Analysis Wonder Tool or Mirage. Subcommittee on Oversight and Investigation of the House Committee on Interstate and Foreign Commerce, 96th Congress, 2d. Sess., December 1980; Committee

Print 96 IFC 62. (House Report).

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In the legislative history of the 1977 Act, cost-benefit analysis was specifically discussed, but--significantly--only with respect to 101(a)(6)(A), the statutory authority for the Secretary to set health standards regulating harmful physical agents. Strict cost-benefit analysis, even at that stage, was rejected by the Congress, and nowhere reflected in the history of the Act is any intention that cost-benefit analysis is to play any part in enforcement proceedings. As the Senate Report states:

Information on the economic impact of a health standard which is provided to the Secretary of Labor at a hearing or during the public comment period, may be given weight by the Secretary. In adopting the language of section [101(a)(6)(A)] the Committee wishes to emphasize that it rejects the view that cost benefit status alone may be the basis for depriving miners of the health protection which the law was intended to insure. 1977 Act Legis. Hist. at 609 610, emphasis added.)

Clearly, given this history, cost-benefit analysis would, if ever, be appropriate for consideration only at the time regulations are promulgated, when all affected parties within the mining community are given the opportunity to comment upon the particular regulation, and the data submitted in justification thereof. Determination through the enforcement mechanisms of this Commission, given the inherent limitations of the courtroom, and the inevitably narrow focus of any individual case, makes cost-benefit analysis totally unsuitable for litigative determination.

The record necessary to make a cost-benefit analysis can be compiled in standard setting proceedings, but the fact customarily developed in individual enforcement proceedings fail to lend themselves to such analysis. Indeed, the probability is that the relevant data will vary significantly from case to case. As stated in *Samson Paper Bag*, (supra at 1531, n. 25) "[N]either the Secretary nor an individual employer could be expected to invest the resources necessary to generate this type of record in each case before the [OSHA Review] Commission". One might add that such a requirement is, almost by definition, beyond the capabilities of a smaller operator.

Indeed, the unstated assumption that regulatory or adjudicatory, decisions drive up business costs, which are then passed through to the consumer in the form of higher prices, is in itself questionable. To the extent that absenteeism is decreased, and the cost of workers compensation and medical and hospital care lessened, a net benefit to the enterprise will obviously result. Rather than regulations

imposing a hidden tax, it is at least equally plausible that these remove a hidden subsidy, one which permits operators to sell their product at market prices below those which would have been established if the full cost of production, including the health and safety consequences of such production, were included in the market price. See House Report, pp. 26-27, *supra*.

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In summary, the attempt by the majority in this case to import "cost-benefit" into the question of determining whether a regulation has been violated is contrary to both the statute and its legislative history. Nor are any guidelines or parameters possible of implementation provided for undertaking such analysis.

Experience reflects the difficulties that the Occupational Safety and Health Review Commission has had with the identical issue, and the identical standard. 8/ If costs and benefits are to be considered in providing miners the "maximum" protection required by the Act, 9/ authority to weigh these lies with the Congress.

I would therefore concur in finding this operator in violation of this standard, that the implementation of the engineering control required to abate such was feasible, and would remand to the judge below solely for the purpose of assessing a penalty therefor.

8/ Castle & Cooke Foods, supra; Sun Ship, Inc., supra; Samson Paper Bag Co., supra; Turner Company, supra; Continental Can Company, supra; Society of Plastics Industry, Inc., supra, and others.

9/ See 30 U.S.C. 811(a)(7).

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Distribution

Harry R. Hayes, Esq.
Hayes & Lapitina
111 Washington Avenue
Albany, New York 12210

Linda Leasure, Esq.
Office of the Solicitor
U.S. Department of Labor
4015 Wilson Blvd.
Arlington, Virginia 22203

Mary-Win O'Brien, Esq.
Asst. General Counsel
United Steelworkers of America
5 Gateway Center
Pittsburgh, PA 15222

Administrative Law Judge Gary Melick
Federal Mine Safety & Health Review Commission
5203 Leesburg Pike, 10th Floor
Falls Church, Virginia