

DEPARTMENT OF MINES, MINERALS AND ENERGY

DIVISION OF MINERAL MINING

COMMUNICATIONS MEMORANDUM 10-00

September 13, 2000

**REFERENCE:** 4 VAC 25-40-770 Employee Exposure to Noise Limits

"Except for surface mines, which are inspected by Federal Mine Safety and Health Administration (MSHA), employee exposure to noise shall not exceed the federal limit adopted for mineral mines. If exposure exceeds the federal limit, the director may require the mine operator to employ feasible engineering and administrative control measure. Operators shall provide hearing protection upon request."

The following definitions are found in the Safety and Health Regulations for Mineral Mining, in Section 4 VAC 25-40-10:

**"Acceptable"** means tested and found to be appropriate for a specific purpose by a nationally recognized agency.

**"Suitable"** means that which fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

The following definitions are from the federal MSHA Rules and are found in 30 CFR 62.101:

**Dual Hearing Protection Level**—A  $TWA_8$  of 105 dBA, or equivalently, a dose of 800% of that permitted by the standard, integrating all sound levels from 90 dBA to at least 140 dBA.

**Exchange Rate**—The amount of increase in sound level, in decibels, which would require halving of the allowable exposure time to maintain the same noise dose. For the purposes of this part, the exchange rate is 5 decibels (5 dB).

**Permissible Exposure Level**—A  $TWA_8$  of 90 dBA or equivalently a dose of 100% of that permitted by the standard, integrating all sound levels from 90 dBA to at least 140 dBA.

**Sound Level**—The sound pressure level in decibels measured using the A-weighting network and a slow response, expressed in the unit dBA.

**Time-Weighted Average-8 hour ( $TWA_8$ )**—The sound level which, if constant over 8 hours, would result in the same noise dose as is measured.

The following portions of the federal MSHA rules (30 CFR 62.130, .140, and .160) as paraphrased here will be applied through the Division of Mineral Mining's (DMM) enforcement activities on mineral mines not inspected by MSHA:

- (a) The mine operator must assure that no miner is exposed during any work shift noise that exceeds the permissible exposure level. If during any work shift a miner's noise exposure exceeds the permissible exposure level, the mine operator must use all feasible engineering and administrative controls to reduce the miner's noise exposure to the permissible exposure level. When a mine operator uses administrative controls to reduce a miner's exposure, the mine operator must post the procedures for such controls in a prominent place convenient to those affected and provide a copy to the affected miners.
- (b) If a miner's noise exposure continues to exceed the permissible exposure level despite the use of all feasible engineering and administrative controls, the mine operator must continue to use the engineering and administrative controls to reduce the miner's noise exposure to as low a level as is feasible.
- (c) The mine operator must assure that no miner is exposed at any time to sound levels exceeding 115 dBA, as determined without adjustment for the use of any hearing protector.
- (d) If during any work shift a miner's noise exposure exceeds the "dual hearing protection level", the mine operator must, in addition to the actions required for noise exposures that exceed the permissible exposure level, provide and ensure the concurrent use of both an ear plug and an ear muff type hearing protector.
- (e) A mine operator must ensure that the hearing protector is in good condition and is fitted and maintained in accordance with the manufacturer's instructions, and provide the hearing protector and necessary replacements at no cost to the miner. The mine operator must ensure all miners wear a hearing protector whenever the miner's noise exposure exceeds the permissible exposure level before the implementation of engineering and administrative controls are put in place. If the miner's noise exposure continues to exceed the permissible exposure level despite the use of all feasible engineering and administrative controls, the operator must continue to ensure that miners wear hearing protection in addition to the engineering and administrative controls employed.

**INQUIRY:** On September 13, 2000, MSHA's new standard on Occupational Noise Exposure (Part 62) went into effect. The following details how DMM will apply Virginia regulation 4 VAC 25-40-770 as it relates to the federal noise limit on non-MSHA inspected mineral mines, and clarifies state requirements for all licensed mineral mines.

**REVIEW:** Virginia regulation 4 VAC 25-40-770 requires all mineral mines to observe the federal noise exposure limit for miners. The Part 62 standard includes several thresholds for occupational noise exposure:

- Permissible Exposure Level—The permissible exposure level is based on 100% dose (90 dBA for 8 hrs.) and can be adjusted for duration of exposure utilizing *Table 62-1* as enclosed.

(example: @100 dBA exposure can be no longer than 2 hours)

- Both state and federal regulations require implementation of feasible engineering and administrative controls for exposures above the Permissible Exposure Level.
- Part 62 requires posting of administrative procedures and providing copies of this procedure to affected miners. (Consider posting on bulletin board and/or on specific machinery or work areas.)
- Part 62 establishes 115 dBA as the maximum exposure level for all miners.
- The DMM Director may approve a variance for the maximum exposure level of 115 dBA after feasible engineering and administrative control measures have been implemented.
- Part 62 requires dual hearing protection (ear plugs and ear muffs) be provided, and used, whenever employees noise exposure exceeds a TWA<sub>8</sub> of 105 dBA.
- DMM Safety and Health Regulation 4 VAC 25-40-770 requires all operators to provide hearing protection to their employees upon request, regardless of their noise exposure level.

#### DIVISION

DIRECTIVE: DMM has reviewed 30 CFR Part 62 and will apply the following requirements under Safety and Health Regulation 4 VAC 25-40-770:

- Non-MSHA inspected mines must comply with the following noise exposure levels, and associated remedies:
  - When employee exposure exceeds the permissible exposure level (PEL), operators must use all feasible engineering and administrative controls to reduce the exposure to acceptable levels. If administrative controls are utilized to reduce exposure, they must be in writing, posted in a prominent place convenient to miners, and a copy given to each affected miner.
  - At no time shall employees be exposed to noise levels exceeding 115 dBA. However, if it is not feasible to reduce the exposure to a level below 115 dBA, an operator may petition the DMM Director for a variance, detailing the actions taken to reduce noise exposures to as low a level as feasible.
  - Miners exposed to levels exceeding the dual hearing level (105 dBA) must be provided with acceptable and suitable earplugs and earmuffs. The two hearing protective devices must be worn simultaneously.

- All Operators, on both MSHA inspected and Non-MSHA inspected operations, must provide suitable and acceptable hearing protection to any miner upon request regardless of the noise exposure level.

Appendix

Table 62-1—Reference Duration

DBA	T (hours)
80.....	32.0
85.....	16.0
86.....	13.9
87.....	12.1
88.....	10.6
89.....	9.2
90.....	8.0
91.....	7.0
92.....	6.1
93.....	5.3
94.....	4.6
95.....	4.0
96.....	3.5
97.....	3.0
98.....	2.6
99.....	2.3
100.....	2.0
101.....	1.7
102.....	1.5
103.....	1.3
104.....	1.1
105.....	1.0
106.....	0.87
107.....	0.76
108.....	0.66
109.....	0.57
110.....	0.50
111.....	0.44
112.....	0.38
113.....	0.33
114.....	0.29
115.....	0.25

At no time shall any excursion exceed 115 dBA. For any value, the reference duration (T) in hours is computed by:  $T = 8/2^{(L-90)/5}$  where L is the measured A-weighted, slow-response sound pressure level.