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Federal Mine Safety and Health Review Commission
Office of Administrative Law Judges

SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), PETITIONER	CIVIL PENALTY PROCEEDING Docket No. CENT 86-120-M A.C. No. 41-00995-05510
v.	Van Horn White Marble Mine
TEXAS ARCHITECTURAL AGGREGATES,INCORPORATED, RESPONDENT	

DECISION

Appearances: Jill D. Klamm, Esq., Office of the Solicitor, U.S. Department of Labor, Dallas, Texas, for the Petitioner; David M. Williams, Esq., San Saba, Texas, for the Respondent.

Before: Judge Koutras

Statement of the Case

This is a civil penalty proceeding initiated by the petitioner against the respondent pursuant to section 110(a) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 820(a), seeking a civil penalty assessment of $20 for an alleged violation of the mandatory noise standards found at 30 C.F.R. 57.5Ä50(b). The respondent filed a timely contest and answer and a hearing was held in Austin, Texas. The parties were afforded an opportunity to file posthearing briefs, but they declined to do so.

Issues

The principal issues presented in this case are (1) whether the conditions or practices cited by the inspector constitute a violation of the cited mandatory health standard, and (2) the appropriate civil penalty to be assessed for the violation, taking into account the statutory civil

penalty criteria found in section 110(i) of the Act. Additional issues raised by the parties are discussed in the course of this decision.

Applicable Statutory and Regulatory Provisions

1. The Federal Mine Safety and Health Act of 1977, Pub.L. 95Ä164, 30 U.S.C. 801 et seq.

2. Sections 110(a) and (i) of the 1977 Act, 30 U.S.C. 820(a) and (i).

3. Commission Rules, 29 C.F.R. 2700.1 et seq.

4. Mandatory standard 30 C.F.R. 57.5Ä50, provides as follows:

> 57.5Ä50 Mandatory. (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 S1.4Ä1971. "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 Nonmetal Mine Health and Safety District or Subdistrict Office of the Mine Safety and Health Administration.

PERMISSIBLE NOISE EXPOSURES

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

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

NOTE. When the daily exposure is composed of two or more periods of noise exposure at different levels, their combined effect shall be considered rather than the individual effect of each.

If the sum

(C1/T1) + (C2/T2) + . . . (Cn/Tn)

exceeds unity, then the mixed exposure shall be considered to exceed the permissible exposure Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Interpolation between tabulated values may be determined by the following formula:

log T = 6.322 %68 0.0602 SL

Where T is the time in hours and SL is the sound level in dBA.

(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.

Stipulations

The parties stipulated to the following (Tr. 6Ä8):

1. The respondent's products affect commerce and the respondent is subject to the jurisdiction of the Act and this Commission.

2. The respondent's size as stated in terms of annual man-hours worked is 129,227 production tons or man-hours worked, and the size of the respondent's Van Horn White Marble Mine is 11,385 productions tons or man hours.

3. The total number of MSHA inspection days at the mine in question during the 24Ämonths preceding the issuance of the citation in this case is 27, and during this time period the respondent was issued civil penalty assessments for three violations.

4. The imposition of a civil penalty assessment for the violation in issue in this case will not adversely affect the respondent's ability to continue in business.

5. On February 7, 1985, MSHA Inspector David Lilly conducted an inspection of the subject mine and issued a citation alleging a violation of mandatory standard 30 C.F.R. 57.5Ä50(b). At the time of the inspection, personal hearing protection was being worn by the drill operator.

Discussion

Section 104(a) Citation No. 2236193, February 7, 1985, cites an alleged violation of 30 C.F.R. 57.5Ä50(b), and the cited condition or practice is described as follows:

> The full shift exposure to mixed noise levels of the 12 EH LeRoi drill operator in the south central heading exceeded unity (100%) by 235.9 times (235.9%) as measured with a dosimeter. This is equivalent to an 8 hour exposure of 96 dBA. Personal hearing protection was being worn.

The inspector fixed the abatement time as February 21, 1985, and on April 25, 1985, he extended the abatement time to May 4, 1985, and noted as follows:

> The operator has done several things to try to engineer out the noise, moving the compressor, shielding the drill rotation head and changing bits more often. SLM survey of 30 min. showed the drill opr. to still be out of compliance. A partial dosimeter survey avg. (sic) out to confirm the SLM. The operator plans to do more engineering on the drill to further reduce the noise level.

On June 6, 1985, the inspector extended the abatement time further to September 3, 1985, and noted as follows:

> The operator stated that he had called the manufacturer of the LeRoi 12 EH drill for sound reduction instructions and the engineer for the manufacturer had told him there were no engineering controls to reduce the noise, that they had incorporated all technology available during construction of same, and would send a letter to MSHA from the manufacturer stating this. Denver Technical Support for MSHA was contacted by Sidney Kirk and was told by them that the noise could be reduced and that they would come to the mine and provide assistance.

On August 27, 1985, the inspector extended the abatement time to October 7, 1985, and noted that "The mine was not in operation, a resurvey for mixed noise of the 12 EH LeRoi drill operator could not be made."

On November 7, 1985, the inspector extended the abatement time to January 10, 1986, and noted that "The Denver Technical Support Group is scheduled to assist during that week to attempt to reduce the noise exposure."

On January 7, 1986, the inspector extended the abatement time to January 31, 1986, and noted as follows: "On January 7, 1986, some tests were made and simulated structures positioned and did show a substantial reduction in the drill operator position to noise. Additional time is needed for the operator to construct the protective barrier on the drill."

On February 4, 1986, the inspector extended the abatement time to March 31, 1986, and he noted that "The protective barrier has been completed on the drill. Additional time is needed for Denver Technical Support to do a noise study."

On April 15, 1986, the inspector terminated the citation, and he noted as follows:

> On April 15, 1986, a resurvey of noise on the stated drill was conducted by the Denver Technical Support Group. A reduction of noise exposure of 5 dBA had been accomplished. There is no further engineering control available at

this time. However, hearing protection must still be worn to prevent the driller from over-exposure.

MSHA's Testimony and Evidence

MSHA Inspector David P. Lilly testified as to his background, experience, and training, and confirmed that in addition to his regular mine inspections, he conducts approximately 15 to 20 noise surveys a year as part of his inspections. He explained the use of a dosimeter, and confirmed that he conducted an inspection of the mine on February 7, 1985, and that he took a noise survey that same day. After calibrating the dosimeter testing devices, they were installed on a truck driver who hauled material from the underground mine to the crusher, and on the LeRoi drill helper who was assisting the driller underground. Mr. Lilly described the drill as an air percussion drill used to drill vertically and horizontally.

Mr. Lilly stated that during the noise survey period he took periodic sound level meter readings with a testing device that reads out in decibels rather than in percentages and that he recorded the results. At the end of the day, his sound level meter readings confirmed the results of the dosimeter test results which reflected that there was an over-exposure to noise. The dosimeter readings were considerably over the allowable noise exposure of 90 decibels for an 8Ähour period of exposure (Tr. 11Ä17).

Mr. Lilly confirmed that during the survey shift in question, the drill helper and operator continually wore Wilson "muff-type" hearing protection. However, the protectors were old and worn, and since the identification numbers were worn off, it was difficult to ascertain whether or not they were MSHA approved protectors. Mr. Lilly also confirmed that on the basis of his 14 years of experience as an underground miner, and statistics, a continual over-exposure of noise levels in excess of 90 decibels will eventually cause hearing deterioration to a point where there will be a complete loss after time. He stated that when he worked as a miner, personal hearing protection was not available, and that he suffers from a loss of hearing (Tr. 18).

Mr. Lilly confirmed that he discussed possible solutions to reduce the noise level of the drill with mine superintendent Carl Schiller, and recommended that the air lines to a large compressor located 20 feet from the drill be extended so as to move the compressor as far away from the drill as

possible. The compressor was a source of "a tremendous amount of noise." Mr. Lilly also recommended that dull drill bits be replaced with new ones so as to reduce the noise (Tr. 19). Mr. Lilly confirmed that he made several follow-up visits to the mine to monitor the noise levels and extended the abatement times while the respondent attempted to reduce the noise levels through engineering and contacts with the drill manufacturer (Tr. 21). After further discussions with his supervisor, it was decided to contact MSHA's Denver Technical Support Group to assist the respondent in finding solutions to the drill noise levels. The technical group had prior experience with air track drills and were able to get substantial noise reductions in similar drills at other operations. Since he was reassigned to another inspection area at the time the technical support group surveyed the drill noise, he had no personal knowledge of the detailed results of MSHA's further testing, but did understand that a reduction in the drill noise level was achieved (Tr. 23).

On cross-examination, Mr. Lilly confirmed that he had inspected the mine in question since the latter part of 1982, and he recalled an old drill that was used outside, but he never observed it in operation. The LeRoi drill which he observed in use underground during his February 7, 1985, inspection was "in real good shape like it was fairly new" (Tr. 25).

Mr. Lilly confirmed that the mine in question is a marble mine, and it is the only mine of this kind in his inspection area. He stated that the cited drill is used "off and on" during the working shift, but this makes no difference since his noise survey is taken over a full 8Ähour shift and the dosimeter averages the noise exposure over the full 8Ähour working period. Mr. Lilly confirmed that his noise survey on February 7th was the first one he has conducted at the mine, and he could not state whether prior surveys had been made by MSHA. He was not aware of any prior noise citations served on the respondent during the time it has operated the mine (Tr. 27Ä28).

Mr. Lilly confirmed that the white marble mine in question is worked by six employees, and he compared it to a small underground potash mining operation. He also confirmed that the respondent uses the same employees to work its open pit mines at Eagle Flats (Tr. 30). Since he transferred out of the area when MSHA's technical support group came in, Mr. Lilly could not state the engineering and production costs of the noise shield which was constructed to alleviate

the noise level, nor could he state the number of hours spent by the technical staff in developing the shield (Tr. 30).

In response to further questions, Mr. Lilly described the LeRoi drill as a large track mounted piece of machinery, and he stated that the operator stands at the control station while operating the drill boom. He confirmed that the drill operator is positioned further back from the drill helper who cleans and collars the drill steel. He confirmed that only the drill helper was surveyed with a dosimeter because he spends more time in the area where the actual drilling is performed. However, on subsequent noise surveys, he would probably test the drill operator and a loader operator, and he tries not to survey the same individual again (Tr. 33Ä35).

Mr. Lilly confirmed that the drill is also used for scaling loose material, and that over an 8Ähour shift the drill is in operation for approximately 4 to 5 hours (Tr. 36). Mr. Lilly also confirmed that the results of his noise survey on February 7th indicated that the drill noise exposure was 235.9 percent over the allowable limit, and that this translates into a noise exposure average of 96 dBA's, or 6 dBA's over the allowable limit of 90 dBA's over the full shift noise survey period (Tr. 38Ä39). Mr. Lilly identified the noise sources as the drill and the compressor. The resulting noise levels to which the employees are subjected are high frequency directional noises coming from the air hammer and the "ringing" of the rotating steel drill bits, and if one were to place a barrier between the employees and the noise source, a small reduction in the noise will result (Tr. 39). The noise survey is based on a particular occupation and takes into account the normal required duties of the person being tested at any given time. In the instant case, a determination was made that the drill and compressor were the main sources of noise exposure to the area where the drill helper was required to work (Tr. 41).

Mr. Lilly stated that his experience with similar drill shielding devices in connection with MSHA's technical support at another mining operation confirmed that such devices effectively result in a great reduction of the drill noise exposure. In his opinion, shielding devices are practical at the respondent's mining operation and they do not hamper the operator's ability to drill or control the drill (Tr. 42).

Mr. Lilly conceded that while his citation makes reference to a drill "operator," the noise survey results are equally applicable to the drill helper because both individuals alternated at both occupational positions and the actual

noise tests were conducted on the drill itself (Tr. 45). The work sheet and notes which accompanied the citation state that two individuals were exposed to the drill noise, and this would include both the drill operator and the helper because they alternately operate the drill, and his sound level meter reading were taken around the drill areas, including the control station, and they were all over 100 decibels (Tr. 48).

Thomas M. Lloyd, Physicist, MSHA Safety and Health Technology Center, Denver, Colorado, testified as to his education and experience, and confirmed that his work includes testing noise levels, designing engineering noise controls and modifications, and retesting such controls to assure positive results. He confirmed that during his 7 years of employment with MSHA he has been personally involved in conducting 15 noise surveys a year. He has also been involved in at least 10 noise control modifications for underground drill machines, and he confirmed that MSHA performed technical assistance noise and engineering control surveys at the respondent's mine in January and April, 1986, and he identified exhibits GÄ4 and GÄ5, as MSHA's reports and recommendations concerning its technical assistance (Tr. 82Ä87).

Mr. Lloyd explained what takes place during his technical assistance visits to mines, and he confirmed that exhibit GÄ4 is the report he prepared with respect to his January 6Ä8, 1986, visit to the mine in question. He confirmed that a two-side temporary noise barrier was constructed out of plywood as a diagnostic procedure, and when the noise level was tested with the barrier in place, a reduction in noise resulted, and he concluded that if a permanent shield was constructed for the drill in question, there would be some noise reduction generated (Tr. 87Ä90).

Mr. Lloyd confirmed that the April 8, 1986, survey and follow-up noise measurements were made by another member of his MSHA group, and he identified photographs of the shielding device constructed out of panels of safety glass mounted on a wooden frame (exhibit GÄ5; Tr. 91). Mr. Lloyd stated that the shielding device creates an acoustical "shadow zone" for the person standing behind the shield, and it serves to interrupt the noise between the operator and the drill (Tr. 91). He confirmed that such partial barrier noise control treatments for drilling machines have been used successfully in at least 10 other underground mines (Tr. 92).

Mr. Lloyd stated that he made it clear to the respondent that his services were available to help in the construction

of the barriers for the drilling machine in question, and he estimated that the cost for the wooden frame and safety glass materials to construct the barrier would be "in the area of $300," plus the labor to construct it (Tr. 93).

Mr. Lloyd stated that the partial barrier shield constructed with some scrap plywood during his January, 1986, survey resulted in drill noise reduction at that time, and when the final barrier was constructed and installed, MSHA's follow-up survey reported in April, 1986, indicated a measured drill noise reduction of five decibels. He described the method for testing the noise levels utilizing the shield and indicated that the test results are compared with the noise level readings taken before the shield was in place (Tr. 93Ä95). He stated that all of the noise exposure that was generated during the surveys in this case was generated from the drill machine itself (Tr. 94). Mr. Lloyd confirmed that other than the barrier shield which has been constructed and installed on the drill in question, nothing further can be done at this time to reduce the noise exposure, and no further drill changes are required at this time (Tr. 97).

On cross-examination, Mr. Lloyd reiterated that there is no other feasible control to reduce noise exposure other than the noise control shield that has been installed on the LeRoi drill in question (Tr. 97). He also reiterated that MSHA's Denver Safety and Health Technology Center offers free engineering consultant service to the mining industry to help keep the costs down (Tr. 99). Mr. Lloyd stated further as follows (Tr. 100Ä101):

> Q. You have heard testimony that the operator of the drill is required to go outside of the barrier to clean off the glass.
>
> A. Uh-huh.
>
> Q. And based on that, do you still feel that the feasibility and the effectiveness of this barrier is valid?
>
> A. Yes, and there are several reasons I feel that. First of all, it has been done several other places in other mines and worked effectively, using glass barriers, and we haveÄthe feedback that I have gotten from the other projects I have worked on is that it is somewhat of a nuisance and certainly an additional responsibility for the operator to keep the

glass clean, but in general a bottle of Windex or some cleaner of that sort is sufficient to keep it clean.

Q. And did you make any notations about this operation relative of the levels of dust and mud splattered as compared to these other places you have visited?

A. There isÄall I really have to go by are the pictures that we have shown in the report, because I was not in that follow-up survey, but I would say it was comparable to other places we have seen situations of that degree.

And, at (Tr. 105Ä106):

Q. I'm still not sure I understand why you are satisfied with thisÄat this particular moment in time.

A. Okay. I feel that the control as installed has met the requirementsÄmy personal requirementsÄmy definition of feasibility, and that is that noise control has provided a substantial noise reduction. A 5 decibel noise reduction will reduce the noise levelÄor noise exposure in half for the time spent behind the shield, so it provides significant noise reduction.

It also was constructedÄor could have been constructed using a minimal amount of money. It is notÄwhether the company decided to use technical support assistance in constructing the shield or not was their decision, but the amount of money spent could have been minimized to somewhere in the order of $300, and so economically I feel it is feasible.

And discussions with the drill operator at the time I made the initial determination of the two-sided shield indicated that there would not be a problem with constructing the shield as we had laid it out. And, I might add, that we purposely left the top of the shield openÄor I am sorryÄwe did not put a roof on top of that enclosure because when

> you are drilling in the vertical position he needed to see the top of the drill, so we left thatÄthat was a further addition that we had considered and decided not to go with that.
>
> Q. Then it is your position then that this was an inexpensive improvement so long as MSHA provides physicists to do the engineering?
>
> A. Well, yes, and we did.

With regard to the use of personal hearing protection, Mr. Lloyd stated as follows (Tr. 128Ä129):

> THE WITNESS: That is correct. The noiseÄone of my points was that the amount of noise reduction provided by the hearing protection is almost random. It is just so variable that it is very, very difficult to protect that. We are using hearing protection as a lastÄyou know, it is the absolute last thing that we could think of that would do any good at all.
> To rely on hearing protection asÄto give a predicted amount of noise reduction justÄit is just not reasonable based on the tests. We have made over 200 tests of ear muff type protectors in the field, and our concern is that people will be relying on hearing protection to drop the noise level to that last whatever number you want to pick.
>
> When you design an engineering control, it is fixed on the machine, and any time spent behind that will lower his average daily noise exposure. It would be real unlikely to go back and sample that person for all day and come out higher or the same thenÄit may not be 5 decibels lower, but it is bound to be somewhat lower. And my point is, given that that hearing protection is unpredictable in its ability to reduce noise for the operator, the engineering work, in conjunction with the hearing protection, seems to be the most reasonably way to approach it.

Mr. Lloyd confirmed that he is not aware of any drills on the market which are available, as manufactured, that will bring the respondent into compliance with the 90 dBA requirement of the standard. In order to achieve compliance, or attempt to do so, an operator must modify any drill that it purchases, or the manufacturer must make certain modifications, and MSHA is available to assist with the design of a suitable engineering noise control (Tr. 142Ä143).

Respondent's Testimony and Evidence

Joe R. Williams, respondent's general manager and president, testified as to the scope or his mining operations, and confirmed that the Van Horn, Texas White Marble Mine is the only underground mine which he operates. Mr. Williams also confirmed that six employers, including superintendent Carl Schiller, work at the mine, as well as at two other surface mining locations (Tr. 49Ä53).

Mr. Williams confirmed that the cited LeRoi hydraulic track drill is in use at the subject mine, and that prior to the use of that drill, a LeRoi air track drill and a GardnerÄDenver track drill were used. The air track drills were very noisy in comparison to the hydraulic drill currently in use. Mr. Williams identified copies of three invoices reflecting the purchase and trade-in of the drills which he referred to, and he confirmed that the cited drill was purchased in November, 1983 (exhibit RÄ1, Tr. 58).

Mr. Williams identified a copy of a letter dated May 24, 1985, after the citation was issued, received by Mr. Schiller from the Chief Engineer, LeRoi Division, Dresser Industries, concerning the cited drill, and it states as follows (exhibit RÄ2, Tr. 59):

> I enjoyed discussing the very interesting aspects of your LeROI hydraulic drill rig application last week. I regret that we could not be of more help to you in complying with MSHA noise level requirement of 90 dBA, 8 hour average for operator.
>
> We are required by EPA to silence portable compressors; but as you know, there is presently no national requirement for rock drills. I believe federal legislation on noise purposely avoided restrictive rules on rock drills because of the lack of any feasible

> means to implement. Many rock formations like your marble can only be penetrated economically by percussion drilling means. Percussion drilling is by nature very noisy.
>
> Over the years we and others have experimented with various schemes to reduce percussion drill noise. Perhaps the biggest advance made in this direction was the development of the hydraulic actuated hammer which completely eliminated the pneumatic bark of pulsating and expanding air from the machine cylinder. Even with this advantage which you are utilizing, the impulsive energy generated still has to travel down the steel to bit to do any work.
>
> Noise emanating from the rapidly struck drill steel is, of course, the principal remaining sound source and we have found no commercially feasible way to control it. Various forms of telescoping enclosures and vibration dampers have yielded marginal improvements but have been, in general, too cumbersome and unreliable to allow reasonable production levels.
>
> On applications we have been involved with, earmuffs and other personal ear protection have satisfied local special requirements.

Mr. Williams also identified a copy of a letter dated June 7, 1985, from Mr. Schiller to Inspector Lilly, forwarding a copy of the Dresser Industries letter, and it states as follows (Tr. 59):

> We are using a LeROI 12 EH drill with a LeROI 175 compressor. We have attempted twice to reduce noise but failed to bring this machine into compliance. Please note paragraphs three and four in the attached letter in relation to citation #2236193 issued February 7, 1985 and extended April 25, 1985.
>
> We would like to have this citation extended until suitable engineering controls are invented. We have an existing personal protective equipment program requiring drillers and drillers

helpers to wear EAR (brand) plugs or David Clark Company Model 10A hearing protectors.

Mr. Williams identified a photograph of the cited drill in question, and a photograph of the drill as modified by the noise shield recommended by MSHA's technical support group (Tr. 61, exhibits RÄ3, RÄ4).

Mr. Williams could not state whether prior MSHA noise citations have ever been issued at the mine, and he stated that "those drills are out of compliance with the regulation, and always have been and always will be" (Tr. 64). He confirmed that protective ear muffs or ear plugs have always been worn by his employees since he began his mining operation (Tr. 64). He stated that the drill operator and helper are behind the noise shield only when they are at the controls, and he described their duties with respect to the drilling operation (Tr. 64Ä66). He confirmed that the sum total of the noise emanating from the operation of the drill includes noise from the compressor, the hydraulic mechanism engine, and the percussion of the steel drill as it drills into the formation, and that the greater noise comes from the steel drill (Tr. 66).

Mr. Williams stated that the glass panes on the noise barrier accumulate mist and dust and need to be wiped off, and that in certain drilling positions, the barrier creates some handicap. Mr. Williams could not state how much time MSHA's engineering staff spent on developing the barrier, and while he had no accurate answer as to what it cost his company to construct the barrier, he stated that "it cost several thousand dollars of time, personnel's time" (Tr. 67). He confirmed that Mr. Schiller, who is a mining engineer, constructed and mounted the barrier on the drill (Tr. 68).

On cross-examination, Mr. Williams stated that while he was never a miner, he has had 25 years of experience in the "engineering field," and that his personnel have attended various MSHA training schools (Tr. 69). Mr. Williams confirmed that he has discussed the drill noise problem with Mr. Schiller a number of times, and he considers Mr. Schiller to be a conscientious and good engineer. However, they could not come up with any solutions, and Mr. Williams does not believe that MSHA's solution with respect to the noise barrier device "is worth a damn" (Tr. 71).

In response to further questions, Mr. Williams stated that he traded in the air drill for the cited hydraulic drill because the hydraulic is far less noisier and is less costly

to terms of maintenance. He did not believe that the hydraulic drill was tested for noise when he received it because everyone knew it was inherently noisy and used ear plugs when it was operated (Tr. 73). However, if a less noisier drill that meets the noise regulations comes on the market, he would purchase one (Tr. 75).

Mr. Williams stated that he was not too enchanted with MSHA's recommended noise shielding device because "it is kind of awkward, . . . and according to Carl Schiller, he says it really doesn't make but about one decibel difference." Mr. Williams does not believe that the device is a good noise deterrent, and in his opinion, MSHA's reported 5 decibel noise reduction with the use of the barrier "is questionable" (Tr. 75). He confirmed that the drill operator still wears the protective ear muffs (Tr. 75).

Mr. Williams conceded that the expense of constructing the barrier in question was a one time expense, and that it was installed only on the cited drill. He expressed some concern over what the future will bring, and whether or not MSHA will at some later time require him to install other noise devices to achieve compliance. When asked whether there was a problem with amortizing the cost of the noise shield, while at the same time "keeping MSHA happy," Mr. Williams responded "I have no objection to that. We did it . . . we spent the money. Now if they are satisfied, it would tickle me" (Tr. 76).

Discussion

In MSHA v. Callanan Industries, Inc., 5 FMSHRC 1900 (November 1980), an inspector cited a sand and gravel mine operator with a violation of 30 C.F.R. 56.5Ä50, a noise standard identical to that found in section 57.5Ä50, after conducting an 8Ähour dosimeter noise survey on an air track drill used in a stone quarry. At the time of the survey, the drill operator was wearing ear muffs, but the survey results showed that for the 8Ähour shift, the operator of the drill was exposed to 103.6 dBA, the equivalent of 660 percent of the 90 dBA permissible noise exposure level established by the standard.

After the citation was issued, an engineer from MSHA's Pittsburgh Technical Support Center conducted a noise survey on the air track drill for the purpose of suggesting noise controls. Subsequently, MSHA suggested that the drill cylinder be modified to accommodate a muffler, and stated that Callanan could either purchase a muffler commercially or

construct one itself. MSHA concluded that the attachment of a muffler would result in a noise reduction of approximately 5 dBA, and it estimated the cost at $2,672.78. Callanan took the position that the proposed drill shell modification was not feasible because it was too costly to transport the drill for retrofitting, and it stated that the drill in question was valued at under $2,500. MSHA took the position that the proposed engineering control was feasible because it was both technologically achievable and reasonable from a cost standpoint.

The judge held in Callanan's favor and vacated the citation. He found that the MSHA's cost estimate with respect to the engineering control was "too imprecise to allow a proper economic analysis," and he found no "reasonable assurance that there would be an appreciable and corresponding improvement in working conditions as a result of the proposed controls."

The Commission reversed, and rejected any notion 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. The Commission construed the term "feasible" as "capable of being done," and it concluded 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. In allocating the burdens of proof required to make this determination, the Commission offered the following guidelines at 5 FMSHRC 1909:

> [I]n 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.

In Todilto Exploration and Development Corporation v. MSHA, 5 FMSHRC 1894 (November 1983), an inspector cited a violation of 30 C.F.R. 57.5Ä50(b), after conducting an 8Ähour noise survey with a dosimeter on a jackleg percussion rock bolt drill in an underground uranium mine and finding that the drill operator was exposed to 114 dBA. The drill operator was wearing ear plugs and muffs, and the drill was not equipped with a muffler. The violation was abated by the installation of a muffler on the drill. However, subsequent noise readings with a sound level meter showed that excessive noise levels still existed, and the readings established that the drill operator's average noise exposure levels ranged between 110 dBA and 113 dBA. Even though Todilto attached a muffler to the drill, the drill operator was still required to wear personal protective equipment.

The judge found that the drill operator was exposed to an excessive noise level, and although he also found that MSHA established that the installation of the muffler was an engineering control available to Todilto, since the exposure to noise was still not within permissible levels as required by the regulation, even with the muffler attached, the judge concluded that the installation of the muffler was not a feasible engineering control, and he vacated the citation. On appeal, the Commission reversed and stated as follows at 5 FMSHRC 1896Ä1897:

> [W]e hold that a control may indeed be "feasible" within the meaning of 30 C.F.R. 57.5Ä50(b) even though it does not reduce the miner's exposure to noise to permissible levels set forth in subsection (a} of the standard. Our holding is based upon the express wording of the noise standard. Section 57.5Ä50(b) unambiguously provides that when excessive noise exposure levels exist, "feasible administrative or engineering controls shall be utilized." It continues, "[i]f such [feasible] controls fail to reduce exposure to within permissible levels, personal protection equipment is to be provided and used%y(4)27" (Emphasis added). Thus, the noise standard clearly contemplates that in a given case a control might not reduce the noise exposure level to within permissible levels, but nevertheless be a "feasible" control required to be

> implemented. To allow a mine operator to proceed directly to the use of personal protective equipment and thereby avoid implementing otherwise feasible administrative or engineering controls, solely because use of the controls themselves does not achieve permissible exposure levels, would be to allow circumvention of the standard's clear requirement that excessive noise levels first be addressed at their source. We note that under the judge's approach a control that reduces the level of noise from 114 dBA to 91 dBA (on the basis of an 8 hour exposure period) would not be feasible simply because it fails to reduce the noise level to 90 dBA. We find no support for this result in the standard.

Upon remand of the Callanan case, the parties agreed to settle the matter, and the operator paid a $78 civil penalty assessment for the noise violation in question, 6 FMSHRC 139 (January 1984).

The Todilto case was remanded for the judge's determination as to whether or not MSHA proved a violation of section 57.5Ä50(b) for failure by the operator to implement a feasible engineering control within the parameters of the Commission's guidelines as enunciated in Callanan, supra. On April 17, 1984, the judge issued his decision and found that MSHA had established that the drill operator was exposed to an excessive noise level, that the muffler was a technologically achievable engineering control capable of reducing the drill operator's noise exposure, and that the cost was not unreasonable for the benefits achieved. The judge found that Todilto was in violation of section 57.5Ä50(b), and stated in pertinent part as follows at 6 FMSHRC 934 (April 1984):

> Therefore, based upon the credible evidence in this case, and the Commission's decision in Callanan, I find that the Secretary has proven the respondent violated mandatory standard 57.5Ä50(b) by failing to implement the feasible engineering control (muffler) which was available to it. The fact that the muffler did not reduce the noise level to that required by the standard is not a proper reason for an operator to avoid the control and go directly to personal protection equipment. The standard contemplates the use of such personal equipment only after all other "feasible"

engineering controls are installed to achieve the best results possible.

In MSHA v. Landwehr Materials Inc., 8 FMSHRC 54 (January 1986), Judge Broderick affirmed a citation for a violation of section 56.5Ä50(b), after finding that a shovel operator at a limestone quarry who was wearing personal hearing protection was exposed to a 96 dBA noise level for an 8Ähour shift. After the termination date for the citation was extended, MSHA's Denver Technical Support Group performed a noise control survey which showed that the noise level in the shovel operator's environment was reduced by approximately 33 percent, from an average of 101 to 98 dBA, when a vinyl curtain was installed between the shovel operator and the engine compartment of the shovel. While significant, this reduction did not bring the noise level down to the permissible 90 dBA specified in the cited standard, and personal protection equipment was still deemed necessary. Judge Broderick found that the installation of the vinyl curtain was a feasible engineering control available to reduce the operator's noise exposure, and that Landwehr's failure to utilize this feasible noise control constituted a violation of section 56.5Ä50(b).

MSHA's Arguments

During oral argument at the hearing, petitioner's counsel asserted that the respondent must use those available technologically feasible engineering controls to reduce the noise level as much as possible before resorting again to personal hearing protection (Tr. 78). Counsel maintained that on the facts of this case, the petitioner has established a prima facie violation of section 57.5Ä50(b) by the respondent pursuant to the guidelines established by Callanan Industries, Inc. and Todilto Exploration and Development Corporation, supra. Counsel asserts that petitioner has established that miners were over-exposed to the drill noise, that there was a technologically available engineering control, and that a "technical violation" of the cited standard has been established (Tr. 140Ä141; 146). Counsel concluded that since the inspector modified the citation to delete his "significant and substantial" (S & S) finding, "the references in regard to negligence are no longer a part of the citation" (Tr. 150).

Respondent's Arguments

During oral argument at the hearing, respondent's counsel conceded that the cited drill was out of compliance with MSHA's noise requirements limiting the noise exposure to

90 dBA's over an 8Ähour work shift (Tr. 139Ä140). However, counsel took the position that the respondent did what it could to reduce the drill noise, and he expressed concern that even though MSHA concedes that even with the use of the noise barrier, there are no additional feasible engineering controls available to further reduce the noise, other inspectors in the future may require the respondent to use additional controls to achieve total compliance (Tr. 138). Counsel asserted further that while it has received prior citations for noise violations, it has required its employees to wear personal hearing protection, purchased a quieter drill, and consulted with the drill manufacturer in order to achieve compliance (Tr. 146Ä147). Considering these past compliance efforts, counsel took the position that it was in compliance with the intent of the standard and was not negligent, and he preferred that MSHA issue some sort of "warning" or advice to the respondent as to how to continue in compliance, rather than issuing citations and seeking civil penalty assessments (Tr. 147Ä148). Counsel believes further that since MSHA has established that no further feasible engineering controls are available, the citation should have been withdrawn (Tr. 149Ä150).

Findings and Conclusions

The respondent in this case is charged with a violation of the noise exposure requirements of mandatory standard 30 C.F.R. 57.5Ä50(b), for exceeding the noise exposure level for the operator of a LeRoi 12 EH hydraulic track mounted drill which was in use underground at the mine. Although the citation makes reference to the "drill operator," Inspector Lilly explained that the results of MSHA's noise surveys are equally applicable to the drill operator and drill helper because they essentially occupy the same occupational position, alternate their work during a normal work shift so that each individual functions at any given time as both the drill operator and helper, that they are both exposed to the same noise levels emanating from the drill, and that the noise tests and surveys measured the noise exposure from the drill and its components.

The essential facts in this case are not in dispute. Although the respondent's original answer denies that a violation occurred, the respondent has not rebutted the petitioner's credible evidence and testimony establishing that the drill in question is out of compliance with the applicable cited noise standard. As a matter of fact, respondent's general manager and president Joe Williams candidly conceded that the cited drill is out of compliance with the cited

noise standard, and "always will be." Further, during the course of the hearing, respondent's counsel, who happens to be Mr. Williams' son, conceded that the drill is out of compliance with the required 90 dBA noise exposure level over an 8Ähour shift (Tr. 139Ä140). Under the circumstances, I conclude and find that the petitioner has established by a preponderance of the credible evidence in this case that the noise exposure resulting from the underground operation of the cited drill was in excess of the permissible limitation of 90 dBA, and that the drill operator and helper were exposed to an excessive noise level amounting to a noise dose over an 8Ähour period which was 235.9 percent in excess of that permitted by the standard, resulting in an average 8 hour noise exposure of 96 dBA's. Accordingly, I further conclude and find that the petitioner has satisfied the initial requirements enunciated by the Commission in Callanan Industries, Inc., supra, and has presented sufficient credible evidence of miner exposure to noise levels in excess of the limits specified in the standard.

The next consideration is whether the petitioner has presented credible evidence as to the availability of a technologically achievable engineering control capable of reducing the drill operator or helper's exposure to excessive noise. The facts show that after the citation was issued, and during the extended abatement period, the respondent attempted to reduce the drill noise exposure by moving the compressor, shielding the drill rotation head, and changing the bits more often, all to no avail. In addition, the respondent consulted with the drill manufacturer, only to be told that all available technology to reduce the drill noise had been incorporated into the drill during its construction, and that no additional engineering controls were available for noise reduction on the drill as manufactured.

Subsequent to the respondent's efforts at reducing the drill noise levels, MSHA provided technical assistance to the respondent as testified to by Mr. Lloyd, and as reflected in his report prepared jointly with MSHA Safety and Health Specialist Donald D. Rapp (exhibit GÄ4), as well as in a subsequently issued report prepared by MSHA General Engineer Richard J. Goff (exhibit GÄ5). The evidence shows that as a result of Mr. Lloyd's technical assistance, which included the construction of a prototype noise barrier from scrap plywood to form a barrier between the drill operator and the face where the drill cut into the material being mined, the noise levels dropped. Following Mr. Lloyd's recommendations, the respondent subsequently fabricated a two-sided barrier from plywood and tempered safety glass, and it was installed

on the drill. Mr. Goff's report reflects that the recorded drill noise levels before and after the installation of this barrier showed a reduction of 5 dBA's in the drill noise level, and he concluded that there was no additional suitable treatment for the drill. He also concluded that personal hearing protection was still needed, and that with the installation of the barrier, the personal protection would be more effective against the lower noise levels resulting from the use of the barrier.

Inspector Lilly testified that in his experience with similar shielding devices at another mining operation, they have proved to be effective in reducing drill noises. He also believed that the barrier in question is a practical method for reducing noise exposure and that it does not hamper the drill operator's ability to drill or control the drill. Mr. Lloyd confirmed that the use of similar glass barriers have proved effective in the past, and while some of his "feedback" reflects that keeping the glass clean may be a nuisance, it can be kept clean by the operator. Mr. Lloyd also confirmed that his technical assistance visit to the respondent's mine included discussions with the drill operator, and he found that the construction and lay-out of the barrier presented no problem. Mr. Lloyd also confirmed that the top of the enclosure was left off to afford visibility while the drill was used in the vertical position. The respondent did not call the drill operator or mine superintendent Schiller to testify in this case, and it has not rebutted the testimony of Inspector Lilly or Mr. Lloyd.

Mr. Williams did not appear to be too enchanted with the noise barrier and he questioned its effectiveness as a noise deterrent. He also indicated that the glass had to be wiped off, and that in certain drilling positions, the barrier was a handicap. However, he did not suggest that the barrier presented any safety hazards, nor did he offer any credible engineering evidence to support his opinions and conclusions regarding the use of the barrier. In short, I cannot conclude that the respondent has rebutted the petitioner's evidence which leads me to conclude and find that the construction, installation, and use of the barrier in question is a technologically achievable engineering control capable of reducing the drill noise sources and the drill operator and helper's noise exposure.

With regard to the question as to whether or not the noise barrier in question is an engineering control which is economically achievable, I take note of the fact that in Callanan Industries, Inc., supra, at 5 FMSHRC 1909, the

Commission stated that this may be established by "sufficient credible evidence supporting a reasoned estimate of the expected economic costs of the implementation of the control." In the case at hand, the evidence establishes that the initial diagnostic noise barrier used by Mr. Lloyd during MSHA's technical assistance survey was constructed from scrap plywood. Mr. Lloyd estimated the cost of the one finished barrier, which consisted of a two-sided wooden framed and glass barrier, at $300 plus the cost of labor to construct it (Tr. 93). Utilizing MSHa's technical support personnel to minimize the costs, Mr. Lloyd believed that the construction and utilization of the barrier was an inexpensive and economically feasible noise control improvement (Tr. 105Ä106).

Mr. Williams confirmed that mine superintendent Schiller constructed and installed the noise barrier, and while he could not state what it cost, he estimated that "it cost several thousand dollars of personnel time" (Tr. 67). However, there is no credible evidence to support the respondent's estimate of the "personnel costs." The respondent failed to call Mr. Schiller or to present any other evidence to substantiate Mr. Williams' conclusions. Photographs of the barrier in question (exhibit RÄ4), and those which are included as part of MSHA's technical assistance reports, reflects that the barrier is a relatively simple piece of equipment mounted to the side of the drill at the operator control station. Further, the record in this case establishes that the costs of developing the barrier, including the engineering technical assistance and advice leading to its construction and installation, were all at MSHA's expense. In addition, Mr. Lloyd confirmed that any future technical assistance, if necessary, will be at MSHA's expense, as long as the respondent avails itself of its services. Under the circumstances, I conclude and find that the petitioner has established by a preponderance of the credible evidence that the cost of the single noise barrier in question is not economically prohibitive, and that the respondent has failed to produce any credible evidence to the contrary.

It seems clear in this case that the installation of the noise barrier in question resulted in a reduction of 5 dBA's in the drill noise level, as well as a reduction in the level of noise exposure for the drill operator and helper, and that this was achieved at a reasonable cost. Under the circumstances, I conclude and find that the development and installation of the drill noise barrier were not wholly out of proportion to the resulting noise reduction benefits which have been achieved in this case. The fact that the 5 dBA noise reduction with the use of the barrier did not bring the

respondent into total compliance with the permissible level stated in subsection (a) of section 57.5Ä50, is no reason to excuse the respondent from using the barrier or from continuing to use personal hearing protection in conjunction with the barrier. Todilto Exploration and Development Corporation, supra, at 5 FMSHRC 1896Ä1897.

In view of the foregoing findings and conclusions, I conclude and find that the petitioner has established a violation of the cited mandatory standard, 30 C.F.R. 57.5Ä50(b), by a preponderance of the credible evidence adduced in this case, and the citation IS AFFIRMED.

History of Prior Violations

The parties have stipulated that for the 24Ämonth period prior to the issuance of the citation in question, the respondent was assessed for three violations. While it is not clear from the record whether or not the respondent's past compliance record includes citations for violations of section 57.5Ä50(b), this burden in of the petitioner. The petitioner has produced no evidence of any prior noise violations. Under the circumstances, I conclude and find that the respondent has a good compliance record.

Size of Business and Effect of Civil Penalties on the Respondent's Ability to Continue in Business

The record establishes that the respondent is a small mine operator. The parties have stipulated that the civil penalty assessment for the violation in question will not adversely affect the respondent's ability to continue in business.

Gravity

The record in this case reflects that the employees working around the drill were wearing personal hearing protections. In addition, the respondent had purchased or traded in an old drill for a quieter one prior to the issuance of the citation, and there is no evidence of any long-term noise exposure. Once the noise barrier was installed, the respondent was still barely out of compliance, but the personal hearing protection was more effective against the lower noise levels resulting from the use of the barrier. Under the circumstances, I conclude and find that the violation was nonserious.

Negligence

On the fact of this case, I cannot conclude that the respondent was negligent. The record establishes that the respondent required the drill operator and helper to wear personal protective devices and they were being worn at the time of the inspection. In addition, the respondent had purchased or traded in its old drill for a newer one in its attempts to limit the drill noise exposure.

Good Faith Compliance

The record established that the respondent took timely steps to abate the violation, and cooperated fully with MSHA in its attempts to comply with the noise standard in question. I conclude and find that the respondent demonstrated good faith compliance.

Civil Penalty Assessment

In view of the foregoing findings and conclusions, and taking in to account the requirements of section 110(i) of the Act, I conclude that a civil penalty assessment in the amount of $20 is reasonable for the citation which has been affirmed.

ORDER

The respondent IS ORDERED to pay a civil penalty assessment in the amount of $20 for section 104(a) non-"S & S" Citation No. 2236193, February 7, 1985, 30 C.F.R. 57.5050(b). Payment is to be made to MSHA within thirty (30) days of the date of this decision, and upon receipt of payment, this proceeding is dismissed.

George A. Koutras
Administrative Law Judge