
Health Standards to Protect Miners from Hearing Loss

U.S. Department of Labor
Mine Safety and Health Administration
September 1999

Today, in many U.S. mines, the miners are exposed to extremely loud and sustained noise levels. MSHA estimates that unless something is done, 13 percent of U.S. miners—about 37,000 will suffer a significant loss of hearing. Job-related hearing loss, however, can be diagnosed, and prevented or reduced in severity. The rule establishes uniform requirements that will reduce this toll to coal, metal and nonmetal miners. This is the first update of MSHA's noise standard in 20 years.

Although the rule will significantly reduce occupational hearing loss among miners, it will not entirely eliminate it. Currently, there are a few types of mining equipment where it is not technically or economically feasible to reduce miners' noise exposure to within the permissible level. MSHA will work with the mining community in the years ahead to develop and introduce new technologies to further reduce noise levels.

What are the major requirements of this final rule?

- Requires mine operators to use all feasible engineering and administrative controls to reduce miners' noise exposure to the "permissible exposure level"(PEL). Hearing protectors are not permitted in lieu of such controls.
- Establishes an "action level" at 50% of the PEL, at which miners must be enrolled in a hearing conservation program (HCP).
- The HCP includes provisions for assessing miners' noise exposure; audiometric (hearing) tests; hearing protectors; training; and recordkeeping.
- Mine operators must also ensure that no miner is exposed at any time to sound levels exceeding 115 dBA.

When will MSHA begin enforcing this rule?

MSHA is giving mine operators 12 months to come into compliance with this rule. The agency will begin enforcing these requirements September 13, 2000.

What is the permissible exposure limit (PEL) and the "action level" under the final rule?

The final rule retains a PEL of an 8-hour time-weighted average (TWA_8) of 90 dBA, the same PEL as in the previous MSHA noise standards. An "action level" is established at a TWA_8 of 85 dBA (50% of the PEL).

What are the key actions required of mine operators?

Please note: This document is intended only as a general description of the rule. It does not carry the force of legal opinion. For specific information about compliance with the rule, consult the regulatory text or your local MSHA office. [9/1/99]

If a miner's noise exposure...	Then... (Action Required by Mine Operator)
...is below the "action level"	None.
...equals or exceeds the "action level," but does not exceed the "PEL"	<ul style="list-style-type: none"> •Enroll the miner in a hearing conservation program (HCP). •Provide hearing protectors to the miner. •Ensure that the hearing protectors are worn if the miner has a standard threshold shift or it will be longer than 6 months before receiving a baseline audiogram.
...exceeds the "PEL"	<ul style="list-style-type: none"> •Use all feasible engineering and administrative controls to reduce miner's noise exposure to the PEL. •Enroll the miner in an HCP. •Provide hearing protectors and ensure they are worn, if unable to reduce exposure to the PEL.
...exceeds a TWA ₈ of 105 dBA (the "dual hearing protection level")	•Same as exceeds the "PEL," plus provide the miner with both ear plug and ear muff type hearing protectors and ensure they are worn concurrently.
...exceeds 115 dBA	•No miners, including those with dual hearing protectors, are permitted to be exposed to sound levels exceeding 115 dBA.

Are mine operators required to monitor miners' noise exposure?

Mine operators are required to establish a system of monitoring that evaluates each miner's noise exposure sufficiently to determine continuing compliance with the rule. The rule specifies how a miner's noise dose is to be determined, but otherwise it is performance-oriented and neither the methodology nor the intervals of monitoring are specified.

Do all mine operators have to establish a hearing conservation program?

No. An HCP is only required if a miner's exposure is at or above the "action level."

What is a “hearing conservation program”?

An HCP is a program established by a mine operator which includes provisions for assessing miners’ noise exposure; audiometric (hearing) tests; providing and using hearing protectors; training; and recordkeeping.

What role do miners have when noise exposure assessments are conducted?

When noise exposure monitoring is conducted, mine operators must provide miners and their representatives with prior notice of the date and time of the monitoring, and afford them an opportunity to observe the monitoring.

Does a miner have a right to know the results of his or her noise exposure assessments?

A mine operator must notify a miner in writing within 15 days when his or her exposure is at or above 85 dBA (the action level); or exceeds 90 dBA (the PEL); or exceeds 105 dBA (dual hearing protection level). The notice must include the noise exposure determination and the corrective action being taken by the mine operator.

What are the requirements for audiometric (hearing) tests?

Audiometric testing must be offered to all miners who are enrolled in an HCP. Miners participate voluntarily in the tests. A “**baseline audiometric test**” must be offered within 6 months of enrollment in an HCP. (If a mobile test van is used, the baseline test may be conducted within 12 months.) After establishing the miner’s baseline audiogram, an “**annual audiogram**” must be offered to the miner as long as he or she remains in the HCP.

Mine operators are required to notify miner’s in writing of the results their audiometric tests, and maintain a copy of the test records for the duration of a miner’s employment, plus at least 6 months.

What is required if a miner’s annual audiogram shows hearing loss?

If the hearing loss is serious enough to result in a “**standard threshold shift**”—an average hearing loss of 10 dB or more at 2000, 3000 and 4000 Hz in either ear—the rule requires mine operators to provide follow-up audiometric evaluations and take corrective action, such as reviewing the effectiveness of their engineering and administrative controls, offering the miner different hearing protection, and training.

Are mine operators required to report to MSHA the results of miners' audiometric tests?

A mine operator must notify MSHA when a miner's audiometric test shows a 25 dB loss or more at 2000, 3000, and 4000 Hz in either ear, unless a physician or audiologist has determined that the loss is neither work-related nor aggravated by occupational noise exposure. A hearing loss of this magnitude is considered a "**reportable hearing loss**," and the mine operator is required to submit a Form 7000-1 to MSHA, as required by Part 50 for reporting occupational injuries and illnesses.

When are miners required to wear hearing protectors?

Mine operators must provide and ensure that hearing protectors are worn by all miners whose exposure exceeds the PEL (where feasible controls do not reduce a miner's noise exposure to the PEL.) When a miner's noise exposure is at or above the "action level" but does not exceed the PEL, the mine operator must provide and ensure that hearing protectors are worn, only if the miner has incurred a standard threshold shift, or if more than 6 months will pass before the miner can be given a baseline audiogram.

What types of hearing protectors must be provided?

When hearing protectors are required, the mine operator must allow the miner to choose from at least two muff type and two plug type hearing protectors. The operator must ensure that the hearing protector is in good condition and is fitted and maintained in accordance with the manufacturer's instructions. Hearing protectors must be provided at no cost to the miner.

When are miners required to wear both ear plugs and ear muffs?

If during any work shift, a miner's noise exposure exceeds a TWA₈ of 105 dBA (the "dual hearing protection level"), the mine operator must provide and ensure that the miner concurrently wears both ear plug and an ear muff type hearing protectors.

What type of training for miners is required in the final rule?

Within 30 days of a miner's enrollment in an HCP, the mine operator must provide him or her with specialized training about the effects of noise on hearing; the purpose and value of wearing hearing protectors; the advantages and disadvantages of the hearing protectors being offered; miners' and operators' tasks in maintaining noise controls, among other topics.

Does the rule require a mine operator to keep any written records ?

For each miner enrolled in a hearing conservation program, the mine operator must keep a copy of the miner's exposure notification, audiometric test records and results, and certification of training.

Where can a miner or mine operator find out more about this new health standard?

Mine operators, miners, and other interested parties may obtain information about the rule by contacting their local MSHA office. In the coming months, MSHA will conduct regional seminars across the country describing the rule and offering practical ways to control miners' noise exposure.

The following printed information will be available soon through the Mine Health and Safety Academy to help miners and mine operators comply with the rule. You may obtain a copy by calling 304-256-3257; faxing a request to 304-256-3368; or emailing: mlord@msha.gov. The documents will also be available on MSHA's website at www.msha.gov.

- Noise Control Abstracts (available now)
- Hearing Protector Noise Reduction Rating List (available now)
- Pocket Compliance Guide (will be available in October '99)
- Engineering and Administrative Noise Control Handbook (will be available Jan '00)
- Exposure Monitoring Handbook (will be available January '00)
- Audiometric Testing Manual (will be available January '00)

Assistance and information on the health hazards of noise, noise monitoring, audiometric testing, and noise controls are also available from industrial hygienists, occupational safety and health consultants, audiometric testing services, audiologists, and insurance carriers.