

NOISE EXPOSURE

for Surface and Underground Mines

Hearing loss due to work-related noise exposure remains a significant health concern for miners in both surface and underground mines. Noise is defined as unwanted sound and it is a by-product in many industries. It is especially true of mining. Many miners are exposed to not only loud but sustained noise levels. Hearing loss may occur rapidly under prolonged exposure to high sound levels, or gradually when levels are lower and exposure is less frequent. An individual may not notice a hearing impairment until after substantial hearing loss occurs. According to the National Institute for Occupational Safety and Health, noise-induced hearing loss is 100 percent preventable but once acquired, hearing loss is permanent and irreversible. In addition to adversely affecting the miner's quality of life, hearing impairment can also jeopardize his/her safety and productivity as well as that of those around him/her.

MSHA estimated that 13% of the mining population would develop a hearing impairment during their working lifetime. Therefore, new standards were established in September of 2000 in an effort to reduce the number of miners that will experience a significant hearing loss by ensuring that preventative measures are taken to eliminate overexposure.

The full shift Permissible Exposure Level (PEL) is still an 8-hour Time Weighted Average (TWA8) of 90 dBA (100% Dose). If the PEL is exceeded, the operator is required to institute all feasible Engineering and/or Administrative Controls to reduce the miners' exposure to within the allowable exposure limit. An Action Level at a (TWA8) of 85 dBA (50% Dose) has also been established. The operator is required to enroll affected miners in a Hearing Conservation Program if the Action Level is exceeded.

Noise survey sampling is necessary to identify any overexposures in order to effectively eliminate or reduce them. Noise samples are to be conducted for an entire, normal shift - even if the normal work shift is in excess of 8 hours. If any unusual conditions arise during the survey, re-sampling will need to be conducted.

Removing hazardous noise from the workplace through engineering controls is the most effective way to prevent noise-induced hearing loss. Hearing protectors such as ear plugs and ear muffs can be worn to enhance the effectiveness of engineering controls, not replace them.

Some effective controls include:

- * barriers or enclosures
- * operator positioning out of the noise
- * good maintenance on equipment
- * mufflers
- * environmental cabs*

*An environmental cab is designed to include acoustical treatment and positive pressure filtered air under all conditions of heating and air-conditioning. (Air-conditioning is recommended to prevent the opening of cab doors by miners that will reduce acoustical effectiveness.)